A SPECIAL NOTE

This year, in an effort to hinder the spread of the novel coronavirus, we’re taking the Maine State Science Fair online. Judges will interview students through conferencing on the morning of Saturday, March 28. Transitioning MSSF to a virtual fair has been possible only with the perseverance of hundreds of people: students, teachers, judges, and the dedicated staff of Maine Mathematics & Science Alliance and The Jackson Laboratory. We thank everyone who’s come together to make it possible. We would also like to acknowledge the support UMaine gave to the fair in planning an in-person event, and we hope to work with them again soon to host the event on their campus.

The Maine State Science Fair is affiliated with the Regeneron International Science and Engineering Fair (ISEF). Society for Science & the Public has canceled the event this year due to concerns about COVID-19.

Awards for the 2020 Maine State Science Fair include:

3 Grand Prize Awards
- In lieu of a trip to present at Regeneron ISEF, the top three projects at MSSF will be awarded with $500 prizes.

Awards for the top three projects in each category

Special Awards will be presented for the following organizations:

- Acadia Institute for Oceanography
- American Meteorological Society
- Association for Women Geoscientists
- Bigelow Laboratory for Ocean Sciences
- Hurricane Island Foundation
- Office of Naval Research
- Society for Science & the Public
- Stockholm Junior Water Prize
- The Jackson Laboratory
- The Reach project at MMSA
- University of New England
- U.S. Agency for International Development
Seven institutes of higher education will offer scholarships:

University of Maine will offer up to 12 full-tuition scholarships. They are renewable for up to four years and include admission to Honors College, a mentor, and research supply funds.

New this year! University of Southern Maine will offer up to four full-tuition scholarships. They are renewable for up to four years and include admission to Honors College and mentorship from a senior advisor.

College of the Atlantic will offer one $20,000 scholarship. It is renewable for up to four years and applies to tuition.

University of New England will offer up to five $5,000 scholarships. They are renewable for up to four years and apply to tuition.

New this year! Saint Joseph’s College will offer two $2,500 scholarships. They are renewable for up to four years and apply to tuition.

University of Maine at Augusta will offer two $1,500 scholarships. They are renewable for up to four years and apply to tuition.

Husson University will offer up to five one-time scholarships worth $1,000 each. Non-matriculated students eligible for this award.
JUDGES

Matthew Ackley
Research Assistant in Applied Mathematics, University of Maine

Tolu Adekeye
Teaching/Research Assistant, University of Maine

Robin Arnold
Administrative Specialist for Finance, University of Maine

Juliana Baranowski
Student, University of Maine

Oumal Barkad
Mechanical Engineer, BaselineES

Nikki Becker
Observing Program Leader, National Weather Service, NOAA

Cara Belanger
Project Scientist, Stillwater Environmental Engineering, Inc.

Ruby Boateng, PhD
Postdoctoral Associate, The Jackson Laboratory

Nathaniel Boechat
Research Intern, The Jackson Laboratory

Avery Bond
Graduate Student, University of Maine

Craig Bossie
Lead Software Architect, Milos, LLC

Mary Bourque
Graduate Student, University of Maine

Ana Breit
PhD Candidate, University of Maine

Matthew Brichacek, PhD
Assistant Professor, University of Maine

Justin Brown
Team Maine, University of Maine

Ayesha Bundy
Lecturer, University of Maine

Kenneth Bundy
Lecturer in Statistics, University of Maine at Augusta

Madeline Burgess
Student, University of Maine

Scott Byrd, PhD
Researcher, Maine Mathematics and Science Alliance

Brian Campbell
Biology Specialist, Maine Department of Inland Fisheries and Wildlife

Damien Carter, PhD
Trauma Surgeon, Maine Medical Center

Edward Cormier
STEM Outreach Coordinator, Portsmouth Naval Shipyard

James Crowley
Compliance Inspector, Pretreatment Coordinator, Maine Department of Environmental Protection

Robert Cuddy
Student, University of Maine

Farahad Dastoor, PhD
Lecturer, Director of School of Biology and Ecology, University of Maine

Jess Davis-Knowlton, PhD
Research Fellow, Maine Medical Center Research Institute

Kevin Davis-Knowlton
Senior Software Engineer, Blackhawk Network

Marti Dayton
Adjunct Professor, Maine Maritime Academy

James Deaton
PhD Candidate, University of Maine

James DellaPenna
Retired, Northeastern University

Norm Dickinson
Owner, Dickinson Roofing

Daniel Dixon, PhD
Sustainability Director, University of Maine

Matthew Dube, PhD
Assistant Professor, Computer Information Systems and Data Science, University of Maine at Augusta
JUDGES

Frank Dudish, PhD
Lecturer, University of Maine

Anne Dunham
Senior Principal Mechanical Engineer, Bath Iron Works

Amy Dunn, PhD
Postdoctoral Associate, The Jackson Laboratory

Kat Duvall
Education Manager, Hurricane Island Center for Science and Leadership

Jennifer Eberly, DVM
State Veterinarian, Maine Department of Agriculture, Conservation and Forestry

Ivy Enoch
Admission Counselor, College of the Atlantic

Saima Farooq, PhD
Lecturer, University of Maine

Jennifer Fatula
Assistant Lecturer, University of New England

Larry Feinstein, PhD
Assistant Professor of Biology, University of Maine at Presque Isle

Barbara Fleck
Professor of Engineering, Maine Maritime Academy

Lindsay Forrette
Lab Coordinator, School of Marine Programs, University of New England

Elvira Forte, PhD
Research Assistant IV, The Jackson Laboratory

Andrea Freed, PhD
Science Educator, RSU 2

Daniel Gatti, PhD
Faculty, Computer Science, College of the Atlantic

Navdeep Gogna, PhD
Postdoctoral Associate, The Jackson Laboratory

Kourtney Graham, PhD
Postdoctoral Associate, The Jackson Laboratory

David Guay
Associate Dean, College of Arts and Sciences, University of New England

Nelson Haas
Physician, MaineGeneral Medical Center

Niran Hadad, PhD
Postdoctoral Associate, The Jackson Laboratory

Joseph Harman
Professor of Engineering, Maine Maritime Academy

Helen Hess, PhD
Faculty, Biology, College of the Atlantic

Zachary Hutchinson
PhD Candidate, University of Maine

Katherine Jarvis
Graduate Teaching Assistant, Department of Molecular and Biomedical Sciences

Gabriel Jensen
Graduate Assistant, University of Maine

Cory Johnson
PhD Candidate, University of Maine

Peter Kalajian
Faculty, Watershed School

Pauline Kamath, PhD
Assistant Professor, University of Maine

Leonard Kass, PhD
Professor, University of Maine

Joshua Kelley, PhD
Assistant Professor of Biochemistry, University of Maine

Rebecca Kelley
Process Engineer, ON Semiconductor

Ruth Kermish-Allen, PhD
Executive Director, Maine Mathematics & Science Alliance

Michael Kienzler, PhD
Assistant Professor, University of Maine

Kyungin Kim, PhD
Postdoctoral Associate, The Jackson Laboratory

Gordon Kramer
Fisheries Biologist-Retired, University of Maine

Vivek Kumar, PhD
Assistant Professor, The Jackson Laboratory
JUDGES

Jordan LaBouff, PhD
Associate Professor of Psychology & Honors, University of Maine

Suriya Prakaash Lakshmi Balasubramaniam, PhD
PhD Candidate, University of Maine

Geneva Laurita, PhD
Assistant Professor, Chemistry and Biochemistry, Bates College

Ari Leach
Marine Resource Scientist II Area Biologist, Maine Department of Marine Resources

Lesher Lesher, PhD
Associate Professor, Saint Joseph’s College

Nick Levesque
Software Engineer, Texas Instruments

Anne Lichtenwalner, DVM, PhD
Director, Veterinary Diagnosis Lab, University of Maine

Cynthia Loftin, PhD
Unit Leader, USGS-Maine Cooperative Fish and Wildlife Research Unit

Rebecca Long
Agriculture and Food Systems Professional, University of Maine Cooperative Extension, Oxford County

Serge Maalouf
Research/Teaching Assistant, University of Maine

Barry Magda
Computer Curriculum Designer and Trainer, Central Maine Community College

Melissa Maginnis, PhD
Assistant Professor of Microbiology, University of Maine

Gabriella Marafino
Graduate Research Assistant, University of Maine

Elisabeth Marnik, PhD
Postdoctoral Researcher, MDI Biological Laboratory

Colleen Mayberry
Graduate Assistant, University of Maine

Sari Mayhue, PhD
Graduate Teaching Assistant, University of Maine

Mackenzie Mazur
PhD Candidate, University of Maine

Kashif Mehmoody
PhD Candidate, University of Maine

Emily Messina, PhD
Assistant Professor of Microbiology, Husson University

Hannah Mittelstaedt
Graduate Student, University of Maine

Joseph Mohan
PhD Candidate, University of Maine

Sally Molloy, PhD
Assistant Professor of Microbiology, University of Maine

Caroline Moore
Teacher, Acadia Institute of Oceanography / Lincolnville Central School

Sara Morris
Accounts Receivable Supervisor, Greenbacker Capital

Melody Neely, PhD
Associate Professor, University of Maine

Colleen O’Loughlin, PhD
Assistant Professor, Chemistry and Biochemistry, Bates College

Tionna Ouellette
PhD Candidate, The Jackson Laboratory

Erin Owen, PhD
Chair of Sciences, Husson University

Mitchell Paisker
Graduate Student, University of Maine

Raghavan Palaniappan, PhD
Staff Scientist II, IDEXX Laboratories, Inc.

Edna Pedraza Garzon
PhD Candidate, University of Maine

David Plunkett
Owner, Database Designs

Mark Royer
PhD Candidate in Computer Science, University of Maine
JUDGES

Jonathan Rubin, PhD
Professor, University of Maine

Katherine Rudolph, PhD
Associate Professor, Westbrook College of Health Professions; University of New England

Chakravarthy Sadacharan, PhD
Associate Professor of Anatomy, University of New England

Jill Schoof
Professor, Maine Maritime Academy

John Selleck
Oil and Hazardous Materials Responder, Maine Department of Environmental Protection

Paul Shaw
District Technology Director, AOS94/MSAD46

Isaac Shepard
PhD Candidate, University of Maine

Juyoung Shim, PhD
Faculty, University of Maine at Augusta

Jonathan Silverman
President, Central Maine Astronomical Society

Brett Smith
President and Principal Engineer, Air Pollution Characterization and Control, Ltd.

Roger St. Amand
Environmental Scientist, Atlantic Resource Co, LLC

Nicholas Starbird
Assistant Professor, Maine Maritime Academy

Cara Sullivan
PhD Candidate, Research Associate, University of Maine

Con Sullivan, PhD
Assistant Professor of Biology, University of Maine at Augusta

Kate Tagai
Senior Community Development Officer, Island Institute

Leonard Tan
R&D Associate Scientist II, IDEXX Laboratories, Inc

Jill Tenny
Assistant Lecturer of Physics, University of New England

Roberta Trefts
Instructor, Husson University

Julia Upton, PhD
Associate Professor, Husson University

Wibo van Noort, PhD
Engineering Manager, Texas Intruments

Paul Van Steenberghe
Lecturer in Mathematics, University of Maine

Kristin Vekasi, PhD
Assistant Professor, University of Maine

Carina Walter
Behavioral Health Professional, Saco River Health Services

Helen Watts
Senior Structural Engineer, Criterium Engineers

Rachel White
Graduate Student, Animal and Veterinary Science, University of Maine

Caitlin Wiafe-Kwakye, PhD
Graduate Student, University of Maine

Michael Wilczek
Graduate Student, University of Maine

Zachary Wood, PhD
Postdoctoral Research Associate, University of Maine

Saman Zare, PhD
Graduate Research Assistant, University of Maine
Animal Sciences - Behavior & Ecology

The correlation between Harbor Seal (Phoca vitulina) molt stage and haul-out locations on Mount Desert Rock
Thi Tran; John Bapst Memorial High School

What is the Most Efficient Way to Get Rid of Fruit Flies?
Sammy Knight; Medomak Valley High School

Behavior and personality differences between female and male Evarcha albaria
Runzhao Yao; Gould Academy

Fruit flies behavior study
Esther Lang; Gould Academy

Effects of light on mouse behavior
Layla Openhym; Fryeburg Academy

Rabbit Maze - Oryctolagus Cuniculus
Autumn Chabot; Nokomis Regional High School

Weather influences on animal behaviors
Shangyi Shen; Gould Academy

Analysis of Smooth Periwinkle Behavior in Varying Light Conditions on Mount Desert Rock
Sarah Dalton & Juliette Thompson; John Bapst Memorial High School

Filtration of Tanks Using Organisms
Shyla Waltz & Tyler Leonard; Medomak Valley High School

Assessing the Water Quality of Arctic Brook and Kenduskeag Stream Using Benthic Macroinvertebrates
Lilian Nowak; Bangor High School

Mean Gulls: A Behavioral and Dietary Study of Larus Marinus and Larus Argentatus on Mount Desert Rock
Maria Castellanos; John Bapst Memorial High School

Survey of Tardigrades in Central Maine
Noelle Killarney; John Bapst Memorial High School

What Water Quality and Fish Density are Ideal for Fish?
Bryce Carter & Tobiah Jordan-Spearrin; Hancock County Technical Center

Change in seal diets on Mount Desert Rock in correlation with climate change from 2000 to 2019
Cecilia Doering; John Bapst Memorial High School

Using DNA Markers to Determine Source of Origin from a Mixed Stock Fishery - The West Greenland Atlantic Salmon Recreational Fishery
Alexander Maker; Washington Academy

Animal Sciences - Nutrition & Development

The Impact of Supplemental Nutrition on Bovine Eating Habits
Ashton Caron; Nokomis Regional High School

Differences in micro plastic found in green crabs, Carbinus maenas, found on Mount Desert Rock and coast of Maine
Kaylee Stewart; John Bapst Memorial High School

How does food type influence larval development in the green sea urchin?
Hannah Dyer; George Stevens Academy
Animal Sciences - Nutrition & Development (continued)

Feeding Cows seaweed
Jackson Boyd; Falmouth High School

Detoxifying Superworm Waste to Fight Plastic Pollution
Josephine Ek; Robert W. Traip Academy

Eliciting the Hatching Response in Profilicollis Botulus
Mikaela Kenny; Old Town High School

Precision and Relative Accuracy of Striped Bass Age, Proportional Length, and Origin Estimates from Both Scales and Sagittal Otoliths of Maine Striped Bass (Morone saxatilis)
Patrick Wahlig; Falmouth High School

Extermination of Colonial Ascidians
Ruth Havener & Cameron Bains; Medomak Valley High School

Effect of Capsaicin on the respiratory rate in Fruit flies
Thu Ho; John Bapst Memorial High School

Correlating common periwinkles’ spirals to the golden ratio and observing their surviving rate
Sue Shim; John Bapst Memorial High School

Ocean Acidification and its affect on Oyster Shells
Amelia Jalbert & Carissa Lucas; Falmouth High School

Minerals effects on Mussel Shells
Noah Ludwig; Medomak Valley High School

The Effects of pH on Mya Arenaria
Kylie Weeks; Medomak Valley High School

Editing the Molting Season of the Carcinus maenas
Zaniah Puchalski & Julia Kunesh; Medomak Valley High School

Biomedical & Health Sciences

Muscle Sensor Controlled Prosthetic Hand
Chance Guyton; Falmouth High School

Designing Instruments Compatible with Music Therapy Patients
Kelly Yoon; Falmouth High School

Effectiveness of Conventional Environmental Face Masks
Arsh Agnihotri; Falmouth High School

Effect of Microplastics on Cultured Cells
Swetha Palaniappan; Cape Elizabeth High School

Effects of agricultural practices on peanut allergy frequency and severity
Logan Gardner; Old Town High School

The Science of Aging And Hutchinson- Gilford Progeria Treatments
Zoe Morris; Nokomis Regional High School

Cytotoxic T-Lymphocyte Immunotherapy: A Cure for Antibacterial Resistant Gonorrhea
Casey Crockett; Nokomis Regional High School

Neuromuscular Reaction Time in Humans
Marian Easton; Nokomis Regional High School

A 30 Second Lunch For a Time Crunched Society
Hamish Bodine; Medomak Valley High School
Biomedical & Health Sciences (continued)

The LD50 of ECL on Worms
Joshua Bohm; Bangor High School

Does the MMR Vaccination lead to Autism?
Melissa Walker; Nokomis Regional High School

Synthesis of an Azobenzene-Based Cholesterol Mimic for Gated Ion Channel Modification
Ijeoma Obi; Bangor High School

Mucus preventing corrosion in our stomachs
Riley Donovan; Nokomis Regional High School

Baseline Plasma Zinc and Risk of First Stroke in Hypertensive Patients.
Eric Li; Gould Academy

Finding the best exercise for COPD patients
Julia Perconti; Hancock County Technical Center

Which Sport Conditions Athletes Best?
Carter Rice; Nokomis Regional High School

How will you get into shape; a comparison between dance fitness and standard exercises
Tiana Evans; Nokomis Regional High School

Effect of tropomodulin-2 deletion in mice on dopaminergic
Elaina Cote; Mount Desert Island High School

Behavioral Sciences - Cognitive Psychology

Innervation of nucleus accumbens neurons
Grace Campbell; Boothbay Region High School

The Requirement of Extracurricular Activities: Improving the Existential Crisis at Hand
Glory Blethen; Boothbay Region High School

The Impact of Expeditionary Learning and Field Trips on a Student’s Knowledge and Understanding of a Topic
Cortney Meader; Boothbay Region High School

A K-12 Foreign Language Program: The Need For Second Language Learning From An Elementary Level
Emma Brewer; Boothbay Region High School

The Effect of Different Pen Colors and Cognitive Performance
Hannah Pease; Nokomis Regional High School

The Effect of Grade Obsession on How Students Learn, and How a New Grading System Has the Potential to Reverse These Effects
Kylie Brown; Boothbay Region High School

Sense of Accomplishment- Checking off, crossing out, or leaving blank a to do list?
Lauren Burke; Nokomis Regional High School

Differences in spacial awareness by gender.
Teagan Blackie; Old Town High School

The Effect of Color on Memory
Abigail Bagley; Nokomis Regional High School

Selective Attention Test
Shawn Thompson; Nokomis Regional High School
Behavioral Sciences - Cognitive Psychology (continued)

Required Work Studies: the Key to Re-engage Students in their High School Experience and Promote Success after High School
Emerson Harris; Boothbay Region High School

The Stroop Effect
Rylee Robinson; Nokomis Regional High School

Relationship between Frequency of PowerSchool Logins, GPA, Difficulty of Classes, and Stress
Shruti Joshi, Jack Forester & Ben Sylvester; Falmouth High School

How Scents Affect your Ability to Focus
Emily Mahoney; Medomak Valley High School

Testing Reading Comprehension Through Different Mediums: Paper Text vs Digital
Molly Hale; Greely High School

The Effect of Food Color on Taste Perception
Lia Herrick & Danielle McAtee; Nokomis Regional High School

A Later School Start Time for BRHS: Physical and Academic
Ryan Russell; Boothbay Region High School

Behavioral Sciences - Sociology & Mental Health

How pets affect stress and grades in high school students
Lilian Parks; Nokomis Regional High School

School Workload and its Effect on Students’ Mental Well-Being
Ashly Nyman & Lauryn Anderson; Nokomis Regional High School

Predicting Risk of Developing Schizophrenia and Ways to Prevent/ Better it
Abigail McKinley; Old Town High School

A Meta-Analysis of the Affects of the Lunar Cycle on Mental Health
Lauren Eichler & Grace Kessler; Maine Coast Waldorf School

Solving Music Performance Anxiety
Owen Weber; Medomak Valley High School

Broadband equity In Maine: how we can we become more connected?
Sam Page; Boothbay Region High School

Moving Stories: Social-Emotional Learning Skills
Alexandria Morgan; Washington Academy

Positive School Culture: Why it Must be Prioritized in Order to Improve the Environment and Empower the Students of Boothbay Region High School
Isabel Harkins; Boothbay Region High School

The Social Impact of Residential Moves
Adelina Homewood; Deering High School

Stereotypes & How They Effect Snap Judgement
Margaret Kastelein; Lincoln Academy

Identifying Shifts in Race and Income that Lead to Voting Differences in Geographically Similar Locations
Iann Leigh; Bangor High School

Behavioral and Social Differences Between Autistic Males and Females Throughout the Years
Faith Foster; Nokomis Regional High School
Using chromatography to break down cosmetics
MacKenzie Johnson; Nokomis Regional High School

Determining If Sodium Alginate Has the Potential to Remediate Heavy Metal Contaminants From Water
Maya Elkadi & Kosisochukwu Ifeji; Bangor High School

Synthesis of butadiene through Fallopia japonica and Lythrum salicaria
Erin McCarthy & Meaghan Caron; Bangor High School

How does the method of crosslinking of sodium alginate mixed with calcium chloride affect it’s performance as a waterproof coating in the marine environment
Jett Lindelof; Islesboro Central School

Measuring Ocean Acidification and Possible Correlations to Stormwater
Naomi Noack; Bangor High School

Which is effective at cleaning clothing natural or chemical detergents?
Thomas Crimmins; Harpswell Coastal Academy

Absorption and Remediation of Heavy Metals using our Plastic Pollution Problems
Adam Elkadi; Bangor High School

Nitrogen-doped nanoporous carbon photocatalyst formed from coffee waste
Jinkyu Kim; Gould Academy

Physics, Chemistry, and Color
Adam Taddia; Baxter Academy for Technology and Science

Researching Green Alternatives to Mercury for the Clemmensen Reduction
Thomas DiPhilippe; South Portland High School

CNF/Starch/Glycerol Composites plasticized by MgCl2, NaCl, KCl and AlCl3
Ogechi Obi; Bangor High School

How can coffee ground and wood chip waste be decomposed to create a healthy, usable compost?
Paige Blackwell & Natalie Liliav; Bangor High School

Ion detector design for a LEO Cubesat to determine the influence of ions on its orbital decay rate
Marc Michaud; Machias Memorial High School

Engineering an Inexpensive Water Filter Through Additive Manufacturing
Ahmed Saleh; Greely High School

Computer Science & Mathematics

An Analysis of Various Fibonacci-Type Sequences and Sums
Samanthak Thiagarajan; Bangor High School

Local Search Optimization and the Virtual Keyboard Design Problem
Micah Pietraho; Brunswick High School

Creating higher resolution radio astronomy maps
Liam Piper; South Portland High School

Advantages of Unmanned Aerial Vehicle-Generated Photogrammetric Maps As Compared to Satellite Imagery in Analyzing Geographic Features: A Case Study of the Ecogeomorphic Characterization of Salt Pools in a Southern Maine Tidal Marsh
Wade Wahlig; Falmouth High School

Designing a wireless sensor network for remote locations
Anthony Caccese; Bangor High School
Using Neural Networks and Drones to Identify and Eliminate the Aquatic Invasive Plant Species Myriophyllum Spicatum
Cuthbert Steadman, Graham Glover & Beckett Mundell-Wood; Bangor High School

Creating a Mini-Robot that Integrates Capacitive Sensing using a Microcontroller Programmed with Arduino Software
Aniela Holtrop; Maine Coast Waldorf School

Ice Recognition RC Car
Kevin Lu & Thomas Pender; Falmouth High School

Developing Deep Learning Networks for Dynamic Traffic Light Control
Nhan Ngo & Simon Socolow; Bangor High School

Mathematical Analysis of the Ability to Transition to Underground Wiring
Adam Nussbaum; Brunswick High School

Seismic Source Determination Through Fourier-Filtered Deep Neural Networks
Daniel Kirmani; Maine School of Science and Mathematics

App Using a Image Recognition API
Varoone Meduri; Falmouth High School

Creating a MATLAB 3D Digital Image Correlation App using 2D-DIC Algorithms
Kade Kneeland; Bangor High School

What is the best method to defend a network/system against simultaneous cyber attack instances?
Cullen Couture, Justin Bulmer & Kegan Rodrigue; Edward Little High School

Searching the Web Offline
Emerson Spencer-Reed; Harpswell Coastal Academy

Can I use AI in a business solution?
Kyleigh Mcdonough, Zachary King & Noah Tirado; Edward Little High School

Making the Development of Virtual Reality Software Online and Easy
Wei Shan; Gould Academy

Building a Jet Engine from Widely Avalible Pats
Thomas Hall; Gould Academy

Engineering a Prosthetic Hand through Additive Manufacturing
Minal Iftikhar; Bangor High School

Manufacturing a Submersible Robot
Colton Trisch; Bangor High School

Engineering
Aaron Yeung; John Bapst Memorial High School

Clock Design
Kate Saidy; Gould Academy

Real-time Fall Detection System for the Elderly Using Deep Learning and Thermal Imaging
Vetri Vel; Bangor High School

Predictive Machine Learning Model for Estimating Driving Force of a Sailboat Using Rigging Data
Nathan Chatterton; Boothbay Region High School
Engineering (continued)

The study of laminated Timbers
Oscar Hennin; Morse High School

Ropeless Lobster Trap
Sydney Sheehan; Old Town High School

How Does Temperature Affect The Tuning of an Instrument?
Rachel Gross; Medomak Valley High School

Improving Acoustics of the Medomak Valley High School Auditorium
Kolyn Mattson; Medomak Valley High School

An Air Propulsion Cannon Using Vortices
Evan Galego & Asish Madarapu; Cony High School

Resonance Frequency of Building Materials of different volumes
Adam Miller-Treat & Will Caron; Bangor High School

Desktop Clean Room for Home Use
Andrew Gousse; Cony High School

Underwater ROV engineering
Grady Burns; Lincoln Academy

Environmental Sciences & Engineering

The Correlation Between Global and Local Climate Change
Silvia Davids & Anya Ganesh; Bangor High School

How fresh is new fallen snow
Lillian Philbrook & Kerrigan Andrews; Hancock County Technical Center

Effects of Global Warming and Climate Change on Smooth Periwinkles on MDR
Jenna Drake & Charles Collatos; John Bapst Memorial High School

Frost Measurements
Bryce Richards; Old Town High School

Differences in the Climate of Littorina Littorea on the Shore of Bar Harbor Vs. the Climate of Native Periwinkles on Mount Desert Rock
Jaelin Roberts; John Bapst Memorial High School

Using GIS and a water quality index to analyze biological contamination and observe chemistry fluctuation on littoral zones of seven recreational freshwater lakes and ponds in Maine
Rowan Andrews; Bangor High School

South Portland Air Quality Analysis
Chloe Grant, Addison Bracken & Rachel Kingsley; South Portland High School

Calculating Phytoplankton Biodiversity using Sampling and AI to Determine Ecological Conditions
Quinn DAlessio; Bangor High School

The differences of microplastic fibers found in tap water between countries.
Zoe Stankevitz; Nokomis Regional High School

Road Salt: The Dangers of Our Over- Usage
Marissa Peters; Boothbay Region High School

Conductivity Factors in Bangor Streams Concerning Larger Bodies of Water and Climate Change
Hannah Osmer; Bangor High School
Environmental Sciences & Engineering (continued)

Matlab Code that Identifies Macroinvertebrates to Assess Quality of Maine's Waters
Leila Davids; Bangor High School

Analyzing the effects of various climate conditions on the overall efficiency of a solar panel
Anthony Ayer; Harpswell Coastal Academy

Particulate Matter and Dissolved Solids in Snow in Various Areas
Eben DeSilva; Falmouth High School

Comprehensive Analysis of the Bangor Stormwater Project
Lizzie Liliav & Kelsey Hope; Bangor High School

Ethanol Environmental Impacts
Thomas Rice; Falmouth High School

Environmental Sciences - Water Quality

Microplastics
Mia Wang; Gould Academy

Microplastic Prevention and Recycling Project
Phoebe Schleh; Harpswell Coastal Academy

Using ArcGIS to Model Water Quality Relationships Based on Lake Inlet and Outlet Location
Jordyn Miller; Bangor High School

Methodologies to filter out microplastics in water
Sam Ahola, William Xu & Jacob Osmer; Bangor High School

Using Fungal Mycelia to Absorb Oil from Water
Madeline Ahola; Bangor High School

How Run Off From Different Brands of Fertilizer Impact the Eutrophication Process
Amber Halligan; Medomak Valley High School

Comparing Runoff Samples from a Storm drain Entry Point and Exit Point
Brooke Sossong; Old Town High School

The Effects of The Bangor Mall on Water Quality in the Penjajawoc Stream
McKayla Kendall; Bangor High School

Risk of Algal Blooms and Hypoxia in a New England River
Rain Bugado; Noble High School

Identifying and Classifying Plastics and Microplastics in Sediments
Ginny Hunt; Bangor High School

A Study of Small Pond Pollution: An Examination of Road Salt
Addie Bourgoine; John Bapst Memorial High School

Identifying Harmful Algal Blooms
Pema Williams; Falmouth High School

Safety of Maine’s Drinking Water
Declan Frueh; Falmouth High School

Airborne EM Technology and Its Application in Detection of Underground Water
Liulu Yue; Gould Academy

Nanocellulose-Based Materials in Desalination
Olivia Britton; Islesboro Central School
Environmental Sciences - Water Quality (continued)

Climate Change and how it affects the population range of Dinoflagellates
Kira Mortlock; Old Town High School

Materials Science

Biodegradable Fishing Lures
Ariel Larrabee; Hancock County Technical Center

The Development of Cellulose Nanofibers as an Alternative to Traditional Food Packaging
Joshua Chun; Belfast Area High School

Vacuum-Forming with Cellulose Nanofiber
Acer Van Dis; Islesboro Central School

CNF, silver nanoparticles, and a bandage materials
Renee Tran; Bangor High School

The Future of Bioplastics
Trin Brown & Juliana Martin; Harpswell Coastal Academy

3D printing with CNF and wood flour
Hazel Van Dis; Islesboro Central School

Beeswax/Pine resin polymer for mycelium lobster buoys
Payton Ward; Islesboro Central School

Bio-based alternative to nylon mesh bait bags
Shamus Dove; Islesboro Central School

Biodegradable Additives and the Effects on Wood Pellets
Collin Peterson; Islesboro Central School

An Alternative Use For The Shells of Crustacea
Morgan Flanders; Medomak Valley High School

Cellulose Nanofibers: Drying and Modifications
Matthew Hafener; John Bapst Memorial High School

Will it Waterproof? Creating a waterproof coating without the use of PFAS
Jaylee Rice; Nokomis Regional High School

Microbiology

Testing the Effectiveness of TBAB Surfactant-Sorbents in Removing Ampicillin from Synthetic Effluent
Linh Nguyen; Deering High School

The effects of Manuka honey on cultured bacteria from frog infections (thrush) in equine frog tissue
Emma Markowitz; Boothbay Region High School

Antimicrobial Agents
Beau Briggs; Nokomis Regional High School

The Effects of DEET and Essential Oils on C. sporogenes and E. coli
Natalie Shields; Medomak Valley High School

Preventing the growth of molds on fruit with aloe vera
Ashlyn Roy; Bangor High School

The Effects of Escherichia coli on Acne Medication
Alacius Peavey & Autumn Harvey; Medomak Valley High School
Microbiology (continued)

Light Sterilization
Owen Arsenault; Noble High School

Bacteria on Phones
Kyle Siebert; Harpswell Coastal Academy

Converting activated sludge into bioplastics
June Ho; John Bapst Memorial High School

The Effects of Prolonged Nitrogen and Sulfur Deposition on Spore Diversity of Arbuscular Mycorrhizal Fungi (AMF) from Bear Brook Watershed in Maine (BBWM)
Melissa Tian; Bangor High School

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Effects of Antibiotics on Bacteria
Allie Rice; Nokomis Regional High School

Plant Sciences

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Alyssa Creamer; Medomak Valley High School

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Plant Sciences (continued)

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Amara Ifeji; Bangor High School

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Hannah Dunn; Bangor High School

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