



Tourism on
Vancouver Island
**Greenhouse
Gas Emissions
Inventory**

Restated June 2023

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This report has been prepared by Synergy Enterprises



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Acknowledgments

4VI extends its gratitude to the partners listed in the 'Sources' section at the end of the report for their contributions that allowed the completion of this inventory. Without access to their data, this report would not have been possible. Moving forward, 4VI hopes that these relationships will continue to grow, allowing for even more comprehensive data collection and sharing to enable a more complete understanding of tourism's impact on the Vancouver Island region.



About this Report

As part of its commitment as a Glasgow Declaration signatory, 4VI set out to measure the greenhouse gas (GHG) emissions for all tourism activity on Vancouver Island (the Island). 2019 was established as the baseline year since it was a better representation of pre-pandemic tourism activities.

This emissions inventory was completed using a “bottom-up” approach, which relies on primary source data (such as total accommodation nights or number of flights from a given country) for activities happening within the regional boundary and uses that data to calculate the associated emissions.

A combination of frameworks was utilized to capture and assign emissions to tourism activity on Vancouver Island. The main frameworks consulted were the GHG Protocol “Global Protocol for Community-Scale Greenhouse Gas Inventories”, the GHG Protocol “Corporate Standard”, and ISO 14064-1.

The task of measuring emissions for a specific economic sector within a region requires unique considerations around the geographic, temporal, and organizational boundaries to define the reporting entity. For more information on the protocols or boundary setting, please refer to the accompanying methodologies document.

The Visitor Journey

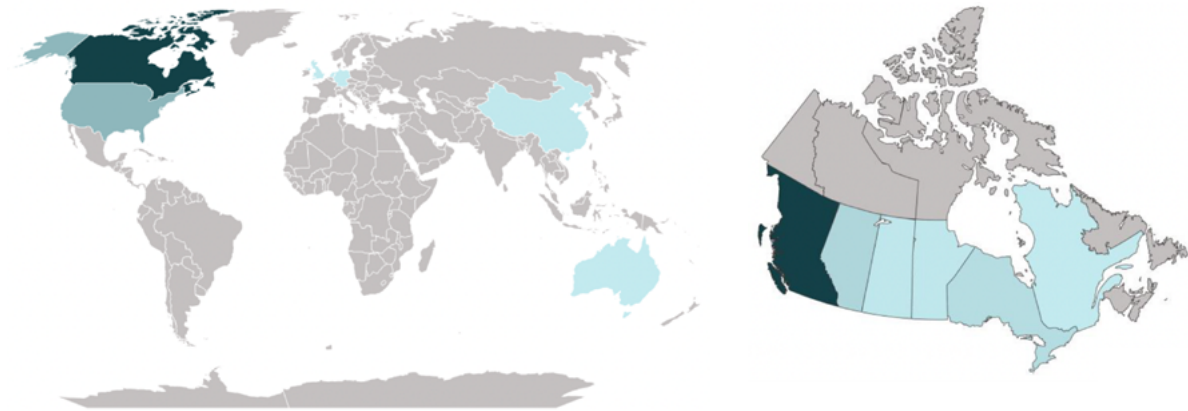
Where Did They Come From?

Vancouver Island attracts visitors from all over the world due to its natural beauty, laid-back lifestyle, and diverse activity options. 2019 saw visitor numbers exceed ten million, with nearly 4.5 million of these visitors staying overnight.

The Island attracted over 6.6 million Canadians, with British Columbians accounting for nearly 5 million visitors. Outside of BC, residents of Alberta (655,000), Ontario (450,000), Saskatchewan (182,000), Manitoba (179,000), and Quebec (83,000) were the most frequent visitors, with residents of the other provinces and territories accounting for about 70,000 visitors.

Almost 3.6 million international travellers visited the Island, 2 million of which came from the United States. Outside of the US, the top five countries of origin were China (138,000), the Netherlands (110,000), the UK (82,000), Australia (64,000), and Germany (60,000). The remaining travellers came from other countries for which no specific data was available.

Visitor Country and Province of Origin



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Vancouver Island attracted more visitors from China and the Netherlands than from Quebec or the Atlantic Provinces and Territories combined.



How Did They Get Here?

Vancouver Island is not accessible via bridge, so this results in limited options for travel methods to reach the Island. Greater Victoria is the primary gateway, with nearly all visitors entering via one of the four regional ferry terminals or Victoria International Airport (YYJ). 81% of all travellers arrived on the Island via ferry. Of ferry riders, 6.4 million travelled via BC Ferries and nearly 2 million took one of the three ferries from Washington state. Flying into YYJ was the second most common method of travel to the Island, representing 11% of all travellers. Flying was more common among international visitors than it was amongst Canadians, particularly those from the western provinces.

NUMBER OF VISITORS AND COUNTRY OF ORIGIN

TRAVEL METHOD	Canada	USA	Netherlands	UK	China	Australia	Germany	Other Int'l
BC Ferries	5,405,489	234,708	47,298	35,092	59,504	27,464	25,938	453,396
Coho Ferry	-	670,794	9,900	7,345	12,454	5,748	5,429	94,897
Clipper	-	810,410	8,800	6,529	11,071	5,109	4,826	84,353
Washington State	-	134,159	4,400	3,264	5,535	2,555	2,413	42,176
Flight to YYJ	582,525	155,127	28,599	21,219	35,979	16,606	15,683	274,147
Drive from Up Island	516,898	-	6,600	4,897	8,303	3,832	3,619	63,265
Other	111,830	34,473	4,400	3,264	5,535	2,555	2,413	42,176
Total	6,616,743	2,039,671	109,996	81,610	138,382	63,869	60,320	1,054,410

The emissions impact of travel proved to be the largest contributor to tourism’s carbon footprint, accounting for 51% of the total. Flights had the highest impact, followed by personal vehicle travel and ferries . Passengers who walked onto the ferry and took public transit to their destination had the lowest per trip carbon intensity.

Flights

Flights are inherently carbon intensive, and as expected, contributed 85% of all travel-related emissions.

International visitors flew a total of 4.85 billion kms getting to and from the Island, resulting in emissions that exceeded 717,000 tCO₂e. Domestic flights accounted for another 1 billion kms and over 150,000 tCO₂e. Visitor origin plays a key role in flight emissions. This is evidenced by Australia and Germany having nearly identical visitor numbers, but the flight emissions for Australians averaging 1.9 tCO₂e per visitor, compared to 1.2 for German visitors.

Visitors from Australia had the highest transportation emissions footprint at 817 kgCO₂e per visitor, compared to 424 kgCO₂e for visitors from the UK and only 74 kgCO₂e for visitors from Canada.



Total distance flown equivalent to **143,688** trips around the world



10,165,000
Total Visitors

Ferries

Ferries are the primary method used by visitors to reach the Island, with over 8.3 million visitors taking a ferry in 2019. Due to the size and passenger capacity of ferries, they are a much less carbon-intensive method of travel than flying. Total 2019 emissions from ferries were 66,200 tCO₂e, only 6% of all travel emissions. 77% of all ferry passengers travelled on BC Ferries, with 11% taking the Clipper, 10% taking the Coho, and 2% taking the Washington State ferry.

BC Ferries continues to develop their shore power network, allowing for the continued rollout of hybrid vessels. BC Ferries travel is likely to continue to decrease in carbon intensity in the coming years.

The length of the ferry voyage is a major contributor to per-passenger emissions. The Clipper accounted for only 11% of all ferry traffic but resulted in 25% of ferry emissions. By comparison, the emissions from BC Ferries were 66% of the total ferry emissions despite accounting for 76% of all trips.

Data from 2019 suggests that over 4 million visitors travelled in vehicles that drove onto BC Ferries (about 2 million vehicles), while 2.3 million people walked on

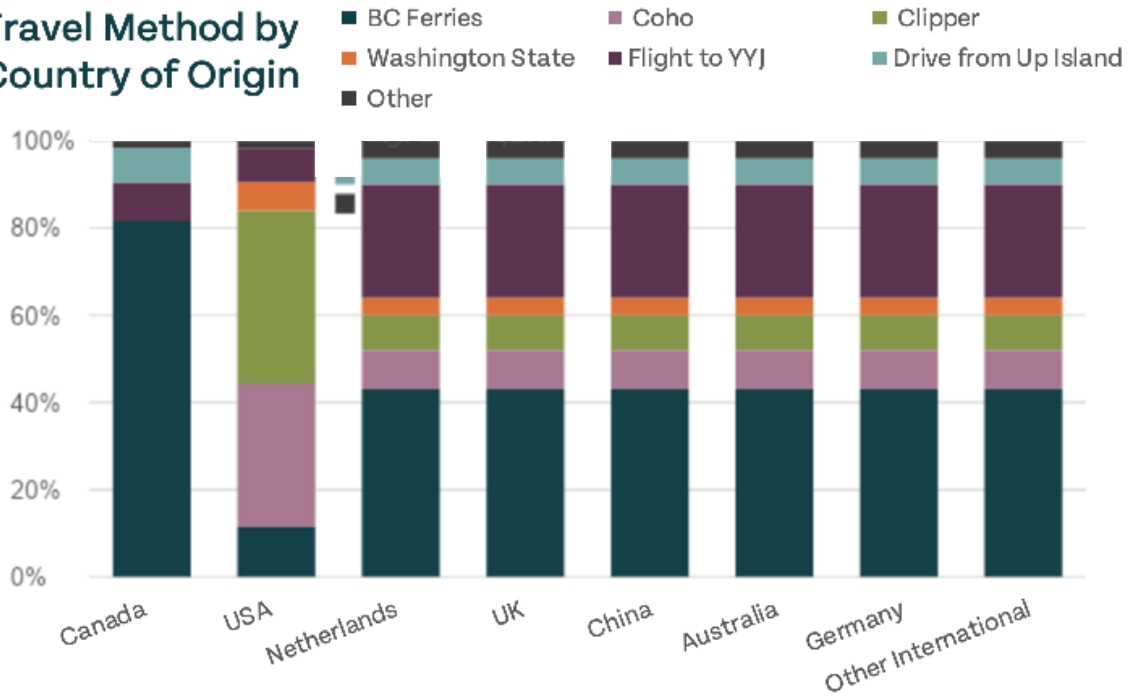


8,221,055
Ferry Travellers

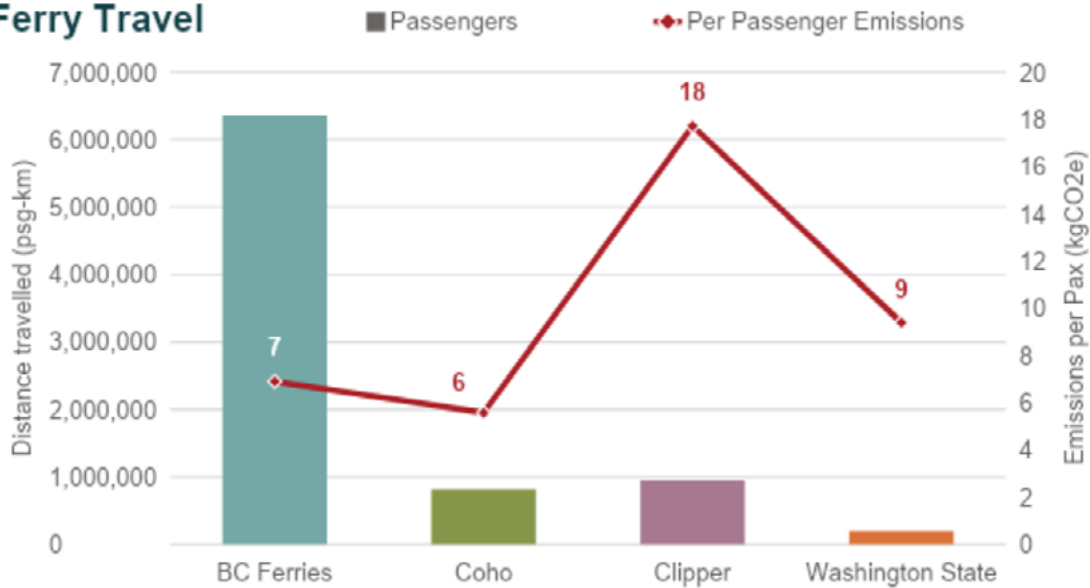


224,533,805
Total psg-km

Travel Method by Country of Origin



Ferry Travel



Many ferry trips were undertaken by passengers who drove personal vehicles onto the ferry. In these instances, the emissions from the driving portion of the trip were captured under the “personal vehicles” emissions category

Cruise Ships

Victoria is a major port of call for cruise ships. In 2019, 264 ships visited Victoria, bringing with them nearly 710,000 passengers and 300,000 crew. Ogden Point, the cruise ship terminal in Victoria, did not yet have the infrastructure to provide shore power for large cruise ships at the time of this audit, so while ships were in port, they were required to run their engines to provide power for all the ship's systems. Cruise ships transiting within the Greater Victoria boundary can also be allocated to tourism's impact on the region. These activities generated emissions of 13,000 tCO₂e, over 9,000 of which came from hoteling.

The cruise industry was shut down due to COVID-19, but 2022 saw a return of ships to Victoria; 329 ships called at Ogden Point, an increase of 65 ships compared to 2019. The industry re-opened with caution while navigating new and ever-changing regulations, causing ships to sail significantly under capacity at the start of the season, and increasing to almost full capacity by the end of the season. As a result, passenger numbers were very similar to 2019.



All Travel Emissions

The wild Pacific Coast attracts adventurous travellers seeking a true west coast experience. Due to its remote location, the emissions from travel to the Pacific Coast were nearly three times higher per person than for those visiting the South-Central Island. Visitors reaching the North Island had an emissions impact nearly five times higher than those visiting the South-Central Island.

Vancouver Island is serviced by several regional coach bus companies, affording travellers a low cost and low carbon alternative to driving a personal or rental vehicle. In 2019 210,000 travellers opted to take a coach bus, accounting for over 36 million passenger-kms of travel.



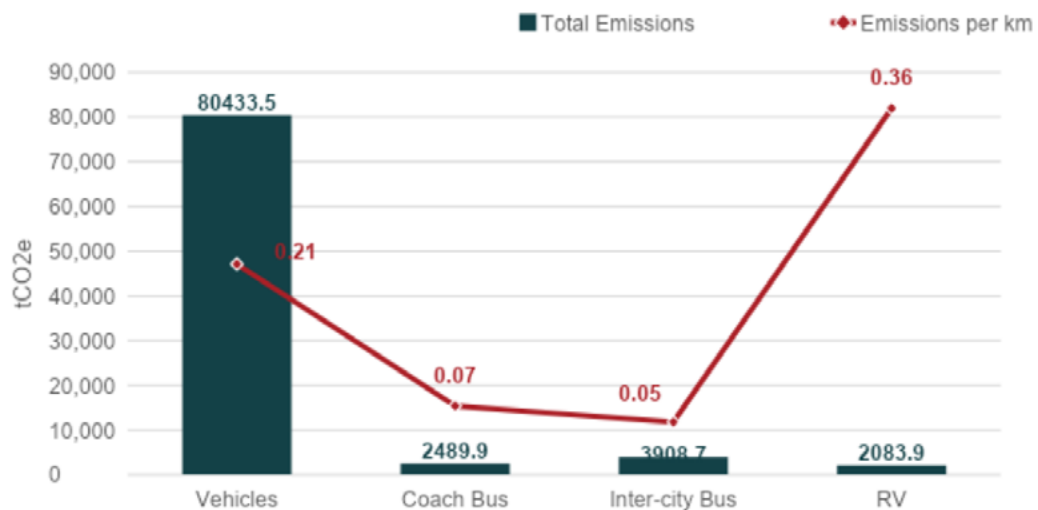
Where Did They Go When They Arrived?

For many visitors, the Greater Victoria region was the only Island stop on their journey. Many others, however, ventured out from Greater Victoria to the South-Central Island, Pacific Coast, and the North Island. In total, nearly 2.5 million visitors travelled to other regions from Greater Victoria. Transportation choices for these journeys varied but were dominated by visitors driving personal or rental vehicles – over 2 million visitors. About 207,000 visitors took buses, nearly 100,000 visitors took recreational vehicles, and just under 10,000 travellers took flights. Another 37,000 visitors travelled via undisclosed methods.

The South-Central Island was the most visited region outside of Greater Victoria, with over 1.7 million visitors travelling there. Nanaimo and the Comox Valley were the major destinations in this region. Many visitors also transited through the South-Central Island on their way to the Pacific Coast or the North Island. 600,000 visitors visited the Pacific Coast, primarily Tofino, and another 110,000 visited the North Island, mainly Port Hardy and the surrounding region.

About 517,000 visitors visited the Greater Victoria region from elsewhere on the Island, with self-driving being the primary mode of transport. These visitors were mainly B.C. residents, with some residents of other provinces also making the trip.

Travel Emissions by Method



Where Did They Stay and for How Long?

Visitor accommodation is another major emission generating activity, coming mainly from fossil fuels, used for heating and cooking, and electricity used at accommodation facilities. 2019 saw nearly 5.3 million visitors staying over night, resulting in over 32 million accommodation nights across all types. Hotels & motels

were the preferred accommodation, accounting for 19 million room nights, followed by vacation rentals and staying with friends and family at 8.9 million nights. The Island's many campgrounds also attracted campers, with 2 million nights of camping in 2019. Hostels, remote lodges, and Bed and Breakfasts made up the balance.

Remote lodges have the highest emissions impact per night, mainly due to most remote lodges relying on fossil fuels for electricity generation. Camping is the least carbon intensive as many of the Island's campgrounds are provincial parks that do not have utility services. Emissions from camping result from private campgrounds with hookups, generator use in RVs, and RV sewage disposal.

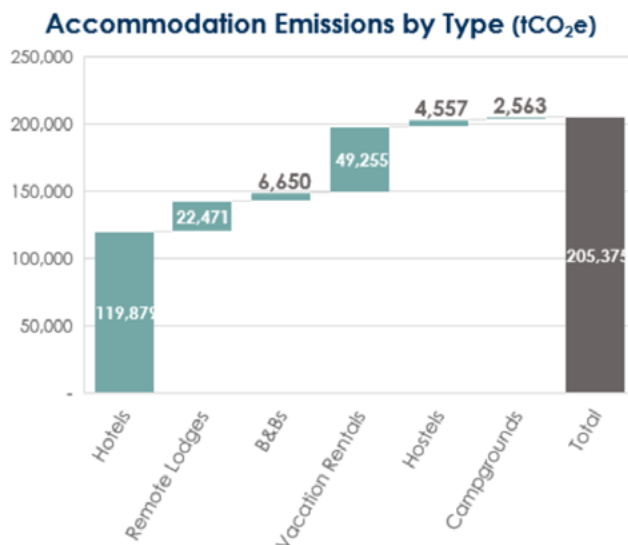
Camping on the Island provides a low-carbon alternative to hotel or lodge stays. The Pacific Coast was the most popular camping destination, with 35% of visitors reporting camping as their primary accommodation method, compared to an average of 2% on the rest of the Island.



6.48 kgCO₂e
Per Room Night



39 kgCO₂e/traveller
Accommodation



What Did They Do?

Vancouver Island is a destination renowned for its natural beauty, history, and culture. This leads to visitors taking part in activities including self-guided or organized tours; shopping; and visiting restaurants, pubs, and bars. Each of these activities can have an emissions impact, particularly those that require marine or on-road transportation via boats or vehicles.

Nearly 10 million visitors reported taking part in an outdoor activity such as walking, hiking, mountain biking, and visiting parks or beaches, as well as water-based activities like kayaking, canoeing, and paddle boarding.

Tours

Tours that carry an emissions impact can be broken down into two main categories: marine tours and land tours. Marine tours that result in emissions are dominated by whale watching, site seeing, and other wildlife viewing. In total, marine tours were responsible for 31,500 tCO₂e resulting from nearly 1.3 million visitors taking part in marine activities, Island-wide. Whale watching was the most popular marine-based tour activity, followed by site seeing and fishing. Many visitors opted for self-powered activities such as surfing, kayaking, and sailing.

44% of travellers who visited the North Island took part in an Indigenous event or visited an Indigenous site. Elsewhere on the Island, an average of only 5.7% of visitors supported Indigenous tourism operators.

Land tours saw higher volumes of visitors, with just over 14.6 million on-road activities taking place (about 1.5 activities per visitor). On-road activities benefit from economies of scale, such as the passenger capacity of a tour bus or the fuel efficiency of cars. As such, emissions from land tours were 8,800 tCO₂e. Popular land-based activities included general sightseeing, visiting attractions, and visiting museums or cultural centres.

Due to the volume of visitors who stayed in Greater Victoria, 80% of tour emissions took place in this region. The South-Central Island (15%), Pacific Coast (4.4%), and North Island (0.5%) made up the balance.

Reliable data was unavailable for flight tours, such as wildlife viewing and site seeing. Future inventories should include these tours as they are likely to have a material impact on total emissions from tour activities.



32,889 tCO₂e
Greater Victoria



6,177 tCO₂e
South-Central Island



1,811 tCO₂e
Pacific Coast



200 tCO₂e
North Island

Food and Beverage

Vancouver Island is home to many incredible restaurants, breweries, wineries, and distilleries, attracting visitors who believe eating and drinking in a destination is the ultimate means of experiencing its culture. Food and drink have an environmental impact of their own, and many of these establishments primarily serve visitors, so the impact of what visitors eat and drink must be considered.

2019 saw visitors spend nearly \$860 million Island-wide on food and beverage, an average of \$163 per visitor who stayed for one night or more. The emissions impact of this is the second largest source of emissions for all of tourism, totalling 637,000 tCO₂e . These emissions are a result of the embedded carbon in our food and drink – that is, the CO₂e emissions released during the production of raw materials (such as farming), packaging, shipping, and retail.

Category	Emissions Intensity per \$CAD (kgCO ₂ e)
Beverages	0.241
Dairy	1.044
Fish	0.285
Beef	2.423
Pork	0.725
Poultry	0.575
Other	0.460
Average	0.741
General Retail	0.176

The rustic appeal of the Pacific Coast, along with the prevalence of camping, saw visitors to this region spend less than half as much on food & beverage and shopping compared to the average of the other Island regions. Trips to the Pacific Coast were also slightly longer, resulting in a daily average spend of about \$20.



Shopping

Another common activity that visitors participated in while on Vancouver Island is shopping. Over \$430 million was spent by visitors on retail goods, an average of \$82 per overnight guest. Shopping also accounts for some tour and activity related emissions, as many travellers reported visiting local shops and boutiques, artisan studios, farmers markets, or general shopping as a planned activity during their trip. In total, the emissions from the embedded carbon of sold products were 76,000 tCO₂e.



\$273 spend/visitor
Greater Victoria



\$205 spend/visitor
South-Central Island

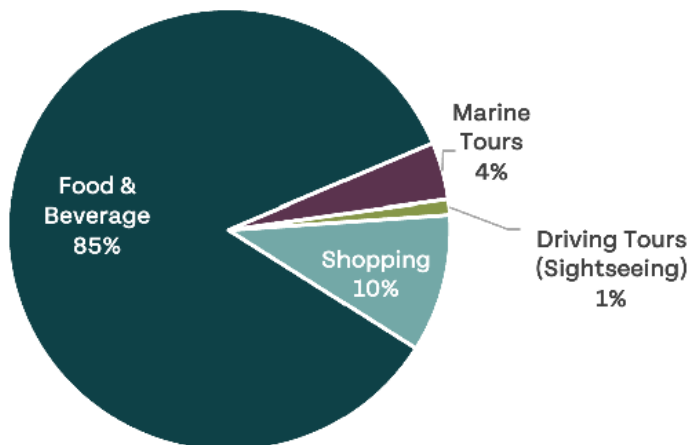


\$116 spend/visitor
Pacific Coast

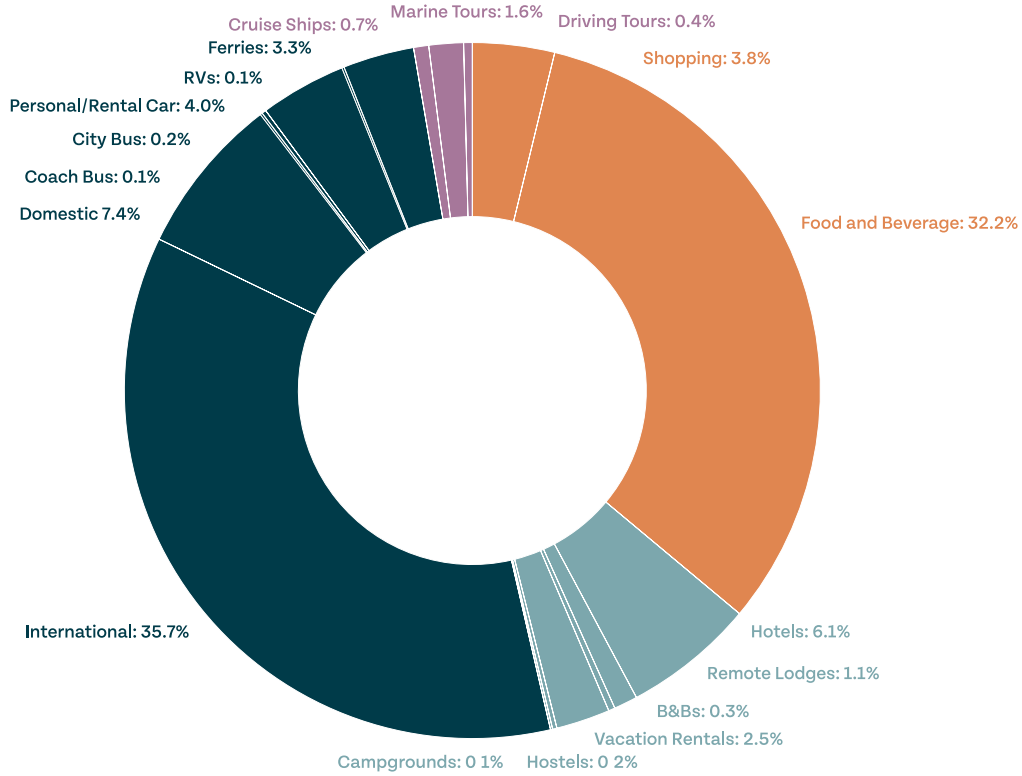


\$227 spend/visitor
North Island

Emissions by Activity



Summary of Findings: Emissions Share by Activity



Accommodation
 Transportation
 Tours
 Goods and Services

Total tourism emissions **1,964,855 tCO₂e**

compared to:

YVR



384,336
tCO₂e

19% of Island

Port of Vancouver



1,100,00
tCO₂e

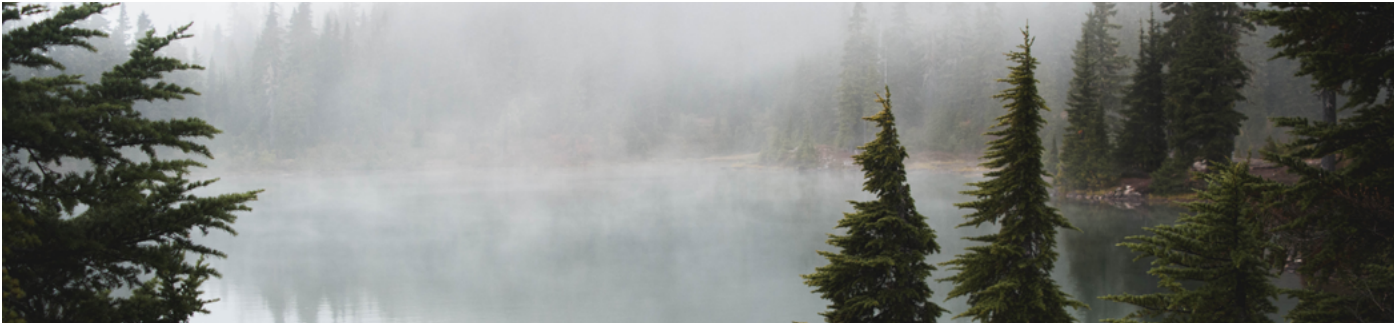
55% of Island

Province of BC



67,900,000
tCO₂e

33x Island



Tourism is interwoven into the daily lives of residents and the operations of businesses across Vancouver Island, with few industries untouched by its impact. In turn, this impact is projected outwards onto the environment, leaving the tourism industry responsible for the environmental footprint of a diverse range of sectors.

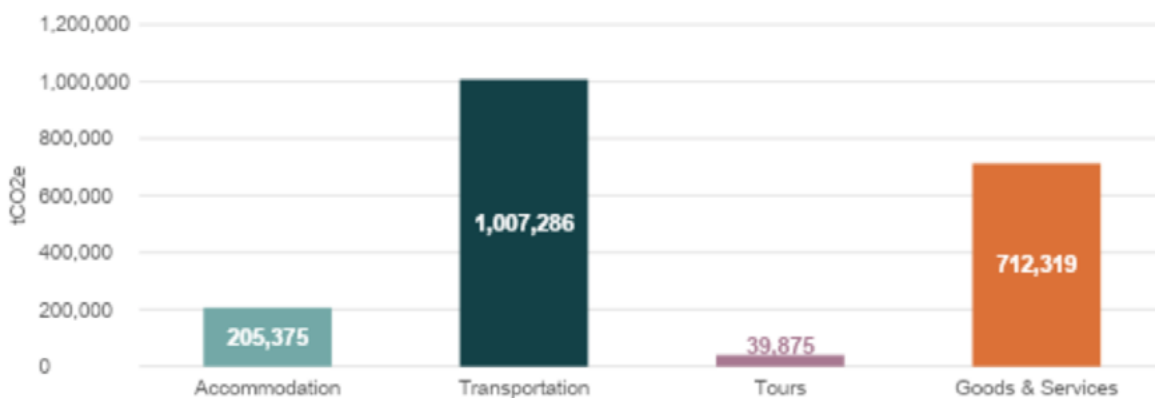
Emissions by Source

Vancouver Island’s unique combination of proximity to the Mainland of B.C. while lacking access by road means that transportation to the Island is inherently emissions intensive. International flights were the largest contributor, with 69% of travel emissions and over 35% of all tourism emissions allocated to these trips.

Goods & Services, accounting for shopping and food and beverage, purchased by visitors resulted in over 712,000 tCO₂e – 36% of all tourism emissions, of which 89% came from food and beverage.

Accommodations accounted for 11%, with hotels and vacation rental properties contributing the largest shares of these emissions. Marine and land-based tours made up the balance (2%), driven mainly by marine tours.

Vancouver Island Tourism Emissions

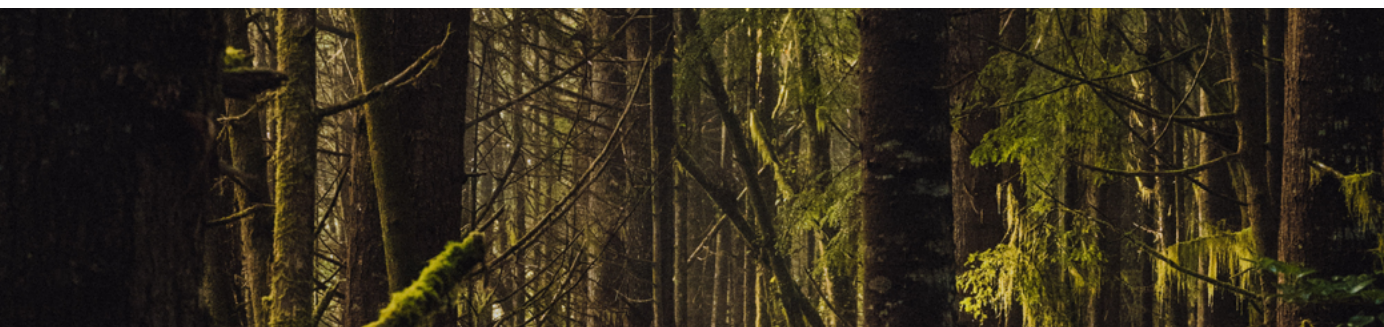


Region	Emissions (tCO ₂ e)	Visitors	Emissions Intensity (kgCO ₂ e/Visitor)
Greater Victoria/Gulf Islands	1,738,587	6,217,045	280
South-Central Island	131,347	2,921,486	45
Pacific Coast	73,933	868,550	85
North Island	20,988	157,918	133
Total	1,964,855	10,165,000	193

2019 saw tourism activities on Vancouver Island produce nearly 2 million tCO₂e, equivalent to nearly 540,000 cars driving for a year. Greater Victoria accounted for almost 89% of these emissions, effectively acting as the “gateway” to the Island for nearly all visitors. The South-Central Island accounted for 7%, followed by the Pacific Coast at 4%, and the North Island at 1%.

Greater Victoria also had the highest emissions intensity per visitor at 280 kgCO₂e, again due to most travellers entering the Island through this region. Many travellers departed the Greater Victoria region upon arrival, but it was not possible to estimate these figures and accurately allocate travel to the Island to other regions.

The North Island had higher per traveller emissions from transportation, accommodation, and goods & services than the South-Central Island and Pacific Coast, leading it to be the second most emissions intensive region per traveller at 133 kgCO₂e.



Emissions by Country of Origin

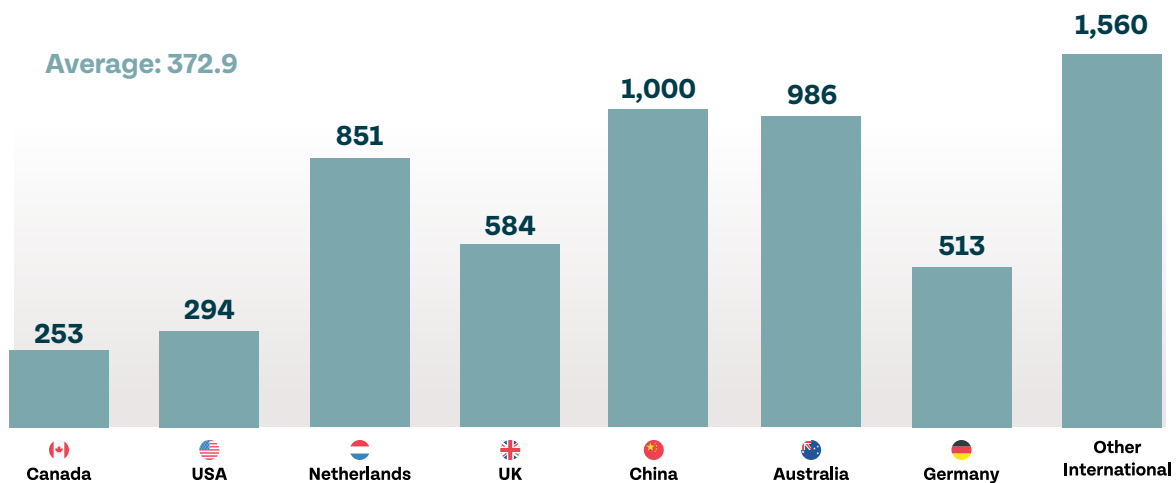
Emissions per visitor varied dependent on their country of origin. Internationally (excluding the USA), visitors from Germany had the lowest emissions footprint per person.

The impact of flights can be seen when comparing the Netherlands and Germany. Though per flight emissions are nearly identical for the two countries (1.15 tCO₂e and 1.19 tCO₂e, respectively), the volume of Dutch travellers who flew to Victoria was nearly double that of German travellers.

Domestically, the frequency with which Canadian travellers, particularly those from Western Canada, opted to drive personal vehicles instead of fly greatly impacted the total emissions for Canadian visitors. The average emissions per Canadian traveller for travel was 73.7 kgCO₂e, compared to 817 kgCO₂e for those from Australia.

Day trippers had a much lower impact as travel was generally local, they did not stay in accommodations, and they spent less on goods and services.

Emissions per Visitor by Country of Origin



Canadian and International Travellers

65% Canadian Travellers

35% International Travellers

Sources

A complete methodologies document is available as a supplement to this report, outlining the approach used to develop this emissions inventory. The sources section below outlines the key reports that were used for data analysis.

ID	Report Name	Source
1	DGV 2019 Visitor Survey Report	Destination Greater Victoria
2	Greater Victoria Harbour Authority News Release	Greater Victoria Harbour Authority
3	National Travel Survey	Statistics Canada
4	Economic Impact of Tourism in Greater Victoria, BC	InterVISTAS
5	YYJ Passenger Statistics	Victoria International Airport (YYJ)
6	Destination Greater Victoria 2019 Annual Report	Destination Greater Victoria
7	CRD 2020 GPC Basic + Community GHG Emissions Inventory Report	Capital Regional District
8	2007 Base Year and 2020 Reporting Year Energy & GHG Emissions Inventory	Government of British Columbia
9	Mount Waddington Regional District Local Government Climate Action Program Survey	Mount Waddington Regional District
10	Visitor Profile Van. Island North - Summer 2018	Vancouver Island North
11	North Island Destination Development Strategy	Destination British Columbia
12	Northern Van. Island Regional Dist. Visitor Analysis	Destination British Columbia
13	Visitor Services Network Statistics Program Year Over Year Report 2022	Destination British Columbia
14	Value of Tourism Data - 2020	Destination British Columbia
15	Municipal and Regional District Tax	Destination British Columbia
16	South Central Island Dest. Development Strategy	Destination British Columbia
17	TELUS Insights: Tourism Vancouver Island (Aug-Sept and Oct-Nov 2018)	TELUS Insights
18	Visitor Profile: Tourism Ucluelet - Spring 2016	Tourism Ucluelet
19	Visitor Intercept Survey Results - Tofino, BC	Tourism Tofino
20	Economic Impact of Tourism in Tofino, BC	Tourism Tofino
21	Port Alberni Visitor Analysis	City of Port Alberni
22	Greater Victoria Regional Tourism Profile 2017	Destination Greater Victoria
23	Total Vehicle & Passenger Counts by Route - January 2020	BC Ferries

Data was extracted from many reports as part of this assessment. Much of this data was not relevant and so was not used; ultimately the highest quality reports with the most representative data were used as sources for most of the data.

The table above displays the list of reports from which data was gathered as part of this assessment. The table below shows emissions sources addressed, and each cell identifies the source(s) used to calculate the activity data for the corresponding emissions source and region by its numerical ID. Entries listed as “N/A” represent data gaps encountered during data collection or emissions sources not relevant to the specific region. For example, international flights may be relevant to the South-Central Island region, but data was unavailable, whereas international flight data is not relevant for the North Island.

	Greater Victoria & Gulf Islands	South Central Island	Pacific Coast	North Island
Hotels/Motels/Inns	3, 4, 19, 22	4, 17	4, 18, 19	4, 12, 19
Remote Lodges	3, 4, 19, 22	4, 17	4, 18, 19	4, 12, 19
Bed & Breakfasts	3, 4, 19, 22	4, 17	4, 18, 19	4, 12, 19
Vacation Rentals and Staying with Friends/Family	3, 4, 19, 22	4, 17	4, 18, 19	4, 12, 19
Hostels	3, 4, 19, 22	4, 17	4, 18, 19	4, 12, 19
Campgrounds	3, 4, 19, 22	4, 17	4, 18, 19	4, 12, 19
International	3, 4, 5	N/A	N/A	N/A
Domestic	3, 4, 5	N/A	N/A	N/A
Inter-Island	N/A	N/A	N/A	N/A
Charter	N/A	N/A	N/A	N/A
Helicopters	N/A	N/A	N/A	N/A
Coach Bus	N/A	4, 17, 19	4, 18, 19	N/A
City Bus	4, 23	N/A	N/A	N/A
Personal & Rental Vehicles	4, 23	4, 17, 19	4, 18, 19	4, 12, 19
Recreational Vehicles	N/A	4, 17, 19	4, 18, 19	4, 12, 19
Taxis	N/A	N/A	N/A	N/A
Ferries	4, 14	N/A	N/A	N/A
Cruise Ships	2	N/A	N/A	N/A
Personal Vessels	N/A	N/A	N/A	N/A
Other	N/A	4, 17, 19	4, 18, 19	4, 12, 19
Marine Tours	4, 6	4, 6	4, 19	4, 10
Driving Tours	4, 6	4, 6	4, 19	4, 10
Flight Tours	N/A	N/A	N/A	N/A
Shopping	4, 1	4, 10, 19	4, 19	4, 10
Food and Beverage	4, 1	4, 10, 19	4, 19	4, 10

