



Costs and Benefits of Cruise Ship Tourism in Victoria

April 2011

*Overview of a report prepared by Dr. Brian Scarfe
for the James Bay Neighbourhood Association.
For full report see Environment page at www.jbna.org*



James Bay Neighbourhood Association

Overview

A new study reveals that cruise ship tourism in Victoria, British Columbia, has a zero or negative net socio-economic impact. The significant costs that burden residents and taxpayers exceed the benefits enjoyed by local cruise ship servicing companies, a small portion of the local business community, and the Greater Victoria Harbour Authority (GVHA), owner of the cruise ship terminal and waterlots.

While economic benefits are generated by cruise line, passenger, and crew member expenditures, social and environmental costs result from marine effluents, traffic congestion, traffic noise, road repairs, atmospheric emissions, and public subsidies. Estimated economic benefits amount to at most **\$24 M**, while estimated costs are at least **\$28 M**.

The study analysis is based on 2009 cruise ship activity in Victoria; however, the pattern in 2010 was similar. From May through September, there were over 100 days with ships in port.

"Home port" cities like Seattle and Vancouver reap higher cruise tourism benefits than "port-of-call" cities like Victoria. In 2008, Vancouver with 259 cruise ship calls received 90% of the estimated BC economic impact while Victoria with 201 "port-of-call" visits received 8%.

Two companies dominate Victoria cruise ship activity. Carnival Corporation generates 61% of the visits through three subsidiaries, while Royal Caribbean Cruise Lines generates 25% of the visits through two subsidiaries. Other cruise lines generate the rest of the visits. Western Stevedoring Co. Ltd., which operates the Ogden Point terminal for GVHA, and CVS Cruise Victoria, which operates the downtown shuttle bus service, are wholly owned by a Seattle-based enterprise. Much of the 'local' profit, along with cruise industry profits, flows south.

The study indicates that cruise tourism in Victoria is at best a marginal economic activity benefiting a few while imposing costs on the community. This is in contrast to "lower profile" services such as the M.V. Coho which brings substantial economic benefits to Victoria with few attendant costs.

The conclusions indicate that the following actions are needed:

1. Create a Victoria-First approach to cruise tourism. The Province, City and GVHA need to cease being subservient to the cruise ship industry.
2. Change Victoria's primary role from a net "port-of-call" loser to a net "home port" beneficiary, while greatly limiting the "port-of-call" role.
3. Ensure, through public policy, that those benefiting from cruise tourism create solutions to address the social and environmental costs they impose on others.
4. Establish passenger movement strategies and enforceable local standards to minimize the negative impact of on-shore transportation related to cruise ship passengers.
5. Impose cleaner cruise ship fuel standards in Victoria, through GVHA contractual power, and stage/limit cruise ship visits so that pollution levels are within World Health Organization (WHO) guidelines.
6. Impose a Provincial cruise ship passenger levy to fund solutions to identified social and environmental costs including pollution of Canadian waters beyond Victoria.

The study titled "*Victoria as a Port-of-Call: the Costs and Benefits of Cruise Ship Visits*" was prepared by Dr. Brian L. Scarfe, a well-known economist, for the James Bay Neighbourhood Association (JBNA). The full report is available at www.jbna.org.

Methodology

The methodology used for the study was that of multiple accounts analysis, where the accounts consist of a public financial account, a private financial (or economic development) account, a social account and an environmental account. The multiple accounts, or triple bottom line, perspective is central to the analysis. The methodology is especially useful in dissecting the questions of how and by whom benefits are enjoyed and how and to whom costs are distributed.

The analysis of social and environmental costs leans heavily on background literature, the VIHA Health Review and Response to the James Bay Air Quality Study, and environmental metric studies on air quality, noise, and traffic volume. These studies can also be found on the www.jbna.org web-site.

Cruise tourism economic impacts asserted by the industry, through GVHA, have not been based on a study of costs and benefits to the Victoria region. Rather, values created by cruise industry advisor BREA (Business Research and Economic Advisors) have been promoted. BREA values are based on a ‘model’ rather than specific local data. Values tend to be based on the previous year’s assertions, adjusted for the number of passengers and crew on the ships, without consideration of the number who actually come ashore. Real data, such as the number of passengers and crew going ashore, and the number and type of tour packages sold on the ship, are known to the carriers. However, BREA does not use the real numbers. The study dissects the BREA created values and adjusts them for inappropriate data.

Victoria as a Port-of-Call

Victoria’s role is that of a “required port-of-call”, by virtue of the U.S. Passenger Vessel Services Act (PVSA) of 1886. The PVSA applies to foreign cruise ships operating between U.S. ports south of the Canadian border and Alaska. Regulatory amendments to the PVSA allow foreign flagged cruises from U.S. ports (e.g., Seattle and San Francisco) to visit other U.S. ports (e.g., Juneau, Ketchikan and Skagway) as long as the ship also stops at a foreign port (e.g., Victoria). If cruise ships fail to do so they incur a US\$300 per passenger levy.

During the 2009 cruise ship season Victoria was the “foreign port-of-call” for 226 cruise ship visits. The visits are typically for a few hours as the last stop prior to passengers disembarking the next day in Seattle.

Victoria’s role as a “port-of-call” rather than a “home port” has significant implications for both the magnitude and distribution of costs and benefits. In general, the economic benefits to Victoria as a “port-of-call” are significantly less than for “home ports” such as Seattle and Vancouver because of lower passenger and cruise ship expenditures.

Nothing in U.S. legislation and regulation would prevent Victoria from becoming a “home port”. However, the extent to which Victoria is content to be a “port-of-call” only strengthens the positioning of Seattle in relationship to Vancouver and robs B.C. of economic gain from Alaska-bound cruises.

Economic Output Impacts

In a 10 year period, the growth of cruise ship numbers increased from 34 (1999) to 226 (2009) or by 565%. Passenger growth increased from 40,000 (1999) to almost 400,000 (2009) or by 900%. **The growth of cruise ship and passenger numbers has led many to assume, wrongly, that cruise ship tourism has a net positive impact for Victoria.**

BREA estimates have not accounted for factors such as the short duration of many “port-of-call” visits, the impact of low wages on crew expenditures, and the proportion of shore based excursion revenues that are remitted back to cruise lines versus local operators.

BREA estimates have also been inflated by inappropriately attributing items to Victoria cruise ship activity such as revenues for the Esquimalt Graving Dock (a Government of Canada facility that serves the entire large ship industry), and local travel agent commissions (since those expenditures relate to travel anywhere in the world).

The Scarfe study concludes that the economic output impact per “home port” cruise ship call in Vancouver is eight and one-half times the economic output impact per “port-of-call” visit in Victoria, and sixteen times the economic output impact per cruise ship visit in B.C.’s smaller “ports-of-call”.

Local Direct Expenditures of Passenger and Crew:

This category of potential benefits includes the expenditures on local goods and services made by cruise ship passengers and crew members with respect to “on-shore” activities (food/beverages, tours/transportation and other retail).

BREA data is useful in comparing relative activity among ports. In Table One, expenditure data have been compiled by port to highlight the significant differences between “home ports” (Vancouver) and “ports-of-calls” (Victoria and Other B.C. ports).

As might be intuitively expected, the amount spent by passengers and crew on lodging in Victoria is nil (the cruise ship is the hotel), and on food and beverages is minimal (cruise ship fares include meals).

For Victoria, the “Other Retail” and “Tours/Transportation” categories represent most of the “Total Passenger and Crew” expenditures of \$28.9M. It is worth noting that the comparable Vancouver expenditure figures per cruise ship visit are about six times higher than those in Victoria due to higher passenger expenditures on lodging, meals, shopping and tours that occur prior to and/or following a cruise. (Compare \$862K to \$144K in Table One.)

Two caveats are important. First, the values do not appear to “net out” the approximately 40% of on-shore excursion revenue that is paid to the cruise ship operator when clients book tours through them. Second, BREA assumes that per person crew expenditures are equal to those of passengers, which is unrealistic given the low wages of many crew members, their limited ability to leave the ship, the short duration of stays, and the frequency of visits during the cruise season. Incredibly, BREA values suggest that, when ashore in Victoria, each passenger spends, on average, \$7.65 on food/beverages, while crew members spend \$25.56 on food/beverages. However, since the actual number of crew coming ashore is at most a minority of crew members, for the BREA total expenditure values to hold, crew members,

many of whom are paid a pittance, would need to spend perhaps \$100 each on food/beverages when ashore. Thus, the BREA values have resulted in a further over-statement of economic output impacts.

Table One: BC Cruise Ship Expenditures: Passengers and Crew, 2007 and 2008

<i>Passengers</i>	<i>Vancouver</i>		<i>Victoria</i>		<i>Other BC Ports</i>		<i>Total BC</i>	
	2007	2008	2007	2008	2007	2008	2007	2008
<i>Pass. Visits (000s)</i>	725	854	308	379	124	117	1,157	1,350
Lodging (\$m)	58.5	70.4	0.0	0.0	0.0	0.0	58.5	70.4
Food/Beverages	42.4	51.1	2.3	2.9	0.8	0.8	45.5	54.8
Other Retail	47.4	57.4	7.5	9.4	2.7	2.7	57.6	69.5
Tours/Transportation	23.3	28.4	7.3	9.3	3.2	3.1	33.8	40.8
Total (\$m)	171.6	207.2	17.1	21.5	6.7	6.6	195.5	235.4
Total per pass. (\$)	237	243	56	57	54	56	169	174
<i>Crew</i>	<i>Vancouver</i>		<i>Victoria</i>		<i>Other BC Ports</i>		<i>Total BC</i>	
	2007	2008	2007	2008	2007	2008	2007	2008
<i>Crew Visits (000s)</i>	242	285	108	133	44	50	393	467
Food/Beverages (\$m)	6.1	7.3	2.7	3.4	1.1	1.3	9.9	12.0
Other Retail	6.5	7.9	2.9	3.7	1.2	1.4	10.6	12.9
Tours/Transportation	0.7	0.8	0.3	0.4	0.1	0.1	1.1	1.3
Total (\$m)	13.2	16.0	5.9	7.4	2.4	2.8	21.5	26.2
Total per crew (\$)	55	56	55	56	55	56	55	56
<i>Passengers & Crew</i>	<i>Vancouver</i>		<i>Victoria</i>		<i>Other BC Ports</i>		<i>Total BC</i>	
	2007	2008	2007	2008	2007	2008	2007	2008
<i>Total Ship Visits</i>	275	259	163	201		89		549
Pass. & Crew (\$m)	184.8	223.2	23.0	28.9	9.1	9.4	217.0	261.6
Pass. & Crew/Visit	672k	862k	141k	144k		106k		477k

Based on the BREA expenditure assumption of \$56-57 per passenger and crew member, the economic output impact of the average cruise ship visit to Ogden Point would be \$144,000 per ship visit, or \$28.9 million per year based on 201 cruise ship visits,. However, this estimate is too large by at least \$5.0 million; \$23.9 million would be a better estimate.

Moreover, this gross economic activity impact is not a measure of economic benefits as the activity also comes with economic costs.

Local Expenditures of Cruise Ships:

Table Two outlines the local direct expenditures by cruise ships, as compiled by BREA. The source data, insofar as Victoria is concerned, have been modified as follows:

- (a) \$11.8M of shipbuilding and repair expenditures in Victoria were excluded because the expenditures are based on the use of Victoria Shipyards and the Esquimalt Graving Dock (EGD), which is a uniquely large-sized North America west coast facility that is likely to be used regardless of Victoria being a destination for cruise tourism (moreover, \$11.8 million is about double the local expenditures at the EGD by cruise ship companies during 2008); and

- (b) \$10.8M of travel agent commissions in Victoria (and various amounts in other ports) have been excluded because they pertain to travel which may occur anywhere in the world and therefore have no relationship to local cruise ship activity.

Table Two highlights significant differences between “ports-of-call” and “home ports”. Professional services, food and beverages, bunker fuels, and other non-manufactured goods and services are purchased during re-provisioning at “home ports”. Victoria does, however, serve as a location for the off-loading of significant amounts of waste products including recyclable solid wastes, liquid wastes, and bio-hazards. Accordingly, cruise ship expenditures at Ogden Point are estimated to be \$26.3M (\$131K/ship visit). It is worth noting again that this represents **total expenditures**. Input costs related to these expenditures must be deducted before one arrives at an estimate of economic benefits.

Table Two: Breakdown of BC Expenditures by Cruise Ships, 2008

<i>Cruise Ship Expenditures</i>	<i>Vancouver</i>	<i>Victoria</i>	<i>Other BC Ports</i>	<i>Total BC</i>
Professional Services (\$m)	123.1	0.0	0.0	123.1
Food and Beverages (\$m)	62.5	0.0	0.0	62.5
Bunker Fuels (\$m)	41.1	0.0	0.0	41.1
Other Non-Manufacturing (\$m)	63.1	0.0	0.0	63.1
Agric., Utilities, Construction (\$m)	10.9	2.6	0.4	13.9
Transport and Storage (\$m)	44.3	11.8	0.4	56.5
Other Manufacturing (\$m)	39.5	12.0	2.3	53.8
Total Cruise Ship Expenditure (\$m)	384.6	26.3	3.1	414.0
Cruise Expend. per Ship Visit	1,485k	131k	35k	754k

Source: Data originally compiled by Business Research and Economic Advisors (BREA).

Total Economic Output Impacts:

Table Three is a summary of the previous two tables. The table demonstrates that the direct economic output impact associated with cruise tourism in Victoria is \$52.7M (passenger and crew expenditures plus cruise ship expenditures, less indirect taxes which accrue to senior orders of government). It is worth noting that in Vancouver, mostly a “home port” but occasionally also a “port-of-call”, the direct economic output impact per cruise ship visit is eight and one-half times larger than in Victoria, which serves only as a “port-of-call”.

The overall economic output impact of cruise ship activity for all of British Columbia during 2010 has been estimated at \$469M, down from \$638.6M in 2008. This is due in large part to the considerable reduction of cruise ship “home porting” in Vancouver.

Economic output impact is not a measure of economic benefit. The input costs of labour, capital and materials incurred in generating the economic output impact need to be subtracted from the economic output impact in order to yield the economic benefit. It is reasonable to assume that these costs amount to significantly more than one-half of the economic output impact (industries do not expect to operate with profit margins or mark-ups that are as large as 100% of costs). **The economic benefits of cruise tourism,**

when properly stated, are almost certainly no greater than one-half of the total economic output impact (\$52.7M, or better, \$47.7M), and are estimated in the Scarfe report to be \$24 million, including government revenue impacts, for the 2009 cruise ship season when Victoria had 219 cruise ship calls.

Table Three: Total BC Expenditures – Passengers/Crew/Cruise Ships, 2008

<i>Total Expenditures</i>	<i>Vancouver</i>	<i>Victoria</i>	<i>Other BC Ports</i>	<i>Total BC</i>
Total Expenditures (\$m)	607.8	55.2	12.5	675.6
Total Expend. per Ship Visit	2,347k	275k	141k	1,231k
Less Indirect Taxes (\$m)	34.1	2.5	0.4	36.9
Direct Output Impact (\$m)	573.8	52.7	12.2	638.6
Output Impact per Ship Visit	2,215k	262k	137k	1,163k

Source: Data originally compiled by *Business Research and Economic Advisors (BREA)*.

Social & Environmental Costs of Cruise Tourism

Those who gain from cruise ship activity are much fewer in number than those who lose. Moreover, a significant portion of cruise tourism revenues accrue to Western Stevedoring Co. Ltd. and CVS Cruise Victoria, which are wholly owned by the Carrix group based in Seattle.

While economic benefits to Victoria have been consistently exaggerated by the use and misuse of BREA data, the social and environmental costs of the cruise ship business have been ignored. Costs include negative impacts of marine effluents, traffic congestion, traffic noise, road repairs, and atmospheric emissions from both cruise ships and transportation vehicles, as well as government subsidies.

The growth of the cruise ship industry has **not** been accompanied by social or environmental programs to mitigate the negative impacts of the industry on the neighbourhood in which the Ogden Point terminal is located, or in other areas where impacts are felt. As a consequence, residents' tolerance for further growth, and the activity itself, has been consumed. **The limits of acceptable change have been exceeded.**

As a result, although Ogden Point might have the capacity to accommodate more cruise ships, and a small portion of the business community might welcome the increased activity, **residents are not willing to accept the economic, social and environmental costs.** By ignoring social and environmental costs, the cruise ship industry has effectively “externalized” these costs to local residents and businesses.

In 2009, the James Bay Neighbourhood Association conducted a resident survey, obtaining responses from 573 residents (generating an accuracy level within +/- 4%, 19 times out of 20). Out of twenty-eight (28) possible items spanning the areas of community safety, traffic and transportation, access to community amenities, and quality of private development, residents answered that the top three priorities requiring attention were:

1. Quantity/volume of traffic,
2. Traffic noise, and
3. Traffic pollution/emissions.

Furthermore, out of eleven (11) possible items within the traffic and transportation category, the top five priorities requiring attention were:

1. Quantity/volume of tourist buses,
2. Tourist bus noise,
3. Motorcycles,
4. Cruise ship emissions, and
5. Float plane noise.

Measuring Social and Environmental Costs

Difficulties in measuring social and environmental costs include quantifying the impacts and monetizing the effects. Five classes of external costs are identified: noise, traffic emissions, cruise ship emissions, transport system costs and marine ecology costs. Table Four scopes out the socio-environmental costs of cruise tourism. The plus signs indicate that the associated estimates are conservative, or lower bound estimates.

	<i>Noise</i>	<i>Emissions</i>		<i>Transport</i>	<i>Marine Ecology</i>
		Vehicle	Cruise Ship		
Property Values	2.0+		2.0+		
Premature Death			4.0+	1.0+	
Health Care	3.0+	2.0+	4.0+		
Infrastructure				4.0+	
Environment		1.0+	1.0+		4.0+
Sub-Totals	5.0+	3.0+	11.0+	5.0+	4.0+
Overall Total	28.0+				

Source: Author estimates and judgement calls.

Environmental Costs - Noise:

Noise is an environmental and quality of life problem with adverse implications for health. The World Health Organization (WHO) has established community noise guidelines. Excessive noise is known to impact property values.

The opinions of neighbourhood residents, as revealed through the 2009 JBNA Residents Survey, are supported by an analysis of traffic volumes. On days when three cruise ships visit Victoria, vehicle movement counts along the major, mostly residential, transportation corridor increase by 950 vehicles with many of the vehicles being large highway buses passing within distances as small as 20-30 feet from homes.

A 2009 James Bay Acoustics Study has proven that noise associated with cruise tourism activities, including transportation of passengers, results in “roughly a doubling of all transportation noises over the day.” Residential areas near the primary focus of cruise

tourism, Ogden Point, are impacted by community noise levels at, or greater than, the highest levels of acceptable community noise.

The 3.2 dBA increase in Leq(24) noise level, if consistently maintained, causes a decrease in property values. A three per cent loss in property values is used. Assuming that 1000 residences in James Bay and elsewhere, with an average property value of \$700K, are seriously impacted by transportation noise, particularly from large highway buses that are used to transport cruise ship passengers on a variety of tours, then ***the total loss of property value would be \$21M, or an annual equivalent of \$2.1M.***

Health care costs associated with higher levels of community noise are also studied. The fact that traffic noise is the second highest source of community frustration, and leads to stress, hypertension, and the possibility of strokes, suggests that ***the health costs of traffic noise could easily amount to \$3 M per year.***

Environmental Costs - Air Shed Pollution – Cruise Ships:

The *James Bay Air Quality Study* (JBAQS) predicted that 163 cruise ship calls would create:

- 72 tonnes of SO₂ (Sulphur Dioxide), assuming 1.6% sulphur content,
- 119 tonnes of NO_x (Nitrous Oxides),
- 10 tonnes of PM₁₀ (Particulate Matter less than or equal to 10 microns), and
- 8 tonnes of PM_{2.5} (Particulate Matter less than or equal to 2.5 microns),

of emissions, all while berthed and within 2.5 km of Ogden Point.

However, actual measurements in 2009 found short-term SO₂ levels to be triple the predicted levels, suggesting that up to 200 tonnes of SO₂ may have been emitted by the 163 cruise ship calls. Indeed, measurements taken in the summer of 2009 found ***maximum daily SO₂ concentrations*** to be 1.6 times those recorded at Trail Butler Park (near a mine smelter), three (3) times those recorded at Vancouver Robson Square in downtown Vancouver and Prince George Plaza (near a pulp mill), and five (5) times those recorded at Vancouver Second Narrows (just downwind of Canada's largest west coast industrial harbour).

From June through August 2009, SO₂ 24-hour values exceeded WHO guidelines on 16% of the monitored days and on 23.6% of the days when cruise ships were in port. The maximum 24-hour value measured in James Bay was 122 µg/m³ – six times the WHO guideline of 20 µg/m³.

The Vancouver Island Health Authority's "*Health Review and Response*" to the JBAQS concluded that "*there are occasions where SO₂ [levels] are elevated so as to cause health impacts that could affect the quality of life and well being of some area residents.*"

On average, one premature death per year could be expected as a result of air-shed pollution. Economists assign an economic cost of ***\$4 to \$5 million to each premature death.***

Residents also assume costs related to the effects of SO₂ and other pollutants on their personal property, such as accelerated oxidation of metals. Based on the financial magnitude of the noise impacts, ***a cost of at least \$2 M for the air pollution impacts on property values is not an unreasonable estimate.***

Overall Health Care Costs:

In addition to the economic cost of \$4 to \$5 million due to premature death, total health related costs *of perhaps \$9 million would be associated with excessive noise, vehicle emissions and cruise ship emissions. These costs include the \$3 million estimate for the health related costs of excessive noise.*

Environmental Costs – Marine Ecology:

A typical vessel carrying about 3,000 passengers produces more than 180,000 litres of sewage, over two million litres of grey water (produced by bathing, cooking and cleaning), 18,000 litres of oily bilge water, and as much as 17 tonnes of solid waste per day.

Environmental costs along the B.C Coast due to marine discharges and emissions are estimated to be at least \$5 million per year in the southern Vancouver Island area.

Infrastructure Costs – Municipal, Provincial, and Federal Subsidy:

Public infrastructure costs relate to additional street repairs and government subsidies.

James Bay residents have identified quantity/volume of traffic to be the highest transportation priority with 81% identifying worsening conditions over the past 5 years. Large highway buses shuttling 300,000 people to and from Ogden Point create substantially more wear and tear on roadways than resident vehicles.

Recent federal and provincial subsidies have included funding towards two substantial projects, namely the installation of the Ogden Point mooring “dolphin” and a project to dredge an area on the north side of pier B to improve ship clearance. Together, these projects cost about \$4.5 million, and received \$2.4 million in combined federal and provincial funding.

GVHA now owns, fee simple, assets which were formerly public lands and property and, upon its creation, received a substantial public grant to provide a financial base. The asset value of these transfers was at least \$30 million in physical assets plus \$12.5 million in cash for land acquisition and improvement. Current GVHA assets total about \$66 million.

\$4 million might be a suitable estimate for annual infrastructure remediation costs incurred by various orders of government, including road repairs resulting from roadway use by large cruise related vehicles.

Victoria as a Port of Call – Benefits and Costs

While the benefit and cost values are approximations, it would be reasonable to assert that the social and environmental costs would aggregate to \$28-33 million per annum, and therefore be at, or above, the estimated economic benefits that cruise tourism brings to Victoria. These benefits, when properly stated, are almost certainly no greater than \$24 million, or about one half of the overall economic output impact of \$47.7 million. Again, the profits generated for two major GVHA partners flow south of the border, as do the profits of the cruise ship industry.

Directions for Action

B.C. Government:

Passenger Levy – British Columbia should impose an Alaska-style passenger levy of about \$25 per head on each cruise ship that travels through B.C. waters. Levy revenues should be used to place a Coastal Ranger (or environmental monitor) on each cruise ship as it plies Canadian waters, and to reimburse B.C. communities which host cruise ship visits for the socio-environmental and infrastructure costs placed upon them. The risks of imposing a levy are minimal because the U.S. Passenger Vessel Services Act requires that foreign flagged (virtually all) cruise ships stop in B.C. as a “foreign port” during an Alaska cruise.

Marine Discharges - Regulations with respect to marine effluent discharges should be updated and made at least as stringent as those in place in Alaska. Federal government involvement may be required here.

GVHA & City of Victoria:

Home Port Advantage – The balance between benefits and costs would be enhanced if the Ogden Point terminal became the home port for some cruise ships. However, to cap the socio-environmental costs, which would be higher for home-port visits due to provisioning transportation, the overall number of cruise ship calls would need to be significantly reduced. *If during the cruise ship season, two ships, visiting each week for twenty weeks, were to use Victoria as a home port, the economic output impact for the Victoria region would be greater than 300 port-of-call visits.* Benefits would be shared by hotels, restaurants, tour operators, retail stores, and local tourist attractions. Shuttle bus operations would be greatly reduced, while local transportation providers would benefit as tourists make their way around the city and region before and after their cruise.

Stewardship: Victoria-First – Both the City of Victoria and GVHA should become less subservient to the Seattle-based cruise ship industry. The City and GVHA need to define and manage the way that cruise tourism interacts with Victoria.

GVHA, having not fulfilled community expectations, or its obligations under its constitution regarding environmental and social stewardship, should reconsider its operations and become an environmentally responsible organization.

The City of Victoria should exercise its authority to ensure that GVHA operations are compatible with, and respectful of, the residential neighbours and with Victoria’s corporate objective of being a sustainable city.

The cruise ship business in Greater Victoria will only be sustainable if (a) the number of cruise ship calls is reduced to a reasonable level, and (b) it respects the interests of residents whose neighbourhoods are adversely impacted by cruise tourism, doing whatever it can to mitigate these impacts.

Air Pollution – Victorians cannot continue to wait for the cruise ship industry to voluntarily reduce the sulphur content of their fuels

The B.C. Ministry of Environment has committed to ongoing monitoring, and real time reporting, of cruise ship air-shed emissions for the 2011 season at one site in James Bay where the dispersion model predicted elevated 1-hour and/or 24-hour SO₂ concentrations.

The City of Victoria and GVHA should take steps to ensure that residents and visitors are not exposed to pollution above the widely accepted WHO levels for all pollutants.

To this end, GVHA, through its contractual power, should:

- Stage or otherwise limit the number of cruise ship visits to minimize high pollution levels.
- Require cruise ships to use American best-practice standards of 1.0% sulphur fuel while within twelve nautical miles of port, and 0.5% sulphur fuel while on ancillary engines when docked, as is mandated in San Francisco. Some other US ports will be mandating transitional 1.0% sulphur fuel as of this August. In the North Sea and the Baltic standards are more rigorous. Ships near port are required to use 1.0% sulphur fuel and, while in port, to use 0.1% sulphur fuel. The fuel is available.

GVHA and/or the City should

- Develop and implement general emission penalty charges for pollution beyond WHO guidelines.

Transportation – In addition to limiting cruise ship calls and staging arrivals, more should be done to alleviate transportation impacts on the community.

Large highway-sized buses need to be replaced by more environmentally friendly and neighbourhood appropriate vehicles and watercraft. Several modes for transporting cruise ship passengers from Ogden Point to downtown, and elsewhere in the Capital Regional District, should be encouraged.

If GVHA is unwilling to forward this objective, the City should encourage environmentally friendly and neighbourhood appropriate vehicles through licensing and the application of vehicle for hire privileges, as well as instituting “environmental and social” performance zoning.

Victoria as a Port-of-Call: the Costs and Benefits of Cruise Ship Visits

In 2003, Gorecki and Wallace, in *Ripple Effects: The Need to Assess the Impacts of Cruise Ships in Victoria B.C.*, suggested that stewardship and planning “has clearly been absent in the uncontrolled promotion of cruise ships in the neighbourhood.”

The Scarfe Cost-Benefit Study adds the final piece of an impact assessment of cruise tourism in Victoria, which includes the Cost-Benefit Study, the Residents Survey, the VIHA Health Review and Response, and environmental metric studies on air quality, noise, and traffic volumes.

The detail provided in the Scarfe study is evident in the Table of Contents, which follows along with a short biography of the author.

The Scarfe Cost-Benefit study and other studies are available at www.ibna.org (see Environment page). Also available at the web-site are links to VIHA and CRD reports, from 2006 to 2010, concerning air quality in Victoria.

Victoria as a Port-of-Call: the Costs and Benefits of Cruise Ship Visits

Table of Contents

Executive Summary	iv
Chapter One: A Descriptive Picture	
(a) Introduction	1
(b) Cruise ship visits: summer 2009	2
(i) Schedule and weekly patterns	
(ii) Arrivals and departures	
(iii) Service to Seattle-based cruise ships	
(c) The people movement problem	5
(d) Methodology	7
Chapter Two: Economic Output Impacts	
(a) Local expenditures of passengers and crew	10
(b) Local direct expenditures of cruise ships	14
(c) Total economic output impacts.....	17
Chapter Three: Home Port Versus Port-of-Call Impacts	
(a) Seattle.....	20
(b) Vancouver	22
(c) Victoria	24
(d) Other BC ports	28
(e) A comparison of port charges.....	30
(f) Alaska’s cruise ship passenger levy	32
Chapter Four: Social and Environmental Costs	
(a) The limits of acceptable change and community liveability	35
(b) Traffic problems	36
(i) Congestion	
(ii) Noise	
(iii) Vehicle emissions	
(iv) Road repairs	
(c) Cruise ship waste products	41
(i) Solids and recycling	
(ii) Liquids, bio-hazards, and marine effluents	
(iii) Air-shed emissions	
(d) Measuring social and environmental costs	46
(e) Pending legislative and regulatory changes	48
Chapter Five: Towards a Triple Bottom Line Approach	
(a) Benefits, costs, and distributional incidence	50
(b) Experience elsewhere: Croatian and other ports	55
(c) Resolving the people movement problem	57
(d) Regulation, mitigation and compensation.....	58
(e) Establishment of a cruise ship passenger levy in BC.....	59
(f) Conclusions and recommendations	61
Bibliographic References	63

Victoria as a Port-of-Call: the Costs and Benefits of Cruise Ship Visits

List of Tables

Chapter One:

Table One: Cruise Ship Daily Distribution Frequencies, April 23 to October 14, 2009	3
Table Two: Ogden Point, Victoria, as a Port-of-Call: Summer 2009	4
Table Three: The Effect of Cruise Ship Activity on Traffic Counts in James Bay	6
Table Four: Multiple Accounts, Cost-Benefit Analysis, and the Triple Bottom Line	7

Chapter Two:

Table Five: BC Cruise Ship Expenditures: Passengers and Crew, 2007 and 2008.....	10
Table Six: Economic Impacts of Cruise Ships: Seattle and Vancouver.....	13
Table Seven: Breakdown of BC Expenditures by Cruise Ships, 2008	15
Table Eight: Overall BC Cruise Ship Expenditures, 2007 and 2008	18
Table Nine: Cruise Ship vs. Coho - Impacts on Victoria's Economic Output	19

Chapter Three:

Table Ten: Passenger Numbers and Cruise Ship Visits at Pacific North-West Ports.....	21
Table Eleven: Victoria Cruise Ship Expenditures: 2009	27
Table Twelve: Port Charges.....	31

Chapter Four:

Table Thirteen: Socio-Environmental Damages per Tonne of Emissions	40
Table Fourteen: Socio-Environmental Costs of Cruise Tourism	47

Chapter Five:

Table Fifteen: A Multiple Accounts View of Cruise Ship Costs and Benefits.....	54
--	----

List of Illustrations

Chapter Three:

GVHA Properties: Ogden Point	26
Cruise Ship Passengers per year.....	26

Chapter Four:

Diurnal Patterns of SO ₂ at Topaz (JBAQS Phase I, p.60)	44
MAML 1-hour SO ₂ , June 7-14, 2009.....	44
SO ₂ Results (June-Aug, 2009) Comparisons.....	45
1-hour and 24-hour SO ₂ Modelling (CALPUFF)	45

About the Author

Dr. Brian Scarfe, *BA Hons (UBC), BPhil (Oxon), DPhil (Oxon), BC 1963 Rhodes Scholar*

Dr. Scarfe currently teaches courses in cost-benefit analysis, resource economics, and international economics at the University of Victoria. Previously, he has held teaching and administrative positions at the Universities of Manitoba, Alberta (where he was economics department chair for ten years), and Regina (where he was vice-president academic for five years). His company, BriMar Consultants Ltd., has completed numerous reports for various BC Government departments, often on cost-benefit analysis themes. Dr. Scarfe has also published widely in the areas of macroeconomics, international economics, and energy economics. He has lived in the Greater Victoria region for the past 17 years.