

UNWRAP THE FUTURE

POWERED BY

LONELY  **WHALE**

SPONSORED BY

TOM FORD BEAUTY | ESTÉE LAUDER COMPANIES

SUPPORTED BY

TROUSDALE  **VENTURES**

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01

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Changing the trajectory of a seemingly intractable challenge requires focused, collective efforts that center attention on sources and solutions. Plastic pollution is one such challenge. For this reason Lonely Whale, an award-winning nonprofit with a mission to prevent plastic waste from entering the ocean, targeted one of the most pernicious single-use plastics: thin-films. This material, nearly impossible to recycle within current systems,¹ accounts for 46% of annual ocean plastic leakage—an estimated 5 million tonnes every year.² Without scalable alternatives, companies are unable to shift away from this fossil fuel-derived material, given the ubiquity of its use across supply chains to protect goods and prevent waste from product damage. Our analysis led to the launch of *Unwrap the Future*, a three-phase approach to source, vet, support, and showcase scalable, biologically degradable³ alternatives to traditional thin-film plastic.

In the first phase, we teamed up with fashion designer Tom Ford to create the TOM FORD Plastic Innovation Prize powered by Lonely Whale. Entrants from around the world competed for the chance to win a portion of the \$1.2M Prize purse for their novel biomaterials. The Prize purse was presented by title sponsors TOM FORD BEAUTY and The Estée Lauder Companies, and Phillip Sarofim’s Trousdale Ventures, the exclusive venture capital partner of the Prize, as a combination cash prize and direct investments. Sixty-four entries from 26 countries were narrowed down to eight Prize finalists. Samples of their materials underwent nearly a year of rigorous lab and field-based testing conducted by our partners at the University of Georgia’s New Materials Institute and the Seattle Aquarium. The resulting data was reviewed by our Scientific & Technical Advisory Board and Prize Judges. Three grand Prize winners; Sway, Zerocircle, and Notpla, were awarded by Tom Ford in March 2023 at the Green Carpet Fashion Awards in Los Angeles.

The Prize was a critical step in advancing biologically degradable alternatives to traditional thin-film plastic but, alone, was not sufficient in achieving a pathway towards scale and industry adoption. To address this, phase two led Prize winners through a nearly yearlong Accelerator program to provide communication and operational guidance, access to a vast global expert network, and showcases through Lonely Whale’s global media channels and at external events. In addition to these traditional accelerator activities, the program provided Prize winners a critical layer of support: direct connections to Lonely Whale’s coalition of 19 Early Adopter brands who committed to attempting pilots and trials aimed at advancing



adoption of Prize winners’ materials. The inclusion of this brand collaboration pathway and the focus on catalyzing adoption was not only a unique offering, but also critical to achieve Lonely Whale’s goal of displacing traditional thin-film plastic to help prevent them from entering the environment.

The third and final phase of *Unwrap the Future* focuses on raising awareness of seaweed-based alternatives to traditional thin-film plastic, as exemplified by our three Prize winners. Anchored by a short documentary titled *Seaweed Stories*, narrated by Forest Whitaker and slated to premiere in fall 2024 following New York Climate Week, this phase will spark a dialogue about seaweed as a scalable solution to both mitigate the impacts of climate change and create bio-based alternatives to traditional plastics.

The following report highlights the unique approach of *Unwrap the Future*, with a focus on insights from the pilots and trials between Prize winners and Early Adopter brands which are intended to inform and inspire avenues for wider industry adoption.

¹ Vann, K. (2021, January 5). *The unfulfilled promises of plastic film recycling*. Waste Dive. <https://www.wastedive.com/news/plastic-film-bag-takeback-chemical-recycling-coronavirus/592503/>

² The Pew Charitable Trusts and SYSTEMIQ. (2020). *Breaking the plastic wave: A comprehensive assessment of pathways towards stopping ocean plastic pollution*. Page 26. https://www.pewtrusts.org/-/media/assets/2020/07/breakingtheplasticwave_report.pdf

³ Defined as materials that will break down and degrade when placed in a variety of contexts at the end of their useful life, such as a landfill, in soil, in the ocean, and in compost, and without producing toxic byproducts or microplastics as they degrade. This term is differentiated from the more common term “biodegradable,” which, except when defining an ASTM laboratory method, has been misused to the point of causing consumer and regulatory confusion with how a product will degrade in the environment.

IMPACT SNAPSHOT

64 ENTRIES FROM 26 COUNTRIES	3 PRIZE WINNERS	\$1.2M PRIZE PURSE
6.7B+ IMPRESSIONS ACROSS 430+ STORIES EST. \$52.3M AD VALUE	1M+ VIEWS ON SOCIAL MEDIA	4 SEMINARS HOSTED WITH 13 INDUSTRY EXPERTS
2 SHOWCASES: THE ECONOMIST IMPACT’S WORLD OCEAN SUMMIT AND WORLD OCEANS DAY SALON AT THE EXPLORERS CLUB	19 EARLY ADOPTER BRANDS COMMITTED TO SUPPORTING WINNERS	10 PILOTS AND VALUE CHAIN TRIALS GENERATED

02

INTRODUCTION

HOW RADICAL COLLABORATION CAN *UNWRAP THE FUTURE*

Innovation prizes have been used throughout history to focus bright minds on intractable global challenges. In the 1860s, a public reward was offered for the invention of a replacement for ivory—which was both financially and ecologically costly—in billiard balls. That prize incentivized John Wesley Hyatt to invent celluloid, helping to usher in the era of modern plastics.

Over 150 years later, Lonely Whale sought a solution to the world's mounting plastic crisis in the tale of its creation and launched a prize through its *Unwrap the Future* program. The program focused exclusively on biologically degradable alternatives to traditional (fossil fuel or biofuel-based) thin-film plastic, nearly half of plastic waste leaking into the ocean each year.² *Unwrap the Future* issued a call to innovators to address this challenge by entering a global competition. We teamed up with fashion designer Tom Ford to create the TOM FORD Plastic Innovation Prize, where entrants from around the world competed for the chance to win a \$1.2M Prize purse.

However, we knew that a Prize alone would not be sufficient in displacing traditional thin-film plastic—one of the most ubiquitous packaging materials. To advance adoption, Prize winners earned access to the nearly yearlong Accelerator program sponsored by TOM FORD BEAUTY, its parent company, The Estée Lauder Companies, and supported by Phillip Sarofim's Trousdale Ventures. Through the Accelerator, winners gained access to the Early Adopter Coalition, a group of 19 brands committed to attempting pilots and trials aimed at advancing adoption of Prize winners' materials.

The program was designed to help catalyze an enduring shift away from traditional thin-film plastic, which requires continued commitment from brands to scale Prize-winning solutions across industries—and to encourage their peers to do the same. After nearly four years, we are delighted to share actionable insights and seven case studies from Early Adopter brands which aim to inspire stakeholders across the value chain to help unwrap a future free from traditional thin-film plastic.



“In our ongoing commitment to advancing sustainability at The Estée Lauder Companies, we’ve discovered the vital role of strategic partnerships and collaborations. We are honored to partner with Lonely Whale and delighted to see the impact achieved this past year between Prize-winning innovators and Early Adopter brands, including TOM FORD BEAUTY, who have leaned in to explore use cases for seaweed-based packaging innovations.”

Nancy Mahon

CHIEF SUSTAINABILITY OFFICER, THE ESTÉE LAUDER COMPANIES

03

UNWRAP THE FUTURE: PROGRAM OVERVIEW

WHY THIN-FILM PLASTIC?

Traditional thin-film plastic is an inconspicuous yet insidious product that is wreaking havoc on our environment. Used primarily for packaging, wrapping and storage, flexible films account for 46% of ocean plastic leakage—an estimated 5 million tonnes annually.² Almost all of these films are made from the same fossil fuel-based polymer, low-density polyethylene (LDPE). While recyclable in theory, most curbside recycling programs lack the necessary infrastructure to handle the material and, even if successful, recycled thin-film plastic carries a low value in the marketplace.¹ Instead, used thin-film plastic ends up in landfills⁴ or polluting our environment, including the ocean.

Due to their low recyclability and environmental impacts, traditional thin-film plastic is of increasing concern for policymakers and regulators with efforts like California’s state Senate Bill 54 and the European Union’s Single-Use Plastic Directive aiming to address film use and disposal through broader packaging regulatory frameworks. Even with this positive momentum, regulations are designed around available and market-ready alternatives, rather than innovations that could change the paradigm.

Although advancing recycling technology, reusable solutions, and new business models are critical to reducing the impact of traditional thin-film plastic, our problem analysis concluded that Lonely Whale’s most effective role was helping to spotlight and support material innovation. For this reason, *Unwrap the Future* was designed to rally capital, leading innovators, willing brand collaborators, and science-based organizations to advance alternative packaging materials at scale.



THIN-FILM PLASTIC
REPRESENTS 46%
OF PLASTIC WASTE
THAT LEAKS INTO
THE OCEAN.

⁴ The Recycling Partnership. (2024). *State of recycling: The present and future of residential recycling in the U.S.* Pages 10, 22, 24. Available online: <https://recyclingpartnership.org/residential-recycling-report/>

“As an expert advisor to ‘Breaking the Plastic Wave,’ I’ve encountered numerous initiatives addressing the plastic crisis, but few as rigorous as the TOM FORD Plastic Innovation Prize and Accelerator. Collaborating with Lonely Whale as a member of the Scientific & Technical Advisory Board, we’ve targeted the urgent issue of thin-film plastic, which accounts for a staggering 46% of waste leaking into our oceans – a statistic uncovered when building the report. I’m inspired by Lonely Whale’s commitment to transforming this dire statistic into actionable change by not just awarding material innovators but scaling their solutions through the Accelerator.”

Ellie Moss

CO-FOUNDER & EXECUTIVE DIRECTOR, PERPETUAL

THREE-PHASE APPROACH: AWARD, SCALE, AND AMPLIFY

Unwrap the Future set out to identify and deploy innovations that address the challenge of traditional thin-film plastic. Our three-phase approach was designed to ensure that the materials met end-of-life expectations and performed in line with industry standards to accelerate their adoption, while simultaneously engaging the public in the transition towards the next generation of bio-based, biologically degradable materials.



PROGRAM TIMELINE

PHASE I
TOM FORD PLASTIC
INNOVATION PRIZE

PHASE II
TOM FORD PLASTIC
INNOVATION ACCELERATOR

PHASE III
SOLUTION
STORYTELLING

2020-2023

2023-2024

2024-2025

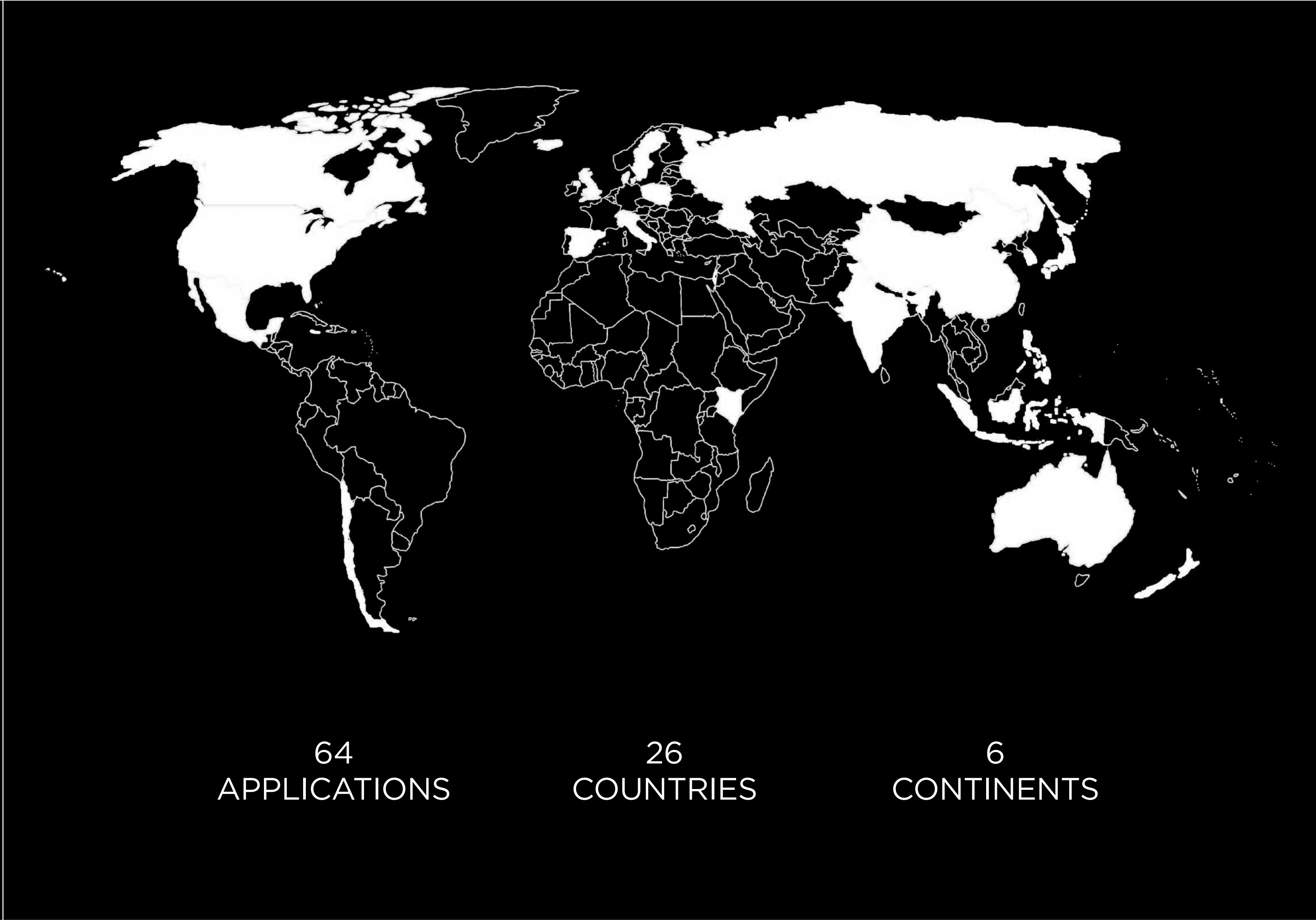
04

AWARDING INGENUITY: THE TOM FORD PLASTIC INNOVATION PRIZE

A CALL FOR NEW SOLUTIONS

Announced in November 2020, the Prize began with a global call for innovators to join the competition in May 2021. Sixty-four applications from 26 countries and six continents were received from a diverse set of innovators working with raw materials such as pea protein, agricultural waste, and seaweed, reflecting the wide spectrum of nature-based materials already under investigation globally. Entrants, who were required to have at least a functioning prototype available for evaluation at the time of their entry, completed a digital technical submission that outlined their innovation, the underlying technology, its current level of development, existing or prospective partners, capital raised to date, and other data points.

At the close of the submission period, Lonely Whale compiled this information for review and the Prize’s Judging Panel, in consultation with the Scientific & Technical Advisory Board, selected eight Prize finalists. The finalists, who shared equally in the \$200,000 cash milestone award to support their work and ongoing participation in the competition, included Genecis (CA), Kelpi (UK), Lwanda Biotech (KE), Marea (IS), Notpla (UK), Sway (US), Xampla (UK), and Zerocircle (IN).



RIGOROUS, HOLISTIC EVALUATION

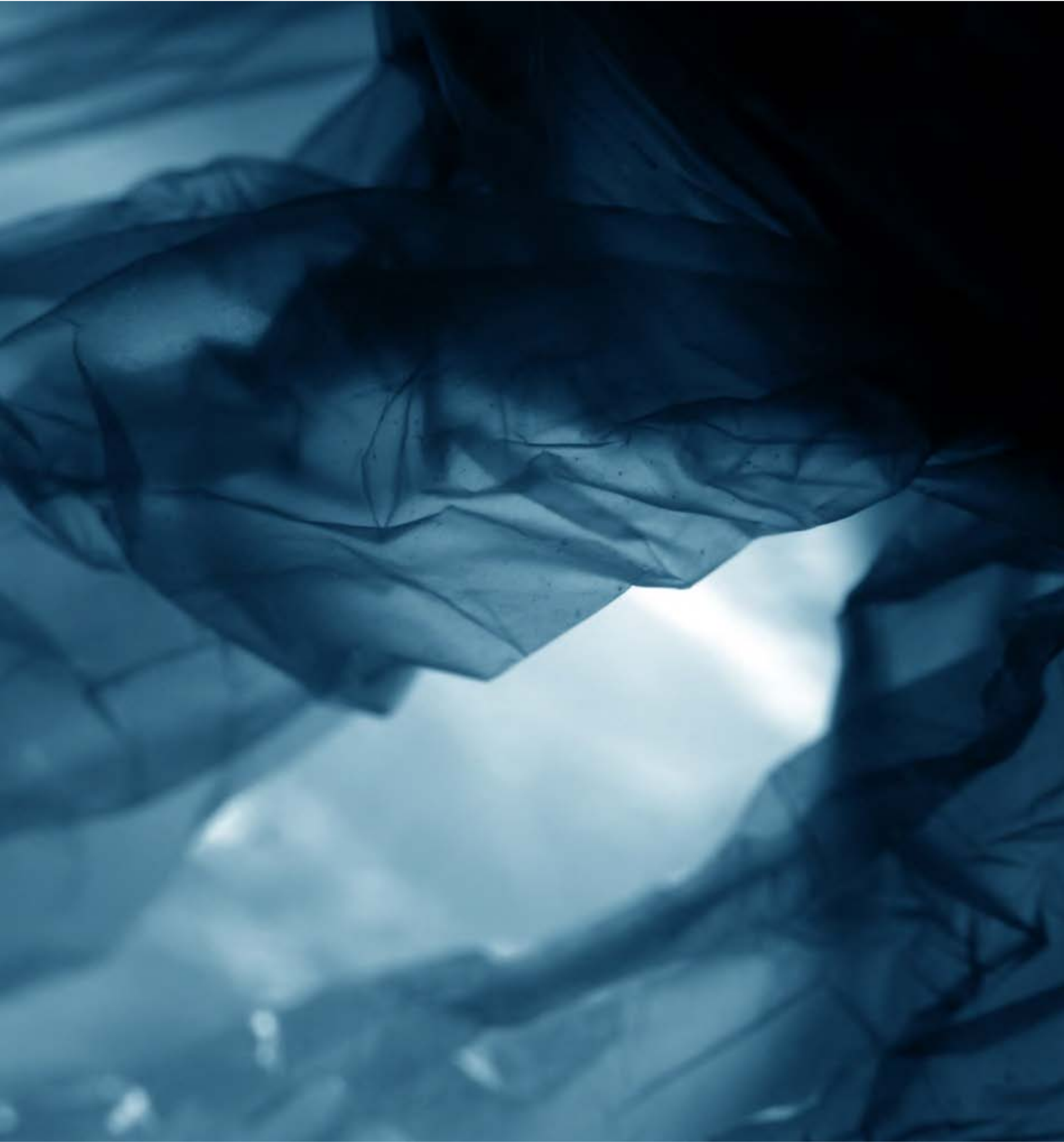
Finalists underwent nearly a year of rigorous review. This holistic evaluation included lab and field-based testing, conducted by our partners at the University of Georgia’s New Materials Institute and the Seattle Aquarium, to verify each finalist material’s properties and end-of-life performance. Commercial viability, an equally important consideration, was led in tandem by the Scientific & Technical Advisory Board and Early Adopter Coalition.

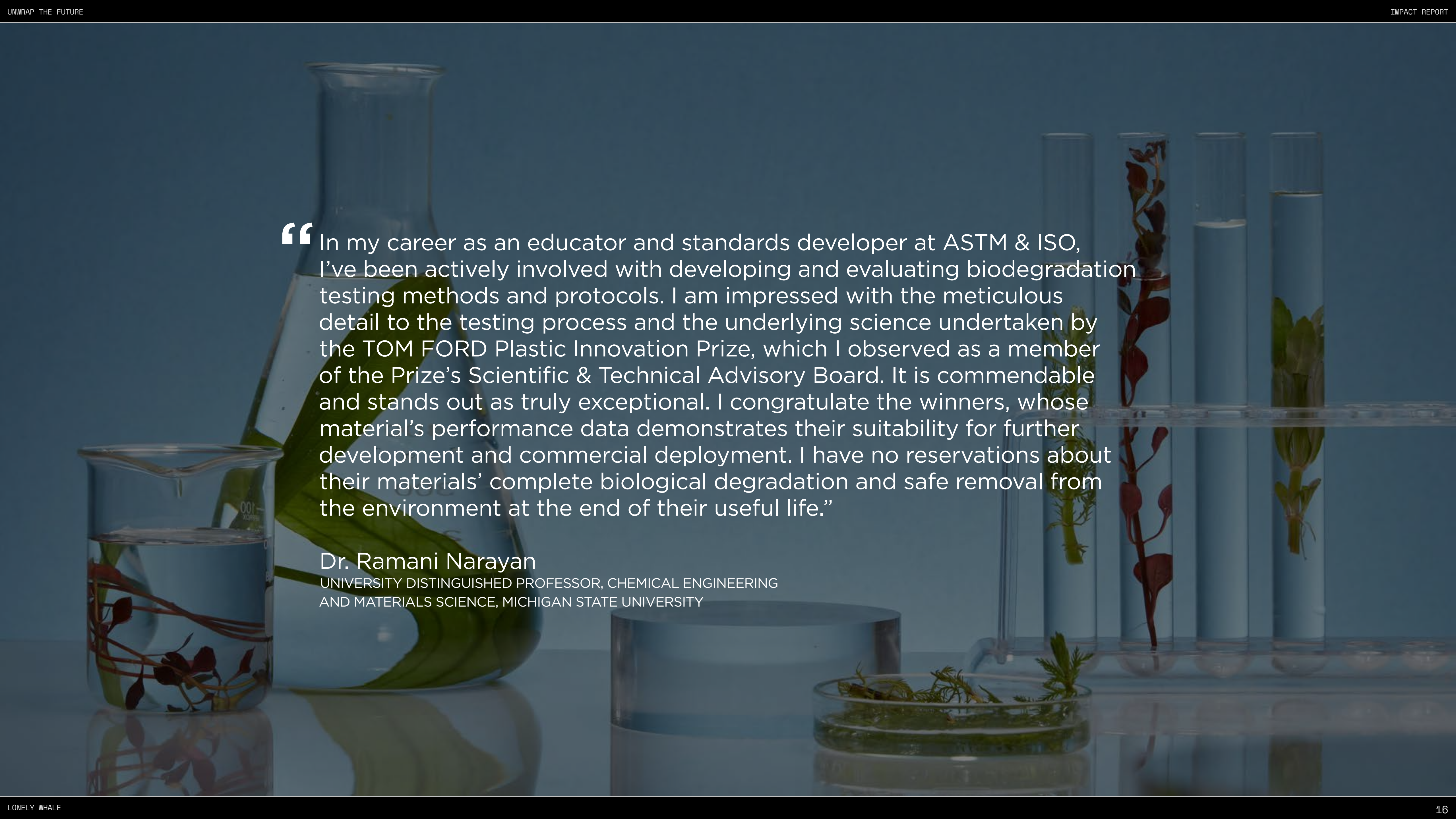
Sponsored by Nike and The Echo Fund, the lab and field-based testing was designed to provide a comprehensive view, exceeding what could be gleaned from an individual test, leveraging cutting-edge evaluation methods together with industry standard assessments. As part of these testing protocols, and designed in conjunction with the Prize, the Seattle Aquarium developed a simulation to assess the effects of material ingestion on marine life, replicating the gut processes and microbiome of gray whales. This test complemented the holistic end-of-life review and is now detailed in a peer reviewed scientific article published by the Marine Pollution Bulletin.

Conducted by the Early Adopter Coalition and Scientific & Technical Advisory Board, finalists were also reviewed for commercial viability. Each Prize finalist was matched with one or more Early Adopter Coalition members for evaluation. Members of the Coalition then completed a survey about their experience and how the Prize finalists aligned with their needs and expectations.

As a final step in the material testing period, Prize finalists submitted a thorough update to provide Judges and Advisory Board members details on their progress since entering the competition. Information included plans and projections in areas such as commercialization, sourcing, environmental and social impacts, and future product costs.

COMPLETE TEST MEASURES ARE OUTLINED IN THE APPENDIX, WITH DETAILED DESCRIPTIONS AVAILABLE ONLINE.





“ In my career as an educator and standards developer at ASTM & ISO, I’ve been actively involved with developing and evaluating biodegradation testing methods and protocols. I am impressed with the meticulous detail to the testing process and the underlying science undertaken by the TOM FORD Plastic Innovation Prize, which I observed as a member of the Prize’s Scientific & Technical Advisory Board. It is commendable and stands out as truly exceptional. I congratulate the winners, whose material’s performance data demonstrates their suitability for further development and commercial deployment. I have no reservations about their materials’ complete biological degradation and safe removal from the environment at the end of their useful life.”

Dr. Ramani Narayan

UNIVERSITY DISTINGUISHED PROFESSOR, CHEMICAL ENGINEERING
AND MATERIALS SCIENCE, MICHIGAN STATE UNIVERSITY

AWARDING THE GRAND PRIZE WINNERS

Following material testing, the Prize Scientific & Technical Advisory Board conducted a detailed review of the results to assess which Prize finalists met the criteria outlined in the judging protocol. The remaining finalists were then ranked based on testing results, the additional materials submitted, and survey feedback provided by Early Adopters. Prize Judges then convened to review and discuss these rankings, ultimately determining the grand Prize winners.

In March 2023 at the Green Carpet Fashion Awards in Los Angeles, Tom Ford unveiled the three grand Prize winners: Sway, Zerocircle, and Notpla. Each was awarded a tranche of the \$1.2M Prize purse, a combination cash prize and direct investments presented by title sponsors TOM FORD BEAUTY and The Estée Lauder Companies, and Phillip Sarofim’s Trousdale Ventures, the exclusive venture capital partner of the Prize.



REMAINING FINALISTS:



PRIZE WINNERS

SWAY



FIRST PLACE

zerocircle



SECOND PLACE

Notpla



THIRD PLACE

“We’re thrilled to have had the opportunity to participate in the TOM FORD Plastic Innovation Accelerator program powered by Lonely Whale following our victory in the Prize. The experience has been transformative for the Sway team. With substantial support from Lonely Whale, TOM FORD and The Estée Lauder Companies, we’ve forged strong connections with brands eager to adopt our thin-film solutions, gained insights into scaling our industry responsibly, and amplified our impact and reach. Thanks to the Prize and Accelerator, we are now better positioned than ever to make a significant difference in the fight against plastic waste and to fulfill our mission of replenishing the planet.”

Julia Marsh
Co-Founder & CEO, Sway

“From catalyzing dialogues with policymakers to connecting with industry leaders to helping create a robust supply chain, efforts of TOM FORD, The Estée Lauder Companies along with Lonely Whale have helped us imbibe invaluable insights that will help us scale thin-film solutions globally. As we advance into the next phase of commercialization, these collaborations will form the bedrock on which we sustainably build the next generation of materials.”

Neha Jain
Founder & CEO, Zerocircle

“The TOM FORD Plastic Innovation Prize has been transformational for Notpla. Not only did the recognition validate our innovative seaweed-based, thin-film packaging solutions on a global stage, but the Accelerator program provided invaluable support to scale our impact. From mentorship and industry connections or funding, the Accelerator empowered us to accelerate our growth and present our sustainable materials to more brands and consumers worldwide. As we approach 10,000,000 single-use plastics replaced by Notpla, we’re immensely grateful to TOM FORD, The Estée Lauder Companies and Lonely Whale for catalyzing this pivotal chapter in our journey to make packaging disappear.”

Pierre Paslier
Co-Founder & Co-CEO, Notpla

“As a forward-thinking investment firm shaping a sustainable future, we partnered with Lonely Whale as their exclusive venture capital partner to support innovators who are tackling plastic pollution. By investing in the visionary winners of the TOM FORD Plastic Innovation Prize – Sway, Zerocircle, and Notpla – and deepening our engagement through the Accelerator, we’re not only providing crucial access to capital but also amplifying their potential to scale marine-safe alternatives to single-use plastics. Together with Lonely Whale, we’re investing in a cleaner, more resilient planet.”

Phillip Sarofim

FOUNDER & MANAGING PARTNER, TROUSDALE VENTURES

PRIZE JUDGES



TOM FORD
FOUNDER, TOM FORD

DON CHEADLE
GOLDEN GLOBE WINNING ACTOR,
CLIMATE SOLUTIONS AND HUMAN
RIGHTS ADVOCATE

AUDREY CHOI
SUSTAINABILITY THOUGHT LEADER

LIVIA FIRTH
MBE, ACTIVIST, PRODUCER,
FOUNDER AND CREATIVE
DIRECTOR OF ECO-AGE

JOHN JOHN FLORENCE
TWO-TIME WORLD CHAMPION
SURFER, OLYMPIAN AND FOUNDER
OF FLORENCE

DR. ANDREW FORREST
FOUNDER AND CHAIRMAN
OF FORTESCUE AND MINDEROO
FOUNDATION

ELLEN JACKOWSKI
CHIEF SUSTAINABILITY OFFICER
& EXECUTIVE VICE PRESIDENT,
MASTERCARD

JOE KUDLA
FOUNDER & CEO, VUORI

STEVEN KOLB
CHIEF EXECUTIVE OFFICER,
COUNCIL OF FASHION DESIGNERS
OF AMERICA (CFDA)

STELLA MCCARTNEY
OBE, FASHION DESIGNER
& FOUNDER, STELLA MCCARTNEY



SUSAN ROCKEFELLER
AWARD-WINNING DOCUMENTARY
FILMMAKER, ARTIST,
CONSERVATIONIST, FOUNDER
OF MUSINGS

LIZ RODGERS
FORMER VICE PRESIDENT
OF SUSTAINABLE PRODUCT, NIKE

PHILLIP SAROFIM
FOUNDER & MANAGING PARTNER,
TROUSDALE VENTURES, LLC

TRUDIE STYLER
ACTRESS, FILM PRODUCER,
DIRECTOR, HUMAN RIGHTS
ACTIVIST, ENVIRONMENTALIST,
UNICEF AMBASSADOR, ORGANIC
FARMER AND WINEMAKER

TOM SZAKY
FOUNDER & CEO, TERRACYCLE

SASKIA VAN GENDT
CHIEF SUSTAINABILITY
OFFICER, BLUE YONDER

DANNI WASHINGTON
SCIENCE COMMUNICATOR
& CO-FOUNDER OF
THE BIG BLUE & YOU

MELATI WIJSEN
FOUNDER, YOUTHTOPIA
AND BYE BYE PLASTIC BAGS

PRIZE ADVISORS

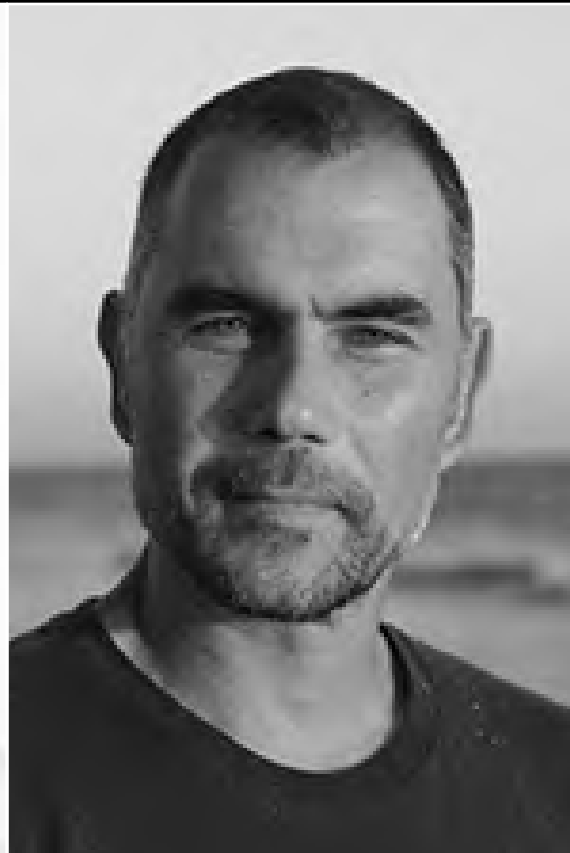
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RECYCLING MANAGER,
PLASTIC ODYSSEY



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ENGINEER, DELL TECHNOLOGIES



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DR. ERIN MEYER
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BOB TEASLEY
DIRECTOR OF NEW PRODUCT
DEVELOPMENT & SUPPLY
MANAGEMENT, MILLERKNOLL



STEWART WHITMIRE
VICE PRESIDENT, ATLANTIC
PACKAGING CORPORATION

INVESTMENT ALLIANCE



MATT GROSSMAN
CHIEF EXECUTIVE OFFICER
& MANAGER, ALG INVESTMENT
MANAGEMENT LLC



MATT SECHREST
CO-FOUNDER & MANAGING
PARTNER, NORTH EQUITY LLC

PRIZE JUDGING CRITERIA

BIOLOGICAL DEGRADATION AT END-OF-LIFE	MATERIALS MUST BE CAPABLE OF DEMONSTRATING SOIL AND MARINE BIOLOGICAL DEGRADATION UNDER CONDITIONS THAT CLOSELY APPROXIMATE NATURAL ENVIRONMENTS.
ENVIRONMENTAL & SOCIAL IMPACTS OF PRODUCTION	MATERIALS MUST MINIMIZE NEGATIVE SOCIAL AND ENVIRONMENTAL IMPACTS ARISING FROM THEIR PRODUCTION.
PRODUCT PERFORMANCE	PRODUCTS MUST MEET INDUSTRY STANDARD PERFORMANCE SPECIFICATIONS TO ENSURE THEY ARE CAPABLE OF FUNCTIONING WITHIN PACKAGING SYSTEMS AND FOR USE BY CONSUMERS.
SCALABILITY	SOLUTIONS MUST BE SCALABLE TO MEET THE MASSIVE SCOPE OF THE TRADITIONAL THIN-FILM PLASTIC POLLUTION CHALLENGE.
COST	SOLUTIONS MUST HAVE A CLEAR PATHWAY TO BECOMING REASONABLY COST-COMPETITIVE WITH TRADITIONAL THIN-FILM PLASTIC.

“We at the New Materials Institute at the University of Georgia were honored to partner with Lonely Whale as a testing partner in the TOM FORD Plastic Innovation Prize. We conducted scientific testing at The BioseniaticSM Laboratory to evaluate the materials put forward as biologically degradable. Sustainable alternatives to traditional plastic not only mitigate environmental harm, but also foster a culture of innovation and collaboration that can create a healthier future for our planet.”

Dr. Jenna Jambeck
PROFESSOR OF ENVIRONMENTAL ENGINEERING, UNIVERSITY OF GEORGIA

05

SCALING SOLUTIONS: THE TOM FORD PLASTIC INNOVATION ACCELERATOR POWERED BY LONELY WHALE

“ At MillerKnoll, we understand firsthand that innovation without adoption does little to drive meaningful change toward sustainable design. That’s why we’re proud to be involved in initiatives like the TOM FORD Plastic Innovation Accelerator. Our team has worked closely with Lonely Whale to evaluate alternatives to traditional thin-film plastic polybags not just for their efficacy but also for their scalability and alignment with our industry’s standards. Through the Accelerator, we have begun the process of identifying potential use cases for the Prize-winning materials.”

Bob Teasley

DIRECTOR OF NEW PRODUCT DEVELOPMENT & SUPPLY MANAGEMENT, MILLERKNOLL

SCALING SOLUTIONS: THE ACCELERATOR

Identifying winners of the TOM FORD Plastic Innovation Prize powered by Lonely Whale was a necessary step in evaluating solutions and raising awareness, but alone, it was not sufficient in displacing traditional thin-film plastic. Winning innovators, and the ecosystem as a whole, require support from a diverse coalition of stakeholders and targeted resources to deliver solutions at scale.

Plastics have been engineered over decades to achieve high performance at a very low cost — a cost that does not account for their tremendous impact on the climate, human health, and the marine environment.⁵ Shifting industry away from these materials and towards more sustainable approaches requires a multifaceted, cross-stakeholder effort that leverages a variety of tools. The Accelerator endeavored to do just that. Announced at Sustainable Brands in October 2023 by The Estée Lauder Companies’ Chief Sustainability Officer Nancy Mahon, the one-year program was sponsored by TOM FORD BEAUTY, its parent company The Estée Lauder Companies, and supported by Phillip Sarofim’s Trousdale Ventures.

The Accelerator’s goals were twofold:

- 1. Support the success and commercial viability of Prize winners
- 2. Advance market adoption of alternatives through pilot activities

Defined through our S.C.A.L.E. framework and informed by best practices from traditional accelerators, the program aimed to overcome barriers to the adoption of new materials. To do so, the Accelerator introduced a unique differentiator: the Early Adopter Coalition. This network of 19 brands committed to attempting trials and pilots of Prize winners’ materials in order to support both their own packaging goals and the materials’ commercial viability.

⁵ Beaumont, N. J. et al. (2019). Global ecological, social and economic impacts of marine plastic. *Marine Pollution Bulletin*, 142, 189-195. <https://doi.org/10.1016/j.marpolbul.2019.03.022>

THE SCALE FRAMEWORK

S	SUPPORT INTEGRATION THROUGH THE EARLY ADOPTER COALITION
C	CONVENE INVESTORS AND ADVISORS TO SUPPORT COMMERCIALIZATION
A	ADVANCE COMPLIANT COMMUNICATION TO BUILD CONSUMER INTEREST, IN LINE WITH QUICKLY EVOLVING POLICIES
L	LEVERAGE THE VALUE CHAIN BY WORKING WITH MANUFACTURERS AND SUPPLIERS
E	ENGAGE COMMUNITY THROUGH SEMINARS AND IN-PERSON EVENTS

TAILORED SUPPORT TO EMPOWER INNOVATORS

All three Prize winners use seaweed to create their plastic alternatives. This serendipitous connection point informed our design of the Accelerator programming and connected our work to the broader blue economy. The Accelerator offered a series of seminars that took place virtually between fall 2023 and spring 2024, convened by Lonely Whale and led by our network of subject matter experts. We targeted the specific needs of Prize winners with content focusing on relevant topics such as biomaterial innovation, policy and regulation, trends and responsible sourcing in the seaweed industry, and navigating corporate partnerships.

In addition to catalyzing the formation of industry relationships by leveraging the material evaluation commitments and resources of our Early Adopter Coalition, participants were also provided with engagement opportunities from within a vast global community. The Accelerator served as a catalyst for the transformative journey of its participants, offering access to mission-aligned advisors, subject matter experts, mentors, and potential investors,⁶ enriching the Prize winners’ knowledge base and fostering strategic partnerships essential for growth.

SEMINAR TOPICS AND INCLUDED SPEAKERS ARE OUTLINED IN THE APPENDIX.

⁶ Lonely Whale facilitated Prize winners connecting with a variety of stakeholders, including investors, but did not play any role in evaluating or negotiating any financial transactions.

“Seaweed can play a vital role in a sustainable and healthy ocean economy. By harnessing the power of seaweed to unlock innovation whilst also ensuring the health of marine ecosystems, the TOM FORD Plastic Innovation Prize winners are exemplary of what a future ocean-centric economy might look like. Lonely Whale has been pivotal in convening seaweed experts to help inform the Prize-winning startups’ paths toward scalable solutions and catalyzing further dialogue about the pathway for sustainable growth of the seaweed industry.”

Adrien Vincent
FOUNDER, SEAWEED FOR EUROPE AND ALBATROS ADVISORY,
SENIOR ADVISOR TO THE UN GLOBAL COMPACT’S GLOBAL
SEAWEED COALITION

GLOBAL PLATFORM FOR PRIZE-WINNING SOLUTIONS

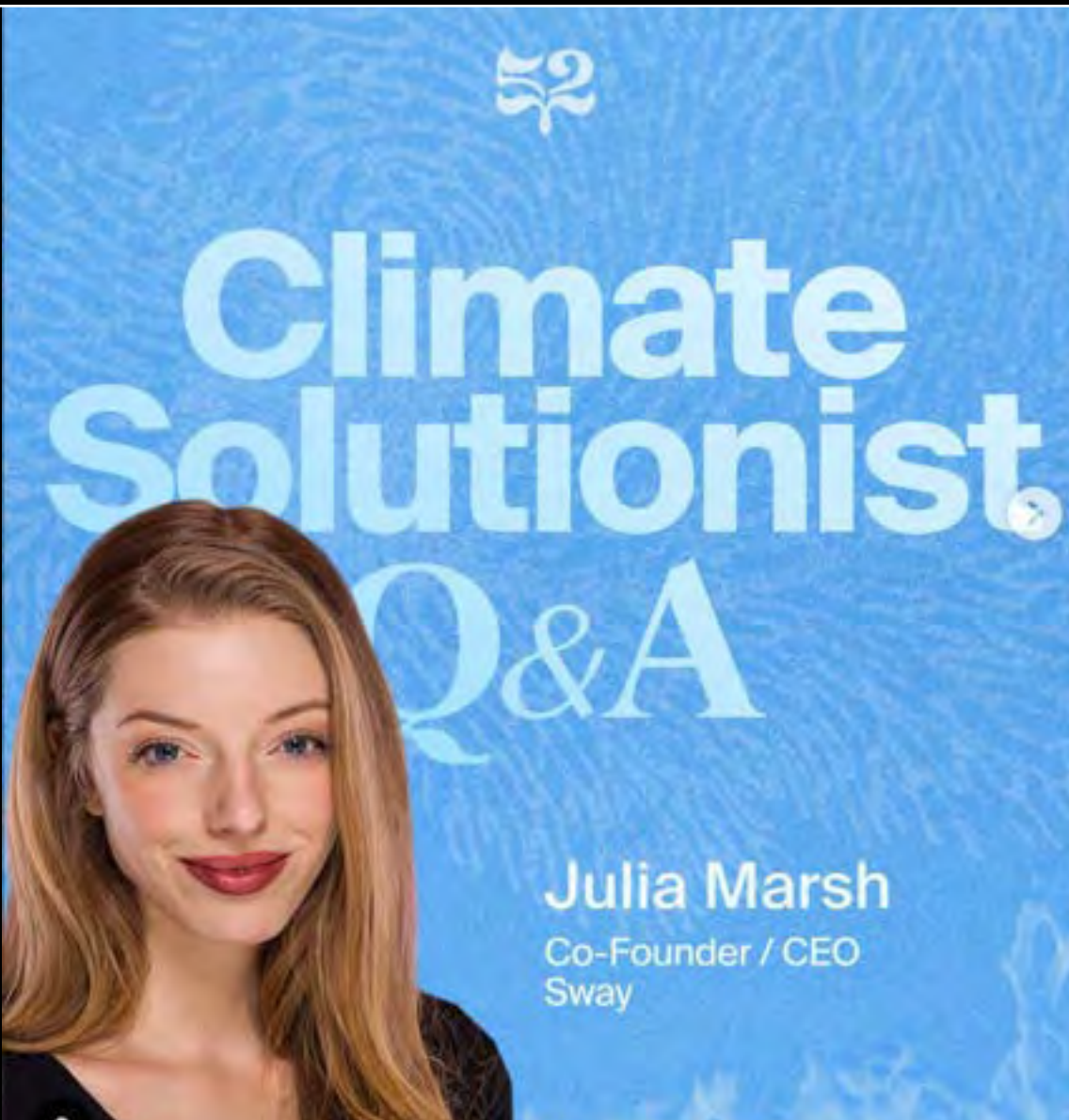
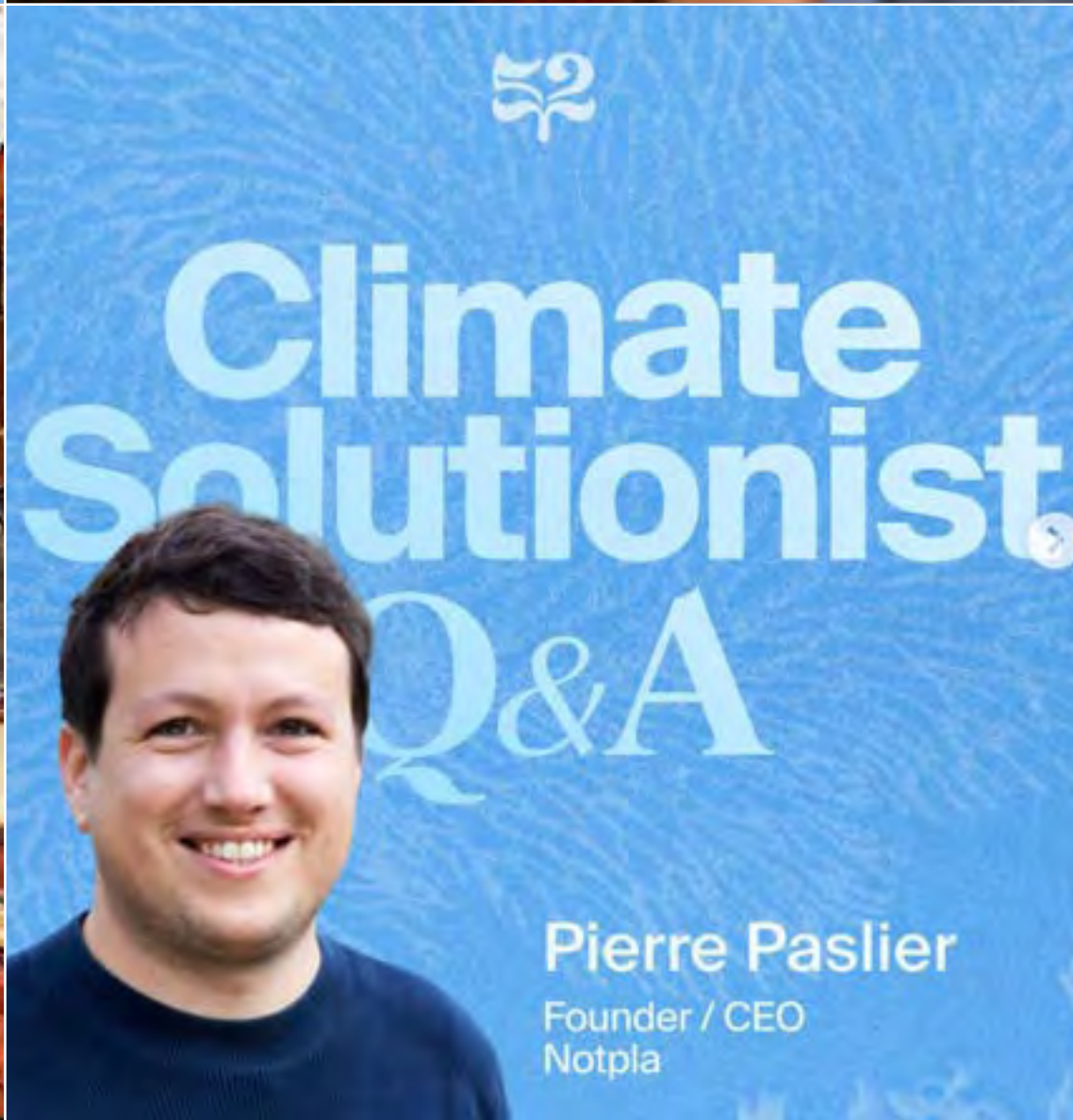


PHOTO CREDIT: ANTHONY MORENO



Running simultaneously with seminar programming and Early Adopter engagements, Lonely Whale led an integrated marketing campaign. The campaign raised awareness for Prize winners through content published across Lonely Whale’s digital media channels as well as those of its partners and Early Adopter brands, including TOM FORD BEAUTY, press coordinated by Lonely Whale, and bespoke events.

The program’s capstone showcase was hosted in partnership with The Economist Impact’s World Ocean Summit in Lisbon, Portugal. There, Prize winners presented their innovations on a global stage of 1,500 attendees, including leading United Nations officials and values-aligned investors. Engagement also included panel participation and a workshop on how to sustainably scale the seaweed supply chain.

To close the program, we convened a World Oceans Week salon on Seaweed Day, June 4th, at The Explorers Club and investor-focused breakfast on World Environment Day, June 5th, in New York City. The salon brought together a highly curated room of over 130 ocean health leaders and investors to spotlight Prize-winning solutions, and teams behind them, in an effort to rally further cross-sector conversations and advance adoption. The investor breakfast convened 75 guests for a panel discussion focused on the need to catalyze capital and collaboration to drive impact forward and featured program partner Trousdale Ventures and Early Adopter Burton.



RECOGNIZED AS WINNER OF THE 2024 SXSW INNOVATION AWARD IN THE CLIMATE CHANGE CATEGORY.

BRAND NETWORK FOR ADVANCING ADOPTION

Brand support is vital for expediting industry’s transition away from traditional plastics and ensuring innovators’ ability to cross the startup “valley of death.”⁷ This hurdle is particularly evident with biomaterial startups, which face additional challenges due to the longer lead times and capital expenditures required for product development and deployment, with significant corporate investment and R&D necessary to reach scale. Our engaged Early Adopter Coalition was designed to help bridge this gap.

Based on a survey of Early Adopters who moved forward with Prize winner pilots, all coalition members were motivated to better understand the capabilities of alternatives to traditional plastics and many were also interested in identifying specific companies that could be integrated into their supply chains. This information gap about which materials could potentially align with the needs of our Early Adopter brands further validated the Prize and Accelerator’s value in identifying and vetting potential alternatives to traditional thin-film plastic.

TOM FORD

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ATLANTIC

LE CLUB

BURTON

FLORENCE

ImperialDade

STELLA MCCARTNEY

NOAH⁺

MillerKnoll

VUORI

VERSION
TOMORROW

J.CREW

RACHEL
COMEY

VERONICA
BEARD

⁷ De Chant, T. (2024, April 27). *The ‘valley of death’ for climate lies between early-stage funding and scaling up.* TechCrunch. <https://techcrunch.com/2024/04/27/climate-startup-valley-of-death/>



“Packaging innovation has long been neglected but is critical for more sustainable supply chains. The TOM FORD Plastic Innovation Prize and Accelerator not only embraced this need for innovation but also convened a cohort of stakeholders that made thin-film packaging alternatives an exciting conversation for the general public. At Dell, we are proud to continue working with Prize-winning innovators, advancing their materials to help secure a future with cleaner seas.”

Oliver Campbell

DIRECTOR & DISTINGUISHED ENGINEER, DELL TECHNOLOGIES

HOW WE ENGAGED THE EARLY ADOPTER COALITION

Standing up collaborations between our Prize winners and companies in the Early Adopter Coalition involved a three-step process:

01 COMPANY LANDSCAPE ANALYSIS

We worked with each Early Adopter brand to understand their unique operational footprint and organizational context.

Our analysis included:

- Supply and value chain operations.
- Opportunity areas to reduce, replace or eliminate problematic plastics.
- Existing sustainability commitments and packaging targets.

02 MATCHMAKING & MUTUAL INTEREST ALIGNMENT WITH PRIZE WINNERS

We identified one or more Prize winners that might align with each Early Adopter Coalition member’s specific circumstances and then discussed with each Prize winner to confirm mutual alignment.

Our matchmaking review included:

- Prize winner product offerings in relation to current uses of thin-films in Early Adopter packaging.
- Procurement needs and co-location of supply chain.
- Innovator alignment with Early Adopter brand positioning and relevance to Early Adopter brand ESG commitments.

03 PILOT AND TRIAL FACILITATION

Finally, we identified the most opportune pathways for pilots or trials. While some Early Adopters had prior experience with pilots, others utilized this as an opportunity to develop such processes.

Our support was defined through three potential engagement pathways:

- Consumer-facing small-scale pilot conducted with a specific product, category, capsule, or in a specific region.
- Internal supply chain trial focused on testing Prize winner materials at one or more nodes across the supply chain, with a series of vetting steps prior to conducting the actual pilot.
- Internal value chain trials provided Prize winners access to manufacturers or suppliers within the value chain for traditional plastics who supply Coalition members with their packaging materials.

06

CASE STUDIES: IMPLEMENTING PRIZE WINNERS' SOLUTIONS

PHOTO CREDIT: FLORENCE

CASE STUDIES: IMPLEMENTING PRIZE WINNERS' SOLUTIONS

Collaborations between Prize winners and Early Adopter Coalition members are not only introducing foundational changes in packaging but also providing models for other brands to follow. The following case studies spotlight success stories from *Unwrap the Future*, with translatable lessons for other companies seeking to displace traditional thin-film plastic in their supply chains.



PHOTO CREDIT: SWAY



BURTON

CONSIDERING SEAWEED-BASED INNOVATIONS FOR SNOWBOARD PACKAGING

TESTING SEAWEED-BASED MATERIALS FOR HARD TO ABATE PLASTIC PACKAGING

Burton, the iconic snowboard brand and pioneer of the sport, has always been a leader both on and off the mountain through their progression of the sport, product innovation, and increasingly, sustainability. Nowhere was this more evident than in their [2025 sustainability goals](#), which set ambitious targets in the domains of both planet and people, targeting areas such as climate action and emissions reduction, sustainable materials and product circularity, and fair labor and responsible sourcing.

Their goals around plastic packaging, which target 100% plastic-free retail packaging, and 100% of retail packaging designed to be recycled or composted, were catalysts for them joining the Early Adopter Coalition. Their team, including Packaging Manager Mitch Rovito, have made amazing progress; [by 2022](#), 73% of their retail packaging was plastic free, and in 2023 they made major steps towards further reductions, particularly in softgoods.



SWAY TPSEA FLEX™ FILM TRIALS. PHOTO CREDIT: BURTON



SWAY TPSEA FLEX™ FILM TRIALS. PHOTO CREDIT: BURTON

ALTERNATIVE MATERIALS CAN POTENTIALLY PLAY A ROLE IN DIVERSE PACKAGING USE-CASES

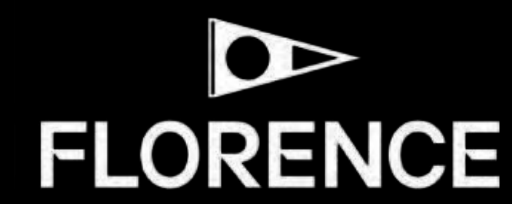
Joining the Early Adopter Coalition, Burton hoped to tackle the later stages of their transition away from single-use plastic packaging. Having already tackled apparel packaging, they were seeking solutions for harder to address areas. A priority was the plastic shrink film used to protect boards during shipping and at retail locations. Mitch and his team have been testing materials from both Sway and Zerocircle to evaluate their materials under the wide-ranging temperature and relative humidity conditions that they will see through the supply and delivery chains. As a potential bonus, attributes of these materials may allow for replacement of not just the plastic shrink film, but also the outer kraft paper protective sleeve. Testing with both companies continues in 2024.

OPEN-SOURCING INNOVATION TO SCALE ACROSS INDUSTRY

Burton’s commitment to resourcing R&D around sustainable packaging goes beyond their own products. There is a commitment to addressing problematic packaging, finding more sustainable solutions, and partnering with industry supply chains to “open source” novel solutions that can work for other outdoor sport producers. “When it comes to sustainable solutions driven by a desire to minimize our impact on the planet, the larger the scale the change can take on means the larger the impact we can see happen. A rising tide lifts all ships” says Rovito.

ESG GOALS CREATE SPACE, FOCUS ATTENTION, AND BUILD MOMENTUM

Burton’s ambitious environmental, social, and governance (ESG) goals were critical in driving alignment towards their progress to-date, and for creating latitude internally for further testing and exploration. Packaging is one of many elements that have to come together to bring a product to market, along with design, testing, production, marketing, and logistics, so having a set of clear objectives helped keep plastic part of the conversation. In the absence of national or global policy requiring a transition to new packaging materials, corporate ESG goals play a key role in driving this activity forward.



CHAMPIONING INNOVATION ON A GLOBAL STAGE

INSPIRING THE WORLD TO IMAGINE WHAT’S POSSIBLE

Olympian and world champion surfer John John Florence co-founded his eponymous brand, Florence, with the goal of crafting leading-edge apparel that transcended the boundaries of a typical “core” surf brand. With product R&D occurring on Hawaii’s iconic North Shore of Oahu and across John’s worldwide adventures, Florence crafts utilitarian equipment for sports and conditions beyond just surfing.

These ambitions require innovative products and materials to enhance not just performance, but also sustainability. Using recycled materials whenever possible, fluorocarbon-free DWR coatings, and minimal fabric waste patterning, among other sustainability initiatives, Florence is helping to make sustainability in the surf/outdoor industry the standard.

But polybags continued to be a challenge for the brand with few alternative options available. In 2021, Florence made a multi-faceted commitment to the Prize and Accelerator, with John joining as a Prize Judge to help select Prize winners and the brand joining the Early Adopter Coalition to add alternative packaging materials to their portfolio of sustainable innovations. Over the course of the Prize competition John and the Florence team dove deep into the solutions available and, in 2023, identified a solution.



SWAY FIRSTWAVE™ POLYBAG. PHOTO CREDIT: FLORENCE



LONELY WHALE



SWAY FIRSTWAVE™ POLYBAG. PHOTO CREDIT: FLORENCE

“THE WORLD IS WATCHING” MOMENTS ARE FERTILE GROUND TO INTRODUCE SUSTAINABLE INNOVATIONS

Led by Bruce Moore, Director of Innovation & Sustainability, Florence partnered with first place Prize winner Sway to utilize the company’s seaweed-based polybags for a limited release of John John Florence’s signature boardshort designed for the Paris 2024 Olympic Games. Florence’s approach was strategically opportunistic. Historically, the Olympics have been used as a vehicle for spotlighting global issues and driving engagement – this collaboration tapped into the global games’ influence to tell a meaningful, informative story that transcended the brand. Florence leaned in to not only leverage this opportunity to break through in a crowded attention landscape, but also to platform a critical environmental cause on a global stage.

CORE COMMUNITIES CAN LEAD ENGAGEMENT & EDUCATION

The collaboration went further – seeking to inspire their advocates and fans through education about Sway’s material. To do this, Florence, Sway, and Lonely Whale joined forces to identify a diverse community of champions to receive the product and packaging first, engaging them as extensions of the brand to help seed the story. From Oahu’s North Shore Lifeguards to Jack Johnson, the dynamic partnership between brand, packaging supplier, and nonprofit designed a network of messengers who were able to celebrate the collaboration to their audiences through culturally and contextually relevant content. This approach builds on Florence’s unique Test Pilot program, a novel approach to open-sourcing R&D with their community of elite water sports athletes.

J.CREW CHALLENGING CONVENTIONS TO TACKLE PLASTIC WASTE

IDENTIFYING NEXT-GENERATION MATERIALS FOR MODERN RETAIL

Since 1983, J.Crew has been dedicated to creating high-quality timeless clothes that people love and wear for years. They weave responsible practices into all areas of their business across three principles: Protect Our People, Care For Our Planet, and Lead With Integrity.

J.Crew’s recent collaborations showcase their commitment to sustainability. Earlier this year, they launched a partnership with SuperCircle to recycle old swimwear in any condition from any brand, and in 2023, launched their partnership with ThredUp, to take back and resell pre-loved pieces.

J.Crew also has ambitious long-term goals and aims to sustainably source 100% of its packaging and eliminate the use of virgin plastics by 2025. They already transitioned to 100% recycled content in their polybags and successfully transitioned most of its product lines to a paper-based polybag alternative. J.Crew has also deepened its engagement with sustainability initiatives like the TOM FORD Plastic Innovation Prize and Accelerator.

STARTING AT THE SOURCE

J.Crew joined the Early Adopter coalition after testing paper-based polybag alternatives in a few product categories. This solution worked for some categories, but revealed the need to further explore additional innovations.

The J.Crew team was paired with Sway during the Prize phase of the program, and continued their engagement with the first-place winning team into the Accelerator. The J.Crew team jumped right into addressing the key issue for any polybag replacement in their supply chain: exploring how it would perform in their distribution center. They tested Sway’s seaweed-based alternative packaging with a wide range of products, from denim to shoes, throughout the entire distribution center workflow. These trials included testing on various machinery in their distribution center, alongside general manual handling. This trial provided valuable insights, helping both Sway understand how their technology performed in a supply chain, and J.Crew plan the next steps in their polybag replacement journey.



SWAY TPSEA FLEX™ FILM TRIALS. PHOTO CREDIT: J.CREW



UNITING SEAWEED & SWIM



PHOTO CREDIT: SWAY



PHOTO CREDIT: LE CLUB

Le Club became the first swimwear brand to adopt seaweed packaging, a natural synergy that unlocked storytelling opportunities to cement their position as the first to move in their market. This collaboration, in partnership with [EcoEnclose](#) and using Sway's material as a unique product display window in a custom 100% recycled fiber box, debuted at the Swim Collective industry event in early 2024.

BRING COLLABORATION TO LIFE THROUGH MULTI-STAKEHOLDER ACTIVATIONS

Beyond showcasing their category-defining packaging innovations within their industry and to consumers via digital channels, Le Club took the initiative to deepen their commitment to the local Miami community, engaging with local partners in order to activate the general public in collective efforts to turn the tide on plastic pollution. In partnership with Lonely Whale, Clean Miami Beach, and Eden Roc Miami Beach, Le Club and Sway convened over 100 members of the community for a daylong activation intended to connect and showcase Le Club's commitment to deploying more responsible production practices. The day included presentations from participating nonprofits and a beach cleanup that helped Clean Miami Beach [pass 100,000 pounds](#) of ocean-bound plastic collected for disposal.

SETTING A NEW STANDARD FOR SWIM

Le Club, a Miami-based purveyor of swimwear and resort wear for men and boys, was already on the vanguard of [sustainability](#) when they were introduced to Sway via the TOM FORD Plastic Innovation Prize. Family-owned and operated, Le Club has integrated sustainable materials and ethical sourcing into all their product lines, and is on track to use 100% recycled or organic materials by 2025.

As a continuation of these efforts, Le Club, led by their VP Steven Lisman wanted to tackle not just their products, but the materials used to package them as well. Their commitment as an Early Adopter in the TOM FORD Plastic Innovation Prize and Accelerator was driven by past challenges with other thin-film alternatives that couldn't provide appropriate end-of-life certifications or that did not perform effectively for their brand.

DEFINE YOUR CATEGORY - CAPITALIZE ON OPPORTUNITIES TO BE A FIRST MOVER

Not only were Sway's materials a vetted alternative to traditional thin-film plastic through the Prize, Le Club recognized that the use of seaweed to produce their material created an additional opportunity for their brand to establish a leadership position in the swimwear category. By using Sway's material,



PHOTO CREDIT: LE CLUB



COLLABORATING AS NARRATIVE

LEVERAGING MISSION-ALIGNED COLLABORATIONS FOR GREATER IMPACT

“We are not a sustainable brand.” U.S. menswear brand Noah made this proclamation in 2018 not to downplay their environmental efforts, but instead to provide context to the overall challenges of being a sustainable clothing company. The brand continues to put its values on the line through both their products and issue-focused environmental advocacy, whether it be speaking out against offshore drilling in Alaska to issuing a laundry guide outlining how to reduce the impact of product care and avoiding microfibers during washing. Noah approaches sustainability first and foremost through the lens of quality and integrity, designing timeless pieces that last while also integrating materials such as recycled cotton, taking an active role in slowly working towards solutions.

The brand is acutely aware of the impact of plastics on our environment, even spotlighting the depressing intersection of plastics and hermit crabs for Earth Day 2024. And in 2017, they famously proclaimed that “our packaging sucks”, highlighting in a blog post the complex balance of minimizing the environmental impact of packaging while ensuring it actually does the job. Noah joined Lonely Whale’s Early Adopter Coalition as a continuation of this journey in refining their packaging sustainability.



PHOTO CREDIT: SWAY

GOING EXPONENTIAL: MULTI-PARTY COLLABORATIONS

Following the award of the TOM FORD Plastic Innovation Prize, Noah identified a collaboration opportunity with first place winner Sway to add depth for an upcoming capsule. The Noah team was gearing up to launch a limited-edition tee shirt in partnership with fishing brand Nation FC, and saw an opportunity to integrate Sway’s packaging into the narrative – simultaneously spotlighting their commitment to packaging sustainability and ongoing philanthropic commitment with sale proceeds benefiting Lonely Whale.

The idea was to create a values-aligned capsule collaboration that would resonate with their community of environmentally conscious consumers and fashion enthusiasts, serving as a platform to showcase Sway’s innovative seaweed-based packaging while also telling a compelling story. Rather than just a digital marketing maneuver, Noah unveiled their capsule with Nation FC, Sway, and Lonely Whale at the Noah Hideout in Amagansett, NY. The event featured the Sway packaged tee as an exclusive item, emphasizing the interconnectedness of the brands and garnering real-time feedback from customers who were able to interact with seaweed-based polybags.

This integrated approach went beyond a business partnership; adding a storytelling layer that underscores the importance of collaboration in driving meaningful change. By showcasing how multiple brands can come together to bring novel packaging materials to market, Noah’s initiative communicated to consumers and the public that supply chain change requires partnership.



PHOTO CREDIT: SWAY

LEVERAGING MANUFACTURING PARTNERS TO GET SOLUTIONS SUPPLY CHAIN-READY

Stella McCartney and her eponymous fashion brand scarcely need an introduction – particularly in regards to their commitment to refashioning a more sustainable fashion industry. From introducing vegan, plastic-free leather alternatives to championing biobased, plastic alternatives for eyewear, the brand has advanced myriad sustainable innovations. Serving as a testing ground for scaling up new solutions, Stella McCartney is helping to unleash its collective creative potential to reimagine the future of fashion.

Unsurprisingly, the brand has also set ambitious science-based commitments for its own footprint across a range of areas. This includes targets to use majority responsibly sourced materials in 100% of products, and reducing absolute Scope 3 greenhouse gas emissions by 46.2%, from a 2019 baseline. The brand has also aligned its efforts to curb use of virgin plastic with UN SDG 14.1, pledging to eliminate unnecessary and problematic plastics; use 100% reusable and recyclable plastics; and use at least 100% recycled content across all own-branded plastic packaging by 2025.

In order to further support the transition away from traditional plastics, and continue to center materials innovation as the foundation of their sustainability initiatives, founder Stella McCartney both joined as a Prize judge to help review and select winners, and also committed the brand to joining the Early Adopter Coalition.

ENGAGING VALUE CHAIN PARTNERS TO EXPAND CAPACITY FOR NEW MATERIALS

Resources for sustainability efforts, or in fact any aspect of business, are not limitless - there is always a pipeline of new products, initiatives, and campaigns that compete for attention and resources. Given the Stella McCartney brand’s position, they have a robust strategic program of new sustainable innovations that they are shepherding to market.

Navigating these constraints can be challenging, but close relationships with values-aligned suppliers can help unlock additional capacity. Working with Prize winner Notpla, the team at Stella McCartney engaged their Italy-based packaging supplier, Biesse, to work with Notpla directly to provide sample materials and conduct on-site product testing. The goal is to then integrate Notpla’s material, via Biesse’s manufacturing, into Stella McCartney’s product packaging.

Working with their supplier and replicating the existing product value chain, Stella McCartney was able to supplement their internal capacity while still staying at the forefront of material innovation.



VUORI CONNECTING CALIFORNIA TO THE SEA(WEED)

SEEKING NEW USES FOR SEAWEED MATERIALS

Inspired by the coastal California lifestyle, Vuori’s ‘Investment in Happiness’ philosophy defines their approach to business and life. Recognizing that a thriving planet is intimately linked with human flourishing and the enjoyment of the places from which Vuori draws inspiration, the brand seeks to embody these values for themselves at the organizational level and across the pillars of product, planet, and community.

Commitments include things like its Vuori Preferred Fibers program (low-carbon materials such as recycled polyester and organically grown cotton), a Code of Conduct for itself and its partners across sourcing and supply chain transparency, and Climate Neutral certification. Since 2019, the brand has offset 100% of their plastic footprint through its partner, CleanHub and are on track to collect over 261,000



pounds of plastic waste since 2021. In order to continue this journey around plastics and packaging, founder and CEO Joe Kudla both joined as a Prize Judge to help review and select winners, and also committed the brand to joining the Early Adopter Coalition.

At the time, Vuori was already on a journey to replace plastic polybags, and had already identified a paper-based alternative which it transitioned to in 2023. Although they had identified a solution, their involvement provided an opportunity to share their experience eliminating plastic polybags while also seeking additional solutions to consider for packaging sustainability.

FROM WASTE TO WONDER: TRIALING UNEXPECTED SOURCE MATERIALS

As an Early Adopter, Vuori was paired with Zerocircle during the Prize phase of the program to not only test and provide feedback on their thin-film product, but also to identify other ways to integrate their materials. Zerocircle’s seaweed-based paper, partly made from sargassum – widely known as a nuisance and waste material polluting coastal ecosystems – was of particular interest. Their paper offering has no synthetic binders, and is 100% wood-free, instead it makes use of the fibrous material generated from Zerocircle’s separate product offerings (including thin-films). This type of waste-to-value innovation can be critical for changing manufacturing economics. Vuori is currently evaluating a handful of different opportunities to integrate this material and potentially showcase a unique and unexpected way in which innovation helps drive brand sustainability forward.

07

THE PATH FORWARD

KEY TAKEAWAYS & CALL TO ACTION

Unwrap the Future's unique positioning generated insights for a diverse set of stakeholders, empowering the broader ecosystem with real-world examples of how to drive awareness of thin-film plastic and adoption of vetted alternatives.

Insights are framed for:

- Brand Leaders & Value Chain Partners
- Innovators
- Investors
- Policymakers & Advocates



BRAND LEADERS & VALUE CHAIN PARTNERS

EMBRACE RADICAL COLLABORATION

Think outside the box to forge new engagement models. External partners within your value chain (e.g., packaging suppliers) can supplement internal capacity for innovation testing and pilots while nonprofit partners, like Lonely Whale, can help ensure innovation is grounded in science and aligned with the goals of the broader environmental movement.

CHAMPION INNOVATION TO CUSTOMERS AND INDUSTRY

Catalyze awareness across your sector by showcasing collaborations with partners or customers. Brands with metrics-driven ESG goals, and who have undertaken clear actions to achieve them, have established the credibility to highlight early-stage collaborations and pathways for piloting new solutions. Additionally, when working with innovators, consider additional avenues that help advance industry adoption such as signing letters of intent, facilitating introductions to suppliers who may service other customers with similar needs, or initiating small-scale initial purchase orders.



INNOVATORS



ACCEPT THAT EVERYTHING TAKES LONGER THAN YOU THINK

Recognize upfront that the component pieces of success always take longer than expected, whether it be sales, R&D, or testing processes with prospective customers. One solution to navigating uncertain testing and sales cycles with corporate partners is additional upfront work to map piloting processes to establish clear timelines and expectations.

FOCUS RELENTLESSLY ON WHAT IS WORKING

Construct product roadmaps that enable you to prioritize areas where product market fit is succeeding while simultaneously maintaining your overall innovation portfolio. This is critical for hardware or deep-tech startups where feedback loops are understandably longer than for software startups. Continued calibration to ensure relevance with customers and end users can build momentum and, most importantly, demonstrate revenue for investors.

INVESTORS

ADVANCE ACCESS TO PATIENT CAPITAL

Embrace the longer timelines and unique investment methodologies required to scale innovations that address environmental challenges. Longer fund lifetimes, the use of blended finance, and novel financing instruments can help empower innovators, like our Prize winners, with the time and resources needed to achieve impact at scale.

EMBRACE SYSTEMIC INVESTING AND COLLABORATION

Utilize operational and thought partnerships with subject-specific stakeholders, like nonprofits, to inform landscape understanding and considerations for environmentally-related challenges, such as plastic pollution, and potential solutions. In particular, outside partners can help provide novel sources of due diligence or validation, such as the testing conducted as part of the TOM FORD Plastic Innovation Prize.



POLICYMAKERS & ADVOCATES



PHOTO CREDIT: ZEROCIRCLE

LONELY WHALE

EMBRACE DEEPER COLLABORATION WITH THE PRIVATE SECTOR

Seek out values-aligned companies who see both a moral imperative and economic opportunity in integrating environmental issues and considerations into their decision making processes. Advocacy organizations are uniquely positioned to convene corporate coalitions to advance solutions for specific environmental challenges, like traditional thin-film plastic, ensuring that corporations take vetted steps towards action while simultaneously sparking broader interest and engagement from industry.

IDENTIFY THE RIGHT USE CASES FOR BIOLOGICALLY DEGRADABLE MATERIALS

The reality is that transitioning away from traditional plastics will require an “all of the above” set of solutions. While reuse, redesign, and recycling are all critical pillars and, in many cases, preferable, there will be a space for single-use materials for the foreseeable future, particularly given the billions of dollars already invested in the traditional plastics manufacturing value chain. Policymakers can invite advice from external partners, like nonprofits and material innovators, to ensure new regulations are both grounded in the best available science and also anticipate the direction of future innovation. Novel, biologically degradable materials have a role to play in circular economy and extended producer responsibility (EPR) frameworks, as long as they are the right solution for the right use case.

WHAT COMES NEXT

The third and final phase of *Unwrap the Future* will focus on raising awareness about seaweed-based alternatives to traditional thin-film plastic. Anchored by a short documentary titled *Seaweed Stories*, narrated by Forest Whitaker and slated to premiere in fall 2024 following New York Climate Week, this phase will spark a dialogue about seaweed as a scalable solution to both mitigate the impacts of climate change and create bio-based alternatives for traditional plastics. We will leverage the film as a tool to convene community in conversation through a series of public screenings across the United States and the United Kingdom and also with our network of Early Adopter Coalition and like-minded brands.

Lasting impact requires continued commitment. After the conclusion of *Unwrap the Future*, Lonely Whale will continue to support Prize winners as they scale their thin-film plastic alternatives. We need a global network of allies in order to measurably displace traditional thin-film plastic. Lonely Whale invites all stakeholders to join us and help to *Unwrap the Future*.

JOIN THE MOVEMENT
unwrapthefuture.org



PHOTO CREDIT: "SEAWEED STORIES" COURTESY OF LONELY WHALE FEATURING JULIA MARSH, SWAY



08

APPENDIX

ABOUT LONELY WHALE



Lonely Whale is an award-winning non-profit whose mission ensures plastic waste does not find its way into the ocean. Founded in 2015 by Adrian Grenier and Lucy Sumner, Lonely Whale has spearheaded impactful global movements to raise awareness and offer alternatives to problematic plastics, convened a consortium of multi-national brands to create the first global network of ocean bound plastic supply chains, and supported the global youth movement with the tools and network needed to advance their efforts.

Lonely Whale is fiscally sponsored by Re:wild, an organization established by a group of renowned conservation scientists and Leonardo DiCaprio to protect and restore the wild – the most effective solution to the interconnected climate, biodiversity and human health crises.

LONELY  WHALE

To learn more and support, visit lonelywhale.org or follow [@LonelyWhale](https://twitter.com/LonelyWhale).

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GLOSSARY

BIO-BASED

Materials derived from natural sources such as wood, food waste, etc. This is in contrast to traditional fossil fuel-based plastics.

**BIOLOGICALLY
DEGRADABLE**

Defined as materials that will break down and degrade when placed in a variety of contexts at the end of their useful life, such as a landfill, in soil, in the ocean, and in compost, and without producing toxic byproducts or microplastics as they degrade. This term is differentiated from the more common term “biodegradable,” which, except when defining an ASTM laboratory method, has been misused to the point of causing consumer and regulatory confusion with how a product will degrade in the environment.

BIOMATERIALS

Another term for bio-based materials.

COMPOSTABLE

Materials that will break down under the idealized conditions found in industrial or home composting within a specified period of time. Composting conditions include the presence of oxygen, high temperatures, and an elevated presence of microorganisms to accelerate the degradation process.

DROP-IN REPLACEMENT

An alternative that can easily and quickly be integrated into existing manufacturing and logistics operations, without the need for significant changes or retooling.

END-OF-LIFE

The term end-of-life refers to how a material behaves in our environment once its active use (“service life”) is over. Materials like traditional plastics can persist in the environment for hundreds if not thousands of years once they are discarded and their useful life is over.

MICROPLASTICS

Small pieces of fossil fuel or biofuel-based plastics less than five millimeters long which can be harmful to our ocean, aquatic life, and human health. They are produced as these traditional plastic materials degrade in our environment. Microplastics can be harmful through a variety of ways, such as the chemical toxicity of added chemicals, or the plastics themselves can be harmful, particularly as they break down into even smaller pieces (called nanoplastics) that can even enter human cells.

GLOSSARY

POLYMER	Large molecules made by bonding (chemically linking) a series of smaller chemical building blocks (known as monomers). The way in which monomers are linked together determines how a polymer behaves.
SCALABLE	A scalable material is one that is adequately positioned to increase both production and adoption within a reasonable period of time. There are a number of components of scalability: the technological underpinnings of the material, the capabilities of the company developing the material, access to capital, the policy landscape, etc.
THIN-FILM PLASTIC	A type of very thin plastic that is generally made from the base material low-density polyethylene. Because of its characteristics (small mass, flexibility, simplistic chemical structure), thin-film plastic has almost no value in the recycling marketplace, and can in fact hinder the recycling process by jamming recycling machinery.

PRIZE TEST METHODS

COMPREHENSIVE END-OF-LIFE ANALYSIS AND TECHNICAL REVIEW

TEST METHOD

PURPOSE

RESPIROMETRY - SOIL INOCULUM

ANALYSIS OF THE DEGRADATION OF MATERIALS OVER TIME UNDER CONTROLLED AEROBIC CONDITIONS, SPECIFICALLY THE RATE AT WHICH MICROORGANISMS CONVERT THE MATERIAL’S CARBON INTO CARBON DIOXIDE. THIS IS THE STANDARD TEST MEASURE FOR ANALYZING THE “BIODEGRADABILITY” OF PLASTIC MATERIALS. NOTE THAT THE CONDITIONS ARE DESIGNED TO MIRROR THE NATURAL ENVIRONMENT, RATHER THAN THE IDEALIZED CONDITIONS FOUND IN COMPOSTING SYSTEMS (HIGH TEMPERATURES AND ELEVATED MICROBIAL ACTIVITY).

RESPIROMETRY - SEAWATER INOCULUM

ANALYSIS OF THE DEGRADATION OF MATERIALS OVER TIME UNDER CONTROLLED, LABORATORY-SIMULATED CONDITIONS IN SEAWATER. AGAIN, THIS IS A STANDARD TEST MEASURE USED TO ANALYZE THE DEGRADATION OF PLASTIC MATERIALS.

DISINTEGRATION PHOTOGRAPHY

VISUAL ANALYSIS OF DEGRADATION OVER THE COURSE OF OCEAN EXPOSURE. THE PRIMARY PURPOSE IS TO PROVIDE SECONDARY DATA THAT CAN CONFIRM DATA DERIVED FROM OTHER TEST METHODS.

RAMAN MICROSCOPY & SPECTRAL ANALYSIS - FIELD TESTING

ANALYSIS OF DEGRADATION OF MICROSCOPIC PARTICLES DURING OCEAN EXPOSURE, TO PROVIDE FURTHER CONFIRMATION AS TO THE DEGRADATION OF THE MATERIALS IN SEAWATER.

RAMAN MICROSCOPY & SPECTRAL ANALYSIS - LABORATORY TESTING

ANALYSIS OF MICROPARTICLES REMAINING AFTER RESPIROMETRY, TESTING FOR THE PRESENCE OF MICROPLASTICS.

GERMINATION

TESTING FOR SOIL TOXICITY USING THE SOIL REMAINING AFTER RESPIROMETRY.

GRAY WHALE GUT SIMULATION

EVALUATING IMPACTS ON MARINE LIFE FROM SIMULATED MATERIAL INGESTION.

TENSILE PROPERTIES

EVALUATION OF STRENGTH AND FLEXIBILITY TO UNDERSTAND HOW THE MATERIAL WILL PERFORM DURING USE AND UNDER STRAIN.

WATER VAPOR TRANSMISSION RATE

ANALYSIS OF WATER BARRIER PROPERTIES OF MATERIALS TO DETERMINE THE PROTECTIVE PROPERTIES OF THE MATERIAL.

Note: Most testing was conducted between April and December 2022. The Raman Microscopy & Spectral Analysis and Germination Tests were conducted in January 2023; the Tensile Properties and Water Vapor Transmission Rate Tests were conducted in fall 2022.

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LESSONS FROM SUCCESS: BIOMATERIALS

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