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PROTECTING WHAT MATTERS:

ENVIRONMENTAL MONITORING IDEAS BUNDLE FOR INDIGENOUS NATIONS

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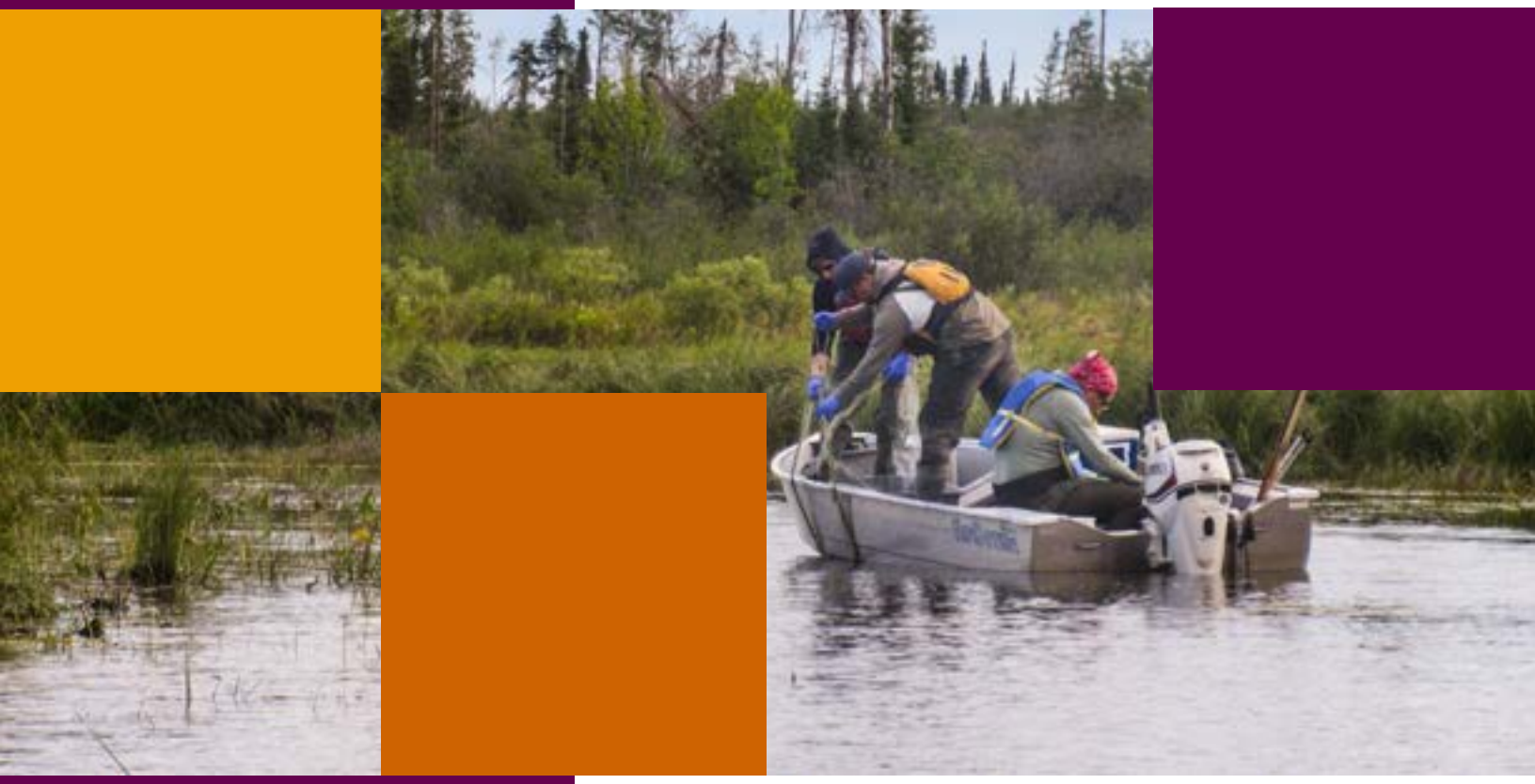

EDITOR'S NOTE

This eBook rests on the many environmental monitoring programs we've helped build, and the many environmental monitors we've helped to train, in Indigenous Nations from coast to coast to coast over the past decade. We hope you find inspiration in these stories and new ideas to add to your own plans.

Welcome to our eBook that delves into the exciting world of environmental monitoring. Exciting, you may ask? Yes! At least our team sure thinks so. What better way to protect your lands and waters than to keep a deliberate, watchful eye on what matters?

This eBook contains the most popular blogs from our environmental monitoring series. In it we cover everything from deciding what to monitor, why, and how to do it, to lessons learned around specific monitoring situations, such as mines, pipelines, and other linear corridors.

We'll also share thoughts on how placing your Nation's Indigenous Knowledge at the heart of environmental monitoring plans can create the best possible results. Perhaps most critically, we'll explore unexpected ways to fund and build up your program now and into the future so that environmental monitors and Guardians can approach their role not as a job, but as a career.

Also in this eBook is a primer on Indigenous Protected and Conserved Areas (IPCAs). With the Indigenous-led conservation movement kicking into high gear across the country, we make the links between strong environmental monitoring plans and the ability to further your Nation's conservation and stewardship goals.

And, as always, this eBook rests on the many environmental monitoring programs we've helped build, and the many environmental monitors we've helped to train, in Indigenous Nations from coast to coast to coast over the past decade. We hope you find inspiration in these stories and new ideas to add to your own plans.

Looking for help with *your* plan?

Please give us a shout. Our team would love to chat through all your options. Or just chat about environmental everything. We are a self-declared group of science nerds who always have time for everything from bats and turtles to caribou and eels and all the systems that nurture and sustain what matters on our planet!

Happy reading!

Laura Taylor
Managing Partner
Shared Value Solutions

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PROSPERITY.
STEWARDSHIP.
JURISDICTION.

1. FIVE KEY QUESTIONS TO PLAN A COMMUNITY-LED ENVIRONMENTAL ENVIRONMENTAL MONITORING PROGRAM

"Start with the end in mind. Start with what the community values and build the program around that so that you're ultimately monitoring what's most important to the community."
– Jessica Ward

by Laura Taylor and Kaitlin Littlechild | February 4, 2022

Welcome to our ebook that delves into the exciting world of environmental monitoring. Exciting, you may ask? Yes! At least our team sure thinks so. What better way to protect your lands and waters than to keep a deliberate, watchful eye on what matters? However, we get that creating an environmental monitoring plan can be daunting. Here are some key questions we often assist our clients in getting clear on:

1. What should we monitor?
2. Why should we monitor it?
3. When should we start?
4. What skills do we need?
5. How will we fund our program?

We sat down with four experts on our science team — Senior Ecologist Jessica Ward, Environmental Scientist Alison Gamble, Aquatic Biologist Jody Duncan, and Aquatic Ecologist Jessica Batson — to answer these questions and more. Read on to find out what they have to say!

QUESTION #1: WHAT SHOULD WE MONITOR?

Answer: Begin by Asking Your Community

"Start with the end in mind. Start with what the community values and build the program around that so that you're ultimately monitoring what's most important to the community." – Jessica Ward

Environmental monitoring starts with an idea. "That's the main part, that's the start. And from that idea, the monitoring program becomes more defined," says Jody Duncan. "So whether it's an individual or a community-wide idea, it's doesn't matter where it comes from. It's just that the idea is there."

Often, community concerns will spark the need for environmental monitoring. Are people concerned about the health of the fish or animals and whether they are safe to eat? Are they concerned about whether the water is safe to drink? Are they noticing changes to rivers or plant populations? Are new species arriving? Do others appear to be in decline?

Turning that idea into a well-defined objective for the monitoring program will make sure you properly address what's of concern to your community. Get clear on what you are really trying to monitor by listening to various voices from your community. Find ways to engage Elders and youth to facilitate knowledge transfer between the generations. Ask your land users and Knowledge Holders for their input. Get people talking about what they're seeing and experiencing out on the land.

Often, community concerns will spark the need for environmental monitoring. Are people concerned about the health of the fish or animals and whether they are safe to eat? Are they concerned about whether the water is safe to drink? Are they noticing changes to rivers or plant populations? Are new species arriving? Do others appear to be in decline?

"It all comes back to being community-led, engaging the community to understand what are the species of importance, what are the concerns of the community," says Jody Duncan.

"Timelines and long-term vision are important to think about. If you know that a development project will be starting in a few years' time, you can plan ahead so that you have a large, robust program fully up and running by then."
– Alison Gamble

Jody also points out that having an environmental monitoring program helps to focus other community initiatives. For instance, if a number of water courses in your territory are degraded due to a development project and you have funding available to remediate some of these areas but not all, a community-led monitoring approach helps you to determine where to focus your resources.

QUESTION #2: WHY SHOULD WE MONITOR?

Answers: A Major Development Project on the Horizon? Be Prepared.

"Timelines and long-term vision are important to think about. If you know that a development project will be starting in a few years' time, you can plan ahead so that you have a large, robust program fully up and running by then." – Alison Gamble

Environmental monitoring programs often rise to the top of a lands department agenda when a major development project, such as a mine, transmission line, or pipeline, is announced that poses a threat to the lands and waters. Being prepared for potential future developments, being able to address concerns over cumulative impacts of past, present, and future developments, and understanding the impacts of climate change are key reasons to build a robust monitoring program.

Certain development projects have well-known impacts to lands and waters. For example, we know that linear corridors can affect predators and prey populations, and line maintenance can affect vegetation. Different types of mining have their own unique impacts to consider, as do pipelines or nuclear facilities.

More Reasons for a Baseline: Monitor and Plan for Climate Change Impacts

Even if there are no major developments on the horizon, you can create a baseline to have handy when or if a project moves into your area.

Baseline studies also allow you to see how climate change is impacting your territory. You can see how the land and waters are changing by documenting what it's like at this point in time and monitoring changes you see.

Or, perhaps you're already seeing some changes happening in your territory and you want to understand what's happening and what might be the cause. Perhaps you're noticing differences in the size of fish caught in different bodies of water, or there's a decrease or increase in the population of a species that is important to your community.

"Proactive monitoring allows for earlier identificatiovn of detrimental changes to populations," says Alison Gamble.

You can see how the land and waters are changing by documenting what it's like at this point in time and monitoring changes you see.

"Looking at the need for environmental monitoring from a Guardians framework, just having people out on the land where changes are happening, being aware the impacts of people using the land, and having a presence and degree of oversight from a stewardship perspective are important," says Jessica Ward.

Having this data over time can help your community plan for the effects of climate change to build resilience and identify specific adaptation actions.

Why Not Just let the Proponent Do the Study? For Many Reasons…

During various impact assessment processes, a proponent proposing a major development will be required to do their own studies, and it might be tempting to just let them do the monitoring work if they offer. However, there are many reasons why this may not the best approach. There can be gaps in terms of what the proponent is required to document under provincial or federal legislation and what is of actual importance to your community. Also, the broad guidelines for health and safety from the government may not be aligned with the community's risk tolerance. Community trust is also a major consideration.

Conducting your own community-led monitoring program means that you are not relying on a third party to collect data. This gives the data a degree of reliability, community members can trust it because they know where it's coming from and that it's not biased.

Conducting your own community-led monitoring program means that you are not relying on a third party to collect data. This gives the data a degree of reliability, community members can trust it because they know where it's coming from and that it's not biased. Doing your own monitoring can also allow your communityv to compare your results with the proponent's, adding an additional level of accountability and trust.

Jessica Ward points out that "another gap that can happen with proponent-led studies is, if there's an impact that wasn't anticipated, there won't be a good record of data. This links back to making sure that the values that are really important to the community are captured."

There is absolutely a place for environmental monitoring to inform remediation plans, funding, and accommodation measures for impacts to the land. Make sure to ask the proponent to fund a parallel, community-led monitoring program. More on that later.

Make sure to ask the proponent to fund a parallel, community-led monitoring program. More on that later.

QUESTION #3: WHEN IS THE BEST TIME TO START?

Answer: Today!

When asked about the best time to begin environmental monitoring, SVS's Jessica Baton was clear: "The best time is any time, right now is the best time!"

When possible, it's important to have the monitoring occur long before development project activities begin so that you really understand what existed before the project impacted it (those baseline studies we mentioned above).

When possible, it's important to have the monitoring occur long before development project activities begin so that you really understand what existed before the project impacted it (those baseline studies we mentioned above).

"For me, I find that understanding what the existing conditions are like and how the project is going to impact those are important. What ecosystem components will be affected?" says Jody Duncan.

So really, it's never too late to begin a program but the best baseline comes from starting before any project activities. Jessica Batson asserts that "it's never too late to get started because the chances of there being a community that hasn't had their rights and interests impacted is almost impossible."

Of course, the timing of your program elements will depend on environmental factors such as the season. We are preparing some overviews of different aquatic and terrestrial monitoring protocols, so stay tuned!

One of our passions at SVS is to provide the training necessary for your communities to oversee and run the programs over the long run.

QUESTION #4: WHAT SKILLS DO WE NEED?

Answers: It's More About Who You Are Than What You Know

The most important skill for a successful environmental monitoring program likely already exists in your community: a familiarity with and a love for being on the land. As Jody Duncan puts it, "an education in environmental sciences doesn't have to be a prerequisite to be involved in environmental monitoring."

The foundations for this type of work rest on three attributes:

- a willingness to be out there;
- a curiosity about what's going on in your territory; and
- an interest in environmental stewardship.

One of our passions at SVS is to provide the training necessary for your communities to oversee and run the programs over the long run. Training community members means there can be environmental monitors on staff, creating jobs and opportunities for meaningful careers.

All of that being said, there are many great programs at the college and university levels to boost your career in environmental monitoring. Our staff have taken varied paths to their current jobs and are happy to share their journeys. Here are some of their stories in our IndigeSTEAM series:

- IndigeSTEAM Careers: Meet Alison Gamble M.ES., C.Chem
- IndigeSTEAM Careers: Meet Robin Heavens M.Eng

DO YOU HAVE A COMMUNITY CHAMPION? IS IT YOU?

For the success of the program, it's key to have someone to help oversee and drive the program. Your community champion should have the time and skills to make sure that the monitors are enthusiastic about going out and have the tools they need, to plan and enforce a schedule so time and season-sensitive activities happen when they should, and to manage the data and reporting aspects of the program.

One way that SVS can help enhance community capacity is through train-the-trainer programming. We can train a person or group of people from your community to be program managers, giving them the ability, tools, and resources they need to oversee and run the program.

QUESTION #5: HOW DO YOU FUND AN ENVIRONMENTAL MONITORING PROGRAM?

Answer: There are More Options Than You'd Think

There are multiple ways that funding can be secured for an environmental monitoring program. Programs can be self-funded from own-source revenue, proponent funded, government funded, or funded by the not-for-profit sector. Private foundations and other organizations can also be a source of financial support. Each type is best suited for different programs, eligibility criteria, and desired outcomes. A major consideration is your long-term vision for your program. Are you planning a focused monitoring project around a particular development, or are you building a Guardians-style program to monitor multiple elements across your territory over the long term?

We can work with you on a case-by-case basis to help you identify a funding model that is best suited to your needs and objectives. We've seen many possible models work effectively and can connect you to funding sources and ideas as well as to other Nations who could share their experiences with you.

We have seen Indigenous Nations successfully pull together money from multiple sources to fund their programs. We can work with you on a case-by-case basis to help you identify a funding model that is best suited to your needs and objectives. We've seen many possible models work effectively and can connect you to funding sources and ideas as well as to other Nations who could share their experiences with you.

STILL FEELING OVERWHELMED? WE CAN HELP!

First thing to remember: trust yourself. You very likely know more than you think you do! That being said, we are always happy to talk through your plans with you, or to just lend an ear. We have much experience to lean on and can contribute ideas and ask the questions that will help your program become a success.

2. ENVIRONMENTAL MONITORING: EMPOWERING CITIZENS

Based on Indigenous Knowledge data, as well as technical reviews of the company's environmental studies, our clients were able to advocate for changes during pipeline construction, such as reroutes around sensitive ecological areas, choices of less invasive water crossing methods, the level of monitoring required, and Indigenous involvement in that monitoring.

by Jessica Ward | Janauary 21, 2022

WETLAND MONITORING AND TRAINING PROGRAM EMPOWERS RED RIVER MÉTIS CITIZENS AND HARVESTERS TO MONITOR WHAT MATTERS

Looking out over the frozen wetlands and lakes in the deep of winter, field season can seem far away. But in the blink of an eye, you'll be dusting off the old hip waders and heading out on the lands and waters — so what better use of the cold winter months than to plan your next environmental monitoring plan?

ENVIRONMENTAL MONITORING: WHAT, WHY, WHERE, HOW, AND WITH WHAT!

This chapter highlights a robust and ambitious monitoring and training program created by the Manitoba Métis Federation (MMF) that assesses the health of wetlands and waterways traditionally used by Métis Harvesters. What's more, it began during the pandemic!

The MMF monitoring a wetland as part of the Wetland and Waterways Monitoring Program Photo: Bryanna Sherbo

INDIGENOUS OVERSIGHT OF LINE 3 PROJECT THAT CROSSED 400 WATER BODIES

First, the backstory. In a 2018 blog, Indigenous Environmental Oversight of Pipelines: A Tale of Two Pipelines, we shared stories of Indigenous oversight during the Line 3 Replacement Project in Alberta, Saskatchewan, and Manitoba. Enbridge's massive $5.3-billion oil pipeline replacement project crossed over 400 bodies of water — an issue of particular concern to the Indigenous Rights holders who cherish those rivers and streams as the lifeblood of Mother Earth.

WHAT SUCCESS LOOKS LIKE DURING PIPELINE CONSTRUCTION

Based on Indigenous Knowledge data, as well as technical reviews of the company's environmental studies, our clients were able to advocate for changes during pipeline construction, such as reroutes around sensitive ecological areas, choices of less invasive water crossing methods, the level of monitoring required, and Indigenous involvement in that monitoring. Our clients saw their recommendations included in regulatory conditions of approval and, in some cases, made part of Impact Benefit Agreements (commonly called IBAs).

POST-CONSTRUCTION MONITORING PLAN

Fast forward a few years, and construction of the 1,070-km project is now complete. However, concerns about the health of the lands and waters of the pipeline corridor continues as crude and other oil products flow across many Indigenous territories.

Through their involvement in the Line 3 Indigenous Advisory and Monitoring Committee, the MMF secured funding to create a monitoring plan to assesses the health of wetlands and waterways traditionally used by Métis Harvesters. As the democratically elected government of the Manitoba Métis, also known as the Red River Métis, the MMF's objective for the monitoring program was to braid Traditional Knowledge and land use with western science to provide details on the health of wetlands and their ecosystems, with a focus on the Line 3 Replacement Project corridor.

To inform the selection of wetlands and waterways for monitoring, the MMF interviewed Métis Harvesters who traditionally harvest in wetlands around the corridor.

COMMUNITY-BASED MONITORING PROGRAM

Our team at SVS worked closely with the MMF's Fish and Fish Habitat Specialist and Coordinator of the community-based monitoring program, to design the wetland and waterway monitoring program and to deliver training to over 50 Red River Métis in the spring of 2021.

According to Jenny Petrynko, "The idea for this webinar series was sparked through community engagement discussions and information gathered through Traditional Knowledge interviews. Through this engagement with the [Manitoba Métis], we learned how important freshwater and wetlands are to our Citizens."

Andrea Clarke, one of the training participants, makes that importance clear: "Our waterways and wetlands are invaluable to the entire ecosystem and to be able to be part of something that could maybe help protect some of these areas is very important to me."

MONITORING PROTOCOLS TO PROTECT WHAT MATTERS

Together with the MMF, we developed a series of monitoring protocols and related training modules for the program. The monitoring program was designed to assess the components of wetlands and waterways that are of importance to Manitoba Métis Citizens.

"The Red River Métis hold a historical and contemporary connection to the waters across the National Homeland, whether it be for drinking, commercial and recreational fishing, for transport routes and so much more."

Jenny Petrynko, MMF

Here is a list of the protocols we developed:

- Wetland Vegetation & Disturbance
- Water Quality
- Contaminants
- Water Levels

The MMF monitoring a wetland as part of the Wetland and Waterways Monitoring Program. Photo credit: Bryanna Sherbo

- Soil and Sediment
- Invasive Plants
- Wetland Birds
- Breeding Amphibians
- Benthic Invertebrates
- Fish Community
- Other Wildlife Including Species at Risk

ONLINE MODULES FOR COVID-FRIENDLY TRAINING

Through a series of online live training modules, our trainers demonstrated monitoring methods and procedures to collect information about wetlands and waterways to 50 training participants. The participants also learned how to recognize species of interest through the sounds made by different frogs and birds. We kept participants engaged with pop quizzes and question and answer periods. "How engaged people were, that was pretty surprising for us," says Jenny Petrynko. "You could tell that they were engaged based on the amount of feedback that we got throughout every module, that was super surprising and also incredible."

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BRAIDING SCIENCE AND TRADITIONAL KNOWLEDGE INTO THE FRAMEWORK

The monitoring program and associated training modules combined current scientific field assessment techniques and interpretation of collected environmental data, while focusing on values and species of interest to Métis Citizens. For example, it included recording observations of harvested wetland species and incorporating the collection of Traditional Knowledge during monitoring events. Braiding science and Traditional Knowledge into the framework of the Wetland and Waterway Monitoring Program ensures that Citizens' concerns and long-term goals for the health of the wetlands are meaningfully incorporated.

We also supported the MMF by conducting land use and occupancy interviews to document the perspectives of Métis Harvesters on where and how they use and interact with the wetlands and waterways within the Line 3 Replacement Project corridor, and where they feel monitoring needs to occur during operation of Line 3.

Everyone interviewed contributed valuable thoughts to the planning process. "The Manitoba Métis have always been very connected to water for drinking, commercial and recreational fishing and using rivers for transport and so much more," comments the Fish and Fish Habitat Coordinator. Incorporating the views, suggestions, and ideas from these interviews ensured that the monitoring program fully aligned with the rights, interests, and values of Red River Métis. We also used Métis land use and occupancy data from past studies to identify areas of importance. The results informed the selection of wetlands for inclusion in the monitoring program, as well as the identification of monitoring components.

TRAINING PLUS EQUIPMENT IS THE WINNING CAPACITY BUILDING COMBO

As part of this project, we identified the field equipment needed for the monitoring program and purchased any equipment that the MMF did not already have. According to Jenny Petrynko, this was key to MMF increasing capacity: "The combination of the webinars and workshops as well as the equipment really helped a lot for us, for creating capacity within our department, but then also for our Citizen scientists who we have relied on for other water monitoring programs. And so now we've kind of helped expand their knowledge for them to do other types of water monitoring programs."

"The combination of the webinars and workshops as well as the equipment really helped a lot for us, for creating capacity within our department, but then also for our Citizen scientists who we have relied on for other water monitoring programs. And so now we've kind of helped expand their knowledge for them to do other types of water monitoring programs."

LONG-TERM MONITORING ACROSS MANITOBA

Although it started with the Line 3 project, the MMF's Wetland and Waterway Monitoring Program is designed to be used to monitor the health of wetlands and waterways throughout Manitoba. According to Jenny Petrynko, "This program will allow for long-term monitoring of water, sediment, aquatic and terrestrial life in wetlands and waterways that are traditionally used by Métis Harvesters and are of importance to Métis Citizens."

Monitoring these components will enable the MMF to better understand current environmental conditions and track changes in wetland or waterway health over time. This is of utmost importance to the MMF given the potential impacts to wetlands and waterways from numerous development projects, as well as impacts of climate change and other land use activities.

We're looking forward to checking in with the Red River Métis Citizen scientists about their ongoing monitoring work and to cheer them on!

3. FOUR CREATIVE WAYS TO FUND YOUR ENVIRONMENTAL MONITORING PROJECT

The good news is that more funding is available for Indigenous-led environmental projects than ever before. On top of that, the list of funding sources has become much more diverse.

by Jessica Ward, Claire Avisar, Laura Taylor, Chelsea Brecher | Feb 24, 2022

When it comes to environmental monitoring, one of the most pressing questions is how to fund your program. That is the focus of this chapter.

The good news is that more funding is available for Indigenous-led environmental projects than ever before. On top of that, the list of funding sources has become much more diverse.

Programs can be self-funded from own-source revenue, proponent funded, government funded, or funded by the not-for-profit sector. Private foundations and other organizations can also be a source of financial support. Each type is best suited for different programs, eligibility criteria, and desired outcomes.

We have seen Indigenous Nations successfully pull together money from multiple sources to fund their programs. We've seen many possible models work effectively and can connect you to funding sources and ideas as well as to other Nations who could share their experiences with you.

As you read through the options described below, open your mind to all of the options and let your creative thinking flow. There's likely a way to make it happen.

#1: FEDERAL FUNDING: ECCC ANNOUNCES OVER $94 MILLION FOR MONITORING AND RELATED ACTIVITIES

Although at first glance this may not seem like your most creative option, The Government of Canada is a reliable source of funding for First Nations, Métis, and Inuit organizations with projects focused on environmental monitoring, assessment, and planning. This year, Environment and Climate Change Canada (ECCC) announced over $94 million over five years for initiatives seeking to strengthen Canada's climate readiness.

ABORIGINAL FUND FOR SPECIES AT RISK

The Government also made historic investments into Indigenous-specific environmental funding, including additional funding for the Aboriginal Fund for Species at Risk.

But how do you go from a funding opportunity to a meaningful, engaging project with your community? What can these projects actually look like? Let's look at environmental monitoring in action.

PROJECT EXAMPLE: MAGNETAWAN FIRST NATION'S REPTILE MONITORING PROGRAM

With funding from the Aboriginal Fund for Species at Risk in hand, the species-at-risk team at Magnetawan First Nation, a community in the Georgian Bay, set up a comprehensive system to track species movements, behavioural patterns, and encounters with infrastructure such as highways. This data collection supplemented observations submitted by the community regarding species-at-risk encounters on roads in and around the community. The collected data was then integrated into land use design and planning initiatives to incorporate mitigation strategies such as ecopassages.

Check out our blog post for the full story: GIS In Action: The Magnetawan Reptile Monitoring Program.

OTHER NOTABLE FUNDING OPPORTUNITIES FOR 2022-2023:

- First Nations Guardians Initiative
- Nature-Smart Climate Solutions Fund
- Environment and Climate Change Canada's Eco-Action Community Funding Program
- CER – Indigenous Monitoring
- Science Horizons Youth Internship Program

Opportunities to keep an eye on:

These funding opportunities are not currently open but will be again in the future.

- Indigenous Community-Based Climate Monitoring Program
- Aboriginal Fund for Species at Risk
- Habitat Stewardship Program for Species at Risk
- First Nations Environmental Contaminants Program
- Indigenous Capacity Support Program

#2: NOT-FOR-PROFIT FUNDING

More and more non-profit and non-governmental organizations are looking for First Nations, Métis, and Inuit collaborators for their environmental projects. This comes, in part, from a growing recognition of the importance of Traditional Ecological Knowledge in creating sustainable environmental policies and programs.

Indigenous Centre for Cumulative Effects (ICCE)

The ICCE, founded in 2018, is an Indigenous-led not-for-profit association that aims to increase the scientific capacity of Indigenous communities across Canada. For 2021-2023, they have a community funding program for Indigenous organizations and governments who are interested in cumulative effects assessment including environmental monitoring. Through this program, communities can receive up to $175,000 to bring their cumulative effects plans to life! Read more here.

Through this program, communities can receive up to $175,000 to bring their cumulative effects plans to life! Read more here.

In 2019, the federal government expanded the criteria of the Canadian Environmental Assessment Act to include cumulative effects. This means that the Impact Assessment Agency of Canada is now required to look beyond specific project impacts to identify the regional, historic, and contemporary effects of development on the lands and waters — and the communities that inhabit them.

Consider equipping your land users with phone apps that allow them to collect data in real time as they encounter effects on the land.

Get creative on how to frame your project in relation to this topic that is so central to the Indigenous experience. Consider equipping your land users with phone apps that allow them to collect data in real time as they encounter effects on the land. Get creative with GIS and mapping to display the results of your monitoring activities in a way that makes the story of cumulative effects tangible. The options are endless.

"BioMonitoring-4" by MN Pollution Control Agency is marked with CC BY-NC 2.0.

PROJECT EXAMPLE: BLUEBERRY RIVER CUMULATIVE EFFECTS ATLAS

Cumulative Effects Assessments are a great way to determine the impacts of development on Aboriginal Treaty Rights. Blueberry River First Nation, for example, created a Cumulative Effects Atlas that demonstrates the impacts of industrial development on the Nation's ability to exercise Rights.

Check it out here.

Nature United

Nature United supports numerous Indigenous-led conservation projects, including Indigenous Guardians programs, and nature-based climate solutions to keep carbon in ecosystems and out of the atmosphere. In 2020, Nature United announced a $100 million grant from the Bezos Earth Fund which was used to advance Indigenous-led conservation work in British Columbia. Since 2010, Nature United has worked to support Indigenous stewardship by providing technical support, networking opportunities and critical resources to Guardian programs.

Learn more: Working With Indigenous Peoples (natureunited.ca)

WWF Canada granted over $1,000,000 to Indigenous partner organizations in 2021 to support Indigenous-led conservation initiatives.

Ducks Unlimited

Ducks Unlimited has partnered with Indigenous communities on projects that range from wetland reclamation and wild rice harvesting areas to extensive mapping endeavours. According to their website: "Our ongoing partnerships with Indigenous Peoples are built on common, shared values: our relationship with the land, and our desire to find long-term conservation solutions that benefit the land, the people and the wildlife that co-exist on it."

Learn more: Working with Indigenous Peoples — Ducks Unlimited Canada

The World Wildlife Fund

The World Wildlife Fund also has some great examples of the power behind not-for-profit partnerships and Indigenous-led environmental monitoring programs. WWF Canada granted over $1,000,000 to Indigenous partner organizations in 2021 to support Indigenous-led conservation initiatives. In their commitment to truth and reconciliation, WWF has this to say: "WWF-Canada will continue to partner with First Nations, Inuit and Métis in their traditional lands and waters, when and where requested, including advocating for more Indigenous Protected and Conserved Areas and Inuit Protected and Managed Areas where Indigenous governments and community organizations have the primary role in protecting and conserving ecosystems."

Learn more: Our commitment to truth and reconciliation - WWF.CA

PROJECT EXAMPLE: MUSHKEGOWUK COUNCIL AND THE WWF

Recently, the WWF supported the Mushkegowuk Council in their conservation and stewardship of their marine and terrestrial territories. This includes mapping peatland carbon stocks and training community members in carbon monitoring. Read more: How sampling Mushkegowuk peatlands supports Indigenous land stewardship .

Read more: How sampling Mushkegowuk peatlands supports Indigenous land stewardship

Notable funding opportunity for 2022-2023:

- WWF Artic Species Conservation Fund

Clearly, there are many great things happening in this space, so it's a perfect time to be building cumulative effects into your projects, and to partner with non-profits.

#3: PROPONENT FUNDING: IT'S 2022, AFTER ALL

If you want to conduct environmental monitoring in response to a project that is being proposed or is ongoing on your lands, secure funding from the proponent during consultation. They won't be surprised you asked.

If you want to conduct environmental monitoring in response to a project that is being proposed or is ongoing on your lands, secure funding from the proponent during consultation. They won't be surprised you asked.

Although there is no formal requirement for proponents to fund this work, it is in their best interest to do so because it helps them gather information they need for regulatory processes, which helps their projects get approved. Community-led environmental monitoring that is funded by the proponent also benefits the First Nation and contributes to a positive relationship between the Nation and the proponent. In 2022, all but the dinosaurs of industry are catching on and won't be surprised by your ask. Heck, frame it as a requirement of the relationship they want to build with you.

If you do encounter a dinosaur, get them to watch Valerie Courtois's clip that explains the business case, and the potential return on investment, to funding boots-on-the-ground monitoring:

In 2022, all but the dinosaurs of industry are catching on and won't be surprised by your ask. Heck, frame it as a requirement of the relationship they want to build with you.

Under the new Impact Assessment Act, there are now more opportunities for Indigenous participation in follow-up and monitoring for projects than ever before. The Impact Assessment Agency will consult communities about what this participation in monitoring could look like. It may include having community monitors employed. It could include participation on an Environmental Monitoring Committee. These can be two great ways for your community to provide Indigenous Knowledge input to a project over the long term. While there is no specific government funding for these activities, the IAAC recently confirmed that such programs can be considered under the Indigenous Capacity Support Program funding pots.

PROJECT EXAMPLE: THE MANITOBA MÉTIS FEDERATION

The MMF have seen the real impact of proponent funding in advancing environmental monitoring processes. According to Marci Riel, Senior Director, Energy, Infrastructure and Resource Management for the Manitoba Métis Federation, "Community monitors can act as the eyes and ears of the nation," and proponents are one way to help fund these important roles.

Check out this post **to read more about tips for leveraging proponent funding.**

PROJECT EXAMPLE: DEHCHO FIRST NATION GUARDIANS PROGRAM FOR ENBRIDGE LINE 21 REPLACEMENT

Or look into the "boots-on-the-ground" approach undertaken by Dehcho First Nation in response to Enbridge's Line 21 oil pipeline replacement project under the Mackenzie River – the possibilities are truly endless!

#4: PRIVATE FOUNDATIONS

Private foundations differ from non-profit organizations and non-governmental organizations because their funds come from a family, individual, or corporation, and they have a minimum amount of money they must pay out annually.

The Weston Family Foundation

The Weston Family Foundation, for example, is privately funded by Loblaw Companies Limited and is committed to funding environmental projects that emphasize research, education, and protection of biodiversity. If any of your environmental monitoring projects fit these criteria, keep an eye out for grant opportunities through their Environmental Stewardship program.

The Metcalf Foundation

The Metcalf Foundation, though its Environment Program, awards grants that fund projects at the intersection of climate change, biodiversity conservation, and sustainable livelihoods. According to their website, "the Dene Tha' First Nation received a grant from the Metcalf Foundation to help plan and establish an Indigenous Protected and Conserved Area in the Bistcho Lake region of Dene Tha' territory" between 2021 and 2023. In 2019 and 2020, the Moose Cree First Nation received a grant from the Metcalf Foundation "to help develop and establish an Indigenous Protected Area in the North French River watershed or kâhpânayâw sîpiy in Cree, meaning meandering river, located in the heart of Moose Cree homeland."

Learn more: Grants | Metcalf Foundation

The Environment Funders of Canada

Last but not at all least, the Environment Funders of Canada (formerly Canadian Environmental Grantmakers Network – CEGN) is a national network of philanthropic foundations and other organizations that support efforts to transition toward a more sustainable world. Among other initiatives, they host a Canadian Environmental Grants Database. If you use search this database using the key word "Indigenous" with funding strategy set as "capacity building," this database includes 17 grant makers and 73 grants with a total combined value of $10,000,000.

4. INDIGENOUS PROTECTED AND CONSERVED AREAS: WHAT YOU NEED TO KNOW

Indigenous Nations are changing the narrative around conservation to shift away from colonial approaches to conservation that separate Indigenous Peoples from their territories and we are delighted to be part of this shift.

by Laura Taylor and Kaitlin Littlechild | Apr 1, 2022

One benefit of having baseline data from environmental monitoring that you may not have thought about is for the establishment of an Indigenous Protected and Conserved Area (IPCA) to further your Nation's conservation and stewardship goals.

Rumours have been swirling for some months that there is new federal funding on the horizon to support the establishment of IPCAs across Canada. With Canada's commitment to Target 1, there's no doubt the feds are relying on Indigenous participation in IPCAs to hit the ambitious target of conserving 25 percent of Canada's land and 25 percent of its oceans by 2025.

Our team at SVS is passionate about the potential for IPCAs to transform relationships between Indigenous Peoples, non-Indigenous people, and the natural world — for the sake of us all. Indigenous Nations are changing the narrative around conservation to shift away from colonial approaches to conservation that separate Indigenous Peoples from their territories and we are delighted to be part of this shift.

We decided to contribute to the already vibrant conversations about Indigenous-led conservation by adding our own experiences supporting our clients' IPCA projects. We've also had a go at summarizing the whole

If you have questions about how these Indigenous-led conservation spaces work — what they are, their benefits, how to establish them, and how to fund them and make them economically viable, read on!

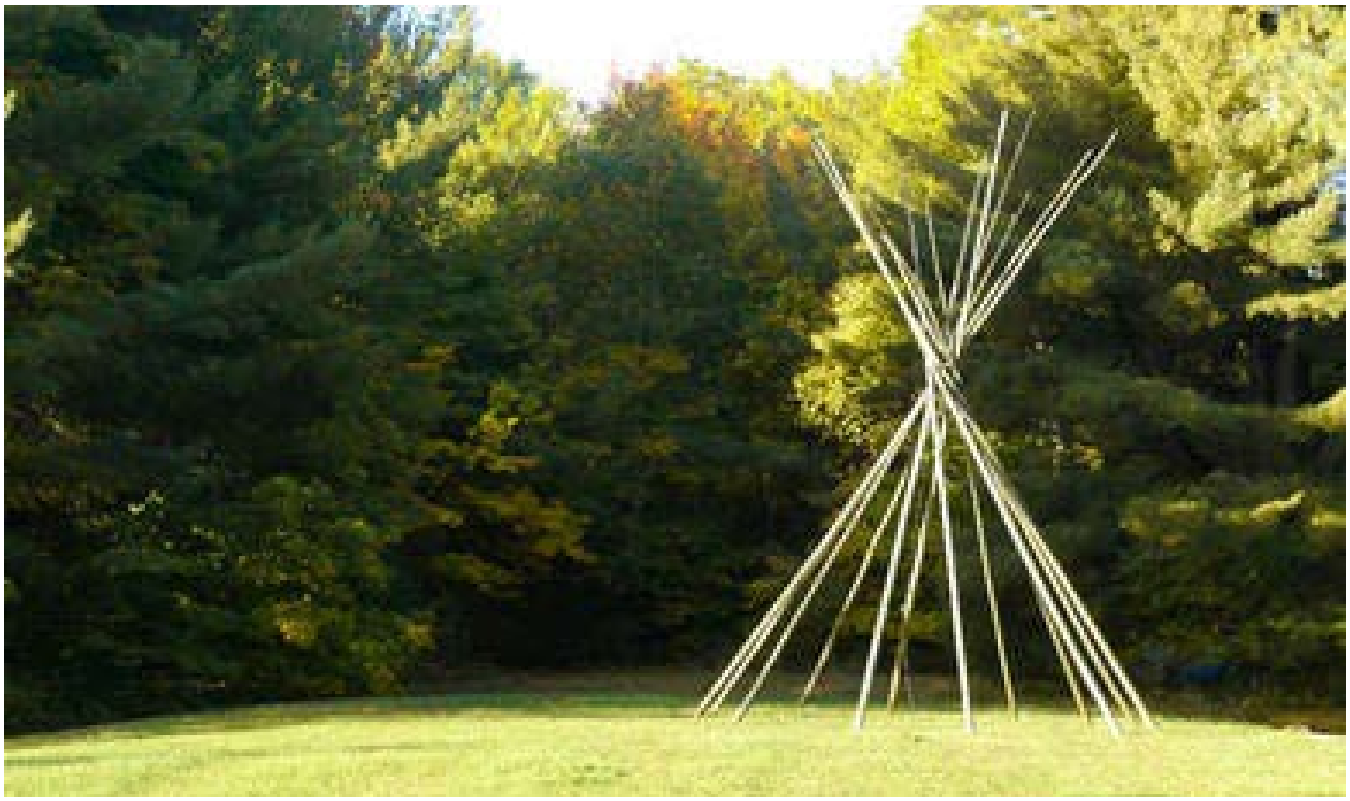
conversation and pointing you to the resources we've found useful in our work. We are big fans of our friends at the Indigenous Leadership Initiative who are doing fabulous work in this space. Please visit their site for a rich selection of videos and other useful resources.

If you have questions about how these Indigenous-led conservation spaces work — what they are, their benefits, how to establish them, and how to fund them and make them economically viable, read on!

THE BASICS: WHAT IS AN IPCA?

Indigenous Protected and Conserved Areas (IPCAs) are places where Indigenous Peoples lead the stewardship and governance of the lands and waters using Indigenous laws and knowledge systems.

IPCAs are not a new concept. Indigenous Peoples have been stewarding the lands and waters since time immemorial. However, IPCAs are a renewed opportunity for Indigenous Peoples to reclaim their role as stewards of their ancestral territories.



IPCAs were defined in the Indigenous Circle of Experts (ICE) report, titled We Rise Together as "lands and waters where Indigenous peoples play the primary role in protecting and conserving ecosystems through Indigenous laws, governance and knowledge systems." We HIGHLY recommend reading the report if you really want to dig into this topic.

IPCAs are not a new concept. Indigenous Peoples have been stewarding the lands and waters since time immemorial. However, IPCAs are a renewed opportunity for Indigenous Peoples to reclaim their role as stewards of their ancestral territories. Following the release of the We Rise Together report, and financial support from Canada through Target 1, IPCAs are proliferating across the country.

Three common characteristics

IPCAs are as diverse as the Indigenous Nations leading them, but they share three common characteristics:

- **Indigenous led**
- **Represent a long-term commitment to conservation**
- **Elevate Indigenous Rights and responsibilities**

Revitalizing language and culture are also at the heart of IPCAs.

IPCAs can be a transformative approach to relationship building between Indigenous Peoples, non-Indigenous people, and the natural world. As part of their exercise of self-determination, Indigenous Nations play the primary role in defining the IPCAs — the objectives, boundaries, management plan, and governance structures. The existing system for conserving the lands and waters must makespace for Indigenous Peoples to lead IPCAs.

RESOURCES:

The Indigenous Circle of Experts (ICE) report: We Rise Together

Indigenous-Led Conservation Reading List - Google Docs

WHAT ARE THE BENEFITS TO INDIGENOUS NATIONS WHO ESTABLISH AN IPCA?

There are many benefits that IPCAs can provide to Indigenous Nations who choose to advance them. These benefits can manifest in different ways as the context, values, and intent behind the IPCAs are different for each Nation advancing an IPCA.

Some key benefits:

- **Reclaiming the Rights and responsibilities that Indigenous Nations have to their territories**
- **Re-establishing and rejuvenating Indigenous laws, governance, and knowledge systems as a basis for decision-making**
- **Restoring relationships to lands and waters that have been severed through colonization**

SHAWANAGA ISLAND IPCA

At SVS, we have been working with Shawanaga First Nation to establish an IPCA on Shawanaga Island. A key element of this IPCA will be to foreground Anishinaabe laws, principles, and governance systems into all decision-making about the IPCA.

You can read more about our work with Shawanaga here: Eight Ways GIS is Helping Shawanaga First Nation Establish its IPCA

More benefits:

- Cultural revitalization
- Economically and environmentally sustainable business opportunities

Cultural revitalization, reclamation, and healing opportunities that include truth-telling about histories are another way that IPCAs can benefit Indigenous Nations. IPCAs offer an opportunity for Indigenous Nations to pursue economically and environmentally sustainable business ventures that align more with Indigenous values and worldviews and shift away from industries such as resource extraction that can undermine the core values that many Indigenous communities hold with respect to living sustainably and in good relation with their lands and waters.

Research in Australia has shown that Indigenous Protected Area programs, combined in Indigenous Ranger or Guardians programs, can generate up to three dollars in social, economic, and cultural benefits for every one dollar invested. Initial analyses of programs in Canada are showing similar results. Talk about a great return on investment!

Australian examples show very positive ROI

Research in Australia has shown that Indigenous Protected Area programs, combined in Indigenous Ranger or Guardians programs, can generate up to three dollars in social, economic, and cultural

SOME OTHER EXAMPLES OF IPCAS ACROSS CANADA:

Thaidene Nëné

Edéhzhíe Dehcho Protected Area and National Wildlife Area

Dasiqox Tribal Park

benefits for every one dollar invested. Initial analyses of programs in Canada are showing similar results. Talk about a great return on investment!

Indigenous Protected Areas in Australia have been developing since the late 1990s and continue to expand, with almost half of the national park system in Australia being protected through Indigenous Protected Areas.

Some of the benefits that have emerged over the years include:

- Opportunities for Traditional Owners to work on the land and reconnect with their heritage and language
- Stewardship responsibilities
- Transfer Traditional Knowledge between generations
- Consistent employment through Rangers programs
- Revenue generation through tourism and carbon offsets

As IPCAs continue to develop across Turtle Island, similar benefits are being documented.

HOW DO I GO ABOUT ESTABLISHING AN IPCA?

The most important steps in establishing an IPCA are defining its boundary and ensuring that the Indigenous Nation is recognized as having jurisdiction and authority over the lands and waters being conserved and protected within the defined boundary.

Getting IPCAs recognized by both Indigenous Nations' own laws and Canadian law can be a difficult path to navigate. While the federal government has provided support for IPCA establishment through funding allocations and their acknowledgement of the importance of IPCAs in reaching Canada's targets for conservation, there is currently no formal recognition of IPCAs under Canadian legislation. As a result, currently Indigenous Nations are having to approach

provincial and territorial governments to discuss together how to protect and conserve the lands and waters under an IPCA without explicitly supportive Canadian legislation.

From our own experiences in supporting our clients' IPCA initiatives, we cannot stress how important a strong communications plan is to establishing an IPCA. Very intentional and frequent messaging throughout the establishment process helps Nations build awareness and understanding, and ultimately support, of their IPCA with their own membership, neighbours, and local governments.

However, it's important to remember that IPCAs are Indigenous-led initiatives, and as West Coast Environmental Law states in their blog: "They are modern expressions of the inherent authority of Indigenous Nations and exist whether or not the Canadian state recognizes them."

Depending on the location, goals, and capacity of the Nation pursuing an IPCA, there are a variety of different strategies to work towards effective Indigenous jurisdiction of the area. We are also at an exciting time, with the United Nations Declaration on the Rights of Indigenous Peoples Act very recently coming into effect in Canada — under the international Declaration, Indigenous Peoples have the right to determine how their territories and resources are used, including the decision to create a conservation area.

Communication is key

From our own experiences in supporting our clients' IPCA initiatives, we cannot stress how important a strong communications plan is to establishing an IPCA. Very intentional and frequent messaging throughout the establishment process helps Nations build awareness and understanding, and ultimately support, of their IPCA with their own membership, neighbours, and local governments.

Intentional two-way communication is also critical to nurturing relationships, and in some cases establishing more formal partnerships, with local communities (such as neighbouring Indigenous Nations, cottagers' associations, local conservation groups, municipals governments — and more). Not only does this relationship and partnership building help foster a spirit of reconciliation and a supportive environment for education and learning, but it can also help garner support from these allies as your IPCA moves towards formal establishment and recognition by the provincial and federal governments.

WHERE DOES THE FUNDING COME FROM TO CREATE AN IPCA?

Funding from the federal government is becoming the most common starting point for mobilizing IPCAs. The federal government has committed up to $340 million in funding over the next five years to support initiatives led by Indigenous Peoples in conservation. This funding comes with the recognition that Indigenous Peoples, as the original stewards of their territories, have both Rights and responsibilities associated with their lands and waters that uniquely position them to lead conservation in these areas.

Of this $340 million, over $166 million will support

This funding comes with the recognition that Indigenous Peoples, as the original stewards of their territories, have both Rights and responsibilities associated with their lands and waters that uniquely position them to lead conservation in these areas.

No matter what your vision and capacity is for establishing an IPCA, or what stage you are at in your IPCA establishment, SVS provides many services that can support Indigenous Nations who wish to establish IPCAs in their territories:

IPCAs specifically. A total of 27 communities are currently receiving funding for establishing IPCAs and 25 additional communities are receiving funding for conceptualization. The government funding dedicated to other programs such as Guardians and Indigenous species-at-risk work can also contribute to IPCAs since these other pools of funding are tightly interwoven with stewardship and conservation.

The details of the new federal funding haven't been released, but follow the Talon, our bi-weekly funding and news digest, and we will be the first to tell you!

Other opportunities for funding an IPCA — especially at the conceptualization stage — can also come from research institutions such as the University of Guelph, which houses the Conservation through Reconciliation Partnership (the CRP). Depending on your Nation's unique situation, there may also be other opportunities for private funding that could be used to support various stages of your IPCA's establishment.

RESOURCES:

Funding for engagement on an action plan to achieve the objectives of the United Nations Declaration on the Rights of Indigenous Peoples

Four Creative Ways to Fund Your Environmental Monitoring Project

Similar funding sources could be available for an IPCA so give us a call to chat more about what options could be available to your community.

HOW CAN WE MAKE THE IPCA SELF-SUSTAINING FOR THE LONG TERM?

Long-term sustainability of IPCAs is critical for the efforts that Indigenous Nations put into these areas to provide the benefits that they can offer. Although government funding to create IPCAs may be critical to their initial establishment, there is a need for consideration around financing IPCAs that are self-sufficient and do not rely on government grants. There are many ways that financial sustainability might be achieved for IPCAs and there is work ongoing to innovate in this area. Some examples of mechanisms for maintaining IPCAs include green bonds, ecotourism, renewable energy, and carbon offsets. There are organizations and research groups who are also working towards establishing networks to share information about ways to fund IPCAs as well as funds to maintain IPCAs in the long-term such as the CRP and the IISAAK OLAM Foundation. There is lots of work emerging from these networks, such as the Canadian IPCA Alliance, that are working towards identifying sustainable pathways forward for maintaining IPCAs in the long-term.

RESOURCES:

Conservation through Reconciliation Partnership (the CRP).

IISAAK OLAM Foundation

Canadian IPCA Alliance

HOW CAN SVS HELP IN ESTABLISHING AN IPCA?

No matter what your vision and capacity is for establishing an IPCA, or what stage you are at in your IPCA establishment, SVS provides many services that can support Indigenous Nations who wish to establish IPCAs in their territories:

Conceptualization

- **Traditional Knowledge, Land Use and Occupancy Studies** — to help understand areas of importance, occupation, and use, designate IPCA areas, and set priorities for the IPCA
- **Facilitating community engagement** — to help gain community perspectives on a vision for the IPCA's future and setting priorities for the IPCA
- **Land use planning** — whether you have an existing land use plan and/or environmental management plan with associated laws, or you'd like to develop them from scratch, we can help you determine how to best align your IPCA with these other plans

Planning for IPCAs

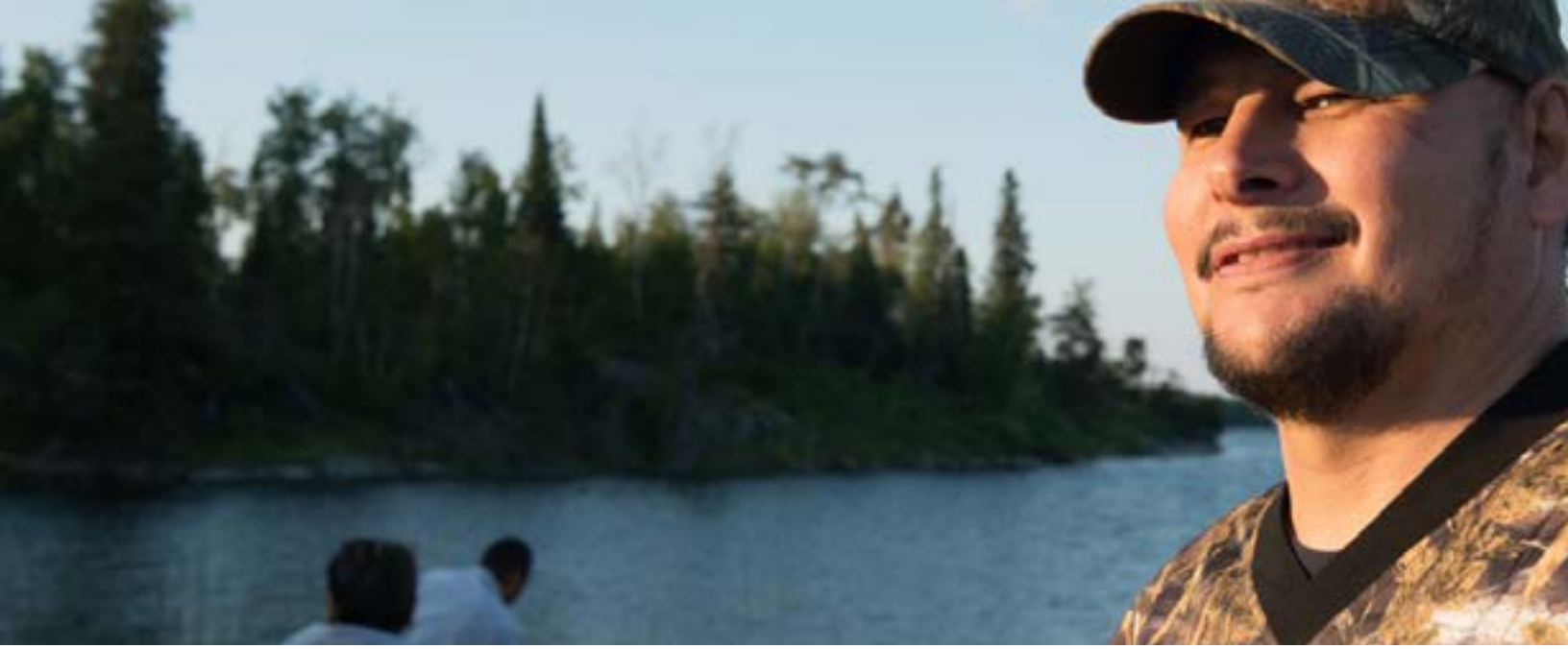
- **Guardian program framework** — if you don't already have a Guardians program, we can help you create a roadmap to establishing a fully operational Guardians program, including developing protocols, identifying training and equipment needs, and providing capacity building support and mentorship along the way so you can hit the ground running
- **Monitoring programs** — whether you're in need of boots on the ground to carry out a monitoring program, or you need a custom training program to provide capacity building for your staff and members, we're here to help
- GIS/mapping support and training

Management of IPCAs

- **Management plan support** — regardless of what your IPCA will look like, we recommend drafting a management plan —learly communicate the governance, jurisdiction, goals and objectives for your IPCA
- **Advisory services** on jurisdiction and governance approaches

Maintaining IPCAs

- **Carbon inventory** — carbon inventory monitoring and related projects and capacity building could support offsetting programs tied to your IPCA
- **Capacity-building** for ongoing management and operations
- **Communications support** – customized strategies, support, and capacity training for communicating about your IPCA to neighbouring land users, the public, and your citizens



Darrell Settee of Pimicikamak Cree Nation. Photo by Laura Taylor

5. FIVE BENEFITS OF PLACING INDIGENOUS KNOWLEDGE AT THE HEART OF ENVIRONMENTAL MONITORING

by Laura Taylor and Kaitlin Littlechild | Mar 10, 2022

Instead of just throwing Indigenous Knowledge into the mix of an existing western framework, what if we elevate it to be equal with western science? How would that change the environmental monitoring programs we create – and their impact?

In this chapter, we discuss the benefits of placing your community's Indigenous Knowledge at the heart of your environmental monitoring plan. For some time, our team has been using the concept of "braiding" Indigenous Knowledge with western science as a way to acknowledge the crucial and defining role that these ways of knowing play in creating effective monitoring programs. While this still holds true, we've recently heard a new way of framing this concept that resonates with us even more: Instead of just throwing Indigenous Knowledge into the mix of an existing western framework, what if we elevate it to be equal with western science? How would that change the environmental monitoring programs we create – and their impact?

Let's keep that shift of language in mind as we talk through the benefits of placing Indigenous Knowledge at the heart of your environmental monitoring programs. Throughout this chapter, Alison Gamble, Jody Duncan, Jess Ward and Jess Batson, discuss the centrality of Indigenous

Knowledge in building effective monitoring programs. They also explore how the two knowledge systems can work together to help your Nation best achieve its goals.

BENEFIT #1: HAVE YOUR COMMUNITY'S CONCERNS HEARD AND ADDRESSED

"Real power comes from the understanding that everyone's voice is important when it comes to monitoring the changes to the land," says Alison Gamble, Senior Environmental Scientist with SVS.

Community-led environmental monitoring is a circular process where you start with community concerns, use them to inform environmental monitoring programs and study designs, and then share the results with the community to show how their concerns are being addressed. But what happens in between? How are community concerns acknowledged in a meaningful way? That is where the idea of elevating Indigenous Knowledge comes into play.

Your land users and Knowledge Holders have a lot of valuable information and insight about your lands

PROJECT EXAMPLE: WASAUKSING FIRST NATION AQUATIC MONITORING PROGRAM

A good example of community-wide engagement that informed a monitoring plan is the Wasauksing First Nation Aquatic Monitoring Program.

The first step was to create a communications plan to empower Wasauksing First Nation citizens to lead and drive the project's process and outcomes. As the plan states, "It gives space for Wasauksing First Nation citizens to tell stories, share knowledge, teach and learn about the waters and all life it supports– underscoring the importance of Traditional Knowledge and oral traditions that have been practiced since time immemorial."

The communication plan facilitated the gathering of Indigenous Knowledge on water quality, overall aquatic ecosystem health, local fish species and critical habitat (spawning areas, for example), as well as community concerns related to impacts to waterbodies within Wasauksing First Nation's Traditional Territory.

This information was then used to develop a detailed follow-on work plan to study the potential impacts to these waterbodies from legacy contamination issues in the area, commercial fisheries, and other ongoing activities that may pose risks in the region.

Read more about Wasauksing's program here.

Photo: "Connecting People to Their Public Lands" by mypubliclands. CC BY 2.0.

and waters. Having those voices included in the design of your program – and in defining its goals – opens space for different types of knowledge to be heard and meaningfully used. This is one important reason for engaging your entire community in a monitoring plan so that it becomes a community-wide initiative.

How you report the information from the monitoring program back to the community can be informed by what the community wants to get out of it. Braiding knowledge systems comes into play here too, in terms of different formats for presenting information to your community. While a regulator or proponent will get more use from a data-filled report, a community may find it more appropriate to communicate the results in something like a story map. In this way, Indigenous Knowledge can not only inform what information is collected, it can also inform how that information is translated back into a useful and meaningful form for the community. Read more on community-led monitoring in our blog post: Five Key Questions to Plan a Community-Led Environmental Monitoring Program.

BENEFIT #2: TAKE INDIGENOUS KNOWLEDGE AND "TRANSLATE" IT SO PROPONENTS AND REGULATORS UNDERSTAND

Land users see changes on the land, in the waters, in the birds, fish, and animals from the perspective of personal experience and historical knowledge. Regulators overseeing impact assessment processes, and the scientists working for proponents — the company proposing a major development such as a mine — see the land from the perspective of numbers, charts, and graphs. Particularly if your program is connected to a major development project, finding a way to communicate what your land users are observing on the land in a way that regulators and proponents will understand is important if they're going to properly hear and address your concerns.

For example, you may base your choices for environmental monitoring locations on land user observations — elevating Indigenous Knowledge to the centre of your monitoring plan. At that point, the scientific data you collect from those locations become useful in reinforcing what you've observed.

"The way to translate Indigenous Knowledge, translate what you know, into a language that will get noticed is through the gathering of environmental monitoring data," says Alison Gamble.

As SVS's Jessica Ward asserts, "you've seen the changes and you're telling them in words, but to actually have that monitoring program with data that validates what the community members already know makes for a more compelling argument." Using western scientific data as a way to document the knowledge your land users have about your territory empowers your community to take a firm position with a proponent in terms of what you're seeing.

"The way to translate Indigenous Knowledge, translate what you know, into a language that will get noticed is through the gathering of environmental monitoring data," says Alison Gamble.

SVS's Jessica Batson articulates the process of "translating" Indigenous Knowledge into western science well: "To establish how you know what you know, and how to present it to the proponent in a way that you feel confident in because they'll accept the information and be able to make sense of it, is important."

It's worth acknowledging here that we are unfortunately still operating inside the confines of

a colonial system that is largely deaf to the broader understanding and unique world views Indigenous Nations bring to the protection of lands and waters. We hope that, as conversations such as this one further infiltrate the offices of regulators and proponents and the minds and hearts of scientists, we will see change for the better.

BENEFIT #3: PREPARE FOR EXPECTED AND UNEXPECTED IMPACTS

Your community's Indigenous Knowledge captures the changes seen on your land and allows you to take action. Gathering your Indigenous Knowledge and then gathering western science through environmental monitoring puts you in a unique position to be proactive about future change.

PROJECT EXAMPLE: THE MANITOBA MÉTIS FEDERATION'S LINE THREE MONITORING PROGRAM: EMPOWERING CITIZENS

Through their involvement in the Line 3 Indigenous Advisory and Monitoring Committee, the Manitoba Métis Federation secured funding to create a monitoring plan to assesses the health of wetlands and waterways that could be affected by a future pipeline spill. The Manitoba Métis Federation's objective for the monitoring program was to braid Traditional Knowledge and land use with western science to provide details on the health of wetlands and their ecosystems. To inform the selection of wetlands and waterways for monitoring, the MMF interviewed Métis Harvesters who traditionally harvest in wetlands around the corridor – and then empowered them to be part of the monitoring.

Read the whole story here.

Having a baseline that combines both Indigenous Knowledge and scientific data gives you a well-established starting foundation to respond to future change and to advocate for your rights and your land.

Using environmental monitoring data to reinforce Indigenous Knowledge of the land can be particularly useful when there are unexpected impacts during a project. For example, your community may raise concerns over impacts to a particular species and a proponent may respond that according to their information, that species is not present or is not a concern. Having your own data allows you to counter this claim with monitoring data that supports your community's observations and knowledge. It then becomes much harder for the proponent to dismiss these concerns. Community observations become concrete data – and suddenly both sides are speaking the same language.

BENEFIT #4: ADD POWER TO NEGOTIATIONS AND INFLUENCE POLICY CHANGE

Having Indigenous Knowledge reinforced by scientific data amplifies your voice as a community and increases your ability to assert your rights and advocate for the health of your land, resources, and community.

"It ties back to the foundational part of SVS in terms of jurisdiction, stewardship, and future generations. Our reason for being is to help assert what's important," says Jessica Ward when talking about how SVS helps communities harness their Indigenous Knowledge to strengthen their power of negotiation.

Being able to translate your community's knowledge into a language that is understood by proponents puts you in a better position to negotiate impact benefit agreements or to hold a proponent accountable if they aren't upholding their end of the commitment.

"Looking beyond community-proponent interactions, having baseline data that combines Indigenous

Knowledge and scientific data can also help you to influence government policies and resource management decisions," asserts Jody Duncan.

"A lot of the time, our clients have objectives related to regional planning bodies," notes Jess Ward. "Whether that's something like forest management planning or maybe water management planning, having this information readily available gives them a seat at the table and the ability to have their voice, their knowledge and observations, heard in these discussions."

"Indigenous Knowledge can be very helpful in terms of the design and development of a monitoring program," says Jody. "Getting out on the land with land users and Elders to document some of the features can be extremely helpful in choosing where, when and what to monitor. It sure helps us as consultants get to know people better and understand what matters to them."

Climate change is another key area where land user observations combined with western scientific data can have an impact on policy decisions that often directly affect Indigenous Nations. The results of these kinds of community-led monitoring programs can also help inform programming and planning decisions you make as a Nation in the face of climate change.

BENEFIT #5: BUILD RELATIONSHIPS

"Indigenous Knowledge can be very helpful in terms of the design and development of a monitoring program," says Jody. "Getting out on the land with land users and Elders to document some of the features can be extremely helpful in choosing where, when and what to monitor. It sure helps us as consultants get to know people better and understand what matters to them."

Elevating Indigenous Knowledge in your environmental monitoring program can also strengthen relationships and bonds within the community. Having your environmental monitoring team learning from land users and Knowledge Holders creates a wonderful opportunity for knowledge transfer across generations.

"Water Quality Monitoring with Secchi Disk at Indian Creek Park" by Apalachicola Riverkeeper is marked with CC BY-NC-ND 2.0.

PROJECT EXAMPLE: SHAWANAGA FIRST NATION'S INDIGENOUS PROTECTED AND CONSERVED AREA

Shawanaga First Nation's path to establishing an Indigenous Protected and Conserved Area (IPCA) involved partnering with neighbours under an aligned vision and common goals in support of reconciliation.

Through the IPCA project, Shawanaga started to build relationships with the local cottager's association, land trust, and conservation groups. During meetings about the IPCA, everyone saw that all the parties shared deep concern over the water quality in Georgian Bay and were independently starting separate monitoring programs. That led to a letter of intent to collaborate, joining forces under a common goal to make sure that their monitoring programs were aligned. It allowed each individual group to have a larger combined reach, in terms of capacity and area of coverage. This also helped to further solidify the relationships between parties, knowing that they're striving for the same outcomes.

Read more about Shawanaga First Nation's IPCA journey here.

Incorporating this connection to the land and to tradition goes even deeper for some in terms of how the monitoring itself is carried out. Weaving Indigenous systems into environmental monitoring can take the form of ceremony or offerings during sample collection to show respect and recognition for the reciprocal relationship between the land and land users.

Nation-to-Nation cooperation and relationship building also becomes possible when Indigenous Knowledge is integrated into environmental monitoring plans. Engaging neighbouring Nations increases the potential for sharing data and observing changes on a larger scale and to harmonize monitoring programs to cover larger areas. This also has a benefit at the negotiation table as there is strength in numbers when multiple Nations come together to assert their rights.

The possibilities for elevating Indigenous Knowledge in monitoring programs and placing it at the program's heart are endless — Nations are the driving force in deciding where they want to go with their programs and how they want to combine Indigenous Knowledge and western science. With the weaving/braiding/equalizing of these two worldviews, environmental monitoring can be so much more than just numbers and data points.

"With a more holistic approach to monitoring, Oral History and stories that include Indigenous Knowledge can be included in the data analysis and interpretation phase," says Alison Gamble. Overall, you get a more comprehensive picture than looking at just western science alone, and the potential for a better outcome for everyone.

To find out more about harnessing the power of Indigenous Knowledge, download a collection of our most popular and informative posts that explore ways Nations have used Indigenous Knowledge to assert jurisdiction, increase their leverage during negotiations, further their goals for stewardship and cultural revitalization, and enhance community capacity, all in a free eBook: Channeling the Wisdom of Indigenous Knowledge.

6. ALONG THE LINE: WHY LINEAR CORRIDORS NEED ENVIRONMENTAL MONITORING

by Kaitlin Littlechild and Jasmine Labelle | Apr 21, 2022

"Long-term monitoring of these linear corridors avoids proponents being able to wash their hands of adverse impacts to the lands, waters, and people. It also helps set a standard of conduct that is based on responsibility and gets us closer to achieving a sustainable business model for resource management in Canada."

Why are linear corridors worthy of their own post, you ask? Well, it's virtually impossible for a land-based development project to proceed without creating a linear corridor, whether it's as basic as cutting an access road or as complex as a pipeline covering thousands of kilometres. Linear corridors pose several interesting environmental challenges — landscape disturbance, sight lines, altered ecosystems, unintended land use — but are an essential and unavoidable part of many projects. These disturbances have noteworthy impacts on lands, waters, animals, people, tourism, and land use. With a greater understanding of the potential impacts, Nations and communities can take appropriate steps to effectively monitor and manage linear disturbances.

"Long-term monitoring of these linear corridors avoids proponents being able to wash their hands of adverse impacts to the lands, waters, and people. It also helps set a standard of conduct that is based on responsibility and gets us closer to achieving a sustainable business model for resource management in Canada."

UNDERSTANDING LINEAR CORRIDOR MONITORING

WHAT DO WE NEED TO WATCH FOR?

Disturbance to forest succession

One of the most notable observations about a linear corridor is the difference in the landscape — the difference between the corridor itself and the land bordering it, and also how well the land is recovering from the initial disturbance. If the corridor does not match the surroundings, that is a sign that the area should be monitored to measure the impacts of the disturbance on forest succession, for example. It's because of monitoring that we can demonstrate that these disturbances have long-term effects.

Parasite and disease spread

Scaling down, way, way down, from large-scale landscape disturbances is another notable but harder to see issue, at least with the naked eye. If linear corridors make it easier for animals to travel longer distances, it also makes it easier for parasites and disease to travel to new areas and new populations. Parasite and disease transmission increases as animals travel to places they would not otherwise be, creating territory and habitat overlap that otherwise would not have occurred. Deer, moose, and caribou using the same spaces can cause outbreaks to quickly spread between the species. This has the trickle-down effect of impacting community hunting practices, food security, and traditional land use.

"You really get a sense of the long-term impacts of linear disturbances, like roads, when you're travelling along them on foot."
– Jasmine Labelle, SVS.

Placing "value" on the land

But how do we know there are species of importance in the area that we should be monitoring? Looking for the presence of indicator species or animal tracks can be a sign that a specific species, especially a species at risk, is present in an

EXAMPLE: EFFECTS ON CARIBOU

Let's put the spotlight on one species that is of particular significance to many of our clients: caribou. Linear corridors disrupt the old-growth habitat that caribou need to survive. It takes a long time for the land to be established to the point that it can support the type of lichen that caribou eat in the winter. Linear disturbances reset forest succession — it sets back the clock in terms of reaching the required old growth habitats.

The establishment of linear corridors also changes the landscape and habitat by allowing increased human activity in the area, easy access for natural predators like wolves to catch caribou and other prey species, and opportunities for invasive species to spread and take hold. Caribou already have a variety of pressures from climate change and the increased intensity of forest fires, so adding the pressures of increased human activity, changes to food sources, and altered predator-prey interactions, increased disease transmission, and the loss of habitat that come with linear corridors further stress this already susceptible species. Monitoring can quantify the effects of these pressures and inform appropriate strategies for dealing with them.

area. Monitoring can help us to place "value" on the land by determining that it could be critical plant or animal habitat.

Changes to predator-prey interactions

Predator-prey interactions can also change because of the presence of linear corridors. Looking along a corridor, is there a good line of sight for predators? Are predators and prey using these areas at the same time? If certain prey are a species at risk, like caribou for instance, a linear corridor that gives predators a good line of sight while hunting is an additional pressure on a species that should be monitored.

> *"A permanent road base creates the conditions for a monoculture of vegetation. This is not great for biodiversity and can make it harder for wildlife and harvesters to pass through an area."*
> *– SVS's Alison Gamble*

Linear corridors can also allow predators to cover more ground in a shorter amount of time. This issue can be compounded if landscape features or weather, such as deep snow, are already slowing down the rate of travel of a prey species, like caribou.

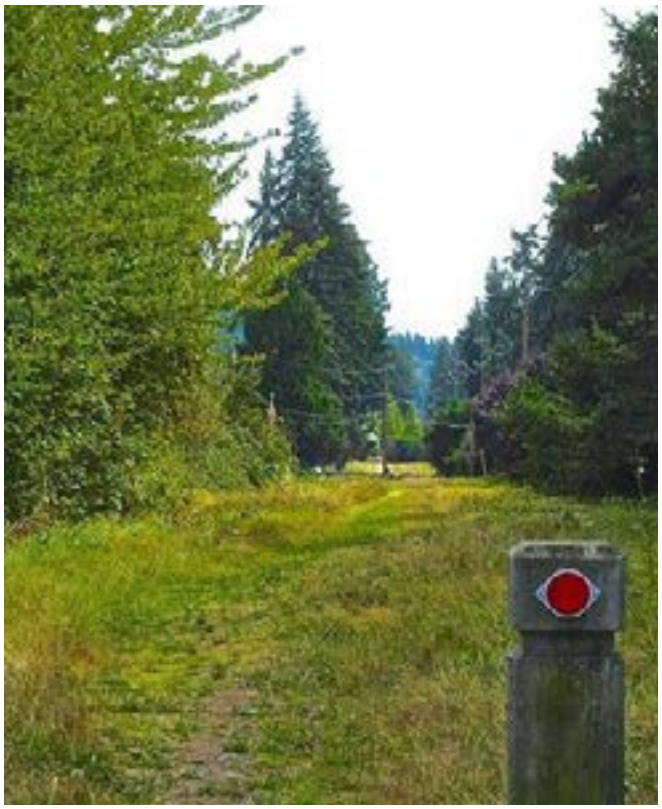
Plan for disturbances

Disturbances to the landscape might be unavoidable but properly timed environmental monitoring allows for potential problems to be identified and tracked or remediated as soon as possible. For instance, best practice construction environmental monitoring tasks like maintaining drainage patterns, inspecting sediment and erosion control measures, cleaning equipment to prevent the spread of invasive species, and monitoring access roads for animal mortality can prevent or mitigate potential adverse effects to adjacent natural areas like wetlands.

WHEN/HOW/WHY SHOULD ENVIRONMENTAL MONITORING BE INCLUDED IN PROJECTS THAT CREATE ANY TYPE OF LINEAR CORRIDOR?

When: Annual monitoring during the growth season is best. We can get a better sense of the status of recovery during this time. It should happen before a project has occurred, if possible, and continue during and long after a project is complete.

How: Environmental monitoring should be stipulated in any type of plan such as an Environmental Impact Statement, decommissioning plan, or revegetation plan — any documents that outline what the intentions are after a project has been completed. Monitoring



can be done with people on foot, with drones, with satellite imagery, or a combination of all three. There should be multiple plans that correspond to different outcomes, including unforeseen circumstances, that detail the methods, length of time, and frequency that an area will be monitored, as well as the conditions necessary for monitoring to cease.

Why: Accountability. Those responsible for the creation of a linear corridor have historically avoided responsibility after a resource has been tapped out. Long-term monitoring of these linear corridors avoids proponents being able to wash their hands of adverse impacts to the lands, waters, and people. It also helps set a standard of conduct that is based on responsibility and gets us closer to achieving a sustainable business model for resource management in Canada.

FROM BASELINE TO RESTORATION, MONITORING IS KEY

Environmental monitoring plays an important role in the planning, development, management, and remediation of projects that create linear corridors. "Environmental monitoring is step one in understanding an area and sets up a baseline to measure any changes or impacts, both expected and unforeseen," says SVS's Jasmine Labelle. When it comes to making informed decisions about potential courses of action surrounding a linear corridor project, some understanding of the landscape is necessary — how the land is used is crucial to determining what the best path forward is.

Eventually, linear corridors are no longer used for their intended purpose and decisions need to be made about what to do with the land. Environmental monitoring is necessary for planning these actions —do nothing, repurpose the corridor for another use (tourism, road access for a different project/proponent, etc.), or restore the corridor to match the surrounding landscape.

"Roads that are never properly restored are then used to access certain areas after the fact. A network of logging roads allows access to key areas but also opens access to the general public, a fact that comes with ecological considerations."
– Alison Gamble

Old logging roads

This is the kind of environmental monitoring-informed decision making that comes into play with corridors like legacy logging roads. These roads were created by forestry companies before there were regulations in place to hold resource extraction companies accountable for these disturbances to the landscape. And while these roads aren't

"Environmental monitoring is important for collaboration between Nations and can facilitate relationships. It's important to have data collected and have something to share." – Jessica Ward, SVS

anyone's responsibility anymore, they are present, they are being used for other purposes, like recreation and as access roads, and they are impacting plant and animal life in the area. Often these roads are economically beneficial to small nearby towns who rely on tourism dollars from recreational users coming into the area and can provide access to important hunting and trapping areas for local residents. As such, there can be some resistance to the idea of remediating and restoring these areas. Environmental monitoring becomes an important step in assessing the options and deciding on the best course of action.

WHAT ELSE CAN ENVIRONMENTAL MONITORING TELL US?

Environmental monitoring can tell us a lot about land use – current and future. It can also help us plan more carefully for future disturbances and how they should best be managed. Here are some specific things we can learn and consider:

- **How the area is being used**: Human activity such as chain-sawed trees, bait, tree stands, ATV or snowmobile tracks are common along linear corridors. Human activity has a very large impact on how well the land can recover as well as if restoration methods will be undone or vandalized.
- **What extra steps might be needed**: Additional interference may be required such as tree

EXAMPLE OF COMMUNITY-LED CORRIDOR MONITORING DONE RIGHT: THE HENVEY INLET WIND PROJECT

At 300 MW, the Henvey Inlet Wind Project is the largest single-phase wind project in Ontario and the largest First Nation wind partnership project in Canada. Nestled in the Henvey Inlet First Nation reserve on the shore of Georgian Bay, the wind farm's transmission line spans more than 86 km to connect electricity generated by the wind farm into electricity grid near Parry Sound.

The Henvey Inlet Wind Project is an example of environmental monitoring done right, at the right time, following best practices for environmental assessments. During transmission line construction, baseline monitoring allowed for planning and accommodation for species that were sensitive to habitat fragmentation or could be otherwise impacted by the project. Environmental monitors and qualified biologists were hired from among community members of three First Nations, providing training and employment opportunities for the communities. The First Nations communities were able to play a role in determining permitting, monitoring, and environmental assessments on their own land. Henvey Inlet First Nation developed their own environmental assessment (EA) requirements under their land code, as well as had the proponent meet both the provincial and federal EA requirements. The success here set the stage for Magnetawan First Nation and Shawanaga First Nation to each permit the transmission line on their land as well, under their respective land codes. In doing so, these Nations set the mitigation and monitoring requirements the proponent had to follow for the project to get approved, and then they each had a role in overseeing how those measures were implemented by the proponent.

felling to prevent human access, planting to support regrowth, tilling to undo soil compaction, or any other land preparation method.

- **How the land has changed over time**: What can we learn from these disturbances that can inform the long-term plans of other industries best practices? Did the corridors that were only used in the winter recover faster than others? Can proponents limit future corridor use to winters to better support regrowth? Did the road get taken over by snowmobiling and ATVs? Can a proponent partner work with a local organization to establish formal trails after they are finished using a corridor?
- **Which land use options are worth pursuing**: Sometimes restoration isn't always the best option and decisions should be made based on what is the most realistic/best use of the land going forward.

THE ROLE OF COMMUNITY-LED ENVIRONMENTAL MONITORING

One common theme woven throughout environmental monitoring is that things can be missed if community members are not present and engaged in the process. At the community level, having trained environmental monitors means the community has ears and eyes on the ground protecting their interests during proponent-led assessments. These monitors provide an extra level of accountability to ensure assessments are being done fully. They are also able to provide community and historical context as they have first-hand knowledge of problem areas and sites of potential contamination.t

Anywhere a linear corridor is constructed, there will be an impact to wildlife. The earlier that monitoring begins, the better.

WHY DID THE TURTLE CROSS THE ROAD? INCORPORATING TRAINING IN ENVIRONMENTAL MONITORING PLANNING

Anywhere a linear corridor is constructed, there will be an impact to wildlife. The earlier that monitoring begins, the better. In one story shared by SVS's Jessica Ward, environmental monitoring was built into the construction phase of the Henvey Inlet Wind Project, and construction staff were trained to identify and protect species of interest. In this case, vehicles were travelling on roads that bordered habitat for species at risk — turtles and rattlesnakes. Environmental monitors searched the construction footprint each morning for snakes and turtles before heavy equipment was moved in. Any that were found were relocated safely by environmental monitors who were trained in proper handling techniques. The environmental monitors used decoy snakes and turtles to make sure construction staff were checking around and under their vehicles for these important species and keeping a look out for them when driving on project access roads. Turtle fencing with passages under the roadways were used to keep turtles off the road; this required ongoing monitoring to ensure they were functioning properly and not in need of repairs.

HOW CAN WE HELP?
ARE YOU LOOKING FOR HELP WITH YOUR ENVIRONMENTAL MONITORING OR GUARDIANS PROGRAM?

Protecting your lands and waters is a crucial part of upholding your rights and supporting community well-being. Our team strives to understand your Nation's values so we can walk alongside you in protecting what matters most.

Please give us a shout. Our team would love to chat through all your options. Or just chat about environmental everything. We are a self-declared group of science nerds who always have time for everything from bats and turtles to caribou and eels and all the systems that nurture and sustain what matters on our planet!

ENVIRONMENTAL MONITORING AND ADVISORY SERVICES AT SVS:

- Rights and Interests-based Technical Reviews
- Scientific Advisory Support
- Environmental Monitoring
- Guardians Program Development
- Source Water Protection
- Flood Mapping
- Climate Change Adaptation
- Nature Based Solutions to Climate Change

No matter what stage of a project you are dealing with, we've got you covered. Our services integrate to help you reach your goals.

PROTECTING WHAT MATTERS

Protecting your lands and waters is a crucial part of upholding your rights and supporting community well-being. Our team strives to understand your Nation's values so we can walk alongside you in protecting what matters most.

Whether you need to conduct baseline studies of your waterways, establish a Guardians program, or are looking for strategic scientific advice on the risks of a proposed development, we are here to help in the ways that will be most effective and meaningful.

Our advice and recommendations rest on deep and wide experience and knowledge across many scientific disciplines:

- Aquatic and terrestrial ecology
- Environmental planning
- Wildlife biology
- Endangered species
- Contaminated sites
- Geological sciences
- Water resources management
- Waste management
- Hydrogeology
- Stream restoration
- Fish biology
- Environmental chemistry and toxicology
- Climate change adaptation planning
- Nature based solutions to climate change

If you have any questions about environmetnal monitoring, please do reach out — we'd love to meet you!

MEET THE AUTHORS

Claire Avisar, BA, MA
Social Researcher

Claire is a passionate storyteller whose love of connecting communities with mediums of expression, creative and otherwise, brought her to SVS.

She is a socio-cultural anthropologist and experienced communications consultant, with a strong background in social research, campaign development, community engagement, and a penchant for political advocacy.

Claire holds a master's degree in socio-cultural anthropology from the University of Toronto. Her thesis, The Museum is the Message: Museums, Media, and Multiculturalism in Canada, focused on the history of the Canadian museum as a settler-colonial nation-building tool. In this work, she also explored the extent to which the museum has been used by Indigenous Nations in Canada as a mode of political and cultural resistance.

Working as a tutor at Kanhanwake Survival School during her undergraduate degree ignited Claire's interest in working with Indigenous Knowledge. Having grown up in a multicultural household, and becoming involved in Canada's many cultural communities, she grew interested in fostering cross-cultural communications and collaboration in Canada.

Outside of work, Claire enjoys poetry, plant-based nutrition and cooking, and will always make a museum her first stop in a new city.

Jessica Batson, B.Sc.
Junior Aquatic Ecologist

Jessica's passion for people and the environment led her to study in a relatively new sector that combines Traditional Ecological Knowledge with contemporary environmental issues surrounding aquatic systems. She pursued this path through a joint program between Fleming College and Trent University. Jessica graduated with an Ontario College Diploma and Honours Bachelor of Science Degree in Ecological Restoration.

Jessica's diverse background in ecological restoration and aquatic ecosystems informed her work as a private consultant focused on the mining and pulp and paper sectors. In that role, she conducted downstream environmental effects monitoring, water quality and quantity monitoring, and aquatic habitat assessments. At SVS, Jessica will continue her work in the preservation of aquatic systems using a Two-Eyed approach and through continuous learning with her clients and team.

Jessica's experience includes technical report writing, fish sampling and processing methodologies, benthic invertebrate sampling methodologies, and project coordination.

Over the past 10 years, Jessica has spent time as a wilderness canoe trip guide, backcountry park facility operator, tree planter, aquatic research assistant, outdoor-ed teaching assistant, and field biologist. When she is not working, you will find her outside—camping, canoeing, fishing, foraging, hiking, or reading in her hammock.

Chelsea Brecher, MES
Junior Environmental Scientist

Growing up just outside of Guelph, Chelsea developed an interest in the environment at a young age. She spent her time in forests, rivers, and ponds and was curious about everything she saw. This curiosity carried her through to middle school and high school, where she was exposed to environmental sciences in an academic setting. As she learned more about the world around her, her drive to make a career out of environmental sciences grew. When the time came to consider post secondary education, it was an easy choice for her to pursue environmental sciences. In 2020, Chelsea received her Honours Bachelor of Science in Environmental Sciences from the University of Guelph. She then went on to achieve her Master of Environmental Science from the University of Guelph in 2021.

Chelsea is now proudly an environmental scientist with a diverse background in terrestrial ecosystems and ecotoxicology. She has led a number of research projects at the University of Guelph studying the toxicity of metals in soil to both plants and invertebrates. Her work has contributed to greater understanding of the toxicity and behavior of metals in soil ecosystems. She has also contributed to the development of techniques for the remediation of contaminated soil ecosystems. She is passionate about the preservation of complex ecosystems through conservation and remediation.

Alison Gamble, M.E.S., C.Chem
Environmental Scientist

Alison Gamble is a proud citizen of the Métis Nation of Ontario. She is an environmental scientist with a background in water quality, contaminated sites, and waste management and is a registered Chartered Chemist with the Association of the Chemical Profession of Ontario. She has vast experience with client liaison, stakeholder engagement, and logistical planning and has previously led a provincial government policy review and development initiative to support forest fire response operations. She has also been involved in the environmental monitoring and reporting for active and closed waste management facilities. She has experience in monitoring groundwater and surface water systems and conducting stream assessments and benthic invertebrate studies. Alison has participated in committees for the public advisory of forest management plans, and promoting awareness and support for the Aboriginal community in a post-secondary education setting.

Alison completed her B.Sc. in Chemistry at the University of Guelph in 2014, where she focused on analytical and inorganic chemistry, along with environmental chemistry and toxicology. In 2016 she completed a Masters of Environmental Science at University of Guelph specializing in hazardous waste management, contaminated sites, and environmental impact assessments.

Alison has been fishing ever since she could hold a rod and reel, and foraging wild edibles since she started walking. Combined with a deep scientific curiosity, this has led Alison to become passionate about protecting traditional ways of life through conservation and remediation efforts.

Jasmine Labelle
Junior Terrestrial Ecologist

Jasmine began her education in the Niagara Region as an Environmental Technician. This introduced her to the sampling, analysis, and monitoring of water, soil, and air quality; environmental assessments; drinking and wastewater treatment; and the fundamentals of navigating federal and provincial legislation. She became interested in species monitoring and the applications of citizen science and engagement for the co-management of resources and shared urban spaces. While in school, Jasmine spent most of her free time volunteering with local community organizations where she learned the strength of persistent small efforts and the importance of meaningful communication between groups of varying disciplines.

Jasmine relocated to eastern Saskatchewan where she travelled historic logging roads assessing recovery from disturbance, caribou habitat potential, and ecological land classification. While there, she began attending Caribou-Range Planning meetings and gained exposure to government, stakeholder, and community collaboration regarding a species at risk. Following the field season, she continued working in resource management, specifically in peat harvesting and large-scale peatland restoration. Here, she gained experience in the operations of resource extraction companies and application of environmental impact statements, approvals to operate, and carbon offset projects.

Jasmine has since returned to Ontario where she continues to participate in species monitoring and restoration activities with NGOs and local organizations, as well as achieving Certified Ecological Restoration Practitioner (CERP) status with the Society for Ecological Restoration. Jasmine hopes to contribute to increasing the co-adaptive management of natural resources within Canada, as well as the long-term restoration of resource extraction sites.

Kaitlin Littlechild
Marketing and Communications Specialist

Kaitlin is an experienced editor and writer of policy, business communication, health communication, marketing material, web content, and scientific and academic material. She is adept at matching the tone of the document to the intended audience, including performing readability analyses and making the necessary substantive edits.

Kaitlin is a member of Sweetgrass First Nation. As an Indigenous editor and writer, she uses language to meet the need to accurately reflect Indigenous voices in ways that are truthful and respectful. She approaches communication through the appropriate lenses of cultural sensitivity and cultural knowledge with an understanding of the unique narrative style.

A skilled communicator, Kaitlin has developed and delivered training material on cross-cultural communication and engagement. She is experienced in strategic communication planning and digital strategy development and has worked on all stages of stakeholder engagement and consultation, including audience identification, analysis, and reporting of results.

Kaitlin possesses extensive research and literature search skills, as well as experience with knowledge translation and the communication of results both orally and in written reports. She has contributed to the development of an addiction awareness social media campaign, including community presentations and education sessions. While developing evidence-based public and community health campaigns, she has served on various committees and served as a liaison between stakeholders.

Beate Schwirtlich
Editor

Beate is pleased to be combining her editing skills and love of language with her passion for environmental conservation and social justice.

Beate holds bachelor's degrees in fine arts and journalism, which laid the foundation for a career in book publishing. For five years, she worked as a typesetter, first at Wilfrid Laurier University Press, and then Penguin Random House Canada. Most recently, she managed publication projects for the Higher Education Division of the University of Toronto Press. Over the course of ten years there, she shepherded textbook manuscripts (anthropology, sociology, Indigenous studies, and Canadian history and politics titles, among others) through the editorial, production, and printing process.

Laura Taylor
Managing Partner

Laura Taylor is passionate about the potential of storytelling to transform lives, communities and companies for the better. A founding partner of Shared Value Solutions, she delights in using her multi-media skills to help Indigenous clients communicate their successes and goals, and assert their rights. She is a professional writer, social researcher, photographer, videographer, and facilitator of Indigenous Knowledge studies and related projects. Her video work focuses on telling crucial stories that shift the perspectives and open the minds of audiences ranging from community members to regulators and proponents of proposed major development projects—stories that can alter the outcome of regulatory decisions and impact benefit agreements. She is the author of the best-selling popular science book, ***The Cottage Bible*** (with Gerry Mackie, Boston Mills Press, 2007): "Practical, comprehensive, environment-friendly advice" (Montreal Gazette). She is also the author of a literary memoir, ***A Taste for Paprika*** (Penguin, 2005). Her photographs have been featured in many journals, magazines (including ***Oprah*** Magazine), books and technical guides. Laura is a recipient of a Consulting Engineers of Ontario Award for Aboriginal Traditional Knowledge achievements.

Jessica Ward, Ph.D., PMP
Senior Ecologist

Jessica is passionate about nature-based solutions to address climate change and the global biodiversity crisis. She brings this passion to her role as an ecologist with a breadth of consulting experience spanning numerous energy, transportation, water and wastewater, mining, and other projects. As a PMP Certified Project Manager, Jessica has managed projects of varying size and complexity. She has completed third party reviews of environmental assessments and permit applications on behalf of Indigenous communities, project developers and regulators. Jessica is passionate about harnessing the power of nature to address climate change, including greenhouse gas mitigation through land use management and adaptation through nature-based solutions.

Jessica holds a PhD in Biology from McGill University, where she spent her days scuba diving in the St. Lawrence River and studying the impacts of invasive species on aquatic ecosystems. She is a Project Management Professional (PMP) certified by the Project Management Institute and has worked as an environmental consultant since 2010. Jessica is a member of Women in Renewable Energy (WiRE) and has played a role in the development of over 1.3 Gigawatts of operating renewable energy projects across Canada, including the Henvey Inlet Wind Project.

Jessica's childhood spent exploring the woods and stream at her grandparents' farm and camping in Algonquin Park steered her toward a career in ecology and environmental protection. In her free time, Jessica enjoys exploring Ontario's parks by canoeing and camping, mountain biking, and learning and writing about nature-based solutions.

ABOUT SHARED VALUE SOLUTIONS

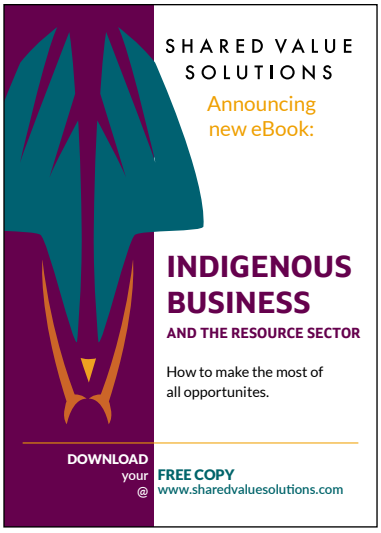
We have an unshakable commitment to a land where all peoples can reach their full potential, share prosperity, and uphold their rights. All of this begins and ends with healthy lands and waters. In the spirit of collaboration, respect and friendship, we work alongside visionary leaders and their communities to fulfill these commitments.

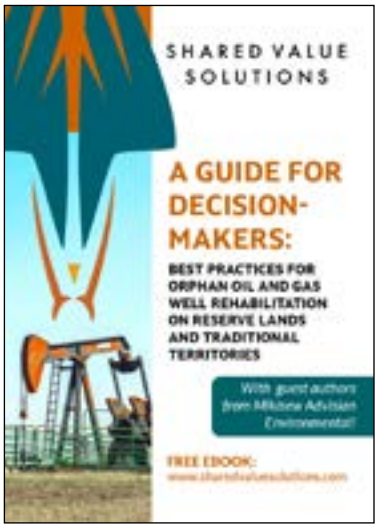
Shared Value Solutions is an environmental and community development consulting firm with staff serving First Nation, Métis and Inuit Nations from coast, to coast, to coast.

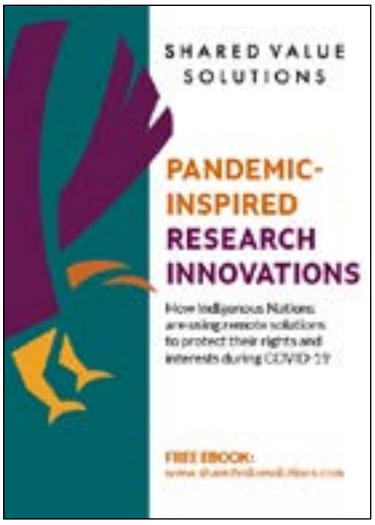
Our team works alongside Indigenous Nations across Canada, providing technical guidance, regulatory advice, peer reviews, planning, and negotiation strategy in relation to major resource development projects.

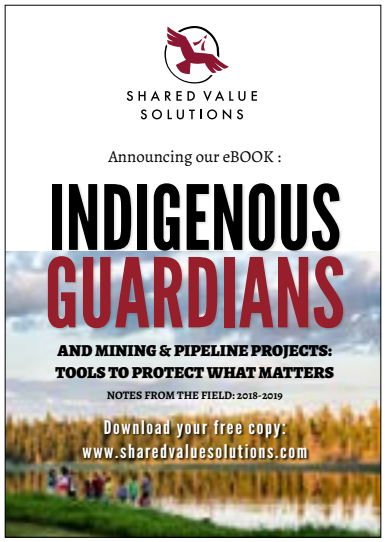
We are a company of Indigenous and non-Indigenous environmental, cultural heritage, planning and regulatory experts committed to braiding Indigenous Knowledge with western science to further our clients' goals of prosperity, stewardship and jurisdiction.

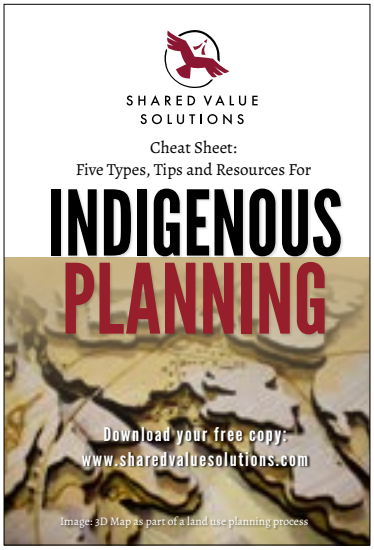
MORE EBOOKS AVAILABLE AT WWW.SHAREDVALUESOLUTIONS.COM

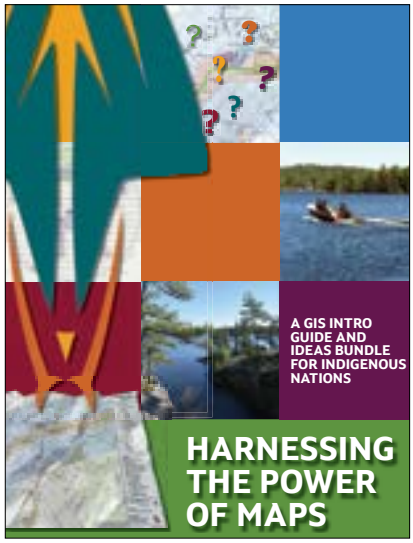












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