



PRESS RELEASE

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Scientists Say We Must Adapt to Save Vital Resources

WILMINGTON, Del. — The [Partnership for the Delaware Estuary](#) has released a new report describing how increased temperatures, sea level, salt water and storms will affect the future of key natural resources, such as drinking water, wetlands, and shellfish like mussels and oysters. Many of the conclusions could have far-reaching implications for natural-resource management and policy over the coming years and decades.

The new report, entitled “[Climate Change and the Delaware Estuary](#),” is the culmination of two years of research. To carry it out, the Partnership for the Delaware Estuary engaged more than 25 experts at 12 renowned institutions.

Scientists have concluded that median temperatures will increase anywhere from 4 to 7 degrees Fahrenheit by the year 2100, particularly in summer. They also found that rain and snowfall will increase 7 to 9 percent, especially during winter. This means that residents will experience more days of extreme heat and more days of heavy precipitation per year. Seas, meanwhile, will rise between one-and-a-half and five feet, sending larger volumes of salt water up the Delaware Bay and Delaware River.

“These are the first-ever climate-change predictions specifically for the Delaware Estuary,” notes [Dr. Raymond Najjar](#), a researcher at Penn State University who led the predictions work for the report. “The range of predictions illustrates the difference between low-emission and high-emission scenarios.”

To ensure drinking water in the future, the report’s authors are advocating for a strategy that includes preserving more forests in southern New York and northeastern Pennsylvania, where the Delaware River begins to flow from the Catskill and Pocono mountains.

“Forests in the Delaware River Basin are critical for clean water,” warned Kelly Anderson, source water program manager at the Philadelphia Water Department. “They filter rain water that cleanses and replenishes our streams and aquifers, helping to provide drinking water to over 15 million people in our region.”

The Partnership for the Delaware Estuary and its coauthors also recommend preserving the land bordering tidal wetlands. This will allow important marshes to migrate inland as water levels rise, assuming no man-made structures are in the way. If they are, experts say removing or relocating them should be considered.

“Tidal wetlands are a hallmark of the Delaware Estuary because they function as fish factories, flood barriers, and kidneys that filter and help to maintain water quality,” said [Dr. Danielle Kreeger](#), science director at the Partnership for the Delaware Estuary. “Unfortunately, our models suggest at least 25 percent will be lost this century, even if they successfully move inland. Without action, these losses will lead to more coastal flooding, poorer water quality, increased carbon in our atmosphere, and a less-productive Estuary.”

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To sustain the region's oysters, scientists say we must continue adding new shell to existing reefs. Doing so will allow "larvae," or baby oysters, to attach, grow, and become a sustainable source of seafood. The report's authors also recommend using cultured (farm- and laboratory-raised) mussels to replenish native populations because of the many benefits they provide for people and the environment. And they see a clear need to maintain the habitat conditions that freshwater mussels need, such as streams with forests along the banks.

"Most people don't realize it, but a single mussel or oyster can filter gallons of water per day," said [Dr. John Kraeuter](#), associate director of Rutgers University's Haskin Shellfish Research Laboratory. "When combined into an oyster reef or mussel bed, they filter as much water as a small water-filtration plant. If we wish to have nature provide these services in an intensely used system such as the Delaware, we need to actively manage them or they will continue to decline."

In Dr. Kreeger's eyes, this report is just the beginning. She believes, "We need to expand our research to include other valuable resources. We need to monitor the pace of these changes with far more scrutiny. And we need to show skeptics that adaptation is possible using successful projects, some of which are already underway."

To complete its report, the Partnership for the Delaware Estuary worked with dozens of professionals, including experts from the following institutions: The Academy of Natural Sciences, Delaware Valley Regional Planning Commission, Delaware River Basin Commission, Drexel University, National Oceanic and Atmospheric Administration, Penn State University, Philadelphia Water Department, Rutgers University, University of Delaware, U.S. Environmental Protection Agency, and Wetlands Research Service.

"The changes predicted will be especially difficult and costly for vulnerable people and resources in coastal communities," said [Jennifer Adkins](#), executive director of the Partnership for the Delaware Estuary. "We can still prevent the worst impacts to future generations by reducing carbon emissions," continued Adkins, "but we also need to prepare for changes over the next 20 to 30 years that can't be avoided because of carbon already in the atmosphere."

Research is also pending in five similar estuaries around the country. These include Casco Bay in Maine, Charlotte Harbor and Tampa Bay in Florida, Long Island Sound in both Connecticut and New York, and the Coastal Bend Bays of Texas. Each of these, along with the Delaware Bay in Delaware, New Jersey and Pennsylvania, was selected in 2008 by the EPA's [Climate Ready Estuaries program](#) to be a pilot study. The goal in each case was to begin assessing how vulnerable estuaries are to climate change while also planning how to best maintain those natural resources. And while each of the six [National Estuary Programs](#) focused on different issues, they are all assisting local communities in responding to climate change by showing how to slow down losses and take advantage of opportunities.

To download "Climate Change and the Delaware Estuary," please visit the Partnership for the Delaware Estuary online at DelawareEstuary.org.

The Partnership for the Delaware Estuary, a National Estuary Program based in Wilmington, leads collaborative and creative efforts to protect and enhance the Delaware Estuary, and its tributaries, for current and future generations. We envision everyone working together to make the Delaware Estuary the most inviting, prosperous and healthy natural resource of its kind in the nation.

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