

A close-up photograph of a Great Egret standing in a field of tall green grass. The bird is shown in profile, facing right, with its long, sharp beak and yellow eye clearly visible. Its feathers are a mix of grey and white, with a distinctive white patch on its forehead.

BUILDING CONNECTIONS FOR BLUE CARBON ACROSS CANADA

Policy Workshop Report

**Building Connections For
Blue Carbon Across Canada**

Policy Report

February 24th, 2021

3rd in a Five Part Series

Summary Report

Prepared by WWF-Canada

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SUMMARY

Blue carbon ecosystems provide a variety of benefits including carbon storage, habitat for wildlife and social, cultural and economic value for coastal communities. A growing number of individuals and organizations are working on research, restoration, conservation and policy related to blue carbon ecosystems in Canada. To bring the community of practice together and identify knowledge gaps and opportunities for collaboration, WWF-Canada is hosting a five-part virtual workshop series.

This report summarizes the third workshop in the series which focused on Policy and took place on February 24th, 2021 and had 40 participants. This workshop aimed to tackle the question: **How can we build a policy framework which facilitates blue carbon projects aimed at sequestering carbon, increasing biodiversity and improving resilience to climate change?**

The major key takeaways from the third workshop were:

- Federal leadership and coordination are needed to provide a national mandate for blue carbon policy, as well as a commitment to systematically measure blue carbon resources.
- Adhering to Indigenous laws and principles is necessary for blue carbon work and all conservation work.
- Synthesized research needs to be made accessible and communicated to policy and decision makers. Policy, regulatory and market tools are available but are not necessarily used effectively to protect blue carbon ecosystems.

Contact information for the attendees is provided, as well as additional links to resources, and a copy of invited and speed talk presentations.



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INTRODUCTION

Blue carbon – carbon stored in coastal ecosystems, such as seagrass meadows, salt marshes and kelp forests – can play an important role in the fight against climate change. However, blue carbon has not been included explicitly in federal, provincial or municipal policies, undermining our ability to protect these ecosystems and reach national carbon targets. Blue carbon work takes place on Indigenous lands and waters and has the potential to support Indigenous governance, cultural revitalization and self-determination. Collaboration among Indigenous, federal, provincial and municipal governments is necessary to develop mandates that support ethical blue carbon projects.

Federal leadership and coordination are needed to provide a national mandate for blue carbon policy, as well as a commitment to systematically measure blue carbon resources. Data gaps remain that make policy development challenging. An understanding of the jurisdictions across blue carbon ecosystems, the transport and storage of carbon among landscapes and the cumulative impacts to blue carbon ecosystems from multiple stressors are needed.

There are many researchers and practitioners working across Canada in the marine environment who are interested in policy, regulatory and market tools that can effectively protect blue carbon ecosystems and support funding for restoration. To bring the community of practice together and identify knowledge gaps and opportunities for collaboration, WWF-Canada is hosting a five-part virtual workshop series. The objectives of the workshops are to:

- Facilitate connections within the blue carbon community and share information on ongoing blue carbon work;
- Discuss key questions on blue carbon research, policy and application; and,
- Identify areas of opportunity to advance collaboration on blue carbon across Canada.

The third workshop in the series focused on policy and aimed to tackle the question: **How can we build a policy framework which facilitates blue carbon projects aimed at sequestering carbon, increasing biodiversity and improving resilience to climate change?**

At the workshop, a series of three invited speakers provided talks to set the stage for breakout group discussion sessions. Following the discussion sessions there were two speed talks aimed at introducing members of the blue carbon community.

During the breakout group discussion sessions, participants chose one of the following questions to explore with their fellow group members:

1. How can we work on **policy across landscapes** (land, coastline, marine, freshwater) to build a cohesive framework?
2. How can we navigate **multiple management jurisdictions** when developing and implementing blue carbon projects?
3. What are the pathways to ensuring that all blue carbon work adheres to The **First Nations Principles of OCAP** (ownership, control, access, and possession) and the **United Nations Declaration on the Rights of Indigenous Peoples**?
4. How can we manage **multiple impacts** to blue carbon systems that originate in terrestrial or freshwater environments?
5. How can we design blue carbon policy to ensure **equitable use of marine resources**?

This report summarizes the talks and discussion sessions from the policy workshop, highlighting key takeaways as identified by participants. The policy workshop will be followed by workshops focused on the ecosystem approach and next steps.

INVITED TALK SUMMARIES

Natalie Ban, University of Victoria

Considerations for Blue Carbon Initiatives from Experiences in Conservation

Natalie Ban has been working on marine conservation with Indigenous peoples for two decades. She lives and works on the traditional territory of the Lekwungen peoples. Natalie is not Indigenous and does not speak for the Indigenous peoples that she works with; rather, Natalie aims to be an ally in marine conservation, working towards reconciliation and anti-colonization and influencing her peers to do the same. Her talk focused on the lessons that can be learned from past mistakes in conservation work in order to build equitable and effective blue carbon projects and initiatives today.

The colonization of coastal areas by Europeans has resulted in damage to the management and knowledge practices of Indigenous peoples. More specifically, the *Indian Act* and related policies and residential schools prevented Indigenous peoples from practicing their culture. Conservation projects have also had negative consequences for Indigenous peoples including displacement, violence, disempowerment, human rights abuses, widening inequities and increasing poverty. Recognizing this history and acknowledging that good intentions are not enough is crucial when building blue carbon projects today. Blue carbon projects have the potential to uplift Indigenous voices and support Indigenous governance, cultural revitalization and self-determination.

The [Indigenous Leadership Initiative](#) has put together guidance on [How to be an ally of Indigenous-led conservation](#). While not prescriptive in its approach, the document outlines nine key points:

- Trust Indigenous Leadership
- Create Space for Indigenous Voices
- Understand the Connection Between Land and Nationhood
- Recognize Indigenous Science
- Participate with Interest
- Focus on Solutions
- Share Stories with Respect
- Continue to Learn
- Influence Your Peers

All blue carbon work takes place on Indigenous lands and waters, and we should look to Indigenous voices for guidance, as they have been managing these lands and waters for millennia. As such, Indigenous peoples are best positioned

to develop solutions that improve biodiversity, fight climate change and benefit communities. We need to respect the authority of Indigenous peoples over their lands and waters and aim to amplify Indigenous voices. Blue carbon projects should also be designed through an equity-based lens, including:

- Recognitional,
- Procedural,
- Distributional, and
- Contextual equities.

Recognizing the history of the places in which we work, focusing on becoming an ally of Indigenous-led conservation and building blue carbon initiatives through an equity lens will enable us to build more effective projects which support, uplift and benefit Indigenous self-determination, governance and cultural revitalization.

Sage Melcer, Insurance Bureau of Canada

Nature-Based Insurance Solutions: Opportunities to Protect Natural Assets

Insurance can be an effective way to mitigate the financial consequences of climate change and natural disasters. At its core, insurance is a risk transfer tool, where an insurance company is paid to take on the responsibility associated with an uncontrollable risk, such as a hurricane or storm surge. Canada has many opportunities to integrate natural assets when developing insurance solutions to address climate risks and natural disasters. More specifically, Nature-Based Insurance Solutions (NBIS) incorporate natural assets in a way that can mitigate risk for beneficiaries, improve the sustainability of public sector budgets and support restoration projects.

Natural disasters and climate change risk are an expensive burden for the public sector, leading to both higher costs and lower revenues for governments. The potential costs from natural disasters and climate change include the emergency response costs, reconstruction of public property and infrastructure, support of non-insured households and cost of replacements (e.g., imports). Revenue losses include lower income tax revenue, lower tourism income, lower export revenue and loss of investor confidence. Insurance can help to reduce the burden faced by the public sector by providing guaranteed access to funds and quick payouts, while reducing the need for governments to dip into different pots of money and reduce services to make up budgetary shortfalls.

However, traditional insurance is a reactive approach to address natural disasters. NBIS are a proactive approach

that can be used to support planning processes, reduce the impacts of future events and increase the robustness of natural assets over time. NBIS include three elements:

- The asset (what you are trying to protect, e.g., property, the delivery of services, revenue, the natural asset itself);
- The mitigator (what is keeping the asset safe, e.g., a natural asset such as a coral reef); and,
- The threat (what endangers the asset, e.g., hurricane wind speed, storm surge).

With these three elements it is possible to build a variety of NBIS that protect or integrate a range of natural assets.

A collaboration among Swiss Re, The Nature Conservancy, Mexican regional governments, local universities and property owners established the world's first NBIS to protect Mexico's Quintana Roo coral reef. The reef provides protection from storm surge, benefiting the tourism industry and the local governments which receive revenue from the tourism industry. A third-party Coastal Zone Management Trust was established to finance the insurance policy funded by local governments and the tourism industry. Insurance payouts are triggered when specific wind speeds from hurricane systems are exceeded and the entire payout is dedicated to restoring damaged reefs, beaches and sand dunes. The Coastal Zone Management Trust manages the payouts to ensure a holistic and effective approach to restoration. A successful payout of \$800,000 USD has already been made, demonstrating the success of this NBIS approach.

Canada has many natural assets that could be integrated into a NBIS approach. For example, Swiss Re is exploring a case study for the Ottawa area. A network of wetlands would be used as the mitigator to reduce flooding caused by high rainfall or snow melt and protect the region's emergency response budget. A third-party trust fund would be used to bring in the participation of beneficiaries with a financial interest in the protected asset. This NBIS would be designed to buffer and reduce economic shock to the system from weather events that may otherwise stress Ottawa's emergency response budget.

Blue carbon work includes many natural assets that could be integrated into a NBIS and added to the conventional suite of solutions for the public sector to consider when planning for the future and developing risk management strategies.

Deborah Carlson, Staff Lawyer, West Coast Environmental Law

West Coast Environmental Law (WCEL) is a not-for-profit environmental organization based in Vancouver, British Columbia. WCEL approaches complex environmental challenges by working to uphold Indigenous laws, developing collaborative legal strategies that bridge Indigenous and non-Indigenous law, and pursuing law and policy reform of colonial/Crown law.

There are more than 30 Indigenous nations in the Greater Vancouver Area and Lower Fraser region, the direct descendants of Coast Salish people who have lived in the region for millennia, practicing their culture and exercising laws in a way that sustained large populations, rich cultures and trade. Over the last 150 years, many more people have arrived and settled, leading to massive degradation of the environment, draining and diking of the Lower Fraser (over 120 km of coastal dikes), development of roads and railways, and conversion of land for urbanization and industrialization.

Brackish and saltwater marshes are important blue carbon ecosystems in the Lower Fraser region. Between 70-90 per cent of wetlands in this region have been lost. Data from 1860 shows that the salt marshes in Boundary Bay decreased to 17 per cent of their original 2,000 hectare area by 1978, with some growth since then. Boundary Bay is also in the Pacific Flyway, where millions of birds stop over to rest and feed during migration each year. Extensive diking along the perimeter coupled with coastal squeeze could lead to the entire loss of salt marsh in this bay. It may be possible to protect salt marshes, achieve benefits from flood management and have blue carbon storage and sequestration.

[Jurisdiction in coastal British Columbia](#) is complex with many pieces of legislation. The colonial law is fragmented and siloed, while Indigenous law applies across the landscape. WCEL recently published the report: [Policy and Planning for Coastal Ecosystems in British Columbia through a Blue Carbon Lens](#), which outlines current legal tools that may be applicable for blue carbon and ecosystem management. Current provincial and federal mandates are summarized in the tables below.

Table 1. Current provincial legal tools with mandates and/or opportunities for blue carbon or ecosystem-based management in British Columbia.

Provincial Legal Tool	Mandate for blue carbon management?	Mandate/opportunity for ecosystem-based management?
<i>Land Act</i>	No – governs aquatic lands, but not coastal or blue carbon	No
<i>Park Act</i>	No	Yes – opportunity to include blue carbon into the context of managing parks, ecosystem-based management and managing for climate resilience
<i>Wildlife Act</i>	No – refers to managing lands with specific wildlife species	Potential – could include blue carbon in management activities under a management plan for a wildlife management area
<i>Climate Change Accountability Act</i>	Potential – opportunity for blue carbon to be included but is not currently included	No
<i>Environmental Assessment Act</i>	Potential – requires that impacts that would affect British Columbia’s ability to meet greenhouse gas reduction targets to be considered, so blue carbon could be included	No – British Columbia does have cumulative effect frameworks, but are not formally part of the <i>Environmental Assessment Act</i>

Table 2. Current federal legal tools with mandates and/or opportunities for blue carbon or ecosystem-based management.

Federal Legal Tool	Mandate for blue carbon management?	Mandate/opportunity for ecosystem-based management?
<i>Canada National Parks Act</i>	Yes – parks are managed for ecological integrity which is defined to include abiotic environments (e.g., blue carbon)	Yes – development of the carbon atlas, current research on blue carbon
<i>Canada National Marine Conservation Areas Act, Oceans Act, Canada’s Oceans Strategy</i>	No	Yes – spatial protection and federal ocean strategy that includes ecosystem management, the precautionary principle, “the application of conservation measures necessary to maintain biological diversity and productivity” which could include blue carbon; targets to protect 25 per cent of coastal areas by 2025 and 30 per cent by 2030
<i>Impact Assessment Act</i>	Yes – blue carbon is in guidance related to this Act, Environment and Climate Change Canada included blue carbon in the definition of carbon sinks but guidance is still being developed	Potential – how coastal ecosystems could be affected by proposed projects: blue carbon research can identify extent of coastal ecosystems, risks to persistence
<i>Fisheries Act</i>	No	Potential – management of cumulative effects could be supported by blue carbon research; ESA designation (never used) would mean restoration plans and blue carbon research could help inform those restoration plans
<i>Canada Marine Act</i>	Potential – this Act governs ports and their activities on federal lands, blue carbon could be included with management for these lands	Potential – ports create land use plans that could include ecosystem-based management approaches

Coastal lands and waters are subject to Indigenous laws and inherent jurisdiction and authority, as well as constitutionally protected title and rights and United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) implementation. This legal pluralism is leading to new dialogues in shared landscapes, as well as emerging contemporary expressions of Indigenous laws, such as Indigenous Protected and Conserved Areas (IPCAs) and other approaches grounded in Indigenous laws (e.g., watershed planning in the Lower Fraser). The ecosystems where blue carbon has accumulated were managed sustainably for millennia by Indigenous peoples in a way that allowed ecosystems to flourish and blue carbon to be stored. The way forward for the management of these ecosystems is through interjurisdictional collaboration.

Examples of interjurisdictional collaboration from the coast of British Columbia include:

- the Gwaii Haanas Agreement between the Haida Nation and the federal government,
- the Marine Plan Partnership (MaPP) between First Nations and the provincial government, and
- the Marine Protected Area (MPA) networks in the Northern Bioshelf region agreed upon by Indigenous, federal and provincial governments.

A terrestrial example that may provide a model for blue carbon interjurisdictional collaboration is the Great Bear Rainforest Atmospheric Benefit Sharing Agreement. This agreement between First Nations and the Province of British Columbia specifies the details around atmospheric benefit sharing for the carbon credits associated with protecting the rainforest and is binding on all third-party activities. From this agreement, over 25 million tons of carbon offsets are to be sold over a 20-year period, with 80 per cent of the revenue going to First Nations to be invested in conservation, capacity building and economic development.

Local governments are important in interjurisdictional collaboration. These governments are delegated authorities from provinces and therefore have limited authority in coastal regions. However, they do affect the health of coastal areas through decisions on upland land management and regulation. For example, local governments can zone out into the foreshore and have an impact on decision making. They also have responsibilities for coastal flood infrastructure (e.g., dikes) that can have significant, and potentially devastating, impacts on salt marshes in the future.

The Living Dike project with the Emergency Planning Secretariat (an Indigenous organization working on natural hazards and flood management issues in the Lower Fraser) convened an interjurisdictional round table with rights holders and policy makers to support pilot projects of the Living Dike. This project is a partnership of the City of Surrey, the City of Delta and Semiahmoo First Nation. The Living Dike project aims to enhance and gradually support the increasing elevation of salt marshes in Boundary Bay to keep up with sea level rise and continue to provide flood regulation benefits to the surrounding communities.

Overall, Canada lags behind other coastal countries, such as the United States and Australia, in assessing and managing blue carbon resources in coastal ecosystems. Therefore, we are missing opportunities to link coastal restoration and blue carbon management in British Columbia. Sea level rise is driving action by local governments that could have potentially negative impacts on coastal ecosystems. To take advantage of opportunities and avoid mistakes, we need to find as many reasons as possible to protect these ecosystems. There is potential for blue carbon offsets to play a role in interjurisdictional relationships and this could be modelled on the terrestrial carbon agreements in the Great Bear Rainforest.



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SPEED TALK SUMMARIES

Al Hanson, Canadian Wildlife Service, Environment and Climate Change Canada Federal Policy on Wetland Conservation

The [Federal Policy on Wetland Conservation](#) (FPWC) was approved by Cabinet in 1991 and applies to all Government of Canada departments, agencies and decisions. The FPWC is not an Environment and Climate Change Canada policy, but instead a whole of government policy. The FPWC applies to the federal government and respects provincial and territorial powers and mandates. It has a large national impact on the way the federal government conducts its business (decisions, funding, land management) but does not directly impact individuals within Canada. Since its approval in 1991, many provinces have since adopted similar or complementary wetland conservation policies, which do directly impact individuals.

The goal of the FPWC is to promote conservation of Canada's wetlands to sustain their ecological and socio-economic functions, now and in the future. This applies to more than just wildlife habitat; it includes all ecological functions of wetlands, including blue carbon. The FPWC is based on the principle of "Wise-Use", which sees wetlands as providing essential ecosystem services, and was developed in response to the requirements and commitments under the [UN Ramsar Convention on Wetlands](#).

The FPWC in general advocates the use of mitigation hierarchy: avoid, minimize, compensate. First and foremost, avoid impacts to wetlands whenever possible. Secondly, minimize impacts through project design and siting. Lastly, compensate for any residual unavoidable impacts to wetlands. The emphasis of the FPWC is on the conservation of existing wetlands, and compensation is the last resort.

Within the policy there are several specific goals regarding best practices, supporting science and supporting conservation. The direct goal of "No Net Loss of Wetland Functions" on federal lands and waters (protected areas as well as working lands, e.g., harbour authorities, airports), areas of the country where wetland loss has reached critical levels (e.g., New Brunswick, Nova Scotia, Prince Edward Island) as well as wetlands designated as socially and/or ecologically important. Eelgrass beds and salt marshes have been specifically identified as wetlands having important ecological functions.

Over the last number of years, salt marsh and eelgrass compensation projects have been completed through funding and requirements of the FPWC. For example, [salt marsh restoration at Aulac, New Brunswick](#) was partially funded as a Federal Wetland Policy compensation project for eelgrass impacts, as well as some requirements under provincial jurisdiction.

Although developed 30 years ago, the FPWC can still effectively support wetland conservation. In 2012, Environment and Climate Change Canada developed the [Operational Framework for Use of Conservation Allowances](#), which reiterated the use of offsets for mitigation and uses wetland mitigation as examples within the document. This policy is also consistent with the Ramsar COP11 2012 [Integrated Framework for avoiding, mitigating and compensating for wetland losses](#). These policies have been effective in influencing how the government of Canada conserves wetlands such as saltmarshes and eelgrass beds.

Tanya Prystay, Marine Institute of Memorial University of Newfoundland

Identifying the Social, Cultural and Economic Values of Eelgrass (*Zostera marina*) Meadows According to Canadian Atlantic Communities

Tanya is a PhD student working on an eelgrass restoration project in Placentia Bay, Newfoundland and Labrador funded by the Coastal Restoration Fund and the Ocean Protection Plan. For this project Tanya and collaborators are monitoring three healthy eelgrass meadows and their ecosystem services, specifically fish nursery habitat and carbon sequestration. The goal of the project is to provide information to support the management and protection of these ecosystems.

Tanya is also working towards including knowledge from diverse groups of people with different backgrounds, interests and lifestyles into her project. To support this effort, Tanya is running an exploratory [survey](#) on public perceptions within communities in Atlantic Canada on the value of eelgrass meadows. The survey focuses on acquiring local ecological knowledge on the trends occurring within eelgrass meadows, the factors driving those trends, and how the public would like to see eelgrass meadows managed, if at all. The biggest challenge so far has been recruiting participants for the survey, which remains open. Currently there are over 100 responses, with most responses from people living in Nova Scotia and Newfoundland and Labrador. The survey results will provide empirical evidence on the value of eelgrass meadows to communities in Atlantic Canada and make public perceptions available for policy makers and conservation managers.

GROUP DISCUSSIONS

Policy across landscapes

Existing policies designed to work across multiple landscapes could be used to inform the design of blue carbon policy or adjusted to include blue carbon. Examples of such policies include Quebec's [Act respecting the conservation of wetlands and bodies of water](#), which takes the approach of avoiding and minimizing human disturbances and British Columbia's [environmental mitigation policy](#) and [framework for developing emissions offset projects](#). Provisions under the *Fisheries Act* could also be used to protect blue carbon. In the United States, California has developed a [carbon inventory](#) that quantifies carbon stocks and greenhouse gas fluxes across landscapes, and which could be used as a model for a Canadian inventory. The state of Maine's [Maine Won't Wait](#) Climate Plan requires the state department to establish a baseline for all carbon sinks including blue carbon by 2023, and this plan could also be used as a model by Canada. An alternative approach could involve working towards incorporating carbon targets into international commitments, such as the [Convention on Biological Diversity](#), which would then need to be integrated into Canadian policies.

Key challenges to developing blue carbon policy across landscapes include data gaps, the requirements of additionality and permanence for carbon credits, and a lack of national leadership and mandates.

There is a lack of data on carbon flows within and among blue carbon habitats. Canada does not have a systematic inventory of wetlands across the country at the level of detail needed to effectively manage ecosystems, and even less data is available for blue carbon. This lack of data means that Canada does not currently include coastal ecosystems in the accounting of greenhouse gas emissions.

Carbon credit opportunities for blue carbon habitats are complicated by the requirements of additionality and permanence. Human interactions and the dynamic nature of blue carbon ecosystems make it difficult to establish additionality and permanence. More data on carbon sources relative to carbon sinks are needed to avoid double counting carbon among ecosystems. Whether specific credits are counted at the provincial or federal level also needs to be outlined. [Atmospheric Benefit Sharing Agreements](#) such as the [Great Bear Rainforest agreement](#) outline the ownership of and right to sell carbon credits in specific territories. These agreements link carbon and environmental values and assign primary ownership of carbon credits to local First Nations, whose land stewardship over time has maintained the carbon stores.

One of the largest challenges to developing blue carbon policy across landscapes is the lack of a national mandate. Although opportunities exist for the inclusion of blue carbon in policies

across Canada, leadership and coordination at the federal level is needed to bring regulations and policies together to create cohesive and consistent protections. As well, a commitment at the national government level is needed to systematically measure blue carbon resources along the full length of the coastline.

Navigating multiple management jurisdictions

Federal, provincial, municipal and Indigenous governments have different mandates and programs, and communication between these groups is key to making progress in managing across jurisdictions. For example, shoreline work requires in-the-water work, which can fall under multiple jurisdictions. Multiple streams of funding from government bodies also create challenges when developing and implementing blue carbon projects. A lack of foundational frameworks creates challenges for streamlining the integration of public and private funding, as well as buy-in to blended financing mechanisms for municipalities.

There are examples of multiple management jurisdictions collaborating to fund projects in Canada. Communication between jurisdictions led to a funding partnership between the New Brunswick provincial government and Fisheries and Oceans Canada (DFO) for salt marsh restoration. Work by the Canadian Wildlife Service is attempting to improve communication and build funding programs complementary to DFO's Coastal Restoration Fund and Environment and Climate Change Canada's programs. In Nova Scotia, shoreline protection and mitigation using Nature-Based Solutions in Mahone Bay is funded by insurance companies but still requires additional funders.

Collaboration is also needed to facilitate application and permitting processes. There are incentives and streamlined processes in the United States for Living Shoreline projects, however the current wait time for application processing in Canada for similar projects is too lengthy for homeowners and does not incentivize shoreline restoration. Application processes that can satisfy the requirements of multiple jurisdictions are needed in Canada to reduce barriers for landowners.

Blended financing mechanisms could be used to fund the restoration of natural assets at the municipal level in Canada. Some work has been done in Ottawa and Alberta on the cost benefit analysis of natural assets and the value of green space. However, quantifying natural assets is an ongoing challenge, becoming even more complicated in situations where natural assets are owned privately yet have public value. A potential strategy to address this challenge is to develop payout mechanisms for private owners who are maintaining natural assets that provide public benefits.

Building ethical blue carbon projects

Indigenous Knowledge is incredibly valuable to research and conservation projects. For example, Indigenous land users are connected to their environment and recognize changes that are occurring. While Indigenous knowledge should be included in blue carbon work, this inclusion should happen in accordance with the principles and laws of Indigenous governments and communities.

The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and the First Nations Principles of OCAP (ownership, control, access, possession) apply to all conservation work, including research and restoration in the field of blue carbon. Currently, there are not many mandates in Canadian law that require researchers and practitioners to follow UNDRIP and OCAP when conducting blue carbon work. Areas where some legal mandates exist include the territory of Nunavut, lands governed through the James Bay and Northern Quebec Agreement, and the Province of British Columbia where UNDRIP is being implemented.

Designing and implementing legal frameworks for ethical engagement with Indigenous peoples on research and restoration projects requires time. While legal frameworks are being pursued, blue carbon researchers and practitioners should build projects in ways that work towards reconciliation. Many universities require graduate students and professors to obtain internal ethics board approvals prior to engaging with Indigenous peoples, but the ethics board requirements are limited in scope. Granting organizations are now encouraging partnerships with Indigenous communities as part of the applications process. Ideally research and restoration projects should be co-created with Indigenous peoples. This requires building relationships with Indigenous peoples before projects start. We should also look to Indigenous initiatives such as the [Indigenous Circle of Experts](#) for [resources](#) on how to approach blue carbon work.

Managing multiple impacts to blue carbon ecosystems

There are a variety of activities in terrestrial and freshwater habitats that impact blue carbon ecosystems, including agriculture, forestry, boat traffic and coastal development. There are also a variety of solutions that could mitigate impacts from these activities, including regulatory, market, policy and communication-based approaches. Managing ecosystems for cumulative effects with a cohesive framework and coordinated guidance is necessary. Given the multiple jurisdictions involved when addressing threats from terrestrial and freshwater environments, leadership and coordination among jurisdictions will be important to implementing effective solutions.

Market tools can help incentivize actions which mitigate impacts on blue carbon habitats. For example, farmers receiving carbon credits for improved practices could reduce impacts to blue carbon ecosystems affected

by agricultural runoff. Incentivizing blue and green infrastructure could also help mitigate impacts to blue carbon from adjacent ecosystems.

Communicating to policy makers the importance of blue carbon ecosystems and the potential of these ecosystems as Nature-Based Solutions is important. Informed policy makers and decision makers can ensure that blue carbon is included in government funding opportunities, the [federal greenhouse gas offset protocols](#), and Canada's [Nationally Determined Contributions](#) reported to the United Nations Framework Convention on Climate Change. Including blue carbon in these initiatives would help demonstrate the importance of protecting, restoring and managing blue carbon ecosystems to support climate change mitigation.

The inclusion of blue carbon in regulatory processes such as environmental impact assessments would also support the mitigation of impacts to blue carbon ecosystems. This inclusion would ensure more attention for enhanced monitoring and policy development for blue carbon ecosystems. Integrated terrestrial and marine protected areas could also be a policy tool to abate impacts to blue carbon ecosystems.



KEY POINTS

Participants in the breakout sessions were asked to highlight key points that arose during their discussion. Included below is a summary of those key points. Note that no participants chose to discuss question 5.

How can we work on **policy across landscapes** (land, coastline, marine, freshwater) to build a cohesive framework?

- Federal leadership and coordination are needed to provide a national mandate for blue carbon policy, as well as a commitment to systematically measure blue carbon resources.
- A lack of data on carbon flux and storage among blue carbon habitats complicates policy development and carbon offset accounting. Primary ownership of carbon credits should reside with Indigenous peoples.

How can we navigate **multiple management jurisdictions** when developing and implementing blue carbon projects?

- Communication among federal, provincial, municipal and Indigenous governments is key, given their different mandates and programs.
- There are examples of successful projects within multiple management jurisdictions but coordinated funding sources and collaboration opportunities still need to be developed.
- There is a lack of foundational frameworks for blended finance which creates challenges for streamlined integration of public and private funding for restoration projects.

What are the pathways to ensuring that all blue carbon work adheres to **The First Nations Principles of OCAP** (ownership, control, access, and possession) and the **United Nations Declaration on the Rights of Indigenous Peoples**?

- The lack of legal requirements to implement OCAP and UNDRIP and the need for widespread legal changes to recognize the knowledge and rights of Indigenous peoples across Canada applies to the blue carbon context.
- Researchers and practitioners should not wait for legal advancements to outline the pathway forward. We need to take responsibility to act ethically by following UNDRIP, OCAP and the Indigenous laws of the territory on which we live and work.
- Adhering to Indigenous laws and principles is necessary in blue carbon work and all conservation work.

How can we manage **multiple impacts** to blue carbon systems that originate in terrestrial or freshwater environments?

- Better collaboration on blue carbon initiatives is needed among jurisdictions including work focused on threat abatement, restoration and protection.
- Synthesized research needs to be made accessible and communicated to policy and decision makers; what gets measured gets managed.
- Policy, regulatory and market tools such as protected areas, national inventory reporting, and carbon markets are available but not necessarily used effectively to protect blue carbon ecosystems. We need to put blue carbon on the agenda.

APPENDICES

Workshop Agenda

Building Connections for Blue Carbon Across Canada

Policy – February 24th 2021

10am-12:30pm PST, 1pm-3:30pm EST, 2pm-4:30pm AST, 2:30pm-5pm NST

How can we build a policy framework which facilitates blue carbon projects aimed at sequestering carbon, increasing biodiversity and improving resilience to climate change?

Workshop Objectives

Through a series of focused workshops, these sessions will bring together a range of blue carbon researchers and practitioners from across Canada to:

- Facilitate connections within the blue carbon community and share information about ongoing blue carbon work
- Discuss key questions on blue carbon research, policy and application
- Identify areas of opportunity to advance collaboration on blue carbon across Canada

1:00 – 1:15pm EST	Welcome
1:15 – 2:00pm EST	Invited Speakers <ul style="list-style-type: none">• Dr. Natalie Ban, University of Victoria• Deborah Carlson, West Coast Environmental Law• Sage Melcer, Insurance Bureau of Canada
15 minute break	
2:15 – 3:15pm EST	Breakout Groups – focused discussions
3:15 – 3:25pm EST	Speed Talks – getting to know our community <ul style="list-style-type: none">• Al Hanson, Canadian Wildlife Service• Tanya Prystay, Marine Institute
3:25 – 3:30pm EST	Wrap Up

Discussion questions:

1. How can we work on policy across landscapes (land, coastline, marine, freshwater) to build a cohesive framework?
2. How can we navigate multiple management jurisdictions when developing and implementing blue carbon projects?
3. What are the pathways to ensuring that all blue carbon work adheres to The First Nations Principles of OCAP (ownership, control, access, and possession) and the United Nations Declaration on the Rights of Indigenous Peoples?
4. How can we manage multiple impacts to blue carbon systems that originate in terrestrial or freshwater environments?
5. How can we design blue carbon policy to ensure equitable use of marine resources?

Next up:

Ecosystem Approach, March 24th

Next Steps, April 14th



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Participant List

Participants were asked upon registration if they would like their names, organizations and emails included in a summary report to facilitate connections within the blue carbon community. The participants who answered 'yes' to that question appear in the table below.

Name	Organization	Email
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Julia Stoughton	Clean Foundation	jstoughton@clean.ns.ca
Julian Zelazny	The Nature Trust of British Columbia	julian.zelazny@naturetrust.bc.ca

Blue Carbon Initiatives and Resources

Below is a list of blue carbon initiatives and resources mentioned by participants during the workshop.

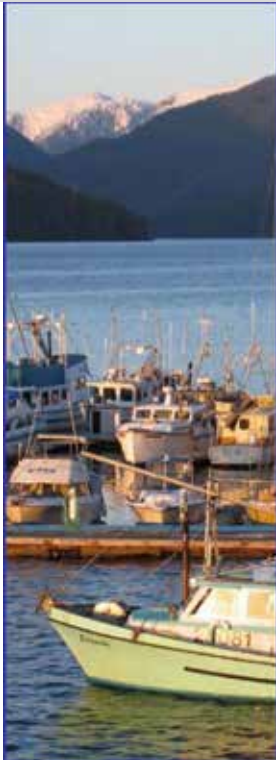
- [BEAHR Building Environmental Aboriginal Human Resources](#) – Customizable training for Indigenous communities
- First Nations Principles of [OCAP](#) (ownership, control, access, possession)
- [Funding Proactive Restoration of Wetlands on Agricultural Land](#)
- [How to Be an Ally of Indigenous-led Conservation](#)
- [Indigenous Circle of Experts](#)
- [Insuring and Restoring the Natural Assets that Protect Coastal Communities](#)
- [Native Land](#) – map of Indigenous lands
- [Nature-Based Insurance for Watershed Protection](#)
- [Nature-Based Insurance Solutions](#)
- [REDD A Framework for Defining Equity](#)
- [Understanding OCAP](#)



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Presentation pdfs

Invited talks



Considerations for blue carbon initiatives from experiences in conservation

February 24, 2021

Natalie Ban (nban@uvic.ca; @MarineCons)

And many teachers, collaborators, students, and partners



Thin slices of halibut drying in the sun. Gitga'at territory



Source: <https://native-land.ca/>



Masks surrendered under duress by the Kwakwaka'wakw people after Chief Dan Cranmer's potlatch in 1921. Photographer unknown. Royal British Columbia Museum, PN 12191.

The tribes paying the brutal price of conservation



▲ Three generations of women in a San Bushmen family
Photograph: Jason Edwards/National Geographic/Getty Images

Across the world, governments are protecting habitats. But indigenous peoples are being evicted

Source: <https://www.theguardian.com/global-development/2016/aug/28/exiles-human-cost-of-conservation-indigenous-peoples-eco-tourism>



Bighouse in Klemtu, Kitasoo/Xai'xais territory

INDIGENOUS LEADERSHIP INITIATIVE

[Our Work](#) [Resources](#) [Blog](#) [News](#) [About Us](#)

How to Be an Ally of Indigenous-led Conservation

JUL 8



<https://www.ilnationhood.ca/publications/how-to-be-an-ally-of-indigenous-led-conservation>

Trust Indigenous Leadership

Create Space for Indigenous Voices

Understand the Connection Between Land and Nationhood

Recognize Indigenous Science

Participate with Interest



Photo credit: Laura Hope <https://coastfunds.ca/news/new-state-of-the-art-building-expands-stewardship-efforts-in-klemtu/>

Focus on Solutions

Share Stories with Respect

Continue to Learn

Influence Your Peers





Speed talks

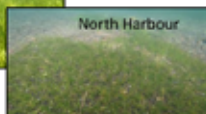
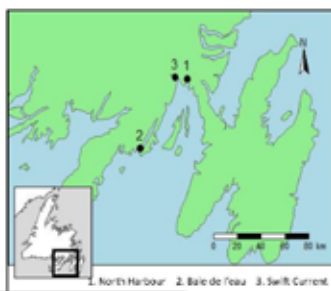
Federal Policy on Wetland Conservation – Al Hanson, Environment and Climate Change Canada

- Approved by Cabinet in 1991, applies to all GOC Depts, Agencies, and Decisions.
- Promotes the conservation of Canada’s wetlands to sustain their ecological and socio-economic functions, now and in the future. Based on principle of “Wise-Use”.
- FPWC applies to the Federal Government; respects provincial/territorial powers and mandates.
- Many provinces have adopted complementary wetland conservation policies.
- Strong links to Canada’s commitments under UN Ramsar Convention.
- Advocates use of Mitigation Hierarchy: Avoid, Minimize, Compensate.
- Goal of “No Net loss of Wetland Functions” on Federal lands and waters, areas of the country where wetland loss has reached critical levels, wetlands designated as socially and/or ecological important (e.g. eelgrass, salt marshes).
- Salt marsh and eelgrass compensation projects completed through FPWC.
- Emphasis is on conservation of existing wetlands.
- FPWC Mitigation Hierarchy is consistent with the **EC Operational Framework for Use of Conservation Allowances 2012** and Ramsar COP11 (2012): **An integrated framework for avoiding, mitigating and compensating for wetland losses.**

Identifying the Social, Cultural and Economic Values of Eelgrass (*Zostera marina*) Meadows According to Canadian Atlantic Communities

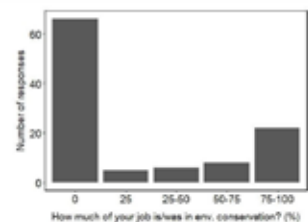
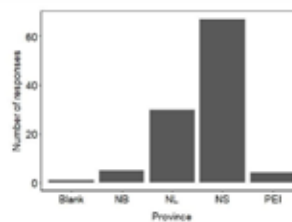
Tanya Prystay, Dr. Barbara Neis, Dr. Arnault Le Bris

Tanya.Prystay@mi.mun.ca



Snowball-style, exploratory online survey

1. How Canadians in Atlantic communities value eelgrass?
2. How have eelgrass meadows changed according to individuals living in Canadian Atlantic communities?
3. According to the public, what factors are driving changes (if any)?
4. And how do Canadians in North Atlantic communities hope to see eelgrass managed (if at all)?





A Canada with abundant
wildlife, where nature and
people thrive.

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