




UNIVERSITY of NORTH CAROLINA WILMINGTON

To: Joint Legislative Education Oversight Committee and North Carolina Fiscal Research Division

From: Aswani K. Volety   
Chancellor

Date: March 15, 2024

Subject: UNCW Research Programs in Critical Workforce Areas - Report per North Carolina House Bill 259, Section 8.17

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### Introduction and Background

North Carolina House Bill 259 (HB259), Section 8.17 directed an \$8 million recurring investment to the University of North Carolina Wilmington (UNCW) to “expand research programs in critical research areas to maintain its classification in the Carnegie Classification of Institutions of Higher Education as R2 – High Research Activity.” The legislation further specified an annual reporting requirement; this is the required report for March 15, 2024.

In 2018, UNCW was reclassified as a “Doctoral University with High Research Activity,” or what is colloquially known as an R2 institution, because the institution met two key criteria. First, the institution’s **research expenditures** as reported on the National Science Foundation’s Higher Education Research and Development (NSF HERD) survey exceeded \$5 million; in fact, UNCW’s research expenditures in the assessment year exceeded \$15 million. These research expenditures were driven by an annual average of \$10.5 million in new externally sponsored programs. Second, the institution **graduated more than 20 students in research-based doctoral programs**. These remain the key criteria to maintain the Carnegie classification.

### Fund Use and Approach for Fiscal Year 2024

Critical equipment and research infrastructure is necessary to expand high-demand research areas at UNCW. Also, because the designated funds from HB259 became available midway through Fiscal Year 2024 (FY24), UNCW chose to invest the first year of funds on **one-time expenses** selected (1) to build fundamental institutional capacity to expand existing critical extramurally funded research programs, (2) to prepare for an expanding institutional research portfolio, and (3) to increase support for the historic and recently established research-based doctoral programs (e.g. Integrative, Comparative & Marine Biology; Applied Coastal and Ocean Sciences; Pharmaceutical Chemistry; Psychology; and Educational Leadership). These funds

have been allocated to investments in six broad categories as shown in Table 1. Expenditures are underway, and they are projected to be fully spent by June 30, 2024.

*Table 1. UNCW FY24 Expenditure Categories.*

Category	Amount	% of FY24 Appropriations
Research Equipment	\$ 3,354,394	42%
Software and Hardware Upgrades	\$ 1,290,730	16%
Coastal and Marine Science Vessel	\$ 1,267,789	16%
Human Capital and Contract Service Providers	\$ 676,107	8%
Research Development	\$ 614,000	8%
Physical Renovations	\$ 580,230	7%
Other	\$ 216,750	5%
<b>Total:</b>		<b>\$ 8,000,000</b>

**Research Equipment.** These purchases (>70 instruments and scientific equipment) will be used to enhance equipment in shared core research facilities and service centers, as well as equipment for individual labs of current researchers. This will support critical research in high demand fields. Example purchases in this category include: (1) \$400,000 for a mass spectrometer for the Center for Marine Science, (2) \$130,000 for a laser dissection microscope for the College of Science and Engineering, and (3) \$200,000 for new environmental chambers at the Center for Marine Science.

**Software and Hardware Upgrades.** This category includes thirteen projects to support multiple areas of the UNCW research enterprise. Notable examples include: (1) \$200,000 to support implementation of additional functionality of the UNCW electronic research administration system (OSPNEY) that is used to manage/administer sponsored research, compliance programs, and track research commercialization, and (2) \$574,000 to significantly enhance UNCW's research data storage capacity, functionality, and security, especially for research activities related to critical workforce areas. This category also includes expected investments to increase high performance computing capacity that will support big data type research programs such as those in healthcare, financial technology, artificial intelligence, computing, other critical workforce areas.

**Coastal and Marine Science Vessel.** A portion of the funds will be combined with other institutional funds to the purchase of a new large research vessel to expanded marine science and oceanography research.

**Human Capital and Contract Service Providers.** This category includes ten targeted investments in staff and contract service providers needed to expand sponsored research capacity at UNCW. A notable example is \$128,000 to work with BerryDunn consultants to ensure future IT-infrastructure investments best meet the needs of the research enterprise. This assessment includes an evaluation of UNCW's needs and strategy for high performance computing.

**Research Development.** These are investments related to training and support to increase the faculty's ability to pursue research grant opportunities and enhance proposal competitiveness.

**Physical Renovations.** Several small renovations or upfits to existing research spaces which will expand the types of research opportunities that our faculty can pursue.

The **Other** category includes investments across a variety of areas including, but not limited to direct graduate student support for graduate research assistantships and specific research supplies.

### Critical Research Areas

For FY24, UNCW identified critical research areas for investment based on recent sponsored research activity and existing research-based doctoral programs. As the state's coastal university, research programs related to **coastal and marine science** currently drive most of the institution's sponsored research, and with the aforementioned new investments we expect these programs to continue to expand. When delivered, the new vessel will create new capacity to study the ocean from the near coast and across the continental shelf. This research will also support the expanding blue economy in North Carolina, including fishing, maritime transpiration, and offshore wind. The FY24 expenditures will also benefit growing research related to coastal resilience in which UNCW investigators aim to answer questions about how the growing coastal population can live resiliently on a coast facing intensifying tropical storms and where flood prevention and mitigation is critical. These investments will also support student success in academic programs like the Applied Coastal and Ocean Sciences PhD program. **Human health** related research is also broadly identified as a critical research area this year, with expectations to continue to grow and provide solutions for the residents of NC. This research priority area includes advances in human performance, nursing care, drug discovery and pharmaceutical chemistry, psychology, and the health impacts of per- and poly-fluoroalkyl substances (PFAS/PFOS). **Security** considered broadly is third critical research area of focus. For example, UNCW is growing its cybersecurity in research and training broadly and developing a maritime cybersecurity concentration. How can we keep international supply chains secure as commerce flows through commercial ports? In 2018, UNCW established a Center for Cyber Defense Education, and is actively growing its research expertise and impact in this area. This is an interdisciplinary collaboration between experts in computer science and experts in business and operations.

### Impact of Funding Expansion

FY24 is the first year of the HB259 funding for UNCW. Since some of the new investments are still in process, the full impact of the additional expenditures is yet to be fully realized.

UNCW recorded over \$25 million in new sponsored programs in FY 2023, which is more than double the awards recorded for the institution's Carnegie reclassification in 2018. UNCW expects that new sponsored programs and research expenditures will substantially increase again in FY24 and continue in the future. Similarly, the doctoral programs are showing success. In

academic year 2022-2023, UNCW graduated 32 students from research-based doctoral programs.

### **Recommended Additional Actions**

UNCW is committed to continuing to grow research and innovation that enhances student learning and workforce development, discovers new knowledge, forges knowledge leaders, and solves critical problems in the region, the state, and around the globe. To support continued research expansion in the future, UNCW will need to (1) recruit new research active faculty in critical research areas to grow expertise and capacity, (2) competitively support graduate students in the doctoral programs, (3) continue to enhance the campus research infrastructure (including core facilities and services), and (4) invest in administrative and technical support staff that enable safe, secure, and efficient research activities. This will require a transition from the one-time type expenditures from FY24, to more recurring commitments. These investments will support additional growth in extramurally sponsored research, and existing and selected new academic programs that will help meet the workforce demands in multiple critical areas.

### **Other Considerations**

Overall, the UNCW strategy for FY24 was to apply the initial year of HB254 funding as one-time expenditures to expand core infrastructure and research capacity. The goal was to build a strong foundation for continued research growth in UNCW's critical research areas. While some purchased services such as researcher and support staff professional development were able to be deployed rapidly, some of the equipment purchases and physical space upgrades require time to be completed and then provide measurable benefits. One palpable benefit of the HB254 funding is a clear signal of institutional and state support for the growing research productivity and impact of UNCW.

CC: Stuart R. Borrett, Associate Provost for Research and Innovation  
Senator Michael Lee