

Economic Impacts of Pacific Whale Watch Association Tourism in the Salish Sea



Prepared for:
PACIFIC WHALE WATCH ASSOCIATION



Prepared by:
MARTIN ASSOCIATES
941 Wheatland Avenue, Suite 203
Lancaster, PA 17603
(717) 295-2428

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1. PACIFIC WHALE WATCH ASSOCIATION ECONOMIC IMPACTS AT A GLANCE

Established in 1994, the Pacific Whale Watch Association (PWWA) is a community of ecotourism professionals with a shared commitment to education, conservation, and responsible wildlife viewing in Washington state and British Columbia. Its 30 member companies depart from 24 different locations throughout the Salish Sea region, serving nearly 400,000 guests per year.

Martin Associates was commissioned by the PWWA to evaluate the impacts of PWWA whale watching tourism to the economies of Washington and British Columbia. Based on information collected during our evaluation, PWWA members support the following impacts in the local, state, and provincial economies:

- **Nearly 400,000 guests embark on whale watch excursions with PWWA member companies in Washington and British Columbia each year.** These visitors purchase hotel rooms, pay for meals and entertainment, and make retail purchases while in Washington and British Columbia, stimulating local economies and generating jobs.
- **The PWWA supports 2,287 total direct, induced, and indirect jobs.** PWWA whale watching activity supports 1,122 direct jobs and 586 induced jobs tied to purchases of goods and services by directly employed individuals. An additional 580 indirect jobs are also supported as the result of \$48.7 (CA\$65.7) million of local purchases by PWWA member companies each year.
- **A total of \$128.2 (CA\$173) million of wages, salaries, and local consumption expenditures are created in local and regional economies by PWWA tourism activity.** Direct job holders receive approximately \$38.2 (CA\$51.5) million of direct wages and salaries. As the result of local purchases made by directly employed individuals, an additional \$64.8 (CA\$87.5) million of local consumption expenditures and induced wages and salaries are created. Indirect job holders receive \$25.2 (CA\$34) million of wages and salaries.
- **Local businesses receive approximately \$152.1 (CA\$205.3) million of revenue.** This revenue is supported by PWWA tour sales, whale watch visitor hotel stays, food and beverage sales, and revenue received by local ship repair and maintenance businesses.
- **PWWA member companies generate approximately \$21.5 (CA\$29.0) million of provincial, state, and local tax revenue.**
- **The total economic value of PWWA whale watching activity to the region is \$216.9 (CA\$292.8) million.**

2. METHODOLOGY

The methodology used in this analysis to estimate the economic impacts of PWWA member companies in Washington and British Columbia has been developed by Martin Associates and used to estimate economic impacts of seaport activity at public and private marine terminals involving more than 800 United States and Canadian ports, as well considerations tied to airports and real estate investments. This methodology has been used in studies presented before the International Trade Commission, the Council of Economic Advisors, the Federal Reserve Board, the Canadian Justice Department, and several U.S. Presidents.

2.1 Data Collection

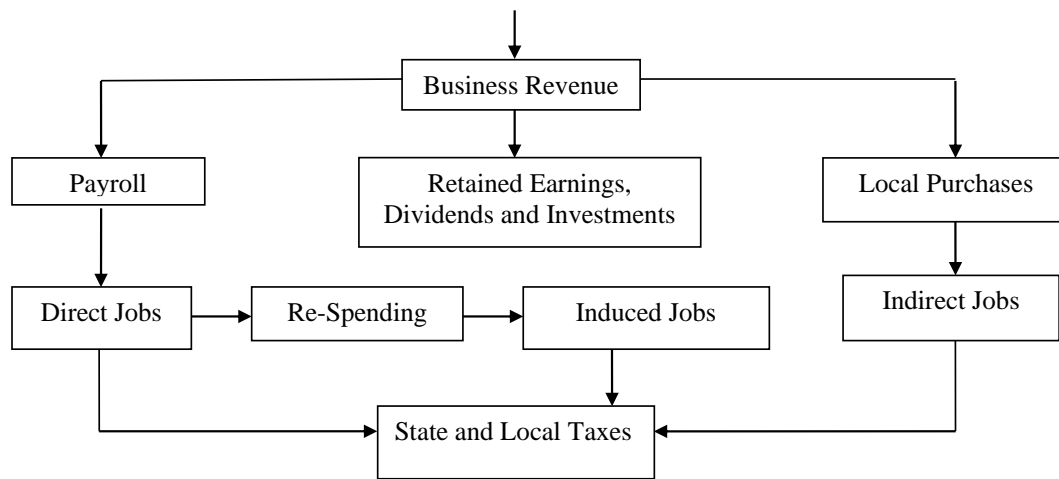
The PWWA developed and provided Martin Associates with a list of PWWA member companies and vessels by type. Each member company provided Martin Associates with number of employees, salaries, revenues, and expenditures by type for each vessel they operate. PWWA members also administered a visitor survey to guests between July 1 and August 24, 2023. Key data points collected during the visitor survey included: primary purpose of trip, permanent residence of visitor, nights spent, and visitor expenditures per day/night for lodging, food and beverage, retail, entertainment, and local transportation.

3. FLOW OF ECONOMIC IMPACTS OF THE MARITIME INDUSTRY CLUSTER

PWWA members generate economic impacts and business revenue within Washington state and British Columbia by providing whale watch tours. Their 30 member companies provide direct employment and income to individuals and pay taxes to state and local governments.

Exhibit I shows how the impacts flow through Washington's and British Columbia's economies. As this exhibit indicates, the total economic impact of the PWWA members in Washington and British Columbia is measured in terms of four impact categories: revenue impact; employment impact; personal income impact; and tax impact. These impacts are non-additive. For example, the income impact is a part of the revenue impact and adding these impacts together would result in double counting.

Exhibit I
Flow of Economic Impacts Generated by PWWA Members



3.1 Business Revenue Impact

At the outset, the sales of whale watching tours within Washington and British Columbia generate immediate business revenue for PWWA member companies. Business revenue impact is dispersed throughout Washington's and British Columbia's economies in several ways. It is used to hire people to provide services, to purchase goods and services, and to make state, provincial, and local tax payments. The remainder is used to retire debt, make investments, or is held as retained earnings.

3.2 Employment Impact

The employment impact consists of three levels of job impacts:

- Direct employment impact -- jobs directly created by PWWA whale watching activities including captains, crew, naturalists, and shoreside management and support staff. Direct jobs also include jobs supported by PWWA member expenditures to operate their business (shipbuilding and repair, electronics sales, insurance, fuel, etc.), and jobs within the visitor industry such as in hotels, restaurants, and retail shops due to visitors embarking on PWWA whale watch tours in Washington and British Columbia.
- Induced employment impact -- jobs created in Washington and British Columbia through the purchases of goods and services by those individuals directly employed by each of the 30 PWWA member companies. These jobs are held by residents located throughout Washington and British Columbia. Induced jobs are jobs with grocery stores, restaurants, health care providers, retail stores, local housing/construction industry, and transportation services, as well as with wholesalers providing goods to retailers.
- Indirect employment impact -- jobs created within the region due to purchases of goods and services by PWWA member companies, not by individuals. These jobs are estimated

directly from local purchases data supplied to Martin Associates by the PWWA companies interviewed as part of this study, and include jobs with local office supply firms, maintenance and repair firms, parts and equipment suppliers, etc. It is to be emphasized that special care was taken to avoid double counting, since the current study counts certain jobs as direct (i.e., hardware stores, ship supply stores, etc.) which are often classified as indirect by other approaches, notably the input/output model approach.

3.3 Personal Earnings Impact

The *personal earnings impact* is the measure of employee wages and salaries (excluding benefits) received by individuals directly employed by PWWA member companies. Re-spending of these earnings throughout the Washington and British Columbia economies for purchases of goods and services is also estimated in this report. These earnings, in turn, generate additional jobs -- the induced employment impact. Re-spending throughout the region is estimated using a regional personal earnings multiplier, which reflects the percentage of purchases by individuals that are made within Washington and British Columbia. The re-spending effect varies by state and province. A larger re-spending effect occurs in states or provinces that produce a relatively large proportion of the goods and services consumed by residents, while lower re-spending effects are associated with states and provinces that import a relatively large share of consumer goods and services (since personal earnings "leak out" of the region for these out-of-regional purchases). Direct earnings are a measure of the local impact since they are received by those directly employed by PWWA member companies.

3.4 Tax Impact

Tax impacts are tax payments to the state, provincial, and local governments by firms and by individuals whose jobs are directly dependent upon and (induced and indirect jobs) supported by PWWA member companies. These tax impacts are based on tax indices for Washington and British Columbia.

4. PWWA CUSTOMER CHARACTERISTICS AND IMPACTS

The magnitude of the economic impact generated by visitors embarking on PWWA whale watch excursions varies dependent upon the volume of whale watch customers and length of time visitors stay in Washington and British Columbia. The impacts also depend upon the amount of money spent by visitors daily, as well as the types of purchases made.

Both domestic and international visitors travel to Washington and British Columbia to embark on whale watching trips offered by PWWA members. As detailed further below, nearly one-third of non-resident PWWA customers travel to region specifically for the purpose of embarking on a whale watch tour with PWWA companies to view whales in their natural habitat. Individuals also visit Washington and British Columbia for a variety of other reasons, including business and pleasure, and embark on a whale watch tour during their visit to the area.

To estimate the economic impact of PWWA visitors in Washington and British Columbia, the results of a visitor survey of customers embarking on PWWA whale watch tours were used to develop passenger characteristics. PWWA members administered 852 surveys during whale watch excursions between July 1 and August 24, 2023. Examples of information collected via the visitor survey include:

- If guests were area residents or visitors;
- Length of stay if visiting;
- Whether whale watching was the primary purpose of trip vs. general holiday, work trip, family gathering, etc.;
- Expenditures per day/night for lodging, food and beverage, retail, entertainment, and local transportation.

Exhibit II shows the average length of stay and total trip expenditures per person per day based on visitor survey responses.

Exhibit II
PWWA Customer Characteristics

	Average Length of Stay (Nights)	Average Expenditure Per Person Per Day (USD)
British Columbia	3.8	\$234.28
Washington	3.6	\$255.02

Nearly 400,000 guests participate in PWWA whale watch excursions each year. Of those, roughly 43% embark in Washington and 57% embark in British Columbia. Approximately one quarter of PWWA guests are local residents of Washington state or British Columbia. For nearly one third of non-resident customers, the primary purpose of their trip to the region is to participate in a whale watch tour: 27% of visitors in British Columbia and 31% of visitors in Washington.

It is the travel and spending characteristics of non-residents and those whose primary purpose is whale watching that contribute most significantly to the local, state, and provincial economies. These visitors purchase hotel rooms, pay for meals and entertainment, and make retail purchases in local shops. These purchases of goods and services stimulate the local economy, in turn generating jobs with hotels, restaurants, retail outlets, and local entertainment establishments. Individuals employed in Washington's and British Columbia's visitor industries due to visitor purchases receive income, and this income is re-spent in the local economy generating induced jobs in the region.

5. PWWA VESSEL EXPENDITURES

The purpose of this economic impact analysis is to focus only on the impacts generated by members of the PWWA whale watching fleet. As a result, the impacts of the fleet measured in this report are only a significant subset of the total economic impacts generated by the overall whale watching industry in Washington and British Columbia. Of the active ecotour companies in the PWWA's core operating region, 87% of United States and 88% of Canadian companies are listed as members of the PWWA.¹ The core operating region of members in the PWWA is the lower Salish Sea including Strait of Juan de Fuca, Puget Sound, the San Juan Islands, and the southern Strait of Georgia. Operators in Campbell River, BC and North Vancouver Island have their own professional associations.

The 30 PWWA member companies operate approximately 90 whale watching boats moored at Washington and British Columbia marinas. Each whale watch operator hires direct employees to run their whale watch operations. Direct operation jobs include shoreside office management and reservationist positions as well as boat captains, crew, and naturalists to guide whale watch excursions.

While moored at Washington and British Columbia marinas, these vessels account for numerous purchases of goods and services from local firms. Such purchases include, but are not limited to, expenditures for shipyard repair services, electronic equipment, engine and propulsion services, fuel, insurance, painting, and ship stores. These purchases by the whale watching fleet in turn support local jobs with shipyards, ship chandlers, electronics retailers, marine engine specialists, local retail and grocery stores, ship brokers, insurance brokers and hardware stores. To quantify this economic impact, Martin Associates modified our current economic impact vessel model to translate the local purchases and economic activity of the whale watching vessels moored at Washington and British Columbia marinas into jobs, income, business revenue and tax revenues.

In addition to the direct jobs hired by whale watch operators, PWWA companies spend money to maintain their fleets. To estimate the economic impacts generated by the whale watching fleet using Washington and British Columbia marinas, the various types of vessels within the PWWA fleet were profiled. It is necessary to estimate the economic impacts by type of vessel, since each type of boat has a very different expenditure profile, which is a function of factors such as:

- Type of boat;
- The size of the boat;
- Capacity of the boat;
- Material of the boat.

¹ Frayne, A. (2022). 2022 Soundwatch Program Annual Contract Report. *Prepared for The Whale Museum.*

Exhibit III shows the types of whale watching vessels based at Washington and British Columbia marinas. Representing 40% of the fleet, Zodiac-style inflatable vessels are the most common type of whale watching vessel based at Washington and British Columbia marinas. Monohulls are the second most common type of vessel, followed by catamarans. Zodiac-style inflatable vessels are the most common vessels used for tours in British Columbia, while monohulls are the most common vessels used in Washington. There is currently one Washington-based sailboat in the fleet. In addition to inflatables, monohulls, catamarans, and sailboats, a few PWWA member companies offer kayak tours to potentially view whales.

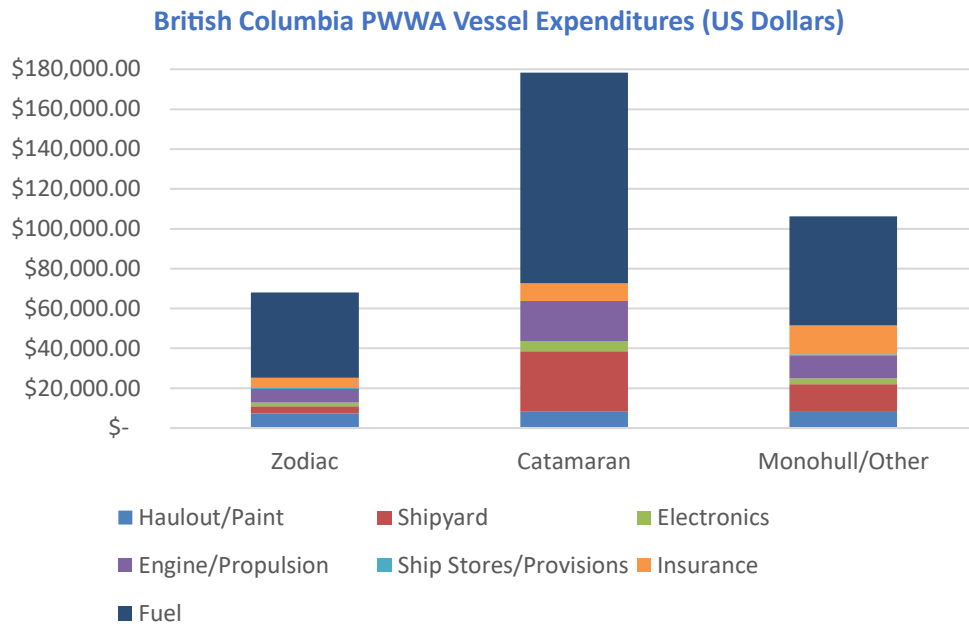
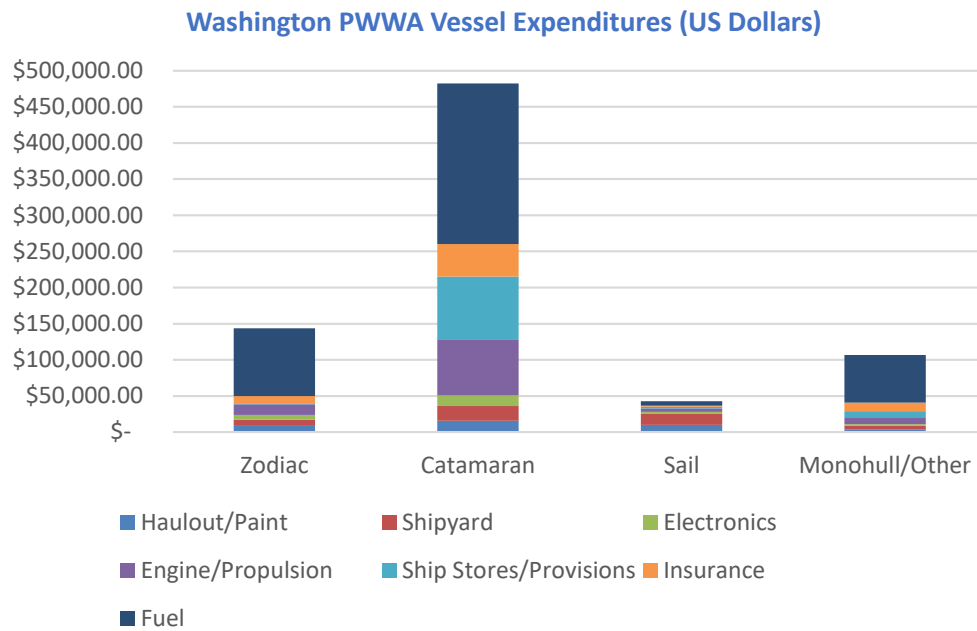
Exhibit III
Type of Whale Watching Vessel

	Catamaran	Monohull	Sailboat	Zodiac	Total	Percentage
BC	9	18	0	32	59	64%
WA	11	16	1	5	33	36%
Total	20	34	1	37	92	100%
Percentage	22%	37%	1%	40%	100%	

To estimate the expenditures by each type of vessel, member surveys were completed by PWWA companies. Data provided by the PWWA member fleet was used to translate these local purchases into economic impacts.

Exhibit IV presents the annual expenditures in Washington and British Columbia per vessel for the fleet. For ease of comparison, expenditures in both Washington and British Columbia are presented in US dollars (*see Appendix for exhibits in Canadian dollars*). These expenditures were combined with jobs-to-sales ratios in corresponding supplying industries to estimate the number of local direct jobs supported by PWWA vessels based at Washington and British Columbia marinas. Added to these direct jobs are the number of crew employed by the fleet, ship brokers and insurance brokers providing services to whale watch vessels at the various marinas, and employees in shore-side operations, management, reservations, etc.

Exhibit IV
Annual Expenditures by PWWA Members in Washington and British Columbia Marinas



6. PWWA EMPLOYMENT IMPACT

The results of the PWWA member surveys were used to estimate baseline direct job, revenue, and income impacts for each of the PWWA operators in Washington and British Columbia.

The direct jobs identified in this report represent an actual count of the full-time equivalent jobs (based on 40 hours per week) as collected through surveys for each firm. The direct income impact is the average annual salary as reported in PWWA member surveys specific to each firm, multiplied by the number of direct jobs. Business revenue was developed directly from the surveys. For companies not reporting revenue, a revenue per job estimate was developed. It is to be emphasized that no published database is available that provides revenue per firm.

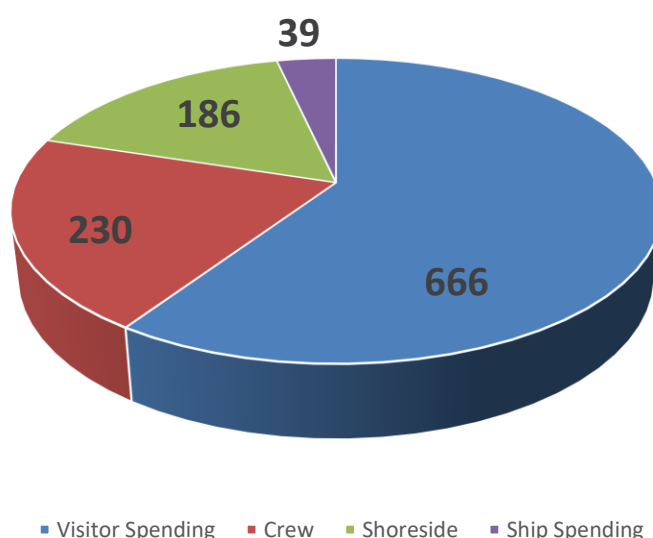
Taxes are estimated based on tax indices per personal income in Washington and British Columbia. It is to be noted that the tax index against personal income is not a personal tax but includes all taxes from all sources collected at the state, provincial, and local levels in Washington and British Columbia indexed against total personal income in the state or province.

6.1 Direct Jobs, Income and Revenue Impact

Direct jobs are jobs directly created by PWWA whale watching activities. These jobs include captains, crew members, naturalists, and shoreside management and support staff. Direct jobs also include jobs supported by PWWA member expenditures to operate their business (shipbuilding and repair, electronics sales, insurance, fuel, etc.), and jobs within the visitor industry such as in hotels, restaurants, and retail shops due to visitors embarking on PWWA member whale watch tours in Washington and British Columbia.

The PWWA supports 1,122 direct jobs. Of these 1,122 jobs, 529 (47%) are based in Washington and 593 (53%) are based on British Columbia. Exhibit V identifies the breakdown of these 1,122 direct jobs by type. As this exhibit highlights, visitor spending accounts for the majority of the direct jobs ($n=666$), followed by onboard crew ($n=230$) and shoreside operations ($n=186$). Ship spending makes up the balance of direct jobs ($n=39$).

Exhibit V
Share of Direct Jobs by Type



The 1,122 direct jobs receive \$38.2 (CA\$51.5) million of direct wage and salary income -- \$18.9 (CA\$25.6) million in Washington and \$19.2 (CA\$26.0) million in British Columbia. As a result of the local purchases made with this \$38.2 (CA\$51.5) million of direct wages and salaries, an additional \$64.8 (CA\$87.5) million of re-spending and local consumption expenditures are created in the state and province. This re-spending impact supports the 586 induced jobs.

6.2 Induced Jobs, Income and Revenue Impacts

Induced jobs are jobs created in Washington and British Columbia through the purchases of goods and services by those individuals directly employed by each of the 30 PWWA member companies. These jobs are held by residents located throughout the state and province. The induced jobs are jobs with grocery stores, restaurants, health care providers, retail stores, local housing/construction industry, and transportation services, as well as with wholesalers providing goods to retailers.

To estimate induced jobs, personal earnings multipliers for Washington and British Columbia were developed using data provided by the Bureau of Economic Analysis, Regional Input-Output Modeling System (RIMS II) and StatsCanada. The personal income multiplier describes the total change in income as the result of a dollar of income earned by a direct employee. This is known as the multiplier effect in economics. The personal income multiplier is then used to solve for the marginal propensity to consume, which defines the share of each dollar earned by a direct employee that is used for purchases within Washington and British Columbia. The share is applied to the total personal earnings impact within the state and province, and the value of the purchases is then allocated to specific local purchases categories as determined from consumption data for Washington and British Columbia area residents (as developed from the U.S. Bureau of Labor Statistics, Consumer Expenditure Survey and StatsCanada).

These local purchases are next converted into retail and wholesale induced jobs in the regional economy, using jobs to revenue coefficients developed for the state of Washington and British Columbia. In addition, non-consumption induced jobs are also estimated. These are jobs within service sectors such as finance and real estate, schools, and county, state, or provincial governments such as fire, police and infrastructure needs. The non-consumption induced jobs are estimated by developing the ratio of state-wide and province-wide jobs in these non-consumption categories to total employment (as developed from the Economic Census and StatsCanada), and then this ratio is multiplied by the direct Washington and British Columbia jobs.

As the result of local and regional purchases by the 1,122 individuals holding direct jobs created by PWWA whale watching activity, an additional 586 induced jobs are supported in Washington and British Columbia. Of these 586 induced jobs, 315 (54%) are based in Washington and 271 (46%) are based in British Columbia. The induced job holders receive \$64.8 (CA\$87.5) million in personal income -- \$38.8 (CA\$52.3) million in Washington and \$26.0 (CA\$35.2) million in British Columbia.

6.3 Indirect Jobs, Income, and Revenue Impact

Indirect jobs are jobs generated in the local economy as the result of purchases by firms (not individuals) that are directly dependent upon whale watching operations in Washington and British Columbia. These purchases are for goods such as office supplies and equipment, maintenance and repair services, raw materials, communications and utilities, transportation services, and other professional services. These jobs are estimated directly from local purchases data supplied to Martin Associates by the PWWA companies interviewed as part of this study, and include jobs with local office supply firms, maintenance and repair firms, parts and equipment suppliers, etc. Local purchases were then combined with employment-to-sales ratios in local supplying industries associated with the purchase categories. These jobs-to-sales ratios capture the numerous spending rounds associated with the supply of goods and services. It is to be emphasized that special care was taken to avoid double counting the indirect impacts, since the current study counts certain jobs as direct (i.e., hardware stores, ship supply stores, etc.) which are often classified as indirect by other approaches, notably the input/output model approach. Care was also exercised to specifically include only the expenditures by the directly dependent firms that are, in fact, local.

Based on our findings, 580 indirect jobs are generated through \$48.7 (\$CA65.7) million of local purchases by PWWA member businesses. Of these 580 indirect jobs, 281 (48%) are based in Washington and 299 (52%) are based in British Columbia. The indirect job holders received \$25.2 (CA\$34) million in personal income -- \$12.1 (CA\$16.4) million in Washington and \$13.1 (CA\$17.6) million in British Columbia.

7. SUMMARY OF PWWA JOBS, INCOME, AND REVENUE IMPACTS

Exhibit VI shows the total jobs, income, and revenue impacts of PWWA tourism in Washington and British Columbia in US dollars (*see Appendix for totals in Canadian dollars*).

Exhibit VI
PWWA Jobs, Income, and Revenue Impacts (US Dollars)

	WA – USA IMPACTS	BC – CANADA IMPACTS	TOTAL IMPACTS
Jobs			
Direct	529	593	1,122
Induced	315	271	586
Indirect	<u>281</u>	<u>299</u>	<u>580</u>
Total Jobs	1,125	1,162	2,287
Personal Income (\$millions)			
Direct	\$18.9	\$19.2	\$38.2
Induced	\$38.8	\$26.0	\$64.8
Indirect	<u>\$12.1</u>	<u>\$13.1</u>	<u>\$25.2</u>
Total	\$69.8	\$58.3	\$128.2
Business Revenue (\$millions)	\$80.3	\$71.8	\$152.1
Local Purchases (\$millions)	\$23.6	\$25.1	\$48.7
State, Provincial, and Local Taxes (\$millions)	\$7.5	\$14.0	\$21.5

2,287 jobs are generated in Washington and British Columbia by PWWA member whale watching tours. Of the 2,287 jobs generated, 1,122 direct jobs are directly held by employees of PWWA member companies (captains, crew, naturalists, and shoreside staff), workers involved in ship repair and maintenance, and employees within the visitor industry.

In total, \$128.2 (CA\$173) million of personal income is supported by PWWA tourism in Washington and British Columbia.

PWWA tourism supports \$152.1 (CA\$205.3) million of sales revenue from whale watching excursions, expenditures on ship repair and maintenance, and visitor industry activity in Washington and British Columbia.

As a result of this whale watching activity, a total of \$21.5 (CA\$29.0) million of provincial, state, and local tax revenue is generated.

The total economic value to the region is measured at \$216.9 (CA\$292.8) million. This consists of the direct business revenue of \$152.1 (CA\$205.3) million and the re-spending and local consumption impact of \$64.8 (CA\$87.5) million.

Appendix – Exhibits in Canadian Dollars (CAD)

Below are Exhibits II, IV, and VI with values expressed in Canadian dollars (CAD).

Exhibit II
Customer Characteristics (Canadian Dollars)

	Average Length of Stay (Nights)	Average Expenditure Per Person Per Day (CAD)
British Columbia	3.8	\$316.28
Washington	3.6	\$344.28

Exhibit IV
British Columbia PWWA Vessel Expenditures (Canadian Dollars)

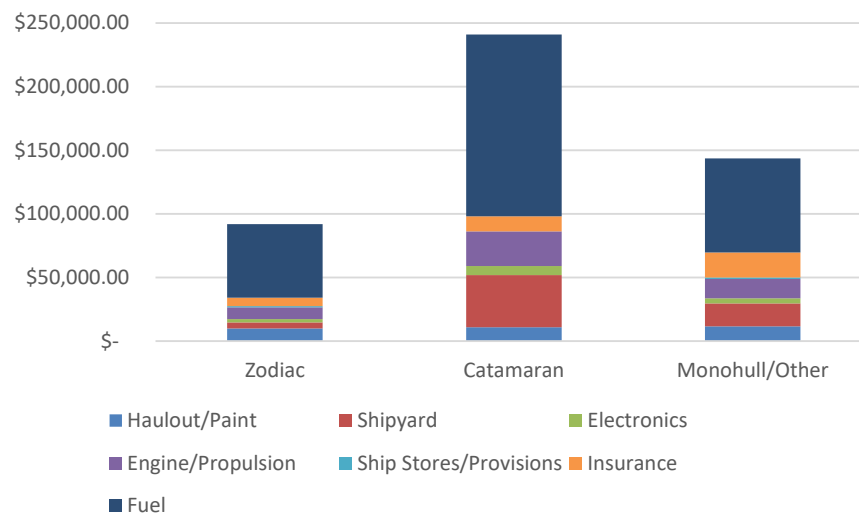


Exhibit VI
PWWA Jobs, Income, and Revenue Impacts (Canadian Dollars)

	WA – USA IMPACTS	BC – CANADA IMPACTS	TOTAL IMPACTS
Jobs			
Direct	529	593	1,122
Induced	315	271	586
Indirect	<u>281</u>	<u>299</u>	<u>580</u>
Total Jobs	1,125	1,162	2,287
Personal Income (\$millions)			
Direct	\$25.6	\$26.0	\$51.5
Induced	\$52.3	\$35.2	\$87.5
Indirect	<u>\$16.4</u>	<u>\$17.6</u>	<u>\$34.0</u>
Total	\$94.3	\$78.8	\$173.0
Business Revenue (\$millions)	\$108.4	\$96.9	\$205.3
Local Purchases (\$millions)	\$31.8	\$33.8	\$65.7
State, Provincial, and Local Taxes (\$millions)	\$10.1	\$18.9	\$29.0