



# 2022 Climate Strategy Report

Department of Environmental Quality

*December 5, 2022*

---

Introduction .....	3
About the Department of Environmental Quality .....	3
Department of Environmental Quality’s Vulnerabilities to Climate Change .....	3
Department of Environmental Quality’s Approach to Fulfilling the Strategies in the Climate Risk Assessment and Resilience Plan .....	4
Reducing Energy Use.....	4
Addressing Environmental Injustices and Inequities .....	4
Public Participation Plan .....	5
Climate Council Updates.....	6
1.0. .... Reduce greenhouse gas emissions .....	6
1.1 Reduce energy consumption per square foot in state-owned buildings by at least 40% from the fiscal year 2002-2003 levels .....	6
1.2 Support the use and expansion of energy-efficient and clean energy resources.....	6
1.3 Increase the number of registered Zero Emission Vehicles to at least 1,250,000 by 2030 so that 50% of in-state sales of new vehicles are zero-emission by 2030 .....	7
1.4 Prioritize Zero Emission Vehicles (ZEVs) in the purchase or lease of new vehicles and for agency business travel.....	8
1.5 Initiate other initiatives to decarbonize the transportation sector .....	8
1.6 Initiate other projects aimed at reducing statewide greenhouse emissions.....	9
2.0. .... Increase statewide resilience to the impacts of climate change .....	11
2.1 Evaluate the impacts of climate change on cabinet agencies’ programs and operations .....	11

2.2 Integrate climate change adaptation practices and resiliency planning into cabinet agencies' policies and operations .....	14
2.3 Assist the communities served by each cabinet agency to implement climate change adaptation practices and resiliency planning .....	18
3.0. ....Address the public health impacts of climate change .....	23
3.1 Increase understanding and awareness of the health impacts of climate change .....	23
3.2 Advance health equity .....	25
3.3 Initiate other projects aimed at addressing the public health impacts of climate change .....	26
4.0. ....Invest in historically underserved communities .....	27
4.1 Increase affordability for low- and moderate-income households .....	27
4.2 Create jobs and economic growth .....	28
4.3 Alert residents and businesses, particularly those in underserved communities, of state and federal grant opportunities .....	29
4.4 Initiate other projects aimed at investing in underserved communities .....	30

# Introduction

## About the Department of Environmental Quality

The North Carolina Department of Environmental Quality (DEQ) is the lead stewardship agency for protecting North Carolina's environmental resources. The mission of DEQ is to provide science-based environmental stewardship for the health and prosperity of all North Carolinians. DEQ, which has offices from the mountains to the coast, administers regulatory programs designed to protect air quality, water quality, and the public's health and also works to advance an all-of-the-above energy strategy that fits North Carolina's needs. DEQ also offers technical assistance to businesses, farmers, local governments, and the public and encourages responsible behavior with respect to the environment through education programs provided at DEQ facilities and the state's school system.

DEQ's vision is to be a leader in using collaborative, inclusive processes to solve pressing environmental issues.

DEQ's [2022-2024 Strategic Plan](#) outlines seven key goals for the Department. Those goals are:

- 1) Promote and ensure environmental stewardship and provide technical, compliance, permit, and financial assistance to meet or exceed regulatory requirements and prevent pollution.
- 2) Create a working environment where employees are empowered to be active participants in developing science-based solutions to better protect public health and the environment.
- 3) Modernize and streamline internal processes to provide enhanced public service, increase transparency, and strengthen partnerships to better serve the people and businesses of North Carolina.
- 4) Ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations, and policies.
- 5) Address climate change impacts through engagement, accounting, mitigation efforts, and resiliency strategies that are equitable and just.
- 6) Protect North Carolinians from exposures to emerging compounds using a transparent and science-based decision-making process.
- 7) Strengthen North Carolina's infrastructure through thoughtful and strategic investments in communities.

## Department of Environmental Quality's Vulnerabilities to Climate Change

Through its many programs and office across the state, DEQ responds to climate hazards facing North Carolina. Climate change specifically contributes to sea level rise, increased summer heat index values, increased likelihood of annual total precipitation, increased likelihood of hurricane intensity, increased likelihood of severe droughts, increased flooding, increase in harmful algae blooms, increased stormwater runoff, wastewater treatment plant failures, and loss of marine and shellfish habitat. Climate change affects nearly all of the Department's programming and impacts how DEQ understands and approaches scientific research and environmental monitoring from the mountains to the coast.

## Department of Environmental Quality's Approach to Fulfilling the Strategies in the Climate Risk Assessment and Resilience Plan

In the Climate Risk Assessment and Resilience Plan (RARP), DEQ was directly identified in recommendations spanning multiple sectors: Coastal Resources and Infrastructure; Ecosystems; Housing, Buildings, and Support Services; Health and Human Services; Water and Land Resources; and Energy. DEQ is partnering with other federal, state, and local agencies, non-governmental organizations, community groups, academia, public and private stakeholders, and regulated entities to further develop and carry out the strategies laid out in the RARP and within this document. Additional methods will be identified and developed over the next few years and will reinforce DEQ's overall strategy for meeting the objectives of EO 80.

DEQ's 2022-2024 Strategic Plan lists addressing climate change as one of the seven key goals of the Department. To implement the strategic plan's goals, DEQ has assembled implementation teams to track progress on the goals, objectives, and key results. One of the objectives of the climate change goal is to "incorporate resiliency planning into Agency programming and decision-making." A cross-divisional team within DEQ was assembled and tasked with implementing this goal and underlying strategies, including the RARP. This new approach to fulfilling strategies in the RARP will help formalize efforts and make progress easier to track internally.

### Reducing Energy Use

DEQ is committed to reducing energy use in DEQ's operations and across state agencies. The Utility Savings Initiative is housed within the Department's State Energy Office (SEO). The program advises the Department, cabinet agencies, and schools on how to reduce energy use.

In 2020, The State Energy Office and North Carolina Agricultural and Technical State University (NC A&T) launched the Clean Energy Youth Apprenticeship Pilot in Guilford, Wake, and Halifax counties to support approximately 30 students in clean energy workforce development.

In August 2022, Governor Cooper and US Commerce Secretary Raimondo announced a \$23 million grant to North Carolina A&T to create a new clean energy workforce training program called STEPs4GROWTH which builds on the success of the pilot clean energy apprenticeship program. The State Energy Office has been heavily involved in the implementation of the apprenticeship pilot and was involved in the application process for the statewide launch of the pilot initiative started under the Clean Energy Plan. The State Energy Office will continue to offer guidance and collaborate with NC A&T on this project and others.

### Addressing Environmental Injustices and Inequities

DEQ is committed to addressing environmental justice and inequities throughout programming and activities. The Agency names addressing environmental justice as one of the seven core goals in the 2022-2024 DEQ Strategic plan. The Deputy Secretary for Public Affairs, Sharon Martin, was named

Environmental Justice Lead for DEQ under Executive Order 246. The Environmental Justice Program at DEQ is within her report.

In 2022, DEQ continued to address environmental justice and improve equity throughout the Department's programs. The Department focused significant attention on the equitable distribution of federal funding. Specifically, the Division of Water Infrastructure recommended adjustments to the priority rating system under the State Water Infrastructure Authority to give additional priority to projects that serve underserved communities. DEQ also conducted specialized outreach to identify underserved communities in need of water infrastructure improvements and encouraged utilities to apply for funding to assist those communities. As a result, the Spring 2022 grant cycle resulted in awards to projects that will connect 850 underserved households to clean local drinking water systems for the first time.

DEQ worked to incorporate an environmental justice lens into DEQ programs. Environmental justice was included in the scope of work for the Statewide Flood Resiliency Blueprint and in the priority rating system for the Water Resources 319 grant. In addition, environmental justice was incorporated into DEQ's formal recommendations for updates to the Enhanced Hazard Mitigation plan. DEQ also submitted a public comment letter in response to the Council on Environmental Quality's request for feedback on the Climate and Economic Justice Screening Tool. DEQ reviewed the methodology used for the tool and provided specific recommendations to enhance the tool's data and to help the tool better identify potentially underserved communities.

DEQ staff continued to conduct enhanced outreach with potentially underserved communities on permits with sensitive topics or significant public interest, including drafting environmental justice reports; translating press releases, flyers, letters, social media posts, and various documents to Spanish and providing interpretation services at public meetings as needed to improve language access. In addition, DEQ created a Diversity and Equity Manager position to explore other ways to improve equity in internal and external actions. The Department continued to consult the Secretary's Environmental Justice and Equity Board on various topics throughout the year.

## Public Participation Plan

DEQ published an updated [Public Participation Plan](#) in June 2022 per the requirements outlined in Executive Order 246 (EO 246). The plan's purpose is to ensure consistency across the Department and its divisions in understanding and implementing the Department's public participation, outreach, and engagement strategies. The updated plan received 30 days of public comment. The plan will be evaluated and updated annually to meet community needs.

DEQ's Language Access plan continues to guide the Department's actions to serve the English learners in the state and make the agency's processes more accessible to all residents.

## Climate Council Updates

The North Carolina Climate Change Interagency Council, chaired by the DEQ secretary, met on June 23, 2022. The June meeting included updates on EO 246 initiatives, including the Clean Transportation Plan, the Deep Decarbonization Pathways Analysis, and the Workforce Diversity Workgroup. The Workgroup is chaired by Dr. Greg Monty, Director of the Center for Energy Research and Technology from NC A&T University and staffed by the Department of Commerce. The Council plans to meet again in 2022 to hear the Workgroup's final report.

For detailed agendas and video recordings of all Climate Change Interagency Council meetings, please visit <https://deq.nc.gov/climate-council>.

## 1.0. Reduce greenhouse gas emissions

### 1.1 Reduce energy consumption per square foot in state-owned buildings by at least 40% from the fiscal year 2002-2003 levels

#### 1.1.1 State Energy Office Utility Savings Initiative Updates

**Underway**

Expected Completion Date: January 2023

The State Energy Office collects annual data for the Utility Savings Initiative that works with stage agencies to reduce energy consumption. 2022 data will be available in December of 2022 and will be added as an addendum to this report.

### 1.2 Support the use and expansion of energy-efficient and clean energy resources

#### 1.2.1 Use federal funding opportunities to deploy clean energy resources in underserved communities.

**Ongoing**

Expected Completion Date: N/A

DEQ and the SEO plan to maximize the impacts of incoming federal funding resources through layering, blending, and bundling initiatives to accelerate the deployment of clean energy resources, grid modernization, and energy-efficient technologies for underserved communities via the Bipartisan Infrastructure Law, the Inflation Reduction Act, and other federal funds coming to North Carolina over the next several years.

#### 1.2.2 DEQ Offshore Wind Coordinator and Interagency Wind Working Group

**Ongoing**

Expected Completion Date: N/A

DEQ's offshore wind coordinator has been convening an interagency offshore wind working group (OWWG) with members comprised of staff from the Division of Coastal Management

(DCM), Wildlife Resources Commission (WRC), and the Division of Marine Fisheries (DMF). The OWWG aims to coordinate and share information pertaining to environmental resource-related topics, identify necessary data and data gaps, and identify additional research needed to review proposed wind energy projects. The group is also determining strategies to engage with regional/national efforts and identify relevant data held by other state and federal agencies, researchers, and other stakeholders.

### 1.2.3 Federal Consistency Review

Ongoing

Expected Completion Date: N/A

The federal Coastal Zone Management Act (CZMA; 16 USC 1451 et seq.) provides states with a strong voice in federal agency actions through what are known as “federal consistency” provisions. While federal agencies are exempt from permitting requirements, the CZMA requires that federal actions that could have reasonably foreseeable coastal effects within and outside the coastal zone must be consistent with the enforceable policies of a state’s federally approved coastal management program. Under the CZMA, federal actions that trigger the federal consistency review process fall into four categories: federal agency activities, federal licenses or permits, outer continental shelf (OCS) plans, and federal assistance to state and local governments (15 CFR 930).

Since the Bureau of Ocean Energy Management (BOEM) authorizes offshore wind projects, a federal consistency review is applied. DEQ’s Division of Coastal Management reviews federal consistency determinations for offshore wind. It is the objective of DCM to manage the State’s coastal resources to ensure that proposed federal activities would be compatible with safeguarding and perpetuating the biological, social, economic, and aesthetic values of the State’s coastal waters. DCM has and will continue to review the submitted information pursuant to the management objectives and enforceable policies of Subchapters 7H and 7M of Chapter 7 in Title 15A of the North Carolina Administrative Code and will either find the proposals consistent, consistent with conditions or inconsistent with North Carolina’s approved coastal management program.

## 1.3 Increase the number of registered Zero Emission Vehicles to at least 1,250,000 by 2030 so that 50% of in-state sales of new vehicles are zero-emission by 2030

### 1.3.1 Award Volkswagen Settlement Phase 2 funds

Underway

Expected Completion Date: end of 2022

The Division of Air Quality (DAQ) is awarding \$68 million in Phase 2 of the N.C. Volkswagen Settlement in 2022 to projects that would fund new electric and clean diesel vehicles and install electric vehicle charging infrastructure across the state. As of late August, the Division of Air Quality has evaluated more than 460 applications requesting \$141 million for hundreds of projects that would reduce nitrogen oxide emissions. Specifically, the Division has funded \$5 million worth of DC fast-charging infrastructure projects that will be built along interstate and priority corridors and replace 61 transit buses across the state for zero emission or cleaner diesel buses. The Division will continue to make awards until the funds are exhausted and

monitor how the funds are spent once awarded. DEQ conducted special engagement by hosting information sessions in identified underserved counties, leading to more applications from those counties than during the first round.

## 1.4 Prioritize Zero Emission Vehicles (ZEVs) in the purchase or lease of new vehicles and for agency business travel

### 1.4.1 Award grants for state fleet charging and ZEV infrastructure **Completed**

Expected Completion Date: October 2022

In Phase 2 of the Volkswagen Settlement, DEQ created a Level 2 State Agency charging category so that agencies could apply for and be awarded grants supporting state fleets. \$1 million was awarded to fund 103 new Level 2 chargers at 25 sites including state government complexes, state parks, museums, and community colleges and universities. 22 of the charging ports will be in historically underserved counties. There were also funds available for state agencies to apply for ZEV heavy-duty vehicles in other Phase 2 categories. State agencies like the Department of Public Safety and the Department of Natural and Cultural Resources applied for and were awarded funding for cleaner heavy-duty fleet vehicles that support the state's transition to zero emission vehicles.

### 1.4.2 Launch EV / Hybrid Pool Fleet **Underway**

Expected Completion Date: Spring 2024

In August 2022, DEQ launched a new EV/ Hybrid pool fleet system that allows any DEQ employee to book a hybrid or EV state vehicle using an online booking feature. Currently, the pool has two hybrid sedans and one ZEV cargo van, to include ten total vehicles in the pool for use. The Department has built a charging network across DEQ buildings to support the fleet and has developed an easy-to-use booking feature for employees. More vehicles will join the fleet in the next 12 months, and DEQ will have more data on how the program is being used.

### 1.4.3 Install electric vehicle chargers at the NC Division of Marine Fisheries Headquarters Office in Morehead City **Completed**

Expected Completion Date: September 2022

A total of eight electric vehicle chargers, each with two charging cables, were installed at the NC Division of Marine Fisheries Headquarters Office in Morehead City in 2022. This helps increase the DEQ fleet's range across the state.

## 1.5 Initiate other actions to decarbonize the transportation sector

### 1.5.1 Participate in Clean Transportation Plan Development **Underway**

Expected Completion Date: Spring 2023



DEQ staff are participating in developing the statewide Clean Transportation Plan as directed by EO 246. The Department is providing staff support for the medium-heavy duty subcommittee. The subcommittee aims to be a continuation of the work started with the Medium-Heavy Duty Memorandum of Understanding which was an effort led by the Governor's Office and DEQ.

## 1.6 Initiate other projects aimed at reducing statewide greenhouse emissions

### 1.6.1 Published 2022 Greenhouse Gas Inventory **Completed**

In January 2022, the Division of Air Quality completed and published the 2022 North Carolina Greenhouse Gas Inventory as required by EO 246. The inventory contains detailed estimates of greenhouse gases (GHG) in key source categories from 1990 to 2018 and projections of North Carolina's greenhouse gas emissions through 2030. The updated inventory revealed that the transportation sector had overtaken the electricity sector as the largest emitter of GHG emissions in the State. The inventory also modeled for the future and projected that by 2030, net GHG emissions are forecast to decrease by 39% relative to 2005 baseline emissions, including the electricity sector reductions mandated by House Bill 951. This inventory can be used by regulators and communities to better understand North Carolina's emission sources and where future reductions should be prioritized.

Work is now being done to prepare for the 2024 Inventory, including better determining carbon sequestration rates for submerged aquatic vegetation and other natural and working lands ecosystems.

### 1.6.2 20<sup>th</sup> anniversary of Environmental Stewardship Initiative **Ongoing**

Expected Completion Date: N/A

In 2022, DEQ celebrated 20 years of supporting and recognizing NC organizations that make voluntary commitments to reduce their impact on the environment through its Environmental Stewardship Initiative. Members' efforts to improve their environmental performance since 2002 have saved over \$105M and reduced energy use by more than 8.6 trillion Btus, water use by more than 15 billion gallons, and landfilled waste by more than 4.3 million tons. To mark the milestone, ESI is striving to increase membership across the state.

### 1.6.3 Provide technical support in developing and implementing the Deep Decarbonization Pathways Analysis. **Underway**

Expected Completion Date: March 2023

DEQ's State Energy Office and Division of Air Quality are providing technical assistance in developing the State's Deep Decarbonization Pathways Analysis per Executive Order 246. Staff have served on a technical advisory team since May 2022 and will continue to assist the Governor's Office and the vendor through the completion of the analysis.

1.6.4 Provide technical assistance to NC organizations seeking to reduce energy consumption and their carbon footprints

Ongoing

Expected Completion Date: N/A

DEQ's Waste Reduction Partner program is using its unique team of retired engineers to provide no-cost, on-site energy efficiency assessments and clean energy assistance to businesses and institutions across NC. The WRP program expects to deliver 37 energy assessments in FY2023. For FY2022, WRP provided 45 energy assessments, saving organizations a projected \$4.4 million in utility costs with a predicted carbon emission reduction of 21,900 Metric Tons of CO<sub>2e</sub>.

## 2.0. Increase statewide resilience to the impacts of climate change

### 2.1 Evaluate the impacts of climate change on cabinet agency programs and operations

#### 2.1.1 Incorporate energy resiliency into government buildings and power grid infrastructure **Underway**

Expected Completion Date: Ongoing

The SEO continued to foster connections between securing energy resilience in government buildings and power grid infrastructure with more extensive discussions on hazard mitigation policy. In 2022, SEO coordinated with NCEM to identify critical infrastructure or essential functions that may be included in North Carolina's Enhanced Hazard Mitigation Plan (HMP) update due to the FEMA by October 2022. Without proactively including key infrastructure or essential functions in the HMP, funding proposals from governmental entities may not be eligible for FEMA programs such as the Building Resilient Infrastructure and Communities (BRIC) grant program. Collectively, these efforts will strengthen future funding proposals to enhance the energy efficiency and resiliency of North Carolina's government and power grid infrastructure.

#### 2.1.2 Perform Submerged Aquatic Vegetation mapping and monitoring **Underway**

Expected Completion Date: May 2023

In August 2022, the Albemarle Pamlico National Estuary Program (APNEP) and its partners published a map of the extent and density of submerged aquatic vegetation (SAV) in North Carolina's sounds during 2020. Mapping SAV in the Albemarle-Pamlico estuary was done through a combination of aerial flights and ground truthing with boat-based surveys. This survey was accomplished through strong collaboration by APNEP's SAV Team members. This map updates the amount and location of SAV in the high-salinity areas of the Albemarle-Pamlico estuary. Analysis of previous mapping efforts in 2006-2008 and 2012-2014 have indicated that SAV resources are declining. The 2020 mapping data will help to confirm if and where SAV is continuing to decline over time, guiding the development of protection and restoration strategies for this valuable coastal habitat.

To set SAV protection and restoration goals for the Albemarle-Pamlico Estuarine System and connect to needed nutrient and sediment load reductions, quantitative linkages between chlorophyll-*a* concentrations and SAV light requirements are needed. APNEP has contracted with the UNC Institute for Marine Sciences to develop recommendations for scientifically defensible chlorophyll-*a* standards that protect SAV in high- and low-salinity zones. A draft final report is now under review by staff.

**2.1.3 Evaluate air monitoring site locations located in low drainage and flood-prone areas** **Underway**

Expected Completion Date: Ongoing

The Division of Air Quality has been evaluating air monitoring sites in low-drainage and flood-prone areas. Whenever possible, the division will seek to relocate monitoring sites to higher elevations. If this is not an option, the division will implement a strategy for raising the shelters foundation such that high water will not inundate the shelter and damage expensive electronic scientific equipment.

**2.1.4 Conduct hydrologic and hydraulic capacity study of dams in the Neuse and Lumber River Basins** **Completed**

Expected Completion Date: July 2022

The Division of Energy, Minerals, and Land Resources (DEMLR) conducted hydrologic and hydraulic (H&H) capacity study of large and very large dams identified in the Neuse, Lumber, and Cape Fear River Basins. The DEMLR Dam Safety Program developed H&H models to determine the differing amounts of rain that would cause over 525 large and very large dams to overtop. Dam overtopping is a sign of inadequate spillway capacity but more importantly is a characteristic of dams in stress, which could lead to failure of the dam and possibly cause loss of life, flooding, public health, and property impacts. The information gained in this study will allow state and local governments to prioritize emergency response to dam threats (overtopping or failure) given limited personnel resources, as well as monitor the need for dam modifications in the future. Published reports covering the Neuse, Lumber, and Cape Fear River basin dams of the study population from Disaster Recovery Legislation in 2016 and 2019 have been provided to DEQ, the Department of Public Safety/Emergency Management (DPS/NCEM) and to Local Emergency Management and Planning. DEMLR is now conducting an identical study for the Cape Fear, Yadkin, Catawba, and French Broad River basins that will be completed by Summer 2023.

**2.1.5 Complete dam breach modeling** **Underway**

Expected Completion Date: Summer 2023

DEMLR is continuing to perform and develop dam breach models of Intermediate and High Hazard dams to confirm hazard classifications and determine the impacts if failure were to occur. Breach model development is in partnership with NCEM's efforts in developing dam breach models throughout the state. Breach models are used by DEQ, DPS, the Department of Transportation, local emergency management staff, and dam owners to identify the property, lives, and infrastructure subject to the impacts of a breach. This information assists in the development of access and evacuation routes. This is an ongoing effort by Dam Safety through DSS-WISE tools provided by FEMA/USACE to further develop models for comparison and review during Emergency Action Plan Reviews/Approvals.

**2.1.6 Implement strategies for enhanced waste management storm preparedness** **Ongoing**

Expected Completion Date: N/A

The Division of Waste Management and EPA staff, in association with NCEM, successfully implemented multiple pre- and post-storm strategies to identify sites in flood-prone areas that may be impacted. Through two hurricane seasons, agencies have made that information available to field response teams through tablets and a GIS-based Incident Management System compatible with the system already used by EPA nationwide. This allows DWM to maximize efficiency and shorten response times by identifying and prioritizing those sites and permitted facilities that are more likely to require preparation, communication, or response and by identifying sites that will not need to be visited by field response teams after a flood event.

**2.1.7 Execute Scuppernon River Study** **Ongoing**

Expected Completion Date: N/A

Funding has been awarded from the Water Resources Development Grant Program to conduct an engineering feasibility study to characterize the hydrology of the northern Albemarle-Pamlico Peninsula, update water management plans on conservation lands, and address recurrent regional flooding. Match has been secured, and APNEP is currently working on transferring the contract to the Albemarle Commission. APNEP has served as a neutral, science-based convenor for the project since 2018, assisting with grant applications, coordinating amongst technical and community partners, and securing match funds. The partners will work with the Natural and Working Lands Pocosins Team on study development and implementation.

**2.2.1 Add to the NC Flood Inundation Mapping and Alert Network** **Completed**

Expected Completion Date: 2022

The Albemarle Pamlico National Estuary Partnership (APNEP) supported the placement of an additional N.C. Flood Inundation Mapping and Alert Network (FIMAN) remote monitoring station in Newport, Carteret County through N.C. Division of Emergency Management. Data from gauges located within the Albemarle-Pamlico watershed increases real-time knowledge of flood conditions in the Albemarle-Pamlico region and contributes to the understanding that can be used to address future water management actions in the watershed.

**2.3.1 Recalculate flow statistic methods** **Underway**

Expected Completion Date: 2025

The Division of Water Resources is coordinating with United States Geological Survey and other stakeholders to recalculate 7Q10 and other flow statistics statewide. 7Q10 is used to calculate waste load allocations from NPDES permitted facilities, determine water supply availability, and assess ecosystem habitat. Funding was identified to begin a statewide effort in

2022. The project will perform an assessment of changes to 7Q10 values to understand potential future dry weather flows.

## 2.2 Integrate climate change adaptation practices and resiliency planning into cabinet agencies' policies and operations

### 2.3.2 Secure Funding for Natural Infrastructure Flood Mitigation Program **Completed**

Expected Completion Date: August 2022

In partnership with NCORR and the Environment Recovery Support Function led by DEQ, the Division of Mitigation Services (DMS) secured \$340,800 in federal Community Development Block Grants (CDBG) to develop a new Natural Infrastructure Flood Mitigation Program. This program was created by the General Assembly in 2020 but remained unfunded for two years. The new program will allow the state to focus on nature-based solutions and natural infrastructure as a vital flood mitigation tool. The General Assembly allocated the Division \$3.5 million in 2021 to implement one or more flood resiliency projects in the Goldsboro Stoney Creek watershed, where there have been long-standing flooding issues. The Division has met with key stakeholders in the community and expects to have the vendor contract in place by the end of October. This project will serve as a model to help launch the Natural Infrastructure Flood Mitigation Program.

### 2.3.3 Develop Protocol for Thin Layer Placement of Sediment on Tidal Wetlands **Completed**

Expected Completion Date: September 2023

In January 2022, the Division of Coastal Management staff developed a draft site assessment and monitoring protocol for evaluating proposed "thin layer placement" (TLP) projects, where sediment is beneficially placed on coastal wetlands to restore habitat qualities and adapt to rising sea levels. From February through July 2022, the division assembled state and federal resource agency representatives in North Carolina to review the draft guidance to ensure that all regulatory agencies agreed on the site assessment methods needed to determine where projects might be permissible and what types of mitigation and monitoring protocols might be required. The division circulated the final draft TLP guidance to an external peer review panel composed of representatives from the National Oceanic and Atmospheric Administration, the U.S. Army Corps of Engineers, coastal consultants and engineers, and various nonprofit environmental organizations. In August 2022, DCM hosted two final meetings of the NC interagency review team to address peer reviewers' comments. The TLP guidance was finalized in September 2022. It will be circulated to coastal communities and consultants in NC, in addition to other states and federal agencies interested in advancing this approach in other coastal areas.

### 2.3.4 Increase resiliency of dams during storms **Completed**

Expected Completion Date: Summer 2022

DEMLR developed a Facility Assessment Management Application (FAMA) WebApp. This WebApp assists in risk assessment and pre-storm event preparation. The application utilizes a map layer with every dam in North Carolina Inventory (~6,000 dams) along with the attribute data for each point incorporating the most recent inspection, hazard classification, and contact information. Based on the predicted storm path and rainfall amount, the application can filter at-risk dams by various attributes and ensure that appropriate action is taken pre-landfall.

### 2.3.5 Study risk-informed prioritization of NC High Hazard Dams **Underway**

Expected Completion Date: December 2023

The DEMLR Dam Safety Program is developing a risk-informed Assessment Prioritization of the High Hazard Dams in North Carolina. This initial study assessment of 57 dams developed a screening level risk assessment protocol for all High Hazard Dams in North Carolina. These assessments will allow DEMLR, other state agencies, including EM and NCDOT, local governments, and dam owners to set priorities for these dams and the areas in breach inundation zones in developing repair, maintenance, and resilience plans and identifying resource needs for risk, resilience, and emergency response. This study continues through 2022 and beyond to qualify North Carolina and more of its dam owners for future FEMA grants such as the previously described HHPD grant. It is also anticipated that the study process developed will apply to all dam hazard classifications and be used for every dam that is inspected to improve consistency and provide updated dam condition assessments annually.

### 2.3.6 Complete artificial reef projects **Underway**

Expected Completion Date: Most complete, some underway

In 2022, the Division of Marine Fisheries completed the placement of 68 barge loads of material from the old Oregon Inlet bridge to eight different artificial reef sites as part of a multi-year effort with the N.C. Department of Transportation. The Artificial Reef Program partnered with two external organizations for memorial reef projects: Veteran Memorial Reefs and Eternal Reefs. Each of these organizations place cremated ashes of loved ones in concrete reef structures or reef balls which are later deployed at a reef site. These memorial markers and reef balls were placed at reefs off Wrightsville Beach and Topsail, respectively. Family members were able to attend the deployments of the memorials.

### 2.3.7 Continue coastal habitat restoration at Cedar Island **Ongoing**

Expected Completion Date: Fall 2023

DEQ Continued oyster restorations at Cedar Island Oyster Sanctuary (6.3 acres built with approximately 18,500 tons of material) to help offset habitat loss and water quality degradation expected from climate change, increase ecosystem and community resilience, and improve water quality. DMF continues maintaining and restoring oyster reefs that increase coastal resiliency by helping protect critical wetlands and other coastal habitats while providing other beneficial ecosystem services.

In the next 12 months, DMF will procure materials for deployment in fall 2023.

### 2.3.8 Complete 2021 CHPP Amendment

**Complete**

Expected Completion Date: January 2022

DMF staff, in conjunction with APNEP and other DEQ divisions, completed the 2021 CHPP Amendment which the three regulatory commissions approved at their business meetings in November 2021, approved by DEQ in January 2022, and included resilience strategies with priority issues including 1) Environmental Rule Compliance to Protect Habitat; 2) Habitat Monitoring to Assess Status and Regulatory Effectiveness; 3) SAV Protection and Restoration, with Focus on Water Quality Improvements; 4) Wetland Protection and Enhancement, with Focus on Nature-Based Methods; and 5) Reducing Inflow and Infiltration associated with Wastewater Infrastructure to Improve Coastal Water Quality. A chapter on Climate Change and Coastal Resilience is also included in the CHPP Amendment. This chapter references the RARP, and the Natural Working Lands (NWL) Action Plan, including the reports' recommendations.

### 2.3.9 Enhance Harmful Algae Bloom (HAB) rapid response protocols

**Ongoing**

Expected Completion Date: N/A

DMF implemented sentinel site monitoring, collection, and processing for harmful algae species in shellfish growing waters throughout the coast. This continued to enhance DMF monitoring capacity through equipment acquisition, staff training, and more formalized collaboration with other state and federal entities with responsibilities in this field. DMF also began the development of the standard protocol and contingency plans for HAB response to integrate not only Shellfish Sanitation and Recreational Water Quality staff but also the DMF drone fleet to allow for more rapid response to reported issues.

Staff plan to continue internal enhancements for algal monitoring, such as training regional staff and deploying microscopes in regional offices for improved assessment capability. The team also plans to work with GIS staff on developing a method to incorporate drones and chlorophyll sensors for use in assessments.

### 2.3.10 Mitigate erosion through beach planning

**Completed**

Expected Completion Date: June 2022

To mitigate erosion and sedimentation impacts, DCM worked with the Coastal Resources Commission and adopted rules that encourage and incentivize long-term beach planning, development siting, and beneficial use of dredged material. DCM released a Request for Proposal under the planning grant management program, which provides funding for communities to develop beach management plans (15A NCAC 07J.1200).

DCM is also currently engaging with the Army Corps of Engineers, NOAA, the Bureau of Ocean Energy Management, and other agencies to identify sources of sand for beach nourishment and strategies for managing the sand for maximum benefit.

### 2.3.11 Pursue acquisition of Northern Laboratory

**Underway**

Expected Completion Date: December 2023



DMF continues to pursue the acquisition of a facility to house the northern regional Shellfish Sanitation and Recreational Water Quality Laboratory. The State Properties Office has been approved by the Council of State to sign a revised lease with a projected opening in late Summer 2023. This acquisition of lab space will help to increase DMF's ability to respond to water quality issues that may impact the suitability of shellfish for harvest, particularly following storm impacts.

After the construction of the laboratory in Manteo, staff will prepare prerequisite sampling and laboratory side-by-side studies in preparation for certification of the lab by the FDA. Timing will depend on the landlord's contractors and FDA's scheduling availability.

### 2.3.12 Establish a Viable Utility Reserve Program

**Completed**

Expected Completion Date: Spring 2022

The Division of Water Infrastructure continued the development of the Viable Utility Reserve (VUR) program. The program provides funding to build a path toward viable water infrastructure utility systems using long-term solutions for distressed water and wastewater units at risk of failure in North Carolina. In 2022, the program completed the development and implementation of the first round of mandatory training for local governments designated as distressed under the requirements of G.S. 159G. The program and the State Water Infrastructure Authority (SWIA) also developed prioritization for funding planning grants and construction grants from the VUR. The Division completed the first rounds of competitive funding applications, and SWIA has awarded competitive VUR planning and construction grants for the first time. The VUR program also completed the first re-assessment of local governments and SWIA, and the Local Government Commission completed the second round of designations under GS 159G requirements.

### 2.3.13 Coordinate water resources rules revisions that support EO 80

**Underway**

Expected Completion Date: September 2024

The Division of Water Resources (DWR) coordinates with the Environmental Management Commission to identify areas where existing rules need to be modified to support EO 80. DWR Non-Point Source (NPS) Planning is evaluating the potential for revision of post-construction stormwater control standards within nutrient strategy rulemaking for High Rock, Jordan, and Falls Lakes in the coming years. In addition, NPS Planning is working with communities to evaluate alternative regulatory approaches to addressing stormwater runoff from existing developed lands that allow for greater use of multi-benefit improvements that help with flooding, carbon storage, and other community needs in addition to water quality nutrient benefits.

### 2.4.1 Include climate change impacts in basin watershed action plans

**Ongoing**

Expected Completion Date: N/A

DWR is working to incorporate climate resiliency as the standard goal in all Watershed Action Plans, including Total Maximum Daily Loads implementation. Strategies developed in the pilot plan include increasing natural infrastructure; maximizing and optimizing plantings in restoration areas for carbon storage; preserving and enhancing existing undeveloped and open

space; and working with a multi-agency group to evaluate the strategies and develop measurable objectives for each strategy.

#### 2.4.2 Rachel Carson NERR Habitat Resilience Plan

Underway

Expected Completion Date: June 2023

The Coastal Reserve is developing a habitat resilience plan for its Rachel Carson National Estuarine Research Reserve (NERR) that identifies and prioritizes areas for resilience projects based on known vulnerabilities and hazards. The reserve will also complete engineering and design for two shovel-ready projects. The plan is funded by the National Fish & Wildlife Foundation with a match from the NC General Assembly.

Since March 2022, a contract has been established with N.C. State's Biological and Agricultural Engineering Department and a second contract with a private engineer are in process. These contracts will result in the engineering of one project that is close to shovel ready. Given the constraints associated with the projects going through the State Construction Office, two shovel ready projects were reduced to one shovel ready project.

During the next reporting period, the Reserve will work with the contracted engineers to develop one habitat resilience project as close to shovel ready as possible.

### 2.3 Assist the communities served by each cabinet agency to implement climate change adaptation practices and resiliency planning

#### 2.5.1 Develop Statewide Flood Resiliency Blueprint

Underway

Expected Completion Date: Fall 2023 (draft published)

The FY 2021-23 Budget appropriated \$20 million to the Division of Mitigation Services to manage the development of a statewide flood resiliency blueprint that will help local communities and the state make better evidence-based decisions on flood management and resiliency. From January 2022 through the spring, the Division worked closely with several partners including the North Carolina Office of Recovery and Resiliency (NCORR), Emergency Management, the Non-Government Organizations (e.g., Environmental Defense Fund, The American Flood Coalition), academic partners, and others to develop a contracting scope of work that will actualize the vision for the Blueprint. The Division will soon issue a Request for Proposals for the final vendor candidates who have been evaluated and pre-qualified to take on this major, years-long project. The draft Blueprint is due December 28, 2023.

#### 2.5.2 Create resilience tools and resources for local governments

Underway

Expected Completion Date: March 2023

The Albemarle Pamlico National Estuary Program (APNEP) is working with Wetlands Watch to create template resilience tools and resources for local governments that promote the use of natural and nature-based infrastructure to build community and ecosystem resilience. Wetlands Watch is conducting a needs assessment and outreach with NC coastal partners. The

Virginia portion of this project was completed in Fall 2021 and the North Carolina portion is expected to be completed in March of 2023.

### 2.5.3 Implement Phase 2 of Tribal Coastal Resilience Connection Project Underway

Expected Completion Date: March 2023

APNEP is contracting directly with the Tribal Resilience Director to implement Phase II, which will narrow the scope and focus on engagement with Tribal communities in the shared waterways of the Albemarle-Pamlico region between Virginia and North Carolina. The project will build upon a Climate Risk Analysis conducted by the Climate Service for the NCCIA in Phase I with the Nottoway Indian Tribe of Virginia and Meherrin Indian Nation. Climate adaptation frameworks and geospatial mapping platforms to collect water stories and present climate threats and vulnerabilities identified by Tribal communities in this region will be utilized to create a resilience toolbox. Phase II will also focus on developing best practices for agency and university staff on considerations, perspectives, and traditional ecological knowledge unique to native communities.

### 2.5.4 Implement Phase 3 & 4 of Resilient Coastal Communities Program Underway

Expected Completion Date: February 2023

In March of 2022, DCM began Phase 3 of the Resilient Coastal Communities Program, Engineering and Design, to continue improving local government preparation for intensifying climate-driven hazards. Eligible communities will be those that have successfully completed Phases 1 and 2 through the RCCP, or their equivalent. Funding is available for the 26 communities enrolled in Phases 1 and 2, from the NCGA and the NFWF.

DCM awarded 20 projects by July 13, 2022, for a total grant award amount of \$1.14 million. Most of those projects have a natural or nature-based component.

Phase 3 is anticipated to last six months with contracts ending in May 2023. Phase 4 applications are anticipated to be released at the end of this year and into early next year (once communities are close to wrapping up Phase 3). In the next 12 months, DCM will be revising the Planning Handbook which will be re-released by the end of this year and will be running Phase 4 of the RCCP.

### 2.5.5 Implement Phase 1 & 2 of Resilient Coastal Communities Round 2 Underway

Expected Completion Date: August 2023

The Division is planning a second round of the Resilient Coastal Communities Program beginning this fall. DCM will use information learned from the first round of the RCCP program to make changes to the program. The Planning Handbook is currently being updated and the Request for Proposals will be released by the end of 2022, with selections being made quickly after that. Work on Phases 1 and 2 is expected to begin early next year.

DCM is promoting environmental justice and equity benefits through the RCCP by asking communities and contractors to identify and assess social vulnerability in the risk and vulnerability assessment step (stated in the [planning handbook](#)) and to consider those

identified areas during the project identification and prioritization phase. During the first round, one of the criteria for community applications was their Tier status, therefore giving priority to Tier 1/lower-capacity communities.

### 2.5.6 Deliver Coastal Training Program

Ongoing

Expected Completion Date: Ongoing

DCM's Coastal Training Program continues to deliver resilience-related trainings to coastal decision-makers on nature-based strategies to reduce coastal hazards, barrier island development, and low-impact development basics for water quality protection. The Reserve is developing curricular activities for K-12 teachers and non-formal educators to support resilience and climate change education.

The Coastal Training Program has hosted a series of trainings for real estate professionals to share the value of living shorelines and barrier islands as well as one to foster behavior changes in specific audiences relating to coastal and social problems. Within the next 12 months, the two webinars that targeted real estate professionals will be run again. The K-12 resilience and climate change-focused curriculum is in its final review stages and will be shared with teachers in late Fall 2022.

### 2.5.7 Enhance resilience and energy security in North Carolina's coastal communities

Underway

Expected Completion Date: TBD

The SEO assisted coastal community partners with developing a project that builds on North Carolina's resilience strategy and supports NCCORR's core objectives by addressing: (1) community capability and capacity building activities; and (2) the selection of mitigation projects. Under community capacity building, targeted communities, businesses, and government operations are planned to be engaged from a top-down and bottom-up perspective to reduce or eliminate risk and damage from future natural hazards, increase resiliency of tangible assets, align with modern building code requirements, and promote a culture of preparedness. Based on these assessments, solutions that result in the analysis, design, and deployment of energy infrastructure (i.e., electricity system hardening, microgrid applications at critical facilities, and providing backup generators), energy-efficiency measures, and other distributed energy solutions will be implemented. Phase 1 will consist of stakeholder-led planning activity and implementation of at least one resiliency solution through detailed design, request for proposal issuance, construction, and deployment stage. Phase 2 of the project will focus on the development and implementation of additional resiliency projects as funds become available.

### 2.5.8 Educate community water systems on risk assessment and emergency response requirements

Ongoing

Expected Completion Date: N/A

Section 2013 of America's Water Infrastructure Act of 2018 requires community water systems serving greater than 3,300 people to develop or update risk assessments and emergency response plans. This includes planning for and preparing to respond to risks related to climate change. The Public Water Supply Section is actively working with water systems to make them

aware of the requirements and putting them in touch with EPA to learn more about the required plans

**2.5.9 Launch Technical Assistance Grant for Stormwater Infrastructure** **Completed**

Expected Completion Date: August 2022

The Division of Water Infrastructure began accepting applications for funding under the new Local Assistance for Stormwater Infrastructure Investments in the summer of 2022, less than eight months after the Session Law created the program. DEQ accepted applications for funding in the fall. The creation of this new program involved significant stakeholder participation and public comment.

**2.5.10 Analyze deployment opportunities for distributed energy resources for communities disproportionately impacted by prolonged power outages after natural disasters** **Completed**

Expected Completion Date: September 2022

As part of the Coronavirus Aid, Relief, and Economic Security (CARES) Act, the SEO partnered with New Hanover County, UNC Asheville, and FernLeaf Interactive to complete a pilot project that assessed community vulnerabilities and potential impacts from extreme flooding, heat events, and storm-related disruptions to energy assets. The project identified disproportionate impacts to households with low-to-moderate incomes, communities of color, and other overburdened or under-resourced groups in NC's coastal communities. The results of this study will be used to leverage future funding for energy resilience solutions and serves as a replicable resilience framework for other local communities.

**2.5.11 Promoting a circular economy** **Ongoing**

Expected Completion Date: N/A

DEQ's Recycling Program, in partnership with the Glass Recycling Foundation, awarded five glass recycling grants totaling \$235,000 to support the long-term accessibility and stability of glass recycling in North Carolina. Three grantees proposed to expand or establish glass collection systems, while two recipients planned to purchase glass cleaning equipment to improve the quality and value of the recovered recycled glass. The projects awarded represent a total investment of more than \$600,000 and impact nearly 2.6 million residents in North Carolina.

DEQ is launching a statewide food waste reduction effort, including a new Use the Food NC website, educational resources, and grant funding for recovery infrastructure expansion. The Division of Environmental Assistance and Customer Service is coordinating a stakeholder meeting later in 2022 to facilitate networking, partnerships, and expansion of food waste recovery efforts in NC.

#### 2.5.12 Modernize Recycling Markets website

**Completed**

Expected Completion Date: Summer 2022

The North Carolina Recycling Markets Directory was modernized this year to increase consumer usability. The site connects local governments, organizations, and businesses looking to recycle materials they generate with nearby recyclers to keep materials out of the landfill and advance the state's circular economy. The directory includes 657 recycling companies and users can search from a list of 190 specific materials to find companies able to recycle them.

#### 2.5.13 Administer Rehabilitation of High Hazard Potential Dam Grant

**Not Started**

Expected Completion Date: December 2025

FEMA started a new grant program in 2019 for the rehabilitation of High Hazard dams. This grant provided \$395,000 to local government dam owners and DEQ in 2021 and an additional \$600,000+ is expected in 2022 for local government dam owners and DEQ to develop plans to determine dam risk and repair needs to address deficiencies to ensure improved infrastructure, reduce risk, and increase resilience within their communities. The DEMLR Dam Safety Program is the administrator for this FEMA grant program. This grant strategy targets owners of publicly owned dams to rehabilitate, repair or modify their deficient dams thus removing the increased risk and threat to downstream properties. This is especially necessary with changing climate impacts. It is DEMLR's duty to identify qualifying "at-risk" dams and to work with the owners through the repair approval process to improve safety and future resilience of these qualifying dams. DEMLR will also be using a portion of this grant to further fund SQRA - Semi-Quantitative Risk Analysis and Digital WebApp Inspection processes to advance and improve development and updating of dam condition assessments.

#### 2.5.14 Develop and implement CHPP Outreach Plan

**Ongoing**

Expected Completion Date: N/A

DMF staff, in conjunction with APNEP, drafted the CHPP Outreach Plan with strategies for increased public understanding of North Carolina's important coastal habitats, community engagement, and habitat protection and restoration benefits including enhancing ecosystem and community resilience. DMF is in the process of forming a private-public partnership for further community engagement.

In the next 12 months, DMF will participate in the NC Water Quality Summit as part of the private-public partnership. DMF will work with the CHPP Team to determine other outreach strategies.

## 3.0. Address the public health impacts of climate change

### 3.1 Increase understanding and awareness of the health impacts of climate change

#### 3.1.1 Conduct community and educator engagement events through NC Climate Education Network **Ongoing**

Expected Completion Date: December 2024

DEQ is conducting community and educator engagement events through the newly established NC Climate Education Network (NCCEN) to connect scientists, researchers, and educators to understand the latest in North Carolina climate science. Events will also train teachers and share best practices in teaching about climate science as well as connect educators to energy professionals and current climate related events. DEQ will continue to support the NC CEN and help grow its membership. The first “webinars” and events already completed in 2022 including Coffee and Conversations and an “Open House” online forum with educators. The Network also strives to share best practices in teaching about climate science with its members and participants. The Office of Environmental Education and NC Air Awareness will showcase and share NCCEN content and connections as part of other climate and GHG education events throughout the year. This effort is a collaborative effort between the Division of Water Resources, the Division of Air Quality, and NC State’s Climate office. The first several events were successful, and the team hopes to continue through 2024 and work to host in-person events in late 2023 or 2024 in addition to other virtual events.

#### 3.1.2 Provide input on the K-12 Science Standards Revision **Underway**

Expected Completion Date: July 2023

The DEQ Office of Environmental Education and Public Affairs along with an interagency working group reviewed each of the state’s science standards and provided feedback individually in response to a survey provided by the NC Department of Public Instruction (DPI). DEQ also sent a letter to the Section Chief for Math, Science and STEM in DPI’s Office of Academic Standards providing feedback on the current standards and encouraging a stronger focus on human influences on earth systems and the biosphere, including the impacts of observed and projected changes in temperature, precipitation, and other climate variables species loss, invasive plants and animals and emerging environmental threats to human health and safety among other suggestions. DEQ is participating on DPI’s Standards Writing Team which will begin work the second week of October. DPI plans to release the first draft of the K-12 Science Standards revisions for public review in early November 2022 with final standards in place by July 2023.

#### 3.1.3 Develop Wastewater Assessment Training Program **Ongoing**

Expected Completion Date: N/A

DMF allows for improved assessment of the impacts of wastewater treatment plant failures on surrounding shellfish harvesting and recreational swimming areas through a Wastewater



Assessment Training Program. DMF will develop protocols for integrating its drone fleet into pollution source assessments to provide improved data collection and more effective visual representation of impacts for public education purposes.

DMF plans to pursue a new wastewater assessment method training by FDA engineers via the ISSC Growing Areas Review Board system in 2023. This will depend on FDA schedule availability and funding.

### 3.1.4 Educating residents on recreational water quality in Western NC **Completed**

Expected Completion Date: August 2022

Research has shown that warmer water can lead to higher concentrations of harmful bacteria. Asheville's Western North Carolina Recreational Water Quality Program has completed the development of an [E.coli estimator](#) in partnership with MountainTrue. The model provides near real-time estimates of E. coli bacteria levels for recreational users of the French Broad River in Asheville. The Program was developed to leverage and enhance existing monitoring programs, expand water quality analytical methods, and evaluate use of models to estimate bacteria levels to supplement water quality sampling.

DEQ also launched a statewide sampling and measurements program to assess E. coli levels in key recreational areas during the summer season. The data will be used to compare with existing fecal coliform standards, develop rules to replace these standards, and define the extent of water quality impairment for E. coli.

### 3.1.5 Utilize Algal Bloom and Fish Kill Dashboard **Ongoing**

Expected Completion Date: N/A

Research has shown that warming waters are increasing the prevalence of potentially harmful algal blooms. The Division of Water Resource's [Algal Bloom and Fish Kill Dashboard](#) utilizes citizen science and collaboration to display reported algal blooms and fish kills across the state. Each location marker on the map represents an event that has been reported by either concerned citizens or DWR field staff during routine monitoring. The reporting system allows DEQ staff to investigate reports of blooms and fish kills and interact with members of the community by posting findings.

### 3.1.6 Launch Air Quality Learning Station **Completed**

Expected Completion Date: April 2022

The new Air Quality Learning Station debuted to the public on Earth Day 2022. The station is the culmination of a multi-year partnership between the Division of Air Quality's N.C. Air Awareness team and Mecklenburg County Air Quality. The Air Quality Learning Station in First Ward Park in Uptown Charlotte aims to help the public see and understand air pollution. It combines air sensor technology with an interactive display to increase air quality awareness in an area of the state that has seen tremendous improvement to its air quality.



### 3.1.7 Launch Air Quality Portal

**Completed**

Expected Completion Date: March 2022

In March 2022, the Division of Air Quality and the NC State University State Climate Office partnered to launch a new online hub for all the Division's air quality forecasting data. The new Air Quality Portal provides county-level Air Quality Index forecasts, the Ambient Information Reporter tool, a revamped wind rose tool, and the new national Ozone Design Value Predictor tool. Also featuring blogs and educational resources, the Air Quality Portal is the new one-stop-shop for residents to learn about the air they breathe. DAQ is also working with third parties (e.g., the Weather Channel) that issue air quality forecast information on their websites and mobile device applications to support issuance of high-quality forecast data. DAQ has also been coordinating with DHHS and other state agencies and public and private entities to produce and distribute educational materials to support understanding of air quality impacts and access to air quality data.

## 3.2 Advance health equity

### 3.2.1 Action Strategy for PFAS

**Underway**

Expected Completion Date: December 2024

In June 2022, DEQ announced the DEQ Action Strategy for PFAS detailing actions the department will take to address PFAS contamination in North Carolina. The strategy focuses on three primary objectives: protecting communities, protecting drinking water, and cleaning up contamination. With the publication of the strategy, DEQ announced the agency will propose groundwater, surface water, and drinking water standards for priority PFAS compounds and evaluate PFAS emissions and discharges in permitting decisions.

Some of the activities associated with the action strategy include PFAS sampling of over fifty public water supply systems that provide drinking water to over 75% of the state's population in anticipation of coming federal drinking water standards.

Additionally, as North Carolina increases clean energy manufacturing and production, the Department is also examining the use of PFAS in clean energy technologies. DEQ is committed to a whole of Department approach to address potential impacts resulting from the advancement of clean energy production in the state.

### 3.3 Initiate other projects aimed at addressing the public health impacts of climate change

#### 3.3.1 Address stormwater impacts on shellfish growing areas

**Ongoing**

Expected Completion Date: N/A

DMF initiated collaborative projects with federal and academic partners to further management plans. This continued to enhance DMF's ability to address potential public health impacts of increased stormwater runoff through research and development of updated shellfish growing area management plans. Staff have also worked with local municipalities to help develop town- and city-wide stormwater management plans that effectively balance public health considerations alongside concerns about safety and property damage due to flooding.

In addition, through the 205j water quality planning grant and the 319 Watershed Restoration grant, DWR encourages coastal communities to develop and implement watershed plans that utilize infiltration of stormwater runoff to reduce export of pathogens to impaired shellfish waters. A plan including these principles was approved for Atlantic Beach in August 2021.

The recently passed federal Bipartisan Infrastructure Law more than doubled the 205j allocation for the next five years, which will provide Councils of Government increased opportunity to develop such plans in addition to other water quality planning activities.

## 4.0. Invest in historically underserved communities

### 4.1 Increase energy affordability for low- and moderate-income households

#### 4.1.1 Provide Clean Energy and Energy Efficiency Assistance to Low-to-Moderate-Income Households

**Ongoing**

Expected Completion Date: N/A

The State Energy Office received approximately \$4 million as part of the federal Coronavirus Aid, Relief, and Economic Security (CARES) Act. Working with private, academic, and non-profit partners, the SEO created, and managed projects focused on 1) clean energy; (2) workforce development; (3) energy resilience; and (4) energy efficiency and weatherization to benefit low-to-moderate income households. The funds ensured that 585 low-to-moderate-income households received energy efficiency or weatherization upgrades, 94 households received community solar subscriptions for 10 years, and 40 students participated in clean energy apprenticeship and pre-apprenticeship programs.

Using approximately \$13 million in federal American Rescue Plan Act funding, the State Energy Office has expanded and accelerated the work begun under the CARES Act. Key initiatives include addressing structural and health and safety repairs needed for low-to-moderate-income households to qualify for weatherization services, conducting microgrid feasibility studies in underserved communities to enhance resilience, expanding the apprenticeship and pre-apprenticeship clean energy workforce programs to 60 students and 5 counties, and completing energy efficiency upgrades to disadvantaged public K-12 schools. As of June 30, 2022, 236 low-to-moderate-income households have completed all repairs, energy efficiency, or weatherization measures, and 47 roofs have been replaced. In addition, 34 Tier 1 and Tier 2 public schools have received energy efficient lighting upgrades.

#### 4.1.2 Reduce Energy Burden for Schools in Tier 1 and Tier 2 Counties

**Completed**

Expected Completion Date: September 2022

The State Energy Office awarded American Rescue Plan funding to NC GreenPower for a project to reduce the energy burden for up to 60 of North Carolina's K-8 public schools. This initiative will support the purchase and installation of high-efficiency LED fixtures at no cost to qualifying schools in NC's Tier 1 and Tier 2 counties with high eligibility rates for free/reduced lunch. In addition, funding will be prioritized for school systems in qualifying areas with disproportionate energy consumption and costs based on data from the NC Department of Public Instruction's "Statistical Profile" tool. A heavy emphasis was placed on upgrading qualifying elementary and middle school gymnasiums in electric cooperative and electric municipality service territories since they have limited access to utility-sponsored commercial lighting rebates; however, schools within an investor-owned utility's territory were eligible to participate if the general eligibility requirements were met.

As an additional benefit, the SEO provided emergency energy assistance for Reaching All Minds (RAM) STEM Academy in Durham to replace malfunctioning heating, ventilation, and air conditioning equipment, improve indoor air quality and reduce the energy burden for a school

that educates underserved families. Collectively, the LED lighting initiative and emergency assistance for RAM STEM Academy were estimated to have avoided 786,119 kWh of electricity and 973 therms of natural gas. Based on the USEPA’s “Greenhouse Gas Equivalencies Calculator”, this is equivalent to avoiding carbon dioxide emissions from 311 tons of coal burned in the electric power sector.

## 4.2 Create jobs and economic growth

### 4.2.1 Support NC A&T STEPs4GROWTH Program

**Ongoing**

Expected Completion Date: N/A

In August 2022, Governor Cooper and US Commerce Secretary Raimondo announced a \$23 million grant to North Carolina A&T to create a new clean energy workforce training program called STEPs4GROWTH, the largest grant ever awarded by the Economic Development Agency. The program builds on the Clean Energy Youth Apprenticeship Pilot which was developed in partnership with the Office of the Governor, NCBCE, NC Department of Environmental Quality State Energy Office, NC A&T, NC State University Clean Energy Technology Center, NC Community College System, Halifax County Schools, Halifax Community College, and the Center for Energy Education. The State Energy Office has been heavily involved in the implementation of the apprenticeship pilot and was involved in the application process for the statewide launch of the pilot initiative started under the Clean Energy Plan. The State Energy Office will continue to offer guidance and collaborate with NC A&T on this project and others.

### 4.2.2 Emphasize Importance of Historically Underutilized Businesses

**Completed**

Expected Completion Date: April 2022

In April 2022, DEQ hosted a webinar for all leadership and supervisors on the importance of Historically Underutilized Businesses (HUBs) and the resources that the HUB office within the Department of Administration Provides. The presentation from the HUB office defined HUBs, went over how HUBs are certified with the State, how to do outreach with HUBs, how HUBs can be utilized in state purchasing and contracting. The HUB office then had a follow-up meeting with DEQ’s financial services division to go into more technical detail about how to best utilize HUB businesses. The Department will continue to emphasize the importance of HUBs to create jobs and support economic growth within underrepresented communities.

### 4.2.3 Provide financial relief for fisheries

**Completed**

Expected Completion Date: Fall, 2022

The N.C. Division of Marine Fisheries License & Statistics Section issued more than \$4.3 million in financial relief to 265 commercial fishermen and marine aquaculture operations, for-hire fishing operations, and seafood dealers and processors from the federal Consolidated Appropriations Act Fisheries Relief Program (CARES Act II) to offset income losses in 2020 due to COVID-19. In Fall 2022, the Division will issue about \$7.6 million in federal fisheries disaster relief for Hurricane Florence, with payments to eligible seafood dealers and processors, ocean fishing piers, for-hire fishing operations, and bait and tackle shops.

## 4.3 Alert residents and businesses, particularly those in underserved communities, of state and federal grant opportunities

### 4.3.1 Public Engagement for water infrastructure funding

**Ongoing**

Expected Completion Date: N/A

DEQ's Division of Water Infrastructure awarded a record number of projects for the Spring 2022 funding round — \$789.4 million for 385 projects statewide. This includes most of the American Rescue Plan funding appropriated for water and wastewater infrastructure, as well as \$174,846,696 in funds that were appropriated in the 2022-23 state budget. The Division completed the review and reconsiderations of more than 700 applications representing 94 counties for water and wastewater funding, three times the amount of a normal year. To identify disadvantaged communities with longstanding well and septic problems, DEQ launched a targeted outreach campaign to identify communities in need, and alert both local governments and community members of funding opportunities. The survey and direct outreach effort led to the identification of over 60 potentially disadvantaged communities with private well and septic issues across the state. Combined with the creation of a new category of funding for projects to connect disadvantaged communities to water and sewer services, DEQ efforts resulted in 5 grants, totaling more than 850 residences that will be connected to drinking water lines for the first time.

### 4.3.2 Identify and alert communities for Wastewater Access Gap Grant

**Completed**

Expected Completion Date: August 2022

In August 2022, the Environmental Protection Agency and US Department of Agriculture announced a new pilot that will provide technical assistance to 11 communities across the United States to assess wastewater problems in disadvantaged communities and help prepare applications for funding. Using the outreach DEQ had previously done, the Department was able to recommend the Haliwa-Saponi tribal community in Halifax County and a disadvantaged unincorporated community in Duplin County to the EPA as potentially good fits for the pilot because of demonstrated need and years of community advocacy. DEQ helped to facilitate conversations between the EPA and these communities, and both communities were selected for the grant. The state will continue to be a partner as the pilot begins.

### 4.3.3 Develop Resilience Clearinghouse

**Underway**

Expected Completion Date: December 2023

Division of Marine Fisheries staff are working on a project in collaboration with DEQ and NCORR to develop a Resilience Clearinghouse that will be an all-encompassing resilience resource guide for North Carolina with multiple components to help bring organizations/stakeholders together to coordinate parallel efforts to decrease redundancies. Staff are helping to organize the Resilience Clearinghouse Steering Committee to coordinate and provide leadership in developing the clearinghouse. A grant proposal was funded through the NWL US Climate Alliance Technical Assistance Fund in January 2022 to provide resources

for the project. In the next 12 months, DEQ and NCORR will finish the clearinghouse Scope of Work and identify resources to build the site.

#### 4.3.4 Alert Residents to opportunities via listserv

**Ongoing**

Expected Completion Date: N/A

The Environmental Justice (EJ) Program regularly sends grant opportunities to the recipients subscribed to DEQ's environmental justice listserv. In 2022, the EJ program notified the listserv of several grant opportunities. The EJ program will continue to send opportunities to this group and work to expand the number of community members subscribed to the listserv.

#### 4.3.5 Volkswagen Phase 2 outreach to underserved counties

**Completed**

Expected Completion Date: October 2022

A goal of the Division of Air Quality (DAQ) for Phase 2 of the NC Volkswagen Settlement grant programs was to equitably distribute the \$68 million available across the state. DAQ formed the Historically Under-Resourced County Outreach Program (HURCOP) to provide additional marketing and technical assistance with grant applications in 37 targeted counties. This outreach program was designed to help counties that historically may not have had the resources to effectively identify eligible projects for funding opportunities or to navigate the application process.

The HURCOP team traveled across the state for 3 months this year, holding 14 meetings in 9 cities and making nearly 300 calls to local officials. DAQ continues to promote the remaining grant funds in under-resourced communities and is incentivizing applications in these counties for the current round of Mobile Source Emission Reduction grants. For the school bus funding program alone, 80 new buses were awarded to the 37 HURCOP counties.

#### 4.3.6 Mailing lists for Federal and State coastal community funding opportunities

**Ongoing**

Expected Completion Date: N/A

DCM staff, through the RCCP program, along with the DCM planners regularly send out emails and correspondences to both the coastal communities and our list of contractors on available federal or state grant opportunities for funding.

### 4.4 Initiate other projects aimed at investing in underserved communities

#### 4.4.1 Integrate Potentially Underserved Community Layer into Grant Priority Rating Systems.

**Ongoing**

Expected Completion Date: N/A

In 2022, DEQ began to integrate the Community Mapping System Potentially Underserved Communities layer to standardize processes for identifying awards going to disadvantaged communities. The mapping layer was used for both the State Revolving Fund water

infrastructure applications and the 319 Grant applications as a way for applicants to easily identify based on census block if the community benefiting from a grant award is potentially underserved. Because the Department knows that mapping is just one tool to identify underserved communities, the grant applications also allow for applicants to provide narratives describing how the community benefiting from a potential grant is underserved in situations where the mapping tool did not fully capture the lived experience of a community. DEQ will continue to evaluate grant programs and incorporate this measure into rating systems where feasible.