

Man and the Biosphere Programme: Biosphere Reserves

1. Introduction

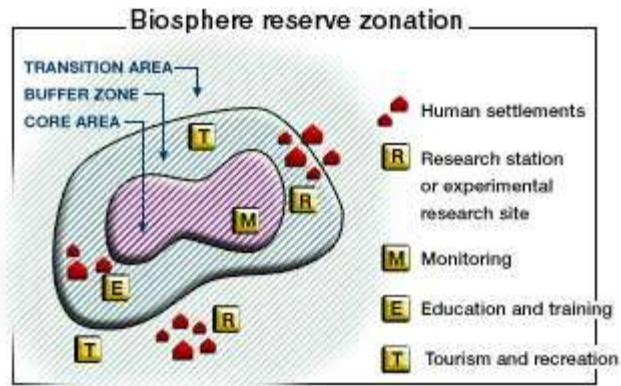
(http://www.beaverhills.ab.ca/uploads/files/Biosphere_Reserves_in_Canada_A_community_guide.pdf)

A biosphere reserve is an area that has been designated by the United Nations Educational, Scientific and Cultural Organization (UNESCO) to demonstrate innovative approaches to living and working in harmony with nature. Designation is considered after the area is selected by a national committee and proposed to UNESCO by a member country. Each reserve is typical of one of the world's major terrestrial or coastal ecosystems. It is an honorary, non-regulatory designation intended to recognize important areas where people are living sustainably and whose approaches to sustainable development are instructive for others.

The term "reserve" does not mean that these places are set aside from human use and development – human activity and the health of people and communities are, in fact, an integral part of the biosphere reserves program. Nor does the UNESCO label bring with it any new authorities over land, water or resources. The existing powers, rights and responsibilities of governments, businesses and landowners normally remain unchanged. The words "biosphere reserve" highlight a special area within the biosphere where people have made a commitment to work together for a sustainable future.

The shape and size of a biosphere reserve will depend on the natural and human features it is meant to include. However, all biosphere reserves have three distinct zones:

- **Core Area:** This consists of one or more protected areas, such as a national or provincial park, migratory bird sanctuary or other protected area. The Core Area acts as a reference point on the natural state of the ecosystem(s) that the biosphere reserve represents.
- **Buffer Area:** Surrounding or adjacent to the Core Area, this area is managed in ways that support the conservation objectives of the Core. Examples may include a municipally regulated floodplain, a woodland special management area, or a conservation easement on private land.
- **Area of Cooperation:** Usually the largest part of the biosphere reserve, surrounding the Core and Buffer areas, this is where most of the residents live and work, using natural resources in a sustainable manner.



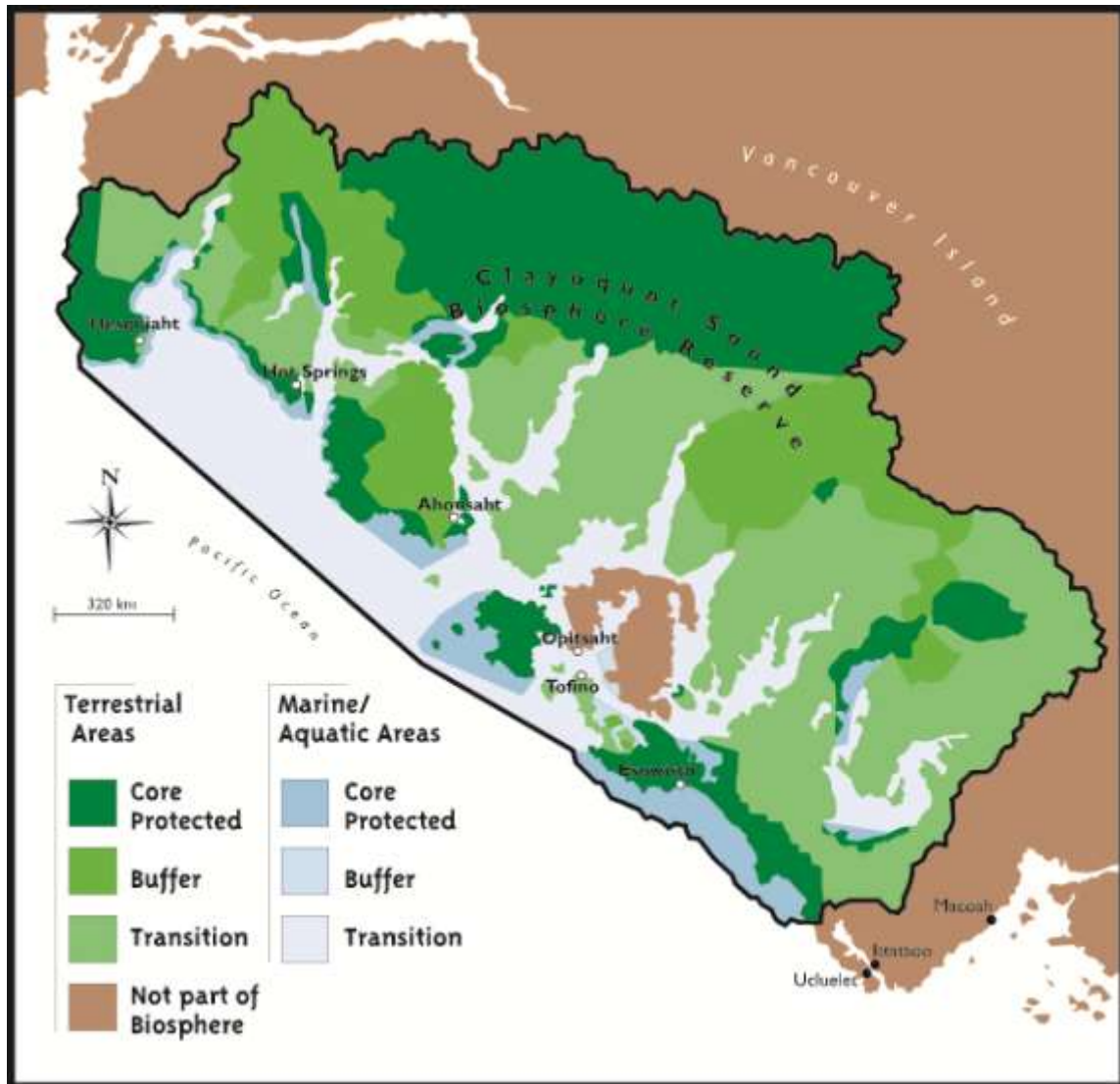
Canada's biosphere reserves are not managed by a government department but depend for the most part on volunteer efforts and inter-agency cooperation. In this sense they are very much "grass-roots" in their organization. Each is coordinated by a community-based organization which stimulates the involvement of agencies, businesses, groups and individuals.

Biosphere reserves have three major functions. They:

- contribute to the conservation of countrysides, ecosystems, species and genetic variation;
- foster sustainable development (development that is socially, culturally, economically and ecologically sustainable), and
- build local capacity for research, monitoring, education and training activities related to the promotion of conservation and sustainable development.

2. Case Study: The Clayoquot Sound Biosphere Reserve

(<http://clayoquotbiosphere.org/web/what-we-do/history/>)



History

For decades, Clayoquot Sound has been on the international stage. Conflict over the use of our natural resources created divisions that continue to heal. Confronted with declining natural resource stocks, but a continued need to make a living from forestry and fishing activities, local community members started seeking better and alternative ways of doing things.

In the 1990s, a small but passionate group of individuals began considering the UNESCO Biosphere Reserve model.

Biosphere Reserves have legally protected core areas (long-term protection to landscapes and ecosystems), buffer zones (resource extraction can take place, as long as it does not undermine the objectives of the core areas), and transition zones or zones of cooperation (people work together to use the area's resources in a sustainable manner). At their core, Biosphere Reserves seek sustainable ways to work with our natural environments.

In January 2000, with the support of local First Nations, communities, and the federal and provincial governments, Clayoquot Sound was designated as the Clayoquot Sound UNESCO Biosphere Reserve (CSUBR). The CSUBR is a member of the international network of UNESCO World Biosphere Reserves. The CSUBR designation acknowledges aboriginal title and rights, and does not prejudice ongoing treaty negotiations.

In January 1999, the communities of the Clayoquot Sound region, in partnership with federal and provincial governments, officially applied to UNESCO through the Canadian Commission for UNESCO to nominate Clayoquot Sound as BC's first World Biosphere Reserve.

In January 2000, Clayoquot Sound was designated for inclusion in the World Network of Biosphere Reserves. To mark this designation, in May 2000 the federal government entrusted a \$12 million grant to Clayoquot Sound communities through the creation of the Canada Fund. The Clayoquot Biosphere Trust manages this endowment fund to uphold the spirit and intent of the biosphere reserve designation through innovative education programs, research into sustainability and celebrating the unique ecosystems of Clayoquot Sound.

Clayoquot Sound UNESCO Biosphere Reserve 10 Year Review: This is the first periodic review done for the Clayoquot Sound UNESCO Biosphere Reserve. Reviews are done every 10 years on every Biosphere Reserve in Canada

Vision

The community of the Clayoquot Sound UNESCO Biosphere Reserve Region will live sustainably in a healthy ecosystem, with a diversified economy and strong, vibrant and united cultures while embracing the Nuu-chah-nulth First Nations "living" philosophies of *lisaak* (living respectfully), *Qwa' aak qin teechemis* (life in the balance), and *Hishuk ish ts'awalk* (everything is one and interconnected).

This vision was articulated to the CBT during public consultations with the residents of the Clayoquot Sound UNESCO Biosphere Reserve Region Community in 2000.

Mission

The mission of the Clayoquot Biosphere Trust (CBT) is to assist the Clayoquot Sound UNESCO Biosphere Reserve Region Community to achieve its vision by providing funding and logistical support for research, education and training initiatives that promote conservation and sustainable development. The CBT will facilitate the sharing and exchange of knowledge and experience both locally and globally. The CBT will accomplish these objectives by working creatively and proactively within the framework of the UNESCO Man and the Biosphere programme.

2. The UNESCO Perspective: Biosphere Reserves as Learning Sites for Sustainable Development

(<http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/>)

(<http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/man-and-biosphere-programme/>)

Launched in 1971, UNESCO's Man and the Biosphere Programme (MAB) is an international program that aims to establish a scientific basis for the improvement of relationships between people and their environments. Biosphere reserves are sites established by countries and recognized under UNESCO's Man and the Biosphere (MAB) Programme to promote sustainable development based on local community efforts and sound science. Interdisciplinary research, demonstration and training in natural resources management are among the programs supported by MAB. As places that seek to reconcile conservation of biological and cultural diversity and economic and social development through partnerships between people and nature, biosphere reserves are ideal to test and demonstrate innovative approaches to sustainable development from local to international scales.

Biosphere reserves are thus globally considered as:

- sites of excellence where new and optimal practices to manage nature and human activities are tested and demonstrated;
- tools to help countries implement the results of the World Summit on Sustainable Development and, in particular, the Convention on Biological Diversity and its Ecosystem Approach;
- learning sites for the UN Decade on Education for Sustainable Development.

After their designation, biosphere reserves remain under national sovereign jurisdiction, yet they share their experience and ideas nationally, regionally and internationally within the World Network of Biosphere Reserves. The World Network of Biosphere Reserves currently counts 621 biosphere reserves in 117 countries.

By focusing on sites internationally recognized within the World Network of Biosphere Reserves, the MAB Programme strives to:

- identify and assess the changes in the biosphere resulting from human and natural activities and the effects of these changes on humans and the environment, in particular in the context of climate change;
- study and compare the dynamic interrelationships between natural/near-natural ecosystems and socio-economic processes, in particular in the context of accelerated loss of biological and cultural diversity with unexpected consequences that impact the ability of ecosystems to continue to provide services critical for human well-being;
- ensure basic human welfare and a liveable environment in the context of rapid urbanization and energy consumption as drivers of environmental change;
- promote the exchange and transfer of knowledge on environmental problems and solutions, and to foster environmental education for sustainable development.

3. The Canadian Context

(<http://biospherecanada.ca/en/>)

(<http://biospherecanada.ca/en/biosphere-reserves/>)

A biosphere reserve designation signals international recognition that meaningful actions, with measurable outcomes, are being taken to balance conservation initiatives with sustainable development. The designation provides a powerful mechanism that ensures the adoption of long-term stewardship practices and lasting environmental

protection in the area. However, it does not (and cannot) intrude on property rights, Aboriginal rights, jurisdictional and administrative authorities, or on the responsibilities of elected bodies.

Biosphere reserves do not take positions on regulatory matters dealt with by local authorities, and they do not have legal authority over what people can and cannot do within an area. Instead, the 15 UNESCO biosphere reserves in Canada, and those the world over, play the role of convener – bringing environmentalists, outdoor enthusiasts, business people, councillors, policy-makers and landowners together in a neutral setting that facilitates discussion and cultivates meaningful partnerships that will advance a common agenda. As influential allies rather than authoritative bodies, reserves guide stakeholders in finding common ground, setting priorities, coordinating their efforts and ensuring the longevity of their community within the landscape of the biosphere. Over 109 countries now participate in UNESCO/MAB. Canada has been involved through the Canadian Commission for UNESCO and Canada/MAB since the beginning. For further information on the activities of our Canadian biosphere reserve partners, go to the biosphere reserve activities section.

An area can only be designated as a biosphere reserve by UNESCO. To become part of the World Network of Biosphere Reserves, individual countries nominate areas which they believe meet the requirements of a biosphere reserve. Land must already have been set aside for conservation within the area under consideration. A further seven criteria must then be met for designation to proceed. Three of these relate to the way that land use is arranged within the area. According to the Statutory Framework the area must include one or more of the three defined land use sectors: core areas, buffer zones and transitional areas – referred to as ‘areas of cooperation’ in Canada. Three more criteria relate to the core functions of a biosphere reserve (i.e. conservation, developmental and logistical), and whether these can feasibly be carried out in the area. The last criteria relates to whether or not the necessary organizational components are in place.

4. Main Characteristics of Biosphere reserves

(<http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/main-characteristics/>)

The main characteristics of biosphere reserves are:

- Achieving the three interconnected functions: conservation, development and logistic support;
- Outpacing traditional confined conservation zones, through appropriate zoning schemes combining core protected areas with zones where sustainable development is fostered by local dwellers and enterprises with often highly innovative and participative governance systems;
- Focusing on a multi-stakeholder approach with particular emphasis on the involvement of local communities in management;
- Fostering dialogue for conflict resolution of natural resource use;
- Integrating cultural and biological diversity, especially the role of traditional knowledge in ecosystem management;

- Demonstrating sound sustainable development practices and policies based on research and monitoring;
- Acting as sites of excellence for education and training;
- Participating in the World Network.
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5. International Biosphere Reserves in Canada

(<http://unesdoc.unesco.org/images/0020/002070/207049e.pdf>)

Canadian Biosphere Reserve Location Map



Mont Saint Hilaire International Biosphere Reserve established 1978

Waterton International Biosphere Reserve established 1979

Long Point International Biosphere Reserve established 1986

Riding Mountain International Biosphere Reserve established 1986

Charlevoix International Biosphere Reserve established 1988

Niagara Escarpment International Biosphere Reserve established 1990

Clayoquot Sound International Biosphere Reserve established 2000

Redberry Lake International Biosphere Reserve established 2000

Lac Saint-Pierre International Biosphere Reserve established 2000

Mount Arrowsmith International Biosphere Reserve established 2000

Southwest Nova International Biosphere Reserve established 2001

Frontenac Arch International Biosphere Reserve established 2002

Georgian Bay Littoral International Biosphere Reserve established 2004

Fundy International Biosphere Reserve established 2007

ManicouaganUapishka International Biosphere Reserve established 2007

Bras d'Or Lake International Biosphere Reserve established 2011

6. Designation of Biosphere Reserves – the UNESCO Process

(<http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/designation-process/>)

Article 5 of the 1995 **Statutory Framework of the World Network of Biosphere Reserves**, sets out the designation procedure for biosphere reserves, as follows:

Article 5- Designation procedure

1. Biosphere reserves are designated for inclusion in the Network by the International Co-ordinating Council (ICC) of the MAB programme in accordance with the following procedure:

- a) States, through National MAB Committees where appropriate, forward nominations with supporting documentation to the secretariat after having reviewed potential sites, taking into account the criteria as defined in Article 4;
- b) the secretariat verifies the content and supporting documentation: in the case of incomplete nomination, the secretariat requests the missing information from the nominating State;
- c) nominations will be considered by the Advisory Committee for Biosphere Reserves for recommendation to ICC;
- d) ICC of the MAB programme takes a decision on nominations for designation.

The Director-General of UNESCO notifies the State concerned of the decision of ICC.

To become part of the World Network of Biosphere Reserves, individual countries nominate areas which they identify as meeting the requirements of a biosphere reserve. In order for a biosphere reserve to be nominated, land must already have been set aside for conservation within the area under consideration. It is also essential to have a local proponent group to champion the idea of a biosphere reserve and be involved in its implementation. Ideally, this group should include people that are known and respected within the community. The group should first ensure that the area under consideration meets the three zone criteria and that the organizational potential is there to develop the capacity to carry out the functions of a biosphere reserve.

The proponents of a prospective biosphere reserve should be ready to provide information in various formats and forums to explain what the vision and mission consists of, how the proposed biosphere reserve meets the UNESCO criteria, outline the advantages the reserve will offer and the fact that participation by local people is strictly voluntary but essential to its creation and designation.

Seeking a biosphere reserve status is a lengthy process that requires dedication and commitment.

6. International Biosphere Reserve Implementation

(<http://biospherecanada.ca/en/biosphere-reserves/projects/>)

Canada's 16 biosphere reserves are located across eight provinces and have a positive impact on the lives of the two million people, living and working within their boundaries. Working together, biosphere reserve employees, volunteers and community

stakeholders are involved in hundreds of projects and activities related to sustainable development, biodiversity conservation, education, governance and community engagement. Thanks to the core funding provided by Environment Canada, Canada's Biosphere Reserves and the Canadian Biosphere Reserves Association (CBRA) have been able to increase the level of community involvement which in turn has allowed them to successfully leverage the funding with other community partners.

When appropriate, biosphere reserve groups will take the lead on major projects that are of wide interest to the community. The activities listed below are examples of the tools by which sustainable development is achieved in Canadian biosphere reserves.

Ecosystem and habitat management: Floodplain, drainage and erosion control; corridor restoration and native tree planting; shoreline reviews; voluntary fire bans; voluntary vessel speed reduction; strategies to minimise visitor impact.

Wildlife management: Natural pest control; reduction of animal-human conflicts; improvement of migration sites and routes.

Research and monitoring: Research on species numbers and movements, human-wildlife interactions and agricultural techniques such as the use of natural fertilizers.

Agriculture: Development of a solid understanding of how local food is produced; assessment of the interaction between agriculture and environment, non-native species control and ecological goods and services

Mapping: Creation of electronic atlases that feature local ecological riches, land use and endangered species, and that allow conservation and sustainable development projects under development to be visualized.

Monitoring: Assessment of terrestrial and aquatic ecosystem plots, climate change, and regional recovery from pollution, fire and natural disasters.

Tourism: Formulation and implementation of strategies for commercial tourism; promotion of ecotourism and sustainable tourism.

Education: Development of education centers and educational programming, partnerships with universities, school curriculum and teacher training, conferences, workshops and publications.

Culture: Monitoring of cultural and historic regional features; coordination of cultural activities related to nature and historical land use.

Park creation: Support of proposals for new parks.

Regional interaction: Development of regional cooperative and sustainable communities plans; provision of advice and input on government policy and bills. Creating local forums for different stakeholders to meet and discuss biodiversity conservation and sustainable development.

International cooperation: Participation in best practice and information exchanges; twinning arrangements.

Capacity Building and Partnerships:

(<http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/capacity-building-and-partnerships/>)

The MAB programme contributes to global efforts for education and capacity building, particularly within the framework of the UN Decade of Education for Sustainable Development (2005-2014) through:

- MAB Young Scientists Award Scheme
- Postgraduate Study in Mountain Development: The online, part-time interdisciplinary programme offers you advanced theory and practice to give you a clear understanding of the complex issues of mountain areas. Individual modules deal with social, environmental, economic, and professional development issues in mountain areas.
- Michel Batisse Award
- Education activities in biosphere reserves
- UNESCO Chairs and UNITWIN networks relating to biosphere reserves and sustainable development,
- The Regional School on Integrated Management of Tropical Forests and Territories
- Educational materials in the environmental sciences
- South-South Collaboration Programme
- UNEP/UNESCO/BMU environmental management courses at Technical University of Dresden (Germany)
- MAB Master: In the framework of a Master Course on Biodiversity Management from the Paul Sabatier University of Toulouse, the university and the French MAB National Committee are offering a course on the Man and Biosphere Programme. This Master Course aims to train biosphere reserve or protected area coordinators and managers, and integrates human activities including sustainable development projects.
- MSc Course on World Heritage Management: This 2-years' course at the University College Dublin (Ireland) provides students with in-depth information on the management of world heritage sites, biosphere reserves and geoparks.
- Partnerships with private sector