

College of Arts and Sciences
Westbrook College of Health Professions

September 23, 2023



UNIVERSITY OF
NEW ENGLAND



63. Goat Island Alternative Energy Project

Student Author(s) Cameron Indeck '22 | _____, .D. _____ Faculty Advisor(s)

Abstract

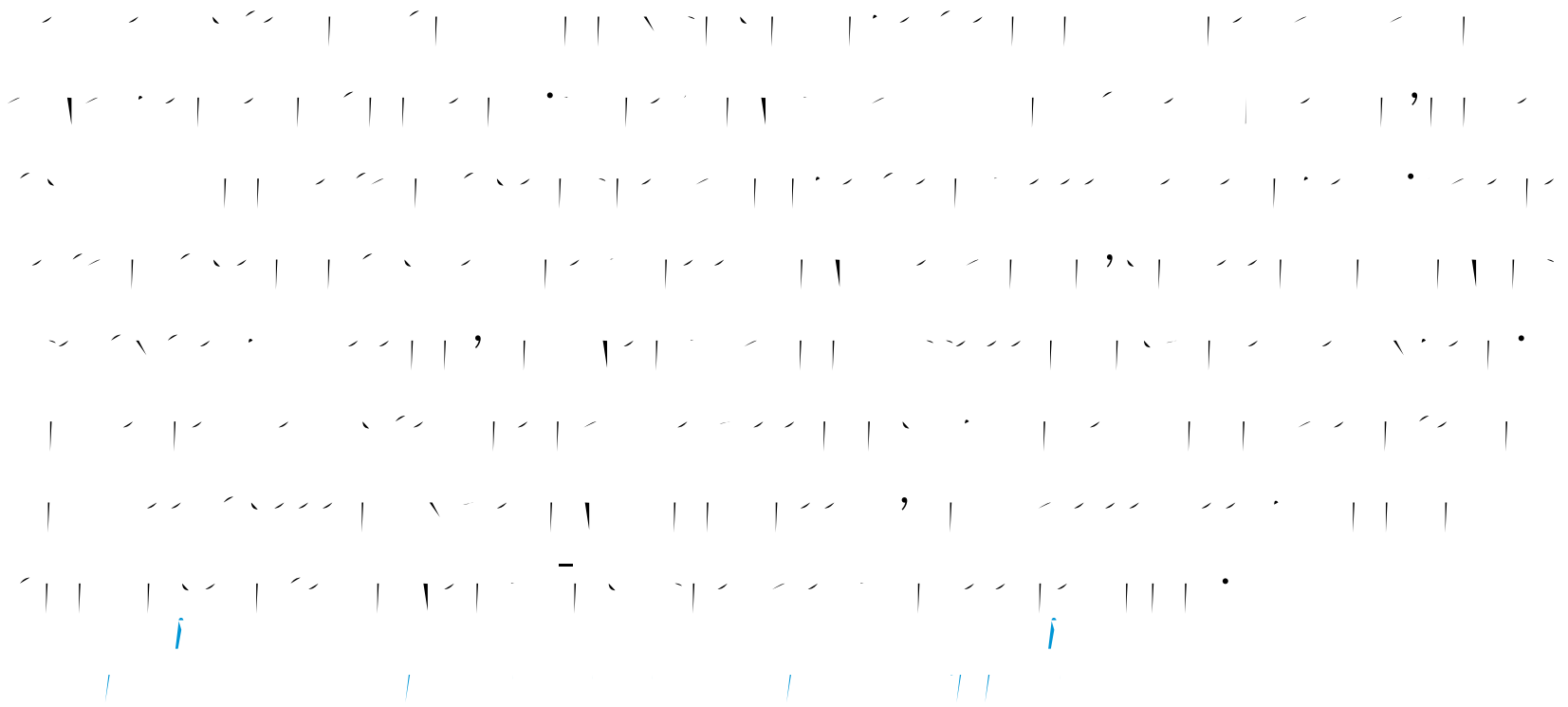
Goat Island is a small island in the western part of the Chesapeake Bay. It was first settled in 1833. The island is currently owned by the National Park Service and is used as a research station for the study of the effects of climate change on the environment. The island is a unique and important part of the Chesapeake Bay ecosystem and is a valuable resource for the study of the effects of climate change on the environment.

Funded by

The project was funded by the National Park Service and the National Science Foundation.

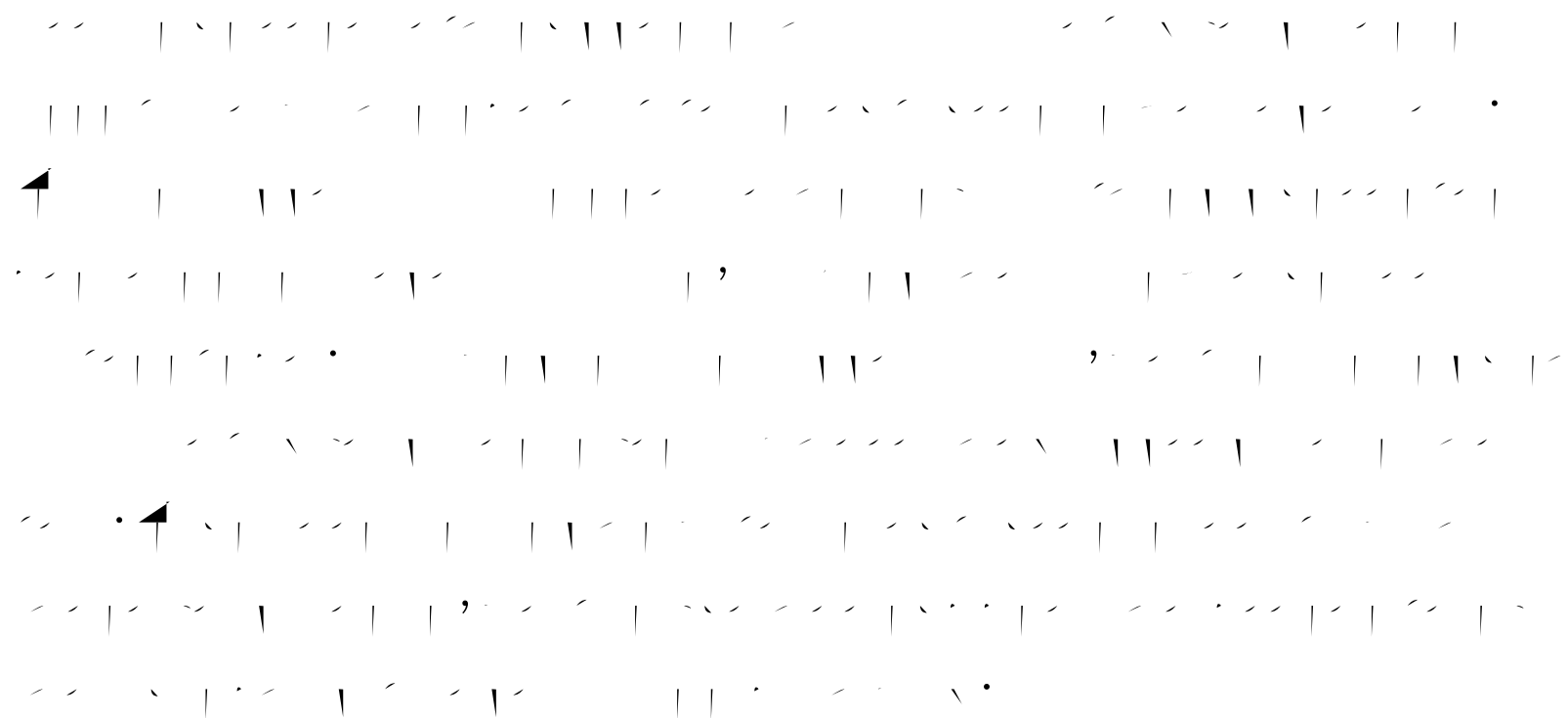
1. Novel Cultivation Technique for a Common Species: Sea Lettuce (*Ulva lactuca*)

Sophia Tearman '25 | C B , .D.



2. Using In Vivo Tagged RNA to Examine Autophagic Degradation of RNA Decay Fragments

Dez Schrankel '24 | G , .D.



3. The Effects of Vegetation Dieback Areas on New England Salt Marsh Vegetation

Caroline Fales '25 | *B.S.*, *D.*, *D.*

Abstract: This study examines the effects of vegetation dieback areas on New England salt marsh vegetation. The research focuses on the impact of dieback on the structure and function of salt marsh ecosystems. The study area is located in the coastal region of New England, where salt marshes are a vital part of the landscape. The research aims to understand how dieback affects the growth and survival of salt marsh plants, and how this in turn affects the overall health and resilience of the ecosystem. The study uses a combination of field observations and laboratory experiments to investigate the effects of dieback on plant growth and survival. The results of the study show that dieback has a significant negative impact on the growth and survival of salt marsh plants. This is particularly true for the most sensitive species, which show a marked decline in growth and survival in dieback areas. The study also found that dieback has a significant impact on the structure and function of salt marsh ecosystems. This is evident in the reduced biomass and productivity of dieback areas, as well as the increased erosion and sedimentation that occurs in these areas. The study concludes that dieback is a major threat to the health and resilience of salt marsh ecosystems in New England. It is therefore essential to develop effective strategies to prevent and manage dieback in these ecosystems.

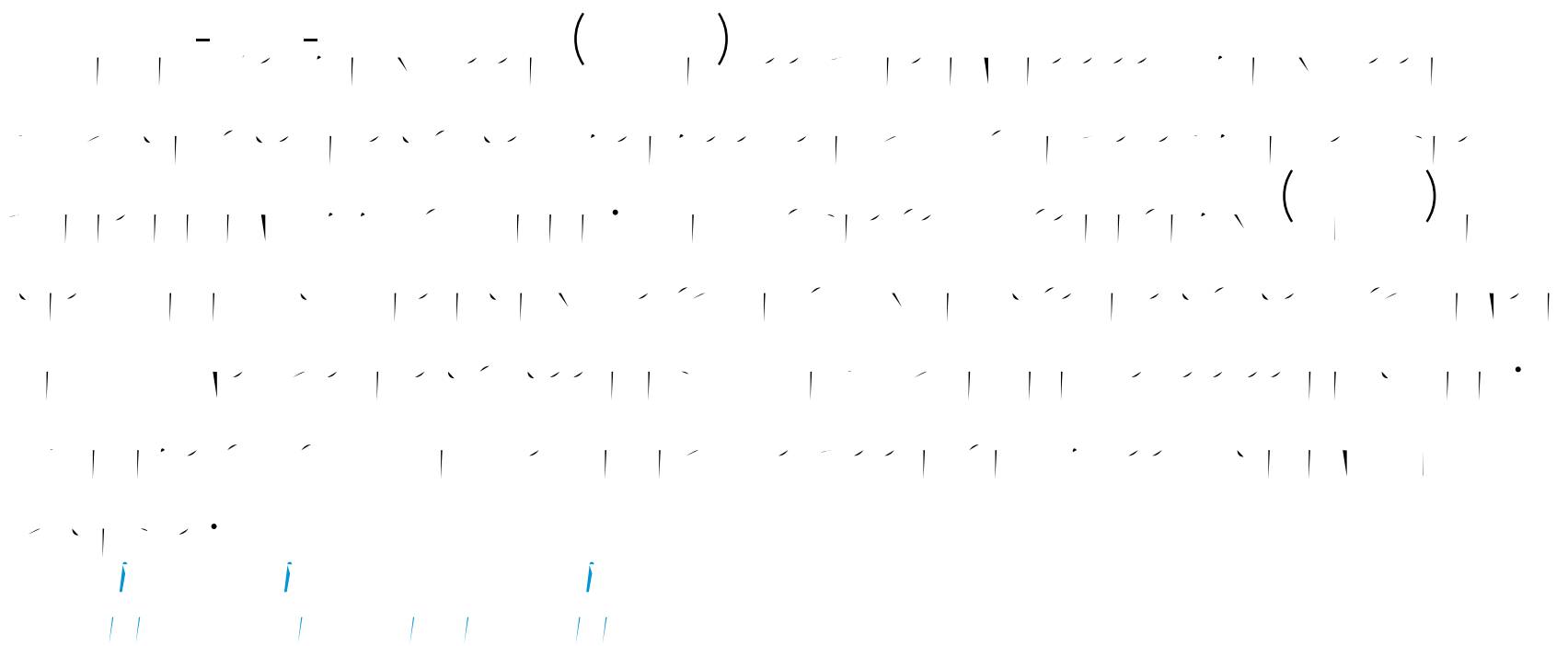
4. Impact of Prophylactic Ceftriaxone on Antimicrobial Resistance in Out-of-Hospital Cardiac Arrest Patients

Cailyn Wheeler '25 | *B.S.*, *D.*

Abstract: This study examines the impact of prophylactic ceftriaxone on antimicrobial resistance in out-of-hospital cardiac arrest (OHCA) patients. The research focuses on the use of ceftriaxone as a prophylactic agent in OHCA patients, and its effect on the development of antimicrobial resistance. The study area is located in a large urban center, where OHCA is a leading cause of death. The research aims to understand how the use of ceftriaxone affects the development of antimicrobial resistance in OHCA patients, and how this in turn affects the overall health and resilience of the community. The study uses a combination of field observations and laboratory experiments to investigate the effects of ceftriaxone on antimicrobial resistance. The results of the study show that the use of prophylactic ceftriaxone in OHCA patients has a significant impact on the development of antimicrobial resistance. This is particularly true for the most sensitive species, which show a marked increase in antimicrobial resistance in patients who received prophylactic ceftriaxone. The study also found that the use of ceftriaxone has a significant impact on the overall health and resilience of the community. This is evident in the increased incidence of antimicrobial resistance in the community, as well as the increased costs of treating these infections. The study concludes that the use of prophylactic ceftriaxone in OHCA patients is a major contributor to the development of antimicrobial resistance. It is therefore essential to develop effective strategies to prevent and manage antimicrobial resistance in OHCA patients.

7. Visualizing Elastin-Like-Polymer Behavior with Atomic Force Microscopy

Ben Wheeler '24 | E B , .D., , .D.



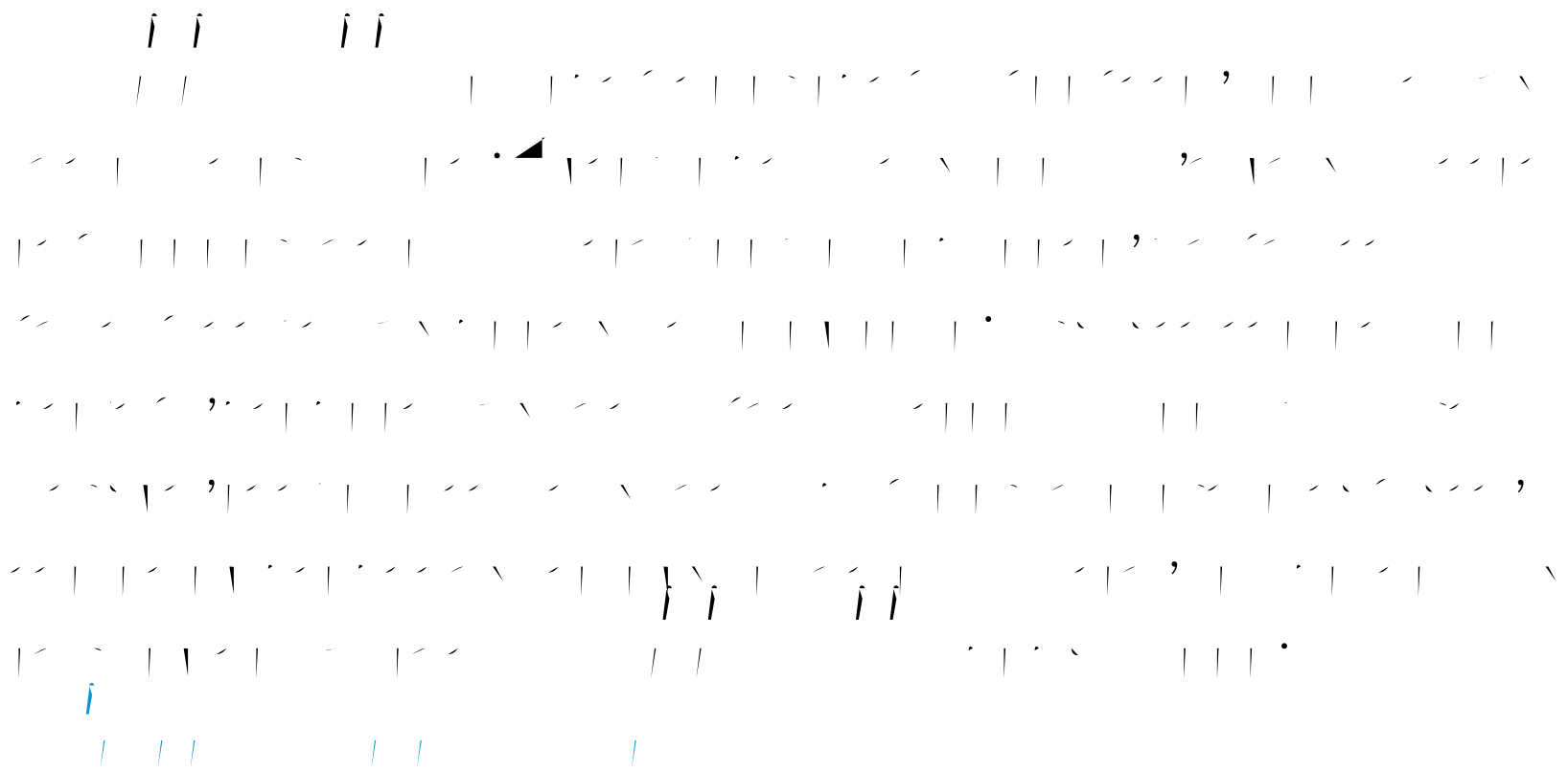
8. Effects of Early Life Pain on Amygdalar CRF Expression in Developing Rodents

Brooklynn Merrill '25, Megan Tomasch '25 |
B , .D., , B. .



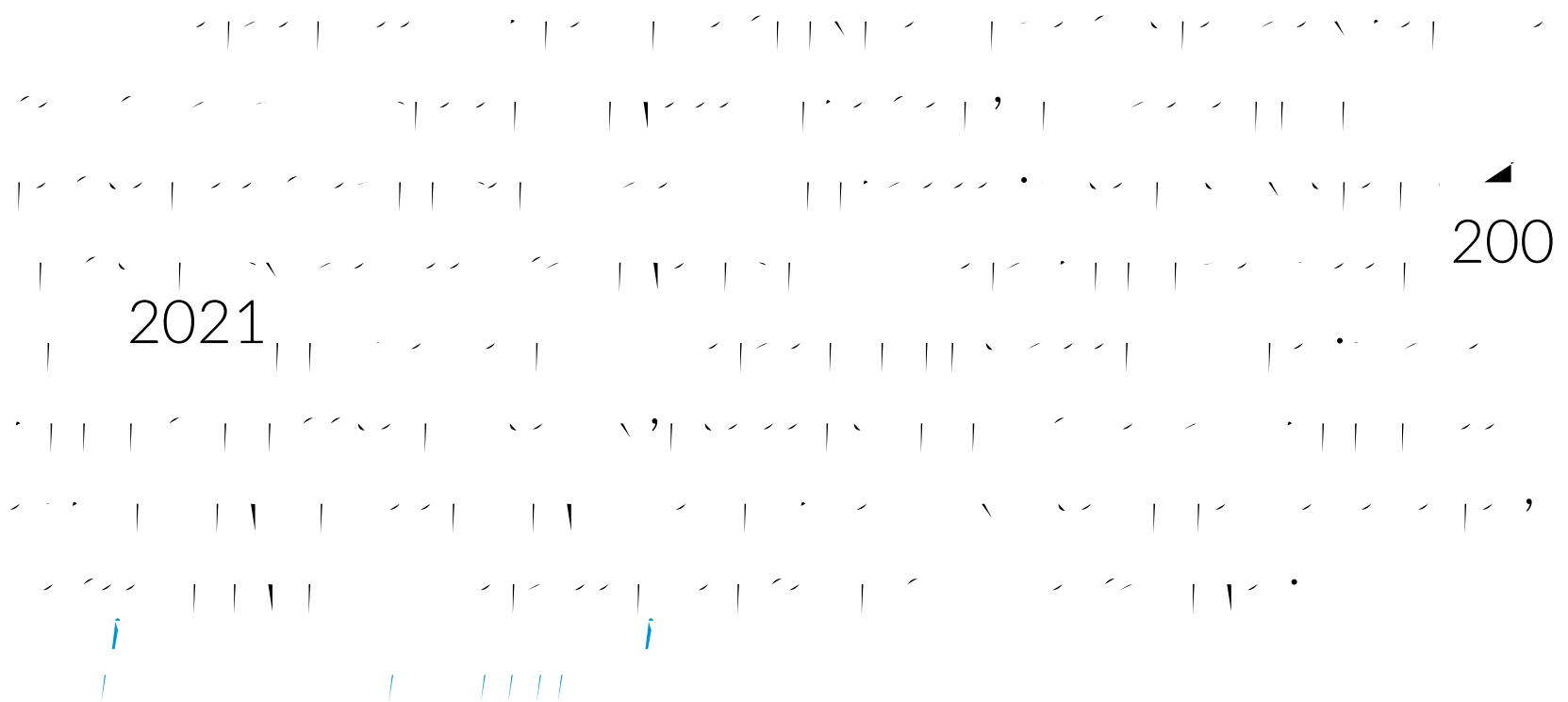
9. Establishing Pre-restoration Sites of *Agalinis maritima* on the Biddeford Pool Salt Marsh

Sam Walsh '24 | , .D.



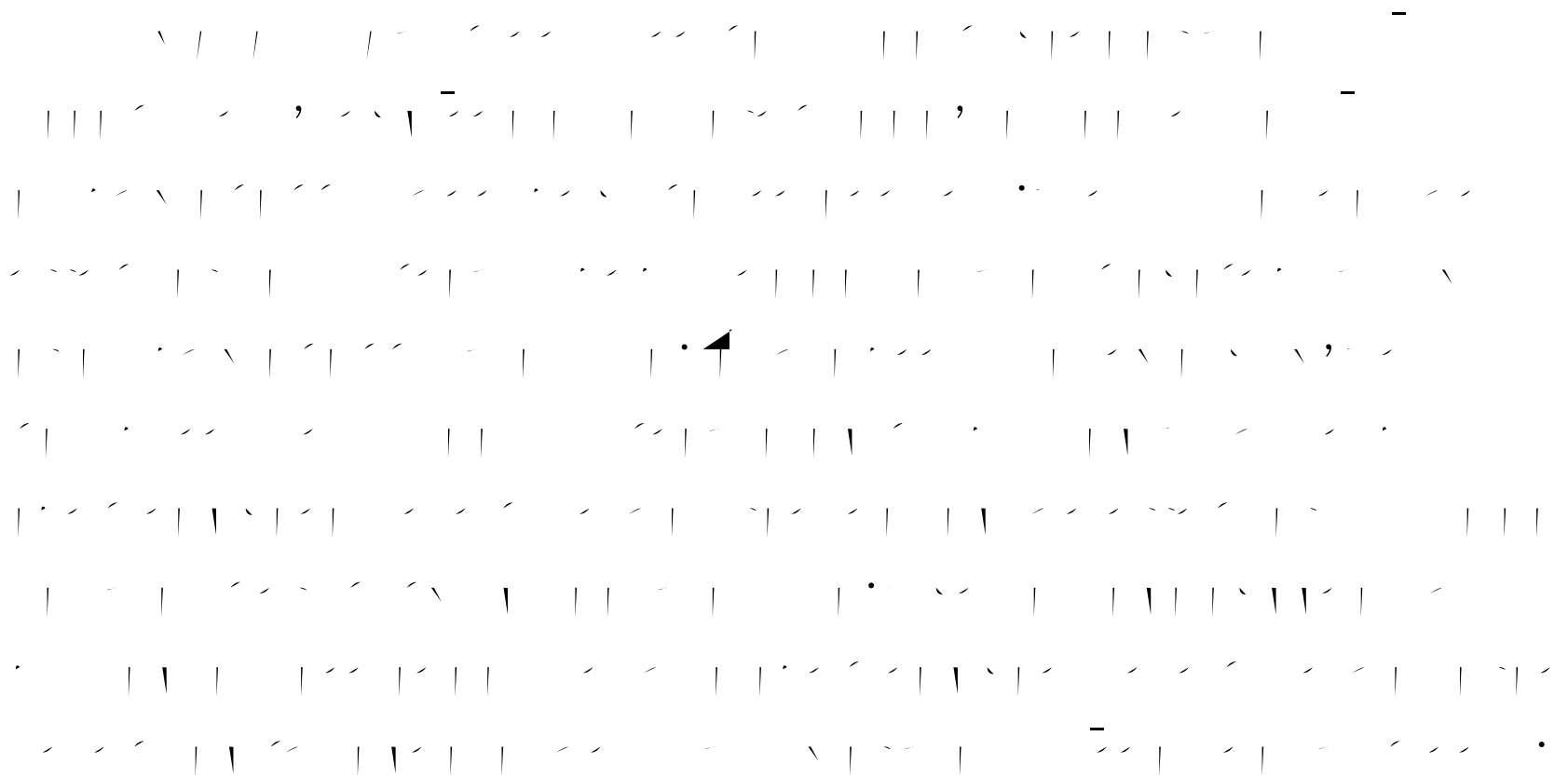
10. The Growth of Mega Pool Systems in 12 Maine Salt Marshes From 2009 to 2021

Katelyn DeWater '25 | , .D.



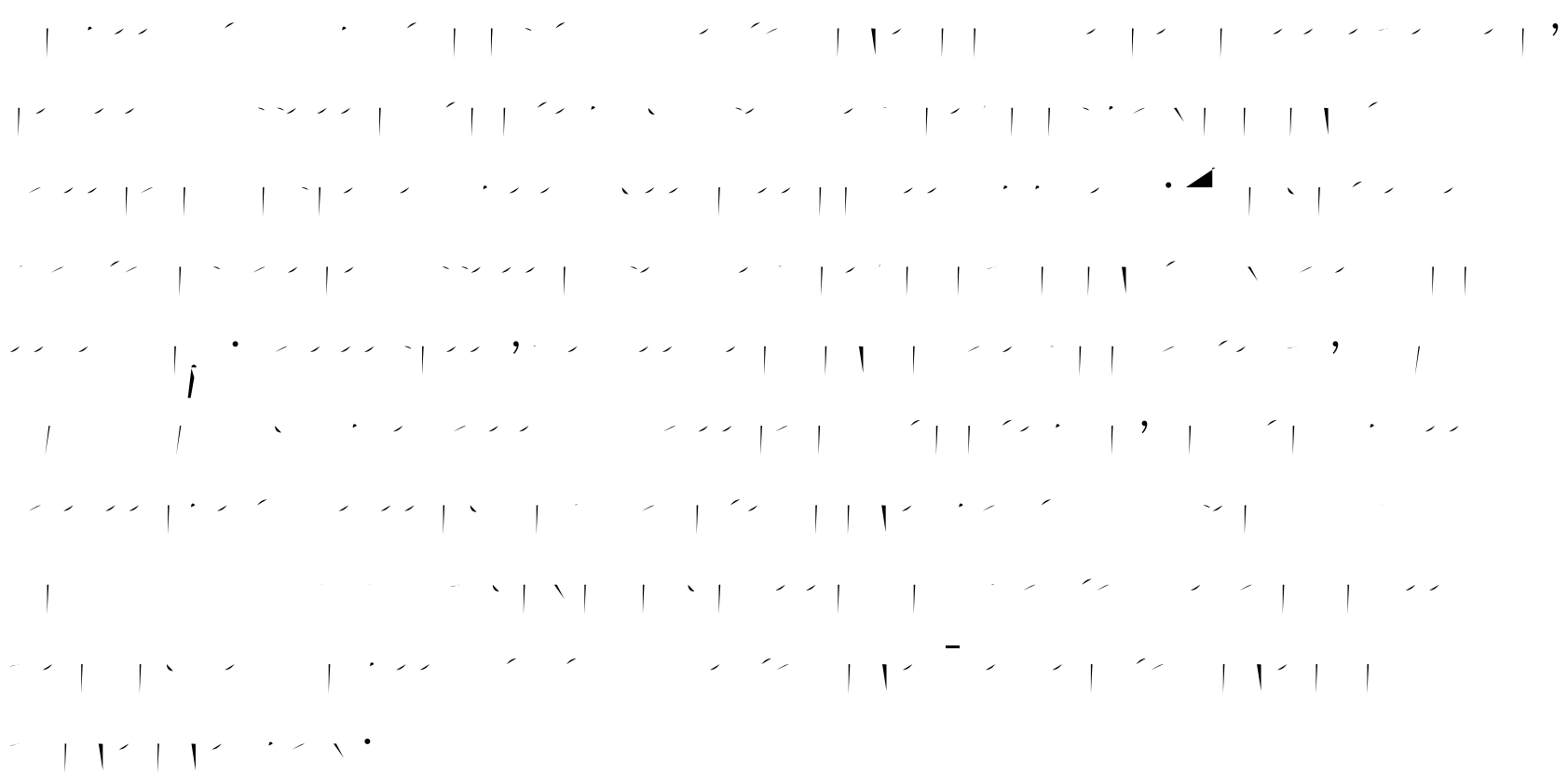
11. Effect of Antimicrobial Peptides on Antibiotic-Mediated Killing of Bacterial Biofilms

Anjanadevi Govindaraj '24, Alya Theriault '24 |
B, *.D.*



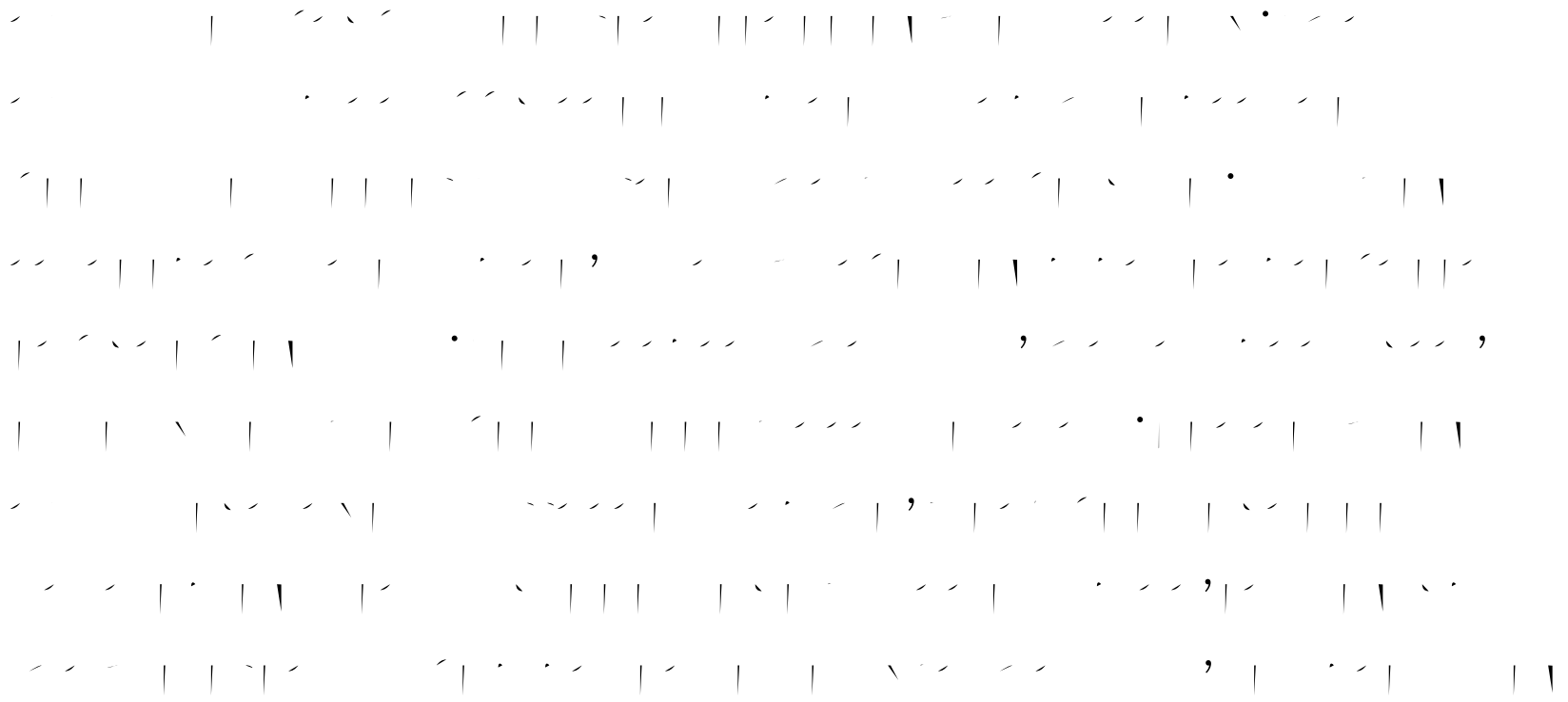
12. Thermal Tolerance and Temperature Thresholds in Jonah Crabs

Anna Sinclair '24 | *F*, *.D.*



15. Using eDNA as a Tool to Monitor Biodiversity

Josephine Pikowski '26 | *E* . , . ., *C*
 , .*D.*, *B* , *F* , .*D.*



23. Microplastic Contamination and Tissue Distribution in Atlantic Sea Scallops

Amber-Rae Pesek '24 | B.S., M.S., Ph.D.

Abstract: This study investigates the presence and distribution of microplastics in Atlantic sea scallops (*Argopecten irradians*). Samples were collected from various locations along the Atlantic coast and analyzed using advanced microscopy techniques. The results show that microplastics are present in the tissues of sea scallops, with higher concentrations found in the digestive gland and muscle. The study also examines the potential pathways of microplastic contamination and the implications for human consumption.

24. Antimicrobial Compounds in Reproductive Parts of the Seaweed *Fucus vesiculosus* and Their Effectiveness Against Human Pathogens

Claire Dyer '26 | B.S., M.S., Ph.D.

Abstract: This study explores the antimicrobial properties of compounds found in the reproductive parts of the seaweed *Fucus vesiculosus*. The compounds were isolated and tested against a range of human pathogens, including bacteria and fungi. The results demonstrate that several compounds exhibit significant antimicrobial activity, suggesting their potential as natural antimicrobials. The study also discusses the mechanisms of action and the implications for the use of seaweed-derived compounds in medicine and food preservation.

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25. Observing Mitochondrial Dysfunction in *Saccharomyces cerevisiae*

Abigail Blouch '24 | G , .D.



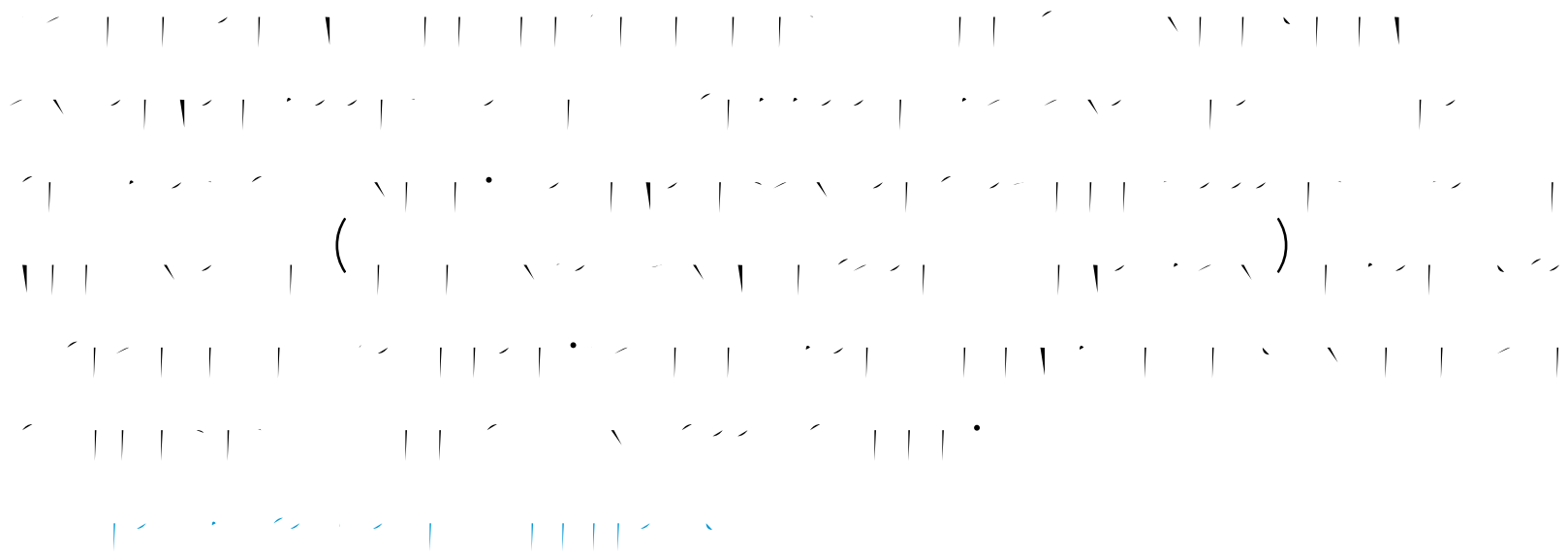
26. Phase Behavior of Multi-Stimuli Responsive Biopolymers

Peter Swanson '24, Ben Wheeler '24 | E B , .D.



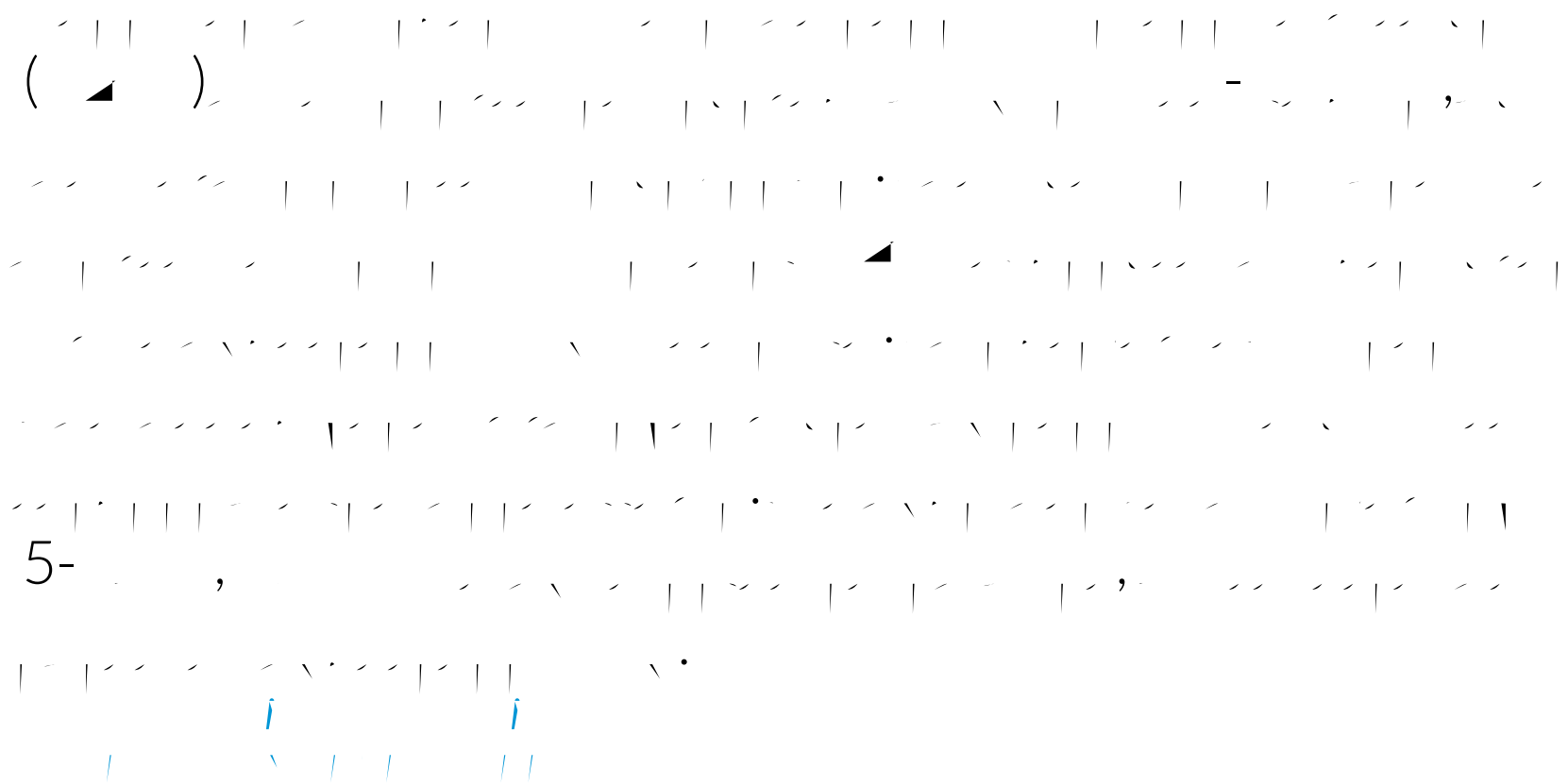
27. Oxidation Reactions with Dicopper Catalysts in Hydrogen Peroxide Solution

Will DeFroschia '24 | *F*, *.D.*



28. Epigenetic Changes in DNA Methylation are Involved in the Lasting changes in Pain Sensitivity Following Neonatal Intensive Care Unit (NICU)-like Treatment in Rats

Aidan J.G. Fox '24, Emma Naess '24, Megan Tomasch '25 | *B*, *.D.*, *B.*





Name

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