ESTIMATING CARBON STOCKS: DESKTOP METHODS

1 APPROACH ONE

WORKING WITH WWF-CANADA TO ESTIMATE CARBON STOCKS

Using the data from the national carbon map, we can help your community estimate the total carbon stock contained within any terrestrial area with defined boundaries, including proposed Indigenous Protected and Conserved Areas (IPCAs).

In the case of IPCAs, the carbon stock estimate derived through this assessment can be used to further strengthen the rationale for the protection and responsible management of lands.

We can also help you identify opportunities to advance nature-based climate solutions in your territory to improve carbon sequestration and protect biodiversity over the long term. Nature-based climate solutions encompass measurable activities that benefit both climate and biodiversity, including:

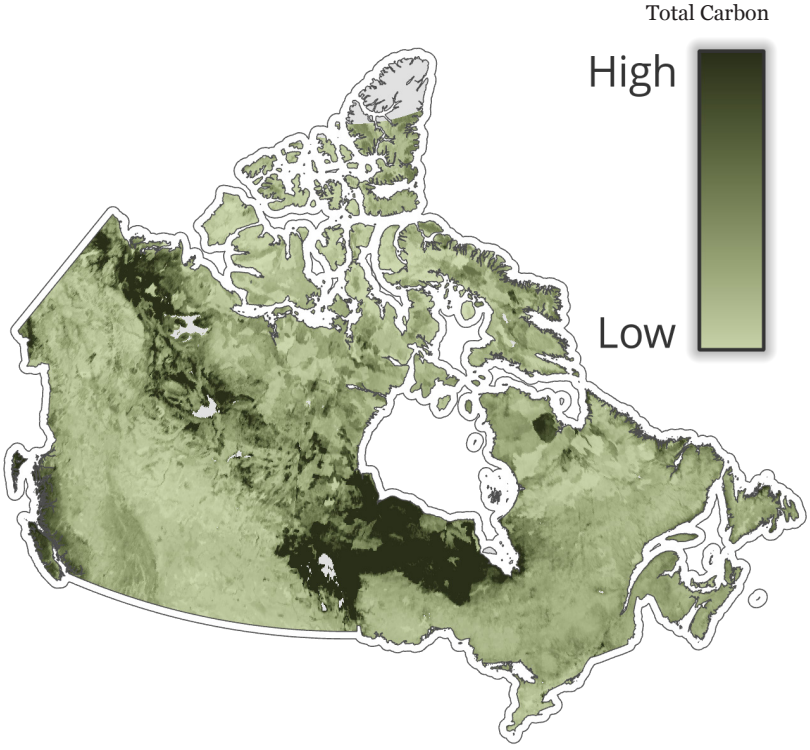
> The restoration of coastal vegetation; the protection of peatlands and wetlands through, for example, IPCAs; and the implementation of prescribed-burns in areas prone to wildfires of increasing intensity and severity.

2 APPROACH TWO

ESTIMATING CARBON STOCKS USING ARCGIS AND GOOGLE EARTH ENGINE

You can learn how to estimate the carbon stock of a defined area following the method outlined in our tutorial. To complete the carbon stock assessment with ArcGIS, you will need your area of interest in a shapefile or raster format and have access to the raw carbon stock data, which is free to download.

To complete the assessment with Google Earth Engine, you will simply need your area of interest in a shapefile format or be able to draw it on a map.



You can reach out to WWF-Canada's Science, Knowledge & Innovation team, and we will work with you to complete an estimation of carbon stocks.

RAW DATA

VIDEO TUTORIAL

WHY IS CARBON IMPORTANT?

Carbon is found in all life forms and soils on earth. It is exchanged in the atmosphere and biosphere through carbon sources, which release carbon, and sinks, which absorb carbon.

Carbon moves in a cycle, and when ecosystem carbon sinks are disturbed, the cycle is disturbed, and carbon dioxide and other heat-trapping gases like methane can be released into the atmosphere, accelerating climate change.

Estimating the amount of terrestrial ecosystem carbon in your community provides valuable data that can be used to identify priority regions for protection and secure lasting investment to help mitigate climate change over the long term.

WWF-CANADA'S NATIONAL CARBON MAP

A 2022 study by WWF-Canada and led by McMaster University's Remote Sensing Lab revealed that Canada stores a massive 327 billion tonnes of carbon in its terrestrial ecosystems. This is the equivalent to about 25 years of human-caused global greenhouse gas emissions at 2019 emission levels.

Large carbon stores are often found in the territories of Indigenous Peoples, as a result of millennia of responsible management practices by Inuit, Métis and First Nations.

Find out how much carbon is stored in plants and soils using our interactive map: https://datahub.wwf.ca/.

This map has a resolution of 10 kilometres, so is best used for general estimates. For options that offer more precision, refer to the two approaches described in this brochure.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CASE STUDY: TALOYOAK'S PROPOSED INUIT PROTECTED AND CONSERVED AREA

The community of Taloyoak, Nunavut, is working to establish an Inuit Protected and Conserved Area (IPCA) in the traditional lands of Aqviqtuuq.

The proposed Inuit Protected and Conserved Area would cover almost 90,000 square kilometres of marine, terrestrial and freshwater ecosystems, helping safeguard caribou, polar bear, migratory birds and Arctic whales.

Currently, international shipping and mining pose risks to the area that the community relies on. Using WWF-Canada's national carbon map, we estimate that there are more than 554 megatonnes of carbon within the terrestrial ecosystems of Aqviqtuuq up to a depth of one metre. This amount is roughly equivalent to Canada's total carbon emissions from 2018–2020.

CONTACT US

For more information on carbon measurement, visit:
wwf.ca/carbon-measurement

Our team is here to help you!

For more information, contact:
Emily Giles and Clare Wark
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We can work with translators alongside your community to ensure any data generated through carbon stock estimation is accessible.

HAVE YOU MEASURED CARBON IN YOUR TERRITORY? *Let us know!*

Our team would love to hear how your community has used WWF-Canada's tools to carry out carbon measurements. Reach out to us to discuss your experience and any improvements we can make. Interested in joining the Carbon Community of Practice to connect with other practitioners in the field? Contact science@wwfcanada.org.

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