

Alberta Biodiversity Monitoring Institute Strategic Plan

2026–2029



ABMI ALBERTA BIODIVERSITY
MONITORING INSTITUTE

Introduction

The Alberta Biodiversity Monitoring Institute (ABMI) is a not-for-profit, non-regulatory, arm's-length organization that delivers long-term environmental monitoring, biodiversity assessment, reporting, and information systems for Alberta.

ABMI is delivered in partnership with the University of Alberta, with additional collaboration across Alberta's research and environmental management communities. Since 2007, ABMI has developed province-wide systems to measure and report on biodiversity, landscape change, ecosystem condition, and environmental performance.

ABMI's Board of Directors includes representatives from government, industry, environmental organizations, academia, and the broader research community. This multi-sector structure helps support ABMI's long-term scientific credibility, independence, and relevance.

Our current Strategic Plan outlines ABMI's direction for 2026–2029. The plan reflects input from staff, Board Directors, Voting Members, partner organizations, Indigenous collaborators, funders, sector representatives, and external participants involved throughout the strategic planning process.

Over the next three years, ABMI will continue strengthening the core environmental information systems Alberta relies on while expanding practical ecosystem assessment and decision-support capabilities.

Our Mission

We track status and changes in biodiversity and ecosystems across Alberta, working collaboratively to provide ongoing, relevant, and scientifically credible information about our environment.

Our Vision

ABMI is a trusted provider of biodiversity monitoring to inform responsible resource management and land stewardship, now and for future generations.

Our Operating Principles

We pride ourselves on being:

1. **Independent:** We operate at arm's length from governments, industry, and advocacy organizations. Information and reporting are developed using objective, evidence-based approaches.
2. **Scientifically credible:** We maintain rigorous scientific standards, foster innovative and transparent methods, and uphold strong quality assurance.
3. **Relevant and Accessible:** We produce publicly available data and develop environmental information that helps address practical environmental decision needs.
4. **Transparent:** Our governance and operations are open to scrutiny and continuous improvement.
5. **Collaborative:** We work collaboratively where partnerships increase impact, consistency, and value.

Our Values

1. **Leadership:** We seek to motivate and enable others (organizations and individuals) to amplify responsible resource management in Alberta.
2. **Accuracy:** We do our work with care and precision.
3. **Ingenuity:** We bring creative thinking to our products, services, and processes.
4. **Passion:** We care deeply about our work and the impact it has on Alberta.
5. **Personal Initiative:** We value initiative and each individual's contribution to the shared success of the organization.
6. **Teamwork:** We listen to, respect, and work cooperatively with each other.
7. **Personal Development:** We prioritize learning, feedback, coaching, and mentoring to support individual growth.

Emerging Trends and Pressures

Working Landscapes and Environmental Performance

Governments across Canada continue to place strong emphasis on economic growth and resource development across sectors such as forestry, energy, agriculture, and mining. At the same time, expectations related to biodiversity stewardship, restoration, reclamation, and cumulative effects management continue to grow.

As a result, working landscapes are expected to support both economic activity and long-term environmental performance. This is driving demand for scientifically credible environmental information to support planning and management.

Environmental reporting expectations are also evolving. Decision makers require evidence that ecosystems are functioning as expected and that management actions are producing measurable outcomes.

These pressures are occurring across multiple sectors. In forestry, there is greater attention on biodiversity outcomes, adaptive management, climate resilience, and post-disturbance recovery. In the energy sector, expectations are shifting toward stronger assessment of reclamation, ecological recovery, and long-term environmental performance. Agricultural landscapes are receiving greater attention as interest grows in soil health, watershed resilience, biodiversity outcomes, and sustainable land management. Emerging mining and critical mineral development are also generating greater demand for baseline biodiversity information and long-term monitoring systems.

Together, these trends are increasing demand for integrated environmental monitoring and assessment that can support responsible management across Alberta's working landscapes.

From Monitoring to Integrated Ecosystem Assessment

The field of biodiversity monitoring and environmental reporting is changing. Historically, many monitoring programs focused primarily on inventory or stand-alone data collection. Today, decision makers require more than raw data.

There is growing demand for integrated approaches that connect landscape measurement, biodiversity response, restoration assessment, cumulative effects analysis, and long-term reporting.

Users now expect monitoring systems to help answer broader questions:

1. Are ecosystems functioning as expected?
2. Are restoration efforts working?
3. Where are risks increasing?
4. How are landscapes changing over time?
5. What outcomes are being achieved?

This shift is making long-term monitoring systems more important, particularly those that are scientifically defensible and capable of supporting integrated biodiversity assessment over time.

Monitoring programs are also being evaluated on their ability to directly support planning, management, and public understanding. For organizations such as ABMI, this means maintaining strong long-term monitoring while making the resulting information more useful to decision makers.

Technology is Reshaping Environmental Monitoring

Technology is reshaping how environmental information is collected, processed, analyzed, and reported. Remote sensing, lidar, wildlife cameras, acoustic sensors, genomics, cloud computing, artificial intelligence, and advanced modelling are transforming environmental monitoring.

These advances are improving our ability to assess ecosystems across much larger areas and over shorter timeframes. Automated classification systems, continuous geospatial monitoring, cloud infrastructure, and AI-assisted workflows are also improving the speed and consistency of environmental reporting.

As environmental datasets and analytical systems become more complex, the importance of expert validation and human interpretation continues to grow. Advanced technologies can improve efficiency and accelerate reporting, but scientific expertise remains essential.

Changing Ecosystems and Shared Stewardship

Ecosystems are becoming more dynamic and less predictable. Extreme wildfire, hydrological shifts, invasive species, and interacting land-use pressures are affecting landscapes across Alberta. As conditions change, historical baselines may become less reliable, making consistent, long-term monitoring more important for detecting and interpreting change over time.

At the same time, environmental monitoring and stewardship are increasingly shared across governments, industry, researchers, land managers, and conservation organizations. Indigenous Nations and communities are also taking a stronger leadership role in developing and co-developing environmental monitoring and stewardship initiatives, including community-based monitoring and Guardians programs. This creates a need for greater coordination across monitoring programs and information systems and underscores the importance of long-term relationships.

Fiscal and Institutional Pressure

Long-term monitoring systems require continuity and sustained investment over extended time periods. At the same time, the operating environment for environmental monitoring organizations remains challenging. Public funding is constrained and competitive, competition for qualified staff is high, and operational performance expectations continue to grow.

Organizations need to adapt to changing technologies and user expectations while maintaining scientific credibility and focusing resources where they provide the greatest long-term value. This requires clear strategic focus and operational discipline.

Strategic Issues

The following strategic issues emerged during the strategic planning process.

- 1. Maintaining Scientific Credibility and Institutional Trust**
ABMI's long-term value depends on maintaining scientific credibility, transparency, independence, and public trust across governments, industries, Indigenous communities, researchers, and the public.
- 2. Long-Term Financial Sustainability and System Continuity**
Long-term environmental monitoring and assessment systems require continuity, technical capacity, and sustained investment over extended periods. Maintaining organizational financial sustainability while ensuring continuity across provincial-scale monitoring and reporting systems remains an ongoing challenge.
- 3. Decision-Relevant Information**
Governments, industries, Indigenous communities, and other organizations increasingly require environmental information that supports planning, stewardship, restoration, cumulative effects management, and operational decision-making.
- 4. Coordination Across Distributed Monitoring Systems**
Environmental monitoring and reporting activities remain distributed across multiple organizations, sectors, and jurisdictions. Opportunities exist to improve coordination, interoperability, shared infrastructure, and integration across monitoring investments and environmental information systems.
- 5. Accessibility and Relevance**
Environmental information must remain understandable, accessible, and relevant to diverse users. Strengthening accessibility, transparency, and practical usability remains important to long-term impact and adoption.
- 6. Organizational Adaptability and Discipline**
ABMI operates in an environment of rapidly evolving technologies, environmental pressures, and user expectations. Maintaining long-term continuity while adapting to these changes requires clear strategic focus and operational discipline.

ABMI Strategic Direction

The context and strategic issues outlined above helped shape ABMI's priorities for the next three years. Together, these priorities provide a framework for focusing our time and resources, addressing key challenges, and advancing ABMI's mission.

Our Priorities

1. Monitoring Alberta's Landscapes and Biodiversity
2. Pursuing Science Innovation
3. Working Collaboratively
4. Mobilizing Knowledge
5. Operating with Excellence

Priority 1: Monitoring Alberta's Landscapes and Biodiversity

Rationale

ABMI provides long-term, scientifically credible information about Alberta's landscapes, ecosystems, and biodiversity. Maintaining these foundational monitoring systems while strengthening ecosystem condition and recovery programs will support stewardship and assessment across Alberta.

Goals

1. Maintain and strengthen long-term provincial environmental monitoring and assessment systems.
2. Improve integration, accessibility, and operational relevance of environmental information.
3. Expand ecosystem condition, restoration, and recovery assessment capabilities across Alberta's working landscapes.

Areas of Focus and Measurable Outcomes (by 2029)

Area of Focus	Measurable Outcomes
Provincial landcover monitoring	1.1. Develop and operationalize a scalable, AI-enabled landcover mapping framework capable of producing and updating high-resolution landcover products for key priority regions of Alberta.
Environmental condition	1.2. Develop and implement an updated environmental monitoring and assessment framework that improves integration across landscape state, ecosystem condition, biodiversity response, functional assessment, and reporting systems.
Human footprint and landscape change	1.3. Sequentially improve classification and spatial accuracy of Human Footprint datasets, incorporating subject matter expertise and new reference datasets as they are available.
Wetland and ecosystem inventory and condition	1.4. Implement priority components (study design and two new field protocols) of ABMI's wetland inventory and ecosystem condition programs.
Restoration and recovery monitoring	1.5. Continue Vegetation Regeneration Mapping across the Oil Sands Region in Alberta to achieve complete coverage.

Priority 2: Pursuing Science Innovation

Rationale

ABMI must continue advancing and modernizing its scientific approaches while maintaining scientific credibility, transparency, reproducibility, and long-term comparability across monitoring systems.

Goals

1. Advance and implement innovative applied scientific methods that improve environmental monitoring, assessment, and reporting.
2. Strengthen integration across field monitoring, remote sensing, geospatial analysis, and ecological interpretation.

Areas of Focus and Measurable Outcomes (by 2029)

Area of Focus	Measurable Outcomes
Ecosystem condition, disturbance, and recovery	2.1 Develop and implement at least one analytical workflow for restoration and recovery assessment that integrates field monitoring, remote sensing, and ecological modelling. 2.2 Develop and test an analytical tool for detecting disturbance and environmental change on the Alberta landscape.
Remote sensing, lidar, and geospatial science	2.3 Develop and validate remote sensing methods for assessing riparian condition, disturbance, and restoration outcomes. 2.4 Advance lidar-based methods to quantify vegetation structure, habitat condition, and ecological change across Alberta ecosystems.
Sensor-based biodiversity monitoring	2.5 Expand the operational use of sensor-based monitoring protocols in new projects as scientifically and operationally feasible, including wildlife cameras, acoustic monitoring, and photo surveys for plants.
Human footprint and cumulative effects science	2.6 Develop, validate, and implement improved methods for monitoring disturbance, recovery dynamics, and cumulative effects across Alberta landscapes.
Scientific validation and reproducibility	2.7 Conduct external, independent expert validation of an ABMI data product, model, or assessment method.

Priority 3: Working Collaboratively

Rationale

ABMI advances environmental monitoring, assessment, and reporting through partnerships. Collaboration improves coordination, expands capacity, leverages shared infrastructure, and increases the impact and relevance of environmental information.

Goals

1. Strengthen strategic relationships and partnerships.
2. Improve coordination across Alberta's environmental monitoring and assessment system.
3. Deliver collaborative initiatives that create shared value for partners and end users.

Areas of Focus and Measurable Outcomes (by 2029)

Area of Focus	Measurable Outcomes
Collaboration and engagement with Government of Alberta, delivery partners, researchers, funders, industry, and monitoring organizations	3.1 Establish at least three new collaborative long-term monitoring or ecosystem assessment initiatives with governments, researchers, and sector partners. 3.2 Contribute environmental information or analytical capacity to at least one new provincial or national environmental initiative. 3.3 Implement a stakeholder engagement framework to support development of monitoring and reporting initiatives. 3.4 Establish and support a collaborative mechanism to improve coordination across Alberta's environmental monitoring and assessment system.
Forestry, energy, agriculture, and watershed monitoring collaborations	3.5 Improve interoperability and integration between ABMI systems and at least two external information platforms and datasets.
Indigenous partnerships and community-based monitoring	3.6 Support 10 co-developed monitoring, stewardship, or reporting initiatives with Indigenous communities and organizations. 3.7 Increase the capacity of Indigenous community partners in accessing and using data from their monitoring programs by co-developing two community-specific data and reporting portals.

Area of Focus	Measurable Outcomes
Collaborative geospatial and environmental reporting initiatives	3.8 Strengthen relationships with the space sector and submit at least one space-sector proposal for satellite-based environmental monitoring.
Data integration and shared information systems	3.9 Support at least two external reporting or assessment initiatives through coordinated delivery of ABMI information.

Priority 4: Mobilizing Knowledge

Rationale

ABMI's impact depends on our ability to communicate environmental information clearly, maintain accessible reporting systems, and support practical application of environmental information across Alberta's landscapes.

Goals

1. Improve accessibility, usability, and relevance of environmental information and reporting systems.
2. Expand practical application of ABMI environmental information, reporting products, and analytical tools.

Areas of Focus and Measurable Outcomes (by 2029)

Area of Focus	Measurable Outcomes
Online reporting, mapping, and information platforms	4.1 Annually maintain, update, and improve publicly accessible reporting, mapping, and information platforms, maintaining at least 98% system uptime. 4.2 Develop or enhance at least three environmental information pipelines that improve accessibility, usability, and integration of environmental information across ABMI systems.
Knowledge translation and science communication	4.3 Increase understanding and application of ABMI environmental information, indicators, and reporting products through at least one AI knowledge translation pilot project. 4.4 Create and maintain at least 10 plain-language guides and training resources that support Indigenous communities in developing and implementing Indigenous-led monitoring programs.
Environmental indicators and assessment frameworks	4.5 Integrate at least two external datasets, indicators, or collaborative reporting products into ABMI reporting and assessment systems where appropriate.
Information use and decision support	4.6 Track and report on how ABMI information is accessed across monitoring, planning, stewardship, restoration, and reporting activities.

Area of Focus	Measurable Outcomes
Open and accessible environmental information	4.7 Annually maintain public access to core ABMI datasets and methodologies where feasible, in compliance with data sharing policies. 4.8 Assign digital object identifiers to key products to improve discoverability. 4.9 Annually update the online reports for Alberta Human Footprint Inventory and Wetland Atlas of Alberta, and publicly release the Status of Land Cover report.

Priority 5: Operating with Excellence

Rationale

ABMI's long-term success depends on maintaining organizational resilience, operational effectiveness, and strategic focus while continuing to evolve and deliver value across Alberta's environmental monitoring and assessment landscape.

Goals

1. Maintain a resilient, effective, and sustainable organization.
2. Support the people and strengthen the systems and infrastructure required to deliver ABMI's mission.
3. Maintain strong governance, financial stewardship, and operational accountability.

Areas of Focus and Measurable Outcomes (by 2029)

Area of Focus	Measurable Outcomes
Financial sustainability and organizational planning	5.1 Achieve clean annual financial audits. 5.2 Maintain cash reserve targets equivalent to at least 10% of annual operating expenses. 5.3 Implement a financial sustainability framework that supports diversified revenue, updated project costing, and long-term investment in core programming.
Workforce development, safety, and organizational culture	5.4 Recruit, develop, and retain specialized scientific capacity required to apply technological innovations in integrated environmental monitoring. 5.5 Develop and maintain organizational practices that support an inclusive, respectful, and effective workplace. 5.6 Create a guided internal cultural competency program for all staff to support meaningful collaboration with Indigenous communities.
Governance, project management, and operational accountability	5.7 Expand the organization's accountability framework to include guidance on project selection and review criteria related to neutrality and independence.

Area of Focus	Measurable Outcomes
Data stewardship, cybersecurity, and information systems	5.8 Maintain and enhance at least two operational data management and stewardship practices across core ABMI systems. 5.9 Evaluate existing ABMI datasets and information assets and identify opportunities for improved accessibility, integration, and future program development. 5.10 Establish governance, standards, and staff guidance for the responsible use of artificial intelligence within ABMI operations and analytical workflows.
Operational modernization and continuous improvement	5.11 Modernize organizational infrastructure, operational systems, and data workflows towards future-proof and AI-ready data systems (pursue at least one funding proposal to support this work).