

## Supplementary Materials

**Table S1.** Input variables and derivation of total revenue in each ocean-based sector.

Sector	Variables for Calculating Revenue	Calculation	Data Source	Reference
Living Sector				
Marine recreation and tourism				
Whale watching	No. of participants ( $p$ )	$P * e$	Tourism statistics, independent surveys	[1]
	Expenditure/participant (\$/person) ( $e$ )		Independent surveys	[1]
Ocean-side activities	No. of tourist arrivals ( $ta$ )	$ta * s * te$	BC Stats tourism statistics	[2]
	% of tourists motivated by 'sea' ( $s$ )		Proxy indicator from independent surveys	
	Expenditure/tourist (\$/person) ( $te$ )		Provincial tourism statistics/ technical reports	[3]
Beachactivities (locals)	BC residents in coastal area >15 years of age ( $ca$ )	$ca * b * be$	BC Stats population statistics	[4]
	Participation rate (%) in beach activities ( $b$ )		Independent survey	[5]
	Average expenditure/ participant (\$/person/day) ( $be$ )		Author's estimate	
Kayaking (self-guided, locals)	BC residents in coastal area >15 years of age ( $ca$ )	$ca * k * ke * d$	BC Stats population statistics	[4]
	Participation rate (%) in kayaking ( $k$ )		Independent survey	[6]
	Average expenditure/ participant (\$/person/day) ( $ke$ )		Independent survey	[6]
	Number of days/year of kayaking ( $d$ )		Independent survey	[6]
Recreational fishing	Recreational catch (tonnes) ( $rc$ )	$rc * ae$	Sea Around Us catch database	
	Angling expenditure (\$/tonne) ( $ae$ )			[11]
Capture fisheries	Fisheries catch (tonnes) ( $f$ )	$f * pr$	Sea Around Us catch database	
	Fish price (\$/tonne) ( $pr$ )		Ex-vessel price database	
Seafood processing	Landed value (\$) ( $lv$ )	$lv * (1+va)$	Sea Around Us catch database	
	Processing value added (%) ( $va$ )		Independent surveys	[12,13]
Non-Living Sector				
Marine transport				
Marine shipping	Total cargo handled (tonnes) ( $cg$ )	$cg * fte$	Port statistics	[9,14]
	FTE/tonnage (no. of jobs/tonne) ( $fte$ )		Independent surveys	[9]
Freight and passenger transport	BC Ferries revenue		Independent surveys	[16]
Support services	Extracted from Statistics Canada		Statistics Canada	[15]

Cruise lines	Annual # of cruise vessels ( <i>cr</i> )	$(cr * ve) + (pa * dmp * spa) + (cw * dmc * scw)$	Port statistics	[7,8]
	Avg vessel expenditure ( <i>ve</i> )		Independent survey	[9]
	Annual passenger arrivals ( <i>pa</i> )		Provincial tourism statistics	[7]
	Annual # of crew ( <i>cw</i> )		Independent surveys	[8]
	% of passengers that disembark ( <i>dmp</i> )		Independent surveys	[8]
	% of crew that disembark ( <i>dmc</i> )		Independent surveys	[8]
	Avg spending/passenger (\$/person) ( <i>spa</i> )		Independent surveys	[10]
	Avg spending/crew (\$/person) ( <i>scw</i> )		Independent surveys	[10]

Table S2. Range of variance used to derive GDP from total revenue in ocean sectors.

Method		Variance Low	Variance High	Year	Source
Living sector					
Marine recreation and tourism	Annually reported GDP divided by Revenue in the BC tourism sector	0.487–0.529	0.529	2006–2014	[17]
Seafood processing	Manufacturing value added/Total revenue.	0.3	0.37	2004–2015	[18]
Capture Fisheries	GDP to output ratio	0.42	0.893	2009 (halibut)	[19]
Recreational fishing	GDP to expenditure ratio. Expenditure derived from DFO recreational fishing surveys [20]; GDP generated from Statistics Canada interprovincial input–output model	0.23	0.44	2006 (high), 2012 (low)	[20]
Non-living sector					
Cruise lines	Annually reported GDP divided by Revenue in the BC tourism sector	0.487–0.529	0.529	2006–2014	[17]
Marine shipping	Port of Metro Vancouver expenses to operating cost ratio	0.38		2015	[9]
Marine support services	British Columbia input–output model	na	na		

**Table S3.** Input–output multipliers.

SM 3A. Ocean sectors matched to Statistics Canada industries for input-output multiplier values.						
<u>Ocean sector</u>		<u>Statistics Canada Industry</u>				
Capture fisheries		Fishing, hunting and trapping				
Marine recreation and tourism		Tourism (derived from other data sources)				
Marine shipping		Support activities for transportation				
Marine support services		Water transportation				
Seafood processing		Fruit and vegetable preserving and specialty food manufacturing (direct); Seafood product preparation and packaging (indirect and induced)				
SM 3B. Direct, indirect and induced multipliers used to calculate economic impact of ocean sectors.						
		Fruit and Vegetable Mfg	Seafood Product Preparation and Packaging	Support Activities for Transportation	Tourism	Water Transportation
Direct	Output	1.00	x	1.00	1.00	1.00
	GDP basic price	0.13	x	0.50	0.50	0.50
	Labour income	0.09	x	0.38	0.38	0.38
	Jobs	1.37	x	6.31	16.31	6.31
Indirect	Output	1.48	1.58	1.43	1.52	1.64
	GDP basic price	0.33	0.56	0.73	0.50	0.69
	Labour income	0.22	0.36	0.53	0.46	0.45
	Jobs	3.98	9.49	9.09	21.50	6.90
Induced	Output	1.63	1.81	1.79	1.30	1.96
	GDP basic price	0.42	0.72	0.97	0.33	0.90
	Labour income	0.26	0.43	0.62	0.27	0.54
	Jobs	4.84	10.89	11.17	19.13	8.76

**Table S4.** Comparison of economic indicators.

<b>Values of Economic Indicators (Total Revenue, GDP, Labour Income, Employment) from Previous Studies.</b>					
<b>Sector</b>	<b>Variable</b>	<b>Value (\$'000 000)</b>	<b>Year</b>	<b>Coverage</b>	<b>Source</b>
Ocean recreation	Total revenues/expenditures	3791	2005	BC	[21]
Ocean transport	Total revenues/expenditures	3330	2005	BC	[21]
Seafood	Total revenues/expenditures	1380	2005	BC	[21]
Marine construction	Total revenues/expenditures	216	2005	BC	[21]
Ocean	Revenues	11,600	2005	BC	[21]
Ocean	GDP	5700	2005	BC	[21]
Ocean	Labour income (i.e., wages and benefits)	4200	2005	BC	[21]
Ocean	employment (person years)	84,400	2005	BC	[21]
Seafood-capture	GDP	570	2005	BC	[21]
Seafood-capture	Sales value	910	2005	BC	[21]
Seafood-capture	Labour income (i.e., wages and benefits)	320	2005	BC	[21]
Seafood-capture	Employment (person years)	84,400	2005	BC	[21]
Seafood processing	Employment	4826 jobs	2011	BC	[22]
Seafood processing	Employment	2400 jobs	2013	BC	[23]
Total maritime sector	GDP (direct)	17,685	2006	Canada	[20]
Total maritime sector	Employment	171,365 FTE	2006	Canada	[20]
Sea kayak	Total gross revenue from 114 companies	14.26	2005	BC	[1]
Sea kayak	Total annual revenue of survey respondents	4.7–8.5	2015	Salish Sea	[1]
Sea kayak	Full time employee per company	3.2–5.7 FTE	2015	BC	[1]
Sea kayak	Full time employee per company	3–4.6 FTE	2015	Salish Sea	[1]
Sea kayak	Average of 86–129 full-time jobs in 29 companies	4.7–8.5	2015	Salish Sea	[1]
Whale watching	Revenue	69	1998	BC	[1]
Sportfishing (Saltwater)	Employment	4235 jobs	2005	BC	[24]
Sportfishing (Saltwater) *	GDP	136.4	2005	BC	[24]
Cruise	Direct expenditures	49	2012	Victoria	[10]
Cruise	Number of full and part-time employees	368	2012	Victoria	[10]
Cruise	Wages	13.6	2012	Victoria	[10]
Ports and shipping	Number of full-time employees	87,700 FTEs	2016	BC	[9]
Ports and shipping	GDP	9210	2016	BC	[9]

\* Saltwater component estimated as 55% of total sportfishing GDP, based on saltwater proportion of sportfishing employment.

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