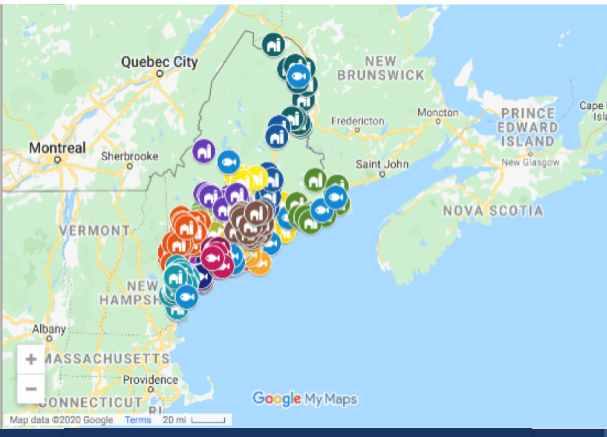
Maine's Research University: Progress & Possibilities for Maine's Future

Joan Ferrini-Mundy, President
January 27, 2021



Updates as of January 26, 2021

2168 Students in residence halls with capacity of 3509

Approx. **224** Rooms on Orono campus reserved for quarantine and isolation

3352 Asymptomatic tests administered to students since the start of the Spring semester

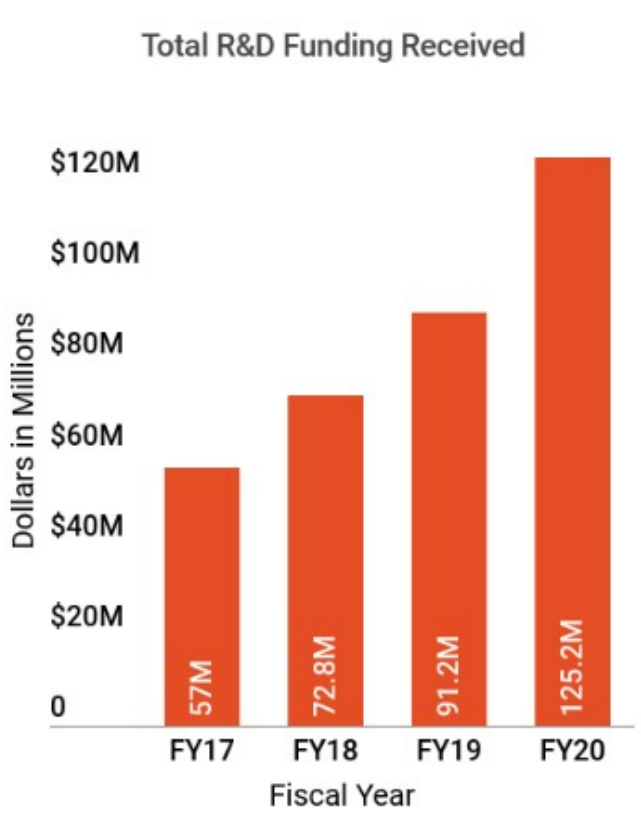
11,108 Current Enrollment (Undergraduate 8,760; Graduate 2,348) with **1,844** first year students

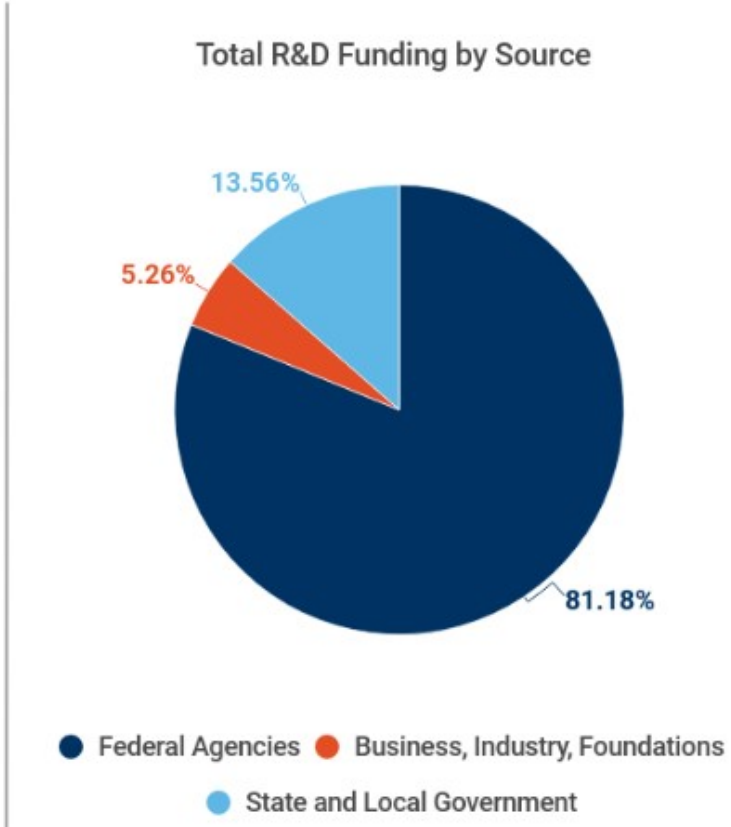
36 Current COVID positive cases, UMS-wide

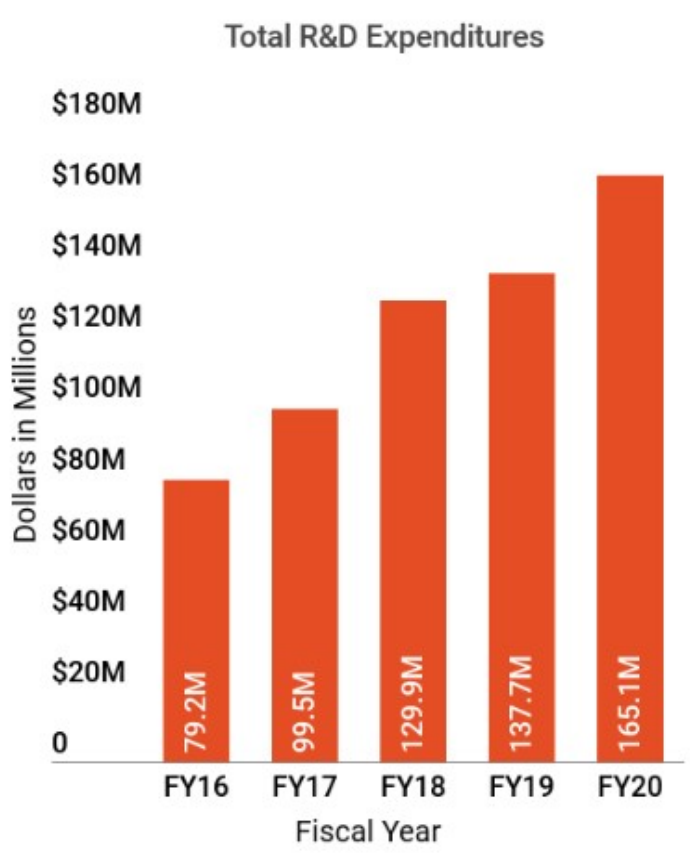
65% Students taking at least one course face to face

Funding by the Numbers FY 2020

New R&D Awards Received	New R&D Funding Received	University Contributions (Cost-Share)	Indirect Costs Awarded
716	$125,188,029	$13,804,430	$16,541,807







Record breaking year and four-year growth trends in research

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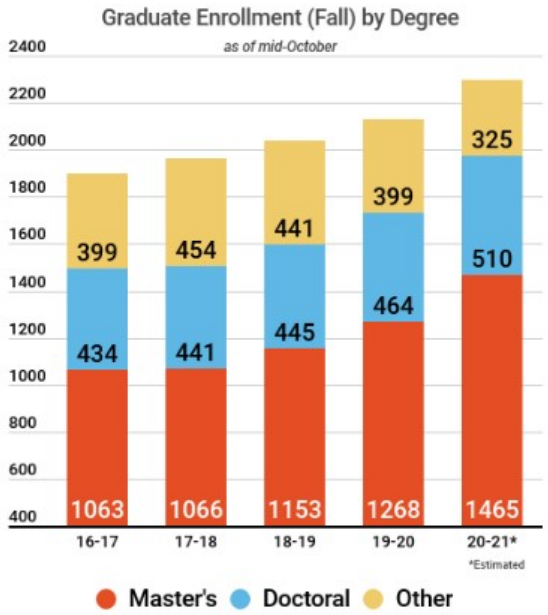
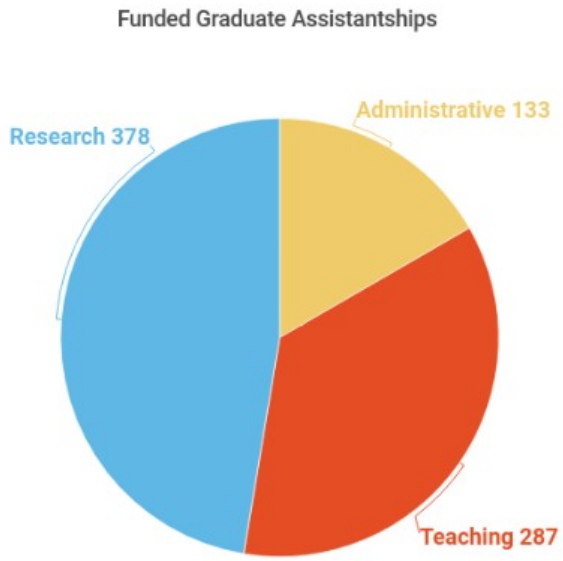
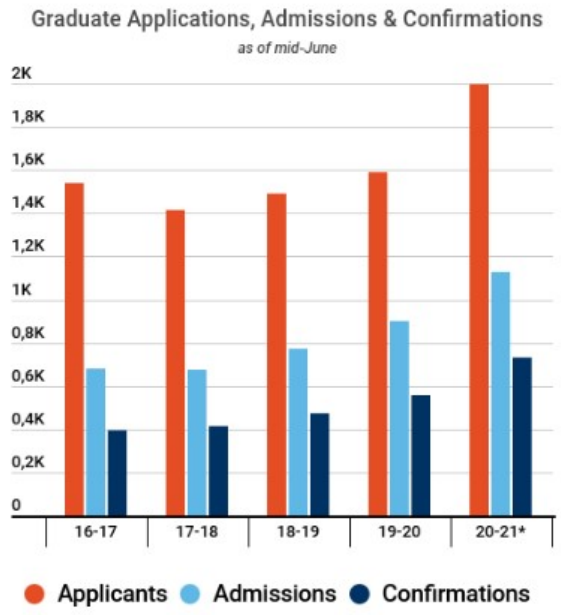
Graduate Education Complements Research Performance

Graduate School by the Numbers AY 19-20

Number of graduate programs	Graduate enrollment increase over 5 years	Graduate Student Credit Hours	Ph.D.'s conferred in Maine
138	42%	25,037	96%







Doctoral student enrollment is over 500 for the first time in UMaine history

UMaine drives & supports key strategies for Maine's Growth

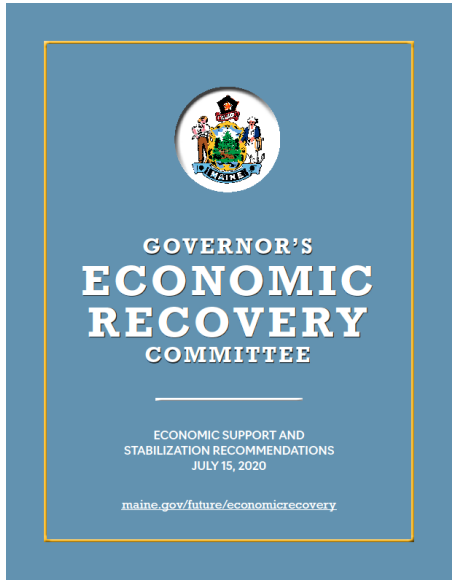
UMaine uniquely positioned to support the economic recovery of Maine, building on 20 years of MEIF investments in talent, infrastructure and innovation, leading to:

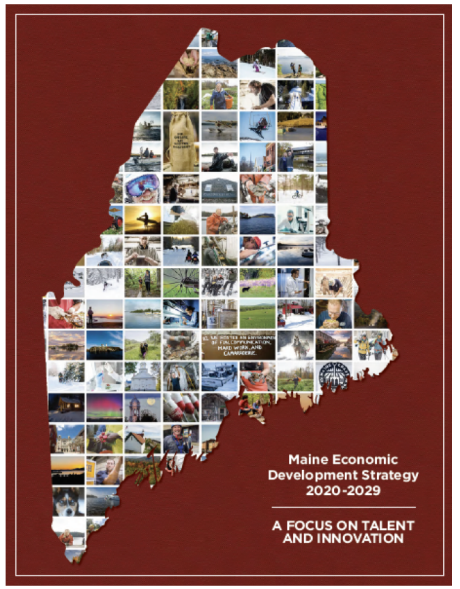
Business Growth and Expansion

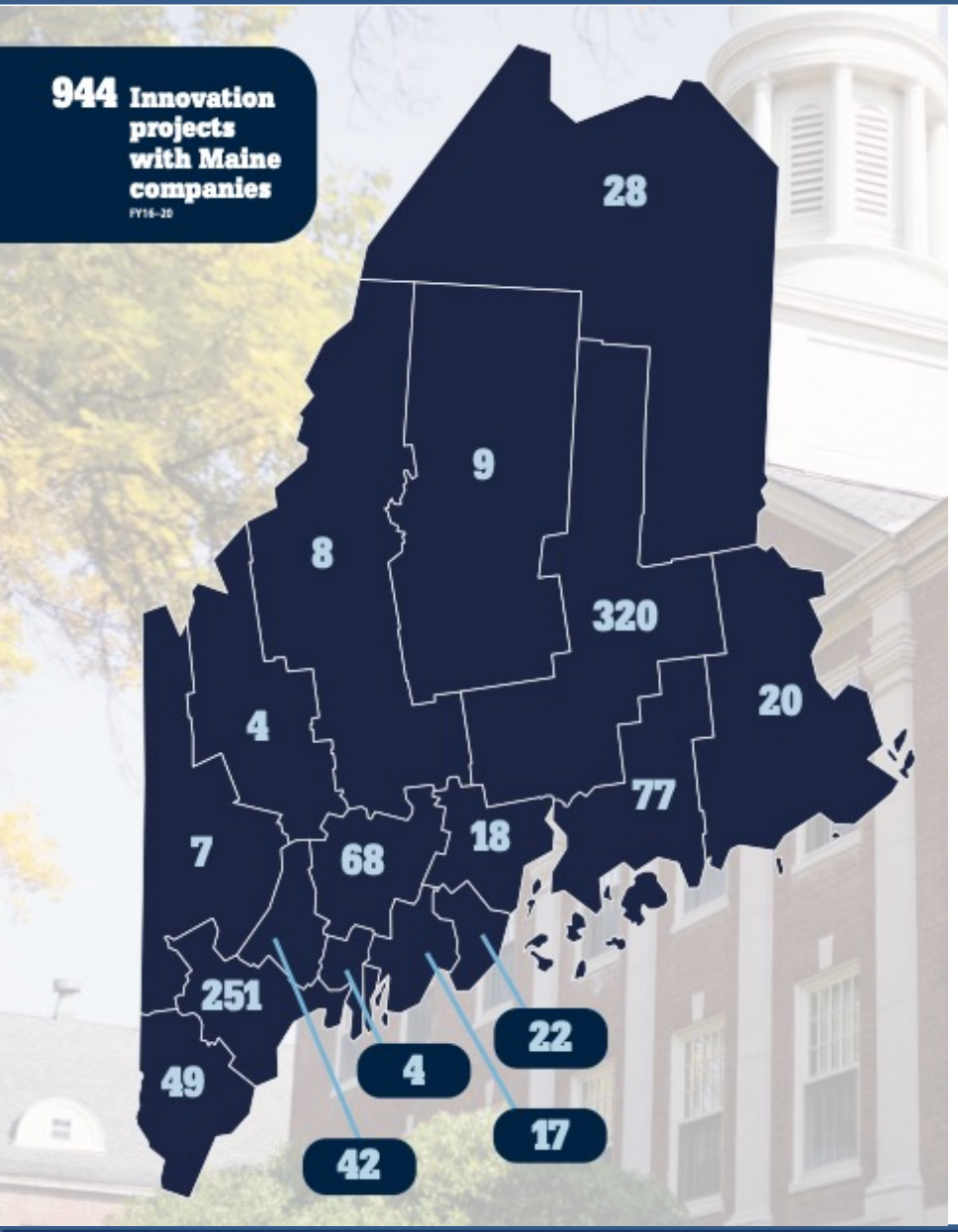
New Business Creation

Business Attraction

Talent Development







The University of Maine is an R&D lab for all Maine companies

- Serve the entire state (and beyond)
- 944 contracted projects in last five years
- Leverage the university's unique facilities and world-recognized expertise developed through years of investment
- Provide access and support in small and medium-sized companies that cannot afford their own R&D resources at UMaine
- These resources also can be used to help attract companies to Maine

UMaine Partnerships in Portland

- Maine Graduate and Professional Center
- Northeastern University's Roux Institute
- Gulf of Maine Research Institute (GMRI)
- Climate Change Institute, Maine Law, and Maine Center
- New England Aqua-Ventus (NEAV)
- Graduate School of Biomedical Sciences and Engineering

New initiatives to spur the creation of new startups and accelerate technology commercialization partnerships

9 Teams in first two cohorts

5 Startups Incorporated

3 Teams to National I-Corps

$2 MILLION + raised in external funding and prototype sales

4 Patents filed or in process

MIRTA
MAINE INNOVATION RESEARCH AND TECHNOLOGY ACCELERATOR

29 STARTUPS based on UMaine IP formed since 2000

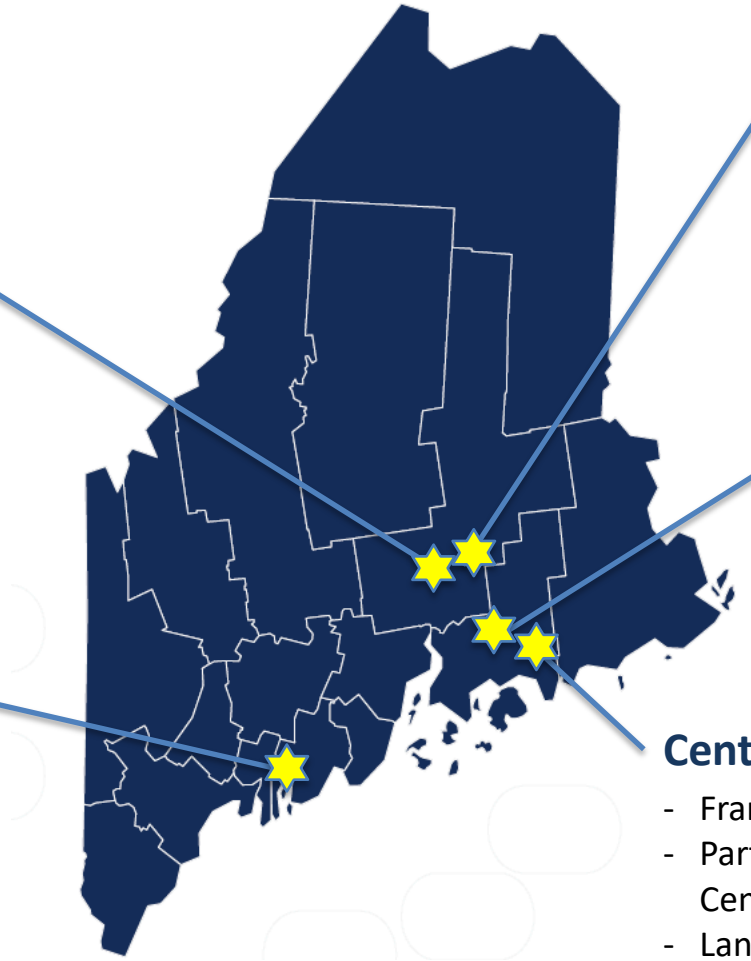
Statewide Leaders Business Incubation

UpStart Center for Entrepreneurship

- Orono, Maine
- Partnership with Bangor Target Area Development Corporation (landlord)
- Spinoffs from UMaine and R&D partners

Darling Marine Center

- Walpole, Maine
- Partnership with Maine Aquaculture Innovation Center
- Aquaculture companies



Foster Center for Innovation

- Orono, Maine
- Student incubator and faculty accelerator
- Average 75 potential student entrepreneurs coached each year

Union River Center for Innovation

- Ellsworth, Maine
- Partnership City of Ellsworth (landlord)
- Biotech and other innovations

Center for Cooperative Aquaculture

- Franklin, Maine
- Partnership with Maine Aquaculture Innovation Center
- Land-based aquaculture facilities

Aquaculture Example

- Unique expertise and land-based aquaculture facilities as a soft landing for companies locating in Maine
- Partner with Maine & Co. and others

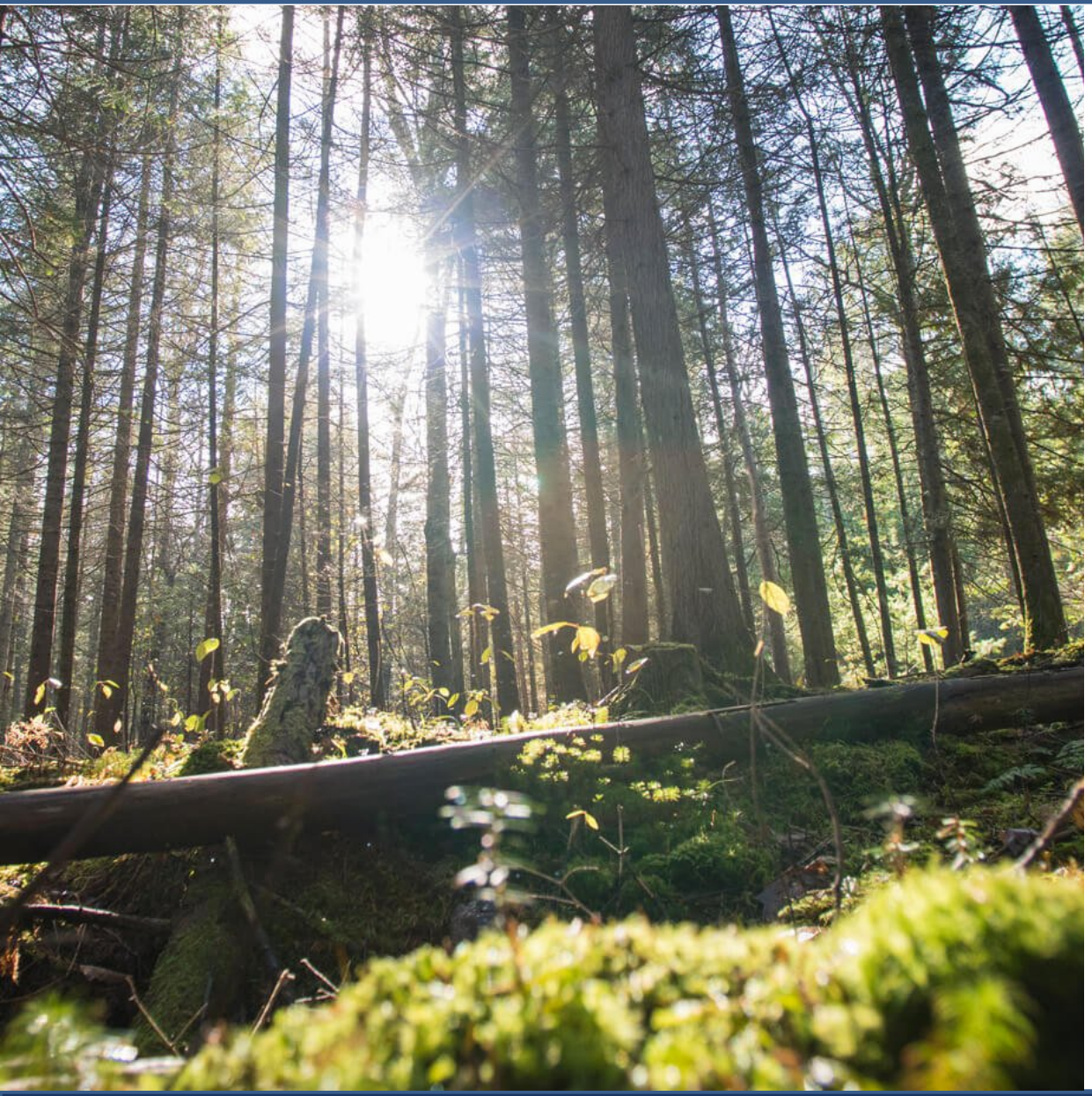
THE KINGFISH COMPANY

"CCAR's facility offers massive benefits in terms of infrastructure, and the existence of these fish [yellowtail broodfish] presents a unique opportunity for us."

- Megan Sorby, Operations Manager

UMaine has a strong Research Learning Experience Foundation

- Center for Undergraduate Research/Experiential Programs Innovation Central
- Honors College
- Capstone Courses
- Faculty passionate about mentorship
- Foster Center for Student Innovation
- Research opportunities through centers and institutes



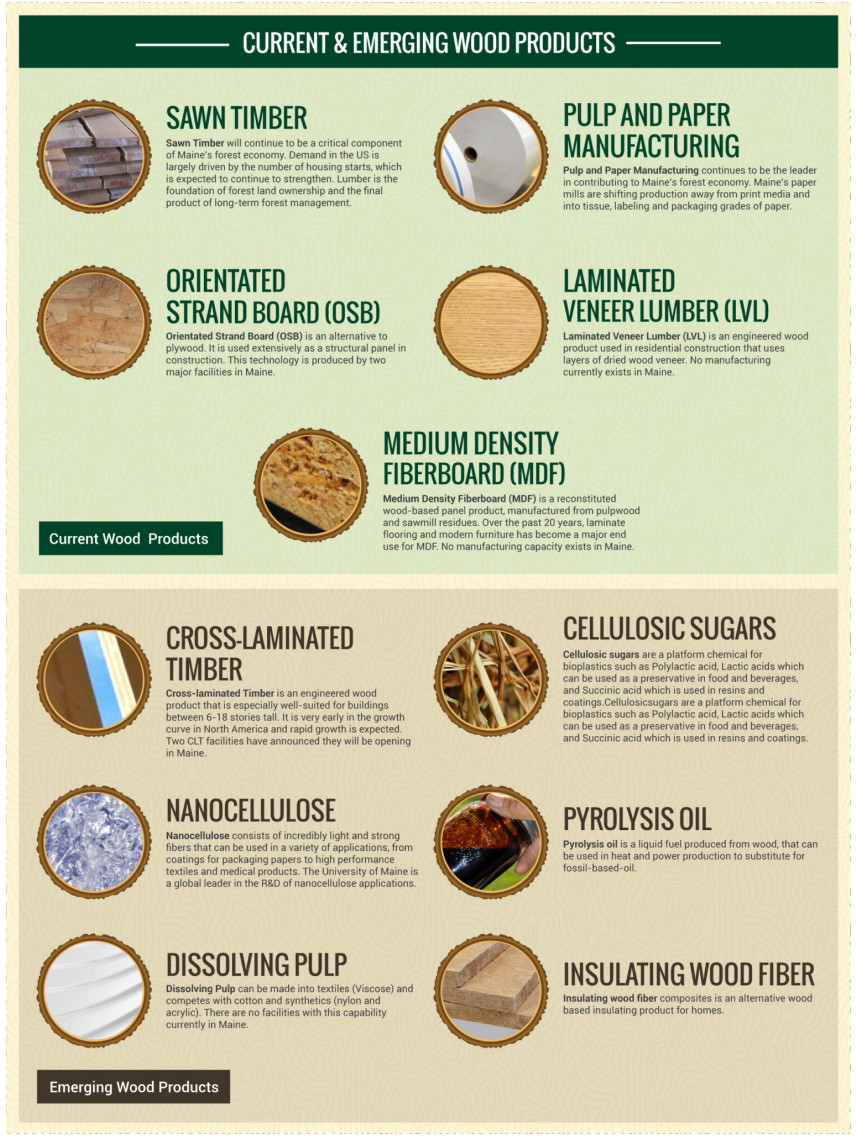
UMaine's Research Strengths and Maine's Unique Assets Create Opportunity

Green Economy: Growing demand for bioproducts creates opportunities to develop products ranging from medical devices to food packaging made from wood

Blue Economy: Growing demand for sustainable protein & energy creates opportunities to utilize marine expertise and assets

New Maine College of Engineering, Computing, and Information Science

- Bolstered by Alfond Foundation investment
- Graduate engineering programs in Portland
- Builds upon new Fernald Engineering Education and Design Center in Orono
- Integration of resources, world-class programs, faculty, students, and facilities to shape the future



Bringing it all together to grow Maine

- UMaine has a key leadership role in road-mapping the future of the forest products industry, looking global market opportunities
- Strategically leverage existing strengths and create new assets in *talent, innovation and infrastructure*
- Creates opportunities for business attraction, new business creation and the sustainability and growth of current businesses
- Similar efforts underway: SEAMaine, Offshore Wind roadmap, engagement on State Climate Action Plan

FOR/MAINE

Working with FOR/Maine, Maine & Co. and DECD to brand the state "Nanocellulose Valley"

For 200 years, Maine's economy has been deeply rooted in the forest products industry. Home to sustainably managed forests, skilled workers, and research expertise at the University of Maine, the state is a natural hub for forest-based innovations and the development of cutting-edge new products.

Today, nanocellulose, nature's super polymer, is helping to build the forest products of the future. This renewable natural material offers virtually limitless potential in a wide range of applications from food packaging to biomedical devices.

Just as Silicon Valley grew up around Stanford University to become the heart of the tech industry, UMaine is driving an unrivaled center of nanocellulose bioproducts innovation right here in Maine.

Welcome to Nanocellulose Valley.

Offshore Wind

- Diamond Offshore Wind and RWE Renewables investing $100 million to demonstrate the technology at full scale.
- Combined, the two new partners are responsible for nearly a quarter of the world's offshore wind capacity.
- Construction, following all permitting, completion expected in 2023.
- Project is projected to produce more than $150 million in total economic output and create hundreds of Maine-based jobs during the construction period.

RWE

Diamond Offshore Wind, LLC

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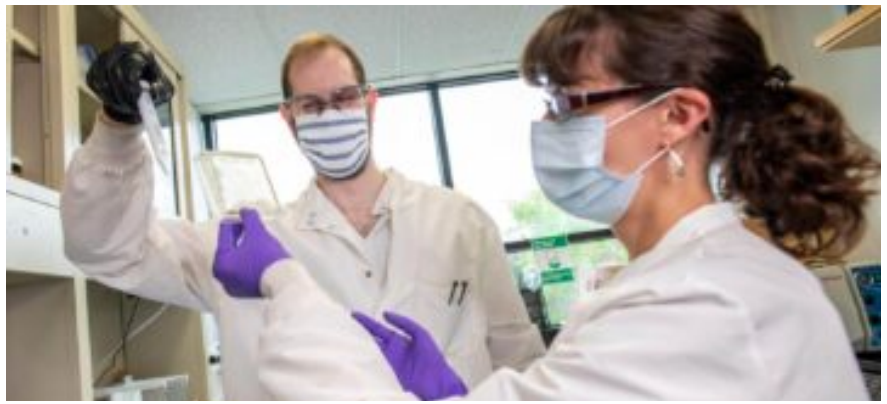
And more…

Aquaculture Research Institute

Aquaculture Experiment Station with UMaine Aquaculture Research Institute and USDA – ARS first in nation.

$4.8M will upgrade Forest Bioproducts Research Institute facilities, bolster bioproduct research



Using forest-based materials for biomedical devices and air filters

World's largest 3D printer with goal to print using forest bioproducts

UMaine/Northeastern Research Partnership

- **Five projects selected for one-year collaborative projects:**
  1. Aquaculture vaccines utilizing engineered bacteria
  2. Using AI to study pacifier use and SIDS link
  3. Gene modeling to study of Influenza immune response
  4. Human AI-vehicle interaction for BVI and older adults
  5. Development of a new bio fluid analysis instrument

Biomedical SARS-CoV-2 Research at UMaine

Molecular Biology

Wheeler Lab
Wastewater Testing

Engineering

Howell/Maginnis Labs
SARS-CoV-2 Transmission

Medicine

Saber, Wheeler, Maginnis Labs
Healthcare Transmission

Pandemic-related CUGR Fellowships

CUGR
CENTER FOR

UMaine Research Centers and Institutes

- Advanced Manufacturing Center
- Advanced Structures and Composites Center
- Aquaculture Research Institute
- Center for Community Inclusion and Disabilities Studies
- Center for Research on Sustainable Forests
- Center for Undergraduate Research
- Center on Aging
- Climate Change Institute
- Forest Bioproducts Research Institute
- Frontier Institute for Research in Sensor Technologies
- Innovative Media, Research and Commercialization Center
- Institute of Medicine
- Maine Center for the Genomics in the Environment
- Maine Center for Research in STEM Education
- Maine Sea Grant
- Margaret Chase Smith Policy Center
- Sen. George J. Mitchell Center for Sustainability Solutions

The President's Council on Diversity, Equality, and Inclusion

UMaine and Maine Post-Covid

- Covid impact on operations
  - Future of remote learning in Maine
- UMaine Rapid Innovation Team
  - Supported healthcare (PPE, hand sanitizer and more)
  - UMaine design new solutions, provide scientific expertise, fill gaps
  - Connected supply chain of manufacturers to healthcare and response needs

Moving forward

- Changed institution
- Leverage people moving to Maine
- Increasing focus on rapid response to solve Maine challenges and drive immediate opportunities as part of recovery
- Use UMaine's talent, innovation and infrastructure assets as the springboard for recovery and growth

THANK YOU!

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