Building Community Led Science in Addressing Climate Resiliency: A panel discussion and interactive workshop on coastal community resiliency

St. John's, Newfound and Labrador: During the Ocean Research Alliance in Canada (ORCA) Meeting on Friday, June 2, MEOPAR hosted a solution-focused coastal community resiliency session. Roughly 40 participants engaged in conversation about how the Canadian ocean sector can address coastal community resiliency, through community-led science, adaptation, and mitigation, in the face of climate change, while brainstorming ideas for future actions.

After hearing from Kathleen Parewick from Municipalities of Newfoundland on some of the nuances that underscore local climate change adaptation capacity, a short panel discussion with practitioners addressing coastal community resilience, aimed to help mobilize knowledge around the current landscape among Canadians and how best to engage coastal communities. The discussion was guided by five panelists: Dr. Evan Andrews (Memorial University of Newfoundland - MUN), Marc-Olivier Massé (Centre de reserche sur les milieux insulaires maritimes - CERMIM), Sepehr Khosravi (CLIMAtlantic, with support from Emma Poirier), Amanda Lim (Shorefast Foundation), and Kathleen Parewick (Municipalities Newfoundland) (Figure 1).

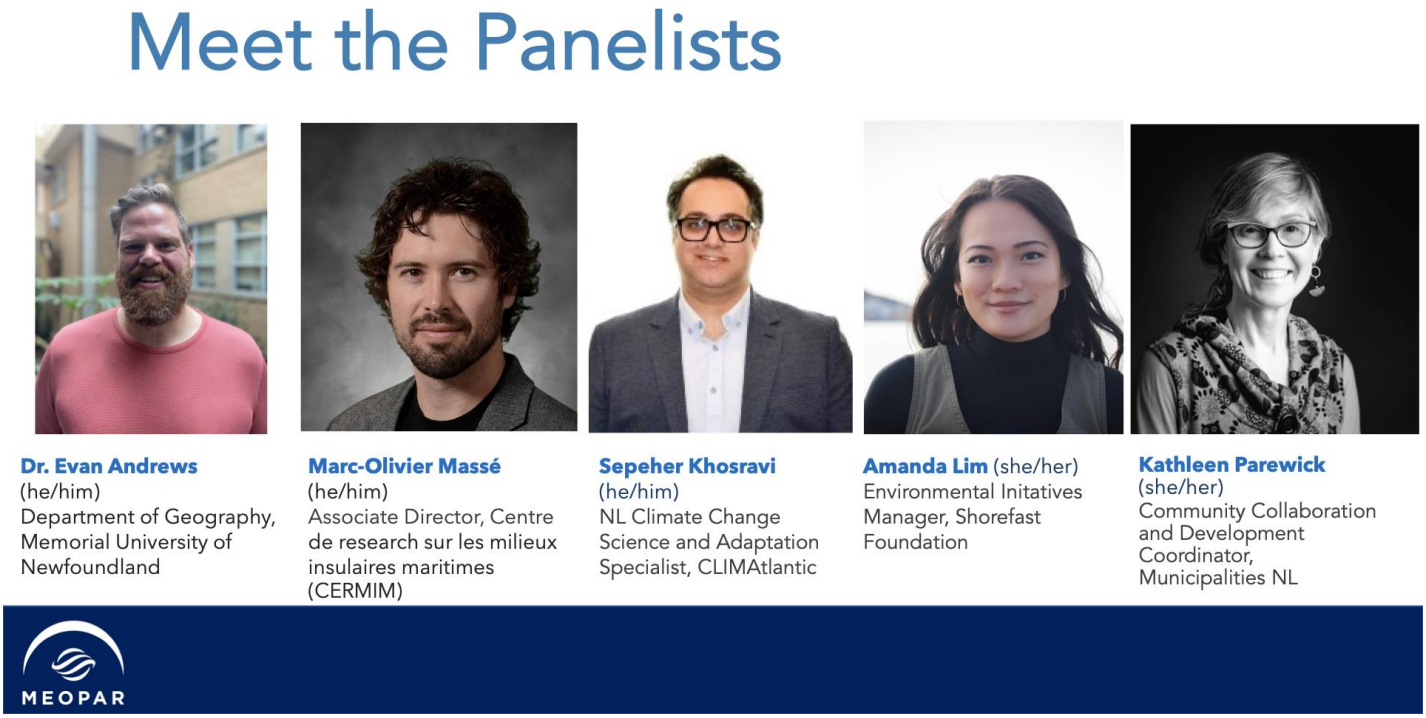

Figure 1. Overview of the panelists that shared their perspectives during the discussion at ORCA on June 2.

What We Heard

In real-time, Meghan Callon, Communication and Design Lead for Canadian Ocean Literacy Coalition, created a graphic visual for the panel discussion on Building Community Led Science in Addressing Climate Resilience (Figure 2).

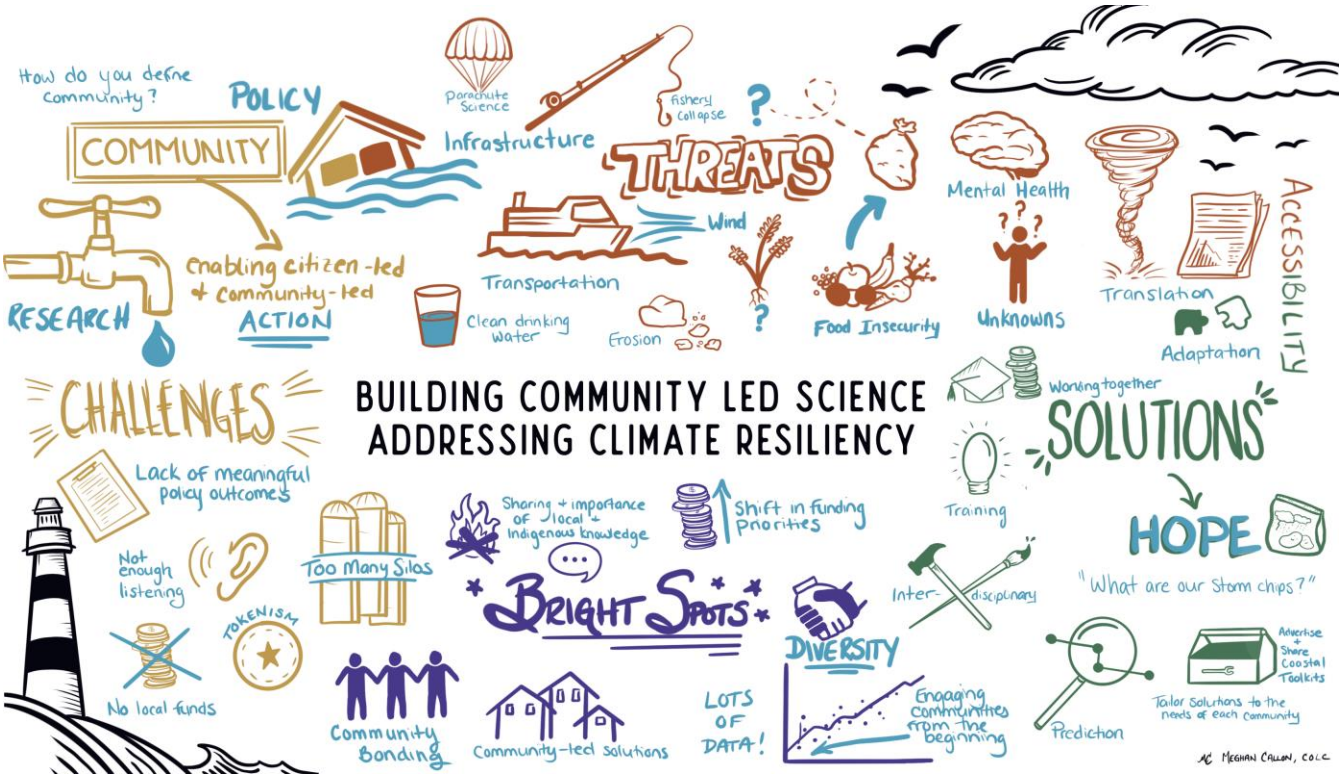

Figure 2. Graphic visual of the panel discussion on Building Community Led Science in Addressing Climate Resiliency produced in real-time by Meghan Callon, Canadian Ocean Literacy Coalition's Communication and Design Lead.

From the conversation, it was clear that research and data play a crucial role in informing effective policies and solutions. This knowledge is essential for identifying key stakeholders and ensuring that the right people are involved in decision-making processes. Academic resources can be leveraged to support emerging practitioners, providing them with the necessary tools and expertise to address complex issues.

Knowledge mobilization is important, and a combination of qualitative and quantitative approaches should be employed. It is essential to go beyond mere numbers and engage in meaningful dialogue and relationship-building. Building strong relationships with communities is vital for understanding their needs and empowering them to actively participate in problem-solving. This approach emphasizes capacity building and shared understanding, rooted in the specific context of each community. For example, teaching fish harvesters about new markets like seaweed aquaculture can enhance their empowerment and economic opportunities.

Restorative justice should be centered around hope, focusing on healing and reconciliation. This approach acknowledges the importance of addressing historical injustices and creating a sense of trust and belonging within communities.

Food security and sovereignty are critical concerns, particularly for islands. Climate change impacts, such as storms and melting pack ice, have severe consequences for coastal fishing communities. Lack of resources and preparedness further exacerbate the challenges faced in these situations. Prediction, anticipation, and monitoring can significantly improve responses to such events, providing early warnings and enabling more effective preparation.

Coastal erosion has implications beyond environmental concerns, affecting transportation infrastructure and access to essential services. Collective action and collaboration are often prompted by disasters, as communities come together to address immediate challenges and work towards long-term solutions.

Given the increasing frequency and intensity of extreme events, future targets set for 2050 or 2100 may no longer be relevant. It is crucial to acknowledge that these "black swan" events are happening now and require immediate attention. Therefore, the focus should shift towards adaptive approaches rather than seeking definitive solutions. Recognizing the cyclical nature of challenges allows for ongoing adjustments and continuous learning to better address evolving circumstances.

The panel discussion served as a basis for the workshop component of the session, where participants built on and identified existing strengths and bright spots of community-led science addressing climate change resilience, current challenges and barriers, gaps in research and action, and future opportunities.

Bright Spots

Motivating communities to drive change requires various strategies and considerations. Some important factors include:

1. Raising awareness: Effective communication and education campaigns can help communities understand the urgency and importance of addressing climate change impacts. By providing accessible information, communities can be empowered to take action.
2. Community bonding over challenges: Communities can come together and build strong bonds by collectively addressing shared challenges, such as those related to housing or infrastructure. This collective effort fosters a sense of unity and motivation to work towards common goals.
3. Recognition of local and indigenous knowledge: Local and indigenous knowledge holds valuable insights into climate change impacts and adaptation strategies. Acknowledging and incorporating this knowledge enhances community engagement and strengthens the overall approach to addressing climate issues.
4. Innovative capacity in communities: Encouraging and supporting local innovation and creative problem-solving empowers communities to develop unique and context-specific solutions. Recognizing and valuing the skills and expertise within communities can inspire motivation and ownership of the adaptation process.
5. Natural approaches: Promoting nature-based solutions and incorporating ecosystem services into adaptation strategies can provide multiple benefits, such as coastal protection, water management, and biodiversity conservation. Highlighting the advantages of natural approaches can motivate communities to embrace sustainable and resilient practices.
6. Urgency as a unifying factor: The urgency of climate change impacts can bring people together, fostering a collective willingness to act and collaborate. By emphasizing the immediate need for adaptation, communities are more likely to mobilize and take proactive measures.
7. Funding into adaptation: Shifting federal funding priorities to prioritize adaptation efforts and requiring action and knowledge mobilization as prerequisites for funding can incentivize and motivate communities to engage in adaptation projects.
8. Increased public buy-in: As public awareness and understanding of climate change increase, there is often reduced opposition and greater public support for climate action. This shift allows for more effective collaboration and cooperation between various stakeholders.
9. National Adaptation Strategy: The development and implementation of a comprehensive National Adaptation Strategy can provide a clear roadmap for communities to follow. This strategy should be inclusive, integrating local perspectives and priorities, and ensuring that communities have access to the necessary resources and support.
10. Learning from examples: Communities can draw inspiration and learn from successful adaptation projects implemented in similar contexts. Sharing case studies and best practices can help communities understand what has worked elsewhere and adapt those approaches to their own circumstances.
11. Engaging communities from the beginning: Ensuring that communities have a voice and are actively involved in decision-making processes right from the start fosters a sense of ownership and increases motivation. Community engagement processes should be inclusive, participatory, and transparent.
12. Knowledge exchange and valuing local and indigenous knowledge: Facilitating knowledge exchange between academics, practitioners, and communities is essential. Recognizing and valuing local and indigenous knowledge

as high-quality information fosters mutual respect and a better understanding of how to navigate adaptation challenges.

13. Encouragement of community-driven programs: Academic institutions can support and encourage community-driven programs by providing resources, expertise, and technical assistance. By empowering communities to take the lead, ownership and motivation are strengthened.
14. Collaboration and resource sharing: Collaboration between communities, organizations, and government entities can enhance the scope and impact of adaptation efforts. Sharing resources, expertise, and best practices enables communities to access a broader range of support and learn from each other's experiences.
15. Leveraging existing data: Utilizing existing data and research can save time and resources. Communities can benefit from accessing information and solutions that have already been identified, allowing for more efficient and targeted action.

By considering these factors and implementing appropriate strategies, communities can be motivated and empowered to drive effective climate change adaptation.

Challenges, Barriers & Gaps

Several challenges, barriers, and gaps exist in the context of climate change adaptation and community engagement:

1. Academic Gaps: The integration of social science approaches into physical science fields is often lacking. Applied science opportunities are not as common, and there is a need for a more interdisciplinary approach.
2. Funding and Academic Rewards: The criteria for project funding and academic recognition may not align with community needs or innovative approaches. This can create barriers to implementing impactful projects.
3. Time for Building Relationships: Building trust and strong relationships with communities takes time and sustained effort, which can be a challenge within limited project timelines.
4. Lack of Meaningful Policy Outcomes: A significant portion of the work produced fails to result in meaningful policy outcomes, highlighting the gap between research and actionable policies.
5. Failure of Institutions: Institutions often struggle with integrated problem-solving, hindering effective collaboration between different disciplines and sectors.
6. Limited Listening: Insufficient emphasis on active listening and understanding the perspectives and needs of communities can lead to projects that do not align with community priorities.
7. Tokenism: Superficial engagement and token representation can undermine meaningful community participation and decision-making processes.
8. Mismatch between Community Wants and Needs: Community desires may not always align with the actual needs identified through technical assessments, requiring careful communication and alignment of expectations.
9. Infrastructure Bias: Excessive focus on infrastructure solutions without considering alternative approaches can limit the exploration of more sustainable and community-centered options.
10. Administrative Burden: Small communities often face overwhelming administrative burdens, making it challenging to initiate and manage adaptation projects effectively.
11. Limited Actionability of Science: The outcomes of scientific research may not always lead to clear actionable solutions for communities, posing a challenge in translating knowledge into tangible actions.
12. Lack of Recognition of Community Knowledge: Indigenous and local knowledge may not be fully recognized or integrated into decision-making processes, overlooking valuable insights.
13. Insufficient Funding for Monitoring: Monitoring efforts to assess the effectiveness of adaptation measures often lack sufficient funding, hindering the ability to track progress and make informed adjustments.
14. Siloed Approaches: Silos within institutions and sectors can impede collaboration and hinder the sharing of knowledge and resources.
15. Equity and Justice Considerations: Determining what justice looks like in climate change contexts, such as attributing weather events to climate change contributions, poses challenges that require careful consideration.
16. Overcoming Fear of Failure: Fear of failure can hinder action, but taking risks and learning from failures is essential for driving meaningful change.

17. Data Accessibility and Ownership: Challenges exist in accessing the necessary data for communities, and considerations regarding intellectual property and data ownership can further complicate data sharing.
18. Diversity and Inclusion: There is a need for greater diversity in language, geography, and priorities to ensure a more comprehensive and inclusive approach to adaptation efforts.

Recognizing and addressing these challenges, barriers, and gaps is crucial for fostering effective community engagement and successful climate change adaptation initiatives.

Opportunities

To address the challenges and gaps identified, several strategies can be implemented to improve community engagement and climate change adaptation:

1. Open-Source Data and Knowledge Sharing: Enhancing data accessibility through open-source platforms and creating community repositories can facilitate knowledge mobilization and translation. Establishing a database of existing projects can help avoid duplication and promote collaboration.
2. Learning from Community Experts: Engaging community members with expertise and experience can enrich adaptation efforts. Learning from others who have successfully implemented projects can provide valuable insights and guidance.
3. Collaboration with Scientists and Institutions: Collaborating with scientific organizations and institutions, such as the Harris Center at MUN, can foster interdisciplinary partnerships and knowledge exchange.
4. Coastal Adaptation Toolkits: Sharing and promoting Coastal Adaptation Toolkits with communities can improve access to resources and provide training on their effective utilization.
5. Communication Training: Training students and researchers in effective communication techniques can enhance their ability to engage with communities and translate scientific knowledge into accessible information.
6. Atlantic Inventory of Experts: Creating an inventory of subject matter experts in the Atlantic region, such as through the CLIMAtlantic Projects' 'Networking Map,' can facilitate collaboration and knowledge sharing.
7. Emphasize Direct Impacts and Data Translation: Highlighting the direct impacts of climate change and leveraging data can help communicate the urgency and need for adaptation actions in a relatable manner.
8. Community Engagement and Building Trust: Actively listening to new ideas and perspectives in the community, engaging in capacity-building efforts, and following the principles of Ownership, Control, Access, and Possession (OCAP) can foster trust and strong relationships.
9. Collaboration with Media and Government: Working with news media and utilizing social media platforms can amplify the reach of community engagement efforts and increase government involvement in adaptation initiatives.
10. Funding for Community Empowerment: Ensuring that funding mechanisms support and empower communities, including resources for people and administrative support, can facilitate their active participation in adaptation projects. Initiatives like the Fundamental Inc. pilot project's funding database can provide guidance in this regard.
11. Reflexivity and Adaptation: Recognizing that adaptation efforts and approaches may need to evolve over time and being open to reflexivity and learning from past experiences can enhance the effectiveness of community engagement.
12. Linking Community Needs and Solutions: Collaborating with groups and organizations that enable action and aligning community needs with appropriate solutions can enhance the relevance and impact of adaptation projects.

By implementing these strategies, communities can be better supported and empowered in their climate change adaptation efforts, fostering collaboration, knowledge exchange, and tangible actions towards resilience.

The dialogue emerging from this session made it clear that effective climate change resilience requires meaningful collaboration between all stakeholders. Through shared understanding, capacity building, and restorative justice,

coastal communities can work together to develop adaptive solutions that are tailored to their unique contexts and needs. Only by working together can these communities be better prepared for the challenges of the future.

If you have reflections or feedback on this discussion, feel free to email Alexa.Goodman@meopar.ca.