

# WWF Seaweed Solution Project **SOCIAL LICENSE TO OPERATE WORKSHOP REPORT**

Portland, Maine | April 25 — 26, 2022



Kelp is a nutritious food source that does not require land, freshwater, fertilizer, or pesticides to produce. Farming kelp improves the water in which it is grown by taking up excess nutrients and mitigating local ocean acidification. Farms provide habitat for fish and invertebrates while simultaneously sequestering carbon in sediments.

This growing industry can provide new economic opportunities in coastal communities that benefit from diversified livelihoods. Markets are expanding for seaweed-based alternatives, such as livestock feed and packaging materials, which can replace more carbon intensive products.

World Wildlife Fund supports the growth of the seaweed industry for all the benefits it offers. We seek to reduce barriers and advance the dialogue on farming in coastal communities, particularly in the Eastern Pacific and North Atlantic Rim where seaweed farming is underdeveloped and yet holds great production potential and proximity to markets.

WWF will use insights generated through the collaborative work that took place at this workshop to help inform our strategy on how best to deploy resources to improve the pathway for farms to operate in community waters.

Sincerely,



Bailey Moritz



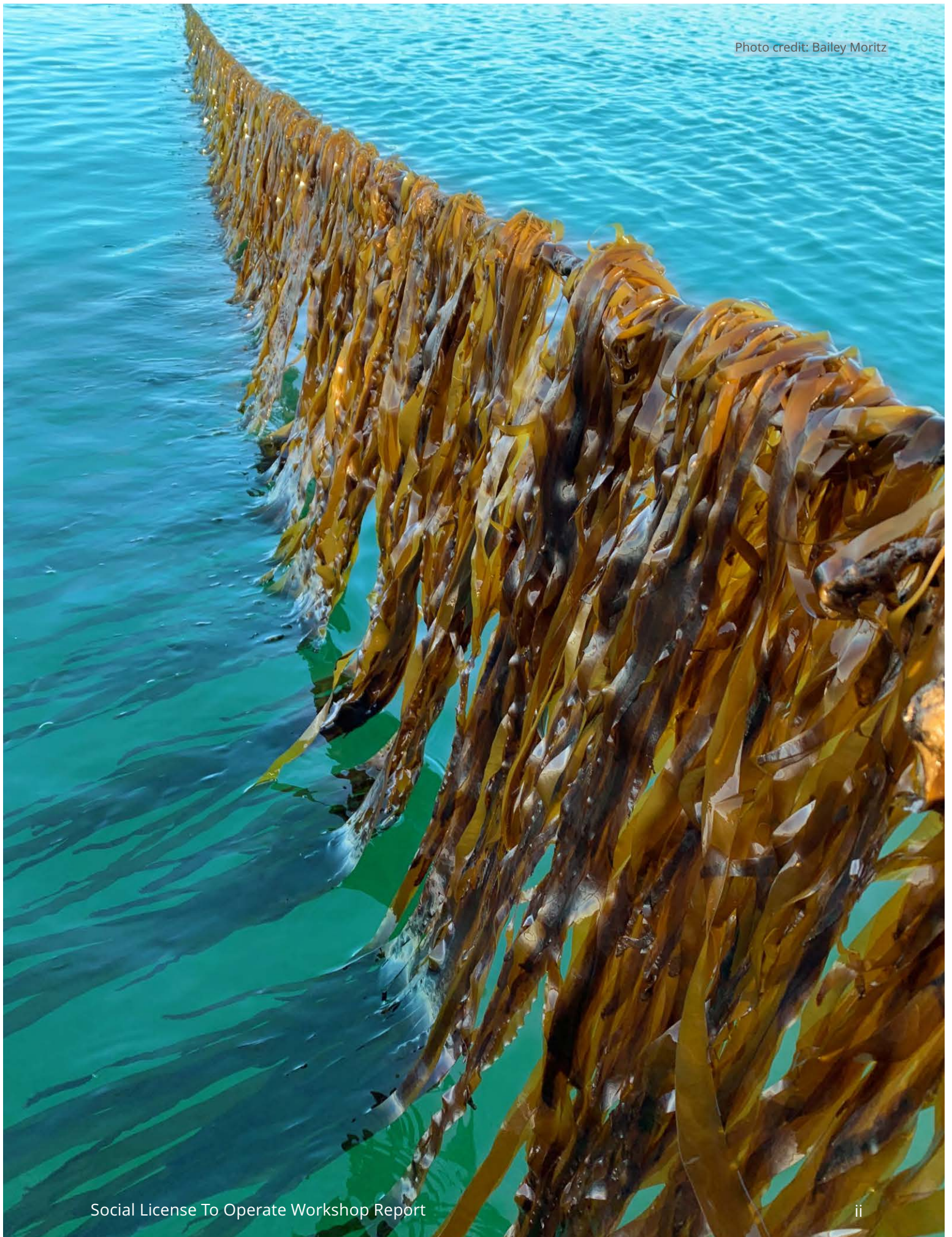
Paul Dobbins

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# WORKSHOP PURPOSE

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Climate change, food security and coastal community resilience are priority areas of focus for the WWF-US Aquaculture Program. The “Seaweed Solution” project—the central focus of this workshop—is a collaboration of WWF grantees, partner organizations, and farmers working together to advance seaweed farming for climate change and societal gains in multiple geographic areas of the Eastern Pacific and North Atlantic Rim, underdeveloped regions which show great promise for seaweed production. However, achieving social license to operate presents a key barrier to growth of this industry in coastal waters. Viewed in the context of this project, social license is the willingness for the public to accept seaweed farming as an industry and allow more farms to operate in the commons. It includes public perceptions as well as the health of relationships with community stakeholders, built on trust and communication.

Portland, Maine, the site chosen to host the workshop, is home to the first commercial seaweed farms in the United States. At the same time, the waters surrounding this region are experiencing a range of climate change impacts, including rising sea surface temperatures, species migration and the associated effects of these ecosystem changes on nearby coastal communities. The site therefore provided an ideal venue to bring together Seaweed Solution grantees, farmers and WWF-US staff to discuss ways to achieve social license to operate and responsibly expand seaweed production. Moreover, while seaweed farming is the focus of WWF's current project, shellfish farming faces a very similar array of conditions regarding social license, and therefore this sector was also integrated into the workshop discussion.

Overall goals of the Social License to Operate Workshop included the following:

- Exchange experiences and explore social license issues, challenges and opportunities ahead for Seaweed Solution partners
- Link the needs, vision and richness of grantee stories to enabling support from the WWF communications team
- Share and discuss project needs and strategic insights, and help inform how best to deploy future funds
- Establish a “Community of Practice” to identify and solve challenges, formulate best practices, and transfer knowledge and lessons learned among peers

This summary document presents an overview of science presentations used to frame the event, detailed outcomes of multiple small breakout sessions, and participant views on knowledge sharing, key workshop takeaways and potential next steps. **The summary is intentionally crafted in an informal manner. It is primarily for use as a reference document by individuals who attended the two-day event.** Information below reflects the direct outputs, oftentimes written verbatim, from breakout sessions, rapid brainstorming exercises, and full group discussion as the workshop came to a conclusion.

# DEFINING SOCIAL LICENSE IN THE SEAWEED REALM

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Attendees were asked upon arrival to respond to two key questions: 1) What does obtaining social license mean to you? 2) What else can we call social license? Individuals used markers and half sheets of paper to place responses on a “blue sticky wall” near the meeting room entrance. This allowed everyone to contribute ideas and see the emerging set of responses as participants gathered and the workshop got underway.

## WHAT DOES OBTAINING SOCIAL LICENSE MEAN TO YOU?

- Consultation
- Acceptance
- Support
- Legitimacy
- Harmony in/with communities
- Relationship-building
- Active community support
- Wider public is aware of seaweed's benefits
- Obtain but also sustain—equally important as social license in not a one-time pass
- Community(s) near my farm considers it their local farm (i.e., sense of connection, community support)
- Community engagement
- Community understanding
- Community acceptance and support
- Getting buy-in
- Farmers do not have to fight so hard to get a new farm
- Similar to corporate social responsibility—ask what can be done to gain community permission
- After understanding environmental and economic impacts, we want this
- The wider public *wants* more farms
- Organic coordination with certifiers that build social license
- Permission by the communities where a farm operates

## WHAT ELSE CAN WE CALL SOCIAL LICENSE?

- Customer engagement
- Good neighbor policy
- Understanding and meeting people's needs
- Inclusive decision-making
- Farm-community integration
- Consent
- Social acceptance





# PRESENTATION SYNOPSSES

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Several social and hard science presentations—emanating from projects with WWF funding support—helped frame the current and emerging issues, challenges, and opportunities which participants would discuss throughout the workshop.

## THE MESSAGE MATTERS: HOW TO GET COMMUNITY SUPPORT FOR SUSTAINABLE SEAWEED FARMS

Kimberly Thompson, Aquarium of the Pacific (AOP), presented on results from a series of aquaculture message tests designed to support more effective outreach to address public perception challenges that can affect the growth and development of marine aquaculture in the United States. In collaboration with researchers from the University of Massachusetts, Boston and University of Southern California, AOP synthesized results with an emphasis on responses specific to seaweed aquaculture. Kimberly reviewed message testing methodology, study outputs, and strategies for engaging specific stakeholder groups and the wider public with the objective of obtaining social license. A synthesis of message testing results revealed:

- Baseline attitudes about aquaculture correlate with prior familiarity (not race, age, education, geography)
- Opinions about aquaculture are malleable
- Messages of aquaculture's environmental benefits rank highest (in the context of potential support for the act of seaweed farming)
- Scientists, aquariums, and seafood farmers are the most trusted messengers
- Messages are not likely to be effective with other ocean users who oppose a project due to real or perceived conflicts
- Strategic messaging and outreach can help garner broader public support and reduce successful recruitment by opponents using misinformation

AOP submitted a paper for peer review which summarizes results of its messaging study. The next stage of work will focus on development of an aquaculture messaging framework for use by educators at aquariums and science institutions throughout the nation.

## DISPATCHES FROM THE STATE OF AQUACULTURE SCIENCE

Additional presenters shared “dispatches” on the current state of the science around seaweed farming. Each showcased a unique area of emerging research, referenced additional research needs, and demonstrated how this work underpins efforts to obtain social license for seaweed.

### *Water Chemistry and Benthic Changes*

Dr. Nichole Price, Bigelow Laboratory for Ocean Sciences, shared kelp farming impacts to surrounding water column chemistry both inside and outside a farm. Carbon uptake and deacidification occurred at a higher rate inside of the observed farm. This creates a “halo” of remediated water quality around the farm, the size of which is influenced by factors such as tide, current, light intensity, and maturity of the farm. Mussels grown inside the kelp farm developed denser, thicker shells, which can improve marketability. Similar studies are still needed at other



farms to reproduce and further validate results. Separately, the Bigelow laboratory is utilizing environmental DNA (eDNA), forensics, and a quantitative polymerase chain reaction (PCR) tool to predict the amount of carbon in sediments captured by specific seaweed species. Results from Bigelow's studies have been submitted to peer reviewed journals for publication.

### ***Carbon Credit***

Josh Boyce, Oceans 2050, shared information about the Oceans 2050 Seaweed Carbon Farming Project. Seaweed cultivation is gaining momentum as a potentially scalable nature-based solution to carbon dioxide removal. This project looked at 20 farms in 12 countries to determine if sequestration is taking place and, if so, at what rate. Results demonstrate significant variability between farms from 1 to 10 tons per hectare. Variability is expected because farms have not as yet been designed to sequester carbon. Oceans 2050 is utilizing initial study results as a scientific foundation to support development of a new voluntary carbon protocol for seaweed aquaculture. Effectively categorizing seaweed as a public good will allow farmers, for the first time ever, to monetize the carbon impact of their activities.

### ***Marine Mammal Friendly Aquaculture Gear***

Michael Chambers, University of New Hampshire, shared a proposed method for reducing the risk of marine mammal entanglement in aquaculture structures by replacing rope with semi-rigid fiberglass lines. Rope typically used for fishing gear, aquaculture gear or other moorings can pose an entanglement risk to large whales. Fiberglass rebar shows promise for replacing traditional rope. It is mass-produced at large scale and low cost, has useful semi-rigid properties, and allows for easier and more reliable kelp seeding. Several new “termination techniques” have been developed, tested, and proven capable of high tensile loading. Moreover, a pilot-scale kelp farm in Saco Bay, Maine, made primarily from fiberglass rebar, successfully grew sugar kelp.

### ***Strain Selection and Lessons Learned***

Scott Lindell, Woods Hole Oceanographic Institution, conducts research on selective breeding of kelp for animal and human food supplies. A three year Gulf of Maine study demonstrates that farms which utilize selective breeding yield more than two times the commercial average. Agency regulators are currently assessing the risks associated with selective breeding (e.g., biosecurity, non-native organism introductions, and farm/wild interbreeding and potential change of diversity or fitness). Risk avoidance may include use of gametophytes (“seed”) cultured in sterilized seawater, regional strains based on best available population genetics, and development of reproductive, siting, and harvest strategies that separate farm from wild species. Future research will focus on developing strains that maintain reproductive isolation and should continue a genetic monitoring program for wild strains.



Photo credit: Yoon S. Byun, WWF-US







# GROUP WORK OUTPUTS

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At the request and with support of the WWF workshop planning team, Seatone Consulting—a neutral, third-party facilitation team—conducted a pre-workshop survey with Seaweed Solution grantees and other prospective workshop attendees. The survey explored key issues related to social license to operate, including, among others, early progress on grant-funded projects, communication needs (internal and external), and any lessons learned to date. Survey results were utilized to inform the workshop goals and topical areas of focus for group collaboration. Following the series of science presentations at the outset of the workshop, attendees spent the majority of time together engaged in small breakout sessions. At the start of each session, individuals read select survey results as a first step to stimulate group discussion. Over the course of two days, sessions focused on three core topics, including:

- Building a Community of Practice
- Challenges, Contributing Factors, and Prospective Solutions
- Communication and Outreach

Given the large number of anticipated workshop attendees, the Seatone facilitation team trained WWF staff to provide facilitative leadership at each individual breakout session. Facilitative leaders utilized instructions provided for each breakout, as well as associated note-taking worksheets, to enable collaborative engagement in small group settings throughout the course of the workshop. The sections below describe the outputs of this group work.

## ***Building a Community of Practice***

During the first breakout session, participants organized into five small groups to explore the Community of Practice<sup>1</sup> (COP) concept. A core question drove initial dialogue: what attributes make, drive, and grow a COP around the Seaweed Solution? The facilitation team explained that, in the context of this project, this concept could generally mean people with shared interests around seaweed, facing a big challenge, each taking a unique approach to problem-solving, but connected and working together.

The following themes and associated attributes emerged during this opening session:

### **SHARED INTEREST / JOINT ENTERPRISE**

- Clear focus on a shared problem of practice—define the domain
- Common cause/issue that is both locally and regionally or globally relevant
- Demonstrable value to community(s)
- Shared financial interest—not necessarily equal distribution, rather, appropriate distribution
- Coordinated activities

<sup>1</sup> Cognitive anthropologists Jean Lave and Etienne Wenger coined the term “Community of Practice” when studying apprenticeships as a learning model. The term refers to a community that acts as a living curriculum.



Photo credit: Rich Wilson, Seatone Consulting



Photo credit: Rich Wilson, Seatone Consulting





## SHARED COMPETENCE

- Appropriate mix of partners, inclusive of diverse voices
- Sharing of best practices, successes and failures, case studies, and data
- Leadership and influence to convene group work
- Commitment to active learning
- Leveraging collective expertise, experience, and resources in support of a common goal
- Institutional and individual development around ideas

## SHARED COMMITMENT AND MUTUAL ENGAGEMENT

- Regular and sustained communication
- Mutual respect and reciprocal support for one another
- Collective ownership of work products, messaging, and engagement efforts
- Sufficient commitment to support implementation
- Accountability
- Foster trust, openness, curiosity, empathy
- Transparency of information sharing

## SUPPORT TOOLS

- Opportunities for *meaningful* connections and *safe* dialogue
- The convening power of WWF
- Shared online platform for collaborative engagement, information sharing and a clearinghouse for available resources
- Listserv or mailings that publicize events, opportunities, and emergent research
- Slack or chat platform, matching/mentoring members

## ADDITIONAL CONSIDERATIONS

- Ensure requests for participation are not demanding or overly burdensome
- Conduct high level outreach and local level communications
- Create a COP that is adaptive
- Consider timing of meetings/gatherings with respect to member schedule restrictions (e.g., fishing seasons, academic calendars)
- Stay grounded in science

## ***Challenges, Contributing Factors and Prospective Solutions***

During session 2, previously established breakout groups gathered to a) discuss and identify challenges related to obtaining social license to operate seaweed farms, and b) suggest factors that contribute to each challenge. Once each small group provided a report back of its discussion for full group consideration, the following challenge themes emerged:

- a. Tailoring the message to the audience/addressing fear of change or fear of the unknown
- b. Capacity limitations of farmers
- c. Bad actions (unintentional and intentional) and not-in-my-backyard (i.e., NIMBYism)
- d. Stakeholder fatigue
- e. Navigating permitting processes

The facilitation team utilized these themes to reorganize the small breakout groups into session 3. Participants then self-selected and chose a theme important to them. All small groups were tasked to brainstorm prospective ideas and solutions that address the core challenge(s) identified. Time permitting, each group also identified resource needs (e.g., human, technical, financial, other) and who needs to be involved to get work moving.





## CORE ISSUE

## TAILORING THE MESSAGE TO THE AUDIENCE / ADDRESSING FEAR OF CHANGE OR FEAR OF THE UNKNOWN

### *Challenges and Contributing Factors*

**Challenge:** Lack of clear definition and applied parameters around the “social license” concept (e.g., social license for kelp biofuel operations, for a farmer, or for something else?)

#### **Contributing factors**

- No central definition of social license
- Acceptability and permission are not the same
- Accidental/unintentional “elitist” connotation with use of the term “obtaining social license”—a foreign concept for most

**Challenge:** Developing a consistent and tailored message, and then reliably getting the right messages to the right audiences

#### **Contributing factors**

- No central repository of information or communications exists—resources to get the word out to communities
- No platform for exchange of basic facts results in inefficient knowledge transfer
- Lack of resources to build a repository
- Lack of public awareness about the potential of farmed seaweed
- Current messaging is often not clear or relatable at the community level
- People want or need *information*, not data
- Not clear how data can be used to make meaningful decisions

**Challenge:** Some who might support seaweed farming are reticent to actively express support out of fear they will upset neighbors

#### **Contributing factors**

- Not enough people familiar with the practice of aquaculture
- Fear of being the first to express support—“going out on a limb and being cut down”

### *Prospective Ideas and Solutions*

**Prospect:** Create the “The Hub of Hubs” online to facilitate coordination, information sharing and capacity building

#### **Key considerations**

- Implement a training program and/or centralized resource hub
- Create opportunities to convene persons in the field
- Utilize existing resources, certification systems etc. to maximize resources and avoid unnecessary duplication
  - ▶ Compile existing resources (e.g., [The Seaweed Hub](#))
  - ▶ Identify compiled resource gaps
  - ▶ Identify entry points for those outside the “echo chamber” of seaweed—link the online hub to other sites such as the USDA Organic website
  - ▶ Use the hub to make the science readily available and easier to distribute
  - ▶ Bring a centralized set of resources to communities
  - ▶ Find a trusted partner to host the hub

### **Resource needs**

- Money
- Awareness
- An influence map

### **Who needs to be involved**

- Environmental organizations (eNGOs)
  - Industry associations
  - Investment capital
  - Scientists, carefully and intentionally engaged, who keep in mind fatigue within the research community as seaweed farming takes off in interest
  - Career government staff versus elected officials—experienced professionals who work in planning and economic development
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**Prospect:** Develop seaweed aquaculture curriculum for high schools, secondary schools and community colleges

### **Key considerations**

- Broadly integrate science-based information into existing learning curriculum and approaches
- Present at schools if you work on seaweed, do not just put the onus just on teachers
- Develop information that can be adapted state-to-state
- Support future workforce development through education

### **Resource needs**

- Integrate existing resources into the “Hub of Hubs”

### **Who needs to be involved**

- Algae Technology Education Consortium
  - The Algae Foundation
- 

**Prospect:** Reframe seaweed/aquaculture as a solution to an existing change or challenge in a community (e.g., declining fish stocks), rather than just another change

### **Key considerations**

- Refer to pertinent challenges facing particular communities when working to tailor communication strategies, especially changes already happening that people are worried about
  - Help people understand how to identify and focus on mutual benefits regarding issues they care about
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**Prospect:** Identify trusted messengers that can champion the message

### **Key considerations**

- See discussion outputs below from Session 4, *Communications and Outreach*





## CORE ISSUE CAPACITY LIMITATIONS OF FARMERS

### *Challenges and Contributing Factors*

**Challenge:** Farmers lack human, financial and other resources to complete all the work needed to obtain social license.

#### **Contributing factors**

- The “seaweed solution” is not yet highly prioritized by those with authority who make funding and resource allocation decisions.
- Inadequate compensation contributes to high turnover rates among field staff.
- Individual, small-scale farms often focus limited resources on growing product, and thus cannot invest resources in obtaining social license to operate. Conversely, small business is the backbone of society. This also ties to the value of ecosystem services.
- Juxtaposition: For a farm to expand to meet market demand, it must convince investors that operations can be scaled up. At the same time, the local community must be assured that expansion will be done in an environmentally sustainable manner.

**Challenge:** Large companies understand communication needs, whereas small companies do not until they need to

#### **Contributing factors**

- Newer companies and farms have generally not experienced as many difficult situations that they learn from and can apply to communication needs proactively

### *Prospective Ideas and Solutions*

**Prospect:** Establish demonstration farms

#### **Key considerations**

- Demonstration farms can:
  - ▶ Serve as a platform to teach entrepreneurs, students, investors, and community members while simultaneously playing a critical role by relieving pressure from commercial farmers
  - ▶ Offer collective benefits if shared by numerous local operators
  - ▶ Be very expensive and a risk rather than an asset

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**Prospect:** Provide various types of training for farmers

#### **Key considerations**

- Offer communications trainings to farmers and associations
- Ensure best practices for gear handling are taken into account by both new and longstanding farmers
- Provide trainings on how to navigate the permitting/regulatory process

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**Prospect:** Increase capacity of regulatory community to support farmers

#### **Key considerations**

- Help guide applicants through the required application steps



- Increase agency staff to support faster processing of permit applications
- Increase and improve coordination between regulatory agencies
- Identify internal advocates in the government sector

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**Prospect:** Increase trust, communication and coordination between farmers and the regulatory community

**Key considerations**

- Support regular knowledge exchange between farming and regulatory communities
- Take different parties on farm/boat tours together to build trust
- Be sensitive to conflicts of interest

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**Prospect:** Establish occupational standards and workforce pipeline

**Key considerations**

- Create entry-level seaweed positions through community colleges, apprenticeship programs and philanthropy
- Include the importance of social license in occupational standards
- Support student engagement in the industry through various pathways—public policy, communications, research, non-profit work and farming
- Encourage job rotation between the private sector, NGOs and the regulatory community
- Assemble a delegation of workforce recruiters who operate globally

Photo credit: Jeff Siebert, WWF-US



## CORE ISSUE ➤ BAD ACTIONS (UNINTENTIONAL AND INTENTIONAL) AND NIMBY-ISM

### *Challenges and Contributing Factors*

**Challenge:** “Not in my backyard” (NIMBY-ism)

#### **Contributing factors**

- Gentrification of coastal communities
- Perception by wealthy coastal homeowners that seaweed aquaculture simply obstructs their ocean view
- Human nature—some people generally resistant to change
- Class conflict between working water fronts and wealthy land/homeowners
- Economically depressed versus economically affluent areas
- Community demographics and politics at odds even within communities—influx and outflux of residents can influence a community's collective position on aquaculture
- Lack of big picture perspective (e.g., global food security issues versus a farm in front of my home or lease where I fish)

**Challenge:** Tendency to use the precautionary principle combined with an unwillingness to try something new

#### **Contributing factors**

- Lack of data, or data may not be specific or locally relevant
  - ▶ Catch 22: some data unobtainable because regulators may not permit seaweed farms, citing lack of data
  - ▶ Data is needed to support moving away from risk-based management
- Lack of trust between regulatory agencies, fishermen, community and industry
- Conservative influence on regulators
- Lack of direct lines of communication between permitting agencies and farm owners leads to communication breakdown
- Clash of mandates/value systems—regulators with different or competing priorities than farmers (e.g., protecting XYZ species above economic resilience, water quality)
- Limited understanding of the benefits of aquaculture
- Lack of back and forth dialogue between farm operators/applicants, regulatory agencies, and the wider community (e.g., regulators present a plan with limited to no dialogue or input from the impacted community)
- Unintentional construction of an inadequate farm operation sets the wrong example

**Challenge:** Intentional and unintentional misinformation

#### **Contributing factors**

- Various stakeholders with competing agendas
- Special interest groups spread misinformation, propagate fear of change (e.g., targeted groups that want to prevent increasing activity along the waterfront)
- Lack of support and resources for farmers to combat misinformation in the community
- Lack of access to knowledge and/or information that enables informed decision-making—aquaculture relatively unknown by the wider public
- Emotional reactions to new ideas, sometimes not based on facts
- Lack of common terminology associated with the industry
- Misperception of the current state of the environment



- Other issues facing the fishing industry (e.g., wind farms) create cumulative resistance to change—aquaculture perceived as just another threat
- Inadvertently overstating the benefits of seaweed farming can erode trust

### *Prospective Ideas and Solutions*

**Prospect:** Identify and recruit trusted people to spread the message

**Key considerations**

- Trusted messengers may include:
    - ▶ Members of the science community
    - ▶ Reputable eNGOs such as The Nature Conservancy or WWF
    - ▶ Local Sea Grant offices
    - ▶ Local chefs/restaurants who support farm-to-table
    - ▶ Representatives from the sustainable tourism industry
  - Spread awareness through digital and print marketing
  - Messengers can share information and connect others within the social license space
- 

**Prospect:** Create position papers that are accessible and “non-jargony”

**Key considerations**

- Any emergent Community of Practice can support this task
  - Consider utilizing videos and other social media outlets
- 

**Prospect:** Develop appropriate messaging and corresponding visuals to positively influence perspectives of key stakeholder groups

Photo credit: Rich Wilson, Seatone Consulting



## CORE ISSUE STAKEHOLDER FATIGUE

### *Challenges and Contributing Factors*

**Challenge:** Stakeholder fatigue hurts engagement as a community becomes exhausted. How do we make seaweed relevant to communities and demonstrate site-specific benefits?

#### **Contributing factors**

- Lack of knowledge and understanding of seaweed's value-add
- Community unable to visualize/understand actual footprint of farming operations
- People tend to listen and engage more when an issue is controversial—not many controversial examples of seaweed farming compared to finfish farming
- People generally want to be assured of no negative impact—near impossible to prove long-term positive impact in a nascent industry
- Community concern of “is this safe to eat” once products available

### *Prospective Ideas and Solutions*

**Prospect:** Set expectations about the permitting process with applicants and others

#### **Key considerations**

- Share and combine meetings/events to promote efficiency and cross communication
- Offer foundational education up front
- Convey follow up notes and action items from meetings and events
- Provide report outs of prior meetings—do not assume information from previous meetings has been widely shared
  - ▶ Generate publicly available meeting minutes/summaries
  - ▶ Be proactive in reporting to and checking in with the public so they feel heard

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**Prospect:** Amplify farm-science relationships, generate new studies, and share results

#### **Key considerations**

- Generate and share videos, frequently asked question documents (FAQs), newspaper stories, and social media distribution of science findings
- Find photo opportunities for scientists and government agency personnel

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**Prospect:** Host a TNC/WWF co-branded road show event in collaboration with local community groups in order to share information

#### **Key considerations**

- Begin in one community, refine the approach, then scale up and expand

#### **Resource needs**

- Summary of science
- Clarity of message/talking points
- Infographics
- Short videos demonstrating farm operations
- Samples/coupons
- Workshop gifts for attendees
- Farmer tells personal stories to others at the farm



**Prospect:** Get creative with outreach and community events

**Key considerations**

- Get people comfortable with “how to talk to grandma” about seaweed farming
- Opportunities include:
  - ▶ Live events
  - ▶ Online groups
  - ▶ Farm tours
  - ▶ Lab tours
  - ▶ Tea hall discussions
  - ▶ Train-the-trainer
  - ▶ K-12 field trips and presentation
  - ▶ In class aquariums/sea farms

Photo credit: Rich Wilson, Seatone Consulting



## CORE ISSUE NAVIGATING THE PERMITTING PROCESSES

### *Challenges and Contributing Factors*

**Challenge:** Obtaining social license support from permitting agencies

**Contributing factors**

- Big and time consuming effort to get a farm permitted
- Ways to sustain social license not built into budget lines or business plans
- Need better understanding of risk and risk management standards by landowners, policy makers and coastal residents
- Some farmers lack training on how to communicate and engage with the community, or manager conflict if/when it arises
- Some regulators lack training/understanding of why they regulate
- Applicants at times resign due to fatigue/cost when process lasts too long
- Education needed on how an “impact statement” provides both positive and negative analysis of a proposed project
- Regulatory community sometimes not perceived as a stakeholder to influence, yet the rubber-hits-road with permit issuance

### *Prospective Ideas and Solutions*

**Prospect:** Educate the community and applicant/proponent about what compliance means, why you do it, how you do it, and in what sequence

**Key considerations**

- Information is key, including:
  - ▶ What is required
  - ▶ What role the public plays
  - ▶ Statutes that can be triggered
  - ▶ Relevant agencies and their aquaculture mandate/regulatory role
  - ▶ List of stakeholders to engage

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**Prospect:** Influence the culture of permit review to allow for tradeoffs and adaptive management

**Key considerations**

- Identify “must know” items (e.g., design standards, regulatory thresholds)

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**Prospect:** Conduct ecosystem service valuation in areas where farms are proposed

**Key considerations**

- Bring benefits into the permit evaluation process
  - Establish a public trust connection during environmental review
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**Prospect:** Empower regulators to make hard decisions in the face of opposition

**Key considerations**

- U.S. Army Corps of Engineers (USACE) delegates determination authority to states while still assessing compliance
  - Make process more streamlined, fair and transparent
  - Tailor regulatory approach to acceptable minimum requirements
- 

## ***Real World Farming Stories***

At the conclusion of day 1, workshop attendees gathered in a large circle to hear about real world challenges faced by locally-based seaweed and shellfish farmers in Maine. Four different farmers spoke about challenges faced during the permitting process, the difficulty of scaling up small operations to meet greater demand, and how to listen, learn and effectively address community concerns about both real and perceived impacts associated with farming operations. As conversation progressed from farmer to farmer, attendees asked questions, offered occasional insights, and acknowledged similar challenges faced by others. The session left all attendees grounded in the real world challenges faced by these farming operations as each worked to achieve social license to operate.

Photo credit: Yoon S. Byun, WWF-US



## Communication and Outreach

Again working in self-selected small groups, participants brainstormed communication and outreach needs that could address challenges discussed in previous sessions. Groups first identified a region of focus or other situational project context. Each group then considered target audiences and ways to engage stakeholders, brainstormed meaningful venues and possible communication outlets, and, finally, identified trusted messengers. Outputs below may help define key messages and outreach strategies for any emerging communication toolkits—whether local, national or international in scale—that serve Seaweed Solution partners.

### Key challenge: **OBTAINING SOCIAL LICENSE TO OPERATE**

Locale/situational context: Mid-Coast Maine<sup>2</sup>

TARGET AUDIENCE	Broad Public (including waterfront homeowners)
What do they care about? (real and perceived)	<ul style="list-style-type: none"> <li>• Money</li> <li>• Nature</li> <li>• Family – their children</li> <li>• Food, specifically local seafood</li> <li>• Status quo (resistance to change)</li> </ul>
How can we engage them?	<ul style="list-style-type: none"> <li>• Give them hope</li> <li>• Tell stories about local successes</li> <li>• Short, snappy documentaries</li> <li>• Opportunities for younger generations</li> </ul>
Venues for meaningful connections	<ul style="list-style-type: none"> <li>• Festivals</li> <li>• Conservation commissions</li> <li>• Town meetings</li> </ul>
Communication outlets	<ul style="list-style-type: none"> <li>• Local newspapers</li> <li>• Local nonprofit newsletters (e.g., land trust, etc.)</li> <li>• Social media</li> <li>• Local radio</li> </ul>
Trusted messengers	<ul style="list-style-type: none"> <li>• Sea farmers</li> <li>• School kids</li> <li>• Local scientists</li> </ul>

<sup>2</sup> This represents an example of local institutions that exist in this region. There may be other institutions to call upon in other regions.



TARGET AUDIENCE	Broad Public (including waterfront homeowners)
How to contact messengers	<ul style="list-style-type: none"> <li>• Maine Aquaculture Association</li> <li>• University of Maine</li> <li>• Gulf of Maine Research Institute</li> <li>• Island Institute</li> </ul>
Things messenger can help with	<ul style="list-style-type: none"> <li>• Storytelling</li> </ul>

**Key challenge: STAKEHOLDER FATIGUE**

**Locale/situational context:** Maine Coast with a hint of Scotland

TARGET AUDIENCE	Growers/Farmers	General Public	Local Community	NGOs	Marine Users
<b>What do they care about?</b> (real and perceived)	<ul style="list-style-type: none"> <li>• Growing their business</li> <li>• Costs of operation and payroll</li> <li>• Local relationships</li> <li>• Access to a working waterfront</li> <li>• Permitting process</li> <li>• Reputation management (aquaculture broadly as well as their farm)</li> <li>• Newcomers to local area (second homes becoming first homes)</li> <li>• New growers (competition)</li> </ul>	<ul style="list-style-type: none"> <li>• Visual impact</li> <li>• Noise impact</li> <li>• Environmental impact</li> <li>• Pressure on local services</li> <li>• Job development</li> <li>• Recreational use of area (boating and fishing) – positive and negative</li> <li>• Property value</li> </ul>	<ul style="list-style-type: none"> <li>• Jobs and investment</li> <li>• Disturbance</li> <li>• Pressure on services</li> <li>• Visual impact</li> <li>• Noise impact</li> <li>• Environmental impact</li> <li>• Demographic changes</li> </ul>	<ul style="list-style-type: none"> <li>• Environment and conservation</li> <li>• Local communities instead of development</li> </ul>	<ul style="list-style-type: none"> <li>• Access to space and resources</li> <li>• Visual impact</li> </ul>

TARGET AUDIENCE	Growers/Farmers	General Public	Local Community	NGOs	Marine Users
	<ul style="list-style-type: none"> <li>• Closures (marine and disease)</li> <li>• Climate change</li> </ul>				
<b>How can we engage them?</b>	<ul style="list-style-type: none"> <li>• Newsletters</li> <li>• Live events</li> <li>• Social channels</li> <li>• Legislative hearings</li> <li>• Maine Aquaculture Association newsletter (policy sharing)</li> <li>• Any association newsletter</li> <li>• Women in Aquaculture (create podcast)</li> <li>• Social media content</li> <li>• Create a DEI group (Diversity Equity and Inclusion)</li> </ul>	<ul style="list-style-type: none"> <li>• Outreach week (seaweed week)</li> <li>• Farm visits</li> <li>• Farmers markets</li> <li>• Informational session in Grange</li> <li>• Restaurant dinners (Tao in Brunswick)/ educational dinners</li> <li>• General positive news content</li> <li>• Stories – general interest</li> <li>• Educational content (what farms do, how they work, impacts, benefits, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Public meetings/ consultation</li> <li>• Newsletter</li> <li>• Social media</li> <li>• Public notices</li> <li>• Local events</li> <li>• Local newspaper</li> </ul>	<ul style="list-style-type: none"> <li>• Events/ conferences</li> <li>• Meetings</li> <li>• Interviews/focus groups</li> <li>• Social media</li> </ul>	<ul style="list-style-type: none"> <li>• Meetings/ consultations</li> <li>• Events</li> <li>• Visits</li> <li>• Interviews/focus groups</li> <li>• Trade press</li> </ul>
<b>Venues for meaningful connections</b>	<ul style="list-style-type: none"> <li>• Via trusted messenger (Dana Morse, Sea Grant, daily/weekly newsletter)</li> <li>• Aquaculture and shared water workshop/training</li> </ul>	<ul style="list-style-type: none"> <li>• No response</li> </ul>	<ul style="list-style-type: none"> <li>• Community halls</li> <li>• Local parks (weather permitting)</li> </ul>	<ul style="list-style-type: none"> <li>• Scottish Marine Institute<sup>3</sup></li> <li>• At their offices</li> <li>• Events (online and in person)</li> </ul>	<ul style="list-style-type: none"> <li>• Scottish Marine Institute</li> <li>• Harbor</li> <li>• Marine user organizations</li> </ul>

<sup>3</sup> The Scottish Association for Marine Science often helps local marine users with advice. Which means, in turn, those marine users assist with communication and engagement when needed. This reciprocal arrangement benefits both and builds a good relationship.



TARGET AUDIENCE	Growers/Farmers	General Public	Local Community	NGOs	Marine Users
	<ul style="list-style-type: none"> <li>Local aquaculture workshops</li> </ul>				
<b>Communication outlets</b>	<ul style="list-style-type: none"> <li>Subscribe to newsletters broadly</li> <li>Instagram</li> <li>Facebook (Norway)</li> <li>Social Media (all channels)</li> <li>YouTube for educational videos (documentaries)</li> </ul>	<ul style="list-style-type: none"> <li>NPR</li> <li>Local nightly news</li> <li>Local newspapers (Harpwell Anchor, Fisherman's Voice)</li> <li>Social media</li> <li>NYT</li> <li>Airport billboards</li> <li>Long form articles (New Yorker, National Geographic, Down East, Maine Magazine (summer resident coffee table magazines)</li> </ul>	<ul style="list-style-type: none"> <li>All types of media</li> </ul>	<ul style="list-style-type: none"> <li>Social media</li> <li>Newsletters</li> </ul>	<ul style="list-style-type: none"> <li>Newsletters</li> <li>Local news</li> <li>Trade press</li> </ul>
<b>Trusted messengers</b>	<ul style="list-style-type: none"> <li>Other well-established growers (accessible to smaller farmers)</li> </ul>	<ul style="list-style-type: none"> <li>Peers/tribe</li> <li>Local politician</li> <li>Local scientific institutions</li> <li>NGOs they may support</li> </ul>	<ul style="list-style-type: none"> <li>Local Councilor</li> </ul>	<ul style="list-style-type: none"> <li>Outreach and communications officer</li> </ul>	<ul style="list-style-type: none"> <li>Business owners/ marine users previously worked with</li> </ul>
<b>How to contact messengers</b>	<ul style="list-style-type: none"> <li>Networking</li> <li>Sea Grant organization is trusted (NOAA)</li> <li>NGOs may have contacts</li> </ul>	<ul style="list-style-type: none"> <li>Grocery store conversations</li> <li>Convene sessions with public/HOA and NGOs</li> <li>Networking</li> </ul>	<ul style="list-style-type: none"> <li>Email</li> </ul>	<ul style="list-style-type: none"> <li>Email/events</li> </ul>	<ul style="list-style-type: none"> <li>Email</li> </ul>

TARGET AUDIENCE	Growers/Farmers	General Public	Local Community	NGOs	Marine Users
Things messenger can help with	<ul style="list-style-type: none"> <li>• Aware of bigger landscape</li> <li>• Technology and farm practices</li> <li>• Help to fight/support bills on industry's behalf by providing talking points</li> <li>• Grant writing support</li> </ul>	<ul style="list-style-type: none"> <li>• Shared values</li> <li>• Add agenda item to an upcoming meeting</li> <li>• Share stories on social media and content endorsements</li> <li>• Connect public to farmer</li> <li>• Navigate/facilitate conversations</li> </ul>	<ul style="list-style-type: none"> <li>• Gatekeeper to community</li> </ul>	<ul style="list-style-type: none"> <li>• Connect to relevant members of the organization</li> </ul>	<ul style="list-style-type: none"> <li>• Communicate message to other marine users that we have not previously had contact with</li> </ul>

**Key challenge:** **BAD ACTIONS** (e.g., permit applications, special interests, NIMBYism, speculators/others)

**Locale/situational context:** General

TARGET AUDIENCE	Local NGOs (rational, middle-minded; may have no opinion yet on aquaculture)	Oversellers (producers, investors, lobbyists)	Agencies (those who step out of line or slow down the process)	Farmers (unintentional bad actions)
What do they care about? (real and perceived)	<ul style="list-style-type: none"> <li>• Hyper local issues</li> <li>• Water quality</li> <li>• Species protection</li> <li>• Keeping the world in a good state</li> <li>• Membership base</li> <li>• Public image</li> </ul>	<ul style="list-style-type: none"> <li>• Fame</li> <li>• Profit</li> </ul>	<ul style="list-style-type: none"> <li>• Public image</li> <li>• Legal compliance</li> </ul>	<ul style="list-style-type: none"> <li>• Profits</li> </ul>
How can we engage them?	<ul style="list-style-type: none"> <li>• Take them on farm tours</li> <li>• Train farmers to do tours – can be drain on farmers,</li> </ul>	<ul style="list-style-type: none"> <li>• Amplify scientific voices</li> <li>• Flood communications space</li> </ul>	<ul style="list-style-type: none"> <li>• Touring farms</li> <li>• Leadership buy-in so they care about the resources</li> </ul>	<ul style="list-style-type: none"> <li>• Farm visits</li> <li>• Training opportunities (provide scholarships)</li> </ul>



<b>TARGET AUDIENCE</b>	<b>Local NGOs</b> (rational, middle-minded; may have no opinion yet on aquaculture)	<b>Oversellers</b> (producers, investors, lobbyists)	<b>Agencies</b> (those who step out of line or slow down the process)	<b>Farmers</b> (unintentional bad actions)
	demonstrations – make money from kayak tours • River trippers • Build 1/1 relationship • Serve on committees/ boards and volunteering	• Training program • Shadowing opportunities • Tools, climate information	• Education	• Tool kits • One-on-one discussions
<b>Venues for meaningful connections</b>	• Participate on boards • Community service clean up groups • Combine events with shellfish	• No response	• Legislator • Agency board/ commission	• No response
<b>Communication outlets</b>	• Local newspaper • Social media • Newsletters • National chapters • Earned media • Peer reviewed literature	• Not credible news outlets, misreading	• Journals • Policy briefs • Local media • Sea Grant • Media teams around state capital	• No response
<b>Trusted messengers</b>	• Science community	• Sea Grant resources	• Agency leadership • Academics	• Science practitioner • Other farmers • Sea Grant
<b>How to contact messengers</b>	• Through this network	• No response	• No response	• No response
<b>Things messenger can help with</b>	• How to communicate science	• No response	• Reminder of legal mandate, mission and processes (process metrics/expectations)	• No response

## Key challenge: **NAVIGATING PERMITTING PROCESSES**

Locale/situational context: General

TARGET AUDIENCE	Permitting Agencies (resource agencies)	Town Council
<b>What do they care about?</b> (real and perceived)	<ul style="list-style-type: none"> <li>• Science (digested and delivered by a trusted messenger)</li> <li>• Avoid lawsuits (prepare the regulators to proactively respond to challenges before they come up – what are the questions you need to answer)</li> <li>• Ecosystem services</li> </ul>	<ul style="list-style-type: none"> <li>• Serve/represent town citizens and thereby address their concerns</li> <li>• Local jobs, economic development, tourism</li> <li>• Public acceptance</li> </ul>
<b>How can we engage them?</b>	<ul style="list-style-type: none"> <li>• No response</li> </ul>	<ul style="list-style-type: none"> <li>• No response</li> </ul>
<b>Venues for meaningful connections</b>	<ul style="list-style-type: none"> <li>• No response</li> </ul>	<ul style="list-style-type: none"> <li>• No response</li> </ul>
<b>Communication outlets</b>	<ul style="list-style-type: none"> <li>• They will look at a fact sheet (not a list of academic papers)</li> </ul>	<ul style="list-style-type: none"> <li>• The local paper</li> </ul>
<b>Trusted messengers</b>	<ul style="list-style-type: none"> <li>• Scientists</li> <li>• Successful farmers who are good actors – local to their state or community</li> <li>• NGOs</li> <li>• Their lawyers</li> <li>• University/researchers at local university</li> </ul>	<ul style="list-style-type: none"> <li>• Sea Grant – no advocate agencies</li> <li>• Respected farmers</li> <li>• State agriculture departments</li> <li>• Farm bureaus</li> <li>• Small business associations, community development organizations</li> <li>• Tourism (local seafood)</li> <li>• Local university</li> </ul>
<b>How to contact messengers</b>	<ul style="list-style-type: none"> <li>• No response</li> </ul>	<ul style="list-style-type: none"> <li>• No response</li> </ul>
<b>Things messenger can help with</b>	<ul style="list-style-type: none"> <li>• No response</li> </ul>	<ul style="list-style-type: none"> <li>• No response</li> </ul>



**Key challenge: CAPACITY CONSTRAINTS**

Locale/situational context: General

TARGET AUDIENCE	United States Department of Agriculture (USDA)	National Oceanic and Atmospheric Administration (NOAA)	Commercial Fishermen and Food Manufacturing
<b>What do they care about?</b> (real and perceived)	<ul style="list-style-type: none"> <li>Increased food production</li> <li>Jobs</li> <li>Research funding</li> </ul>	<ul style="list-style-type: none"> <li>Increased funding for aquaculture</li> <li>Seaweed for biofuel</li> </ul>	<ul style="list-style-type: none"> <li>Successful business operations</li> </ul>
<b>How can we engage them?</b>	<ul style="list-style-type: none"> <li>Evidence of production potential in the US</li> <li>Aquaculture associations go directly to USDA</li> <li>Broaden focus beyond land and livestock</li> <li>Educate panelists on aquaculture – USDA does not have an aquaculture person</li> <li>Change the prerequisite for who is eligible to apply for grants</li> </ul>	<ul style="list-style-type: none"> <li>Currently talk to them but need more engagement and support for what is possible for innovation</li> </ul>	<ul style="list-style-type: none"> <li>No response</li> </ul>
<b>Venues for meaningful connections</b>	<ul style="list-style-type: none"> <li>Not Washington D.C.</li> </ul>	<ul style="list-style-type: none"> <li>No response</li> </ul>	<ul style="list-style-type: none"> <li>No response</li> </ul>
<b>Communication outlets</b>	<ul style="list-style-type: none"> <li>One-on-one meetings</li> </ul>	<ul style="list-style-type: none"> <li>No response</li> </ul>	<ul style="list-style-type: none"> <li>No response</li> </ul>
<b>Trusted messengers</b>	<ul style="list-style-type: none"> <li>State aquaculture association</li> <li>Trade organizations (algae biomass organization, cattle industry groups, etc.)</li> </ul>		<ul style="list-style-type: none"> <li>WWF</li> <li>TNC</li> <li>Maine technology institute</li> <li>Retirees from agencies</li> <li>Associations</li> </ul>
<b>How to contact messengers</b>	<ul style="list-style-type: none"> <li>No response</li> </ul>	<ul style="list-style-type: none"> <li>No response</li> </ul>	<ul style="list-style-type: none"> <li>No response</li> </ul>

TARGET AUDIENCE	United States Department of Agriculture (USDA)	National Oceanic and Atmospheric Administration (NOAA)	Commercial Fishermen and Food Manufacturing
Things messenger can help with	<ul style="list-style-type: none"> <li>• Put together a list of who should be part of a USDA review committee</li> <li>• Work with WWF to host sessions on “seaweed as livestock feed”</li> </ul>		<ul style="list-style-type: none"> <li>• Help grantees navigate funding programs</li> <li>• Distill research findings into compelling content</li> <li>• Share success stories and lessons learned</li> <li>• Make connections so fishermen can partner to apply for funding</li> <li>• WWF work with state aquaculture associations to develop local aid</li> <li>• Make people aware of increased funding</li> <li>• Toolkit for farmers</li> <li>• Unify industry</li> <li>• Be the agnostic entity to set up events like seaweed week</li> <li>• Market to general public</li> <li>• Funding to host events, conferences, etc.</li> </ul>



## Communication Toolkit Needs

Following the session 4 small group breakouts (communication and outreach), all workshop participants gathered together to engage in a lightning round brainstorm of needs for a universally accessible communications tool kit. The following presents grouped responses, mostly verbatim, posted on the blue sticky wall and then briefly discussed by the full group. Numbers indicate the number of mentions an identified need received.

### WHAT DO YOU NEED IN A COMMUNICATIONS TOOLKIT?

- **Infographics (12)**
  - What is seaweed?
  - What are the environmental and economic benefits of farming?
  - How does a farm work?
  - Show local food source with global benefits
  - Seaweed and shellfish farms as “habitat” for certain species
  - Food production in the water
  - Comparison of land-based farming scale/footprint to ocean farming
  - Examples of seaweed products in our lives
- **Trainings (8)**
  - For diverse sociocultural interactions
  - Role play to train farmers for difficult discussions
  - Media training for growers with quick, memorable sound bites (2)
  - Help farmers leverage social media to tell their stories effectively
  - Media training for attention grabbing language (e.g., social media, press releases)
  - Paid search training
- **Videos (7)**
  - Short, 30 second videos to share on social media
  - Free to download
  - Show what aquaculture looks like
- **Fact sheets (6)**
  - Hard statistics with references (2)
  - Credible sources, accurate data (2)
  - Audience specific
  - Evidence-based research summaries
  - Avoid finished products and conclusions
- **Unified messaging (4)**
  - Harmonized terms
  - Key talking points
  - Interconnection for aquaculture association messages between Maine, Nova Scotia, Alaska, Connecticut, etc.
- **Clear communication and messaging (4)**
  - Condense and summarize science for regulators
  - Provide clear levels of ecosystem and economic services to the public, coastal managers, and legislative leaders
  - Concise methods to convey nuance (i.e., avoid “all seaweeds do this”)
  - Digestible, simple message development

- **Contact lists (3)**
  - Organization trees and contact lists for critical state and federal agencies, such as agriculture as well as fish and wildlife (2)
  - Fishermen-turned-farmers who would be willing to speak with skeptical commercial fishermen in other areas
- **Amplification of content (3)**
  - Electronic “village” to relay and magnify messages
  - Targeted social media from WWF or other trusted source that can be amplified/ shared → farmer stories, research projects, pretty pictures
- **Frequently asked questions documents (FAQs) (2)**
- **Farm tours (2)**
  - Virtual
  - With policy makers, chefs, eNGO staff etc.
- **Teacher resource kits (2)**
  - Career pathways packet for high school level
- **Social media content for storytelling (2)**

Photo credit: Rich Wilson, Seatone Consulting





- **Photos**
  - Library of free use photo content
- **Storyboards**
- **Podcast**
- **Interactive displays**
- **Platform/website**
  - Links to farmer stories and YouTube videos
  - Summary of resources on the topic without overselling
  - Free and open access for anyone to share and gather information
- **Newsletters**
  - Opportunities for funding
- **Vision statement**
- **Funding to support:**
  - Paid internships
  - Farmers to tell their own stories
  - Professional skills development for scientists to create 1-page infographics about their research (e.g., communications, graphic design)
  - More staff time
- **Context specific messages**
  - Survey-based, region specific communications toolkit for interviews (i.e., directed soundbite messaging)
- **Policy white papers**
- **Handbook for farmers emerging from the Maine Aquaculture Innovation Center**







# THE COLLABORATIVE PATH AHEAD

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As the workshop concluded, participants reflected on their two-day engagement together. The facilitation team utilized several prompting questions to revisit the needs and opportunities to advance social license before the group, highlight best methods to share information and transfer knowledge, and then discuss workshop takeaways and prospective future activities.

Bailey Moritz and Paul Dobbins encouraged the group to share insights on the most strategic path ahead for the Seaweed Solution project. Each individual initially placed written ideas on the blue sticky wall, followed by full group discussion. The group did not engage in a formal prioritization process, however, numbers below represent concurrent interest by others through an informal “sticky dot” voting exercise. Participant responses below are organized by topic and presented largely verbatim.

## NEEDS AND OPPORTUNITIES TO ADVANCE SOCIAL LICENSE

- More collaboration to connect the dots, including collaborative project teams (7)
- Cross-fertilization of science and social science projects (5)
- Funding for joint ventures as well as outreach and associated materials (7)
- Accessible resources to translate science (4)
- More social scientists (4)
- Central knowledge hub to track progress (3)
- Systematic communication and regular sharing of ideas (2)
- Resource content for educators (1)
- Amplify the science in lay terms without enabling overselling (1)
- Video production capacity (1)
- Focus on climate crisis and food security (1)
- Support content development for communications tool kits
- Address threats via stakeholder meetings (e.g., protected species, halocarbons, claims)
- Interact with similar groups
- Identify missing voices from this community of practice to engage
- Communication materials and training
- Manage expectations
- Need to clearly distinguish between social license and public perception
- Need networks, linkages
- Opportunity: continue the momentum
- Food security focus in light of global change

## BEST KNOWLEDGE SHARING METHODS

- Regular, in-person meetings, no phones + opportunities to connect virtually in between meetings (10)
- Continue connection and discussion (6)
- Celebrate aquaculture success stories (4)
- Listserv group/google group, slack/chat board or other platform for communication and occasional (quarterly) web-based meetings or interactions on specific topics (4)



- In-person networking opportunities at conferences and events many already attend (2)
- Join the Safe Seaweed Coalition (2)
- Future gatherings (in Hawaii) (2)
- Tips for writing effective opinion-editorials (1)
- Personal stories
- Small group networking
- Online portal
- LinkedIn group to share and relay knowledge
- Peer reviewed papers
- Workshops convened by organizations like WWF
- In-person gatherings which combine travel
- Email and hub discussions (e.g., Zoom)
- Annual gathering
- Face-to-face meetings
- Amplify stories of growers

## KEY WORKSHOP TAKEAWAYS

- Shared research leads to improved understanding and better outcomes (2)
- Many people exploring the same space/issues (2)
- Great community of practitioners (1)
- Cross-institute challenges/concerns (1)
- Complexity in social acceptance of farming
- Equity is important re: seaweed and indigenous communities
- Need contacts to expand project team(s)
- Social license issues are global, but engagement must be local
- We are not working in a vacuum
- Creation of new markets for seaweed is vital
- Overlap in research areas
- Wide variety and depth of group knowledge
- It is very important for this group to stay together
- Need for connections to keep everyone aware of all efforts
- Challenges of permitting
- Keep an open mind about consensus building
- We can help each other at different stages of the work
- Social discussion and networking is critical
- This group is a powerful voice to help legitimize the need to focus on social license
- Need to engage national and international audiences
- New ideas to build social license/public acceptance
- Accumulating success and failure – stories to share
- Many shared challenges and opportunities
- We are not alone or working in a silo in our struggles or in seeking solutions
- Consensus is a journey

## PROSPECTIVE FUTURE ACTIVITIES

- Social license toolbox of experiences/tools (9)
- Broader/deeper engagement and partnerships with indigenous communities (5)
- Additional, follow-up workshops like this (4)
- Communication training (3)
- More science in communications that prompt behavior change! Science of hope? New Media? (3)

- Develop speaker bureaus for the public and coastal managers (2)
- Knowledge exchange and regular updates on work of the individuals in this group (2)
- Better engagement with broader demographics and groups (1)
- Workshops with social license to operate scientists and experts (2)
- Annual gatherings (2)
- Convene workshop on aquaculture and protected species with NOAA Fisheries, University of New Hampshire, Wood Hole Oceanographic Institution and New England Aquarium (1)
- Magnify farmer stories (1)
- Visit each other! Meetings like this in different locales (1)
- Topic-specific webinars and associated discussion (1)
- Continue to convene this group
- Create story map for group at large
- Technology knowledge exchange tours
- More conferences
- Further project collaboration and sharing of success
- Diffuse misinformation
- Music and dance
- Check-ins on how things have progressed (or not)
- Development of research projects dealing with common issues
- Life cycle assessments
- Social License to Operate mariculture listserv
- Media tours
- More “hard” science to substantiate benefits and ecosystem services of seaweed
- Pedagogic toolkits

Paul Dobbins and Bailey Moritz, WWF-US, offered concluding remarks. Paul acknowledged many common challenges which surfaced during the course of the workshop. He emphasized public engagement—which happens from a local to global level—as a critical element of work if seaweed farmers are going to successfully achieve social license to operate in their respective communities around the world. There is much to learn from both failures and successes in this field. Bailey thanked everyone for embracing the approach of working intensively together, meeting people, and making new connections. She acknowledged an emerging Community of Practice around the Seaweed Solution and encouraged everyone to stay involved.

Photo credit: Rich Wilson, Seatone Consulting



# APPENDIX I.

## WORKSHOP AGENDA

### WWF Seaweed Solution Project SOCIAL LICENSE WORKSHOP

Portland, Maine | April 25 – 26, 2022

#### WORKSHOP GOALS

- Exchange experiences and explore social license issues, challenges and opportunities ahead
- Link the needs, vision and richness of grantee stories to enabling support from the WWF communications team
- Share and discuss project needs and strategic insights, and help inform how best to deploy future funds
- Establish a “Community of Practice” to identify and solve challenges, formulate best practices, and transfer knowledge and lessons learned among peers

#### DAY 1 AGENDA | Monday, April 25

Time	Topic	Materials
8:00	<b>Coffee, Day 1 Workshop Sign-in, and Find Your Table</b> <i>All Workshop Attendees</i>	
8:30	<b>Welcome and Agenda Review</b> <i>Paul Dobbins and Bailey Moritz (WWF)</i> <i>Rich Wilson and Meagan Wylie (Facilitation Team)</i>  <b>Objective:</b> Set the stage for information and knowledge sharing, relationship building and collaborative work ahead.	Workshop agenda
9:00	<b>Building a Community of Practice</b> <i>Rich Wilson, All Workshop Attendees</i>  <ul style="list-style-type: none"> <li>• Introduce the Community of Practice concept</li> <li>• Interactive session: Explore what attributes define, make and grow a Community of Practice around the Seaweed Solution</li> </ul> <b>Objective:</b> Begin defining what makes this group a community and highlight hopes, expectations and desired workshop outcomes.	Exercise worksheets
10:00	<b>Break: Get to Know Your Fellow Grantees/Workshop Attendees</b>	
10:15	<b>The Message Matters: How to Get Community Support for Sustainable Seaweed Farms</b> <i>Kim Thompson, Aquarium of the Pacific</i>	Presentations and related publications



	<ul style="list-style-type: none"> <li>• Key findings of the latest research</li> <li>• Effective communication around seaweed farming</li> <li>• Q&amp;A/open discussion</li> </ul> <p><b>Objective:</b> Present results from message and perceptions testing around seaweed, highlight important communication practices, then discuss lessons learned and future research needs.</p>	
<b>10:45</b>	<p><b>Dispatches from the State of Aquaculture Science</b></p> <ul style="list-style-type: none"> <li>• Water Chemistry and Benthic Changes <i>Nichole Price, Bigelow Laboratory for Ocean Sciences</i></li> <li>• Carbon Credit <i>Josh Boyce, Oceans 2050</i></li> <li>• Marine Mammal Friendly Aquaculture Gear <i>Michael Chambers, University of New Hampshire</i></li> <li>• Strain Selection and Lessons Learned <i>Scott Lindell, Woods Hole Oceanographic Institution</i></li> <li>• Q&amp;A/open discussion</li> </ul> <p><b>Objective:</b> Showcase current scientific research, then discuss what additional research needs to happen, and how this work underpins social license surrounding aquaculture.</p>	<b>Presentations and related publications</b>
<b>12:00</b>	<b>Lunch</b>	
<b>1:00</b>	<p><b>Project Readouts and Identification of Challenges</b></p> <ul style="list-style-type: none"> <li>• Lightning round: Updates from project grantees and other experts</li> <li>• Interactive session: Identify and define key challenges</li> </ul> <p><b>Objective:</b> Foster understanding of who is working on what, then identify both unique and common challenges faced by partners working in the seaweed realm.</p>	<b>Exercise worksheets</b>
<b>2:15</b>	<b>Break: Get to Know Your Fellow Grantees/Workshop Attendees</b>	
<b>2:30</b>	<p><b>Lessons Learned, Knowledge Sharing and Opportunities Ahead</b></p> <ul style="list-style-type: none"> <li>• Interactive session: Explore what's working well, what lessons have been learned and how to address key challenges</li> </ul> <p><b>Objective:</b> Brainstorm effective ways to share lessons learned, address challenges, and foster knowledge sharing among attendees.</p>	<b>Exercise worksheets</b>
<b>4:00</b>	<p><b>Real World Farming Stories</b></p> <ul style="list-style-type: none"> <li>• Interactive session: Face-to-face discussion with farmers.</li> </ul> <p><b>Objective:</b> Learn about and help brainstorm solutions to real world challenges faced by farmers.</p>	
<b>5:15</b>	<b>Summary of Day 1 Outputs and Preview Day 2 Agenda</b>	

5:30	Workshop Day 1 Adjourns	
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## DAY 2 AGENDA | Tuesday, April 26

Time	Topic	Materials
8:30	<b>Coffee, Day 2 Workshop Sign-in, and Find Your Table</b> <i>All Workshop Attendees</i>	
9:00	<b>Communication and Outreach</b> <ul style="list-style-type: none"> <li>Support role of the WWF communications team</li> <li>Multi-part interactive session: <ul style="list-style-type: none"> <li>Link project challenges/lessons to communication needs</li> <li>Define key messages/strategies (local, national, international)</li> <li>Identify local and regional media outlets</li> <li>Coordinate outreach efforts across all project partners</li> </ul> </li> </ul> <p><b>Objective:</b> <i>Craft effective communication strategies and messages and lay the foundation for development of a communications toolkit.</i></p>	<b>Exercise worksheets</b>
10:45	<b>Break: Get to Know Your Fellow Grantees</b>	
11:00	<b>Strategic Deployment of Project Funds (pt. 1): Partner Insights</b> <ul style="list-style-type: none"> <li>Interactive session: Revisit needs and opportunities ahead, build on shared learning, then discuss prospective future activities</li> </ul> <p><b>Objective:</b> <i>Put forward strategic insights on how to best deploy future funds to advance social license in the seaweed realm.</i></p>	<b>Exercise worksheets</b>
12:30	<b>Lunch</b>	
1:15	<b>Strategic Deployment of Project Funds (pt.2): The Path Ahead</b> <ul style="list-style-type: none"> <li>Future activities: Moving from ideas to action</li> <li>Revisit attributes that define, make, and grow a Community of Practice around the Seaweed Solution</li> <li>Key workshop takeaways and next steps</li> </ul>	
2:00	<b>Workshop Adjourns</b>	

# APPENDIX II.

## SELECT PRE-WORKSHOP SURVEY OUTPUTS

A pre-workshop survey helped inform the agenda and allowed WWF grantees to begin weighing in on critical issues. Participants were informed that no responses would be attributed to any individual or organization, thus candor was encouraged. Select survey results, included below, were utilized at the workshop to stimulate discussion as breakout sessions got underway.

<b>ATTRIBUTES OF A COMMUNITY OF PRACTICE</b> <b>Summary of Pre-Workshop Responses</b> <i>What attributes make, drive and grow a community of practice around the Seaweed Solution?</i> <i>By this we generally mean people with shared interests around seaweed, facing a big challenge, each taking a unique approach to problem-solving, but connected and working a together.</i>		
Leadership.	Inspire and motivate people to come together and be active as a community of practice.	All it needs is the convening power which WWF could exercise – maybe networking time every other month for an hour or more, plus, a Slack Channel or something else to facilitate sharing and brainstorming.
Include diverse voices; even if they do not agree with you, their voices are important – as we have seen over the last few years, there are all sorts of social and political changes in play. It is easy to band with those with whom you share views, rather than include those who are challenging.	Sharing outreach successes and failures, and refining the best approaches to the various stakeholders in connection with a) economic benefits and b) positive environmental impacts.	Any relationship is based on communication and to sustain a community it is essential.
Putting a name to it helps create and grow it.	Communication – arguably the most important.	An online platform may assist us.



Monthly communication/sessions where we explore different aspects of social license.	Developing a communications strategy is the best first step.	Respect for other people's opinions.
Patience.	Identify key obstacles then figure out who is well placed to address them.	Uplift and support one another.
A mailing that could publicize events, job opportunities and resources.	Passion for the planet.	Link working groups to keep in touch on projects or get funding together.
Share knowledge and project findings, collaborate with others on research and to answer questions, and show openness to learn new things.	Shared financial interest would drive a community of practice.	Given the financial incentive, best practices will be developed and disseminated.
We need to be connected and know each other, to have opportunities for quality engagement, to see each other and talk.	When opportunities or project ideas arise, we reach out to our seaweed "friends" not anonymous people or funding "competitors."	Create opportunities for connection that aren't overly burdensome and time consuming.
Provide information and guidance for organizations and individuals that are new to the discussion to engage them in a productive way (e.g., training for how to work in the farming community).	Leverage WWF brand recognition to engage and facilitate dialogue more broadly.	Get together to work on non-competitive topics such as safety, then build a proposal for a large project.
Be all in this together and rally around a common cause – it could be climate change or more specific regional issues (e.g., gentrification, waterfront access, gender inequality etc.)	Hold regular events (virtual) such as webinars that keep people connected.	Critical to be integrated into a larger economic or planning context, but community-based.
Bring quarterly meetings together of different algae initiatives to share updates and explore collaborations.	Coordinate activities.	

## UNANSWERED SOCIAL LICENSE QUESTIONS

### Summary of Pre-Workshop Responses

*What is an unanswered question you have around social license, or a sticky social license challenge or situation you are facing?*

How do we measure social license to operate in any given situation?	Proving robustly through science the impact farms have on biodiversity. Quantifying the positive impact that seaweed farming has on other areas too (e.g., sequestering carbon, biodiversity, social impact etc).
An ongoing question area: To what extent would technology be helpful, which and what would be advantages/ disadvantages? For instance, I am aware and participated in a pilot project involving the use of laptop-based groupware and planning software in support of community-based development planning with good results in the US, but could it be useful here in Europe. I believe the formation of social license is incorporated within the larger context of community decision- making. How would that process best be improved to be more effective? We have some answers, but they are time-consuming and take a lot of work. Could that be streamlined without diminishing public acceptance?	The term "social license" is becoming more common when discussing relationships with communities and social acceptability, but there are many different definitions of social license in the literature. I think it's important to clarify what we mean by using the term "social license" and what our goals are by making it a term that is widely used in industry and academia because it's not commonly used by the general public.
How to prevent well-funded special interest groups from intentionally polarizing the public discussion.	There is a lot of diversity within and among communities along Canada's coastline, and perhaps in other countries as well. I'm interested in whether there are local differences in the challenges around social license and if so, are local issues the driving challenges, or are there broadscale trends in challenges with seaweed farming that apply everywhere?
How to raise sufficient awareness within the aquaculture industry, regulators, funders, and protected species community that they act to develop and embrace mitigation measures for harmful interactions but without creating further public negativity towards the eventual, hopefully responsible marine aquaculture industry.	When developing outreach plans, identify successful messages that have been employed to differentiate between the environmental impacts of fish farming vs. marine seaweed cultivation.
Is there a target, or defined objective, we are looking at when we design social license collaboration? How do we measure that, and how do we determine failure or success?	Aquaculture generically always seems to be on the defensive. Instead of defending against misinformation, it feels as though we need tools to support seaweed aquaculturists to tell their own good news stories

	and develop their own quality community relations. Can we move the needle by supporting one farmer and one community at a time, and create a groundswell? How do we do that?
So many! If I have to narrow it down...how might engaging broader communities/empowering them to participate in the decision-making process for developing farms impact social license? At what point is broader community engagement no longer effective (i.e., if they are knowledgeable, but not actively engaged is it worth the effort)? Social license is a marathon, not a sprint. How do farms sustain relationships with communities of place/practice? Are current efforts enough? What will it take for farms of varying scales and production to build trust and sustain relationships in the future?	Coming from an association that represents all categories of farmed seafood (e.g., finfish, shellfish, and seaweed), we have often found that seaweed is the least contested of all types. This is because it is a seasonal crop that is deployed during winter months when there are fewer users in the area, particularly wealthy summer residents.
How do we navigate "precautionary principles" and take baby steps to test assumptions of small but reparable risks? This is especially true of measures to increase seaweed farming that may mitigate the risk of climate change, which may be a much bigger risk than ocean farming.	

## WHAT HAVE YOU LEARNED? WHAT CAN YOU SHARE THAT WILL BENEFIT OTHERS?

### Summary of Pre-Workshop Responses

*What has your organization learned over the last year? What do you know now that you didn't know before, and how could other WWF seaweed partners benefit from this knowledge?*

Other seaweed partners will benefit from learning attitudes towards seaweed cultivation from around the UK in three case study areas where seaweed cultivation is already practiced and, potentially more revealing, in the area where it is not but there is strong potential. We expect the interviews [we are conducting] to highlight many ways in which positive industry-community relationships can be developed and what measures seaweed cultivators can take to maximize social license.	Many governmental program activities are counter-productive to establishing this business-base, despite being developed for that process. Traditionally, integrated, regional scale community-based planning has been poorly implemented, if at all. Mechanisms for public involvement in government decision-making have not proved effective. This is a key component required for developing social license, so that's not good news. Also, the development of social license needs to be expanded to include government, business and banking as clients and consumers of social license.
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<p>Alaska Native stakeholders are a broad and diverse group comprised of Federally recognized Tribes, regional corporations, village corporations, and non-profits. Geography, environment, culture, infrastructure, and language also play a role in how these groups perceive seaweed farming and the potential of commercialization. Lumping “Alaska Native” into one social group is erroneous and not necessarily helpful. Also, often we only listen to those that are supportive. It is important to get down to the village or community level and then continue to ask the questions to those who do not attend meetings.</p>	<p>[Connected to comment at left]. There are generational leadership and value differences amongst Native youth and youth in general. We have listened to comments from seaweed workshops, individual conversations, and discussions. With Native communities, the Alaska Native Corporations (ANC) are for economic diversification and new ideas for their shareholders, however, there are many examples of some of these projects not being sustainable once funding was removed (e.g., oyster farm in Kake). Pushback is also occurring against the corporate structures. It is often seen as subtle assimilation – Native values being shoe-horned into a Western structure that allowed resource extraction by Western corporations. Coastal youth, in some areas, such as the southeast, are not excited about large corporate farms or farms backed by other extractive businesses. Also, Alaskans are critical of the Federal government and as well as foreign interests. Alaska can be very insular and nationalistic. Take some of these same feelings and transpose them to Alaska Natives and this adds to suspicion against Western ideas, projects, and research. Thus, there is a feeling that the push is hard and immediate. This can cause unease. And there are generational attitudes, Native Elders often worked within the framework, hence ANC, while Native youth may want to see increased sovereignty and management.</p>
<p>Work done on the licensing toolkit showed us (or confirmed) that even regulators in charge of seaweed farm applications in many European countries don't have a clear understanding of their own process and its limitations/constraints. With our online, publicly available toolkit, we hope that other seaweed partners will benefit from our work, avoid duplicative work, and will contribute to enrich it with more insights and country deep dives.</p>	<p>We have realized how difficult it is to get a license for a commercial scale farm, and how cautious the licensing authorities are as this is a relatively pioneering industry. Perhaps regulatory agencies don't know how to handle it (e.g., looking for no negative impact, rather than potential positive impacts such as biodiversity)?</p>
<p>Our project has just started. However, we are capturing useful information for developing an effective position statement on suspended marine aquaculture, cumulative risks to wildlife from multiple industries, and a clearer vision of what has to happen for a responsible industry to grow.</p>	<p>Social license in a community is constantly changing and can be influenced by "bad actors" and other aquaculture operations. Trust and transparency are highly important in navigating social license issues. Building personal relationships can improve social license and one's standing within a community. However, there are some locations</p>

	and communities that are simply not the right fit for aquaculture operations and it's important to realize where that may apply before spending time and money trying to change people's minds. It's important to identify communities that would benefit from aquaculture operations and who are open to accepting these businesses in their communities.
95% of aquaculture in Nova Scotia is fish farming. There are high barriers to entry into obtaining leases and licenses for seaweeds and shellfish farmers as the approval processes at present is a one size fits all. This results in 2-3 year wait for a hearing.	We have learned that blue carbon is an important and interesting area to many corporate partners, but there may be hesitance from the public on use of seaweed biomass. Education and communication is essential.
Our focus has been on social license. One critical thing we have learned that the needle has to be moved in one community at a time.	
We confirmed assumptions that most of the public is indifferent to aquaculture but can be easily swayed for or against with basic information. Providing accurate information to broader audiences may be an important strategy to help garner more support for the sector. We also confirmed it is a very small group who opposes aquaculture and it's not likely we will change their minds. These findings are important, but our colleagues will also benefit from our new understanding of the efficacy of certain message themes in terms of changing hearts and minds about aquaculture.	We realized that social license to operate goes far beyond acquiring a lease application. That's only part of the deal. A lot of work needs to be done on our coast and along our working waterfront in order to have real community buy-in. And oftentimes, these social barriers are much higher for women. Despite that, women have been leading in the seaweed space across the world and Maine is no different. We hope this sparks some discussion of social license in the broader context of gender inequality and challenges the group to think about how barriers to social license can be different depending on who is farming.
Some state regulatory authorities are severely understaffed and lack some requisite expertise or advisors. Regarding resource population genetics, they haven't been able to find advice and render a decision for eight months.	Common, simple language is important when communicating; we will not be successful in developing a new seaweed industry unless we work on multiple aspects of its development in parallel.

## INTERNAL COMMUNICATION NEEDS

### Summary of Pre-Workshop Responses

*What kind of internal communication needs to take place among partners supported by this program?*

Monthly newsletter documenting everyone's progress within the program. Quarterly or six month session where people can come together as a group, learn from each other, and understand people's progress.	It would be really good to have something like a newsletter to keep up with partners' progress and developments. A social media connection or an online forum to communicate would also be good.
Development of ongoing mechanisms for information and data sharing, research and analysis capacities. Also, development of ways to support resource/capacity (and cost) sharing.	It would be nice to have a shared, internal report on a semi-annual basis in order to share project progress, and perhaps a message board for advice, etc.
Exchanges on both successes and failures in public outreach on ocean farming and development of best practices for such outreach if there are universal messages that can be used to effect positive responses to seaweed farming.	If work includes permitting or deploying suspended marine aquaculture gear in New England or along the east coast of the United States, it's worth discussing location, gear, and risks to protected species. It's likely that these permits will be challenged on these grounds.
Project updates and distribution of resources or references would be helpful!	I would like to understand what efforts are taking place among partners currently and discuss opportunities to collaborate on social media and other communication platforms.
Can we have regular, virtual "watercooler" meetings? People drop in when they can and we catch up on what we are all doing?	This workshop is a good first step. This group should be communicating more regularly to build a community of practice and ensure that we are complementing and building on each other's work rather than replicating or contradicting the work of others. Maybe a bi-annual schedule with one in person workshop and one informal, virtual update session where partners can share updates?
Progress and updates on others' funded activities.	I think this workshop is a great starting point. Then maybe a zoom call every six months or so?
Regular communication.	



## EXTERNAL COMMUNICATION NEEDS

### Summary of Pre-Workshop Responses

*What kind of external communication, beyond WWF partners, needs to take place to build social license for seaweed farming?*

WWF hold sessions with social licensing authorities highlighting successful projects/areas, and their benefits. Communicate to the public the potential benefits as well as risks of wild harvesting.	Regular communication with industry, and at the national and local level with government agencies, NGOs and other groups. Also, communicate with stakeholders, including communities. By communities I mean both geographically and communities of meaning or communities of participation, who are not necessarily based there but are connected through shared values, experiences or uses.
Need to develop lines of communication with communities, business groups, universities, institutes and professional organizations with experience and relevant expertise. For instance, establish a liaison with the International Association for Impact Assessment re: ecological and social impact analysis and monitoring.	I think WWF has tremendous assets and know-how for general public awareness campaigns that could help building social license.
Balanced, science based public education that does not overpromise ecological benefits.	Once educational programs developed by WWF partners are in place, reinforcement of such messaging should include cultivating respected fishing industry members and interested parties within the general population as advocates for the new industry.
Educate people about the benefits and opportunities.	A combined drive to address risks to protected species, accurate messaging around carbon sequestering, advocating for responsible offshore aquaculture regulation in the US, and support for effective ocean management and planning.
I think that sharing our project goals and findings with the general public via social media or otherwise would help to introduce people to the concept of social license and how it affects them.	I believe we need to identify social license barriers and begin addressing them proactively. Fears around offshore wind and solar cost decades of progress in the clean energy sector.
This feels like the crux of the project. There are multiple communications; some are high level, some are community level. I'm not sure where to start with answering this question.	WWF communicates its support for this body of work, as well as some of the results of work with other NGOs and stakeholders. Specifically, WWF can play an important role to educate other NGOs and stakeholders about the connection between social license and perceptions and conservation, ie why does WWF invest in this?

	Also, WWF should engage marketing and education efforts and facilitate discussion about how they are related, but different from social license and perceptions. Helping our peers understand these differences can help ensure more adequate funding, research, and other resources are allocated to these efforts.
Spread the word about the benefits of seaweed farming for life below water. Demonstrate that seaweed tides are not a problem but the symptom of another problem.	Marketing to reach stakeholders all over the US, particularly in states with the biggest seaweed growth potential like Maine and Alaska.
This is best worked through industry associations and groups, but any scientific advice WWF and others can gather will be certainly useful.	

# APPENDIX III.

## WORKSHOP ATTENDEES

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WWF appreciates the time and commitment that each organization below made to attend and contribute to the success of this two-day event.

Arc of the Coast	Aquarium of the Pacific
Bigelow Laboratory for Ocean Sciences	Blue Dot Sea Farm
Car-y-mor	Coastal Enterprises, Inc.
East Coast Shellfish Growers Association	Gulf of Maine Research Institute
Incheon National University	Island Institute
Maine Aquaculture Association	Maine Aquaculture Innovation Center
Maine Sea Grant	Native Conservancy
New England Aquarium	Ocean Rainforest
Oceans 2050	Port of San Diego
Safe Seaweed Coalition	Scottish Association for Marine Science
Seatone Consulting (Facilitation)	Seaweed for Europe
Taylor Shellfish Farms	The Nature Conservancy
University of Connecticut	University of New Hampshire
Woods Hole Oceanographic Institution	Wolfe Neck Oyster Company
WWF-Canada	WWF-US



For almost 60 years, WWF has been protecting the future of nature. One of the worlds leading conservation organizations, WWF works in nearly 100 countries and is supported by more than 1 million members in the United States and more than 5 million globally. WWF's unique way of working combines global reach with a foundation in science, involves action at every level from local to global, and ensures the delivery of innovative solutions that meet the needs of both people and nature. Visit [worldwildlife.org](http://worldwildlife.org) to learn more.

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