



GenomeCanada



GenomeAlberta

Enabling Canada's Bio Revolution in Natural Resources Management

Information Webinar

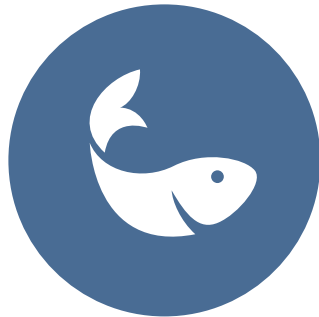
June 2026

Overview

Canada's natural resources, and the vast genetic diversity that underpins them, are central to the country's economic prosperity, environmental resilience and long-term competitiveness.



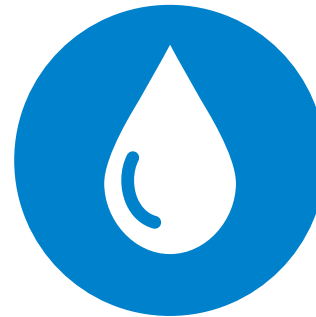
Forestry



**Wild
Fisheries**



**Critical
Minerals**



**Freshwater
Systems**



Energy



Environment

All facing unprecedented pressure from climate change, biodiversity loss, accelerating global competition and economic volatility.

Overview

The Opportunity

- Genomics and AI are accelerating a new bio-revolution
- High-quality data can enable earlier detection of ecological change
- Evidence-based tools can improve natural resource management and biodiversity protection
- Adopting these capabilities can strengthen economic growth, environmental resilience, and national biosecurity

The Challenge

- Canada's natural resources genomics data is fragmented and difficult to access
- Inconsistent governance limits large-scale analysis and impact
- Historical inequities have contributed to gaps in Indigenous data governance
- Stronger oversight is needed to support Indigenous data sovereignty, trust, and equitable data use

Our Solution

- Launch a coordinated national natural resources research initiative
- Invest in research, governance infrastructure, and cross-sector collaboration
- Build responsible, sovereign, high-value data assets for Canada
- Support economic competitiveness, environmental resilience, and long-term prosperity

Objectives

- Improve natural resources systems monitoring, environmental resilience and regulatory efficiency.
- Support the development of accessible and usable genomic data resources, including a national hub, that can support natural resources research and decision-making across Canada.
- Optimize the re-use of data through adherence to FAIR principles and support coordination across genomics, natural resources and biodiversity data initiatives.
- Support the development and integration of AI-enabled analytical tools across datasets to enhance discovery, forecasting and real-time decision-making capabilities.



Objectives

- Support Indigenous-led governance frameworks that put distinctions-based Indigenous data governance principles into practice, including OCAP®, OCAS, NSIR and Inuit-specific approaches, CARE and UNDRIP.
- Improve alignment with international initiatives in genomics, natural resources and biodiversity.
- Create a sustainable community of practice around natural resources genomics, governance and data coordination.





Impact & Benefits

Near-term

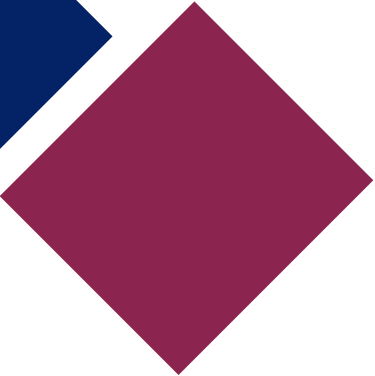
- Stronger biodiversity monitoring and ecological threat detection.
- Improved regulatory efficiency and sustainable resource management.
- Enhanced climate adaptation and emergency preparedness.

Long-term

- Create a durable national data asset that can be reused across sectors and regions to support better, faster decision-making.
- Strengthen Canada's competitiveness in the global bioeconomy by building lasting capacity in genomics, data science and responsible governance.

For Indigenous Peoples and Canada

- Support Indigenous data stewardship and distinctions-based governance.
- Enable trusted, responsible data use across sectors and decision-making contexts.
- Strengthen collaboration among Indigenous rightsholders and communities, governments, academia and industry.



Impact & Benefits

Near-term

- Stronger biodiversity monitoring and ecological threat detection.
- Improved regulatory efficiency and sustainable resource management.
- Enhanced climate adaptation and emergency preparedness.

Long-term

- Create a durable national data asset that can be reused across sectors and regions to support better, faster decision-making.
- Strengthen Canada's competitiveness in the global bioeconomy by building lasting capacity in genomics, data science and responsible governance.

For Indigenous Peoples and Canada

- Support Indigenous data stewardship and distinctions-based governance.
- Enable trusted, responsible data use across sectors and decision-making contexts.
- Strengthen collaboration among Indigenous rightsholders and communities, governments, academia and industry.



Impact & Benefits

Near-term

- Stronger biodiversity monitoring and ecological threat detection.
- Improved regulatory efficiency and sustainable resource management.
- Enhanced climate adaptation and emergency preparedness.

Long-term

- Create a durable national data asset that can be reused across sectors and regions to support better, faster decision-making.
- Strengthen Canada's competitiveness in the global bioeconomy by building lasting capacity in genomics, data science and responsible governance.

For Indigenous Peoples and Canada

- Support Indigenous data stewardship and distinctions-based governance.
- Enable trusted, responsible data use across sectors and decision-making contexts.
- Strengthen collaboration among Indigenous rightsholders and communities, governments, academia and industry.

Driver Projects

Multi-partner, mission driven research collaborations that will generate, coordinate use high-quality natural resources genomics data.

Impact & Benefits

- Progress on priority natural resources research questions and Indigenous community-defined stewardship needs.
- Generation of high-quality, standardized datasets.
- Collaboration and integration with the national genomics data hub and Indigenous data governance projects.
- Evidence of data use, synthesis or cross-sector application.
- Contributions to biodiversity conservation, sustainable resource management, regulatory efficiency or innovation.
- Strengthened capacity to support natural resources management in a changing environment.

Two Pathways

Indigenous Stewardship

Data collection on Indigenous-stewarded lands, waters, species, or ecosystems require a mandated Administrative Project Leader.

General

Projects not subject to Indigenous stewardship proceed through general stream 1 pathway.

Required Activities

- ✓ Generate high-quality, standardized natural resources genomics datasets.
- ✓ Apply genomics to biodiversity and natural resources challenges.
- ✓ Embed GE3LS research in project plan.
- ✓ Support trusted data governance and responsible AI enablement.
- ✓ Uphold Indigenous data sovereignty where applicable.
- ✓ Demonstrate data use, synthesis or cross-sector application.
- ✓ Contribute to biodiversity conservation, sustainable resource management, regulatory efficiency or innovation.
- ✓ **Minimum metadata requirement for all datasets***

Funding Highlights

Total Funding Available: Up to \$19M

GC Contribution Range: \$1M–\$2M per project

Co-funding Requirement: 1:1 GC funds to other funds

Project timeline: Up to 3 years.

*For projects involving data collection on lands, waters, species or ecosystems subject to Indigenous stewardship, this minimum metadata requirement does not constitute consent to data access or sharing.

Stream 1 - Pathways & Metadata requirements

Driver projects follow one of two pathways; both generate standardized, AI-ready genomics datasets, with governance-aware metadata that supports discovery without overriding Indigenous authority or consent.

Pathway Breakdown

Pathway 1: Indigenous stewardship

- Research on Indigenous lands, waters, species or ecosystems subject to Indigenous stewardship.
- Administrative Project Leader must be an authorized Indigenous governing authority and be affiliated with an Indigenous organization or government
- All data stored locally until an Indigenous-defined governance model is established and relevant authorities approve sharing.

Pathway 2: General

- Applies when research does not involve lands, waters, species or ecosystems subject to Indigenous stewardship.
- Eligible data and metadata are shared with the national genomics data hub for curation and stewardship.

Metadata Requirements

1

Identity

Dataset ID, date, species, environment, sequencing method and data type

2

Governance

Governance tags and Indigenous stewardship status to guide access, reuse and permissions

3

Location

Exact, generalized or masked spatial information, latitude, longitude, location reference unit

4

Sector-specific Fields

Soil, water, fisheries, forestry and ecosystem-specific descriptors

5

Indigenous Naming

Community-provided names for flora and fauna (where applicable and shared on community-defined terms)

6

Access and AI-readiness

Target gene, protocols, data access level and repository reference

Key caveat: For Indigenous stewardship projects, required metadata does not constitute consent to data access or sharing.

National Genomics Data Hub

The enabling infrastructure: a coordination and stewardship layer that makes Stream 1 data discoverable, interoperable, trusted and AI-ready, while operationalizing Stream 3 Indigenous data governance frameworks within hub workflows.

Key Functions

- Metadata registry and discovery
- Data harmonization and interoperability
- Data curation and quality assurance
- Data deposition
- AI-enablement & integration
- Indigenous stewardship and governance
- Training and support

National Genomics Data Hub

Engagement with Streams 1 and 3

- Develop and maintain a searchable national catalogue of datasets for the data generated by Stream 1 projects and support deposition.
- Operationalizes Stream 3 Indigenous governance tools such as governance tags, consent/access pathways and engagement frameworks.

A Coordinating Platform

- Does not replace existing repositories, conduct primary research, or store/share data itself
- National databank implemented separately by GC

By Project Conclusion

- Consistent application of common metadata and governance frameworks for participating projects
- Measurable improvement in interoperability and AI-readiness
- Operational plan to integrate Indigenous data governance into hub operations
- Trusted national system for discovery of natural resources genomics data
- Early examples of data reuse, cross-project analysis or uptake by end-users

Funding Highlights

Total Funding Available: Up to \$5M

GC Contribution: Up to \$5M (one project)

Co-funding: 1:1 GC funds to other funds

Project timeline: 3 years

Indigenous Data Governance Frameworks

Generate practical tools and resources grounded in Indigenous ways of knowing and being for how genomic and environmental data are owned, accessed, used, shared and stewarded.

Requirements

-  **Accessible, User-Friendly Frameworks** Written in accessible language and be suitable for use by Indigenous communities, researchers, data stewards, funders and partners.
-  **Data Sovereignty Principles** Demonstrate how OCAP®, OCAS, Inuit data governance principles, CARE/UNDRIP-aligned approaches are respected, including community ownership, authority, accountability and dispute resolution.
-  **Indigenous-Led Oversight** Establish oversight structures that ensure Indigenous rightsholders exercise genuine authority over data governance decisions (access, use, sharing and future applications)
-  **Benefit Sharing & Cultural Alignment** Define fair and equitable benefit-sharing approaches in both commercial and non-commercial contexts, aligned with Indigenous rights, laws, knowledge systems and community priorities.
-  **Multi-Level Implementation** Structure frameworks to work at individual project, organizational and systems levels, with engagement guidance for each stage: design, data collection, analysis, dissemination and archiving.
-  **Practical tools** Ready-to-use tools for researchers and data stewards, including an engagement checklist, consent pathway template and benefit-sharing framework for both commercial and non-commercial contexts.

Eligibility

- Projects must show meaningful pre-application engagement with First Nations, Métis and/or Inuit communities.
- Project leaders and team members must be affiliated with an eligible institution*.
- Projects should build Indigenous community and organizational capacity, while also supporting learning for researchers and institutions.
- Activities must be aligned with development of Indigenous data governance guidelines for genomic research in natural resources.

Funding Highlights

Total Funding Available: Up to \$3M

GC Contribution: \$500K–\$1M per project

Co-funding: Not required but encouraged when it supports community priorities

Project timeline: Up to 3 years

*Genome Canada funding can be awarded to individuals affiliated with an Indigenous organization and/or government

Driver Projects

Timeline

LETTER OF INTENT

- Proposed research plan (including GE3LS and DMS)
- Impact & benefits to Indigenous Peoples and Canada
- Project leaders and their areas of expertise
- Budget and co-funding plan

AUG 4
2026



STRATEGY SESSION

- Teams complete a proposal strategy sheet shared with friendly reviewers
- Project teams meet with friendly reviewers to identify strengths, gaps, and opportunities before full proposal development

AUG 12
2026



PROPOSAL DEVELOPMENT

- Project plan
- Data management strategy
- Impact & benefits for Indigenous Peoples
- Impact & benefits for Canada
- Management and finance

SEP 21
2026



NOTICE OF AWARD

- Independent technical review is completed first by a diverse panel of experts
- GRC reviews proposals using technical reviews to assess fit with initiative objectives, portfolio value, and expected impacts

DEC
2026



PROJECT START

- Project begins
- Conditions of funding met
- Coordinate with Stream 2 – National Genomics Data Hub project team

MAR 31
2027



National Genomics Data Hub

Timeline

LETTER OF INTENT

- Project overview
- Project leaders and their areas of expertise
- Budget and co-funding plan

AUG 4
2026



STRATEGY SESSION

- Teams complete a proposal strategy sheet shared with friendly reviewers
- Project teams meet with friendly reviewers to identify strengths, gaps, and opportunities before full proposal development

AUG 12
2026



PROPOSAL DEVELOPMENT

- Implementation plan for required activities
- Data management strategy
- Impact & benefits to Indigenous stewardship and Canada
- Management and finance

SEP 21
2026



NOTICE OF AWARD

- Independent technical review is completed first by a diverse panel of experts
- GRC interviews proposal teams and uses technical reviews to assess which application fits best and will add value to the initiative portfolio

DEC
2026



PROJECT START

- Project begins
- Conditions of funding met
- Coordinate with Stream 1 Driver Projects for data deposition to a national databank
- Integrate Stream 3 Indigenous data governance frameworks

APR 1
2027



Indigenous Data Governance Frameworks

Timeline

LETTER OF INTENT

- Proposed guidelines
- Summary of community engagement conducted to date (Indigenous nations or communities, engaged, in what form, how that engagement shaped proposed scope)
- Budget summary

NOV
2026



STRATEGY SESSION

- Teams complete a proposal strategy sheet shared with friendly reviewers
- Project teams meet with friendly reviewers to identify strengths, gaps, and opportunities before full proposal development

DEC
2026



PROPOSAL DEVELOPMENT

- Co-development plan
- Scope of guidelines
- Impact & benefits for Indigenous communities
- Indigenous leadership and governance
- Management and finance

JAN
2027



NOTICE OF AWARD

- Proposals undergo independent review by a small, diverse panel of experts
- GRC reviews proposals, supported by additional experts in Indigenous governance, to assess fit with initiative objectives and added portfolio value

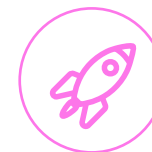
MAR
2027



PROJECT START

- Project begins
- Conditions of funding met
- Coordinate with Stream 2 – National Genomics Data Hub project team

JUL 1
2027



Questions?



GenomeCanada



GenomeAlberta