



Valdes Island Conservancy

Position Statement on Climate Change

The Valdes Island Conservancy (VIC) has a mandate to “preserve, protect and restore the lands and waters of Valdes Island, and the smaller islands in its surrounding waters, for the plants, animals and natural communities that represent diversity of life and Gulf Island ecosystems, and for the beneficial use and management of the scientific, historical, cultural, scenic and compatible outdoor values of these areas”¹.

A large part of VIC’s current and future initiatives and actions are predicated on the reality of climate change. The Intergovernmental Panel on Climate Change (IPCC) has shown that a human-induced increase in greenhouse gas (GHG) emissions has been occurring since the pre-industrial era, leading to an observed warming trend since the middle of the 20th century. “In recent decades, changes in climate have caused impacts on natural and human systems on all continents and across the oceans. Impacts are due to observed climate change, irrespective of its cause, indicating the sensitivity of natural and human systems to changing climate”².

Scope: VIC is concerned with the impacts of climate change on the range and function of the natural ecosystems throughout coastal British Columbia, with specific objectives to help combat against and adapt to changing climate in the Southern Gulf Islands and the Salish Sea.

VIC recognizes that it is not a regulatory authority; the position and concerns expressed herein are science-based and intended to steer current and future residents, First Nations, visitors, private sector and government organizations towards responsible environmental stewardship through communication and collaboration with interest groups, with a focus dedicated to mitigating the impacts of climate change.

Background:

Valdes Island is home to large representations of BC’s rarest and **most biologically diverse** dry-forest biogeoclimatic zones – the Coastal Douglas-fir (CDF) zone. The CDF zone makes up less than 1% of the total area of British Columbia (Austin et al., 2008). A threat assessment for all biogeoclimatic zones in British Columbia examined multiple effects, *including climate change*, to establish a provincial ranking for each zone. The CDF zone is ranked as **imperilled**; therefore, it is considered “at high risk of extinction due to very restricted range, steep declines, or other factors”³.

It is very likely that in the coming decades, many ecosystems throughout the globe will experience shifts in biodiversity due to changing climate. It is critical to recognize the value of biodiversity in order to understand the best approaches to help preserve it.

¹ VIC website (2015): <http://www.valdes-island-conservancy.org/mission-statement.html>

² IPCC, 2014: *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.

³ Austin, M.A., D.A. Buffett, D.J. Nicolson, G.G.E. Scudder and V. Stevens (eds.). 2008. *Taking Nature’s Pulse: The Status of Biodiversity in British Columbia*. Biodiversity BC, Victoria, BC. 268 pp. Available at: www.biodiversitybc.org.

VIC's Position on combating and adaptation to climate change:

The Valdes Island Conservancy finds that climate change, in combination with increasing extraction, storage, and transportation of raw natural resources and ecosystem conversion in the Southern Gulf Islands, presents a challenge to the integrity of the unique ecosystems and species in the area as well as the First Nations cultural history and ability to use the land and water resources as historically done.

Concerns about the biological integrity of Valdes Island will increase in the coming decades as a result of the impacts of climate change. The development of sound conservation practices on Valdes Island is needed to address and prepare for the impacts of climate change.

Section 3.4 (m) in the Thetis Island Trust Committee Bylaw No. 42 *Climate Change Adaptation and Mitigation* highlights similar concerns about climate change to those that are identified by VIC. Therefore, VIC supports and stands behind the climate change mitigation actions laid out by the Thetis Island Trust Committee.

VIC actions and objectives to mitigate climate change

The Valdes Island Conservancy acknowledges that the appropriate conservation and environmental stewardship practices, even on a small scale, can play a role in the mitigation of climate change. The following objectives (articulated by the Thetis Island Local Trust Committee, a part of the Islands Trust) could be the first steps to ensuring that the reduction of greenhouse gas emissions specifically and the consideration of potential impacts of climate change become part of the planning process for Valdes Island.

Climate Change Objectives (articulated by the Thetis Island Local Trust Committee, a part of the Islands Trust).

The objectives of this subsection are:

- 3.4(m).1 To establish climate change as a fundamental factor in land use decision- making.
- 3.4(m).2 To support efforts and policies to help our community adapt to climate change impacts.
- 3.4(m).3 To work with corporations, forest companies, other agencies and levels of government to support actions that reduce greenhouse gas emissions.
- 3.4(m).4 To work with corporations, forest companies, other agencies and levels of government to support actions that protect potential carbon sequestration capacities.
- 3.4(m).5 Recognizing that the measurement base and methodology is not yet established formally, to accept as an interim target: to achieve by 2020 and 2050 resident per capita emission levels of 50% or less than the Canadian per capita average for 2020 and 2050, respectively. Within the local trust area this reduction will be achieved by actions resulting from individual and community initiatives, corporations and forest companies, the actions of other agencies and levels of government, technological changes, and changes to land use policies and regulations.
- 3.4(m).To work with regulatory bodies to establish meaningful, workable measurement methods and targets to achieve real and significant reductions.

Climate Change Policies 3.4(m).7

A number of Climate Change adaptation and mitigation actions are identified that can only be achieved through cooperation and initiatives resulting from individuals and the community, corporations and forest companies, the actions of other agencies and levels of government, technological changes, and changes to land use policies and regulations.

The following activities are encouraged as possible actions that can be taken to reduce greenhouse gas emissions:

- i. The Local Trust Committee should develop improved methods of determining and assessing the energy efficiency and climate change impacts of proposed development when it is processing land use

applications. Application checklists should be revised to include climate change mitigation and adaptation criteria, such as energy efficiency, renewable energy water conservation, and carbon sequestration impacts.

- ii. Islands Trust Natural Area Protection Tax Exemption Program should be widely advertised to ensure all residents and land owners are aware of the benefits (both financial and from an environmental perspective) of protecting natural areas.
 - iii. The Local Trust Committee encourages residents to calculate and record their personal and household greenhouse gas emissions, while considering conservation of water and energy.
 - iv. The Local Trust Committee should work with the community, other agencies and levels of government to establish a useful inventory of greenhouse gas emissions for measurement and tracking purposes.
- 3.4(m).8 Other specific Policies and Actions with respect to climate change mitigation will be considered as part of a future review of this Rural Land Use Bylaw and incorporated into this Bylaw when it is amended.

Further Background Information Relevant to Issues of Climate Change and Biological Health of BC's Gulf Island's Ecosystems:

Background:

Valdes Island is home to large representations of BC's rarest and **most biologically diverse** dry-forest biogeoclimatic zones – the Coastal Douglas-fir (CDF) zone. The CDF zone makes up less than 1% of the total area of British Columbia (Austin et al., 2008). A threat assessment for all biogeoclimatic zones in British Columbia examined multiple effects, *including climate change*, to establish a provincial ranking for each zone. The CDF zone is ranked as **imperilled**; therefore it is considered “at high risk of extinction due to very restricted range, steep declines, or other factors” (Austin et al., 2008).

The Salish Sea, which surrounds the Southern Gulf Islands, is also a highly productive source of biological diversity.

It is very likely that in the coming decades, many ecosystems throughout the globe will experience shifts in biodiversity due to changing climate. It is critical to recognize the value of biodiversity in order to understand the best approaches to help preserve it. The following points are summarized from Austin et al., 2008; Figure 31: The biodiversity threat framework (p. 151).

- The following human-driven factors influence biodiversity in British Columbia: Climate change, urban and rural development, forestry, transportation and utility corridors, oil and gas, water development, grazing, industrial operations, mining, aquaculture, and recreation.
- The factors identified above lead to the following stressors: Ecosystem conversion and degradation, introduction of alien species, environmental contamination, disturbances and/or mortality to existing species.
- Impacts on biodiversity can include: Loss of genetic diversity, population decline, species extirpation/extinction, impaired ecosystem function, habitat fragmentation, and loss of connectivity (between species and their critical habitat, food sources, reproductive grounds, etc.).

Climate tends to set the basic conditions and thresholds (e.g. air and sea temperature, precipitation, sea level, etc.) to which organisms respond, thrive or perish; it is something that cannot be easily controlled or directly manipulated by humans, and is therefore likely to be the greatest threat to biodiversity (Austin et al., 2008). The changing climate is largely a response to the human-driven factors that contribute to GHG emissions. Land use and resource extraction are examples of factors that influence GHG emissions and are within human control; they can have a profound impact (positive or negative) on climate change and therefore, biodiversity.

The importance of preserving biodiversity:

Biodiversity is important on many scales - economically, socially and environmentally. The following points are taken from: Austin et al., 2008, and Secretariat of the Convention on Biological Diversity, 2006:

1. Biodiversity provides the following products: Food, fibre, fuel, genetic resources, biochemical, fresh water and habitat.
2. Biodiversity contributes the following cultural services: Spiritual values, knowledge systems, education, inspiration, recreation, and aesthetic values.
3. Biodiversity fulfills a role in regulation of the following natural systems: Invasion resistance, pollination, seed dispersal, climate, pests and disease, natural hazards, erosion and water purification.

4. Biodiversity influences the following natural services: Primary production, provision of habitat, nutrient cycling, soil formation and retention, atmospheric oxygen production, and water cycling.

It is important to also highlight that in coastal British Columbia, biodiversity is important to traditional First Nations peoples for food, technology and medicine. Plants and animals are prominent in First Nations' belief systems, art, songs, and ceremonies. In many cases, First Peoples have maintained and enhanced plant and animal populations and productivity and increased habitat diversity through resource management strategies that yield a greater variety and abundance of foods and materials than would be naturally available. Erosion of biodiversity in various parts of BC has severely impacted First peoples and their traditional food systems and will continue to do so (Austin et al., 2008).

Expected climate change impacts:

Temperature and sea level rise

The latest IPCC assessment report (AR5) has created four scenarios (called Representative Concentration Pathways [RCP's]), which are each derived from numerous intricate models that incorporate anthropogenic GHG emissions influenced by population size, economic activity, lifestyle, energy use, land use patterns, technology and climate policy (IPCC, 2014). Each scenario is highly complex but for simplicity can be viewed as a climate change trajectory with a projected global average air temperature increase and sea level rise.

If strict action is taken to combat climate change, under the best case scenario (RCP 2.8 – a “stringent mitigation scenario”), the projected global mean surface temperature change (i.e. air temperature) will likely be in the range of 0.3 and 1.7 °C and global mean sea level rise will likely be in the range of 0.26 and 0.55 m by 2100. Under the highest-GHG emissions scenario (RCP 8.5), the IPCC-projected global mean surface temperature change will likely be in the range of 2.6 and 4.8 °C and global mean sea level rise will likely be in the range of 0.45 and 0.82 m by 2100. Two intermediate RCP's, as well as a “baseline scenario” where no further action is taken to reduce emissions, projected values between RCP 2.8 and RCP 8.5 (Table 2.1;p 60 of IPCC, 2014).

Therefore under all scenarios, the temperature and sea level will both rise over the 21st century (IPCC, 2014). The IPCC predicts a high likelihood that:

- Heat waves will occur more often and last longer;
- Extreme precipitation events will become more intense and frequent in many regions;
- The ocean will continue to warm and acidify, and the global mean sea level will rise.

The impacts of changes to temperature and sea level rise to the marine and terrestrial biodiversity of the Southern Gulf Islands and specifically, the CDF biogeoclimatic zone on Valdes Island are not yet fully understood.

Extreme weather events in the Salish Sea seem to be on the rise and creating environmental problems on Valdes Island, as well as other islands in the region. These issues appear to be accelerating the rate of erosion in the intertidal zone, altering the species compositions in the marine and terrestrial environments, and allowing for the establishment of non-native and invasive species, and the depletion of fresh water resources.

Ecosystems vary in their resilience to changes in climate. From the perspective of biodiversity and sensitivity of individual species, small average temperature changes in regions of narrow climatic variation (such as in the Coastal Douglas-fir biogeoclimatic zone) may have much more consequence than larger average temperature changes where the climatic variation is greater (Austin et al., 2008).