2024 Climate Strategy Report

Department of Environmental Quality

Submitted October 1, 2024; Covers July 1, 2023 – June 30, 2024

Introduction

About Department of Environmental Quality

The North Carolina Department of Environmental Quality (DEQ) is the lead stewardship agency for the protection of 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. The organization, 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 through the state's school system.

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

Department of Environmental Quality's Vulnerabilities to Climate Change

DEQ is a unique state agency in that it responds to climate hazards facing North Carolina, especially sea level rise, increased likelihood of annual total precipitation, increased likelihood of hurricane intensity, increased likelihood of severe droughts, and increased likelihood of precipitation and inland flooding. These climate hazards impact permitted facilities, activities, and infrastructure and can result in increases in harmful algae blooms, increased stormwater runoff, wastewater treatment plant failures, and loss of marine and shellfish habitat. As a result, the Department is continuously reevaluating its approach to research, planning, and funding priorities, as well as various projects and procedures to better adapt to the challenges of climate change across all areas of work. Climate change impacts and resiliency planning are being incorporated into Department actions ranging from the drafting of new stormwater rules to the building of living shorelines and other nature-based infrastructure. Every division at DEQ is confronting challenges presented by climate change, and each one is actively working to mitigate the risks to the Department, its staff and the state at large. DEQ is also addressing energy efficiency, electric charging and other climate related needs at its facilities across the state.

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, DEQ had direct recommendations spanning multiple sectors: Coastal Resources and Infrastructure, Health and Human Services, Agriculture and Forestry, Water and Land Resources, and Energy, among other cross-sector impacts. The Department has continued to pursue the recommended actions to the extent possible and as agreed upon in September of 2022. Among these actions, DEQ is collaborating with the NC Office of Recovery and Resiliency

(NCORR), who is leading implementation of the Plan, through the Interagency Resilience Team and on the development and implementation of the North Carolina Resilience Exchange. DEQ is also working to evaluate and respond to the directives identified in EO305, including the development of a draft report on evaluation methods for potentially unprotected wetland areas and soliciting expert input on the value of natural and working lands. Additionally, DEQ plays a key role in the NC Resilient Communities Program as the agency in charge of the NC Resilient Coastal Communities Program working with local governments and communities. This document identifies additional strategies across the Department that have been initiated or continued in 2023-24.

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. The program advises the Department, cabinet agencies, and UNC System schools on how to reduce energy use.

From utility data collection efforts by the State Energy Office, state-owned buildings collectively reduced their Energy Use Intensity (EUI) by 33% in FY22 compared to the baseline of FY03. This is an avoidance of $198M in utility costs in FY23 alone, and a collective avoidance of $1.96B since FY03. Roughly 10.1 $MMTCO_{2e}$ of greenhouse gas emissions have been avoided since FY03, the equivalent of approximately two coal-fired power plants. Utility data is actively being collected and analyzed for FY24 and will be available at the end of calendar year 2024.

As an agency, DEQ has continued to take steps to reduce energy use in its facilities through renovations, HVAC improvements, lab equipment upgrades, and lighting upgrades. For example, DEQ's work to improve the building envelope at the Reedy Creek Lab Campus received a U.S. Department of Energy award and resulted in annual CO2 reductions of 158,900 lbs.

North Carolina Clean Transportation Plan

This section is not applicable to the Department of Environmental Quality.

Addressing Environmental Injustices and Inequities

With historic amounts of federal grant funding available in recent years, DEQ has prioritized investments in North Carolina communities that need it most and those that have been historically bypassed for water and wastewater services. DEQ has evaluated grant processes to encourage and fund projects in underserved and disadvantaged communities and is tracking compliance with federal Justice40 requirements.

During the Fall 2023 and Spring 2024 water, wastewater and stormwater infrastructure funding rounds, 13 applications for projects serving or benefitting disadvantaged areas were awarded a combined $69,841,114. Programs within the State Energy Office that are currently under development—including the Climate Pollution Reduction Grant's Priority Climate Action Plan and Comprehensive Climate Action

Plan, the Solar for All program, and the Home Energy Rebates and Home Electrification and Appliance Rebates—will benefit and, where directed, prioritize low-income communities and other small, rural and disadvantaged communities. DEQ continues to increase outreach related to grant funding and provide technical assistance to small, rural and disadvantaged communities. All grant opportunities have been consolidated online to provide information to local governments and residents in a single user-friendly location.

DEQ continues to ensure opportunities for meaningful involvement in Department actions by conducting environmental justice analysis of permit applications and hosting meetings, hearings, and other engagement activities. The agency has also contracted with a vendor to provide increased capacity for translation of documents and to offer on-demand interpretation services for staff interactions with residents. DEQ has increased the use of onsite interpretation at public meetings and hearings for Spanish-speaking residents to further improve accessibility and engagement. DEQ continues to work to improve community engagement and access to funding opportunities and agency decision-making.

Public Participation Plan

Last updated in August of 2023, DEQ's Public Participation Plan lays out the Department's strategy for engaging in public participation and providing clear and accessible information to all stakeholders. Many of the Department's actions include public notice, comment, or hearing requirements. As a standard practice, such notices are published on the website, included as a press release, sent to email lists, and/or posted on social media. Based on Environmental Justice analysis, DEQ works to go beyond the minimum requirements with additional outreach efforts to ensure underserved communities are able to participate in agency decision-making. Additionally, the Department works through its Language Access Plan to ensure that materials are available in languages other than English and engagement is conducted to suit community needs. DEQ works to provide interpretation at meetings as needed to reduce language barriers to public participation. DEQ employes enhanced outreach and continues to evaluate additional outreach methods to ensure communities and residents are able to participate in the spectrum of agency projects including projects with large-scale impact, such as the Flood Resiliency Blueprint and the related Basin Action Plans and the Energy Rebates Program.

Climate Council Updates

Member agencies of the Climate Council have continued to work on their respective goals and actions independently.

DEQ partnered with various entities to create and pilot a sustainable Clean Energy Workforce Development program. NC A&T State University was the lead entity for the Pilot program and other entities included ApprenticeshipNC, NC Business Committee for Education in the Governor's Office, and high schools and community colleges in Halifax, Guilford and Wake County. During the 2021 pilot pre-apprenticeship program, thirty students were successfully trained in energy efficiency, HVAC, and solar through both classroom orientation and on-the-job training with local industry partners. Due to

overwhelming success, after completion of the pilot program in August 2021, additional industry partners signed on to participate in future apprenticeship programs there are currently. During the summer of 2022, the pre-apprenticeship summer program expanded to include 60 students in double the number of counties from the previous year. The 2021 and 2022 Clean Energy pre-apprenticeship programs were funded by DEQ.

These two years of success laid the groundwork for STEPs4GROWTH (Successful Training and Effective Pipelines for Growing Regional Opportunities and Workforce to Harness Clean Energy). STEPs4GROWTH is a four-year Comprehensive Clean Energy Workforce Development Project for North Carolina funded by the U.S. Department of Commerce's Good Jobs Challenge and led by the Center for Energy Research and Technology at NC A&T State University. The STEPs4GROWTH program is centered in 4 clean energy sectors including: Energy Efficiency, Renewable Energy, Clean Vehicles, and Grid & Resiliency. Over four years, clean energy jobs will be created exponentially in North Carolina with 100 jobs in 2023, 400 jobs in 2024; 1000 jobs in 2025; and 1500 jobs in 2026 for a total of 3,000 new jobs in 4 years. As of July 2024, 390 job placements had been achieved and the program is on track to meet or exceed its goals.

1.0. Reduce greenhouse gas emissions

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

1.1.1 Collect and Evaluate Greenhouse Gas Reduction Data

Status: Ongoing
Expected Completion Date: Ongoing

From utility data collection efforts by the State Energy Office (SEO), state-owned buildings collectively reduced their energy use intensity by 33% in FY23 compared to the baseline of FY03. This is an avoidance of $198M in utility costs in FY23 alone, and a collective avoidance of $1.75B since FY03. Roughly 10.1MMTCO_{2e} of greenhouse gas emissions have been avoided since FY03, the equivalent of approximately two coalfired power plants.

Utility data is actively being collected and analyzed for FY24 and will be available at the end of calendar year 2024.

1.1.2 Release RFP for Utility Management Software

Status: Underway
Expected Completion Date: June 30th, 2025

SEO, with its Utility Savings Initiative (USI) partners, is working with the Department of Adult Corrections (DAC) on the current contract between Capturis and DAC, which will expire June 30, 2024. SEO recognizes that monitoring and managing utility use reduces energy costs and is a critical tool for fiscal and facility management sections to achieve a balance between energy efficiency and cost. SEO will work with DAC on the new contract and have each participant opt-in to the program and issue their own purchase order to the successful vendor.

The vendor system will be live June 30th, 2025.

1.1.3 Provide Training and Technical Assistance

Status: Ongoing
Expected Completion Date: Ongoing

The USI program provides preliminary audits and project evaluations and implements strategy assistance to meet the EO80 goals. The USI program conducts regularly scheduled meetings with energy managers to share best practices and opportunities for energy savings. Various subject-matter experts from the public and private sectors are invited to discuss tested approaches that may assist in meeting EO80 goals. These meetings provide the necessary tools and training foundation to improve energy efficiency, promote sustainability, increase resiliency, and reduce operating costs within current state budgetary constraints.

In the coming 12 months, SEO plans to focus efforts more on targeting USI entities and partners residing in low-income and disadvantaged communities within North Carolina.

1.1.4 DEQ Facility Upgrades

Status: Ongoing
Expected Completion Date: Ongoing

DEQ's Facilities Health & Safety Division prioritizes energy efficiency and resiliency in renovation and upgrade projects. This year, highlights of the Division's work include receiving a Green Globes Certification for the Green Square building, continued redevelopment of the Reedy Creek Lab Campus, installation of new energy efficient fume hoods, and completion of a $2M living shoreline project in partnership with Carteret County located at Carrot Island in Beaufort. Additionally, a building envelope sealing project at the Reedy Creek Biochemistry earned a U.S. Department of Energy award and, combined with additional energy saving upgrades, reduced energy usage by over 30% with a C02 reduction of 158,900 lbs.

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

1.2.1 Energy Toolkit

Status: Ongoing
Expected Completion Date: Ongoing

In January of 2023, the Environmental Stewardship Initiative (ESI) introduced the Energy Toolkit program. Available upon request and free of charge, this program loans energy monitoring equipment to ESI members. By monitoring energy consumption, it allows organizations to identify target areas for energy reduction projects. Members have access to a FLIR Infrared Camera, Ultrasonic Leak Detector, AC Current Probe, Electricity Usage Monitor, Color LED Light Meter, Power Data Logger, and a Power Quality Clamp. To date, the toolkit has been used by three organizations.

ESI staff will continue to promote the availability of this toolkit and will monitor the impact on member organizations' energy usage and progress towards energy conservation goals.

1.2.2 DEQ Offshore Wind Coordinator and Interagency Wind Working Group

Status: Underway
Expected Completion Date: Ongoing

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, and the Division of Marine Fisheries (DMF). The goal of the OWWG is 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 also determines strategies to engage with regional/national efforts and identify relevant data held by other state and federal agencies, researchers, and stakeholders.

1.2.3 Federal Consistency Review

Status: Underway
Expected Completion Date: Ongoing

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 found 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 federal Bureau of Ocean Energy Management is authorizing offshore wind projects, a federal consistency review is applied. DCM is the lead agency reviewing federal consistency determinations for offshore wind off the North Carolina coast. DCM will 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

This section is not applicable to the activities of DEQ.

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

1.4.1 Transition to Zero Emission Vehicles (ZEVs)

Status: Ongoing
Expected Completion Date: Ongoing

Like divisions across the Department, DCM is working with the State's motor fleet to implement a transition to ZEVs to replace current gas-powered state vehicles. As of Summer 2023, DCM has received one electric vehicle, which is currently utilized whenever feasible. As a state-owned vehicle available for all DCM staff, this provides an effective and sustainable means of transportation for interaction with local CAMA communities to increase their resilience to coastal hazards. In particular, the Resilient Coastal Communities program (RCCP) is committed to incorporating environmental justice and equity considerations in each program phase. By meeting with community leaders in their communities, the RCCP staff can conduct outreach and build trust within communities.

1.4.2 Promote Use of EVs for Business Travel

Status: Ongoing
Expected Completion Date: Ongoing

DEQ has built out an EV charging network, with several dozen chargers at our regional offices including some added just this year, and has 5 fully electric vehicles available for staff use. The network was created through partnerships with our landlords, including specifications in the lease RFPs, negotiating early lease renewals, and SEO grants. DEQ has been able to reduce our fleet and its underutilized vehicles by creating an unassigned pool of hybrid/EV fleet vehicles based at our Reedy Creek Lab Campus in Raleigh. Vehicles are available through an online reservation system.

The agency has also implemented a vehicle need and interview vehicle selection process for each new or updated vehicle requested to ensure that the most efficient vehicle is selected to meet the requesting division's needs.

1.5 Initiate other initiatives to decarbonize the transportation sector

1.5.1 Volkswagen Settlement

Status: Ongoing
Expected Completion Date: Ongoing

The Volkswagen Settlement project provided funding to promote the purchase of medium- and heavy-duty (MHD) vehicles that replace older diesel vehicles, with the priority given to purchases of ZEVs. Additionally, the project provides funding to install or expand existing charging infrastructure to support ZEVs. Special consideration is given to projects in areas that are historically underserved.

In the next twelve months the Department anticipates making additional funds available for the installation of additional DC Fast charging infrastructure and the continuation of adding success stories to an interactive map for completed projects, especially showcasing ZEV purchases.

1.5.2 Mobile Source Emission Reduction Grants

Status: Ongoing
Expected Completion Date: Ongoing

The Mobile Source Emission Reduction Grants provides funding to promote the purchase of MHD vehicles that replace older diesel vehicles, with the priority given to purchases of ZEVs. The Mobile Sources Emissions Reduction program is funded by the U.S. Environmental Protection Agency's (EPA) Diesel Emissions Reduction Act program. Funds may be supplemented with North Carolina Volkswagen Mitigation Trust funds. Special consideration is given to projects in areas that are historically underserved.

In the next twelve months the Department anticipates making additional funds available for the purchase of MHD vehicles and adding more success stories to an interactive map for completed projects, especially showcasing ZEV purchases.

1.5.3 Support EPA Electric Buses Funding

Status: Underway
Expected Completion Date: 2024

SEO is providing State Energy Program funding to support the EPA's EV school buses and bus charging station opportunities. SEO provided additional funding for charging station installation costs for the three NC school systems that awarded buses and chargers by the EPA.

Funding was awarded to Bladen, Columbus and Halifax County school systems. Bladen County received funding for five electric school bus chargers and the installation of those chargers have occurred. Columbus County received funding for nine electric school bus chargers, and Halifax County received funding for four electric school bus chargers. Each of these have installed the chargers and submitted invoices to close out their respective projects.

1.6 Initiate other projects aimed at reducing statewide greenhouse emissions

1.6.1 Develop Climate Pollution Reduction Grant Planning

Status: Underway
Expected Completion Date: 2027

As a part of the Inflation Reduction Act, the EPA created the Climate Pollution Reduction Grant (CPRG) program to provide states, local governments, territories and tribes with funds to develop and implement plans for reducing greenhouse gas emissions and other harmful pollutants. This two-phase program provides $250 million for noncompetitive planning grants and made available nearly $4.6 billion for competitive implementation grants.

North Carolina received a $3 million award in phase one for planning activities and two NC metro service areas also received $1M CPRG planning grants. North Carolina and the MSAs collaborated to submit a CPRG Implementation Plan incorporating a list of high-priority projects and initiatives to significantly lower greenhouse gas emissions in the state that unfortunately was not funded by EPA.

The CPRG Planning Grant has the following requirements/deliverables:

CPRG Planning Grant Requirements	**Status**
Produce and publish a Priority Climate Action Plan (PCAP)	Complete (03/2024)
Revise and update the existing NC Greenhouse Gas Inventory	Complete (01/2024)
Submit CPRG Implementation Plan	Complete (04/2024)
Produce and publish a Comprehensive Climate Action Plan (CCAP)	Underway - Due 06/2025
Produce and publish a Final Status Report	Due 06/2027

As required by the CPRG grant, North Carolina produced and published a Priority Climate Action Plan (PCAP) (March 1, 2024) and will produce and publish a Comprehensive Climate Action Plan (CCAP) by June 30, 2025.

The PCAP identifies North Carolina's highest priority greenhouse gas reduction measures and determines methods for ensuring equitable implementation of these measures for the benefit all North Carolinians. The CCAP will update and expand upon North Carolina's existing climate strategies, ensuring that these documents align with the latest available science, modeling, legislation, and best practices.

In FY25, CPRG staff will complete and submit the CCAP. In FY26, NC CPRG staff will develop the foundation for the Final Status Report.

1.6.2 Contract for Guaranteed Energy Savings

Status: Underway
Expected Completion Date: Fall 2024

The Department of Adult Corrections submitted a plan to USI to enter into a Guaranteed Energy Savings Performance Contract this fiscal year. This contract is expected to save a total of more than $15M in energy savings over the life of the project, a significant contributor to the progress of EO80's goal of reducing energy usage in state-owned facilities 40% by 2025.

The contract is under review by USI.

1.6.3 Support Local Government Recycling Programs

Status: Ongoing
Expected Completion Date: Ongoing

The Division of Environmental Assistance and Customer Service's (DEACS) Recycling and Materials Management Section (RMMS) staff provides technical assistance, education and outreach, and financial support through grants focused on maintaining and expanding local government recycling programs. DEQ awarded 24 local governments a total of $653,900 to improve recycling efforts across the state during the 2024 Community Waste Reduction and Recycling grant round. These projects are expected to divert nearly more than 1,400 tons of material from landfills equating to reducing carbon dioxide emissions by 4,060 metric tons, according to the EPA WARM Model.

In addition to managing current grants and planning for future grant opportunities, staff will continue to provide technical and outreach services to all municipalities and counties to support recycling and waste diversion efforts. In FY2022-23, local government programs recycled 404,083 tons of traditional household recyclables, resulting in the reduction of 1,089,341 metric tons of carbon dioxide-equivalent emissions according to the EPA WARM Model.

1.6.4 Promote a Circular Economy

Status: Ongoing
Expected Completion Date: Ongoing

RMMS staff continues to provide technical assistance, outreach, and financial support through grants focused on developing North Carolina recycling businesses and infrastructure. During the 2024 grant cycle, DEQ awarded grants to 18 recycling businesses, resulting in a total investment of $4.97 million in recycling infrastructure in the state. The funded projects will also create an estimated 124 jobs and divert approximately 200,000 tons of material from landfills per year, reducing carbon dioxide emissions by 563,452 metric tons per year, according to the EPA WARM Model.

DEQ staff continues to research and promote reuse and recycling markets for renewable energy technologies including solar panels, electric vehicles, and utility storage batteries. One 2024 grant project was awarded to support start-up operations for a new lithium-ion battery recycler in the state.

In addition to managing development grants, DEQ continued engagement with the Secretary's North Carolina Circular Economy Council (CEC), consisting of businesses engaging in the circular economy. Established in 2023, the CEC will continue to meet to find and establish opportunities to promote the circular economy state-wide.

1.6.5 Provide Technical Assistance on Reducing Energy Consumption and Minimizing Carbon Footprints to NC Organizations

Status: Ongoing
Expected Completion Date: Ongoing

DEQ's Waste Reduction Partner (WRP) program uses 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. For FY24, WRP provided 52 energy assessments, saving organizations a projected $2.2 million in utility costs with a predicted carbon emission reduction of 19,995 metric tons of CO2e annually. Sixty percent of organizations served in FY24 were in disadvantaged counties. With support from the State Energy Office, three energy assessments were performed for state universities and agencies' sites including UNC-G, UNC-CH and the ABC Commission to identify energy saving projects toward EO80 objectives (goal 1.1).

For FY2025, WRP, through its Land of Sky Regional Council partner, expects to deliver more than 45 energy assessments to businesses and institutions across the state including underserved communities.

1.6.6 Reduce Food Waste

Status: Ongoing
Expected Completion Date: Ongoing

DEQ expanded the Use the Food NC campaign by developing a food storage social media toolkit and a Self-Assessment Guide for North Carolina Businesses. The guide provides checklists specific to restaurants, caterers, dining halls, food manufacturer, grocery stores and food distributors. It also highlights successful stories across the state and provides general information on food donation and animal feeding. DEQ continued to offer the competitive Food Waste Reduction (FWR) grant open to communities, businesses, and non-profit organizations and awarded 12 entities $353,600 to expand food waste reduction and recovery infrastructure. These projects are projected to recover 57,983 meals and divert approximately 36,066 tons of food waste from landfills, reducing carbon dioxide emissions by 23,573 metric tons, according to the EPA WARM Model.

Staff will continue to develop materials and host events focused on food recovery and donation, manage and award FWR grants, improve waste reduction strategies in state and regional entities. Staff will also publish a comprehensive organics report, entailing the status of food waste efforts in North Carolina.

1.6.7 Support Environmental Stewardship Initiative Members

Status: Ongoing
Expected Completion Date: Ongoing

ESI is committed to helping ESI members achieve their sustainability endeavors through mentoring, networking, and training events. ESI members strive to establish environmental management systems and achieve water, energy, and hazardous waste reduction goals. ESI members are a diverse group that includes businesses, industries, municipalities, and other government agencies. ESI staff provide education and outreach efforts to members including hosting webinar series that highlight carbon emission management strategies within the industrial setting, other educational opportunities designed to enhance sustainable business strategies, and events like the ESI Annual Conference and the Environmental Benchmarking Series.

In 2023, ESI members set 41 energy reduction goals, demonstrating a strong focus on energy efficiency and consumption reductions. Through their reduction efforts, members realized significant reductions in greenhouse gases and energy usage: 842,766 metric tons CO_2e and 1,068,305 mmBTU (million BTUs), respectively.

1.6.8 Enhance Education and Outreach Related to Climate Change

Status: Ongoing
Expected Completion Date: Ongoing

As part of NC Air Awareness, the Division of Air Quality (DAQ) shares educational resources that aid with a) learning about climate change and climate science, b) helping bring climate science into the classroom, and c) encouraging individual actions to reduce carbon and greenhouse gas emissions. The Division also supports communication and outreach related to the Greenhouse Gas Inventory, which is collected annually and reported in January for the previous year's analysis.

Additionally, a workgroup of educational staff throughout the Department supports the NC Climate Education Network project to provide educational materials and support for K-12 and nonformal educators to enhance scientific aspects of the curriculum, with an emphasis on climate issues and awareness.

2.0. Increase statewide resilience to the impacts of climate change

2.1 Evaluate the impacts of climate change on the Department of Environmental Quality's programs and operations

2.1.1 Albemarle-Pamlico National Estuary Partnership (APNEP) Air Resources Monitoring & Assessment Team (AR-MAT)

Status: Ongoing
Expected Completion Date: Ongoing

The APNEP AR-MAT includes two working groups (chemical deposition and climate) who are developing monitoring and assessment strategies for their respective indicator metrics, all within the Albemarle-Pamlico region. The chemical deposition group has developed an initial APNEP metric (assessment) report on total nitrogen deposition and is completing their initial metric report on ground-level ozone concentration, while the climate group is completing their initial metric report on annual and seasonal series of daily precipitation maxima, the latter to be assessed at two scales: region/basin-wide and individual basins or sub-basins.

During the next 12 months, both working groups will be contributing to further development and refinement to an A-P Air Resources monitoring strategy.

2.1.2 Study Hydrologic and Hydraulic Capacity in Cape Fear River Basin

Status: Ongoing
Expected Completion Date: March 2026

This included the study of hydrologic and hydraulic (H&H) capacity of large and very large dams identified in the Neuse, Tar-Pam and Lumber River Basins. The Division of Energy, Mineral and Land Resources (DEMLR) Dam Safety Program developed H&H models to determine the differing amounts of rain that would cause over 550 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 public health, loss of life, flooding 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.

This information will also go into the DamWatch system and employed by NC Division of Emergency Management (NCEM) and DEQ to provide real-time alerts to possible issues at dams. DEMLR plans to continue with additional studies moving into the new fiscal year upon completion of the current Probable Maximum Precipitation study, which is scheduled for completion in December 2024.

2.1.3 Develop Dam Breach Models

Status: Underway
Expected Completion Date: Ongoing

Continue 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 NC Department of Public Safety (NCDPS)/NCEM's efforts in developing dam breach models throughout the state.

Breach models are used by DEQ, NCDPS, NC Department of Transportation (NCDOT), local Emergency Management staff, and dam owners to identify property, lives and infrastructure subject to impact. This information assists in the development of access and evacuation routes.

2.1.4 Develop Risk-Informed Prioritization of NC High Hazard Dams

Status: Underway
Expected Completion Date: Ongoing

The DEMLR Dam Safety Program continues to develop risk-informed Assessment Prioritization of the High Hazard Dams in North Carolina. This study assessment of over 115 dams developed a screening level risk assessment protocol for all High Hazard Dams in North Carolina. These assessments will allow our program, other state agencies including NCEM and NCDOT, local governments and dam owners to set priorities for these dams and the areas in breach inundation zones in setting repair/maintenance/ resilience plans and identifying resource needs for risk, resilience and emergency response.

This study is continuing into 2025 and beyond in order to qualify North Carolina and more of its dam owners for future FEMA grants such as the High Hazard Dam Rehabilitation (HHPD) Grant. It is also anticipated that the study process developed will be applicable to all dam hazard classifications and be used upon every dam that is inspected to improve consistency and provide updated dam condition assessments annually. Our study process here has been copied by FEMA, and we are reviewing that system this year during the HHPD Grant cycle.

2.1.5 Study Probable Maximum Precipitation

Status: Underway
Expected Completion Date: Ongoing

DEMLR is supporting NCDOT, NCORR, and NC State University in their efforts to update NOAA's Atlas 14 and develop a pilot project to use climate scenarios to establish future projected rainfall statistics. DEMLR is also working with Applied Weather Associates to update the Probable Maximum Precipitation Model for NC. These projects are resilience tools identified in the 2020 RARP as being fundamental tools to be used by all government entities, planners, developers and emergency response agencies to design, develop and build a resilient infrastructure for all public and private efforts.

This project began in December of 2023 and should be 95% complete in December 2024.

2.1.6 Map and Model Landslides

Status: Underway
Expected Completion Date: Ongoing

The Landslide Mapping Program is implemented by NC Geological Survey's (NCGS) Landslide Mapping Unit in the Asheville Regional Office with contracted partners Appalachian Landslide Consultants, PLLC, and UNC-Asheville's National Environmental Modeling and Analysis Center. The NCGS updates and maintains a landslide geodatabase, and this data is accessible in a public interactive web map viewer. Preliminary landslide susceptibility modelling is complete for 22 western NC counties. The NCGS has implemented Unmanned Aerial Systems technology for routine use in landslide mapping and analysis. This information and response capability is and will remain important to the people of western North Carolina for planning, infrastructure, emergency response and life and property safety.

The landslide program will continue to collect landslide data and conduct landslide modeling on a county-wide basis to identify areas vulnerable to landslides, especially those triggered by excessive rainfall events and seismic activity. NCGS continues to respond to requests for technical assistance on landslides from emergency managers, NCDOT, local government agencies, the private sector, and the public.

2.1.7 Reassess Streamflow Statistics

Status: Underway
Expected Completion Date: September 2025

Low flow statistics are key information for numerous programs including National Pollutant Discharge Elimination System (NPDES) permitting and water supply assessments. The Division of Water Resources (DWR) is working with the US Geological Survey (USGS) to update the state's low flow statistics which were last comprehensively calculated in the early 1990s. To date, historic streamflow data for North Carolina, South Carolina, Virginia, and Georgia have been compiled and processing scripts have been developed.

USGS has completed calculation of all statistics for the project and performed all exploratory analyses. They plan to develop the final regression equations and write the project report in 2025.

2.2 Integrate climate change adaptation practices and resiliency planning into the Department of Environmental Quality's policies and operations

2.2.1 Rachel Carson NERR Habitat Resilience Plan

Status: Underway
Expected Completion Date: September 2024

The Coastal Reserve is finalizing a habitat resilience plan for the Rachel Carson Reserve that was developed through a collaborative process with non-profit, academic, and government partners. The document includes a strategic plan and identifies and prioritizes specific areas for on-the-ground implementation of nature-based habitat resilience projects. A feasibility study for one of the prioritized areas has been completed and a funding application has been submitted to support final design and construction. The plan is funded by the National Fish & Wildlife Foundation with match from the NC General Assembly.

2.2.2 Develop Database for Restoration and Water Quality Trend Evaluation

Status: Underway
Expected Completion Date: Ongoing

The development of a geodatabase and paired SQL database was initiated prior to the implementation of statewide climate change actions, and the Division of Mitigation Services (DMS) has been updating the schema to reflect the additional requirements since 2021. The paired databases will function to track and evaluate project performance and the potential effects of climate change. These evaluations will also allow DMS to more easily analyze data to identify anomalies and trends, allowing the division to implement data-driven corrections readily and accurately.

The DMS data team was formed in 2019. During 2020 and 2021, the team completed the integration between the geodatabase, the SQL database, and the financial database (i.e., Customer Relationship Management). The next step will include creating and populating data tables and maps targeted explicitly for water quality analysis and tracking. An NC Department of Information Technology embedded staff member started December 2023 and is currently working with DMS to develop a water quality database.

2.2.3 Track and Respond to Severe Weather Events

Status: Ongoing
Expected Completion Date: Ongoing

Meteorologists in the Division of Air Quality track severe weather events and provide forecasting expertise to inform management decisions on timing for implementing actions to protect staff and equipment. The Department also coordinates with other state, local, and federal agencies to support emergency actions, as needed.

The Department will continue to review and improve communications tools in collaboration with other state, local, and federal agencies.

2.2.4 Implement 2021 Coastal Habitat Protection Plan (CHPP) Amendment

Status: Ongoing
Expected Completion Date: Ongoing

DMF staff, in conjunction with APNEP and other DEQ divisions, are continuing to work to implement recommendations from the 2021 CHPP Amendment to address water quality impacts on SAV due to changes in salinity, water temperature, and water clarity; wetland loss due to sea level rise and development impacts (e.g., wetland migration, fisheries, water quality, stormwater buffering capacity); water quality impacts from inflow and infiltration associated with wastewater infrastructure; and water quality degradation due to nonpoint source pollution from environmental rule compliance. This includes the formation of a private public partnership for further community engagement.

In the next 12 months, DMF will work with APNEP to hold multiple CHPP Team and CHPP Steering Committee meetings to plan the 2026 CHPP Amendment. DMF will also continue working with other agencies and organizations to incorporate the recommendations from the Amendment into existing and future programs/efforts.

2.2.5 Develop and Implement CHPP Outreach Plan

Status: Ongoing
Expected Completion Date: Ongoing

Due to staff vacancies and workload limitation, no progress has been made on this action since the last report.

In the next 12 months, DMF will continue working with the private-public partnership to address water quality concerns through CHPP recommendations. DMF will work with the CHPP Team to determine other outreach strategies.

2.2.6 Implement DMF Headquarters Campus Resilience Plan project

Status: Ongoing
Expected Completion Date: Ongoing

DMF received funding from the National Fish and Wildlife Foundation (NFWF) to hire engineers to plan the “DMF HQ Campus Resilience Plan” to enable permitting and follow-up submission to NFWF for funding of the permitting and construction of the plan. DMF has received the funding and is in the process of getting an engineering firm to complete the plans for construction. DMF is also in the process of permitting a living shoreline (Phase 1).

In the next 12 months, DMF will use the engineering plans to find out the final funding decisions to submit a proposal to NFWF for funding phases of the project. DMF will also be looking to receive permitting and begin construction of Phase 1.

2.2.7 Pursue Acquisition of Northern Laboratory

Status: Complete
Expected Completion Date: December 2023

DMF leased a newly constructed facility to house the northern regional Shellfish Sanitation and Recreational Water Quality laboratory in Manteo. The Northern Laboratory was completed in 2023, and FDA certification was secured in January 2024. The Northern Laboratory increases DMF's ability to respond to water quality issues that may impact the suitability of shellfish for harvest, particularly following storm impacts.

2.2.8 Address Stormwater Impacts on Shellfish Growing Areas

Status: Ongoing
Expected Completion Date: Ongoing

DMF continued 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.

Staff plan to continue participation on stormwater projects such as the Stump Sound and Newport River watershed planning committees during the next year.

2.2.9 Continue Coastal Habitat Restoration in Pamlico Sound

Status: Complete
Completion Date: Fall 2024

DMF completed 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 began planning and construction of two new oyster sanctuaries in Pamlico Sound: Maw Point Oyster Sanctuary, and Brant Island Shoal Oyster Sanctuary. 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 finish the first year's deployments to Maw Point and Brant Island Shoals Oyster Sanctuaries and begin planning and deployments for year two of these projects.

2.2.10 Implement Fisheries Management Resilience Strategies

Status: Ongoing
Completion Date: Ongoing

DMF prepares fishery management plans for adoption by the NC Marine Fisheries Commission for all commercially and recreationally significant species or fisheries that comprise state marine or estuarine resources. In 2024 the Commission gave final approval to Amendment 2 of the Striped Mullet Fishery Management Plan, which contains management measures to address the overfished and overfishing status of the stock and preferentially protect striped mullet during their spawning months. Climate change increases the variability of ecosystem factors by impacting the distribution, abundance, and productivity of fish populations and resulting management. DMF addresses climate change impacts as fishery management opportunities through the development of fishery management strategies that are flexible and support easier entry and exit into new fisheries and out of those that are declining to prevent overfishing.

DMF continues to support interstate and federal cooperative management, stock assessments, and fishery management plan guidelines by incorporating climate change in vision statements and/or strategic plans and fishery management plans.

2.2.11 Create Resiliency for DEQ Locations During Power Interruptions

Status: Complete
Completion Date: Spring 2024

Information Technology (IT) has identified networking and computing equipment that do not have a battery back-up. These batteries are commonly referred to as Uninterruptable Power Sources and are meant to provide key equipment with power during a power outage of 30 minutes or less. This can keep key equipment powered on for a seamless transition to a back-up power source with minimal loss to operations or data.

IT has purchased and installed the equipment.

2.2.12 Update APNEP Comprehensive Conservation and Management Plan (CCMP)

Status: Underway
Expected Completion Date: December 2024

APNEP continued strategic planning with its Management Conference members to update its Comprehensive Conservation and Management Plan (CCMP). Consideration of climate actions remain a driver when assessing actions needed to identify, protect, and restore the significant resources of the Albemarle-Pamlico region. APNEP has been working to ensure integration of recent actions recommended in the N.C. Climate Risk and Resilience Plan and Natural and Working Lands Action Plan, Virginia Coastal Resilience Master Plan, and numerous other regional resilience and related conservation plans into the CCMP Update. Community Resilience is one of five themes that have been identified as a focus area for the next five years for the updated CCMP, along with Water Quality, Submerged Aquatic Vegetation (SAV), Coastal Wetlands, and Oyster Habitats. APNEP focuses on projects that integrate multiple focus areas and link both ecosystem and community resilience.

APNEP also spent significant time developing a five-year strategy for a Bipartisan Infrastructure Law (BIL) Workplan and Equity Strategy. The workplan and strategy are designed to accelerate CCMP implementation which includes Community Resilience as a focus area, and has ecosystem resilience integrated across the wetlands, water quality, and SAV focus areas as described above.

Over the next twelve months, APNEP expects to complete and publish the updated CCMP and integrate implementation into annual workplans and partner coordination.

2.2.13 Spatial Decision Support for APNEP CCMP Implementation

Status: Underway
Expected Completion Date: December 2027

APNEP has started a project to support spatial decision-making in support for CCMP Implementation. Over the next twelve months, APNEP and the project steering committee will review and provide input on deliverables as they are produced and incorporate products into decision making as they are completed.

2.2.14 APNEP Coastal Plain Ecological Flows Evaluation

Status: Underway
Expected Completion Date: Ongoing

Ecological, or environmental flows describes the flow of water needed to maintain ecologically healthy streams and rivers, as well as the estuaries they feed. Protection of natural flow regimes is key to building ecosystem resilience and maintaining the components, functions, and processes of aquatic ecosystems. Flows of inland freshwater rivers are those that maintain ecological integrity and are embodied in policies for planning and management of water withdrawals.

APNEP has led an Ecological Flows Action Team since 2015 at the request of partners that participated in the NC Ecological Flows Science Advisory Board (EFSAB) to address data gaps and needs identified by members of EFSAB's Coastal Ecological Flows Working Group. Guided by the team, East Carolina University led studies to provide the basis for recommendations to DWR for future policy development. In 2023, the team released the Phase II Report: Developing Coastal Plain Ecological Flow Guidance in the Albemarle-Pamlico Basin - Trent River Pilot Study.

During the next twelve months, continued discussions will be held with the team and the Division of Water Resources to determine next steps.

2.2.15 Coordinate Water Resources Rules Revisions that Support EO80

Status: Planned
Expected Completion Date: March 2026

DWR Planning staff held a number of meetings with NC State University stormwater researchers and subject matter expert practitioners over the last year on revising stormwater post-construction control standards to incorporate projected climate change effects on rainfall to better protect receiving streams. Draft stormwater rules will address new development post-construction standards as well as existing development stormwater runoff, providing flexibility to local governments to implement multi-benefit practices that help with flooding, carbon storage, ecosystem enhancement and community needs in addition to nutrient loading.

DWR intends to complete draft stormwater rules content for public review for High Rock Lake watershed by November 2024. Similar rules for Jordan and Falls Lakes will follow in 2025.

2.2.16 Incorporate Information About Climate Resiliency into the Cape Fear River Basinwide Water Resources Management Plan (Basin Plan)

Status: Underway
Expected Completion Date: Spring/Summer 2025

Basin plans report on changes and impacts to surface and ground water resources on a watershed and river basin scale. They identify areas that may be impacted by point and nonpoint sources of pollution, provide recommendations for reducing impacts to water quality and quantity, and recognize nature-based solutions as ways to reduce impacts to our natural resources and build resiliency. While developing the Cape Fear River basin plan, basin planners worked with the Cape Fear River Assembly to develop and distribute a survey to communities who do not typically engage in the planning process. The survey asked respondents to identify their concerns within the river basin as it relates to protecting and managing water resources within their community. In the Broad River basin, basin planners met with riverkeepers and local resource agencies to understand and identify concerns within the basin. When appropriate, information gathered from the survey and conversations with local watershed groups will be incorporated into the basin plans.

Over the next 12 months, basin planners will be completing the Cape Fear River and Broad River basin plans. Once a draft is complete, the basin plans will be available for public comment before it is presented to the Environmental Management Commission.

2.2.17 Provide Updated Stormwater Control Measure Recommendations

Status: Underway
Expected Completion Date: 2025

During 2024, DWR Nonpoint Source Planning staff obtained from NC State Biological and Agricultural Engineering an analysis and technical proposal providing draft safety factors for increasing the sizing of Stormwater Control Measures throughout the Coastal Plain, varying by location, based on storm size increases determined from the most recent 20-25 years of rainfall records. Staff intend to disseminate these recommendations for 319 grant applicants to begin considering for use as applicable as early as the next round of competitive proposals in 2025. In addition, in 2024-25, Nonpoint Source Branch staff will explore the potential for broadening this analysis across the Piedmont and will also work with the DEMLR Stormwater program to evaluate the potential for using these analyses for adjustments to stormwater regulatory requirements in upcoming rules readoptions.

2.2.18 Streamline Approvals for Temporary Disaster Debris Sites

Status: Ongoing
Expected Completion Date: December 2024

The Division of Waste Management (DWM) is developing an online Laserfiche forms process to streamline approvals for temporary disaster debris sites. DWM will continue to work with local, state, and federal partners to participate in and conduct training, and to provide guidance via division webpages. DWM field staff have continued to work with local governments on an individual basis to establish new disaster debris sites.

The Division encountered minor delays in finalization but anticipates that the online evaluation form will be available by December 31, 2024.

2.3 Assist the communities served by Department of Environmental Quality to implement climate change adaptation practices and resiliency planning

2.3.1 Utilize Infrastructure Funding to Support Projects that Improve Resiliency

Status: Underway
Expected Completion Date: Ongoing

In Fall 2023 and Spring 2024 water and wastewater infrastructure funding rounds, the State Water Infrastructure Authority (SWIA) awarded $245,555,744 in funding to support 27 applications that addressed resiliency. Examples include stormwater, water, and wastewater projects to move treatment plants above floodplains, reduce flooding, installing bioretention cells, rehab lift stations, and add backup power generation or other action to improve continuity of service during storm events.

The Division of Water Infrastructure will continue to recommend funding awards that include projects supporting resiliency to SWIA for biannual funding rounds.

2.3.2 Implement Phase 3 & 4 of Resilient Coastal Communities Program (Round 1)

Status: Ongoing
Expected Completion Date: April 2025

Phase 3:

DCM began Phase 3 (Engineering and Design) of the RCCP in March of 2022 to improve local communities' resilience to climate-driven hazards. To be eligible for Phase 3, communities must have completed Phases 1 and 2 through the RCCP or the equivalent, as determined by DCM staff. DCM selected 20 projects representing 23 communities to move into Phase 3 and awarded $1.14 million in grant funding. Most of those projects included a natural or nature-based component. All 20 Phase 3 projects awarded in 2022 are complete.

Phase 4:

Once the communities showed they were close to completing Phase 3, DCM released Phase 4 applications in March of 2023. In response, DCM received 18 applications from communities that had either completed Phases 1-3, were close to completing Phase 3, or met the substitution requirements therein. From those applications DCM selected 5 projects to move forward and awarded $1.16 million in grant funding. One project (Pine Knoll Shores) is complete. The other four projects are expected to complete work by April 2025.

2.3.3 Coastal Training Program

Status: Ongoing
Expected Completion Date: Ongoing

The 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 following were offered during this time period: Living on a Barrier Island – A virtual workshop for Brunswick County Association of Realtors members – September 19, Promoting Living Shorelines for Erosion Control – Cape Fear Realtors, October 4, Living Shoreline Habitat Tradeoffs workshop – to assist permit review agencies (including DCM and DMF) with permit decision-making – October 12, Promoting Living Shorelines for Erosion Control virtual workshop for Brunswick County Association of Realtors members on March 12, Low Impact Development Basics for Water Quality Protection for Cape Fear Realtors, April 24, Wilmington, Low Impact Development Basics for Water Quality Protection for Cape Fear Realtors, April 25, Wilmington, Living on a Barrier Island virtual workshop for Outer Banks Realtors, May 21.

North Carolina's Coastal Reserve/National Estuarine Research Reserve K-12 education program continues to teach resilience and climate change focused curriculum to teachers for use in their classrooms. Students participating in Coastal Reserve summer camps also learn about changing climates through these activities. Education Coordinator with the Reserve along with other DEQ educators has started working on a version of Project Wet, which is a curriculum dedicated to solving critical environmental challenges by teaching the world about water that will serve as a North Carolina specific climate, water & resilience guide for North Carolina educators.

Within the next 12 months, Promoting Living Shorelines workshop will be held in Wilmington on September 19 for Cape Fear Realtors and Brunswick County Association of Realtors; Living on a Barrier Island workshop will be held virtually on February 18 for Brunswick County Association of Realtors; and NOAA's Adaptation Planning for Coastal Communities will be offered for decision-maker audiences this coming year.

2.3.4 Implement Phase 1 & 2 of Resilient Coastal Communities (Round 2)

Status: Ongoing
Expected Completion Date: November 2024

In January 2023, DCM initiated the second round of the Resilient Coastal Communities Program with requests for community and contractor applications. The Division received 15 applications representing 3 counties and 12 municipalities and received 11 applications from third-party contractors. All 15 communities were selected to participate in the 2023-2024 second round of Phases 1 and 2. DCM selected 8 contractors to provide direct technical assistance to the communities and matched them based on community preference, geographic location, and skillsets. The Division awarded $1.08 million in grant funding to these 8 contractors to complete Phases 1 and 2 of the RCCP.

Twelve out of the fifteen communities have completed Phases 1 and 2. The other three communities are expected to complete work by November 2024.

The RCCP incorporates environmental justice and equity considerations throughout its four phases, requiring communities to engage with and assess the vulnerability of their most disadvantaged populations and identify the best strategies to assist them. For example, the RCCP asks each community and its contractor(s) to identify and evaluate social vulnerability by implementing a risk and vulnerability assessment and using the results to identify and prioritize projects incorporating DEIJ principles. Additionally, one of the criteria for community applications was their economic Tier status, thus enabling to program to prioritize Tier 1/lower-capacity communities.

2.3.5 Expand Phase 2 of the RCCP to Improve Efficiency, Effectiveness and Equity in Final Design & Permitting

Status: Underway
Expected Completion Date: Ongoing

In Phase 2 of the RCCP, communities and their contractors use multi-factor criteria in the project prioritization process to select the best projects to move forward. However, the analysis needs to be designed to analyze project alternatives comprehensively. As a result, the communities risk missing the best resilience alternatives and misdirecting resources into the final design, permitting, and implementation of less efficient, effective, and equitable projects that might underutilize nature-based solutions.

DCM was awarded $3.1M from NFWF's National Coastal Resilience Fund to provide final engineering and design technical assistance for local government projects through the RCCP to support underserved communities advance previously prioritized projects towards final design in the most efficient, effective, and equitable way. Work is expected to begin in October 2024 and will include projects that involve feasibility and cost-benefit analyses and modeling to improve decision-making.

2.3.6 Incorporate Resilience into Land Use Planning

Status: Underway
Expected Completion Date: Ongoing

DCM provides matching grants to local governments for projects to improve pedestrian access to the state's beaches and waterways through the Beach and Waterfront Access Grants Program. DCM is currently working to integrate resilience-based projects and components into the program. This includes an emphasis on natural and nature-based infrastructure which makes waterfront and beach access projects more sustainable and resilience to coastal hazards.

DCM has completed the Land-Use Planning Guide. Land use plans include a collection of policies and maps that serves as a community's blueprint for growth. These plans are a fundamental element of coastal management in North Carolina and resilience planning is a key component of this process. With specific guidance from DCM, communities working towards new land-use plans can better incorporate disaster recovery and resiliency, hazard mitigation, environmental sustainability, and diversity and equity.

Additionally, DCM submitted a full proposal to the NFWF's National Coastal Resilience Fund for $2M. If selected, this proposal will fund two simultaneous contributions to the RCCP. First, DCM proposes to begin a third round of Phases 1 and 2, generating new insights into coastal resilience for participating communities. Second, the Division will integrate the outcomes of RCCP deliverables, such as newly developed Resilience Strategies and Project Portfolios, into updated CAMA (Coastal Area Management Act) Land Use Plans (LUPs). In doing so, this project will not only provide an opportunity for communities to formalize resilience into their planning frameworks but also enable DCM to merge the RCCP with existing land use planning guidance, resources, and personnel, which currently exist as separate initiatives housed in the same department. Including resilience in LUPs is the logical next step to bridge the gap between the outcomes of RCCP and the future of the CAMA Land Use Planning process. This integration will lead to resilient policies that reflect a forward-thinking approach to coastal hazard mitigation, economic and social stability, and environmental sustainability. DCM will know of an award decision by the end of 2024.

2.3.7 Support DMS Natural Infrastructure Flood Mitigation Program (NIFMP)

Status: Underway
Expected Completion Date: Ongoing

In accordance with G.S. 143-214.11A, DMS is developing the NIFMP. Development of a strategic plan to act as a roadmap to NIFM program implementation was completed August 2024. Modeling to quantify the effect of compensatory mitigation practices for flood mitigation was completed January 2024. An assessment tool for estimating project proposals is in development.

The initial stages of the Stoney Creek pilot project stakeholder engagement have been completed. Additional project coordination with stakeholders and local landowners is ongoing. DMS approved the Stoney Creek conceptual plan submitted by the contractor (Ecosystem Planning & Restoration – EPR). This plan included project site, watershed modeling, and monitoring approaches. EPR has also secured Memorandums of Understanding with a few landowners within the watershed, allowing EPR and the landowner to work together to explore potential projects on the property. The first pilot project in Stoney Creek is set to break ground September 2024.

2.3.8 Develop the Flood Resiliency Blueprint

Status: Underway
Expected Completion Date: Ongoing

Development and implementation of the Flood Resiliency Blueprint covers three phases. Phase I of the Blueprint included nine months of comprehensive research and analysis, community outreach, stakeholder engagement, and feedback provided by the Principal and Technical Advisory Groups. This has resulted in the Draft Blueprint, published in March 2024, a pilot Neuse River Basin Flood Resiliency Action Strategy, and over 30 technical documents describing results and recommendations from the Gap Analysis.

Phase II of the Blueprint is ongoing and focuses on developing a web-based decision support tool known as the NC Flood Resiliency Blueprint Tool (Blueprint Tool). This Tool will be a publicly accessible, data- and model-driven, GIS-enabled web application designed to aid flood planning and implementation statewide.

Phase III applies the online support tool, developed in Phase II, and the Draft Flood Resiliency Blueprint, developed in Phase I, to river basins statewide. Phase III will develop river-basin-specific action strategies, similar to the Draft Neuse Basin Action Strategy developed in Phase I, for five additional targeted river basins: Cape Fear, Yadkin-Pee Dee, Tar-Pamlico, White Oak, and French Broad basins.

2.3.9 Implement Phase 2 of the Tribal Coastal Resilience Connections Project

Status: Underway
Expected Completion Date: Ongoing

The Tribal Coastal Resilience Connections (TCRC) project aims to build capacity to support Tribal communities in the Albemarle-Pamlico region with climate resilience and adaptation planning and increase engagement between Tribal organizations, government agencies, and universities. The TCRC team released its Phase I report in 2023, which documents the launch of the work, research on Tribal climate adaptation plans, experimentation with social media engagement, field work, partnership and network development, conducting outreach at conferences and events, and building the groundwork for a sustainable program. Recommendations include educating resilience practitioners from agencies, universities, and other organizations on best practices for engaging with Tribes, and ensuring all communities, regardless of recognition status, are included in resilience and adaptation planning processes.

Phase 2 focuses on expansion of efforts and tools identified in Phase 1 through targeted work in the Chowan Watershed in the shared waterways of the Albemarle-Pamlico region between Virginia and North Carolina (also supporting APNEP MOU implementation), as well as deepening relationships between communities, agencies, and academia. The team will utilize these efforts to build towards creating a Tribal Coastal Resilience toolbox, utilizing community directed mapping to develop the basis for a regional adaptation framework to assist with future resilience planning. The information will also provide a platform that can be utilized to educate agency staff on considerations, perspectives, and traditional ecological knowledge unique to native communities. APNEP has included expansion of this project in its Bipartisan Infrastructure Law Long-Term Strategy with Equity Strategy and is actively seeking grant funding to further build capacity to implement the project.

2.3.10 Natural and Nature-Based Features Resilience Project

Status: Complete
Expected Completion Date: December 2023

In 2023, APNEP and partners at Wetlands Watch completed the North Carolina portion of the Natural and Nature Based Features (NNBF) project, which is designed to the incentivize the use of NNBFs by identifying co-benefits of coastal habitats, natural infrastructure, and nature-based solutions to mitigate storm driven flooding. The project team conducted a needs assessment of local governments and resilience practitioners through the Outer Banks CRS Users Group, NC Coastal Resilience Community of Practice, and DEQ Water Resources Interagency Team (WRIT). The project culminated in development of a resilience tool and database tailored to meet identified needs.

This project is an extension of a NOAA-funded project led by the Virginia Institute of Marine Sciences. The project team developed a spatial analysis tool for Virginia local governments released on ADAPTVA in 2021 and outreach materials to assist local governments in increasing the use of NNBFs to increase community resilience to flooding caused by storms and extreme weather events.

As a member of the Statewide Resilience Clearinghouse Steering Committee, APNEP is working to incorporate the tool in the new NC Resilience Exchange (launched Spring 2024), as it may be beneficial for regional resilience planning being conducted in our shared waterways in both states.

2.3.11 High Hazard Dam Rehabilitation Grant

Status: Ongoing
Expected Completion Date: Ongoing

The DEMLR Dam Safety Program administers a FEMA grant program for the rehabilitation of High Hazard dams. This grant provided over $3,000,000 to local government dam owners and DEQ over the last three years and an additional $9.5M is expected for the upcoming year 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. 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 due to safety deficiencies. This is especially necessary with the changing climate impacts we are subject to. 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.

2.3.12 Produce Design/Developer and Local Program Education Workshops – Sedimentation Program

Status: Ongoing
Expected Completion Date: Ongoing

The DEMLR Sedimentation Control Program continues the annual production of workshops for design professionals, developers, contractors, local government programs, universities, and interested parties to address a wide range of erosion and sedimentation control (E&SC) issues in North Carolina. This capability will improve resilience throughout the state on construction sites during and after construction. These workshops educate and provide technical assistance to stakeholders on topics such as innovative design, ongoing research, regulatory updates, consistency between jurisdictions, benefit-cost analysis, use of natural systems, and native vegetation.

Over the next twelve months, at least one E&SC workshop will be produced.

2.3.13 Produce Design/Developer and Local Program Education Workshops – Stormwater Program

Status: Ongoing
Expected Completion Date: Ongoing

The DEMLR Stormwater Program continues to produce monthly workshops for design professionals, developers, contractors, local governments, universities, and interested parties to address wide ranging stormwater quality and control issues in multiple programs which include Post-Construction, NPDES Construction, NPDES Industrial, Water Supply-Watershed and MS4 components of the agency. This capability will improve resilience and impacts to water quality throughout the state on development and re-development sites. These workshops, held monthly, educate and provide technical assistance to all stakeholders on topics such as updates in innovative design, ongoing research, regulatory updates, consistency between jurisdictions, benefit-cost analysis, and use of natural systems.

Over the next twelve months, monthly stormwater program workshops will be produced.

2.3.14 Develop Wastewater Assessment Training Program

Status: Ongoing
Expected Completion Date: December 2024

DMF continues to pursue 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.

Staff will host a training in September 2024 with the FDA engineering team regarding hydrographic study design and implementation. The training will be held at the Carolina Beach Wastewater Treatment Plant (WWTP), and the purpose is to introduce new staff to hydrographic study design and procedures using new technologies such as proprietary software and drone use.

2.3.15 Fund Stream Restoration Projects

Status: Ongoing
Expected Completion Date: Ongoing

The Division of Water Resources funds projects to restore degraded streams across North Carolina. Restoration improves resiliency by restoring a stream or river's ability to reduce stormwater flow and downstream flooding. It can also decrease instream temperatures and improve water quality by reducing pollutant loading reaching larger water bodies.

Approximately $3,530,501 million dollars in DWR grant-administered funds were used to match a total of $11,371,477 million dollars for 22 projects completed in FY 2023-2024. An additional $5,603,092 million dollars in DWR grant-administered funds were used to match a total of $19,271,592 million dollars for projects planned or under construction during this same period.

2.3.16 Disseminate Outreach and Guidance Related to Approval, Operation, and Closure of Temporary Disaster Debris Sites

Status: Ongoing
Expected Completion Date: August 2024

DWM is updating the website to address broken and outdated links. The Division is working with local governments on an individual basis to establish, activate, and close temporary sites for managing disaster debris from extreme weather events.

Website updates will be completed in August 2024; however, other activities will be ongoing as needed under normal business function.

2.3.17 Improve Recycling and Reuse Strategies for Disaster Debris

Status: Underway
Expected Completion Date: Ongoing

Work will continue with local, state, and federal entities, and waste and recycling facilities to improve and/or develop and implement strategies that promote the proper management of storm debris and its impacts to statewide communities. Strategies include increasing waste segregation efforts that facilitate reuse, recycling, and proper disposal of the various waste streams; expediting the removal of disaster-related waste from impacted communities; maximizing reuse and recycling opportunities available to impacted communities; growing waste reduction programs to maintain landfill capacity to withstand periodic influx of storm related debris; promoting local ordinances in building practices that eliminate exposure risks resulting in less waste being generated during storm events; and working with public and private waste management facilities to ensure their acceptance of disaster-related waste.

These actions are being incorporated into the 2024-2034 Solid Waste and Materials Management plan and strategies will be developed and implemented by DWM and DEACS programs.

2.3.18 Maintain Local Government Debris Management Planning

Status: Planned
Expected Completion Date: TBD

While many local governments have debris management plans in place, the efforts are primarily voluntary in nature. A recommendation would be for a statutory requirement that all city and county governments, either individually or jointly in resolution with one another, be required to develop and maintain a debris management plan as part of their Emergency Operations Plan. This would also assist in their compliance with existing Statute 130A-309.09A for solid waste planning purposes, which includes debris management.

Consideration of this action is being incorporated into the 2024-2034 Solid Waste and Materials Management plan.

2.3.19 Provide Outreach and Guidance Related to Spill Prevention from Underground Storage Tanks (USTs) and Aboveground Storage Tanks (ASTs)

Status: Ongoing
Expected Completion Date: Ongoing

DWM will participate in and conduct training and provide current guidance on Division webpages to prevent releases of petroleum to the environment. To improve and/or implement strategies to properly manage petroleum storage, we have been engaged in the following: attend training events and Area Contingency Plan meetings with US Coast Guard; collaborate with EPA, NCEM, DWR, and DAQ to improve notification and response time to spills reported to the National Response Center and/or NCEM; and identify unpermitted petroleum ASTs, focusing within flood zones, but including all of North Carolina facilities, in an outreach program consisting of awareness and preparation prior to hurricane season.

DWM will continue to work with local, state, and federal partners to prevent spills from aboveground and underground storage tanks.

2.3.20 Continue State and Local Partnerships

Status: Ongoing
Expected Completion Date: Ongoing

DWM will continue to collaborate with County Emergency Management Coordinators and Local Emergency Planning Committee through meetings and listening sessions to identify areas where DEQ/DWM and counties can create partnerships and assist in training.

2.4 Help complete initiatives in the Natural and Working Lands Action Plan and Executive Order 305, An Order to Protect and Restore North Carolina's Critical Natural and Working Lands

2.4.1 Develop Greenhouse Gas (GHG) Inventory for Submerged Aquatic Vegetation (SAV)

Status: Complete
Completion Date: January 2024

Natural and Working Lands Stakeholder Group's Coastal Habitats Subcommittee completed a GHG inventory for submerged aquatic vegetation and subaerial wetlands in the state to be included in the updated 2024 NC GHG Inventory.

2.4.2 High-Resolution Land Use/Land Cover Mapping Project

Status: Underway
Expected Completion Date: Ongoing

APNEP is coordinating with the National Oceanic and Atmospheric Administration (NOAA) Office for Coastal Management's Coastal Change Analysis Program (C-CAP) to produce a Level 2 (20-class) interpretation of the State of North Carolina at one-meter resolution. Through various grants and partnerships, mapping will also occur in watersheds that drain to South Carolina, in western watersheds, and in the Upper Roanoke in Virginia.

The mapping will improve the spatial accuracy and timeliness of areal extent estimates for major land cover and land use types within the Albemarle-Pamlico Basin, thus supporting CCMP habitat conservation actions such as developing a wetland protection and restoration strategy and providing communities with the foundational data needed to assess coastal resources, analyze land use, prepare for disaster risks, and adapt to a changing climate.

Over the next twelve months, APNEP will complete the contracting process and NOAA will begin work.

2.4.3 Submerged Aquatic Vegetation (SAV) Monitoring and Assessment

Status: Ongoing
Expected Completion Date: Ongoing

APNEP and its partners have made significant contributions towards implementing strategies including mapping and monitoring, water quality improvement and protection, and protection from physical disturbance to promote SAV resilience along the entire coast of North Carolina and southeastern Virginia. The group initially focused on monitoring trends in overall extent and density in both low- and high-salinity waterscapes and has since included metrics such as relative abundance and species presence have been included to gain a more robust tracking of SAV condition. In addition, high-salinity monitoring frequency increased from semi-decadal to bi-seasonal albeit for one of four subregions annually on a rotating basis.

An updated SAV Monitoring Strategy will be produced based on knowledge gained during the 2021-2024 field seasons. Building on this, an expanded survey effort in low-salinity waters will also be created. The High-Salinity SAV Metric Report produced in spring 2021 will also be updated in late 2024 to incorporate the 2019-2020 SAV high-salinity extent by cover class map. APNEP and its partners will use this information to develop protection and restoration strategies for SAV and fish species in the region and support the CHPP update.

Over the next twelve months, APNEP will continue working through its SAV Team to produce the updated SAV Monitoring Strategy and continue survey work.

2.5 Initiate other projects aimed at increasing statewide resilience to the impacts of climate change

2.5.1 Enhance Resilience and Energy Security in North Carolina's Vulnerable Communities

Status: Underway
Expected Completion Date: 2024

The SEO applied for and has been awarded the Preventing Outages and Enhancing the Resilience of the Electric Grid grant under the Infrastructure Investment and Jobs Act (IIJA) Grid Resilience Formula Grant Program Section 40101(d). The Grid Resilience grant provides $9.2M annually for the next five years in funding support for the deployment of grid modernization technologies, diversification of distributed generation assets, and hardening and improving adaptivity of the transmission infrastructure to strengthen the resiliency of the electric grid against disruptions from extreme weather-related events and outages. Upon award receipt, projects will be prioritized based on enhancing resilience and adaptivity of the electric grid, benefits to customers in vulnerable and disadvantaged community locations and critical infrastructure such as emergency shelters and hospitals, with vulnerability to extreme weather-related energy disruptions.

In FY23-24, SEO will conduct outreach events with stakeholders and the public to determine stakeholder and community priorities, determine and share how project proposals will be evaluated and awarded, and release an RFP for proposals.

2.5.2 Monitor Programmatic Water Quality in Stream and Wetland Restorations

Status: [Complete, Underway, Ongoing, Planned, or Proposed]
Expected Completion Date: [Month, Year; Season, Year; or "Ongoing"]

Data collected and analyzed in the program will support the efficacy of water quality improvements resulting from restoration activities. Automatic sampling across eleven sites began in February 2022. Also, the Science and Analysis (S&A) Unit of DMS is designing a project to capture the hydrologic effects of stream restoration through the direct measurement of transient storage.

Water quality parameters for automatic sampling are being quantified for data analysis. In addition, S&A is designing a project to capture the hydrologic effects of stream restoration through the direct measurement of transient storage. Data collection at three sites has begun and WQ monitoring continues.

2.5.3 Lead Scuppernong Regional Water Management Study

Status: Underway
Expected Completion Date: December 2025

At the request of the NC Division of Parks and Recreation, APNEP has been leading development of the Scuppernong Regional Water Management Study since 2018, serving as a neutral, science-based convenor of a diverse group of stakeholders and local communities to address flooding and water management issues on the northern Albemarle-Pamlico peninsula surrounding Pettigrew State Park (Lake Phelps), Pocosin Lakes National Wildlife Refuge, and Buckridge Coastal Reserve.

Phase I of the Scuppernong Water Management Study was completed in spring 2024, funded through a NC-DWR Water Resources Development Grant awarded to the Albemarle Commission in 2023. The grant is geared towards assisting marginalized communities with flooding through equitable engagement. The team developed a Steering Committee, expanding the regional partnership beyond the grant partners to ensure development of a product that will help local decision makers with flooding, drainage, and regional water management issues.

Throughout 2023 and 2024, the Engagement Team, led by the NC Coastal Reserve, organized and attended several community events, engaging hundreds of community members in conversations about areas of concern for flooding with the intent to incorporate community feedback and knowledge into Study implementation. The team coordinates closely with other regional resilience projects through RISE, RCPP, and an Audubon project to promote nature-based solutions in Tyrrell County to leverage resources, streamline community coordination, and reduce duplication of effort.

The Study helps implement actions in the NC Natural and Working Lands Action Plan to protect peatlands through targeted interventions to protect peatlands from sea level rise and saltwater intrusion guided by scenario-based modeling. The technical subcontractor, Kris Bass Engineering, serves as a member of the Pocosin Wetland sub-team. The outcomes will be utilized to build a comprehensive regional plan to address water management issues on both privately and publicly owned land, build resilience to flooding and sea level rise, support natural and working lands, and improve coordination amongst stakeholders.

2.5.4 Participate in Albemarle-Pamlico Federal Interagency Partnership

Status: Ongoing
Expected Completion Date: Ongoing

APNEP has been participating in the Albemarle-Pamlico Federal Partnership (Resilient AP) initiated by the US Fish & Wildlife Service in 2022. This effort is aimed towards increasing regional coordination amongst federally funded partners to promote national attention towards the Albemarle-Pamlico region while also seeking to leverage and maximize the benefits of the significant federal investments being directed towards the region through BIL, IRA, ARPA, and others. The effort has recently expanded to include state agencies and will ultimately include other local, university, and NGO partners once a more refined vision has been established.

In 2023, the Albemarle-Pamlico region was identified by the White House Council on Environmental Quality Coastal Resilience Interagency Working Group as one of three national focus areas for shared learning across different locations at varied stages of place-based collaborative resilience planning. APNEP continues to partner with the Resilient AP team to build upon this recent national recognition, and over three decades of similar efforts, to elevate the status of the nation's second largest estuary.

Over the next twelve months, APNEP will continue to participate in the Resilient AP and work to ensure integration with CCMP and CHPP implementation, Integrated Monitoring Strategy development, leverage BIL investments, strengthen interagency collaboration and support related resilience efforts including NWL and RISE.

2.5.5 Educate Community Water Systems and Surface Water Systems on Risk Assessment and Emergency Response Requirements

Status: Ongoing
Expected Completion Date: Ongoing

Section 2013 of America's Water Infrastructure Act of 2018 (AWIA) requires community water systems serving greater than 3,300 people to develop or update risk assessments and emergency response plans, including for risks related to climate change. Per 15A NCAC 18C .1305 Source Water Protection Planning, public water systems in North Carolina that treat and furnish water from a surface water source are required to create and implement a Source Water Resiliency and Response Plan. Consistent and overlapping with the requirements of AWIA, the Source Water Resiliency and Response Plans require the identification of foreseeable natural emergency events and associated response strategies.

Public Water Supply Section staff worked with water systems to make them aware of the plan requirements. All public water systems submitted the required Federal and State Plans. The plans are required to be updated on a routine schedule. The Public Water Supply Section will provide outreach to water systems related to upcoming deadlines.

2.5.6 Develop NC Stream Watch

Status: Underway
Expected Completion Date: Ongoing

The NC Stream Watch Spring Pilot Cohort was designed and completed. NC Stream Watch continues to develop into a comprehensive educational resource to support teachers with connecting their students with the streams in and around their campus. Teachers completed the first cohort and received the new published NC Stream Watch Activity Guide, lesson materials, and engaged in active stream monitoring. Spring cohort members reported an overwhelmingly favorable experience in the program and consistently reported a new understanding and appreciation for the considerations for water resource management through their discussions and exposure to guest speakers from across the water resource landscape. The next cohort will begin in September and will connect educators across NC with the variety of water education programs offered through the Division of Water Resources.

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 Education and Outreach: Renewable Water Unit

Status: Ongoing
Expected Completion Date: Ongoing

The Renewable Water Unit, designed for middle school students, has been successfully implemented with the support of PBS NC and NC Sea Grant. DWR's team has ensured that the unit addresses the impact of human actions on water quantity and quality. The Division is also incorporating diverse perspectives to promote environmental justice awareness among students.

DWR is currently developing the Climate/Water/Resiliency Criteria I program for the Office of Environmental Education. The work group responsible for development is a partnership and collaboration with DWR, DCM, the NC Water Resources Research Institute, NC Aquariums, and the NC State Climate Office. This project is expected to launch as an EE Criteria I workshop to educate about climate issues through the lens of North Carolina.

3.1.2 Education and Outreach: Water Education Coffee Talks

Status: Ongoing
Expected Completion Date: Ongoing

The Water Education Coffee Talks have proven to be a valuable resource, supporting over 120 educators throughout NC. DWR has been successful in fostering an informal network where educators can share ideas, seek assistance, and stay informed about water resource opportunities simply by joining a monthly online meeting.

Water Education Coffee Talks continue to occur on the first Thursday of each month at 9 a.m. These unstructured discussions focus on methods and best practices to support effective water education. An unexpected result of these informal conversations has been the development of a network of statewide educators supporting innovative approaches to outreach opportunities, creek week implementation, outreach event planning, and general knowledge sharing.

3.2 Advance health equity

3.2.1 Action Strategy for PFAS

Status: Underway
Expected Completion Date: Ongoing

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 and surface 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 600 privately owned community and school and daycare public water systems in anticipation of coming federal drinking water standards.

Additionally, as economic development continues to expand in North Carolina, the Department is also examining the use of PFAS in new industries and facilities. 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 Enhance Harmful Algal Blooms (HAB) Rapid Response Protocols

Status: Ongoing
Expected Completion Date: Ongoing

DMF continued to enhance sentinel site monitoring, collection, and processing for harmful algae species in shellfish growing waters throughout the coast. Equipment acquisition continued including two additional microscopes bringing the total to three coastwide. One additional staff member completed training in August 2023 at Bigelow Laboratory in Maine in the identification of harmful marine algal species bringing the total to three staff trained, including one in each region for quicker response time.

Staff will continue enhancements including continuing education training of staff at the U.S. Symposium on Harmful Algae conference in October 2024.

3.3.2 Establish Public Health Inspections of Shellfish Farms

Status: Ongoing
Expected Completion Date: Ongoing

A newly created position was filled in Spring 2024 to support inspections of shellfish leases in order to meet national health requirements. This will include ensuring adherence to operational plans including bird mitigation, and cultivation practices that could elevate Vibrio bacterial levels during the months when water and air temperatures are elevated.

The goal is to inspect all shellfish leases in NC in 2024 and each calendar year. This position will also serve as a resource for shellfish leaseholders, harvesters, industry groups, and other agencies regarding education and best management practices related to the health aspects of shellfish cultivation.

4.0. Invest in historically underserved communities

4.1 Increase affordability for low- and moderate-income households

4.1.1 Support Federal Funding Opportunities for Low- and Moderate-Income Households

Status: Underway
Expected Completion Date: Ongoing

SEO is in the process of standing up several significant federal funding opportunities geared toward providing clean energy and energy efficient solutions to low- and moderate-income households.

Funding from the Bipartisan Infrastructure Law for the Weatherization Assistance Program (WAP) will provide up to $89M to assist 5,945 low-income households and multifamily dwelling units by 2027. Additionally, the 2022 Home Energy Rebates will provide more than $209M to the State to promote the installation of energy efficiency and efficient electric technologies to low- and moderate-income single- and multi-family homes.

The NC Solar for All Coalition, led by DEQ, was awarded $156 million to rapidly deliver solar and energy storage to low-income and disadvantaged communities across the state. To optimize integration of the WAP, Home Energy Rebates, and Solar for All programs for engaging and benefitting disadvantaged communities, SEO was accepted to participate in a three-month virtual Learning Cohort of the Just and Clean Energy Future - State Implementation Accelerator hosted by the Communities First Fund and funded by the White House's Department of Environmental Quality.

4.2 Create jobs and economic growth

4.2.1 Training for Residential Energy Contractors Formula Grant

Status: Planned
Expected Completion Date: 3 years from award of funds

The Training for Residential Energy Contractors (TREC) Program in NC will provide funding to train, test and certify residential energy efficiency and electrification contractors. TREC will deploy innovative, effective and equitable workforce development programs to train workers to make homes healthier and more energy efficient. SEO plans to leverage these funds with other funding for programs such as HOMES and HEAR Rebates, Weatherization Assistance Program and Energy Auditor Training. SEO submitted the application to DOE for this formula grant award in January 2024 but, as of August 2024, is waiting to receive the formula award.

4.2.2 Energy Auditor Training

Status: Planned
Expected Completion Date: 3 years from award of funds

The Energy Auditor Training (EAT) Grant Program is designed to provide grants to eligible states to train individuals who can conduct energy audits, or surveys, of commercial and residential buildings. The programs will help to build a skilled and diverse workforce for the residential and commercial energy efficiency industry. Tennessee is the lead for the residential energy sector and Georgia is the lead for the commercial energy sector. North Carolina will provide support for the following areas in both sectors: training and education, outreach, recruitment, and job placement. Applications for the residential and commercial EAT programs were submitted in June 2024; as of August 2024, SEO is waiting to receive the awards.

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

4.3.1 Mailing Lists for Federal and State Funding Opportunities

Status: Ongoing
Expected Completion Date: Ongoing

Many divisions across DEQ regularly send emails and other correspondence to the public, organizations, and contractors regarding available federal or state grant opportunities for funding.

4.4 Initiate other projects aimed at investing in underserved communities

4.4.1 Improve the Ability of Underserved Communities to Benefit from Grant-Funded Water Quality Improvement Actions

Status: Ongoing
Expected Completion Date: Ongoing

In 2023, enabled by EPA 319 grant guideline revisions, the NC 319 grant revised grant requirements to provide underserved communities the ability to develop watershed restoration plans using implementation funds, subject to the competitive pass-through process, and waived the local 40% match requirement for restoration projects proposed by underserved communities, both based on DEQ's mapping.

In 2024, as a result of increased grant outreach, the Eastern Band of Cherokee Indians submitted and was awarded 319 funding for a stream restoration project on the Oconaluftee River. In the latter half of 2024, grant staff will seek EPA approval for a new 5-year strategic plan that will include continued improvements on outreach to underserved communities with surface water impairments and better understanding their needs relative to grant opportunities.

4.4.2 Integrate Potentially Underserved Community Layer into Grant Priority Rating Systems

Status: Ongoing
Expected Completion Date: 2028

Furthering its approach to energy resilience within vulnerable, low-income communities to ensure equitable energy access and resiliency, the SEO grant application for the IIJA Grid Resilience Formula Grant Program Section 40101(d), will utilize a combination of resources and tools to identify disadvantaged communities. The tools will include the EPA's Environmental Justice Screening and Mapping Tool, the DOE's Justice40 Guidance, Energy Justice Mapping Tool, Low-Income Energy Affordability Tool, and the Council on Environmental Quality Climate and Economic Justice Screening Tool. SEO was awarded ~$9.2M/year for the next 5 years and has received the first two years of funding through the 40101(d) program.

In FY23-24, SEO conducted outreach events with stakeholders and the public to determine stakeholder and community priorities, determine and share how project proposals will be evaluated and awarded, and released an RFP for proposals.

4.4.3 Section 40101d – Preventing Outages and Enhancing the Resilience of the Electric Grid

Status: Ongoing
Expected Completion Date: 2028

Under the Grid Resilience Formula Grant Program through Section 40101(d) of the Infrastructure Investment and Jobs Act (IIJA), DOE will provide an estimated $2.3 billion in formula grants to States and Indian Tribes (eligible applicants) to improve the resilience of the electric grid against disruptive events. SEO will administer funding to subgrantees, an estimated value of $9.2 million annually for the next five years. The SEO has received the first two years of funding.

In FY24-25, after DOE grant processing, SEO will award the selected applicants grant funds for this cycle.

4.4.4 Section 40103b – Grid Innovation Program

Status: Ongoing
Expected Completion Date: 2028

Under BIL Provision 40103(b), Grid Innovation Program funding is provided through competitive solicitation to demonstrate innovative approaches to transmission, storage, and distribution infrastructure to harden and enhance resilience and reliability. The “Innovative North Carolina Transmission Rebuild Project” was selected for funding at $57 million dollars. SEO will partner with Duke Energy to rebuild a key transmission line in Eastern NC and deploy advanced transmission technology that will: help reduce power outages for more than 14,000 customers while reducing customer minutes out by an estimated 10%; increase the grid capacity; enable the connection of new clean energy resources; minimize the impact of construction on local communities by utilizing the existing right of way; and create new jobs and workforce development opportunities. Duke Energy will provide $57 million dollars in match, making the project total $114 million dollars.

SEO is currently completing pre-award documents and anticipate receiving the actual funding from DOE in early 2025.

4.4.5 APNEP Equity Strategy

Status: Underway
Expected Completion Date: Ongoing

In 2023, APNEP completed an Equity Strategy to guide the use of Bipartisan Infrastructure Law (BIL) funds through the lens of equitable and fair access to the benefits from environmental programs for all communities. The Strategy describes how APNEP will contribute to requirements under the Justice 40 Initiative, meet policies in both Virginia and North Carolina including NC Executive Order 246, and identify synergies amongst the various resilience programs including RISE and RCPP. The Strategy highlights equity considerations in APNEP led efforts including the Tribal Coastal Resilience Connections project and Scuppernong Study described elsewhere in this report. The Strategy was approved by EPA Headquarters in October 2023 and incorporated into APNEP's FY22-FY27 Work Plan & Budget Bipartisan Infrastructure Law Cooperative Agreement.

An interactive, GIS-based web tool was created that combines the six tools identified in the Equity Strategy to assist with ensuring BIL funds benefit disadvantaged, underserved, underrepresented communities in the AP region. The tool integrates screening tools and data including geographic areas: a) Census blocks identified by EPA's Environmental Justice Screening Tool (EJScreen), b) Census tracts identified by Justice40 Initiative Climate & Economic Justice Screening Tool (CEJST), census blocks identified by NC-DEQ's Community Mapping System, and economic designations identified by the NC Department of Commerce and Southeast Crescent Regional Commission Economic Designations.

APNEP will continue to utilize the Strategy to guide BIL implementation and incorporate provisions during project development with partners over the next twelve months.