

How can UMaine Food Science assist you?

Presented by
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Cooperative Extension

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Research capacity

Research must be supported by private and/or grant funding

- Consumer sensory evaluation
 - Online consumer surveys
- Microbial evaluation
- Quality evaluation/shelf-life testing
- Challenge studies/microbiological studies
- Recipe and product development
- Analytical chemical analysis
- Byproduct utilization
- Seafood Process authority



Recent research projects

- Green crab research:
 - Fermented crab “sauce” development
 - Crab empanada product development
 - Functional isolated crab protein ingredient
 - Antioxidant and antihypertensive peptides from green crab



Recent research projects

- Impacts of ozonation on salmon quality
- High pressure processing (HPP) of lobsters & scallops
- Sous vide processing of high value seafood



Recent research projects

- Edible seaweeds research:
 - Shelf-life of fresh seaweed under refrigeration
 - Drying, blanching, & freezing seaweed
 - Impacts of processing on nutrients
 - Microbial safety of seaweed
 - Consumer surveys
 - Alternative preservation processes of kelp



Extension specialist in food safety

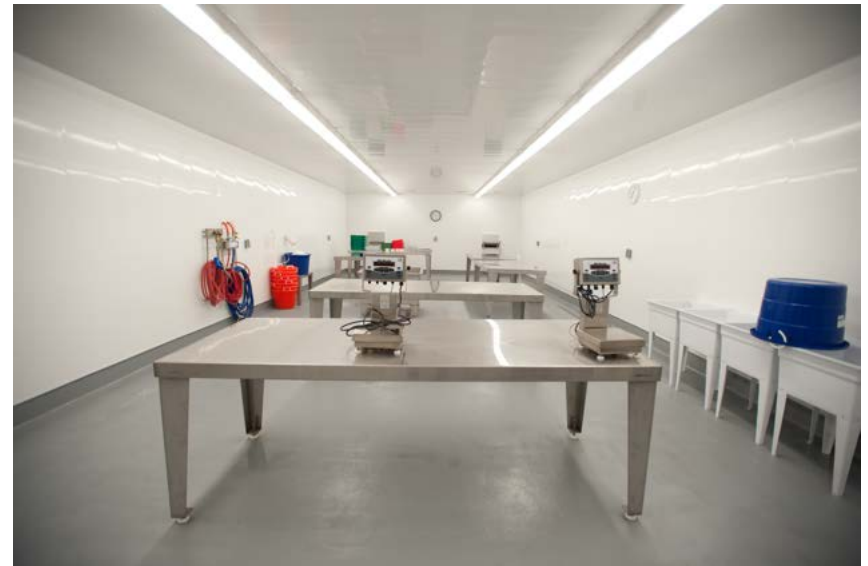
- Food industry workshops designed to meet Maine processor needs:
 - **General sanitation**
 - **Seafood HACCP**
 - Fish and fishery products
 - **FSMA Preventive controls for human foods**
 - Seaweed

Maine Dept. of
Agriculture,
Conservation and
Forestry



Food Safety Programs

- Personalized Outreach:
 - One-on-one consulting (phone, email, meetings, virtual)
 - Facility design assistance – in-person and virtual site visits
 - Sanitation program review/guidance
 - HACCP plan review/guidance
 - Validation studies (seafood)
 - Scale-up



Dr. Mathew Highlands Pilot Plant for Food Processing

Food Science Innovation Coordinator and Facility Manager: Chef Rob

Dumas

robert.dumas@maine.edu

Services

- Recipe Design
 - Several projects completed for Maine companies
- Menu development and training to designing consumer packaged goods for retail sale.



Questions?

Seafood byproduct utilization and quality

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Sensory testing

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Food analysis

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Recipe design and pilot plant

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Food safety

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Bigelow | Laboratory for
Ocean Sciences

Seafood Solutions

*An Impact Center to help Maine diversify
safe and high quality ocean products*

Nichole Price, PhD nprice@bigelow.org

Senior Research Scientist



**WE ADVANCE BOLD SCIENCE
FOR OUR BLUE PLANET.**



OUR IMPACT

Seafood Solutions





Current Seafood Solutions Initiatives

1. developing safe, nutritious *new* ocean-derived animal feeds
2. advancing sustainability and value through seafood forensics
3. establishing best practices to reduce, avoid, detect, and remove pollutants in seafood

Seaweed as Livestock Feed

Shelby Cullom Davis
Charitable Fund

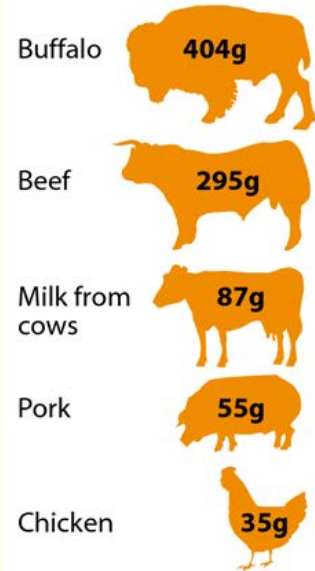
Café Sci Talk for 'Burpbusters'
available on Bigelow website



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METHANE EMISSIONS PER GRAM OF PROTEIN

*Global estimates in grams,
CO₂-equivalent*



PAUL HORN / InsideClimate News

Seafood Forensics

- ❖ Mislabeling, safety, and sustainability course
- ❖ Environmental DNA and Blue Carbon



Pollutants and Toxins

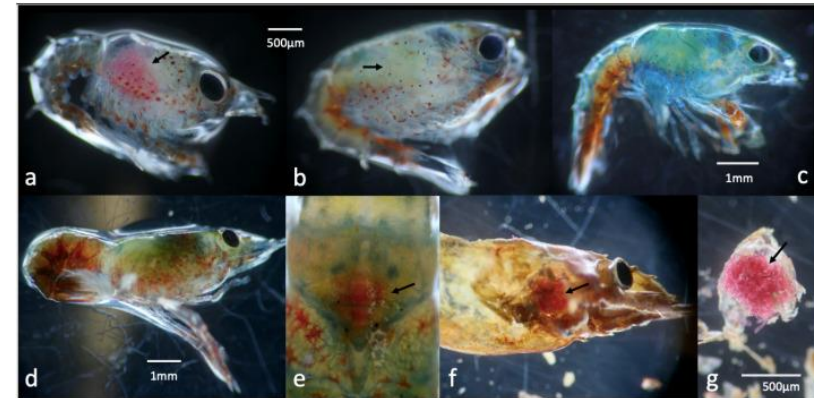
- Bigelow Analytical Services

- ✓ Constant improvement of biotoxin testing
- ✓ Trace metal analyses
- ✓ PAHs, PCBs, pesticides, etc.

- Aquatic Cytometry Services

- ✓ Enumeration of nanoplastics

Larval lobsters accumulating microplastic fibers



Where do we look to Partner?

- **Industry** - Every point in the supply chain!
- **Policy** – e.g., Maine Climate Council, National Organic Standards Board
- **Education** – course development (e.g., Keller BLOOM, Sea Change Semester)

A close-up photograph showing a person's hands holding a piece of crumpled yellow plastic waste. The person is wearing a blue jacket and a white ribbed sweater. The background is a large pile of similar yellow plastic waste, suggesting a recycling or waste management facility. The sky is visible in the upper left corner, showing a blue sky with some clouds.

—
And use our discoveries to
**IMPROVE THE FUTURE FOR
ALL LIFE ON THE PLANET.**



Alliance Fall Forum

Sustainability Messaging for Seafood Packaging & Perception



The shortest distance between
you and your customers lies
between two points:
your passion and theirs.

One of the most common
questions we get asked in
helping move seafood
brands forward:

How to promote
sustainable seafood
practices and
environmental
stewardship on
packaging....





consumers are projected
to be spending

**\$150bn on
sustainable goods
by 2021**

to capture this market brands
have accelerated messaging
that highlights brand benefits,
goals and education to speak
their customers.

*<https://hbr.org/2019/07/the-elusive-green-consumer>

According to data from an August 2018 Nielsen report on consumer behavior and sustainability **81% of respondents of a global survey felt strongly that companies should help to improve the environment**, with **85% of millennials saying it is "extremely" important that companies work to improve the environment.***

However...

In another recent survey **65% of consumer respondents said they want to buy purpose-driven brands that advocate sustainability**, yet only about **26% actually do so.****

*<https://www.warc.com/newsandopinion/opinion/sustainability-and-the-consumer-in-2019/3024>,

**<https://hbr.org/2019/07/the-elusive-green-consumer>

The Challenge - what we see:

Consumers are not overly educated in seafood sustainability, or quality. Which means it is not their main driver when making purchasing decisions.

They know terms like:

- Non-GMO
- Organic
- Natural

And are learning terms like:

- Wild-Caught
- Farmed
- Sustainable Farmed
- Fair-trade

What is working:

Speak to consumers about things they do know like **taste, product flexibility and usability**. Then *educate on sustainability* and why it matters.

- Sell consumers on quality and taste first - *Packaging & Web*
- Educate on the “feel goods” and why buying sustainable seafood is important. - *Web, Collaborations, Social Media, etc.*

These feel good emotions around doing *what is right for the earth and ocean* help **educate and empower the consumer, building trust, their connection to your brand, and increases word-of-mouth marketing and sales.**



<https://www.seafoodcollab.com/>



Hook the Consumer with:

- Delicious front of pack visuals & quality
- Key health/benefit call-outs
- Direct & clear messaging

Tell the Sustainability via:

- Website
- Back of packaging
- Newsletters with Recipes
- Social media
- Collaborations
- Online conversation

Power of packaging-do better where you can.

- Look for sustainable packaging that still keeps your product fresh and flavorful.
- Print with soy, no-VOCs (volatile organic compounds) inks and use post-consumer paperboard (FSC- Forest Stewardship Council Certified) when possible.
- Seek out printers who use alternative energy to power their operations and promote these choices on social media and the packaging.
- If you need to use plastic for freshness that is fine, do not feel bad about this. Instead continue to seek out alternatives and be transparent with your customers about your path to being fully recyclable and/or compostable. Again this is education and helps build a brand your customers can trust.

Key Takeaways:

- Showcase your products & capture your consumer
While selling on deliciousness and ease of use
- Elevate your brand through education
Educate and inform your consumer through your packaging but keep it simple and direct. Teach them and they will teach others.
- Speak to, and inform future goals outwardly online and on social media.
Be transparent around your practices and relate it back to flavor, health, ease of use and sustainability practices.

Thank you!

Keep building
better brands that
make the world a
better place!

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Christa Biggs

Aptar Food + Beverage – Food Protection

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Maine Seafood Forum

20 Years of Developing Solutions



Next generation active packaging system
to enhance safety and extend freshness

SeaWell™

Protective Packaging Systems



Common Finds in Traditional Packaging



Messy Handling



Re-wraps



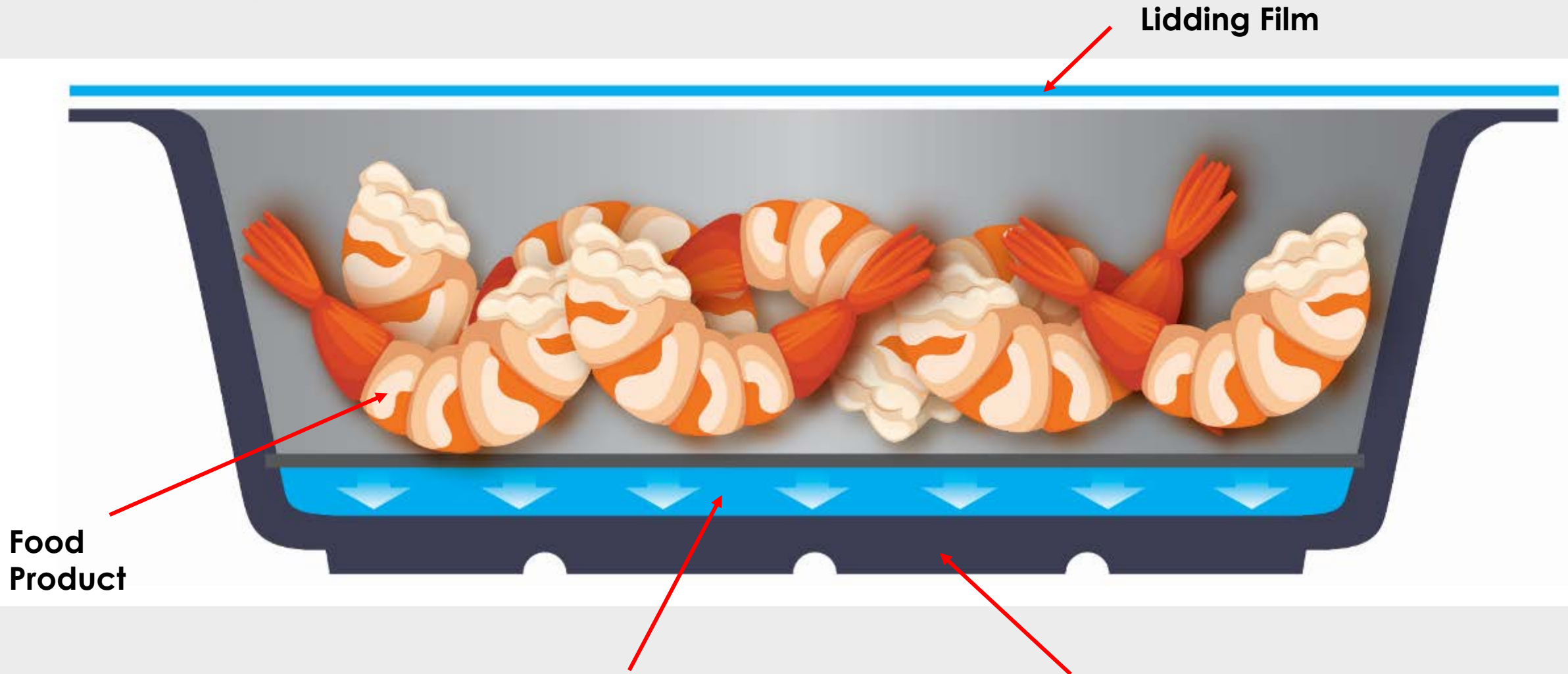
Poor Presentation

SeaWell™

Protective Packaging Systems



How it works-Tray



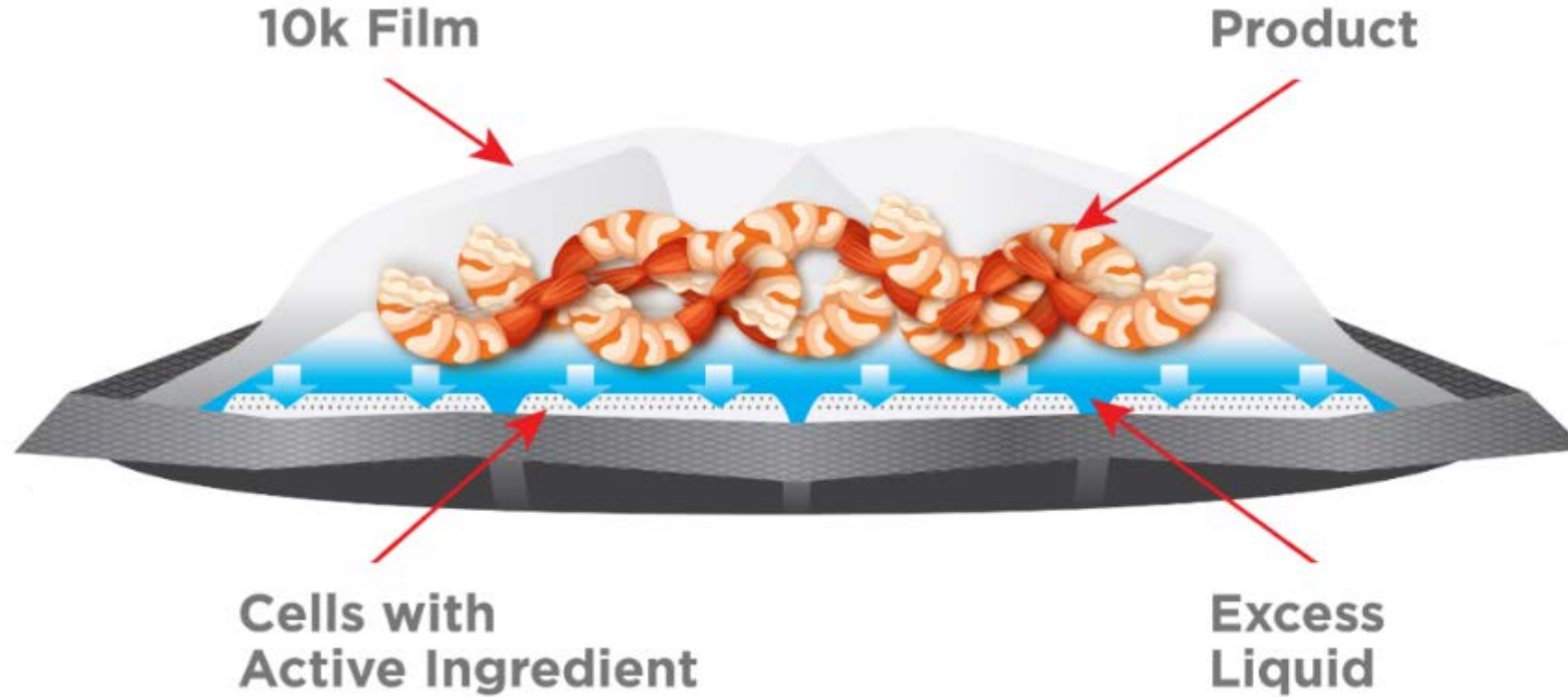
Food Product

Lidding Film

Liquid Purge

Wells with Active Ingredient

How it works- Pouch



Case-To-Cook



Liquid Containment

- ✓ No draining
- ✓ No rinsing
- ✓ No mess

Preparation

- ✓ Faster
- ✓ Easier
- ✓ Safer

Cooking

- ✓ Convenient
- ✓ Simple
- ✓ Fresh

Market Reference

- Pack + distribute frozen, thaw in same package
- Fresh sale to market
- Reduce cross-contamination in the kitchen
- Enhance visual appeal
- Contactless product
- Trays can be stacked in undercases
- 24-hour fresh sales



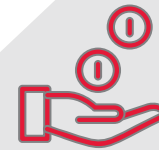
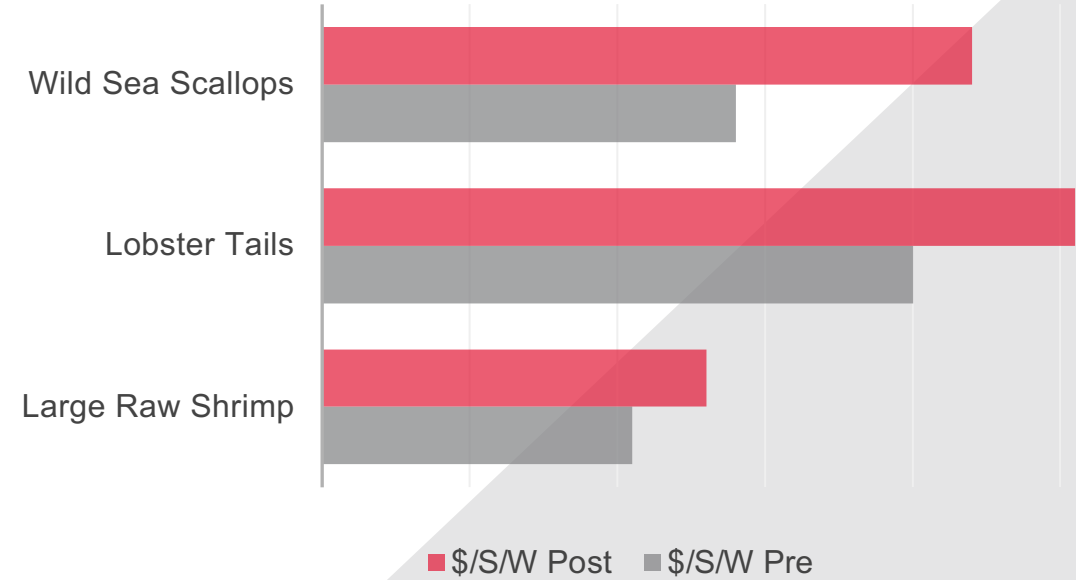
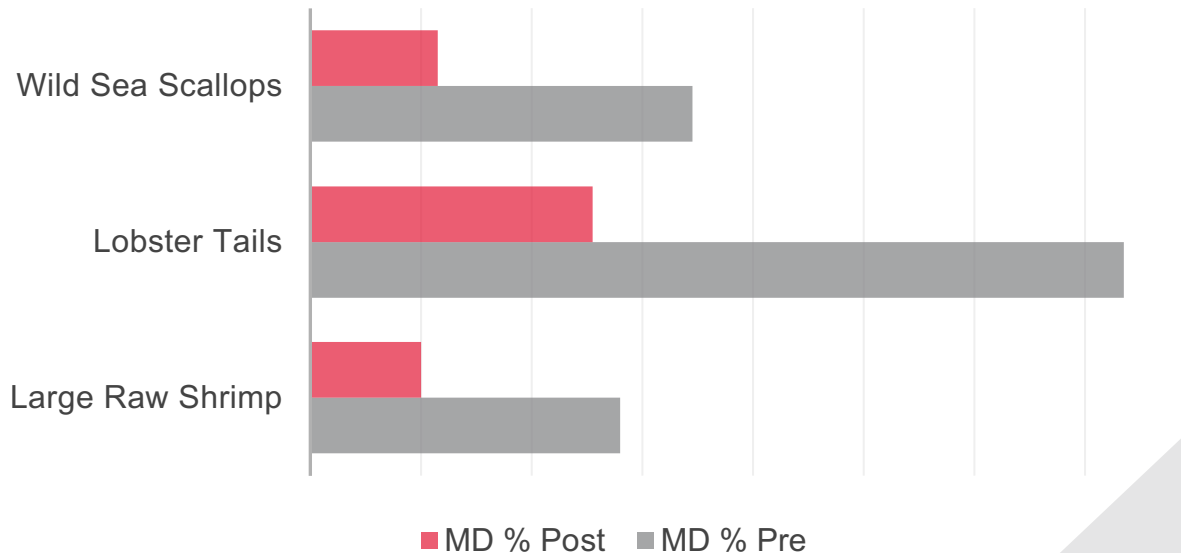
Market-Based Value Proposition

Smart, sustainable packaging has been shown to both reduce costs and boost revenue



Increased revenue U/S/W

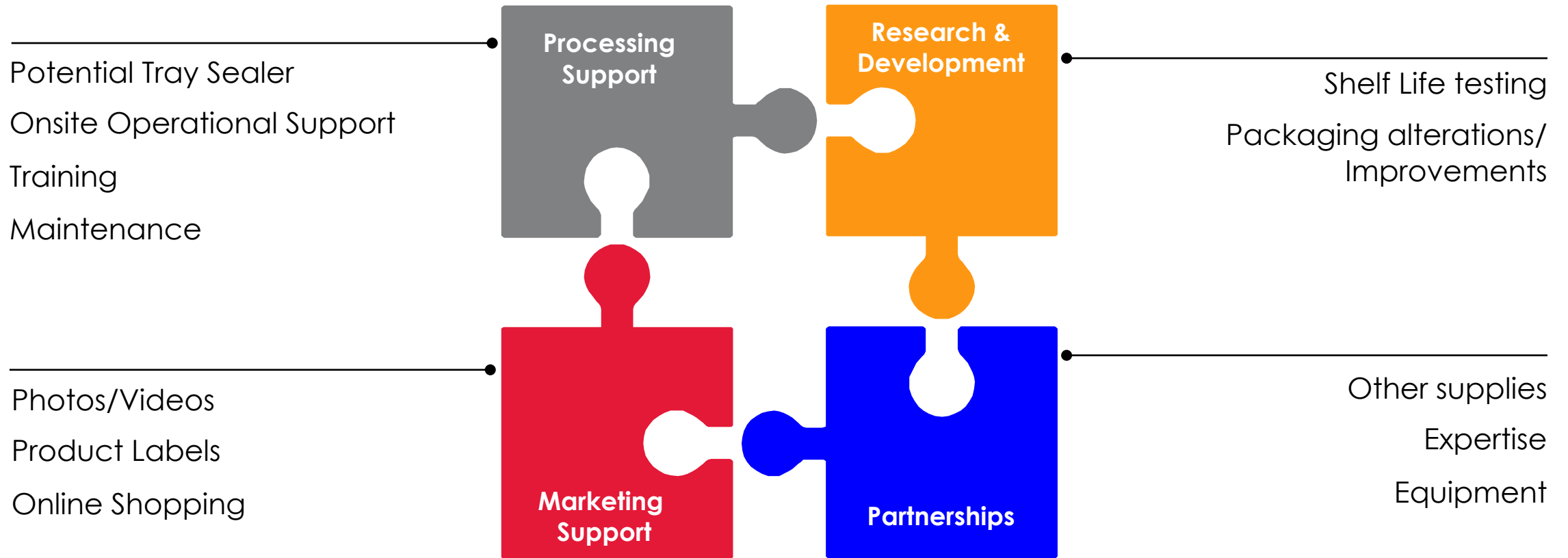
- 24% on Raw Shrimp
- 28% on Lobster Tails
- 57% on Scallops



Decreased mark downs

- 36% on Raw Shrimp
- 96% on Lobster Tails
- 46% on Scallops

Aptar Support



Questions?



Christa Biggs

Manager of Business Development

Aptar Food + Beverage – Food Protection

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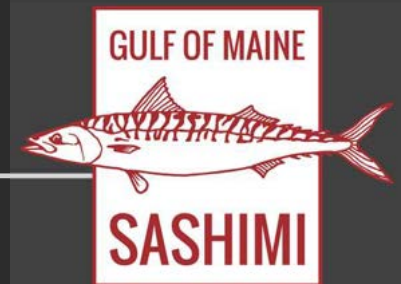
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<https://www.aptarfoodprotection.com>



Gulf of Maine Sashimi

Good for Fish, Fishermen, and the Ocean

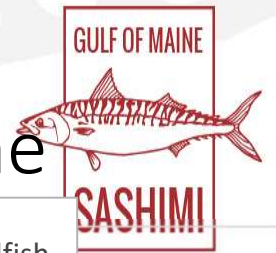




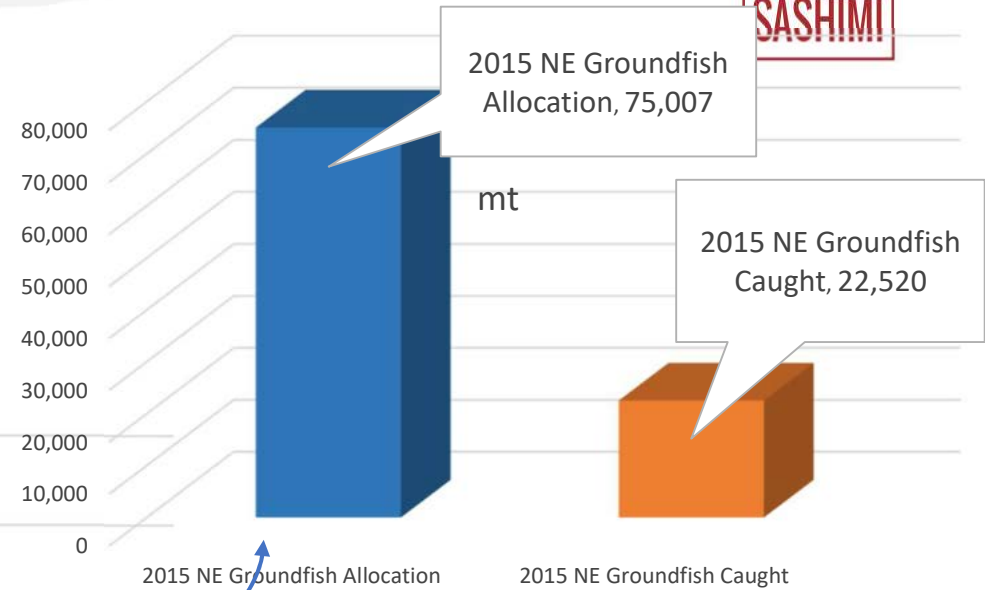
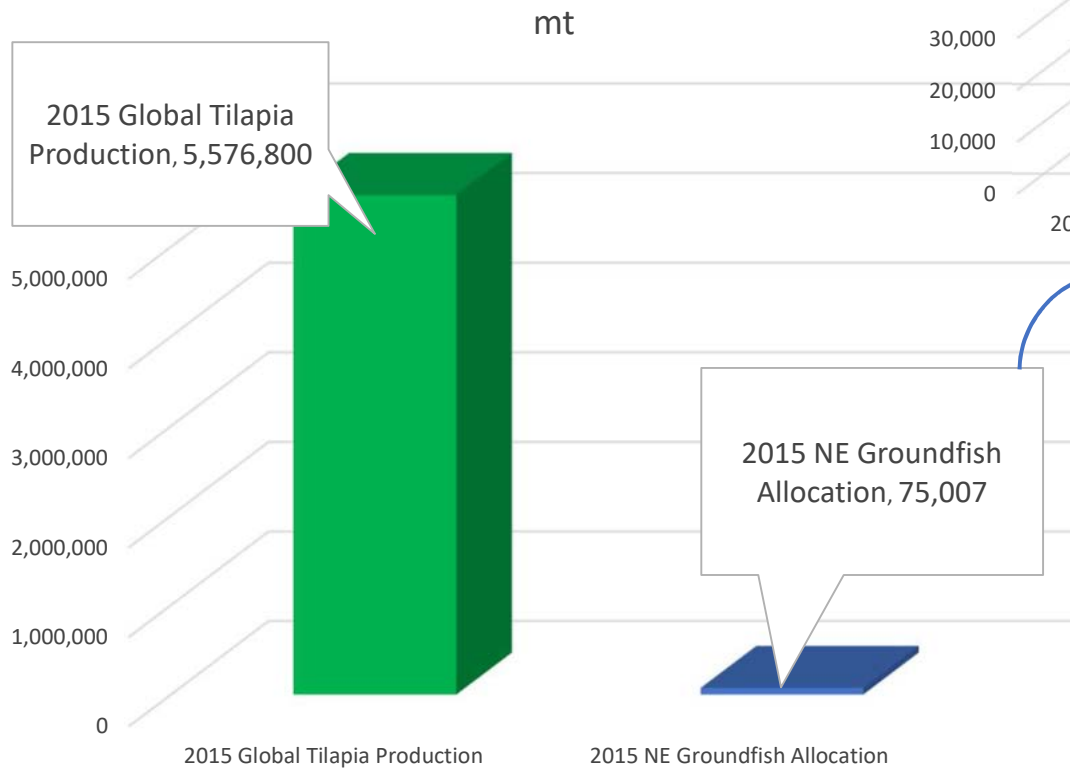
Why?

- The best, most expensive fish sold locally is not local fish.
- Local fishermen cannot afford to harvest some of our most abundant stocks.
- Domestic markets are hungry for high quality local fish.

Gulf of Maine seafood can't compete on volume



Tilapia vs entire groundfish allocation



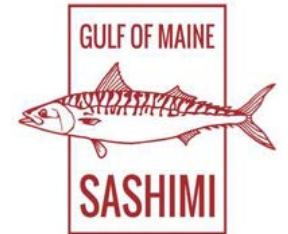
Groundfish ACL vs landed

rare.

Untapped Potential



Specialized Handling



- Short tow and soak times
- No tossing or gaffing
- Ike jime: To kill with purpose
- Bleeding
- Slurry ice
- Direct from fishermen to Gulf of Maine Sashimi











COVID Effects

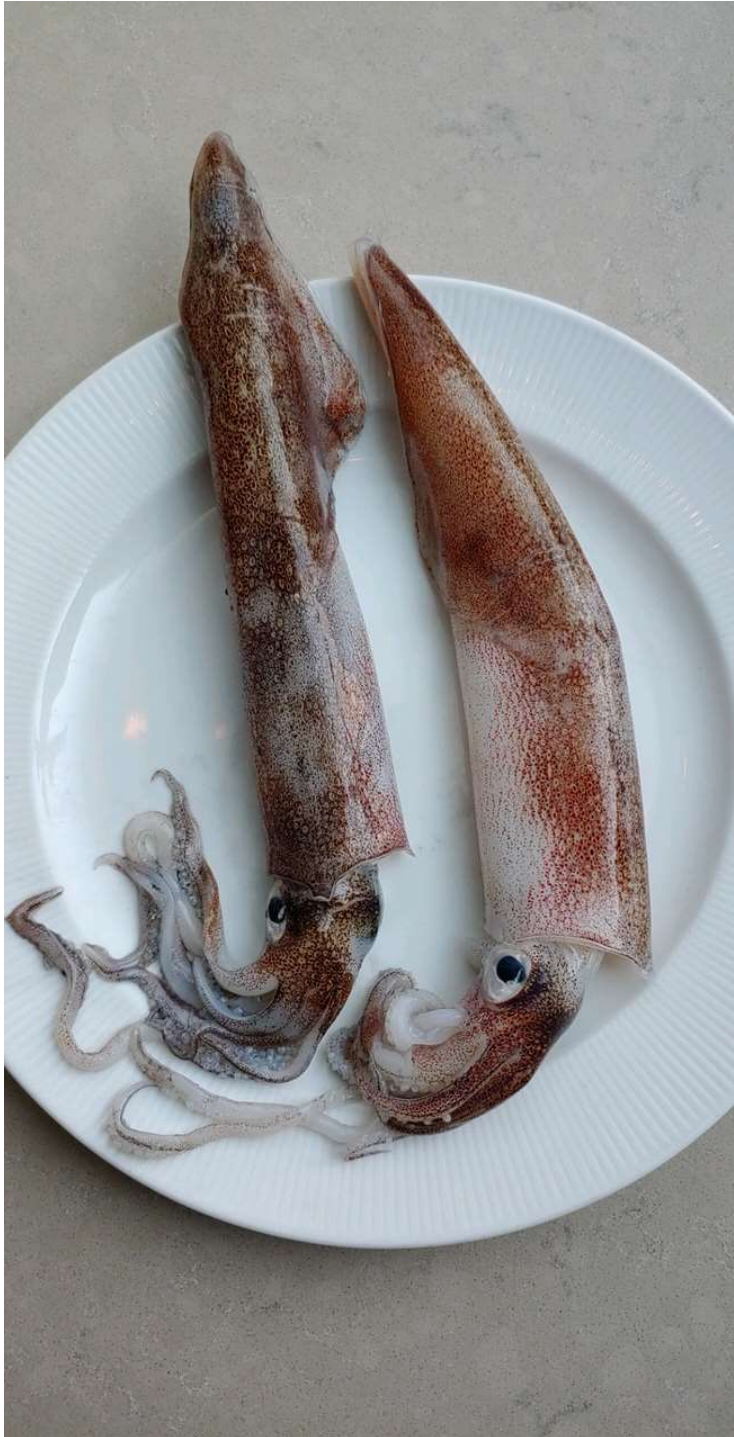
- Lost 100% of our customers mid-March
- Transitioned to direct-to-consumer
- Changed operation, moved to a new facility
- Hired additional staff
- Unearthed a new customer base



Multiple Complementary Products and Channels

- Whole premium fish to distributors
- Whole premium fish and fillets delivered or shipped to restaurants
- Fresh and frozen fillet shipped to home kitchens
- National distribution to major markets, including New York, Chicago, Austin, and San Francisco.

Confidential. Do not distribute or share.



Something Special

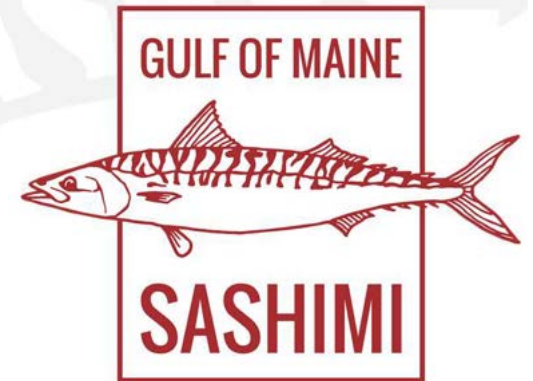
- Amazing quality and shelf life.
- Meaningful story, connected to harvesters and sustainability.
- Seasonal and product variety.

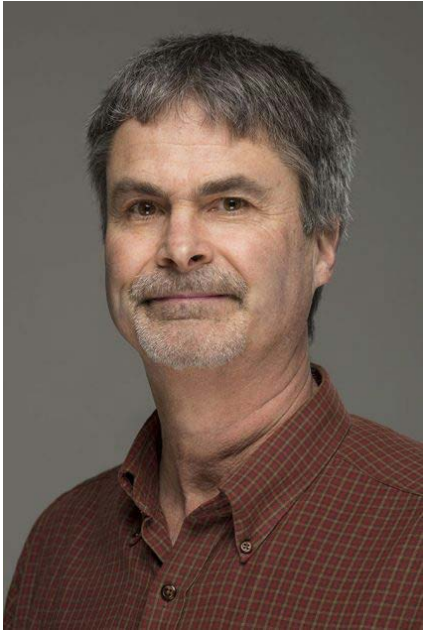
Thank you!

Jen Levin

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