

TRANSFORMING KNOWLEDGE, LIVES, AND COMMUNITIES 2022





"We need to keep UConn affordable and accessible: A college degree and the college experience has never been more important for motivated leaders of our future," says UConn President Radenka Maric.

RADENKA MARIC BECOMES UCONN'S 17TH PRESIDENT

Following a national search, the UConn Board of Trustees promoted Dr. Radenka Maric from Vice President for Research, Innovation and Entrepreneurship (VPRIE) to President of the University of Connecticut. President Maric, who served as UConn's interim president from February 2022 until her permanent appointment on September 29, brings a wealth of experience in research, teaching, entrepreneurship, and public engagement to her new role. Her top priority is students, ensuring their lifelong success by supporting academic excellence, accessibility, experiential learning, and well-being.

"Our society badly needs an innovative workforce to address pressing issues in areas such as public health, climate change, and social justice. We provide the best and most transformative education to our students by giving them opportunities in financial literacy, entrepreneurship, innovation, and more to help them tackle those challenges," President Maric says.

She has also pledged to lead UConn to carbon neutrality by 2030. Her standing as a world-renowned expert in clean energy technologies gives her the scientific understanding and global connections to ensure that UConn, already a climate leader, becomes recognized as a world leader in sustainability. UConn's infrastructure, academic programs, and experiential learning opportunities encourage all members of our community to contribute to a clean and sustainable future. Dr. Maric's achievements leading the UConn Research enterprise have made possible the gains described in the pages that follow. UConn Research is grateful for her service and wishes her success in her new role.

UCONN RESEARCH: INNOVATIONS AND COLLABORATIONS TO CHANGE THE WORLD

UConn is home to a diverse and engaged research community. From Storrs to our four regional campuses and UConn Health, we are producing discoveries and innovations that are expanding knowledge and changing lives. This year, we celebrated those research advancements in technology, human rights, entrepreneurship, and clean energy with state and national leaders, including President Joe Biden, Energy Secretary Jennifer M. Granholm, and NSF Director Sethuraman Panchanathan.

The State of Connecticut has fueled advancements in research through a sustained, decades-long financial commitment that has transformed UConn. We saw our vision for our new science quad on the Storrs campus take shape with the construction of our 200,000-square-foot laboratory and teaching facility, Science 1. On the Connecticut shore, the establishment of the National Estuarian Research Reserve protects an ecologically sensitive regions and ensures that our students and scientists can support state and national efforts to conserve and protect critical environments.

We know that the research that matters is most often carried out in partnership with others. Our faculty, centers, and institutes purposefully advance partnerships that bolster our mission to support our communities, environment, and economy. Those partnerships include the Collaboratory on School and Child Health (CSCH), which engages researchers across UConn with schools and non-profit organizations to advance research, policy, and practice advancing equity in school and child health. We are also a strong partner with the Department of Defense, Raytheon Technologies, Electric Boat, and other collaborators in research that advance or support our national security.

We are translating our research discoveries for long-term impact. Our Technology Incubation Program is Connecticut's largest incubator facility, with 34,800 square feet of space and 71 startups invested in technologies, concepts, and products that are improving lives and building our economy. In the pages that follow, we introduce you to some of the researchers, students, and initiatives that exemplify our commitment to research that matters.



Pamir Alpay, Ph. D. Interim Vice President for Research, Innovation and Entrepreneurship

> National Science Foundation Director Dr. Sethuraman Panchanathan (pictured with Dr. Pamir Alpay) dubbed UConn the "University of Connectivity" for the opportunities available to students and connections to industry and technology leaders.



UCONN RESEARCH IN THE NATIONAL SPOTLIGHT

UCONN WELCOMES LEADERS IN SCIENCE, TECHNOLOGY, AND ENTREPRENEURSHIP

In the span of a few days, UConn welcomed high-profile leaders in science, technology, and entrepreneurship for a series of events highlighting the breadth of the University's Research enterprise. On Friday, May 20, U.S. Secretary of Energy Jennifer M. Granholm visited Storrs to discuss clean energy, reduction of carbon emissions, and investment in hydrogen technology. UConn leads by example in clean energy research as the home to the Southern New England Industrial Assessment Center. Dr. Liang Zhang leads the Center, which is dedicated to helping small and medium-sized manufacturers cut back on unnecessary costs from inefficient energy use. During her visit, Secretary Granholm toured UConn's Innovation Partnership Building, accompanied by UConn President Radenka Maric, Congressman Joe Courtney, and Pamir Alpay, UConn's interim Vice President for Research,

Innovation, and Entrepreneurship. On Monday, May 23, National Science Foundation (NSF) Director Sethuraman Panchanathan visited UConn Health and UConn Storrs. The NSF is a key funder of many of UConn's research programs. In March, the NSF announced an expanded focus on industry partnerships and the role they play in advancing technology and growing the workforce - both goals embodied through UConn Research.

The Director's visit demonstrated the value of the NSF's investment in UConn and brought together state business and industry leaders. Additionally, successful startups from UConn's Technology Incubation Program presented on how their relationship with the University has helped them launch their companies and release important technologies and innovations. "When I think of UConn, it should be an acronym for 'University of Connectivity'," Panchanathan said. "Connectivity from K-12, to research, to industry. This is what we want every university to look like."



foreign policy kit," President Joe Biden said during the dedication of the Dodd Center.

PRESIDENT BIDEN HONORS DODD CENTER REDEDICATION: 'LIBERTY AND JUSTICE FOR EVERYONE'

In a year filled with notable visits to UConn, none was more significant than President Joe Biden's arrival at Storrs in October for the rededication of the Dodd Center for Human Rights. Renamed to honor the Commander-in-Chief's good friend former U.S. Senator Christopher J. Dodd, the Dodd Center is home to UConn's rich and diverse human rights programs, including the Human Rights Institute. The visit mirrored the first dedication of the Dodd Center in 1995, when President Bill Clinton spoke in honor of Thomas Dodd. The Dodd Center for Human Rights has been at the forefront



U.S. Secretary of Energy Jennifer M. Granholm - pictured here with Congressman Joe Courtney, State Representative Jaime Foster (CAHNR '12, '14, '17), and UConn President Radenka Maric - is one of several local and national leaders to recognize UConn for its work in clean energy and sustainability research and innovation.

"Demonstrating that our commitment to human rights begins at home is one of the most powerful and persuasive tools in our

of scholarship and activism for more than 25 years. Rich in history, human rights initiatives at UConn leverage research, outreach, and policymaking to address current and future challenges. "As we rededicate the Dodd Center. let's also dedicate it to future generations; let us dedicate and expand our shared understanding," President Biden said. "Let's dedicate it to the students here in the audience today, who may discover and defend human rights as the passion and purpose of their life. Let us dedicate it to expanding our shared understanding, also help to ensure liberty and justice for everyone. And let's dedicate it to the unending fight to bring our own nation closer to a future where every human being is free to pursue their highest dreams and reach their full potential."

PARTNERSHIPS FOR SUSTAINABILITY AND INNOVATION



An agreement with the U.S. Department of Energysponsored NREL leverages scientific collaboration with world-class scientists like Davinia Salvachua Rodriguez to research renewable energy technologies. Contributed photos.

UCONN, NATIONAL RENEWABLE ENERGY LABORATORY **ANNOUNCE PARTNERSHIP FOR RESEARCH AND INNOVATION**

UConn has its greatest-ever potential for clean energy innovation and grid resilience research as the result of a new partnership with the National Renewable Energy Laboratory (NREL). NREL will establish a research collaboration with UConn at the Innovation Partnership Building (IPB). Researchers will leverage scientific knowledge and state-of-theart facilities to address global energy challenges, including energy efficiency and resiliency, renewable energy technologies, and smart grid innovation. NREL is one of 17 DOE national laboratories

uniquely focused on creating a clean energy future. Based in Golden, Colo., NREL has a vast network of industry, academic and government partners throughout the world. UConn is now a member of a prestigious cohort of universities engaged with NREL through its University Partnerships Program. It joins MIT, Princeton, Georgia Tech, and Carnegie Mellon in the eastern half of the country. Through its University Partnership Program, NREL works across disciplines to enhance research, foster an exchange of ideas, mobilize resources and create opportunities for undergraduate and graduate students in cutting-edge fields related to the clean energy economy. Among the many goals of the partnership, UConn and NREL will work together to invest in the development of joint solutions to clean energy challenges in the Northeast and increase funding opportunities not otherwise available to either individual institution. The program enables pathways for undergraduate and graduate students to work jointly with NREL scientists and UConn faculty.



UCONN AND PARTNERS **ESTABLISH A NATIONAL ESTUARINE RESEARCH RESERVE**

UConn joined with several partners at the federal, state, and local levels to establish about 50,000 acres of Long Island Sound, adjacent marshes, and upland areas as a National Estuarine Research Reserve (NERR). The area includes the lower Connecticut and Thames Rivers and several islands, state parks, and UConn Avery Point in Groton. The campus serves as the central location for the estuary's administration, research activities, and education offices. The National Oceanic and Atmospheric Administration (NOAA) officially designated the NERR in January, making it the 30th such reserve in the country. UConn celebrated with local and national partners during a ceremony in May. Estuaries are rich areas of brackish water and surrounding wetlands where freshwater meets the sea. Their waters are saltier than freshwater rivers but less so than the ocean, and the resulting ecosystem of life is unique. The Connecticut



Estuarine Research Reserve, headquartered at UConn Avery Point.

shoreline estuary is now part of the NERR network of coastal sites designated to protect and study estuarine systems. Designation as a NERR does not fundamentally change access or use of the reserve, but ensures these special places are properly cared for by leveraging the existing rules in place for state parks, preserves, and waters of Connecticut. In this fashion, people can still access public beaches and hike through areas such as Bluff Point State Park, as well as boat and fish in the waters along the coastline and the mouths of the rivers - all while benefiting from the long-term value that these sites provide for environmental science and education.

The NERR offers great educational benefit for UConn and school systems throughout the shoreline because the reserve is a living laboratory for marine science activities. It will provide opportunities for students and researchers to get their hands and feet in the water and salt marshes as they learn about critical habitats for birds, fish, and other types of marine life.

Senator Chris Murphy ('02 JD) - pictured here with UConn interim Vice President for Research, Innovation, and Entrepreneurship Pamir Alpay - has been a strong advocate for his state as UConn has worked with partners to establish Connecticut's National

INNOVATION PARTNERSHIP BUILDING (IPB) INVESTMENTS INCREASE BY 70%

The Innovation Partnership Building at the UConn Tech Park experienced a staggering increase in industry investments over the past fiscal year from approximately \$125 million to almost \$215 million, or more than 70%. The IPB also successfully transferred to new leadership, with Emmanouil "Manos" Anagnostou promoted to interim Executive Director upon Pamir Alpay's interim appointment as Vice President for Research, Innovation, and Entrepreneurship.





UConn, URI, and General Dynamics Electric Boat researchers are advancing undersea technology through their projects and collaboration. Photo courtesy of General Dynamics Electric Boat.

NATIONAL INSTITUTE FOR UNDERSEA VEHICLE TECHNOLOGY

UConn's collaborative research to advance undersea vehicle technology received a large funding boost in the spring of 2022, courtesy of the Department of Defense (DOD). The National Institute for Undersea Vehicle Technology (NIUVT) is a partnership between UConn, the University of Rhode Island, and General Dynamics Electric Boat. The NIUVT leverages extensive laboratory, faculty, and education infrastructure for the benefit of Navy-related research, drawing on the expertise of each partner.

NIUVT research has identified 12 technical areas directly related to undersea technologies of strategic importance to the Navy. The areas include cybersecurity, advanced materials and structures, marine hydrodynamics, underwater energy systems,

ADVANCING UNDERSEA TECHNOLOGY AND BOLSTERING **THE WORKFORCE**

and more. UConn and URI faculty have an extensive history of Navy collaboration within the technical areas. Civil and environmental engineering professor Richard Christenson is the UConn director for the Institute and leads faculty research into structural integrity, vibration, and control.

The DOD's Office of Naval Research infused the NIUVT with awards totaling almost \$11 million. UConn's awards encompass 23 interrelated projects, adding to the expansive scope of research underway in Storrs, at Avery Point, and among partner institutions. Grant funding for the projects ranges from \$32,657 up to \$3.744 million. Dozens of School of Engineering faculty, researchers, postdoctorates, graduate and undergraduate students are conducting research through the NIUVT. The Institute was founded in 2017 and is dedicated to conducting and applying research, accelerating and facilitating technology transition, and supporting workforce development.

FACULTY EXCELLENCE



Cato T. Laurencin, MD, Ph.D., and the Van Dusen Distinguished Professor of Orthopaedic Surgery, celebrated with his wife, Cynthia Laurencin, as the NAACP awarded him the Spingarn Medal, the organization's highest honor.

NAACP AWARDS HIGHEST HONOR TO PROFESSOR CATO T. LAURENCIN

Professor Cato T. Laurencin joined the elite company of American heroes like Martin Luther King Jr., Maya Angelou, and Jackie Robinson as a recipient of the NAACP Spingarn Medal. Dr. Laurencin is the world-renowned founder of the field of regenerative engineering. His selection recognizes his advancements and accomplishments in not just regenerative engineering, but also tissue regeneration, biomaterials science, and nanotechnology. The Spingarn Medal is awarded annually to one African American who has achieved the highest level of excellence in their chosen field. Dr. Laurencin is the first engineer to receive the award since its inception in 1915. Other recipients of the medal include George Washington Carver, Duke Ellington, Colin Powell, and Oprah Winfrey. The Spingarn Medal was one of several honors for Laurencin during the 2021-22 academic year. He was also awarded the Saint Lucia Medal of Honour (Gold) for eminent international service rendered in the field of medicine, regenerative engineering, and life sciences.

KATHLEEN SEGERSON, PROFESSOR OF ECONOMICS, ELECTED TO NATIONAL ACADEMY OF SCIENCES

Board of Trustees Distinguished Professor of Economics Kathleen Segerson was elected as a member of the prestigious National Academy of Sciences (NAS) in May. Segerson is an internationally recognized environmental economist, a field focusing on addressing environmental issues such as climate change and pollution with economic policies that will incentivize companies to protect the environment. Her work is supported through a deep understanding of the connections between human behavior, the economy, and the environment. The NAS is charged with providing advice to the nation on matters related to science and technology. Peers select members for outstanding contributions to research. Segerson - the associate dean of the UConn graduate school for the past five years - has served on several national and international advisory committees, including eight for the NAS. She is also a member of the Board of Directors of the Beijer Institute of Ecological Economics in Stockholm.



Kathleen Segerson is a Board of Trustees Distinguished Professor and UConn Alumni Association Distinguished Professor of Economics.

A RECORD YEAR - UCONN **FACULTY EARN 11 NSF CAREER AWARDS**

Very few colleges or universities can claim the remarkable success that UConn has experienced in earning early career recognition from the National Science Foundation. In 2021-22, 11 UConn researchers received NSF Early Career Development (CAREER) Program awards, setting an institutional record. These highly prestigious grants are offered to early-career faculty members demonstrating the potential to serve as academic role models in research and education. The CAREER program embodies NSF's commitment to advancing research and education at the nation's academic institutions. UConn's awarded projects for 2022 are diverse in scope, representing the ideals of the program. UConn ties its award success to internal efforts by its schools and colleges to guide faculty members through the difficult process of writing effective proposals. Exceptional staff from the School of Engineering, Office of the Vice President for Research, and College of Liberal Arts and Sciences launched CAREER workshops from 2014 through 2016. The guidance was helpful for faculty, who found themselves able to navigate the process and earn NSF funding that altered the course of their careers for the better.



CARA BATTERSBY - \$700,000

Physics Shining STARs Amidst the Turbulence

IDO DAVIDESCO - \$1.326.000

Educational Psychology The Role of Internal Attention in

Undergraduate Biology Learning

BENJAMIN FULLER - \$506.000

Computer Science & Engineering Cryptographic Authentication from Biometrics

SARAH KNUTIE - \$1,400,000

Ecology & Evolutionary Biology Understanding the Mechanisms That Mediate the Effects of Local Ecology on Geographic Mosaics of Host-Nest Parasite Interactions Using the Nest Parasite Community Science Project

WALTER KRAWEC - \$497.433

Computer Science & Engineering

Hybrid Approaches to Quantum Cryptography: New Methods and Protocols

TOMOYASU MANI - \$700,000

Chemistry

Control of Intramolecular Long-Range Charge-Transfer Emissions

GEORGIOS MATHEOU - \$425.395 Mechanical Engineering

Understanding Low-Cloud Feedbacks Using Large-Eddy Simulation of Spatially Developing Cloud Transitions

KRISTIN MORGAN - \$513,500

Biomedical Engineering

Scientific Investigation of Motor Learning to Improve Gait Rehabilitation in Individuals with Neuromuscular Dysfunction

ANNA TARAKANOVA - \$600,000 **Mechanical Engineering**

Unraveling Mechanisms of Mechanical Degeneration in Elastin with a Validated Digital Twin

XUEJU (SOPHIE) WANG - \$546,813 Materials Science & Engineering

Mechanics of Active Polymers and Morphing Structures: Determining the Role of Molecular Interactions and Stiffness Heterogeneity on Reversible Shape Morphing

HONGYI XU - \$536,740 **Mechanical Engineering**

Bridging the Gap Between Deterministic and Stochastic Structures for Mixed Stochasticity System Design

ENERGY, CLIMATE, AND SUSTAINABILITY

ADVANCING CONNECTICUT TOWARD A CLEAN ENERGY INFRASTRUCTURE

UConn advanced its clean energy research efforts through partnerships designed to strengthen infrastructure, improve grid resilience, and contribute new technologies and innovations. In the process, UConn is helping the state achieve its goals to greatly reduce carbon emissions and build a clean energy workforce.

In August 2022, UConn joined a consortium of six states, universities, and public and private companies in a Northeastern hydrogen hub. UConn is the only R1 university in New England to join the hub, contributing the expertise and acumen of the Center for Clean Energy Engineering (C2E2).

The partners are laying the groundwork for a U.S. Department of Energy proposal funding opportunity, seeking billions of dollars in funding toward hydrogen energy. The consortium members will work together on initiatives to advance safe, clean hydrogen energy innovation, address climate change, improve public health, and invest in economic development. The hydrogen hub bolstered UConn's regional efforts to help build a clean energy infrastructure, but the University's commitment and connections reach far beyond than the Northeast. UConn is a member of the Global Hydrogen Alliance, a collaboration between C2E2, MIT, and several universities and institutes in Germany, Israel, Italy, and Japan.

In February 2022, UConn President Radenka Maric joined Governor Ned Lamont and a delegation of University and state leaders on an economic development mission to Israel. The delegates explored business, technological, and academic relationships between Connecticut and the host country, including expansion of the clean energy partnership between UConn and the Technion-Israel Institute of Technology in Haifa. The partnership focuses on clean energy research and the exchange of faculty and students between UConn and Technion for collaborations emphasizing research and sustainability.



UConn's regional and international partnerships are providing graduate students like Richard Andres Ortiz Godoy with advanced opportunities to explore the limits of hydrogen energy and sustainability.



Internationally renowned climate change expert Mark C. Urban is the director of the Center of Biological Risk, which identifies current and future biological risks and management options to solve societal problems relevant to Connecticut, the country, and the planet.

UCONN'S GO-TO CLIMATE EXPERT MARK C. URBAN

The founder and director of UConn's Center for Biological Risk, Mark C. Urban (CLAS) is a go-to expert on all things climate change and biodiversity. His clear-eyed approach to preserving natural ecosystems amid global warming—and ringing alarm bells when necessary—has garnered him bylines in popular publications like The New York Times and The Guardian alongside top research journals like Science. Urban was recently awarded nearly \$3 million in NSF funding for his project entitled "Building resilient landscapes for food, energy, water, and ecosystems in America's megalopolis." In 2021, he was named UConn's first Arden Chair of Ecology and Evolutionary Biology, dedicated to scientists who have made a substantive impact on studies of biodiversity. Urban's lab is currently exploring how forces of climate change and urbanization will impact ecology and evolution. His team has made their research accessible to K-12 students and educators in the form of outreach visits, in addition to lesson plans that engage with Connecticut's amphibian populations and provide experiments for educators to replicate in their own classrooms.

INDUCED PLURIPOTENT BOVINE STEM CELLS OVERCOME DECADES-LONG CHALLENGES FOR CULTIVATED MEAT

Stem cells have been used for years as therapeutics for human health, but new research shows they may offer the promise of making the global food supply more sustainable and reliable through the development of cultivated meat. Professor and interim Department Head Xiuchun (Cindy) Tian and a team of collaborators in the College of Agriculture, Health and Natural Resources recently demonstrated the first successful induced bovine pluripotent stem cells (iPS) cells. Bovine pluripotent stem cells could have applications for lab-grown beef, as they could allow scientists to grow entire cuts of meat from muscle stem cells differentiated from a single iPS cell. These cells could also be used for the establishment of in vitro breeding technology, which theoretically could create 100 generations of cows in 25 years. Traditional breeding techniques can only produce 10 generations in the same period. These cells would also allow great advances in genetic engineering and developing disease-resistant animals, according to the UConn research team. The research will potentially be significant for the future as scientists build up sustainable agriculture production and accommodate increased nutritional need for the global population.



Breakthroughs in bovine stem cells could lead to greater production of lab-grown beef, helping to meet the food needs for a growing world population.

HEALTH AND BIOSCIENCE

UCONN SCHOOL OF DENTAL MEDICINE: SMALL PROGRAM, HUGE ADVANCEMENTS

The UConn School of Dental Medicine is celebrating another much-awarded year. After securing a place as the eighth most-awarded dental school in terms of National Institute of Health (NIH) research funding in FY2020, it held steady in the rankings for FY2021 while also increasing its total research revenue by 36%. The NIH ranking (reported by the Blue Ridge Institute for Medical Research) is not adjusted for faculty size, meaning that UConn's program was compared directly with much larger programs across the country. Its prestigious place on the list reflects the dedication and innovation of the School of Dental Medicine's faculty. In June 2022, the School's Associate Dean for Research, Dr. Rajesh Lalla, received the Distinguished Service Award from the Multinational Association of Supportive Care in Cancer (MASCC). The award is

the organization's top honor, previously only held by one other dentist–UConn's Dr. Douglas Peterson. professor of oral medicine. This year, the very same Peterson received the King James IV Professorship from the Royal College of Surgeons/Edinburgh and was named Fellow of the American Society of Clinical Oncology (FASCO). Other UConn dental faculty were also recognized for their research in 2022. Dr. Mina Mina, professor and chair of pediatric dentistry in the Department of Craniofacial Sciences, received the American Association for Dental, Oral, and Craniofacial Research's (AADOCR) 2022 Presidential Citation. And Dr. Frank C. Nichols, professor of periodontology, was granted the Faculty Recognition Award by the UConn Health Board of Directors. These awards underscore the prolific work of the School of Dental Medicine faculty, who are continuously striving to expand the frontiers of medical knowledge with their research and set the gold standard for oral healthcare with their clinical innovations.

Shivani Suvarna, an assistant professor of prosthodontics, performs a procedure at the UConn School of Dental Medicine, which received a high ranking from the National Institutes of Health.





UConn Health assistant professor of pediatrics and medicine Kelly Hawley and associate professor of medicine Melissa *Caimano are designing a new syphilis vaccine that uses* multiple strains of Treponema pallidum bacteria (pictured), which is known to cause infection.

UCONN HEALTH PROFESSORS **DEVELOPING WIDELY PROTECTIVE SYPHILIS VACCINE**

Assistant professor of pediatrics and medicine Kelly Hawley and associate professor of medicine Melissa Caimano received a \$4.56 million grant from the Good Ventures Foundation to develop a syphilis vaccine. Syphilis is a growing concern as a sexually transmitted infection. In the past 20 years, syphilis has seen a resurgence in the United States, affecting approximately 11 million adults annually. Previous attempts at creating a vaccine have not had longlasting or wide-ranging protection against syphilis variants. Hawley and Caimano will design a new vaccine using multiple strains of the Treponema pallidum bacteria that cause syphilis infection. This approach will help ensure the vaccine provides broad protection against multiple variants. The researchers' approach will target the outer membrane of the bacteria to spur rabbit models to develop long-lasting protecting antibodies. This work represents a significant advancement in the pursuit of an effective syphilis vaccine.

NOVEL STROKE TECHNOLOGY **PROVIDES NEW PATH TO** PREVENT NEURONAL DEATH

Roughly 800,000 Americans suffer a stroke every year, and there is still a lack of effective treatment. Lixia Yue, an associate professor of cell biology at the UConn School of Medicine, has made a potentially life-changing discovery. Damage occurs specifically when an ion channel called TRPM2 interacts with NMDA receptors under conditions of oxidative stress present during a stroke. She identified a short sequence on TRPM2 responsible for the interaction leading to neuronal death. Yue produced a peptide mimicking the sequence binding the NMDA receptor and disrupting the interaction between TRPM2 and NMDA receptors. This disrupting peptide can be administered immediately following a stroke. The goal is to reduce neuron death by disrupting the interaction between receptors. Yue's work focused on ischemic strokes, which account for 85% of all strokes.

BY THE NUMBERS

UConn has steadily increased its investment in research expenditures over the last decade. UConn expends more than \$300 million annually in research funds. UConn's funding exceeds many of its peer R1 institutions in the Northeast, including all flagship public universities in New England, as well as Stony Brook, Syracuse, Tufts, and more.

TOTAL RESEARCH AND DEVELOPMENT EXPENDITURES

According to NSF HERD Survey Data \$350 M \$300 M \$302.3 M \$285.8 M \$250 M \$280.1 M \$269.7 M \$267.6 M \$265.5 M \$259.4 M \$258.1 M \$200 M \$150 M \$100 M FY2020 FY2014 FY2018 FY2019 FY2015 2017 \$50 M \$0

NEW AWARDS BY CAMPUS

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STORRS/REGIONAL

\$207,547,907

(S)

Each 🔘 Is Equivalent To 1%

NEW AWARDS BY SCHOOL





MEDICINE \$96,415,735

ENGINEERING \$74,051,976







DENTAL MEDICINE \$12,662,956

PHARMACY \$6.252.026



\$2,718,316

NURSING \$2,502,722



13



LIBERAL ARTS & SCIENCES \$51,187,592



AGRICULTURE, **HEALTH & NATURAL RESOURCES** \$39,795,643



EDUCATION \$15,545,963



SOCIAL WORK \$5,905,251



BUSINESS \$4,973,824



ACADEMIC & SERVICE PROGRAMS \$2,880,645



VICE PRESIDENT FOR RESEARCH \$1,632,878



LAW \$101,070

NEW FEDERAL AWARDS BY AGENCY

1	DHHS NIH - 37%
2	DOD - 13%
3	NSF - 11%
4	USDA - 9%
5	DHHS OTHER - 8%
6	FEDERAL OTHER - 7%
7	DOE - 6%
8	DOC - 5%
9	US ED - 4%
10	NASA - <1%

MATERIALS AND ADVANCED MANUFACTURING

THIRD PHASE OF PROJECT DAEDALUS IN FULL GEAR

UConn's collaboration with the Air Force Research Lab (AFRL) launched its third phase in 2021-22, with a \$4.7 million contract propelling eight interconnected contracts focused primarily on photonics, magneto-optics, metamaterials, and detectors in the aerospace industry. Phase 3 - "Multiscale Modeling and Characterization of Metamaterials. Functional Ceramics and Photonics" - seeks to explore and advance the understanding of electronic, photonic, magnetic, and multiferroic variable space, focusing on relating form and function across several materials systems. It is a continuation of the partnership with AFRL that provides great opportunity for a comprehensive outlook into a growing field in

aerospace manufacturing. Project Daedalus offers UConn students and faculty the chance to define and explore how fundamental concepts involving the propagation of electron energies and magnetic fields can improve infrared sensors and device development. While Phases 1 and 2 focus mainly on traditional aerospace manufacturing techniques, Phase 3 offers a comprehensive view of how novel materials can be implemented in next-generation devices. AFRL funding for Project Daedalus exceeds \$18 million since the collaboration's beginning in 2018.





Graduate students like Ph.D. candidate Mike Fazzino '23 (ENG) are contributing to UConn's partnership with the Air Force Research Lab.



Chemistry assistant Professor J. Nathan Hohman's research on crystal characterization - demonstrated here through a diffracted image - can potentially take years off the amount of time it takes to characterize materials.

A BETTER PATH FOR **NEW MATERIALS**

J. Nathan Hohman, assistant professor of chemistry is developing artificial intelligence tools to improve the synthesis of new materials. These tools will speed up the process and help eliminate the trialand-error approach. Hohman will combine nanocrystallographic characterization with Euclidean neural networks to develop a better technique for real-time characterization of materials.

Crystal characterization allows scientists to see how the atoms that make up a molecule are arranged. This information is critical for designing new material because the structure determines what the material can do. Hohman previously discovered a way to study crystal structure using an X-ray beam,

MICROSCOPIC MATERIALS, **GIANT BREAKTHROUGHS**

∮,	speeding up the process of characterizing new materials from months or years to hours. Euclidean neural networks are artificial neural networks inspired by the human brain. A set of artificial neurons transmits signals to other neurons in the system to classify objects. Hohman and his team will use these networks to train machine learning algorithms to predict new phases of materials, helping eliminate guesswork from
N	The neural networks will help scientists design and generate novel atomic geometries with desirable properties based on what the scientists want the
e	Hohman's research through an Office of Science grant exceeding \$2.83 million.

ADDRESSING SOCIETAL CHALLENGES

UCONN ARMS CENTER SEEKS INTERDISCIPLINARY **INTERVENTIONS FOR GUN VIOLENCE**

The UConn ARMS Center (Advancing Research, Methods, and Scholarship for Gun Injury Prevention), connects scholars, advocates, and policymakers to seek solutions for reducing all forms of gun violence. ARMS is housed in the Institute for Collaboration on Health, Intervention, and Policy (InCHIP) and includes the Gun Violence Prevention-Research Interest Group.

ARMS researchers come from diverse fields. including law, journalism, public health, and public policy, to conduct innovative research aimed at the collaborative development of policy solutions. "Gun violence is a terrible social problem that every American has some contact with whether they want it or not," says Kerri M. Raissian, associate professor of public policy and director of the ARMS Center. "Every American is at risk of experiencing gun injury or death, so this is a problem that transcends all of us." A group of ARMS researchers is currently studying if the public, including both gun owners and non-gun owners, views specific gun control policies as beneficial or harmful. This work helps shape the policy debate by including the voices of individuals who will be directly impacted.

Caitlin Elsaesser, associate professor in the School of Social Work, is working on a CDC-funded study of how social media conflict contributes to youth firearm violence and how to develop interventions to address the problem. The core of Elsaesser's research is taking the lead from and collaborating closely with youth who have lived experience with gun violence. The Center

is also interested in combatting misinformation about gun violence, a critical piece in shaping an informed policy discussion. This includes understanding how different communities and demographic groups are impacted by gun violence, an inherently multifaceted issue that includes not only mass shootings, which tend to garner more media attention, but suicide, domestic violence, and accidental deaths. In the fall of 2022, Gov. Ned Lamont appointed Raissian to the Governor's Commission on Community Gun Violence Intervention and Prevention.



Professor Caitlin Elsaesser is applying a \$250,000 award from the CDC to her research on the relationship between social media and youth gun violence.



InCHIP's mHealth initiative combines science, emotional support, and technology to encourage healthy lifestyles and weight loss.

mHEALTH REPRESENTS NEW APPROACH FOR COUPLES' WEIGHT LOSS INTERVENTIONS

Professor Amy Gorin, interim Vice Provost for Health Sciences and InCHIP director, is working on a grant to evaluate the efficacy of four components for couples' weight loss intervention using a mobile app. Gorin's group has received a \$3.4 million grant from the National Institutes of Health to investigate how mobile technology can support couples-based weight loss interventions. The trial will include cohabitating couples who are overweight or have obesity. All couples will get a basic, evidence-based behavioral weight loss intervention package that includes a diet and exercise prescription. Each couple will also be randomly assigned to one or a combination of four experimental components. These components are creating joint weekly nutrition or activity goals; receiving feedback on partners' goal progress; supporting each other in a non-judgmental fashion; and improving the home environment to support healthy choices.

FILLING GAPS IN THE HUMAN GENOME

The Institute of Systems Genomics (ISG) at UConn has continued to establish itself as a leader in advancing the understanding of the human genome. ISG Director Rachel O'Neill served as a principal investigator on the international Telomere-2-Telomere project that successfully filled in the missing pieces of the human reference genome. The project found that a significant amount of human genetic material is long, repetitive sections that occur over and over. Although every human genome has some repeats, not everyone has the same number of them. The difference in the number of repeats is where most of human genetic variation is found. This insight-that the repeats are important—is one of many significant findings from the project, a globe-spanning collaboration. O'Neill is an author on four of the six primary papers. She is a well-respected authority on the human genome and has published more than 100 peer-reviewed articles. She has led or contributed to projects that have collectively brought over \$25 million in funding to UConn. Also in the past year, the UConn Board of Trustees honored her for her research, teaching, and public engagement by naming O'Neill a Board of Trustees Distinguished Professor.



Board of Trustees Distinguished Professor Rachel O'Neill has been instrumental in national, collaborative research into the human genome.

STRATEGIC INVESTMENTS



The Science 1 building will open during the 2022-23 academic year as the new home of the Institute of Materials Science.

INSTITUTE OF MATERIALS SCIENCE JOINING STATE-OF-**THE-ART SCIENCE 1 BUILDING**

UConn's commitment to climate change mitigation and innovation applies to even the largest and most ambitious building projects. The 198,000-squarefoot Science 1 is a LEED gold-certified sustainable building featuring a 10,000-square-foot clean room, wet and dry labs, teaching spaces designed to support creativity and innovation, and sustainable solar and fuel cell power. It is one of the largest and most technologically advanced facilities ever built on the Storrs campus.

The facility is the centerpiece to the UConn Northwest Science Quad, a transformational science complex tying together the University's research expansion, academic vision, and culture of innovation. Funding for the project was made

possible through 2013's Next Gen Connecticut, which expanded UConn's education and research vitality to benefit the state economy. UConn's Institute of Materials Science (IMS) will take up a large portion of the new Science 1 building. IMS operates and maintains extensive state-of-theart instrumentation, including a wide range of laboratories and support facilities. Faculty members from 20 departments, including UConn Health, are affiliated with IMS and contribute to the Institute's interdisciplinary research programs and outreach.

IMS is home to the Industrial Affiliates Program, an industry outreach program that assists Connecticut companies in their research and development efforts to improve new and existing products. IMS also manages the extensive Center for Advanced Microscopy and Materials Analysis (CAMMA) Laboratory and the X-ray facility in the Innovation Partnership Building (IPB).

UCONN INTERNAL FUNDING PROGRAMS ADVANCE CREATIVE AND IMPACTFUL RESEARCH

JEDI

UConn Research's new Justice, Equity, Diversity, and Inclusion (JEDI) Research initiative is challenging faculty to seek projects and collaborations addressing growing societal issues such as equity and inclusion. JEDI funds projects supporting innovative research, scholarship, and creative work that are expected to make significant scholarly contributions related to the program's topic areas and to support and amplify efforts to bring about much-needed societal change. Awards range from \$5,000 to \$60,000.

NEUCORSE

The New England University Collaboration on Renewable and Sustainable Energy (NEUCORSE) program, launched fall 2021, awarded three \$100,000 grants supporting projects tackling significant challenges and technical problems related to solving the nation's energy needs. By catalyzing regional collaborations, NEUCORSE opens the door to scalable, creative solutions at scale for global climate impact.

SCHARP

The OVPR's SCHARP Awards aim to support innovative works of scholarship and creativity across the arts and humanities that have potentially transformative or life-changing implications. There are two categories of award available: the SCHARP Breakthrough Award of up to \$50,000 and the Development Award of \$5,000 - 8,000. There were three Development awardees in 2021-22, each receiving an \$8,000 grant.



SCHARP funding enabled Women's, Gender, and Sexuality Studies associate Professor Laura Mauldin to hire a web developer to create "Disability at Home." The website showcases creative life hacks from people living with disabilities, using everything from painter's tape to zip ties to make life a little easier. Since launching the site, Mauldin has connected with people across the country and received more than 500 submissions depicting ways that everyday items can be used to improve household accessibility.

INNOVATION AND ENTREPRENEURSHIP

UCONN'S TECH INCUBATION **PROGRAM CONTINUES EXPANSION, STATEWIDE IMPACT**

Since its inception in 2003, UConn's Technology Incubation Program (TIP) has grown into the state's largest incubator for new startups. The entrepreneurs and innovators involved contribute hundreds of jobs to Connecticut's workforce, as well as increasing the state's science and technology capital. TIP manages three incubators in Storrs, Farmington, and Stamford, accounting for 71 companies and supporting hundreds of wellpaying jobs. Many of the entrepreneurs have UConn connections, such as faculty members, students, and alumni, but inclusion is open to all innovators. With the goal of transforming University discoveries into products and services that benefit patients, industry, and society, startups receive access to a variety of UConn resources, including lab and office space, educational partnerships, and a vast network of industry connections.

Overall, TIP startups have raised \$1.14 billion in funds since 2003, including \$183 million in the 2022 fiscal year. Of the companies that have "graduated" from TIP - meaning they have moved out of the space to establish their own headquarters - 72% have remained in Connecticut and continue to contribute to the economy. UConn opened its first 4,000 square-foot incubator on the Storrs campus for ambitious startups seeking to make an impact in their respective markets. TIP Storrs began with many UConn faculty and graduate entrepreneurs who were committed to hiring Connecticut workers. TIP Storrs continues to focus on companies within the scientific and engineering sectors that align with on-campus resources and the expertise of UConn faculty. UConn opened its second incubator, TIP Farmington, in 2010 on the UConn Health campus,

near the Jackson Laboratory for Genomic Medicine. The facility expanded in 2016 to 25,000 square feet, with a focus on biomedical technology, diagnostics, and personal health and well-being. The latest venture is TIP Digital, based at UConn Stamford, which opened in 2021. Growing along with Connecticut's fastest-developing city, UConn has established the incubator as a hub for information technology. TIP Digital is focused on data science, artificial intelligence, fintech, drones, and software development. With more than 5,800 square feet of space available to startups, the incubator is already home to 23 companies.



Pharm.D. candidate Saba Azam '23 works in the laboratory of startup Encapsulate, part of the Technology Incubation Program (TIP) at UConn Health.

FUTURE CLIMATE VENTURE **STUDIO: A COMPREHENSIVE, COLLABORATIVE APPROACH TO A CLEANER PLANET**

Climate change is perhaps the defining challenge of the 21st century. Along with partners in its new Future Climate Venture Studio, UConn Research is leading the effort to combat the effects of the human-induced changes that threaten the planet.

The Studio is a collaboration between UConn. R/ GA Ventures, and CTNext and will work to identify and accelerate climate and sustainability companies. It will encompass startups at different stages of growth and a comprehensive set of partners, assets, and opportunities. UConn is accepting applications for the studio beginning in the 2023 fiscal year.

"UConn is proud to lead this unique effort to address the most important challenge of our time," said UConn President Radenka Maric, "The University offers unparalleled expertise in all dimensions of climate science and research through our School of Engineering; College of Agriculture, Health and Natural Resources; College of Liberal Arts and Sciences: and climate and renewable



energy research at its Avery Point campus." All companies will be aligned with UConn's research priority to address climate change and seek innovative solutions for decarbonization, alternative energy, planetary resilience, and support for a clean energy infrastructure.

The multi-year initiative will provide the startups with critical access to technology, research, professional connections, and networking with industry and corporate partners. In addition to considerable financial opportunities, the startups will have the support of UConn's experts and corporate partners at the Innovation Partnership Building. The studio will seek companies specializing in several areas related to climate research, innovation, and technology, including:

- Mitigation, such as carbon technology, geoengineering, and blue technology
- Adaptation, including ecosystem management, agriculture, and industry and manufacturing
- Energy, such as alternative energy sources like hydrogen and fuel cells, distributed energy, and battery storage and performance improvement
- Human factors, including food, water, and transportation systems and disparate impact

TRANSFORMATIVE **OPPORTUNITIES FOR STUDENTS**

MULTIDISCIPLINARY TEAM WINS \$3M FOR NEUROSCIENCE **GRADUATE PROGRAM**

An ambitious interdisciplinary team of researchers has won \$3 million from the National Science Foundation to pursue a project in the neuroscience of learning that will support the training of graduate students across the University.

TRANSCEND: TRANSdisciplinary Convergence in Educational Neuroscience Doctoral training, aims to get graduate students from both classic and atypical backgrounds into educational neuroscience research. "We will take an innovative approach and truly break the silos in educational neuroscience between lab research, research in the schools. and the community," says Fumiko Hoeft, director of the Waterbury campus, director of UConn's Brain Imaging Research Center (BIRC) and the principal investigator on the project. "We also have a particularly strong focus not only on neurodiverse learners as the topic of research but also to involve them as graduate students. Neurodiverse learners are one of the most underrepresented groups in higher ed and the STEM workforce despite their tremendous talent." The team includes investigators from psychology, civil and environmental engineering, mathematics, computer science and engineering, and education.

Second-year graduate students will spend a year researching convergent questions in educational neuroscience, with an emphasis on virtuous cycles between school and lab-based research, interdisciplinary team science, and in all areas of learning such as STEM and reading. They will also work on developing the next generation of learning technologies using artificial intelligence (AI), with an underlying theme of neurodiversity. The hope is that the students will stay in the program and continue research on their topic of choice for their dissertation.



The team at UConn's Brain Imaging Research Center - including UConn Waterbury Director Fumiko Hoeft, psychological sciences associate professor Nicole Landi, and graduate student Jie Luo - is working with students of all backgrounds to better understand neurodiverse learning

MAKING STRIDES IN RESEARCH AND ENTREPRENEURSHIP

Research is at the heart of a UConn education, and not just for graduate and postgraduate students. Undergraduates play a pivotal role as they make strides in research and entrepreneurship. Here are a couple of their stories.

SUDIKSHA MALLICK **College of Liberal Arts & Sciences**

Third-year UConn student Sudiksha Mallick is passionate about inclusive education for neurodiverse learners. Mallick, who studies political science and international relations, is a member of the inaugural F3 Experience cohort at the Peter J. Werth Institute for Entrepreneurship and Innovation. Her team is developing augmented reality flash cards designed to support the learning needs of neurodiverse elementary-age students. The cards include interactive audiovisual components activated by hovering a smartphone over the card. The team plans to test their prototypes with community educational partners once the full deck is developed. Mallick hopes an innovative approach to learning can help combat the competitive nature of American public schools and encourage a joy of learning instead.

HRITISH BHARGAVA School of Engineering

Hritish Bhargava, '23 (ENG) was in ninth grade when he invented a toothpaste-powered rocket. In the years since, the now-rising senior has innovated new and ever better ways to reach the stars. Bhargava is a member of the first-ever team at UConn to compete in the NASA BIG Idea Challenge-where they became finalists. Last year, Bhargava's club Space Tech last year sent two teams to RockOn, a nationwide event where they created a sensor that was launched into space. Bhargava was accepted into the inaugural cohort of the Stamford Startup Studio at UConn's Peter J. Werth Institute. He and a group of friends are working on a startup concept for an Al-enhanced vehicular brake bar.





CONNECTING RESEARCH WITH THE ARTS



PUPPETS GET THE LASER TREATMENT

How does one simplify a task involving precise cutting of hundreds of puppet parts? By using lasers, of course. In the summer of 2022, the Proof of Concept Center (POCC) at the Innovation Partnership Building (IPB) at UConn Tech Park provided the technology and space to facilitate production for the Feel Your Best Self program. In the process, the POCC joined an interdisciplinary collaboration between the Ballard Institute & Museum of Puppetry (part of the School of Fine Arts), the Collaboratory on School and Child Health, the Neag School of Education, and the Office of the Vice President for Research – all for the benefit of hundreds of children across the state.

Feel Your Best Self uses videos starring puppet friends CJ, Mena, and Nico to help children process feelings and learn other important lessons. Sandra Chafouleas, the co-director of the UConn Collaboratory of School and Child Health and a Board of Trustees Distinguished Professor in the Neag School of Education, co-created Feel Your Best Self with Emily Wicks, Manager of Operations A just assembled-puppet comes to life as the Proof of Concept Center (POCC) and the Ballard Museum and Institute of Puppetry collaborate on building puppets for the "Feel Your Best Self" project at the Innovation Partnership Building.

and Collections at the Ballard Institute. Children create their own puppets as a component of the program, courtesy of kits that the organizers provide. The program was in high demand over the summer, leading to a supply and demand issue requiring Feel Your Best Self to mass produce parts at scale. The program turned to Joseph Luciani at the POCC, who had plans to make the process much less monotonous and considerably higher-tech. While puppet part production is not a regular request, Luciani was eager to help. The task was simplified, to the delight of hundreds of children who were able to build their own puppets. The Feel Your Best Self program brings together a far-reaching network of UConn faculty, staff, alumni, students, and donors from a number of fields, including educational psychology, puppetry, behavioral health, and finance.

UCONN SENIOR PRODUCES COMPELLING DOCUSERIES 'HOUSING (IN)JUSTICE'

Brianna Chance '23, a music education major, is rounding out her UConn career at the helm of a video series spotlighting students' experiences with housing insecurity. Funded by the BOLD Women's Leadership Network, the series premiered to an emotional audience in UConn's Dodd Center for Human Rights in November 2022.

"Housing (In)Justice" was inspired by Chance's own experiences navigating housing insecurity as an undergraduate—and her realization that, while common, housing insecurity among college students is seldom discussed. Her project unites the stories of five UConn students and alumni (including herself), following them through heartfelt storytelling woven around their experiences with homelessness or housing insecurity. In addition to publishing her video series online, Chance created and distributed a magazine that spotlights the students' stories visually. One aim of the project was



Both a mini documentary series and a printed magazine, Brianna Chance's oral history project intimately profiles students and alumni who faced homelessness and housing insecurity in college.

to increase awareness of homelessness for college students, which is often an "invisible" problem. For students, Chance shows, homelessness can manifest in ways that diverge from popular conceptions of homelessness, like living on streets or in shelters, and instead look like sleeping on friends' couches or scrambling to find housing during the holidays. Housing-insecure students may have housing, but it is sporadic or precarious.

Another aim was to destigmatize what is already an isolating experience. Chance's work spotlights the achievements of Huskies who made their mark on the UConn community while navigating extraordinarily difficult personal circumstances. Through her art, she hopes to celebrate their contributions and presence at the university.

After graduating, Chance plans to stay connected to the subject, expanding "Housing (In)Justice" to the national level. "I would love to do a second season of 'Housing (In)Justice' at another university," she says. "I think the more universities we do it at, the more we can bring this issue to light."

SERVING OUR COMMUNITIES



Professor Michael Coyne's efforts to improve early childhood *literacy have proved so successful that the Connecticut* Legislature parlayed his research into reading intervention programs throughout the state

NEAG SCHOOL OF EDUCATION'S MICHAEL COYNE LEADS STATEWIDE INTERVENTION FOR CHILDHOOD LITERACY

For more than a decade, Professor Michael Coyne of the Neag School of Education has led efforts to close the state's achievement gap by improving literacy through early intervention. In 2021-22, the State of Connecticut encouraged Coyne to continue his research and success through a \$3.59 million grant to expand programming to more school districts throughout the state. Coyne, the head of Neag School's Department of Educational Psychology, launched the Connecticut Partnership for Literary Success in 2012 with retired Professor George Sugai. The program seeks to eliminate the achievement gap before it happens through early reading instruction and establishing basic literacy skills in students from kindergarten through the 3rd grade. Launched as a pilot in high-need public

school districts, the program proved successful and expanded across the state, focusing on districts with significant minority populations. The Connecticut legislature, especially the Black and Puerto Rican caucus, advocated even further expansion. By 2021, the program served as the launching pad for the Right to Read Act, which earmarked state funds for literacy programs and financed a literacy coach in every school district. The state has invested \$20 million in the initiative since its initial launch.

UCONN RESEARCHER CO-LEADS CROSS-STATE EDUCATIONAL COVID-19 COLLABORATION

Connecticut has relied on a multifaceted. cooperative effort of the state's colleges and universities to evaluate how the COVID-19 pandemic has impacted education and the steps to take to mitigate the harm caused to learning. As the collaborative's co-leader, Professor Morgaen Donaldson - the Neag School of Education Associate Research Dean and the Philip E. Austin Endowed Chair - is critical to the collaboration's success. Donaldson has led the Connecticut COVID-19 Education Research Collaborative since its inception. The State Department of Education allocated \$3 million of federal coronavirus relief funds for the collaborative. It brings together researchers from UConn, Yale, Wesleyan, and other public and private institutions across the state. The members work together on studies and projects and conduct research on emerging areas of importance related to education and COVID. Among other topics, the collaborative investigates how the pandemic affected learning, behavior, attendance, and the social-emotional well-being of different sub-groups of students, such as people of color or English language learners. The researchers also review initiatives that districts and the state put into effect to ease students back into the classroom after months of remote learning.

CONNECTICUT SEA GRANT: SAVIORS OF THE SHELLFISH INDUSTRY

When the COVID-19 pandemic hit, the team at Connecticut Sea Grant helped get Connecticut shellfish farm crews back to work and diversify their businesses to adapt to the unprecedented challenges. The state's shellfisheries are dependent on restaurants to buy their catch. When the pandemic forced restaurants to shut down, Connecticut's 51 shellfisheries lost 93% of their revenue.

Before the pandemic, Connecticut Sea Grant was working on developing guidance and regulations for shellfisheries to sell directly to consumers with the Connecticut Department of Agriculture's Bureau of Aquaculture. At the onset of the pandemic, the two agencies fast-tracked the rollout of this guidance, allowing shellfish farmers to diversify their businesses. Funding from the National Oceanic and



When restaurant markets closed due to the COVID-19 pandemic, Connecticut Sea Grant worked with shellfisheries to facilitate the sale of fresh seafood directly to consumers.

Atmospheric Administration (NOAA) allowed Sea Grant to purchase nine portable refrigeration units and make them available to shellfish farmers. With a new network of customers and the ability to keep their product fresh, the shellfisheries survived.

Additionally, Sea Grant worked with NOAA to employ shellfishing crews to restore damaged beds along the coastline. Crews uncovered and replenished the beds with healthy adult brood stock oysters and oyster shells, which baby oysters often attach to as they develop their own. Researchers at Connecticut Sea Grant collected data on the economic impact the pandemic had on shellfisheries to help inform national emergency relief measures. The Connecticut Sea Grant team also helped shellfish farmers navigate federal funding applications during the pandemic.

Within the first year of the pandemic, the funding supported 33 businesses in the state. In the next few years, their work would benefit all 51.





@UConnResearch



UConn is New England's leading public interdisciplinary research university, dedicated to meeting the challenges that face our society and making world-changing discoveries that impact the future for the better. The UConn Research Enterprise comprises campuses across the state, including UConn Health. The University invests more than \$300 million annually in research, supporting a world-class faculty and providing a network of support and compliance services. UConn Research connects with state and national leaders in science, technology, medicine, and more, establishing a thriving network of partnerships that not only drive research and innovation, but also help propel Connecticut's economy and workforce.





