



FINANCING COASTAL BLUE CARBON IN CANADA:

POTENTIAL TOOLS FOR SUPPORTING
PROTECTION, RESTORATION AND STEWARDSHIP
OF BLUE CARBON ECOSYSTEMS

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INTRODUCTION

Coastal blue carbon is the carbon stored in intertidal and nearshore ecosystems such as seagrass meadows, salt marshes and kelp forests. As well as storing carbon, these ecosystems provide valuable habitat for wildlife, including species at risk, and support many fisheries by acting as nurseries for juvenile fish. Healthy coastal blue carbon ecosystems can also provide protection against coastal erosion and improve water quality. Canada has the longest coastline in the world, and the amount of carbon stored along our coastline in blue carbon habitats will likely be a “globally significant number.”¹ The protection, stewardship and restoration of coastal blue carbon ecosystems in Canada provide a major opportunity – and represent a major responsibility – for those aiming to address biodiversity loss, mitigate climate change and support healthy coastal communities.

Although the length of Canada’s coastline provides many opportunities, there are multiple challenges for coastal blue carbon protection, stewardship and restoration initiatives. For example, long stretches of Canada’s coastline are sparsely populated with limited access points, while other stretches are highly industrialized. Underwater work, especially for restoration, can be very expensive. And the scale of the work is unprecedented: “While small-scale restoration initiatives have been implemented for centuries, collaborative large-scale restoration is needed to repair the world’s extensive human-modified land and seascapes” (WWF-Canada, 2020).

So how do we work in coastal blue carbon ecosystems at a scale large enough to achieve significant impact along the longest coastline in the world? And how do we fund that work? The Nature Conservancy of Canada (NCC) estimates that the gap in funding for general conservation work in Canada is \$15–20 billion annually (Kosciolek et al., 2020). In particular, finding funding for monitoring is a recurring challenge,² even though long-term monitoring and stewardship of restored blue carbon habitats may lead to increased benefits (Stewart-Sinclair et al., 2021).

In the past decade, there has been increasing interest in developing and applying innovative finance tools to support conservation work, address climate change and protect natural ecosystems from unsustainable exploitation and destructive practices. Simultaneously, driven by both social responsibility and financial risk, some in the financial sector are beginning to move away from investing in fossil fuel-intensive sectors of the economy,³ a shift that frees up private capital for investment in more sustainable activities. While many finance tools developed in recent years have focused on the terrestrial realm, there is new interest in redesigning and developing tools to support conservation, stewardship and restoration in marine environments, including blue carbon habitats.⁴

This report explores finance⁵ tools to identify new opportunities for funding large-scale, impactful coastal blue carbon projects within a Canadian context. The report does not exhaustively explore all potential conservation finance tools. It focuses instead on some promising examples, particularly for blue carbon, including bonds, impact investing, payments for ecosystem services, nature-based insurance solutions and trust funds. In addition to exploring how these tools can be applied, we note some potential pitfalls and discuss how conservation finance projects could be developed ethically.

1 Quoted from Dr. Karen Filbee-Dexter, during an invited talk at the Building Connections for Blue Carbon Across Canada workshop series, January 14, 2021.

2 Funding for long-term monitoring was repeatedly identified as a challenge at the [Building Connections for Blue Carbon Across Canada](#) workshop series from January to April of 2021.

3 For example, the world’s largest fund manager (Blackrock) announced in January 2020 that it would divest from coal and reduce exposure to other fossil fuels (Partridge, 2020). The divestment movement in general continues to grow (<https://gofossilfree.org/divestment/commitments/>).

4 For example, the [Ocean Risk and Resilience Action Alliance](#) (ORRAA) is aiming to develop at least 15 new finance products by 2025, and drive US\$500 million of investment in coastal Nature-Based Solutions by 2030. Although their work focuses on the Global South, ORRAA is funded in part by the government of Canada (The Economist, 2021).

5 The Conservation Finance Alliance defines conservation finance as follows: “mechanisms and strategies that generate, manage, and deploy financial resources and align incentives to achieve nature conservation outcomes” (Meyers et al., 2020).

BUILDING SUSTAINABLE ECONOMIES

Many organizations that work on conservation finance acknowledge that “business as usual” finance can be incredibly destructive (Walsh, 2018; WWF, 2021). However, there are models for developing economies that work with nature, rather than focusing solely on extraction and exploitation of natural resources. In general, sustainable economic models emphasize equitable access to the economy, equitable distribution of benefits, strong governance, community-based and community-led designs, and an alignment with ecosystem stewardship and regeneration. These models tend to be developed in a very place-based manner (Reid-Kuecks et al., 2012). Many sustainable economic models have been or are being developed by Indigenous Peoples. The Yellowhead Institute’s Cash Back report (2021) notes that “Indigenous economies are grounded in the social, political, and ecological relationships to which they are held accountable.” Also, sustainability is a defining quality: “At their core, what makes them Indigenous economies is that they do not exploit that which they depend upon to live, including people. And they protect a world that is not prepared to value people’s time, homelands, and harvests solely in cash.”

Conservation Economy

Reid-Kruecks et al. (2012) note that the conservation economy “aims to enhance or restore natural capital, build good livelihoods, embrace cultural diversity, improve social equity, respect Aboriginal title and achieve greater community cohesion and resiliency over time.” A conservation economy takes a holistic approach, realigning priorities to better balance environmental, social and economic outcomes while considering how the outputs of various economic enterprises impact each other with the aim of building a more resilient economy long term (Reid-Kruecks et al., 2012). Similarly, Valerie Courtois, director of the Indigenous Leadership Initiative, describes the conservation economy as follows: “the root of the source of the economy is one that’s oriented towards the maintenance and health of land first and foremost rather than the maintenance and development of particular development projects” (Townsend and Craig, 2020). Both approaches shift priorities away from individual, short-term projects focused only on economics.

Example Conservation Economy project: Aviqtuuq Indigenous Protected and Conserved Area (IPCA)

The Aviqtuuq Indigenous Protected and Conserved Area project, Niqihagut, includes plans to build a conservation-based economy. The project aims to develop a sustainable economy based on food sovereignty and Indigenous-led conservation and protection where “country food [is] a social and cultural catalyst in a community where Inuit help and support one another” (Oleekatalik, 2020). In addition to sustainable harvesting practices, the plan includes the development of a cut-and-wrap facility to prepare and distribute food, small-scale fisheries, outfitting camps and tourism opportunities (Oleekatalik, 2021). Guided by Inuit values, the project aims to provide local employment, access to healthy food and food security, and is based on sustainable harvesting and intergenerational knowledge exchange (Oleekatalik, 2020). Like other conservation-based economies, the project acknowledges the explicit connection between a social need (food security) and sustainable relationships with land, water and wildlife.

Blue Economy

The blue economy is distinct from the more general “ocean economy” that encompasses all business and industry related to the marine environment. The blue economy includes only sustainable businesses and has a focus on governance and equity (Bennett et al., 2019). Cisneros-Montemayor et al. (2019) define the blue economy as “ocean resource-based development that is socially equitable, environmentally sustainable, and economically viable.” In general, while the ocean economy is focused on growth and expansion, the blue economy is focused on transformation towards an economy whose goal is social well-being. Key components of the blue economy are procedural justice, which ensures inclusion, and distributional justice, which ensures that risks and benefits are distributed equitably (Cisneros-Montemayor et al., 2019).

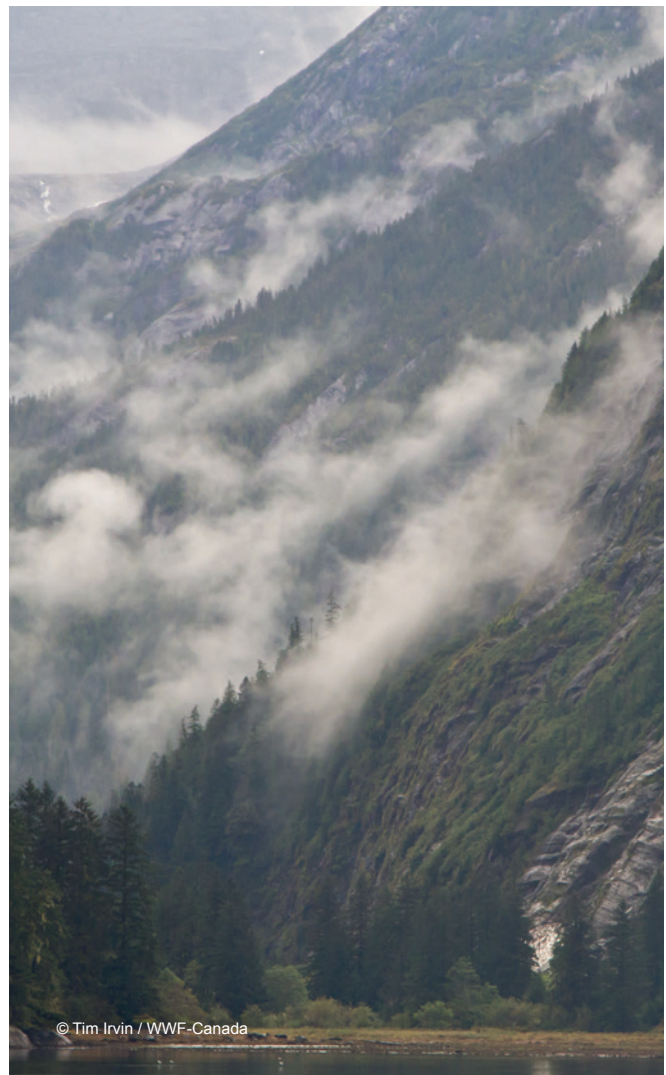
PRINCIPLES FOR EFFECTIVE AND EQUITABLE CONSERVATION FINANCE

Many non-governmental organizations (NGOs) already work and publish on conservation finance, and even blue carbon finance specifically (although blue carbon finance is relatively new). However, conservation finance tools need to be developed and implemented contextually (Meyers et al., 2020), such that historical and current inequities are addressed, and projects are developed in alignment with the needs and priorities of local communities where the work will take place (Sumaila et al., 2020). This report examines blue carbon finance through a Canadian lens, using Canadian case studies where available to highlight possibilities.

Bladon et al. (2014) identify several pre-conditions for successful conservation finance projects (specifically trust funds) which can be adapted to apply more generally to coastal blue carbon finance projects:

- Local participation and a common vision among participants (ideally co-development of projects with communities and Indigenous-led projects).
- Thoughtful design of finance tools to meet specific conservation needs.
- Political buy-in (if public funding or policy changes are needed) and a link between conservation projects and regional or national environmental strategies.
- Financial expertise and capacity among the project leaders or through strategic partnerships.
- Appropriate governance frameworks.
- Adequate funding for implementation partners.
- Methods for monitoring and evaluating the impact of finance tools.

It should be noted that conservation finance does not guarantee perpetual sustainable revenue for conservation work, but rather provides a strategic focus for financial planning to support particular goals (Walsh, 2018).



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Implementing Conservation Finance Tools to Support Decolonization

Colonial systems have led to the destruction of ecosystems and biodiversity (M'sit No'kmaq et al., 2021). Conversely, 40% of the world's terrestrial areas that are protected or ecologically intact are under Indigenous stewardship (Garnett et al., 2018). In Canada, the number of Indigenous Guardians programs, which manage, steward and protect lands and waters, continues to grow. So how can we develop conservation finance tools to support Indigenous-led conservation? How do we avoid conservation finance tools that further entrench economic systems that violate Indigenous rights and marginalize Indigenous communities? And when we develop and implement conservation finance tools, what are the risks of further violation of Indigenous rights and marginalization of Indigenous communities? If we are to avoid perpetuating colonial practices within new conservation finance projects, we need to first understand the colonial mechanisms aimed at controlling and suppressing Indigenous wealth generation.

Case Study: Economic Marginalization of Indigenous Peoples in the Fishing Sector

The Canadian fishing sector provides many historical and current examples of the strategic economic marginalization of First Nations. In the late 19th century, fisheries regulations in British Columbia artificially separated Indigenous fisheries into food and commercial sectors (Newell, 1993), the aim being to “maximize the fish available to other users, primarily the canning industry, but also to sport fishers” (Harris, 2009). The Indigenous food fishery became heavily controlled: “Fisheries officials relied on other techniques to contain the food fishery, notably surveillance, confiscation of fishing gear, and harassment” (Harris, 2009). Commercial licences were rarely granted to Indigenous individuals (Newell, 1993; Harris, 2001), and Indigenous fishers had trouble gaining access to capital to purchase fishing boats and gear (Harris, 2009). The Canadian state took control of the management and allocation fisheries resources and paid no rent to the Indigenous Peoples who had been managing these resources for generations (Newell, 1993). These regulations and their enforcement limited the ability of Indigenous Peoples to manage their fisheries, make a living, accumulate wealth, and participate in the fishing industry at any position other than labourer (Burrows, 2015; Harris, 2009).

To this day, Canada continues to economically marginalize Indigenous Peoples through fisheries regulations and policies. On the East Coast, despite existing treaty rights (see 1752 and 1760–61 treaties) upheld by the [Supreme Court](#), rightsholders can be arrested for fishing (Googoo, 2018; Googoo, 2019a,b; Moore, 2021), have their traps confiscated (Meloney,

2018; The Canadian Press, 2021), and are restricted from selling their catch (McKinley, 2021). Federal negotiators have required the relinquishment of treaty rights in return for access to commercial licences (Forester, 2020 quoting Chief Darlene Bernard). They have pushed First Nations towards assimilation into non-Indigenous commercial fisheries, rather than recognizing their right to self-govern (evidence given by Chief Darcy Gray and Chief Wilbert Marshall to the Standing Committee on Fisheries and Oceans (2021)). When First Nations do reach an agreement with Fisheries and Oceans Canada (DFO) to fish and sell their catch, authorization from the federal government can be withdrawn, allegedly for electoral reasons (Fennario, 2021).

Hilton (2021) describes similar issues on the West Coast:

There is a story Canadians never hear about: Canada is still in court fighting this right to an economy, the right to sell fish. The Nuu-chah-nulth prepared for 10 years for this case, won it in 2009, and are still in court negotiating these rights another 10 years later. We live in a country with a high percentage of Indigenous Peoples living in poverty, with a proven right, still fighting the modern right to sell a fish, the right to commerce, and the right to an economy.

As the authors of the Cash Back report (Yellowhead Institute, 2021) put it, “Indigenous economies coexist with settler economies, but Canadian, provincial, municipal, and corporate interests are always prioritized.”

Unless care is taken, conservation finance, including for blue carbon initiatives, can perpetuate historical and current colonial systems. This danger arises if Indigenous Peoples are prevented from leading the development of projects according to the needs and priorities of their communities. How do we ensure that the past and current economic marginalization of Indigenous communities is not replicated? A necessary first step is integrating economics into conservation projects in a way that foregrounds Indigenous needs and priorities. Projects that pair conservation goals with conservation finance can and should be Indigenous-led and designed to support Indigenous self-governance and self-determination. They must also provide measurable social and economic benefits to Indigenous communities.

To decolonize conservation finance for blue carbon projects and other nature-based solutions, we can

- co-create and co-develop projects with Indigenous governments and organizations that prioritize the needs and values of Indigenous communities
- support data sovereignty, ensuring that Indigenous Peoples maintain ownership and control over data collected on their lands, waters and in their communities including social, economic and environmental data
- support wealth sovereignty, ensuring that Indigenous Peoples can develop local economies according to their needs and priorities and retain the wealth derived from their lands and waters
- consciously support Indigenous Peoples as they build the economy they want and that addresses their needs, rather than unwittingly furthering their assimilation into the Canadian settler economy

On Risk and Responsibility

In conservation finance, investment risk is a key factor to consider. Risk is often described in monetary terms and in relation to private-sector gains. This perceived risk is one of the primary barriers to increasing private capital in conservation projects. Often the approach to overcoming this barrier – and making private investment more palatable – is to have the public or philanthropic sector shoulder an increased risk burden. The following tools can encourage investment in conservation by mitigating private-sector risk:

- Development grants to build capacity in private investment firms for conservation investment (Scott, 2021).
- Guarantees on return of capital to private investors (guarantees are usually offered by a public institution) (Scott, 2021).
- Equity cheques (usually written by public institutions or philanthropic foundations to catalyze private investment) (Scott, 2021).
- Blended finance (a mix of public, philanthropic and private finance) (Deutz et al., 2020; Meyers et al., 2020).

This approach raises questions: Is it always ethical or sustainable to shift risk from private to public and philanthropic institutions? How far should public and philanthropic institutions go to enable private profit in search of conservation gains? In a newly evolving field, those seeking to ethically implement conservation finance solutions across all sectors need to identify the best path forward for individual projects. When developing and implementing conservation finance projects, stakeholders need to broaden their consideration of risk to include the following (Rodewald et al., 2020; WWF Switzerland and PwC Switzerland, 2020; WWF International, 2020):

- **Reputational risk:** Ignoring biodiversity loss and climate change or acting to perpetuate them can alienate environmentally conscious partners, investors or consumers.
- **Physical risk:** Risk to assets, for example through floods, wildfires and hurricanes.
- **Transitional risk:** Adjusting to new regulations aimed at mitigating climate change can tie up resources and money.
- **Legal risk:** Perpetuating climate change could potentially lead to litigation.
- **Financial risk:** This risk can, for example, come from write-downs and write-offs of assets, increased insurance claims and premiums.
- **Systemic risk:** The risk of decreased biodiversity and ecosystem functioning both to and from financial activity.
- **Socialized risk:** The risk that public subsidies sustain private profits in an effort to attract private investment.

Indigenous worldviews of risk often stand in stark contrast to the approach taken by private capitalist institutions and settler governments (Hilton, 2021). Indigenous Peoples do not seek to shift risk and responsibility onto others: “It is the sense of responsibility and managing of risk that is at the very center of Indigenous existence and reality” (Hilton, 2021). Caretaking and stewarding land and water are central to many Indigenous worldviews. Yet time and time again, Indigenous Peoples’ stewardship action is impeded by corporations and governments alike. (See Hilton, 2021, pages 20–29 for specific examples.)

It is also worth noting that the biggest risk of all is posed by inaction in the face of climate change and biodiversity loss (WWF International, 2020), and that the risk of inaction increases over time (WWF Finance and Ocean Practice, 2020). When developing and implementing conservation finance tools, we should consider the following questions:

- What are the environmental, social and economic risks associated with a given tool or approach?
- Who shoulders the risk?
- How can risk be distributed equitably?
- How can we think beyond risk to include responsibility and accountability?
- How can positive changes be sustained over time?

On Equity

WWF-Canada supports Indigenous-led conservation and respects the treaty rights, land title and governance structures of Indigenous Peoples. Throughout this report we refer to Indigenous rights and equity; both are important for building conservation finance projects that not only avoid marginalizing Indigenous Peoples and equity-seeking groups, but also actively support decolonization and the well-being of all communities. An equity-based approach includes exploring inequities beyond rightsholders (REDD-net, 2011) and can be used alongside an approach that honours treaty rights. When designing conservation projects, we need to keep in mind several different types of equity:

- **Distributional equity:** The distribution of risks, burdens and benefits to ensure fairness among groups (REDD-net, 2011; Bennett et al., 2021; Österblom et al., 2020).

- **Procedural equity:** Representation, inclusion and a meaningful role in decision-making (REDD-net, 2011; Bennett et al., 2021; Österblom et al., 2020).
- **Contextual equity:** The political, social and economic conditions that may limit or facilitate inclusion, participation in decision-making and the allocation of risks, burdens and benefits (Bennett et al., 2021; REDD-net, 2011).
- **Intergenerational equity:** The management and use of resources such that future generations will have access to the same benefits as today's generation (Österblom et al., 2020).

CONSERVATION FINANCE TOOLS AND BLUE CARBON

The sections below explore bonds, impact investing, payments for ecosystem services, nature-based insurance solutions and trust funds. Each section includes a brief summary of the tool's key characteristics ("In a Nutshell"), followed by more detailed information and one or more case studies. Also included where found are "guiding principles" (national or international standards used to ethically implement the tool). In some cases, familiar tools are applied in new ways to address the challenges of coastal blue carbon conservation.

When reading the sections below, note these important considerations:

- These tools can be used individually or in combination to meet funding needs as large-scale projects are developed.
- A range of partners is needed to implement these tools. Partners can include the insurance, finance, and philanthropic sectors; communities; Indigenous governments and organizations; government agencies; non-governmental organizations (NGOs) and consulting firms.
- Conservation finance tools can undergo multiple stages of development, and conservation organizations may be particularly suited to only one stage of implementation. For example, early funding often comes from the philanthropic and public sectors, followed by private investments (Sumaila et al., 2020).
- Like any tool, conservation finance tools can be applied poorly, resulting in negative impacts to the environment, the climate and people (Nature-based Solutions Initiative, 2021), as well as violations of Indigenous rights and treaties.



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Bonds: In a Nutshell

What are they? Bonds are often used to raise money to carry out projects in the short term that otherwise would be unaffordable and/or that save money in the long term (Deutz et al., 2020). They are usually issued by a government and can be traded on exchanges. The cost savings from the projects are used to pay back the investors. Investors are paid a fixed interest rate on a fixed schedule and receive their principal back at a fixed end point (when the bond matures) (Roth et al., 2019). What makes “environmental” bonds different is that they are used to raise money to achieve a specific environmental goal (Kosciolek et al., 2019; Friends of Ocean Action, 2020).

What sum of money is involved? Bonds are usually large (US\$100 million and up) (Credit Suisse and UNEP FI, 2016; Clarmondial AG, 2017). The interest rates that investors receive are typically low relative to other types of private-market investment returns.

What are the cautions for applying this tool?

Bonds often need to be issued by large organizations with high credit ratings (usually national, provincial or municipal governments or financial organizations). Bonds usually need to be large to keep administration costs manageable. Bonds are suited to projects that result in a financial return or cost savings, but can include some philanthropic contributions (see CIB case study below). Financial expertise is needed to structure and issue the bond.

What guiding principles exist for this tool?

[Asian Development Bank Safeguards](#)

[Blue Natural Capital Positive Impacts Framework](#)

[Climate Bonds Standard](#)

[Green and Blue Bond Framework](#)

[Green Bond Principles](#)

A common way to raise capital, bonds can be applied to conservation finance when they have a specific conservation objective (Friends of Ocean Action, 2020). The following are examples:

- [Green bonds](#) fund projects with sustainability goals.
- [Blue bonds](#) fund marine-conservation projects.
- Climate or [Climate resilience bonds](#) fund projects that aim to improve an area’s resilience to the impacts of climate change.

For example, if a government wants to invest in electrifying its public transit system to reduce GHG emissions and fuel costs but doesn’t have the capital available to do it, they could issue a green or climate bond to raise the funds and repay investors with the money saved in the long run. Bonds have been successfully deployed in Canada to achieve goals related to sustainability, mainly transitioning to clean technology and renewable energy (Kosciolek et al., 2020).

Bonds can have a variety of structures, depending on their aims and context. They can be used to make cost-saving investments in infrastructure as noted above, or to [refinance debt](#), freeing up money for conservation. They can also use a “pay for success” model, where the investment is only repaid if the projects achieve the predetermined measurable impact (Deutz et al 2020; Meyers et al 2020). This model can be useful for situations where interventions have not been proven as it keeps the risk on the side of the project implementers and incentivizes success (Deutz et al., 2020; Meyers et al., 2020; Rodewald et al., 2020).

Marine Case Study: Asian Development Bank Blue Bond

The Asian Development Bank issued the first-ever blue bond in 2021. Valued at around US\$151 million, the bond has an issue period of 15 years. The Asian Development Bank issued the bond to improve the scale and type of capital available for sustainable ocean projects and to address Sustainable Development Goal (SDG) 14. The bond will finance projects that involve ecosystem restoration, natural resources management, sustainable fisheries and aquaculture, the reduction of coastal pollution, the circular economy, marine renewable energy, and green ports and shipping (Asian Development Bank, 2021). The eligibility of projects for investment is outlined in the Asian Development Bank’s [Green and Blue Bond Framework](#).

Canadian Case Study: Carolinian Canada’s Conservation Impact Bond

Carolinian Canada’s Conservation Impact Bond (CIB), developed in partnership by Carolinian Canada and Deshkan Ziiibiing (Chippewas of the Thames First Nation), aims to restore land in the [Carolinian Zone](#). This biodiversity hotspot is home to one third of Canada’s endangered species and protects the drinking water of 11 million people. Home to 25% of Canada’s population (SVX , 2021a), the Carolinian Zone is also under immense human pressure. The CIB funds projects that aim to provide environmental, social and economic returns. The [Carolinian Canada](#) website describes how the bond works:

- The bond uses a mix of impact investing (where investors receive a financial return) and “pay for service” or “outcome” investors (where investors receive social, environmental and economic benefits but no direct financial returns).
- An independent evaluator determines which type of investor is needed and what the financial returns for impact investors will be for each phase.
- The restoration work relies on a network of “habitat growers” (local organizations with environmental and restoration expertise) who undertake various projects with measurable habitat benefits.
- Third-party evaluators are used to assess conservation impact.

The overall goal of the CIB is to mobilize \$2 million by 2023 to restore 1,000 hectares of land in the Carolinian Zone (SVX, 2021a). Launched in March 2020, the first phase of the bond (Deshkan Ziibi Conservation Impact Bond) raised \$150,000 in impact-investment capital (from Verge Capital) and \$300,000 in outcome-investment capital (from 3M) to improve 150 acres of habitat (SVX, 2021a). Launched in 2021, the second phase of the bond (Longpoint Walsingham Forest Conservation Impact Bond) aims to raise \$410,000 in impact investment funds for the restoration of 250 acres of land (SVX, 2021b). For more information, see [Financing Conservation in the Carolinian Zone, Part 2](#).

The CIB demonstrates how a bond can be structured to achieve environmental, social and financial benefits in the terrestrial realm. It could be used as a template to develop a similar conservation finance projects for blue carbon ecosystems.

Impact Investing

Impact Investing: In a Nutshell

What is it? Impact investing is purpose-driven investing with dual goals: supporting companies that create measurable environmental or social impact, and seeking a financial return.

What sum of money is involved? Typical investments are about \$500,000 per project, but impact investing can be implemented by bundling multiple smaller projects together or through an investment fund (Friends of the Ocean, 2020). Investors may accept below-market return rates (Clarmondial AG, 2017; Sumaila et al., 2020).

What factors favour the success of this tool? This tool is suited to projects that provide a financial return (e.g., the seafood or renewable energy sectors). Business expertise is needed to recognize opportunities, and financial expertise is needed to structure investments.

What are the cautions for applying this tool?

While this is an investment tool, philanthropic funding is often needed to identify eligible projects, provide technical expertise and kickstart the process. Care must be taken to ensure that public and/or philanthropic funding isn't driving private profits.

What guiding principles exist for this tool?

[Global Impact Investing Rating System \(GIIRS\)](#)

[Impact Reporting \(iPAR\)](#)

[Impact Reporting Investment Standards \(IRIS+\)](#)

Impact investing aims to invest in companies or projects that make a measurable social or environmental impact while also providing a financial return (Clarmondial AG, 2017; Kosciolk et al., 2020). As its goals go beyond mere financial return, impact investing is sometimes used to [bridge the gap between philanthropy and private investment](#). Impact investors are sometimes willing to tolerate higher risk and make longer-term investments (Friends of Ocean Action, 2020). Depending on the investor's risk tolerance and financial and/or philanthropic goals, impact investing can take a variety of forms:

- Investing in a standard manner, but reporting measurable social and/or environmental impacts in addition to financial returns.
- Providing seed money to support the growth of small companies that create social and/or environmental benefits.
- Providing a combination of repayable and non-repayable investments to support achieving specific goals.
- Providing concessionary capital⁶ to de-risk projects and entice additional investors (Kosciolk et al., 2020).

⁶ Concessionary capital can include investments that accept below-market returns, no market returns or “first loss” capital (which provides other investors the opportunity to recoup their investment if the project fails or underperforms) (Kosciolk et al., 2020). Similarly, Pryce (2018) defines concessionary capital as capital that “will reduce the difference between the perceived and the real risk of a deal, thereby incentivizing additional private investment”.

Marine Case Study: WWF-US and Seaweed Farming

WWF-US is currently using [impact investing](#) to support the development and scale-up of sustainable seaweed farming and related technologies. Seaweed farming has a variety of environmental benefits; for example, it provides a nutritious food source without using pesticides or fertilizers, takes up excess nutrients from the marine environment, and takes up and stores carbon. Seaweed farming also has a variety of social and economic benefits but is still nascent along Canada's coasts. The WWF-US program invests in early-stage companies that lack access to large capital markets, enabling them to develop and innovate faster. To date, their largest investment in a single company has been [\\$850,000](#) to [Ocean Rainforest](#), an early-stage company, to support their ocean farming operation along the coast in the Faroe Islands.

They have also invested in Oceanium, a company that processes seaweed for food and other uses. WWF-US's funding for the impact investing work comes from a private trust fund.

In addition to providing social, economic and environmental benefits, seaweed farming has the potential to increase blue carbon storage in the sediments below seaweed farms. [Oceans 2050](#) is currently completing a [global study](#) that measures carbon sequestration and storage at 22 seaweed farming sites. The results will be used to design a validation and verification method for carbon credits, potentially adding a revenue stream to this form of regenerative ocean farming.

Payments for Ecosystem Services (PES)

Payments for Ecosystem Services: In a Nutshell

What are they? Users or beneficiaries of an ecosystem pay the ecosystem's stewards for the services they provide. The payments from the users or beneficiaries are directed towards the ongoing conservation of resources and stewardship of ecosystems (Friends of Ocean Action, 2020).

What sum of money is involved? Payments vary widely among potential services. They can even vary within a particular service (as is the case where the payment for the regulatory service provided by carbon offsets varies between compliance and voluntary carbon markets).

What factors favour the success of this tool? Robust feasibility studies, a strong economic case, long-term planning, monitoring and evaluation, local participation, and recognition of Indigenous land title and rights are all required for success.

What are the cautions for applying this tool?

PES have some ethical pitfalls. For example, there are concerns that offset markets can result in avoidance or delays of much-needed action to improve sustainability and/or reduce pollutants and carbon emissions. Project developers also need to co-develop projects with local communities to ensure that projects are ethical and successful in the long term.

What guiding principles exist for this tool?

[Australian Carbon Industry Code of Conduct](#)
[IUCN Global Standard for Nature-based Solutions](#)
[Task Force on Climate-related Financial Disclosures](#)
[Taskforce on Nature-related Financial Disclosures](#)
[The Oxford Principles for net zero aligned carbon offsetting](#)
[10 principles for a landscape approach to reconciling agriculture, conservation, and other competing land uses](#)

Two main types of services can support payments for ecosystem services (PES): provisioning services, which result in the selling of raw materials such as fish; and regulating services, which include climate regulation, pollution control, and resilience to weather events and climate change (Friends of Ocean Action, 2020; Kosciolk et al., 2020). Payments for ecosystem services can be provided by philanthropic activity (see the ALUS case study), regulatory requirements (e.g., the carbon compliance market), corporate and individual social responsibility activities (e.g., the voluntary carbon market) or a mix of funding sources. PES must have an agreed-upon monetary value, as well as people or organizations who are willing to pay for the service. The latter may be a sticking point, since people are accustomed to benefitting from ecosystem services without actively paying for them. "Buyers" of ecosystem services may need to be motivated by individual values, corporate responsibility or regulatory requirements that align with PES.

There are a number of ethical concerns related to PES. First and foremost, the idea of commodifying nature does not align with all worldviews. Attaching a monetary value to ecosystem services can also be very difficult to do in practice, resulting in an oversimplified approach that excludes social and cultural values (Cisneros-Montemayor et al., 2019). When poorly developed, projects to generate PES can overlook Indigenous rights and exclude local communities, resulting in negative impacts and human rights abuses (Nature-based Solutions Initiative, 2021). PES can also result in greenwashing by companies or governments, exacerbating the environmental problem they purport to address (Nature-based Solutions Initiative, 2021). However, when executed well, PES can be transformative. They can enable a transition to sustainable land- and water-management practices, support Indigenous self-determination and provide much-needed funding to effectively steward ecosystems.

Canadian Case Study: ALUS Canada

[ALUS Canada](#) is a non-profit organization that supports farmers in the stewardship of their land to provide or enhance specific ecosystem services. Stewardship actions include restoring wetlands, reforestation with native trees and shrubs, planting windbreaks, installing riparian buffer systems, managing sustainable drainage systems and creating pollinator habitat. ALUS is currently active in six provinces and 31 communities. As of recently, the program includes 26,318 acres of wetland, 24,572 acres of pollinator habitat, and 6,082 acres of reforested habitat. ALUS works with researchers to evaluate the impact of its projects and has a series of guidebooks for how to monitor different ALUS projects.

ALUS pays farmers annually, on a per-acre basis, for the ecosystem services they provide. Payments are decided by a Partnership Advisory Committee that is unique to local ALUS programs. This committee is made up of 50 per cent farmers, as well as environmental groups, government agencies and industry. ALUS is funded by a variety of sources, including private foundations, federal and provincial governments, philanthropists, corporate social responsibility programs and NGOs.

The structure that ALUS uses to compensate farmers for ecosystem stewardship could be applied to blue carbon habitats. For example, a similar payment system could compensate land title holders for stewarding shoreline (e.g., salt marsh) ecosystems. Activities eligible for payments could include rewilding shoreline habitats with native vegetation, maintaining connectivity of terrestrial and marine habitats (e.g., properly designed culverts and bridges), and establishing healthy buffer systems to reduce agricultural and other runoff to the marine environment. However, under a system similar to ALUS, it would be necessary to attract philanthropic support to fund the payments for ecosystem services.

Carbon Credits

Carbon credits are generated through projects that sequester carbon or reduce or avoid carbon emissions; these credits are bought by individuals, organizations or governments to offset carbon emissions elsewhere. To be assessed as valid, carbon-offset projects (including blue carbon projects) must avoid the following pitfalls (Steer and Hanson, 2021):

- **Carbon leakage:** Reductions in emissions in one place result in the emissions being made in another jurisdiction.
- **Impermanence:** Emissions reductions or avoidance are reversed in the future.
- **Lack of additionality:** Carbon offsets are valid only if the emissions reductions or avoidance would not have happened without the project.

Common barriers to the development of blue carbon credit projects are the validation and verification requirements, which result in significant capacity demands and high administrative costs.

There are two types of markets for buying and selling carbon credits/offsets: compliance and voluntary. In the compliance market, industries and governments that have regulated GHG emissions can purchase offsets to comply with the regulations. In the voluntary market, individuals or corporations interested in social responsibility can purchase carbon offsets to compensate for their emissions. To date, carbon credits for blue carbon (specifically mangrove ecosystem) projects have been sold on the voluntary market. Though much smaller than the compliance market, the voluntary market is expected to grow substantially in the coming years.

Carbon-credit projects have the same ethical pitfalls as described above for PES in general. Many environmental organizations suggest that carbon offsets should be used only if combined with GHG emission cuts on par with science-based reduction targets (e.g., Nature-based Solutions Initiative, 2021; Steer and Hanson, 2021; Kosciolk et al., 2020), and only if companies can demonstrate they are doing all they can to reduce their emissions (Steer and Hanson, 2021). Carbon credits generated from ecosystem improvements should be documented and retired to contribute to measurable and long-lasting reductions in GHG emissions.

Carbon credit projects can be designed poorly and result in negative impacts on people and nature, or they can be designed well with truly transformative results.⁷ According to Chief Councillor Marilyn Slett, “The revenue from carbon credits provides economic opportunities as well as more access and control over lands, shared decision-making and funds for capacity building” (Townsend and Craig, 2020). Some see carbon credits as a more sustainable way to generate income relative to extractive industries. They can support economic diversification, create jobs and provide start-up funding for social enterprises and businesses within communities (Conservation Through Reconciliation Partnership, 2020). Townsend and Craig (2020) note the following:

Indigenous-led conservation and carbon storage support self-determination by fostering greater economic independence and nation-building. When IPCAs and carbon opportunities (e.g. carbon accounting, creation of carbon offsets) are established and managed according to Indigenous legal, knowledge, and governance systems, they are an expression of economic independence and Indigenous nationhood.

Some challenges with developing carbon credits specifically for blue carbon include the need for robust methods to quantify offsets and co-benefits, uncertainty in predicting carbon accumulation over time, and lack of applicable government policies and legal frameworks (Vanderklift et al., 2019). Indigenous carbon credit projects face additional challenges: pathways for participating in carbon markets are unclear, there is limited internal capacity to navigate carbon market possibilities, Indigenous jurisdiction is not always recognized, carbon rights are not yet defined, there is a risk that opportunities in the carbon market are being

⁷ An example is the Cheakamus community forest management project. Per Joseph Pallant, director of climate innovation at Ecotrust Canada: “I’m super stoked about carbon offsets not because I think they’re perfect ... but because I’ve seen their transformational power. [Cheakamus] is a real project where communities have been able to manifest their priorities over landscape management. That’s pretty profound.” Excerpt from Wood (2021).

exaggerated, Indigenous stewardship does not always meet the requirement of additionality, competing economic interests exist, community buy-in poses a challenge, and there are ethical and philosophical issues (Townsend and Craig, 2020). Some Indigenous governments are currently operating terrestrial carbon-credit projects or are interested in using carbon credits to fund internal programs such as Guardian programs (Conservation Through Reconciliation Partnership, 2021a). If Indigenous governments show interest in developing carbon offsets in the coastal marine environment, the [Atmospheric Benefit Sharing Agreements](#) designed for forest carbon could be used as a template (Carlson, 2020). To date there are no verified marine-based carbon credit projects in Canada. However, a seagrass restoration project on the State of Virginia coastline, led by [The Nature Conservancy](#) and the [Virginia Institute of Marine Science](#), is close to selling verified carbon credits.

Canadian Case Study: Coastal First Nations Great Bear Initiative

The Great Bear Rainforest ecosystem is incredibly valuable. It contains 25% of the world's coastal temperate rainforest, trees as old as 1,000 years, and streams that contain 20% of the world's wild salmon (Conservation Through Reconciliation Partnership 2021b). The Coastal First Nations Great Bear Initiative is led by nine nations (Wuikinuxv, Heiltsuk, Kitasoo/Xaixais, Nuxalk, Gitga'at, Metlakatla, Old Massett, Skidegate, and Council of the Haida Nation) representing 20,000 people on the central and north coast of British Columbia and Haida Gwaii. The Initiative is the first Indigenous-led carbon credit project in the world (Conservation Through Reconciliation Partnership, 2021b). Its aims include ecological integrity, economic sustainability and the inclusion of Traditional Ecological Knowledge (Conservation Through Reconciliation Partnership, 2021b).

The Great Bear Rainforest Initiative changed forestry-management practices in the territory: it reduced the logging area from 85 per cent to 30 per cent of the territory, enabling the Initiative to validate carbon credits (Conservation Through Reconciliation Partnership, 2021b). The British Columbia government is currently the biggest purchaser of the carbon credits, but the Initiative is broadening its range of buyers (Conservation Through Reconciliation Partnership, 2021b). The implementation of Indigenous rights plays a major role in this project. Through this Initiative, Coastal First Nations are building a conservation economy model that includes a Guardian program as well as for-profit businesses. Carbon credits are just one source of income, and members of the Initiative are considering developing clean energy, selective tourism, blue carbon credits and sustainable fisheries in the future (Conservation Through Reconciliation Partnership, 2021b). Therefore, there appear to be opportunities to expand the Initiative in the marine realm in the future. As more blue carbon-related methodologies are developed for carbon-credit verification, initiatives similar to the Great Bear Rainforest Initiative may take shape with a focus on coastal ecosystems.

Other Credits: Nitrogen, Resilience, Wildlife, Credit Stacking

Other examples of PES, specifically credit programs, include programs to mitigate [nitrogen runoff in the marine environment](#) and to protect [wildlife](#) populations. Because nitrogen runoff and wildlife population levels are not regulated, these credit systems rely on pay-for-performance systems or philanthropic funding. There are also markets for [water quality](#) and a market for water temperature to protect salmon in Oregon rivers (Kosciolek et al., 2020). As more types of credits are designed and implemented, “stacking” credits becomes an option: a government or organization could sell multiple types of credits from one ecosystem that provides multiple services simultaneously. For example, AXA-XL, ORRAA and The Nature Conservancy are [developing a methodology](#) for the first [blue carbon resilience](#) credit. Restoration of coastal wetlands would generate increased carbon storage and make coastal communities resilient to flooding, providing a “premium” credit. While this credit is still in development, the aim is to have it verified by Verra (The Economist, 2021).

Nature-Based Insurance Solutions

Nature-based Insurance Solutions: In a Nutshell

What are they? Nature-Based Insurance Solutions (NBIS) act like regular insurance – except that instead of protecting a house or car against loss and damage, they protect “natural assets” such as wetlands or coral reefs. Natural assets are insured for a predetermined amount against a specific threat (e.g., high wind speeds or high water levels). When the trigger event occurs, the insurance company pays for the damage or loss; the insurance payouts can then be used to restore the natural asset.

What sum of money is involved? To keep premiums affordable, NBIS usually need to encompass a relatively large geographic area with multiple buyers. For example, the Quintana Roo Reef NBIS encompasses 160 km of shoreline, and the first insurance payout was US\$800,000 (see Quintana Roo case study).

What factors favour the success of this tool? A natural asset with a defined physical boundary, a known and quantifiable threat, and one or more groups willing to pay to protect the natural asset are required to implement a NBIS.

What are the cautions for applying this tool? Defining physical boundaries around a natural asset and deciding on a monetary value for the natural asset can be difficult. Finding groups willing to pay for the insurance for a shared natural asset can also be challenging.

What guiding principles exist for this tool?
[Principles for Sustainable Insurance](#)

In general, insurance is a risk management tool (Friends of Ocean Action, 2020), with the insurance industry acting as risk managers, risk carriers and investors (Sumaila et al., 2020). The insurance industry can play an important role in driving the world towards sustainability in two ways: the research and modelling they conduct can be used to support and promote sustainable practices, and they can use their power as investors to directly invest in sustainable activities (Sumaila et al., 2020; UNEP FI, 2020). More specifically in relation to conservation, insurance companies can directly invest in biodiversity conservation to protect natural assets (e.g., wetlands, coral reefs, and salt marshes), and they can also insure natural assets against damage (Deutz et al., 2020).

Many natural assets provide protection for human infrastructure such as roads and buildings. By protecting these natural assets and restoring them when they are damaged, we can safeguard communities, infrastructure and livelihoods against climate-driven weather events. Insuring natural assets with NBIS can provide the funding needed to restore and protect natural assets affected by weather events and climate change, and lower long-term costs for the repair or relocation of human infrastructure (Deutz et al., 2020). In theory, NBIS insurance policies could cover the cost of creating or restoring coastal ecosystems such as salt marshes, protecting restored ecosystems from future weather and climate-change events, and reimbursing communities for the impacts of weather events and business interruption (Insurance Bureau of Canada, 2021). Insurance policies can be purchased by one entity, such as a municipality; alternatively, a trust can be formed to represent multiple groups, purchase the policy and manage insurance payouts (Insurance Bureau of Canada, 2021).

To be effective, NBIS insurance policies require a defined physical boundary where the policy applies (e.g., a watershed, which can include the coastline and nearshore environment), a quantifiable risk to the ecosystem and human infrastructure (e.g., flooding), a defined trigger event that results in a payout (e.g., water level reaches a certain height), and beneficiaries who receive the protection against the risk and are willing to pay for it (e.g., municipalities within the watershed) (Melcer, 2021). A key challenge for NBIS is the requirement to quantify the value of the natural assets to be protected (Sumaila et al., 2020). This can be difficult because ecosystems often provide multiple benefits, not all of which are quantifiable (Melcer, 2021). The risk to the ecosystem must also be quantifiable (Sumaila et al., 2020). Defining the physical boundaries where the policy is active is also a challenge, since natural ecosystems rarely have defined boundaries (Melcer, 2021). Insurance premiums can be expensive, especially for small communities, making cost another key barrier to NBIS.

Despite these challenges, there are ways to make NBIS feasible. Working within the bounds of a watershed can be a solution to defining the physical boundaries, in particular if the risk to ecosystems includes flooding (Melcer, 2021). It is possible to pool funds among multiple groups and devise ethical pay-in systems where groups pay into the premium based on their risk from the specific trigger (Melcer, 2021); this can often lower the cost for individual buyers. Pooling funds among groups also makes it possible to assess and reduce risk at an ecosystem level (e.g., within a watershed); this can be much more effective than implementing

restoration projects on a property-by-property basis. NBIS can be connected to an independent board or fund, which decides how insurance payouts are allocated to repair damage from the trigger event; this can ensure that insurance payouts are used effectively and equitably to increase the resilience of the system (Melcer, 2021).

While a Canadian-based case study was not found to demonstrate the use of NBIS, the Insurance Bureau of Canada (2021) outlines three theoretical insurance frameworks that the town of Truro, Nova Scotia, could use to protect its infrastructure from climate change–related flooding:

- Coverage for creating and restoring salt marshes to protect coastal infrastructure.
- Protection of salt marshes through insurance policies.
- Coverage of related risks from climate change, such as business interruption.

By harnessing the purchasing power of large institutions such as municipalities, we could use NBIS to protect coastal ecosystems over the long term, while reducing costs from climate change–driven damage.

Marine Case Study: Quintana Roo

Quintana Roo is a section of the Mesoamerican Reef off the Atlantic coast of Mexico. The reef and associated beaches attract a significant amount of tourism to the area, supporting the local economy. The reef also protects coastal infrastructure, such as roads and hotels, from storm damage. The monetary value of the storm protection provided by the reef can be quantified, the geographic area of the reef and its ecosystem services can be delineated, and local businesses and governments are willing to pay for the ecosystem service. With these factors in place, The Nature Conservancy, the state government, hotel owners and the National Parks Commission worked together to develop the first-ever insurance policy to protect a natural asset (Sumaila et al., 2020).

The insurance policy is managed by a trust, The Quintana Roo Trust for Coastal Zone Management, Social Development and Security (Friends of the Ocean, 2020). The trust purchases the policy on behalf of the buyers and ensures that any insurance payouts are distributed equitably and used to effectively restore the reef. The defined area protected by the insurance policy is a 160 km section of coastline, and the trigger event for a payout is a wind speed exceeding 100 knots within the defined area. The maximum payout in a 12-month period for this policy is \$3.8 million; a payout of US\$800,000 has already been triggered.

This case study provides an example of how the interests of stakeholders along a section of coastline converged to enable the design and purchase of a NBIS. While coral reefs are not considered blue carbon, the case studies developed by the Insurance Bureau of Canada outline potential scenarios on the East Coast of Canada where blue carbon habitats (salt marsh) could be the focus of various NBIS. The Quintana Roo NBIS shows that it is possible to bring together stakeholders with similar goals, design a nature-based insurance policy, and organize the insurance payouts to maintain the ecosystem's resilience. These insights can be used to inform a blue carbon–based NBIS in Canada.

Trust Funds: In a Nutshell

What are they? Trust funds are private legal entities that manage financial resources and are designed for a specific purpose (such as providing grants for conservation projects) (Bladon et al., 2014). Trust funds can have many different types of structures (Friends of Ocean Action, 2020), but generally include a board of directors and full-time staff (Bladon et al., 2014).

What sum of money is involved? Operating costs of trust funds can be high and increase proportionally as the size of the trust decreases; therefore trust funds are usually large (about \$5 million and up) (Bladon et al., 2014).

What factors favour the success of this tool?

Designing the trust fund to address a specific need, ensuring the board of directors has a diverse and equitable structure, and using diverse sources of funding to build the trust fund are all important factors.

What are the cautions for applying this tool?

The governance structure of the trust fund is important to ensure an equitable and appropriate distribution of funds. Trust funds can tie up large sums of money over the long term, instead of disbursing needed funds in the short term, and thus aren't always enticing to donors.

What guiding principles exist for this tool?

None found

Trust funds have been used successfully to fund conservation work in Canada and throughout the world. They are most effective when used to supply funding over the long term – for example, for maintaining and monitoring marine protected areas (MPAs) (Bladon et al., 2014) or for supporting Guardian programs (Conservation Through Reconciliation Partnership, 2021). Often funded by government or philanthropic organizations, trust funds can also be funded by the revenue from impact investing (see the [Blended Finance](#) case study). They provide a bridge between those willing to pay for conservation work and those who undertake the on-the-ground projects (Bladon et al., 2014). They can also be used as a finance tool to support PES, holding the funds from the buyers before they are allocated for stewardship or other work (Conservation Through Reconciliation Partnership, 2021).

There are a few general types of trust funds:

- **Single closing fund:** The trust fund has a specific fundraising target; funds are held but not spent until the full fundraising target is met. If the full target is not achieved, the funds are returned to the donors (e.g., the [Bhutan for Life Fund](#)).
- **Endowment fund:** The base capital of the fund is protected in perpetuity; only the interest or return on investment is used to finance approved projects. Endowment funds are useful for projects that require long-term sources of funding, but they also tie up a significant amount of money that is unusable (Bladon et al., 2014).
- **Sinking fund:** The balance of the fund decreases year after year as funding is disbursed for projects, and eventually reaches zero. These funds are effective when a significant amount of capital is needed in the short term (Bladon et al., 2014).

- **Revolving fund:** Money is repeatedly added to the fund even as the fund is paying out. Inputs of money can come from a variety of sources, including fees, taxes, levies, interest or dividends from investments, and PES. Revolving funds require a sustainable and ideally diversified source of inputs (Bladon et al., 2014).

Canadian Case Study: Coast Funds

Founded in 2007, [Coast Funds](#) is a \$118 million endowment trust fund that works in partnership with many west coast First Nations. It funds Indigenous conservation initiatives, stewardship organizations and Guardian programs. Designed to operate in perpetuity, the fund is managed by two organizations: the [Coast Economic Development Society and the Coast Conservation Endowment Fund Foundation](#). Initial funding was provided by six private foundations, the federal government and the British Columbia government. Merv Child, the founding director and board chair from 2010 to 2018, describes the fund as follows:

Coast Funds serves as a model for how conservation finance can and should be led by Indigenous Peoples whose territories are at the centre of land, marine, and resource management decisions. Most importantly, the Coast Funds model demonstrates how to link a healthy environment with the prosperity and well-being of Indigenous Peoples (Coast Funds, 2019).

Community well-being is at the centre of every project and the fund aims to link well-being with sustainable development and stewardship (Coast Funds, 2019). Twenty indicators are used to quantify environmental, economic, social and cultural benefits. Details on how the fund works and the partner nations can be found at [Building Your Endowment](#). While not focused on blue carbon work, the fund provides an example that could be used to design and implement a trust fund that specifically supports work in blue carbon ecosystems.

Combining Finance Tools

The finance tools outlined above can be developed and implemented on their own or can be used in combination to achieve specific conservation goals. In the example below, two of the tools are used together to promote ocean health.

Marine Case Study: Blue Impact Fund and Ocean Recovery Trust

The [Blue Impact Fund](#) is an impact investment fund developed by Finance Earth. The fund invests in the blue economy by supporting companies producing sustainable seafood and aquatic plants. Seafood industry specialists, investment specialists and marine conservation practitioners guide the fund. The Ocean Recovery Trust, a charity, was created alongside the Blue Impact Fund. The Trust will be funded by a “conservation dividend” generated through the impact investing of the Blue Impact Fund. The Trust “[will work to restore ocean health by funding innovation, capacity building, and marine conservation programmes.](#)”

IMPLEMENTING FINANCE TOOLS: CHALLENGES AND WAYS FORWARD

New conservation finance tools are already being implemented in a variety of settings, as detailed in the case studies above, while more are in development. However, if not designed and implemented well, these finance tools can have unintended negative impacts, particularly on local communities. The challenges generally associated with conservation finance tools surface when we apply these tools to blue carbon work:

- Governance frameworks and policies are complicated or lacking (Sumaila et al., 2020; Vanderklift et al., 2019).
- There is unequal distribution of costs, benefits and risk (Sumaila et al., 2020).
- Perceived risk/reward profiles are unclear or don't align with investor requirements (Roth et al., 2019; Vanderklift et al., 2019).
- Perverse economic incentives drive investment in unsustainable activities (Sumaila et al., 2020).
- Individual conservation projects are too small for many finance tools to support (Credit Suisse and UNEP, 2016; Credit Suisse, WWF and McKinsey and Company, 2014; Roth et al., 2019; Sumaila et al., 2020).
- Most conservation projects don't generate the monetary return on investment required for private sector investment (Credit Suisse, WWF, and McKinsey and Company, 2014).
- Various partners have different project timeline requirements.
- The financial sector and conservation organizations lack technical expertise, awareness and capacity.

Some of the above concerns are logistical in nature, while others are ethical. However, within the Canadian context of this report, the starting point for developing effective, ethical finance conservation tools is clear. Recognizing Indigenous rights and title, collaborating with Indigenous governments and communities, supporting the advancement of economic sovereignty and funding capacity building will go a long way towards addressing some of the challenges above. Below we discuss some approaches to building conservation finance projects in Canada, but also acknowledge that conservation finance tools are not an appropriate fit for all situations.

Recognize Indigenous Rights and Title

The complexity of property rights and the uncertainty around jurisdiction can make it challenging to attract investors or partners to a conservation project (Vanderklift et al., 2019). The first step to working in a particular territory should be to research the territory's history and reach out to Indigenous leaders and governments, including both the hereditary chiefs and band council (Podlasly, 2021). By building relationships with Indigenous governments, we can learn about the needs and priorities of local communities, the preferred approaches for addressing those needs, and the types of projects that may be of interest to communities. Co-developing and implementing place-based projects within the local social, economic and cultural context can go a long way towards reducing and/or equitably distributing risk, supporting local governance frameworks, promoting success, ensuring long-term impact and avoiding the marginalization of communities.

Support Indigenous Economic Sovereignty

Earlier in this report, we noted historical and current examples of how Indigenous Peoples are economically marginalized in Canada. The commitment to reversing

that marginalization and promoting economic sovereignty should be a primary driver of conservation finance projects. Supporting Indigenous governments and communities as they build their economies according to their values and needs can create new opportunities and may lead to innovative solutions to some of the logistical challenges listed above.

Rethink Risk and Responsibility for More Resilient Systems

In general, investors want to see robust estimates of financial risk and return (Vanderklift et al., 2019) before investing in a project. But as outlined earlier, financial risk is not the only type of risk that can have serious consequences for businesses, governments, NGOs and communities. The unequal costs, benefits and risks resulting from conservation finance projects can have unintended negative impacts. Two examples are “ocean grabbing” (the marine equivalent of land grabbing) and “bluewashing” (the marine equivalent of greenwashing). These can further marginalize communities and result in inadequate project planning (Sumaila et al., 2020) to achieve short-sighted goals. If improperly designed, economic incentives can favour large-scale industrial projects over smaller, localized businesses (Sumaila et al., 2020). Likewise, a focus on globalized markets rather than local markets can negatively affect food security, livelihoods and ocean access at the community level (Sumaila et al., 2020).

The narrow view of risk, costs and benefits not only harms communities, but also limits the capacity of companies, governments and organizations to build successful long-term projects, create lasting impact, and protect the systems we rely on for the future. Initiatives such as the [Task Force on Climate-related Financial Disclosures](#) and the [Taskforce on Nature-related Financial Disclosures](#) have started to broaden the discourse, but the focus remains on financial risk. Our conservation finance work needs to embody responsibility and accountability to the communities and landscapes where we work, to the partners we work with and, importantly, to our future selves and future generations. If finance tools are designed to improve the socioeconomic conditions of the communities where they are implemented, they will be more robust and have a greater chance of success relative to tools designed solely for private profits.

Provide Funding for Capacity Building

The financial sector lacks awareness of investment opportunities in the environmental sector and the technical capacity to understand the benefits of conservation projects (Cunliffe, 2020). Conversely, the environmental sector has limited understanding of and expertise in conservation finance. Lack of capacity is also a problem for the intermediaries that participate in conservation finance (Sumaila et al., 2020) and is consistently noted as a challenge by Indigenous governments. To create opportunities for and collaborations on conservation finance projects, we need to invest in capacity building among all partners. By increasing awareness and knowledge of conservation finance for coastal blue carbon and other ecosystem-based work, we will support the development of innovative solutions to the challenges listed above.

Provide Funding for Long-Term Monitoring and Stewardship

It can be incredibly difficult to acquire funding for the long-term monitoring and stewardship of landscapes and seascapes. Yet, in addition to being necessary for the resilience of conservation projects, monitoring programs that quantify the positive impacts of restoration and stewardship can provide valuable data necessary to attract conservation finance partners (Roth et al., 2019). Connecting conservation projects that do generate financial returns with those that cannot is a potential solution to the stewardship funding gap. For example, the Blue Impact Fund and Ocean Recovery Trust outlined above provide a model for pairing sustainable business profits with not-for-profit conservation work.

Key Roles for NGOs

In addition to taking the actions outlined above, NGOs can play some key roles to support the development and implementation of conservation finance projects.

Convene Potential Conservation Finance Partners

Conservation projects often have budgets that are too small to interest private investors; many large investors require opportunities worth around \$50 million, while many conservation projects cost \$1 million or less (Zeitlberger, 2020). This mismatch makes it difficult for the financial sector to identify investment opportunities within the conservation sector. Small project sizes can also lead to proportionally higher administration, transaction, implementation, and validation costs (Rodewald et al., 2020), reducing their economic viability.

How do we address this mismatch in investment size versus investment needs? NGOs can lead two interconnected solutions:

- They can create a project pipeline, where large NGOs with significant capacity identify multiple projects (usually led by local communities or organizations) for potential investment, and then steward these projects forward.
- They can bundle projects together to create an investment package large enough to interest private investors.

Both solutions require significant support from large environmental NGOs and the use of philanthropic funds. Since most groups in the financial sector do not have the expertise or relationships to identify local opportunities, they rely on intermediaries (usually NGOs with local relationships) to complete the background work and find investment opportunities. However, the private sector does not necessarily fund the work of the NGOs that identify these opportunities. Therefore, NGOs that contribute to these solutions need to carefully consider the associated costs, benefits and risks to themselves and the organizations they support.

Bundling projects together could also address another mismatch: many private investors want to be able to move money in and out of investment opportunities in the short term (Cunliffe, 2020), while many conservation projects are designed for the long term. And for conservation projects that provide a financial return, the return may take several years to materialize. A solution to this timeline mismatch is to bundle conservation projects within a bond: bonds can be bought and sold on the market in the short term, but have a set longer-term maturation date. Engaging with companies about their long-term goals of carbon neutrality and working with them to plan ahead for credits or investment opportunities may also help address the time-commitment mismatch (Giraud, 2020).

Provide Research Capacity

To build robust, equitable conservation projects, we need not only technical knowledge of ecosystems and conservation issues, but also an understanding of socioeconomics and cultural values. In particular, metrics that evaluate a broad suite of indicators related to community well-being are required to avoid the unequal distribution of costs, benefits and risks. These metrics should be designed and integrated into projects from the beginning to inform project development. We also need strategies and frameworks for community participation and mechanisms that include communities in decision-making processes. NGOs can provide that research capacity or fund capacity building for Indigenous and local communities.

Advocate for Relevant, Effective Policy and Legislation

Currently there are no Canadian policies or legislation that specifically mention blue carbon (Carlson, 2020), leaving a major gap in guidance for how blue carbon habitats can be stewarded, protected or restored. Conservation projects often take years, and may require “permanence” if they involve carbon credits. Therefore the lack of clear policy frameworks and the risk of changing government priorities pose significant challenges for building blue carbon projects (Vanderklift et al., 2019). Many NGOs are already well set up to research and advocate for meaningful and effective government policies. By playing this key role, NGOs could promote and facilitate the protection, stewardship or management of blue carbon ecosystems.



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CONCLUSIONS AND RECOMMENDATIONS

As work on blue carbon in Canada grows and the finance community continues to explore investment in conservation, the number and scale of opportunities to apply innovative finance tools to support conservation projects will increase. Of the finance tools explored in this report (bonds, impact investing, payments for ecosystem services, nature-based insurance solutions and trust funds), most are already being applied in Canada; only nature-based insurance solutions have yet to be deployed in a Canadian context. There are many opportunities to expand the application of these tools along Canada's coastlines. As we develop new opportunities, we must be careful not to repeat the patterns of economic marginalization of Indigenous Peoples and other equity-seeking groups. Further, projects should be co-developed with Indigenous and equity-seeking groups to prioritize the social, economic and cultural well-being of communities. By collaborating with and addressing the needs and priorities of the communities where projects take place, we will improve the chances for long-lasting and impactful conservation successes.

NGOs can play a variety of roles to remove barriers and ensure that conservation projects are developed equitably while respecting Indigenous rights. Moving forward, NGOs should:

- Support economic sovereignty and capacity building within Indigenous communities.
- Provide funding for monitoring and stewardship.
- Connect local partners with potential investors.
- Advocate for strong policies and legislation.
- Support conversations around equitably distributing risk.
- Integrate responsibility and accountability into blue carbon finance projects.

We are looking for collaborators in the blue carbon finance space. If you would like to continue the conversation with us, please reach out.



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