

Alberta Biodiversity Monitoring Institute Strategic Plan

2020 - 2023



ABMI ALBERTA BIODIVERSITY
MONITORING INSTITUTE

Introduction

The ABMI is a not-for-profit, non-regulatory, arm’s-length Institute that is delivered jointly by the University of Alberta, the Royal Alberta Museum, and InnoTech Alberta. Since 2007, we have been implementing and managing science-based programs to monitor and report on the changing state of biodiversity throughout the province of Alberta. Our Board of Directors includes representatives from the Government of Alberta; environmental non-governmental organizations; forestry, energy, and agriculture sectors; and the research community.

Our Mission

We track changes in Alberta’s wildlife and their habitats from border to border, and provide ongoing, relevant, scientifically credible information on Alberta’s living resources. For Alberta’s land-use decision makers. For Albertans.

Our Vision

The ABMI is a leader in biodiversity monitoring; our program stands as a model to other jurisdictions. Our products and services are integral to responsible resource management and land stewardship in Alberta, now and into the future. And, our work serves to enrich Albertans’ appreciation of our shared natural heritage.

Our Operating Principles

We pride ourselves on being:

- **Independent:** We operate at arm’s length from government and industry; our information is objective and presented without bias.
- **Scientifically credible:** Our program is validated through peer review and by an international panel of experts.
- **Relevant and Accessible:** We develop information products to meet stakeholder needs; all information is publicly available and easily understood.
- **Transparent:** Our governance and operations are open to scrutiny, to promote engagement and accountability.

In the first 10 years of our operations, the ABMI’s focus was on establishing the long-term trend monitoring program that was envisioned from the start; however, as environmental monitoring and management has evolved in Alberta (e.g., additional objectives, new protocols, collection of “big data”), there is a growing opportunity to integrate efforts to achieve more effective environmental outcomes built on a foundation of collaboration and efficiency.

Here we present a 3-year strategy to achieve our vision via the following priorities:

1. Monitoring Alberta’s Landscapes and Biodiversity
2. Science Innovation
3. Working Collaboratively
4. Knowledge Translation and Engagement
5. Operational Excellence

Context and Emerging Themes

Context

The key inputs into the development of this Strategic Plan come from multiple sources. First, consideration of the recommendations of the ABMI's 10-year Science and Program Review and associated needs assessment have shaped the overall plan. Second, over the last few years, Alberta Environment and Parks (AEP) has undertaken its own needs assessment process, and the Oil Sands Monitoring (OSM) program has codified its own program goals, providing critical direction for the ABMI's planning. Finally, with a view to what the emerging issues and concerns might be, the ABMI completed a market scan to inform the outcomes of this work.

10-year Science and Program Review

The ABMI remains focused on implementing key recommendations arising from our 10-year Science and Program Review and ensuring alignment with our major funders. Key findings from the Review are taken from the Steering Committee Final Report ([North Raven Consulting 2018](#)):

1. **Climate Change** – Include climate change with land-use change as a major driver of the need for biodiversity data.
2. **Initial Survey of Site Locations** – Prioritize completing the initial survey of data collection site locations.
3. **Strategic Stratification of Data Collection** – With the assistance of land-use and climate change models that forecast impacts to biodiversity, strategically stratify site revisits.
4. **Stakeholder Biodiversity Data Needs** – Stakeholder biodiversity data needs should be met primarily at the provincial and regional levels but should be met at the sub-regional level on a case-by-case basis.
5. **Communications Strategy**
 - a. Invest in telling Alberta's biodiversity story more widely,
 - b. Identify appropriate communication tools for the spectrum of ABMI audiences, from simple information-out for the public to engagement with stakeholders, and
 - c. Investigate a business model that supports engagement with stakeholders, including Indigenous groups and municipalities, as a core activity.
6. **Accessibility of Site Locations** – If loosening confidentiality of site locations is contemplated, consider very carefully whether it is justified. The majority of Science Committee members recommend maintaining confidentiality protocols and a minority recommend loosening them.
7. **Collaboration** – Actively promote and invite collaboration with interested parties.
8. **ABMI Goals and Objectives** - Amend wording of ABMI's Stakeholder Goal and one Science Objective.

Several of our strategic goals (see pages 11-15) are mapped directly to the 10-year Science and Program Review recommendations.

The ABMI's 10-year Program Review included a comprehensive Stakeholder Needs Assessment, which involved interviews, surveys and workshops, with the results being used as one of the foundational pieces for this strategic plan.

The stakeholders identified the following needs:

- Knowledge transfer (increased outreach, additional support tools);
- Geospatial information (increased resolution);
- Better alignment between organizations (need for standardization of methodology, language);
- Resources (additional financial and human resource capacity);
- Confidentiality (resolve sensitivity around privacy rights); and
- Monitoring information (expansion of taxa monitored).

Government of Alberta

The Alberta government remains committed to land-use planning and environmental monitoring, and the ABMI has received multi-year commitments from AEP related to core operations. We continue to work with AEP to further clarify roles and responsibilities, while seeking to optimize how we plan and coordinate with provincial monitoring initiatives. These initiatives have been very positive. Government of Alberta leadership sees ABMI as a valued partner; translation of this intent to operating practice is progressing well.

Going forward, we will also be working to align our operations with the information needs of our major funders, as outlined by the AEP's Monitoring Needs Assessment, currently being completed, and the OSM Program.

Support by AEP for the ABMI is strong. The ABMI is working closely with staff to responsibly adjust our programs to increase alignment and coordination. We will continue to build a solid relationship with leadership across divisions in AEP, while also pursuing opportunities to appropriately adjust our current programs.

There is likely opportunity to maintain or build capacity that is complementary to our funders, delivery partners, and other monitoring organizations.

Oil Sands Monitoring Program

In December of 2017, the Government of Alberta and the Government of Canada signed a Memorandum of Understanding (MOU) that renewed their commitments to monitoring environmental impacts of oil sands development through the OSM Program. The MOU acknowledges the treaty and aboriginal rights of Indigenous people, while establishing mutual intentions of both governments to collaborate and be accountable for the design and implementation of an integrated monitoring, evaluation and reporting system.

In the spring of 2018, an Operational Framework Agreement was established outlining the vision, principles, objectives and desired outcomes of the OSM Program. The Operational Framework Agreement established an inclusive approach for the oversight and management of the OSM Program (involving the provincial and federal governments, along with Indigenous and industry representation). Today, there is a collective commitment to shared governance and implementation of the OSM Program that ensures that Indigenous peoples are partners in the OSM Program and that they have certainty around the governance and decision-making processes.

The ABMI participates in both the geospatial and terrestrial biodiversity monitoring components of the OSM Program, to support their mandate to provide data and information on the impacts of oil sands contaminants on wildlife and the impacts of habitat disturbance on biodiversity.

Funding to the ABMI for the OSM Program is administered by the Oil Sands Secretariat within AEP's Resource Stewardship Division. We have multi-year contracts related to oil sands monitoring, but funding is conditional on annually approved work plans, which may vary.

Emerging Themes

There are several emerging themes that provide additional context for our priorities and goals. Their relevance relates to current or potential changes to the landbase, resource availability, or ecosystem function, all of which are important to consider in this strategic document.

COVID-19

Actions taken to slow the spread of COVID-19 have affected our economy and business practices in a profound way. The pandemic has altered the way we conduct business and, in the short-term, decreased efficiency, increased uncertainty, and is impacting the mental health of Albertans. The mid- to longer-term impacts are still being assessed, but one of the impacts of COVID-19 may be a shift in private and public spending priorities. Another may be a shift in the type of environmental monitoring services that are required. Both need to be closely watched by the ABMI. The potential for future pandemics will force organizations to alter their operations through a lens of preparedness. For the 2020/21 operating year, the ABMI modified its field programs to meet COVID-19 health guidelines, and will need to continue to be nimble to respond to this, and any future, pandemic.

Oil Prices

COVID-19 and the associated travel restrictions have caused the demand for oil to plunge around the globe. This has driven the price of oil to historically low levels and caused significant disruptions to supply chains in the agricultural and forestry sectors. Combined, supply chain disruptions and low commodity prices have negatively impacted funding availability and will lead to significant competition for limited funding. It will also lead to significant liquidity challenges for a number of industry stakeholders as they try to navigate the reaction to and recovery from this economic crisis.

The ABMI requires funding certainty for operational planning.

Indigenous Community Participation

In December 2017, the governments of Canada and Alberta renewed the Oil Sands Monitoring Agreement. This commitment also called for greater collaboration with representatives from local Indigenous communities to encourage Indigenous involvement in monitoring priorities and decisions. The Government of Canada has committed up to \$2 million annually to develop capacity for community-based environmental monitoring in the oil sands region that is designed and led by Indigenous communities. This new funding opportunity will build capacity and provide an opportunity for community leadership in environmental monitoring design and implementation. Alberta's Indigenous communities are increasingly looking for ways to become effectively involved in

environmental monitoring and management. Technical capacity can be a limiting factor to their involvement, so training and opportunities to build connections with the scientific community will be critical to future success.

The ABMI has been working with Indigenous communities to facilitate opportunities for collaboration and training. These efforts will increase in the coming years.

Market Access - Energy

Recently, the Government of Alberta has committed significant funding to the Keystone XL pipeline while construction of the Trans Mountain pipeline continues. Environmental assurance will continue to be an important element of Alberta's brand and strategy to achieve market differentiation.

We are well positioned to provide the data to support Alberta's natural resource management decisions and communications.

Technology Driving Change (Sensors, Artificial Intelligence (AI), Big Data, Communication Tools)

Technological advances in sensors and computing infrastructure will continue to improve the science of biodiversity monitoring. They will make data collection and processing more efficient while leading to opportunities in citizen science and community-based monitoring. Technology also means more than just new techniques and equipment for monitoring biodiversity. Communications and geospatial technology has and continues to grow, creating a more engaged and vocal public, with an appetite for accurate, up-to-date, and easy to understand information. Society's interest in and ability to comment on Alberta's environment (and the science behind its monitoring), will only increase as this trend continues.

The ABMI is capitalizing on new technology opportunities, coupled with increased communication and engagement (e.g., social media, WildTrax, and NatureLynx™) with the public.

Green Energy Market Shifts

The green energy industry is growing fast, with growth expected to continue in the coming years. The demand for diversification of Canada's energy supply has been an obvious and increasing interest over the past two decades. The rising face of the industry has been supported by expectations that renewable energy may be on the cusp of significant growth in the years ahead as countries take advantage of [falling costs](#) in green technology. This process is happening alongside other notable trends, such as greater energy efficiency and the rise of electric vehicles.

Our biodiversity monitoring supports environmental assurance, as the province moves to diversify revenue and new industries emerge.

Climate Change

The world's climate is warming. Impacts include rising sea levels, more extreme weather events, increased risk of flooding, forest fires and seasonal water shortages. Governments, industries, and citizens are responding by working to stabilize or slow greenhouse gas emissions, while preparing for the climate impacts that are already materializing. This is evident in the international community's response to the Paris Agreement and its long-term strategy to attain net-zero by 2050. In response to the global pressure to align with this pledge, Canada has committed to a net-zero goal by 2050 with the collective support of the provinces to achieve this target.

It is anticipated that a changing climate will drive changes in biodiversity, increasing the necessity for ongoing environmental monitoring.

Water / Food Security

“Water is the ultimate systems challenge. It is a unique resource that underpins all drivers of growth – be it agricultural production, energy generation, industry or manufacturing. It also connects these sectors into a broader economic system that must balance social development and environmental interests.”

“Despite its fundamental role across the economy, water is all too often managed in a fragmented manner, leaving national and regional growth strategies disconnected from insights into available and planned water resources. This results in competition across users, mismanaged trade-offs, disruptions to operations, and under-investment for critical infrastructure.”

[-World Economic Forum](#)

Over the coming decade(s) we can anticipate increased demand for Alberta's water resources.

Similarly, food security is a complex issue, made more challenging by the emergence of the COVID-19 pandemic. The immediate concern is on addressing food insecurity and supply chains. The long-term consequences of COVID-19 are not yet clear, but we might expect increased scrutiny on food production and supply chains coupled with persistent attention to food affordability, the impact of climate change, and environmental sustainability.

The ABMI's stakeholders can benefit from monitoring that demonstrates stewardship in water systems and in the food production life-cycle.

Strategic Issues

The major strategic issues facing us have been identified through our 10-year Review, as well as communication with our Board, Voting Members, funders and delivery partners.

1. **Diversified Revenue** – While our funding mix has changed over the course of our operations, AEP remains the dominant source of ABMI revenue. Diversifying our revenue base, while adding value to AEP investments needs to be considered.
2. **Fluctuating Budgets** – Monitoring budgets are inconsistent, while the need for environmental assurance remains strong. All environmental media compete for limited financial resources. The ABMI’s financial position could be strengthened.
3. **Business Applications** – Specific information tools (applications) remain underdeveloped. Monitoring systems should seek to support resource management more effectively in Alberta.
4. **Collaboration** – Environmental monitoring and management communities are overly compartmentalized. We should leverage our funding and relationships to coordinate monitoring investments that meet multiple needs.
5. **Engagement and Awareness** – Our membership base is narrow and the story of biodiversity is inconsistently told.
6. **Adapting to Meet Needs** – We steward some long-term, provincial-scale monitoring programs. There is demand for some flexibility to better address other knowledge needs.

ABMI Strategic Direction

The above Strategic Issues were the drivers for identifying our priorities for the coming 3 years. By aligning our Priorities with those issues, we have provided a framework for how we will proceed and succeed, by addressing any vulnerabilities, and focusing our time and resources.

Our Priorities

1. Monitoring Alberta’s Landscapes and Biodiversity
2. Science Innovation
3. Working Collaboratively
4. Knowledge Translation and Engagement
5. Operational Excellence

Priority 1: Monitoring Alberta’s Landscapes and Biodiversity

Rationale and Alignment with 10-year Program Review

Meeting the needs of decision-makers by acquiring high-quality scientific data, supports environmental assurance.

10-year Program Review Alignment: Recommendations #2, 3, 4 & 6.

Goals

1. Implement field and geospatial data collection programs that meet stakeholder and funder needs.
2. Expand access to environmental data (digital and curated specimens).

Areas of Focus

- Field and geospatial data collection
- Taxonomic expertise that is nationally valued
- Open data
- Shared monitoring standards

Measurable Outcomes (by 2023)

- Ecosystem Health program design complete and updated.
- Targeted field program implemented to address stakeholder and/or funder needs.
- Collaborative ALPHA-S and ALPHA-SG geospatial information system created.
- Collection of specimens and data, and release of resulting provincewide upland and wetland data layers, human footprint, field-based species data.
- Creation of a data repository and quality control system in collaboration with the academic community to ensure their needs are met.
- One new monitoring standard (protocol) developed that can be used across organizations.

Priority 2: Science Innovation

Rationale and Alignment with 10-year Program Review

Advancing the science of biodiversity and land surface monitoring, and implementing operational programming based on new knowledge improves relevance and drives efficiency.

10-year Program Review Alignment: Recommendations #1, 3 & 4.

Goals

1. Use new technologies and data sources to monitor biodiversity.
2. Incorporate the impact of climate change into provincial monitoring and modeling.

Areas of Focus

- Innovative field monitoring solutions
- Province-wide land cover products
- Provincial human footprint monitoring
- Taxonomic research
- Science of cumulative effects, stressor-response, and human footprint recovery
- Climate change

Measurable Outcomes (by 2023)

- Technology/protocols improved and calibrated to assess species populations.
- Application of DNA analysis (e.g., DNA barcoding, environment DNA, next generation sequencing).
- Co-development (with AEP) of protocols for remote camera data analysis to support mammal monitoring.
- Development of field protocols to support ALPHA-S and ALPHA-SG initiatives.
- Development of field protocols to support Human Footprint mapping and monitoring.
- Development of spectral regeneration and photogrammetry applications to measure human footprint recovery (2 publications).
- Inclusion of light and noise indices into human footprint mapping.
- Taxonomic research to better understand Alberta's flora and fauna (3 publications).
- Evaluation of monitoring approaches to capture climate change impacts.

Priority 3: Working Collaboratively

Rationale and Alignment with 10-year Program Review

Trust and cooperation in environmental monitoring is important to ensuring progress in resource management. Putting collaborations at the centre of our activities allows us to build networks, create communities of practice, and develop capacity for environmental monitoring province-wide.

10-year Program Review Alignment: Recommendations #6 and 7.

Goals

1. Establish collaborations with groups that have complementary and/or similar areas of expertise and capacity.
2. Partner with communities looking to develop their own monitoring initiatives to share expertise and capacity.

Areas of Focus

- Collaboration with monitoring organizations, delivery partners and the research community
- Online platforms for the management of environmental sensor data
- Contributions to development of environmental sustainability indicators
- Support for Indigenous community priorities (monitoring needs, training, project development, species identification)

Measurable Outcomes (by 2023)

- A shared program with one of our delivery partners.
- Establishment of an MOU with another group/organization that has shared monitoring/science goals.
- Addition of one new environmental sensor to the WildTrax platform.
- Completion of 2 co-developed monitoring programs with Indigenous communities.
- Collaborative roll-out of the Canadian Network for Open Avian Data.

Priority 4: Knowledge Translation and Engagement

Rationale and Alignment with 10-year Program Review

To increase the impact of biodiversity data and information products, it is vital that products and services are meeting end user needs. We believe that strong knowledge translation programs are needed to support strong environmental outcomes.

10-year Program Review Alignment: Recommendations #4, 5, and 6.

Goals

1. Increase engagement with stakeholders throughout the development of our products and services.
2. Make it easier for end users to interact with our biodiversity information.

Areas of Focus

- ABMI products and services are responsive to end user needs
- Appropriate points of engagement with stakeholders
- Specific business applications
- Leveraging delivery partner communication platforms
- Online reporting

Measurable Outcomes (by 2023)

- Development of a new information management system to meet current environmental business needs.
- Content distributed through the communication channels of a minimum of two delivery partners and/or collaborators.
- 100% increase in social media followers by 2023.
- Public release of three online reports focused on different jurisdictions within Alberta.
- Online reporting platform launched to support a stakeholder sector (e.g., industry, municipalities, watershed advisory groups).

Priority 5: Operational Excellence

Rationale

Consistent and reliable execution of our strategic plan includes more than simply success in conducting biodiversity monitoring, being scientifically innovative, or effectively sharing knowledge and engagement. The foundation for all of that work is ensuring we maintain a system of sustainable improvement, creating a rewarding and safe place that attracts and retains the right employees, and maintaining strong fiscal responsibility.

Goals

1. Diversify revenue and leverage funding.
2. Maintain a work environment that attracts and retains a talented workforce.

Areas of Focus

- Strengthened relationships with Voting Members, delivery partners and funders.
- Clarity on value proposition of ABMI membership.
- Strong fiscal control
- Revenue diversification
- Safe and empowered workforce
- Strong quality management systems

Measurable Outcomes (by 2023)

- Annual planning completed one month in advance of operating year.
- Funding sources broadened to include 20% from additional sources.
- Retained earnings representing 10% of annual operations.
- Clean annual audits.
- Membership increased by 25%.
- Clean data quality audits.
- Annual HR organizational scan.
- Annual staff retention rate of 90% or higher.
- Stable or increasing annual staff satisfaction survey results.