University of New England
College of Arts and Sciences
Westbrook College of Health Professions

Summer Undergraduate RESEARCH EXPERIENCE Symposium

SATURDAY
October 5, 2024

UNE
UNIVERSITY OF NEW ENGLAND
INNOVATION FOR A HEALTHIER PLANET

SCHEDULE

Saturday, October 5, 2024 | 9–11 a.m.

Alfond Center for Health Sciences Lobby

9–11 a.m. | Poster Presentations

10:30 a.m. | Remarks

James D. Herbert, Ph.D.
President, University of New England

Amy Keirstead, Ph.D.
Associate Dean, College of Arts and Sciences

RESEARCH AT UNE

Welcome to the 2024 Summer Undergraduate Research Experience (SURE) Symposium! This annual event features the work of our students in the College of Arts and Sciences (CAS) and the Westbrook College of Health Professions (WCHP) who have performed research over the summer, working closely with dedicated faculty and professional staff. In doing so, our students have built on the knowledge they have acquired through their coursework, gained valuable hands-on skills in their fields, and enjoyed an intensive research experience that fosters the habits of mind and professional competencies that will benefit them in their future careers.

From the Portland Campus for the Health Sciences to the Scarborough Marsh, and from UNE's 363 Acre Forest to the Rachel Carson National Wildlife Refuge, our students have been busy investigating a diverse array of research questions. These projects might continue through their undergraduate years, evolve into a Master's thesis, and form the basis for additional presentations, manuscripts or articles, and more.

Summer 2024 marks 15 years of the CAS SURE program as we know it and we are pleased to be marking this milestone by including our SURE alumni who have carried out research and scholarship since graduating from UNE. Look for their posters at the symposium and check out the alumni reflections elsewhere in this program.

Please join us in celebrating the hard work, dedication, and creativity of our students while learning more about their fascinating projects. We hope you enjoy your day!

Amy Keirstead, Ph.D.
Associate Dean and Associate Professor of Chemistry
College of Arts and Sciences

John Rosene, D.P.E., LAT, ATC, CSCS, ACSM EP-C
Clinical Professor of Exercise and Sport Performance
Westbrook College of Health Professions

PRESENTATIONS

LEGEND

63. Goat Island Alternative Energy Project

Student Author(s)

Cameron Indeck '22 | *Pam Morgan, Ph.D.*

Faculty Advisor(s)

Abstract

Goat Island, offshore Kennebunkport, Maine, has had an operating lighthouse since 1833. The lighthouse and buildings are powered by an underwater cable from the mainland, which is leaking electricity into the ocean.

Funded by

Kennebunkport Conservation Trust and the Gulf of Maine Institute.

1. The Impact of Prophylactic Ceftriaxone on Antimicrobial Resistance in Out-of-hospital Cardiac Arrest Patients

Cailyn Wheeler ’25 | *Kristin Burkholder, Ph.D.*

With the uprising of awareness of antibiotic resistance, we have partnered with the Maine Health Institute of Research to assess the impact of prophylactic ceftriaxone on antimicrobial resistance in out-of-hospital cardiac arrest patients (OCHA). Ceftriaxone is the go-to antibiotic for OCHA patients to prevent early-onset pneumonia. This project assesses whether ceftriaxone affects a patient’s antibiotic resistance and health outcomes.

MaineHealth Institute of Research

2. Comparative Blight *(Cryphonectria parasitica)* Resistance of American Chestnut *(Castanea dentata)* in Novel Transgenic Orchard With Species Restoration Implications

Virginia May ’25 | *Thomas Klak, Ph.D.*

In an effort to determine fungal blight resistance of transgenic Darling 54 American chestnuts, compared to their nontransgenic siblings and Chinese counterparts, I designed and executed this orchard study. Utilizing an established procedure, I inoculated over 200 trees with the most virulent strain of the cultured blight and measured the trees’ response, length of cankers, over 90 days. My results offer support to the future of transgenics as a restoration approach for this keystone species.

Quimby Family Foundation, PW Sprague Memorial Foundation, and Private Donors

3. Investigating the Impacts of Climate Change on Corals in Belize Using Satellite Remote Sensing

Katelyn DeWater ’25 | *Will Kochtitzky, Ph.D.*

Coral reefs, including the Mesoamerican Barrier Reef System, are vital ecosystems that support diverse marine life, buffer coastlines, and provide economic benefits through tourism and fisheries. These reefs are becoming increasingly threatened by climate change with warming ocean temperatures and fluctuations in turbidity and salinity, which stresses corals. Our goal is to track these environmental changes by analyzing satellite data from 2002 to present of sea surface temperature, turbidity, and salinity.

Maine Space Grant Consortium

4. High Throughput Screening of *de Novo* Protein Binding Affinities for Interleukin-6 with an *in Cellulo* Fluorescence-based Assay

Lucas R. Girard ’26, Sam J. Spiese ’25, Jazmine A. Torres (Auburn University), A. Clay Richards (Auburn University) | *Eva Rose Balog, Ph.D., Robert Pantazes, Ph.D. (Auburn University)*

Ninety computationally designed proteins were screened for their binding affinity to a target analyte in a high throughput, parallelized fluorescence assay. DNA fragments were assembled into plasmids using a parallel Gibson method, then the plasmids were transformed into *E. coli* cells in a 96-well plate. These cells were cultured, and their fluorescence was measured using a split green fluorescent protein reporter system. Measurement of fluorescence intensity enabled identification of potential binding activity.

National Science Foundation

5. Antimicrobial Peptides Improve Antibiotic-Mediated Killing of Biofilm Resident *staphylococci*

Alya Theriault ’25, Juliana Miguel ’27, Anjana Govindaraj ’24 | *Kristin Burkholder, Ph.D.*

Staphylococcus aureus can cause drug-resistant, biofilm-associated infections. Antimicrobial adjuvants are a potential strategy for improving the efficacy of existing antibiotics. Antimicrobial peptides (AMPs) may have adjuvant activity. To determine the effect of AMPs, MRSA USA300 biofilms were treated with linezolid in presence and absence of sublethal doses of AMPs. Biofilm viability and integrity were assessed. A reduction in bacterial viability in the presence of all nine AMPs tested compared to linezolid only was observed.

INBRE SURF, UNE Office of Research and Scholarship

6. Demonstrating Patterns and Synchronicity Between Sea Lettuce’s Reproductive Life Cycle and Abiotic Environmental Conditions

Sophia Tearman ’24 | *Carrie J. Byron, Ph.D.*, *Thew Suskiewicz, Ph.D.*

Sea lettuce is becoming a commercially important species in America, and little is known about the effect of abiotic factors on the reproductivity of *Ulva*. This study aims to demonstrate patterns and synchronicity between the reproductive life cycle of *Ulva* and abiotic factors. There is a demonstrated synchronicity between spore concentration and the lunar cycle, the new moon particularly, in field site collection data, but the pattern was not statistically significant in laboratory experiments.

Atlantic Sea Farms, Aquaculture Research Institute

7. DNA Extraction Procedure Influences Northern Bog Lemming *(Mictomys borealis)* Detection

Maya Galpern ’25 | *Zach Olson, Ph.D.*

As part of an ongoing project to study the northern bog lemming, we tested two DNA extraction procedures to determine which provided more accurate results. We used a medium of 500 µl of buffer on all samples, and replicated the protocol with 500 µl of homogenate. The majority of compared samples did not find the same species, and the use of homogenate found a significantly higher number of species than the use of buffer. Six out of twenty-three homogenate samples detected northern bog lemmings.

8. Non-invasive Sampling Detections in Small Mammal Pellets in Maine

Grace Hutjens ’26, Maya Galpern ’25 | *Zach Olson, Ph.D.*

The northern bog lemming (NBL; *Synaptomys borealis*) has been threatened in Maine since 1986 and there is little known about them considering their elusive habitats (Jones and Melton 2014). We wanted to look at the spatial patterns of NBL to help future research to explain different behaviors that NBL exhibits. They are notoriously difficult to capture and live in remote areas. This makes non-invasive DNA detection methods crucial to learn more about NBL to spread more awareness.

9. Differences in Multifidus Activation During Walking and Implications for Low Back Pain Rehabilitation

MaryBeth Bashaw ’26 | *Michael Lawrence, M.S.*

Chronic low back pain often results in lumbar multifidus degeneration and exercises are typically prescribed to improve muscle activation. Indwelling wire electrodes were used to measure superficial (SMF) and deep multifidus (DMF) activation in 20 healthy individuals while walking at a self-selected pace and during a rehabilitation exercise. There was no significant difference in DMF activation between walking and the exercise, suggesting walking may be as effective as the rehabilitation exercise to stimulate DMF activation.

10. Effect and Distribution of Shelled Gastropods on Pre-Restoration Salt Marshes in Southern Maine

Robyn Rollo ’25 | *Pam Morgan, Ph.D.*

Salt marshes are an integral marine ecosystem that is deteriorating and in need of being restored. In this project, shelled gastropods (snails) were surveyed in two marsh locations in Southern Maine, a control site and a future restoration site. Snail presence as well as biotic and abiotic factors were explored in the marsh. Snails were found to correspond with vegetation height and plant species cover, as well as proximity to water.

11. Methods Development for Microplastic Extraction in Oysters

Mikayla Straube ’25 | *Carrie Byron, Ph.D.*

Microplastics (<5 mm) are an incessant issue throughout the global hydrosphere, disruptive to the functionality of organisms important to environmental services and anthropocentric utilization. Microplastic loading by farming gear type in oysters was explored through the pioneering of digestion, extraction, and visualization methodology. Additionally, a microplastic-aided microbial loading experimental design was built, maintained, and utilized through a duo-lab collaboration. These studies are still in development to achieve efficient and accurate methods and results.

12. Changes in Hind Paw Intraepidermal Nerve Fiber Density After Sciatic Nerve Crush in Wildtype and CD137L Knockout Mice

Maria Peters ’25 | *Josephine Nutakki, Elizabeth N. Bean, Ph.D., Ling Cao, MD, Ph.D.*

CD137L is known to play a role in the development of sensory neuropathy. To understand its role better, we determined the nerve fiber density and composition in hind paw skin of CD137L Knockout (KO) or Wildtype (WT) animals before and after a nerve injury. We found that while the amount of nerve loss was similar in KO and WT animals, that the composition changed in KO animals, suggesting that one way CD137L contributes is by changing the composition of nerve types after injury.

Kahn Family Foundation

13. Deep Multifidus Muscle Activation During Routine Lumbar Strengthening Exercises

Drew Cairns ’26 | *Michael Lawrence, M.S.*

Chronic low back pain (CLBP) is one of the most common ailments worldwide. The deep multifidi (DMF), a spine stabilizer, has been found to degenerate in individuals with CLBP. Current recommendations include progressing to resistance exercises to improve DMF performance. However, evidence for specific exercise prescriptions is lacking. The purpose is to compare DMF activation between trunk extension exercises (unweighted trunk extension [UTE], weighted trunk extension [WTE], reverse hyperextension [RH]) and contraction phases.

14. Insect Diversity in Relation to Red Oak Genetic Diversity

Kaleigh Potter ’25 | *Greg Zogg, Ph.D.*

Over the course of the summer of 2024, I aimed to determine whether insect communities were similar among genetically related red oak trees. I measured insect diversity and abundance in tree canopies and trunks across several weeks, and then compared it to tree genetics as well as leaf toughness. This work is important as it acts as a baseline for climate change monitoring and will further our understanding of plant-herbivore relationships.

15. Analysis of UVVR in Scarborough and Biddeford Pool Salt Marshes Through Different Methods

Ruth Ellis ’26, Katelyn DeWater ’25 | *William Kochtitzky, Ph.D.*

Vegetation is vital to salt marsh stability, measured with the Unvegetated Vegetated Ratio (UVVR). This project determined the UVVR of the Biddeford Pool and Scarborough salt marshes using manual digitization on USGS NAIP imagery (2009-2021) and Mavic3E drone imagery (2023), along with NDVI quantification from Mavic3M drone imagery (2024). NAIP imagery results showed an overall increase in UVVR, with marsh sections changing at different rates. Method comparison showed inconsistencies in results, needing further improvements.

Friends of Scarborough Marsh and Maine Space Grant Consortium

16. Investigation of the Effect of Lunar Cycles on *Ulva lactuca* Zoospore Release Timing

Julia Hobbs ’27 | *Patricia Thibodeau, Ph.D.*

Ulva lactuca offers great opportunities for use in aquaculture due to its high nutrient content and potential use in pharmaceuticals. In order to understand the phenology and challenges associated with farming *Ulva lactuca*, my goal was to investigate how the lunar cycle affected the timing of zoospore releases in the natural environment. Correlation between the lunar cycle and zoospore release timing was not able to be determined, and further sampling is needed to draw conclusions.

17. Quantifying Shifting Phytoplankton Populations in the Gulf of Maine

Terrance Meinardus ’25 | *Patricia Thibodeau, Ph.D.*

Phytoplankton communities in the Gulf of Maine have normally been diatoms in the spring, followed by dinoflagellates in the summer bloom. When waters are warmer, diatoms are the more dominant species compared to dinoflagellates. This project aims to quantify the shift in phytoplankton populations at Ram Island. Diatoms were the dominant group except for in May, dinoflagellates were dominant. Therefore, the increase in water temperature did lead to a shift in previously known phytoplankton populations.

Maine Space Grant Consortium

18. Lichen Diversity and the Relationship with Red Oak Tree Genetic Diversity

Elizabeth Cogan ’24 | *Steven Travis, Ph.D.*

We explored community genetics of forests by evaluating whether lichen communities are similar among genetically related red oak trees. Lichens are “sentinel” species and thus useful in assessing forest responses to climate change. The goal was to establish a lichen protocol for monitoring species diversity to compare with tree genetics. Using the protocol, we determined how lichen diversity and bark characteristics differ among study sites and will continue with DNA analysis in the fall.

19. Thermal Tolerance of Jonah Crabs *(Cancer borealis)* and an Analysis of Thermal Tolerance Frameworks

Anna Sinclair ’25 | *Markus Frederich, Ph.D.*

This study evaluates several thermal tolerance frameworks to identify those that are most ecologically relevant. The thermal sensitivity of Jonah crabs is used in this study to evaluate these frameworks against each other. Many methods can be used to characterize the thermal sensitivity of the organisms and generate data to compare the different frameworks. Work conducted this summer focused on lactate accumulation during both rapid temperature changes and longer exposures to a relatively stable temperature.

Funded in parts by National Science Foundation and the Maine Space Grant Consortium

20. Reproduction of Two Invasive Tunicates, *Botrylloides violaceus* and *Ciona intestinalis*

Kai Watkins ’24 ’25 | *Markus Frederich, Ph.D.*

This project aims to investigate questions surrounding reproduction in two species of invasive tunicates in the Gulf of Maine, *Botrylloides violaceus* and *Ciona intestinalis*. Findings suggest *B. violaceus* releases larvae in response to stress, and that there may be a mechanism against self-fertilization in *C. intestinalis* causing egg failure. It was also found that polyethylene glycol may be effective for freezing both species. A better understanding of these animals could help improve management strategies.

21. Oxidation Chemistry with Copper Complexes and Hydrogen Peroxide

Will DeFroscia ’26 | *Stephen Fox, Ph.D.*

Cyclohexane, hydrogen peroxide, and dicopper(I,I)-1,8-naphthyridine-2,7-diimine complexes are reacted together to explore the mechanism behind their oxidation reaction, and how it might be used in industry. GCMS analysis is performed to find the three primary products: cyclohexanol, cyclohexanone, and hydroperoxylcyclohexane. Radical trap experiments are performed to discover that the reaction is primarily radical based. Filtered byproduct is analyzed to find an unknown pure compound, which requires further investigation.

Maine Space Grant Consortium

22. Heat-Shock Primer Design and Culturing of *Chrysaora chesapeakei*

Jhana Prue ’25 | *Markus Frederich, Ph.D.*

Chesapeake Bay Nettles *(Chrysaora chesapeakei)* are a species of true jellyfish found throughout the Chesapeake Bay. Jellyfish populations have been steadily increasing since the 2000s, causing damage to the ecosystem and economy. As ocean temperatures increase, *C. chespeakei* populations thrive. To investigate this, thermotolerance needs to be investigated in *C. chespeakei*. No primers are available for this species, so they must be created for this study. Additionally, they will need to be cultured in captivity.

23. Analyzing the Connection Between the Tibia and Saphenous Nerve of Male Mice

AnnaMaria Biagi ’25 | *Kathleen Becker, Ph.D.*

Bone development and metabolism is impacted by sensory and sympathetic nervous system. The saphenous nerve, a sensory nerve, has been shown to innervate the tibia in female mice, but it has not been tested in male mice. Preliminary results show a decrease in retrograde signaling from the tibia to the dorsal root ganglia with the saphenous nerve transection in male mice suggesting that the saphenous nerve innervates the tibia in both male and female mice.

24. Under the Shell of the American Lobster: A Histological Atlas of Early Development of *Homarus americanus*

Ruby Motulsky ’25 | *Markus Frederich, Ph.D.*

This project aims to create a comprehensive histological atlas of the early development stages of the American lobster *(Homarus americanus)*. The atlas will focus on the proportion, composition, and growth of internal organs from embryotic to Stage 4 lobsters. Using optimized Hematoxylin and Eosin staining, an enhanced visualization of cellular and tissue structures can provide a critical understanding of the morphogenesis and physiological changes of the American Lobster.

BioME

25. Unraveling the Mystery of Rare Coloration of *Homarus americanus* (American Lobster)

Ruby Motulsky ’25 | *Markus Frederich, Ph.D.*

This project investigates the gene expression of carotenoproteins in American lobsters *(Homarus americanus)* exhibiting rare color variations. Using UNE’s and other New England institutions’ collection of rare lobsters (orange, split, calico, etc.), the genetic differences between each phenotype will be quantified and compared. The addition of Peaches, an orange lobster with eggs, displays inheritance patterns of coloration that can be observed and quantified starting from hatch.

BioME

26. Are Microplastics Vectors for Bacterial Colonization of Fish?

Lauren Adams ’25, Lyle Massoia ’22, ’24 |
Kristin Burkholder, Ph.D.

Ocean microplastics are substrates for bacterial attachment. If ingested by marine organisms, microplastics may facilitate pathogen entry into the human food supply. However, no studies have examined this relationship. To test this, zebrafish, a model organism for edible finfish, were exposed to bacteria alone or bacteria associated with microparticles made of plastic or wool, and bacterial load was measured across fish tissues. Molecular methods were used to identify environmental bacteria exhibiting high binding to microplastics.

INBRE SURF, UNE Office of Research and Scholarship

27. Vertebral Chemistry Traces the Life History of Migratory Shortfin Mako Sharks

Peter Hennessy ’25 | *John Mohan, Ph.D.*

Two methods to study life history of organisms using trace element chemistry were investigated on the shortfin mako. Multi-elemental signature distinguished between sharks of separate regions based off of their maternal and first year of life signatures to moderate success. Peaks in Mn concentration profiles were explored as a proxy for band pair age identification. This study presents preliminary results on the limitations and advantages of using vertebral chemistry to reveal life histories of sharks.

28. Role of Wg/WNT Pathway in Nociceptive Sensitivity in *D. melanogaster*

Finn Sclafani ’27 | *Julie K. Moulton, M.S.*, *Lindsey A. Fitzsimons, Ph.D.*, *Kerry L. Tucker, Ph.D.*, *Geoffrey K. Ganter, Ph.D.*

We tested the hypothesis that the Wingless pathway regulates nociceptive sensitivity in *Drosophila*. Gal-4/UAS cell targeting technology was used to localize NompB and Gish under-expression to the nociceptor, thereby interrupting the Wingless pathway in two locations. NompB is a gene responsible for constructing the primary cilium, and Gish inactivates the Armadillo Destruction Complex. We utilized Von Frey stimulation to quantify resulting changes in mechanical sensitivity, and found significant differences compared to normal controls.

Kahn Family Foundation

29. Addressing the Gaps of eDNA Technology: Comparing qPCR and Video Analysis and Diving Deeper with eDNA Depth Profiling

Anela McMichael ’24, ’25 | *Carrie Byron, Ph.D.*, *Markus Frederich, Ph.D.*

Environmental DNA (eDNA) refers to genetic material present in environmental samples. eDNA provides promise to be a beneficial tool for species identification and biomonitoring. The challenge of detecting crustacean DNA is addressed through a qPCR and observational methods. This research has expanded to address eDNA at varied depth in ocean ecosystems. Next steps of this project include optimizing PCR results and sequencing samples using metabarcoding with three sets of primers (COI, 18s universal, and MiFish).

The Nature Conservancy and the Builders Initiative

30. Seasonal Cycles in the Copepod *Euchaeta norvegica*

Claire Fecteau-Volk ’26, Elias Porter (Colby College) | *Maura Niemisto, M.S. (Bigelow Laboratory for Ocean Science), David M. Fields, Ph.D. (Bigelow Laboratory for Ocean Science)*

Copepods serve as a trophic nexus between primary production and secondary consumption in the marine food web, but little is known about seasonal cycles of carnivorous copepods, such as *Euchaeta norvegica*. While studying offshore samples from the Gulf of Maine, I found a clear progression through the copepodite stages throughout April-July and a correlation between egg abundance and adult F:M ratio. I found higher total abundances in *E. norvegica* preceding months with the highest biomass.

National Science Foundation Research Experiences for Undergraduates Program at Bigelow Laboratory for Ocean Sciences

31. Using eDNA to Estimate Seasonal Residency of Striped Bass *(Morone saxatilis)* in the Saco River

Kade Tyrrell ’24 | *John Mohan, Ph.D., Markus Frederich, Ph.D.*

Environmental DNA (eDNA) is a genetic signature that is produced from the shedding of biological material such as skin fragments, scales, urine, feces, gametes and mucus. eDNA is a noninvasive approach to collect standardized presence/absence data and conduct biodiversity sampling. Field samples from the Saco River, and Ram Island were explored to establish presence/absence of striped bass each month and then compared to respective acoustic telemetry detection data to compare the Saco River to the Atlantic Ocean.

Maine Space Grant Consortium and Saint Francis College Class of 1969

32. Postural Effects on Anaerobic Performance Metrics and Lactate Recovery During the Wingate Test

Samantha Yurcak ’25, Allison Dresser ’23, Kiara Morse ’24, Sydney Mason ’24, Alexis Coombs ’25 | *John Rosene, D.P.E.*

Investigate variations in anaerobic performance metrics among participants performing the Wingate Anaerobic Test (WAnT) amongst different postures (seated-SIT; standing-STD; and a combination of both-COMB). 28 participants performed three WAnT cycle tests at least 24-hrs apart SIT, STD, and COMB. SIT recorded a smaller PD% (p=0.044) and P@MS (p=0.017) vs. COMB. The WAnT can be performed in SIT, STD, or COMB postures; however comparisons should be made using the same posture.

33. Tracing Movement Patterns and Natal Origins of Striped Bass in Maine: Connecting Acoustic Telemetry with Scale Chemistry

Benjamin Gowell ’25 | *John Mohan, Ph.D.*

Striped bass, an anadromous species, migrate extensively along the Atlantic coast. Managing striped bass is complicated by their seasonal movements, complex coastal stock structure, and overwintering behavior. This study uses acoustic telemetry and scale chemistry to examine the movements of Saco River striped bass tagged from 2022-2024 with a focus on what spawning habitat contributes most fish captured in Maine recreational fisheries and if that source varies year to year.

Maine Space Grant Consortium, Quahog Bay Conservancy

34. Research Fellow Experience: A Scoping Review for an Evidence-Based Application

Abigail McHallam ’27 | *Erin Hartigan, D.P.T., Ph.D.*

The research study I participated in, as a fellow, is a scoping review to collect data on Anterior Cruciate Ligament (ACL) interventions. This data is going to be used for the development of an evidence-based application for patients to have access from their own home. During this fellowship, I assisted in the scoping review process and the app design along with learning a variety of research and interprofessional skills.

MTI

35. Acetaldehyde-induced DNA Damage, Fanconi Anemia, and the Role of Oral Microbiome as Carcinogenic Source *(Alumni Presentation)*

Yesul Kang ’23 | *Flavia Teles, D.D.S. (University of Pennsylvania)*

Fanconi Anemia (FA) is a genetic disorder that increases the risk of oral squamous cell carcinoma (OSCC) by 700x-1500x. FA patients are highly susceptible due to their inability to tolerate standard treatments, like radiation and chemotherapy. This study aims to explore acetaldehyde (ACH), a microbial byproduct, as a potential carcinogen in OSCC development. By examining the ACH production in oral microorganisms, we hope to uncover mechanisms of OSCC, leading to better diagnostic and treatment options.

University of Pennsylvania School of Dental Medicine Department of Basic & Transloational Sciences

36. Characterizing the Scale of Pacific Halibut Distribution in the Bering Sea *(Alumni Presentation)*

Austin Flanigan ’19 | *Andrew Seitz, Ph.D. (University of Alaska Fairbanks)*

Knowledge of Pacific halibut movements within the Bering Sea is limited to localized satellite telemetry studies, leaving basin-scale movements uncharacterized. To address this, past satellite telemetry data were analyzed using Hidden-Markov modeling techniques. Results indicate that during the summer fish display site fidelity to foraging areas, while during the winter they occupied common spawning grounds. These results suggest that Pacific halibut in the Bering Sea are a singular population that displays foraging contingent behavior.

Norton Sound Economic Development Corporation, Coastal Marine Institute, and Rasmuson Fisheries Research Center

DIRECTORY

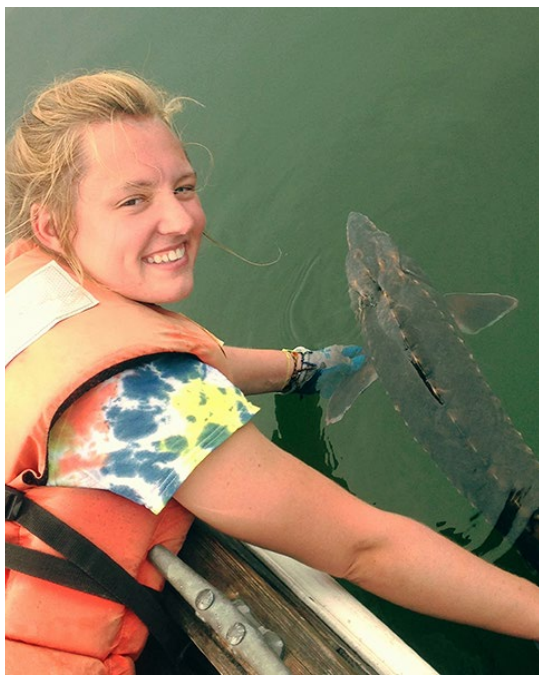
POSTERS BY AUTHOR

CELEBRATING 15 YEARS

ALUMNI STORIES

Celebrating 15 Years of the CAS SURE Program

We invited our CAS alumni to reflect on their Summer Undergraduate Research Experience and how it continues to impact them.



Read more here >

Kayla Burgess '18

Middle School Math and Science Teacher at Somerville Public Schools

I loved the field work we got to do as part of the Shark and Fish Research Lab, particularly sampling Atlantic and shortnose sturgeon. Interacting with such a fascinating fish and contributing to the conservation efforts for these remarkable species was an absolutely incredible experience.

Read more here >

Kristen Falcinelli '18

Physical Oceanography M.S./Ph.D. Graduate Student at University of Washington

Some of my favorite SURE memories include the time I used the Makerspace. Part of my work was building/designing Lagrangian drifters, and I enjoyed learning to use different tools to design and build my drifters.

Make a gift in support of SURE >

Read more here >

Aubrey Jane ’20, ’24

Maine Sea Grant Knauss Fellow, sitting at the Bureau of Ocean Energy Management (BOEM) at Maine Sea Grant

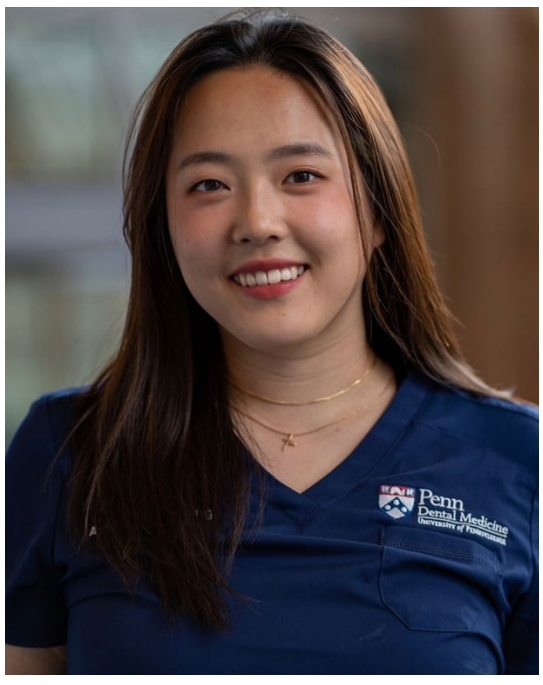
Through my SURE experience, I discovered my passion for research and realized my aptitude in this field. I learned that I love being on the water doing fieldwork and that I don’t get seasick like my mother does.

Read more here >

Elena Shippey '22

Project Administrator at Bigelow Laboratory for Ocean Sciences

The SURE program helped me realize how independent and self-disciplined I can be. I have fond memories of both participating in research during my undergraduate years and having the opportunity to be in charge of my own research project, including being part of every step of the process and sharing my findings.



Read more here >

Ashley Kang ’22

Graduate Student at University of Pennsylvania School of Dentistry

Through my SURE experience, I gained valuable insights into the significance of effective communication and teamwork.

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THANK YOU

THANK YOU!

The projects that you've enjoyed today are tangible products of the efforts of many people and units across the University of New England, who each do our part — individually and collectively — so that our students can contribute toward a greater understanding of their field of study. Here, we recognize individuals and organizations who have made our students' SURE projects and the SURE symposium a success, recognizing that it takes a village to achieve these impressive outcomes.

First, a hearty **THANK YOU** to the faculty mentors and professional staff who have supported the students in carrying out the research presented here today. Your generosity of time and effort has allowed the students to complete truly remarkable work. Likewise, the College of Arts and Sciences Undergraduate Research Committee was instrumental in the success of our 2024 CAS SURE program.

Several agencies have sponsored the students' summer research through fellowships and grants including the Friends of Scarborough Marsh (Scarborough Land Trust), the National Science Foundation, the Kahn Family Foundation, the Maine Space Grant Consortium, the MaineHealth Institute of Research, the Quimby Family Foundation, the P.W. Sprague Memorial Foundation, Atlantic Sea Farms, the Aquaculture Research Institute, BioME, The Nature Conservancy, the Builders Initiative, the Bigelow Laboratory

for Ocean Sciences, Quahog Bay Conservancy, the St. Francis College Class of 1969, the UNE Office of Research and Scholarship, the UNE Girard Marine Science Center, and the UNE College of Arts and Sciences and the Westbrook College of Health Professions Dean's Offices. Thank you for your investment in our students. Appreciation is also extended to UNE Institutional Advancement and the Office of Communications for their help in executing our event.

Thank you to all of the family and friends who have traveled to UNE to support their students during this event, and for your support during their busy summer research period. Whether you consoled your student when their experiment was "a bust" or shared their excitement when they experienced their "ah-ha" moment, we appreciate you being part of our community.

Finally, we'd like to extend a special thank you to Erinn Stetson who has provided invaluable logistical and tactical support during all stages of the SURE 2024 program, including this symposium, and to Clio Thayer for their assistance with poster printing.

—Dr. Amy Keirstead

—Dr. John Rosene

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