

Nova Scotia Aquaculture Review Board

IN THE MATTER OF: Applications made by KELLY COVE SALMON LTD. for a BOUNDARY AMENDMENT and TWO NEW MARINE FINFISH AQUACULTURE LICENSES and LEASES for the cultivation of ATLANTIC SALMON (Salmo salar) – AQ#1205x, AQ#1432, AQ#1433 in LIVERPOOL BAY, QUEENS COUNTY.

Affidavit of Chris Milley

I affirm and give evidence as follows:

- 1. I am a marine resource manager and a proposed expert witness in this matter at the request of Jamie Simpson, counsel for the intervenor Group of 22 Fishermen of Liverpool Bay.
2. I have personal knowledge of the evidence affirmed in this affidavit except where otherwise stated to be based on information and belief.
3. I state, in this affidavit, the source of any information that is not based on my own personal knowledge, and I state my belief of the source.
4. At the request of Jamie Simpson I prepared a report on the potential impacts of the proposed salmon aquaculture sites in Liverpool Bay on the local lobster fishing industry in this area. This report is attached as Exhibit "A".
5. My curriculum vitae is attached as Exhibit "B".
6. This affidavit and the information provided in Exhibit "A" is provided to the Board as my objective, expert information and opinion for the assistance of the Board.
7. I am willing to testify in front of the Board at the hearing of this matter and comply with the directions of the Board as and if requested.
8. In all aspects in respect of this matter I act as an independent expert. I will inform each party of any change in my information on this matter or any new material fact that comes to my attention as soon as possible after a change in my information or my becoming aware of the new fact.

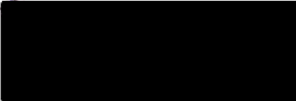
Affirmed before me, 19th January, 2024 )
at Halifax, Nova Scotia )

[Redacted signature line]

JAMES I. SIMPSON
A Barrister of the Supreme
Court of Nova Scotia


[Redacted signature line]
Chris Milley

This is Exhibit "A" referred to in the  
affidavit of Chris Milley  
Sworn/affirmed before me on this 19  
day of January 20<sup>24</sup>.



JAMES I. SIMPSON  
A Barrister of the Supreme  
Court of Nova Scotia





# Economic Profile of the Liverpool Bay Inshore Lobster Fishery

Prepared for: Juniper Law

January 2024



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## EXECUTIVE SUMMARY

The Liverpool Bay Lobster Fishery is a vital part of the community's culture and economy. Lobster fishermen are an integral part of the social fabric of the communities in the area, embodying the South Shore tradition of resilience and connection to the sea.

The lobster fishery has provided significant employment and income to families directly involved in harvesting and indirectly along the fishery value chain. There have been further indirect benefits to industries that support the fishery by providing goods and services to the fishery operations and families that derive their income from the fishery. A total of 8,602 lobster licences were issued (not all are active) in the Atlantic Region in 2022, and the 3,199 in Nova Scotia represent 37% of the total number of licences. On average, Nova Scotia licence holders land more than their counterparts in other provinces since Nova Scotia accounts for 46% of the volume and 49% of the value in the region.

Liverpool Bay is located in LFA 33, which has a total of 683 license holders. The productive lobster grounds within and directly adjacent to Liverpool Bay produce higher than average catches than the other nearby grounds along the coast, providing most of the catch for Liverpool Bay license holders. The value of landings in this location is estimated at \$4.2 million in direct output. The following table shows the economic benefits of LFA 33 sub-area 310, which includes the waters in and near Liverpool Bay, as a proportion of the LFA 33 economic benefits according to the share of landings.

*(Copy of Table 10) Total Economic Impacts of Area 310 Lobster Harvesting and Processing, 2022*

	Direct	Indirect	Induced	Province	Canada
Output (000s)	\$8,353	\$5,054	\$1,537	\$14,943	\$20,757
GDP (000s)	\$3,189	\$2,623	\$986	\$6,798	\$8,253
Income (000s)	\$1,671	\$1,395	\$409	\$3,475	\$4,845
Jobs (FTE)	29	25	10	63	86
Prov taxes (000s)	\$212	\$218	\$225	\$655	
Fed taxes (000s)	\$238	\$170	\$121	\$528	\$678

Source: Statistics Canada Inter-Provincial Input-Output Model, 2020 Version.

It is important to recognize the increased economic significance of the lobster fishery given this industry's coastal and rural locations. Unlike urban areas, the fishery supports employment with above-average incomes in rural coastal communities. This is particularly important where there are limited opportunities for equivalent replacements of employment. Accordingly, this area's lobster fishery is essential to the overall performance of LFA 33's and the overall economic well-being of the community.

The economic performance of the lobster fishery is subject to economic influences and disruption beyond the control of the fishery participants. These influences include the global pandemic, climate change impacts (changing water temperature, increased storm events, etc.), geopolitical disruption of trade and changing trade relationships, changing currency exchange rates, inflation and rising fuel costs. These matters can also influence youth willingness to enter the industry across Nova Scotia. A healthy lobster fishery depends on the intergenerational transfer of licences for the continued operation of this culturally and socially important fishery, which is already a concern amongst the industry participants. Potential

economic impacts resulting from changes in the use of marine spaces in the Liverpool Bay area could further discourage new participants from joining the fishery in the area.

Not to overstate the potential impact of the Kelly Cove Project, expansion of the aquaculture operations may have significant risks of detrimental effects on the economic condition of the Liverpool Bay lobster fishery. These effects are both short-term, due to loss of lobster harvest revenue (potential loss of harvest area and increased transit costs) and long-term, as a result of undermining public confidence in the lobster that can lead to the decreased intergenerational transfer of employment in the fishery. These effects can further undermine the community's long-term economic sustainability. Additionally, It is understood that the expansion of the Kelly Cove Aquaculture operations in Liverpool Bay will not generate new employment in the area, and revenues from the Project will likely be accrued primarily to interests outside the Liverpool area. Accordingly, due consideration should be given to the economic interests of the lobster fishery as part of the application review.



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## 1. HISTORICAL OVERVIEW OF THE LOBSTER FISHERY

The Nova Scotian lobster fishery has a rich and complex history and is deeply intertwined with the social and economic fabric of coastal communities throughout the province. Understanding this history provides insight into lobster resource's social and economic importance to the well-being of coastal communities, such as Liverpool.

### 1.1 Regional Overview

In its early days, and building on the traditional Mi'kmaw fishery, the lobster fishery consisted of small-scale operations wherein the fishermen made their traps and gear. During this time, the lobster fishery was not capital intensive since catch was sold directly at the landing point, and little infrastructure was required. This is unlike the region's cod fishery, which required salting and drying facilities. The lobster fishery was known to be a small-boat, small-scale, seasonal activity that was used to augment fishermen's incomes.

In the early 1800s, lobster was less valued than the more lucrative groundfish species. Sales of lobster, which are highly perishable, were limited to local markets for local consumption. Transportation networks that could safely move lobster to regional and international markets did not exist. The introduction of canneries in the latter part of the century revolutionized the fishery. It allowed for the safe export of lobster to international markets, most notably the United States.

Growth and expansion of the fishery continued between the late 1800s and the mid-1900s with the introduction of technological advances such as refrigeration, trap type and materials (nylon vs cotton twine), internal combustion engines, larger vessel designs, and mechanical haulers. In response to the increasing fishing pressure on the stocks, the Government of Canada began to impose regulations, including size limits, closed seasons, and a ban on harvesting egg-bearing lobsters, to promote the longevity of the fishery. The 1898 Royal Commission established the first Lobster Fishing Districts under E.E. Prince. As a result of these changes, the lobster fishery emerged as a vital part of the local economy, providing significant income for coastal communities throughout Atlantic Canada. By the mid-20<sup>th</sup> century, signs of overfishing began to emerge, as demonstrated by declining harvests and smaller lobsters being caught. Accordingly, stricter regulations were introduced, including limited entry licencing, trap limits and more stringent size limits to protect juvenile lobsters.

In 1934, the Lobster Fishing Districts were further divided into 17 fishing areas with additional regulations that prevented a fisher from fishing in more than one district. Subsequent regulatory changes in 1984 established the current Lobster Fishing Areas (LFAs). Currently, licences that provide access to a single specified LFA are issued to harvesters. The inshore fishing areas in Nova Scotia consist of LFAs 27 through 38. In 1976, the 'moonlighter' policy was introduced to remove harvesters who were not dependent on the fishery for their primary source of income. As a result, three categories of licences were created:

- Category A licences for those fully dependent on the fishery;
- Category B for those not fully dependent but with a historical attachment to the lobster fishery since 1968; and
- Category C licences that had little or no dependency and which expired in 2 years.

The following provides an overview of the issued licences in LFA 33 as of December 2018:

- Category A: 634 Licences
- Category B: 28 Licences

- Communal Commercial: 21 Licences
- Total: 683 Licences

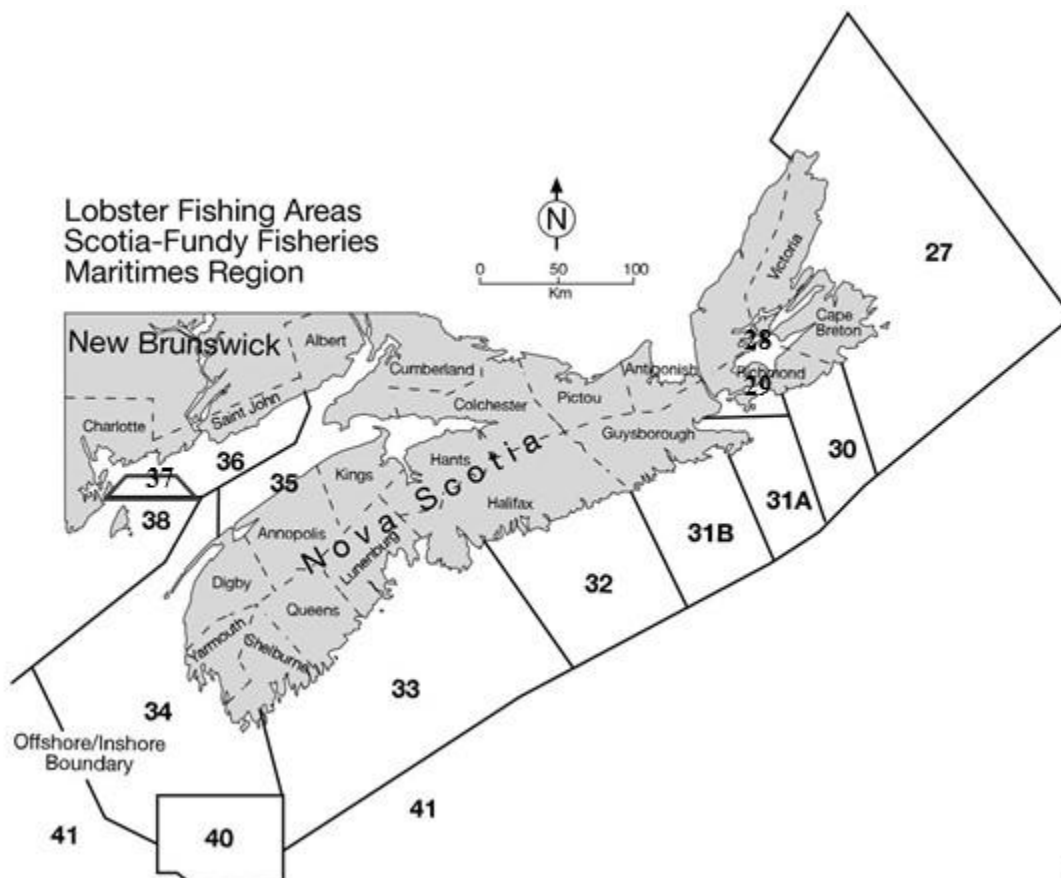


Figure 1: Lobster Fishing Areas Scotia-Fundy Fisheries Maritimes Region Source: DFO 2024

Between 1978 and 1981, the Department of Fisheries and Oceans implemented a lobster licence buy-back program to reduce the number of participants in the lobster fishery. During this time, approximately 1500 Atlantic Lobster licenses were retired in Nova Scotia (1406) and southwest New Brunswick (170)<sup>1</sup>. The subsequent Atlantic Lobster Sustainability Measures Program (2009) resulted in further lobster license retirements with the associated reduction in effort (trap reductions). By decreasing the total number of traps in use, the program aimed to improve the sustainability of the fishery by reducing harvesting impacts on lobster populations. These plans included measures to maintain and enhance lobster stocks, improve fishing practices, and strengthen monitoring and participatory research. The program involved collaboration between the government, fishing communities, and other stakeholders. This collaborative approach was essential for addressing the complex challenges of lobster fishery sustainability. Accordingly, fishermen and fishing organizations in Nova Scotia were encouraged to continue to develop and implement conservation and sustainability plans.

<sup>1</sup> Source: <https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/maritimes/2019/inshore-lobster-eng.html>



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## 1.2 Liverpool Bay Overview

Liverpool's location on the South Shore of Nova Scotia has a longstanding and significant relationship with the fishing industry, which has shaped its economy, culture, and identity for centuries. Liverpool's coastal location and safe harbour facilitated easy access to the region's abundant fishing grounds. This was apparent in the presence of the Mi'kmaq, who commonly fished in the area and along the Mersey River before European arrival. Their knowledge and techniques were passed on to the early settlers and formed the foundation of the local fishing industry.

After the arrival of European settlers, the fishing industry began to evolve in the Liverpool area, which tapped into the rich groundfish stocks, particularly cod, haddock, and halibut. Development of the fishing industry included processing and shipping, where Liverpool was an important local hub for these activities.

The 19th and early 20th centuries saw further growth. Liverpool's location proved advantageous for transatlantic trade, and its fish products were exported to the Caribbean, South America, and Europe. The town also saw the development of related industries, such as shipbuilding, which was partly driven by the need for fishing vessels. The lobster fishery in the Liverpool Bay area is characterized by its small-scale, community-based operations. Local fishermen, often from families that have been in the industry for generations, own and operate small but costly vessels following fishing practices that have remained largely unchanged over the years. These fishermen are an integral part of the social fabric of the communities in the area, embodying the South Shore tradition of resilience and connection to the sea. The culture of Liverpool remains deeply intertwined with the ocean, as evidenced by the many festivals, museums, and community events that celebrate the town's maritime heritage. The Queens County Museum, for instance, provides insights into the history of fishing in the area, while local culinary traditions continue to be influenced by the bounty of the sea. These events are rooted in the lobster fishery, connecting the tourism economy with that of the lobster fishery.

Today, sustainability is a key focus of the South Shore lobster fishery. Fishermen have been actively involved with the development and adoption of regulations to ensure the long-term health of lobster populations, including changes in carapace size limits, review and adjustment of fishing seasons (to protect the economic and biological viability of the fishery), and mandating the use of biodegradable elements in lobster traps to prevent ghost fishing. Fishermen's efforts to work with DFO reflect an understanding and awareness of the need to balance economic activity with environmental stewardship.

The lobster fishery along Nova Scotia's South Shore, particularly in towns like Liverpool, is a testament to the region's rich maritime heritage and enduring relationship with the Atlantic Ocean. The lobster fishery, deeply rooted in local culture and economy, is a significant contributor to the province's revenue and a symbol of the community's resilience and adaptation to changing times. Understanding the shifts and trends in Nova Scotia's fishing industry and the focus on sustainability and conservation to ensure the long-term viability of marine resources highlights the importance of the lobster fishery within public decision-making regarding social, economic and environmental impact assessment of marine resource development initiatives.

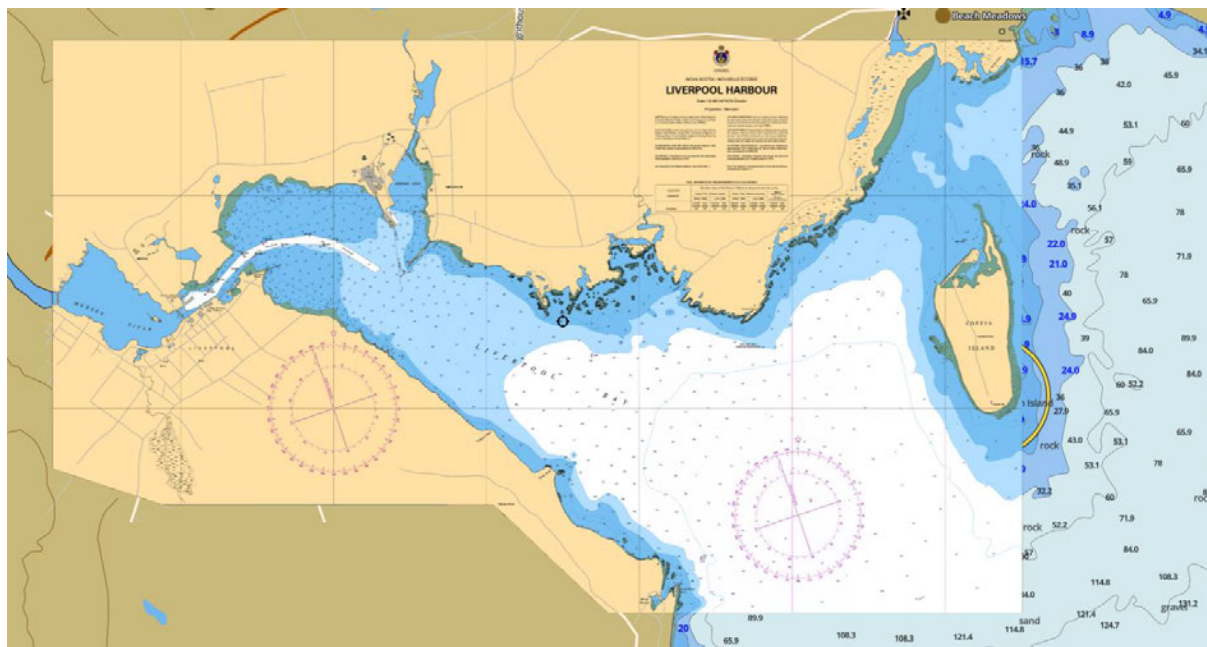


Figure 2: Nautical Chart of Liverpool Bay. Source: [https://www.gpsnauticalcharts.com/main/ca4379\\_1-liverpool-harbour-nautical-chart.html](https://www.gpsnauticalcharts.com/main/ca4379_1-liverpool-harbour-nautical-chart.html)

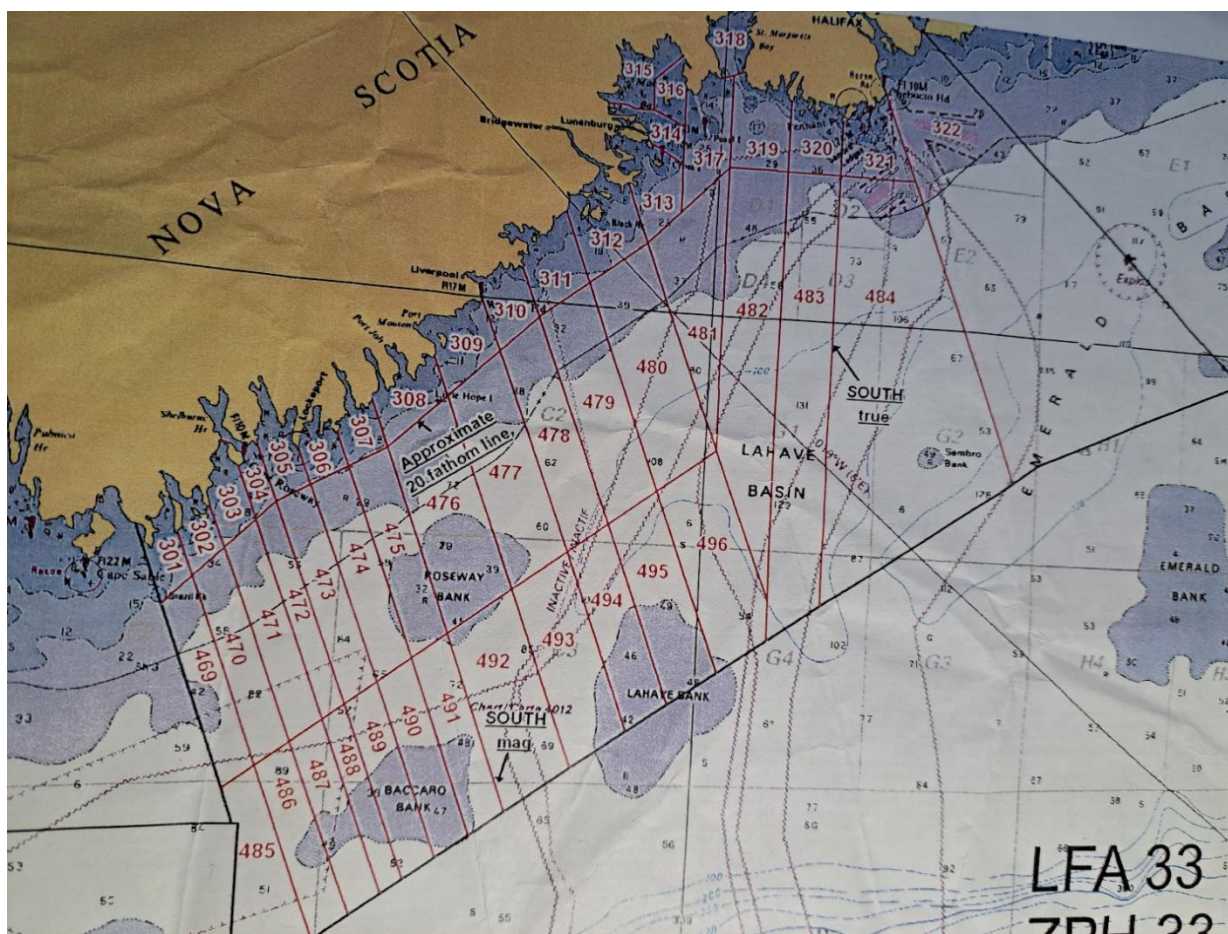


Figure 3: LFA 33 Grid Map to report catches from logbooks.

## 2. ECONOMIC PROFILE

### 2.1 Economic Overview of Regional Lobster Fishery

At just over \$1.0 billion in landed lobster value in 2021 (Table 1), Nova Scotia accounts for nearly half (49%) of the total landed value in the federal Department of Fisheries and Oceans (DFO) Atlantic Region that includes Quebec and the four Atlantic provinces. This is due to Nova Scotia landing nearly half (46%) of the lobster volume (metric tonnes), as well as the higher average prices for Nova Scotia lobster (\$20.97 per kg) than the other provinces. Lobster landings represent nearly half (48%) of the landed value for all commercial fishery species in the region.

Lobster landings are a primary driver of local economies throughout the region. These revenues for harvesters support healthy earnings (salaries and wages) for those participating in the fishery and cover substantial expenses for fishing operations that support an extensive local supply chain involving many other businesses in Nova Scotia.

Table 1 DFO Atlantic Region Commercial Lobster Landings by Province, 2021

Province	Volume(mt)	Value (000's)	Avg price \$/kg
Nova Scotia	48,113	\$1,008,789	\$20.97
New Brunswick	22,567	\$420,116	\$18.62
PEI	18,598	\$319,327	\$17.17
Quebec	11,375	\$213,712	\$18.79
NFLD	4,984	\$84,548	\$16.96
<b>Eastern Canada</b>	<b>105,638</b>	<b>\$2,046,492</b>	

Source: Department of Fisheries and Oceans (2023). Zonal Interchange File [database]. Ottawa

There were 8,602 lobster licences issued (not all are active) in the Atlantic Region in 2022, and the 3,199 in Nova Scotia represent 37% of the total (Table 2). This indicates that, on average, Nova Scotia licence holders can land more than their counterparts in other provinces since Nova Scotia accounts for 46% of the volume and 49% of the value in the region. Combining Table 1 and Table 2 data for Nova Scotia also indicates that the average licence holder across the province landed 15.0 metric tonnes of lobster worth \$315,300 in 2021. Lobster licences also represent a significant investment for harvesters, where the investment in the fishery is, on average, over \$900 thousand.

Table 2 DFO Atlantic Region Lobster Licences Issued by Province, 2022

Province	Licences
Nova Scotia	3,199
New Brunswick	1,452
PEI	1,208
Quebec	570
NFLD	2,173
<b>Atlantic Total</b>	<b>8,602</b>

Source: Department of Fisheries and Oceans (2023), Fisheries Management.

Note: Not all issued licences are active each year.

DFO manages Nova Scotia fisheries through two separate Regions: Maritimes region (Atlantic coast) and the Gulf region (Gulf of St. Lawrence). Vessel information is available for all species fisheries in Table 3,



not lobster specifically, and there are a reported 3,905 vessels for Nova Scotia fisheries. Lobster vessels are typically in the under 35-foot and the 35-foot to 45-foot size classes. These are large vessels both in length and width to maximize capacity while meeting fisheries management regulations. Vessels represent another significant investment for harvesters, where costs of vessels can range from \$100 thousand to upwards of \$1 million, not including equipment upgrades and maintenance, which are additional annual investments in these highly capitalized businesses.

Table 3 Nova Scotia Commercial Fishing Vessels by Size Class in all Fisheries, 2022

Region	< 35'	35' - 44'11"	45' - 64'11"	65' - 99'11"	> 100'	Total
Maritimes	1,070	1,500	580	11	25	3,186
Gulf	153	468	94	4	0	719
<b>Total</b>	<b>1,223</b>	<b>1,968</b>	<b>674</b>	<b>15</b>	<b>25</b>	<b>3,905</b>

Source: Department of Fisheries and Oceans (2023), Fisheries Management.

There were 2,784 active Nova Scotia commercial lobster fishing licences in the DFO Maritimes Region (Figure 1) in 2022 (Table 4). The 635 active licences in lobster fishing area 33 (LFA 33) are the second largest, accounting for 23% of the Maritimes Region total, after LFA 34 with 34% of the total. Nearly a quarter of the Maritimes Region lobster fleet operates in LFA 33.

Table 4 Nova Scotia Active Commercial Lobster Fishing Licences by Maritimes Region Lobster Fishing Area (LFA), 2022

LFA	Licences
27	489
28	7
29	53
30	20
31A	68
31B	70
32	146
33	635
34	943
35	73
36	161
38	119
<b>Total</b>	<b>2,784</b>

Source: Department of Fisheries and Oceans (2023), custom tabulation.

The lobster landings in LFA 33 have been relatively stable from 2020 to 2022 (Table 5). Annual average landed volume has been 5,717 metric tonnes with a value of \$124.7 million. Considering the 635 active licence holders, the average landings in 2022 were approximately 8.8 metric tonnes per licence with a value of \$195,500 per licence. These averages per licence are approximately 60% of the averages across the province (15 mt and \$315,300 per licence), suggesting LFA 33 lobster harvesters face somewhat more challenging fishery economics than others in the province. However, as explained in the following section, the Liverpool Bay lobster fishery represents a higher-performing location and, as a result, is of relatively high importance to the overall LFA.



Table 5 Lobster Fishing Area 33 (LFA 33) Commercial Lobster Fishing Landings, 2020-2022

Year	Volume (mt)	Value (000's)	Avg price \$/kg
2020	5,043	\$111,374	\$22.09
2021	6,486	\$138,466	\$21.35
2022	5,621	\$124,146	\$22.09
<b>Average</b>	<b>5,717</b>	<b>\$124,662</b>	<b>\$21.84</b>

Source: Department of Fisheries and Oceans (2023), custom tabulation.

The total value of lobster to the Nova Scotia economy is better reflected in the export values of lobster products (Table 6). Most lobster is shipped live (78%) and frozen (15%); the remaining products include prepared or preserved lobster and lobster in brine. Considering LFA 33 landings represent 13% of the provincial total according to value, and a similar mix of export products is produced, the LFA 33 lobster brings about \$177 million in export value to the province. This is an underestimate since domestic lobster sales are also in Nova Scotia and other provinces. This table also suggests that a minimum of 46% of added-value to landed lobster (i.e. \$1.3 billion in exports from Table 6 divided by \$1.0 billion NS landed value from Table 1) that is created in the value-chain and other businesses depend on the LFA lobster harvest for revenues and employment.

Table 6 Nova Scotia Lobster Export Values and LFA 33 Estimated Exports, 2022

Category	NS (000s)	LFA 33 (000s)
Live Lobster	\$1,021,453	\$137,706
Fresh/ chilled Lobster	\$5,744	\$774
Lobster in Brine	\$42,387	\$5,714
Lobster prepared/preserved	\$44,258	\$5,967
Lobster, nes, Frozen	\$197,474	\$26,622
<b>Total</b>	<b>\$1,311,315</b>	<b>\$176,783</b>

Source: Statistics Canada International Trade Database, 2023.

Note: LFA 33 estimate is based on 13% of provincial lobster landed value.

## 2.2 Economic Overview of LFA 33 and Liverpool Bay Lobster Fishery

A broader suite of economic benefits estimates can be derived from the revenues of harvesting and exporting by using the Statistics Canada economic input-output model. The total harvesting value for LFA 33 (Table 5) corresponds to the direct output value shown in Table 7 below.

The Statistics Canada model uses the direct output number to generate the array of indicators in the rest of the table, including direct, indirect, and induced economic benefits in terms of output (sales), gross domestic product (GDP also known as added value), income (salaries and wages), full-time equivalent (FTE) jobs, provincial and federal taxes.

Focusing on provincial benefits (column 5), the \$124 million in landed value generates \$162 million in provincial sales, \$98 million in added value, 751 FTE jobs, \$8.6 million in taxes generated to the provincial government and \$7.1 million in taxes to the federal government.

Table 7 Economic Impacts of LFA 33 Lobster Harvesting, 2022

	Direct	Indirect	Induced	Province	Canada
Output (000s)	\$124,146	\$19,987	\$17,753	\$161,886	\$206,454
GDP (000s)	\$75,853	\$10,552	\$11,297	\$97,703	\$117,938
Income (000s)	\$31,409	\$7,200	\$4,718	\$43,327	\$54,127
Jobs (FTE)	497	144	110	751	929
Prov taxes (000s)	\$4,929	\$1,044	\$2,618	\$8,591	
Fed taxes (000s)	\$4,837	\$844	\$1,402	\$7,082	\$8,186

Source: Statistics Canada Inter-Provincial Input-Output Model, 2020 Version.

The value of landings in Area 310 within LFA 33 (\$4.2 million in direct output) is used similarly to generate the economic benefits of harvesting in Table 8.

Table 8 Economic Impacts of Area 310 Lobster Harvesting, 2022

	Direct	Indirect	Induced	Province	Canada
Output (000s)	\$4,220	\$679	\$603	\$5,503	\$7,018
GDP (000s)	\$2,578	\$359	\$384	\$3,321	\$4,009
Income (000s)	\$1,068	\$245	\$160	\$1,473	\$1,840
Jobs (FTE)	17	5	4	26	32
Prov taxes (000s)	\$168	\$35	\$89	\$292	
Fed taxes (000s)	\$164	\$29	\$48	\$241	\$278

Source: Statistics Canada Inter-Provincial Input-Output Model, 2020 Version.

In order to represent the full benefits of the harvest along with processing and shipping, the following economic analysis is based on the domestic and international lobster sales. The Statistics Canada Supply and Use Tables (StatsCan Table 15-602-X) indicate that, compared to export value, about 40% more seafood is shipped by Nova Scotia within Canada. The estimated \$176.8 million in exports (Table 6) is, therefore, combined with an estimated \$70.7 million in domestic shipments for a total direct output of \$245.7 million (Table 9).

The total benefits of lobster landed in LFA 33 include an estimated \$439.6 million in output (sales), \$200.0 million in added value (GDP), \$102.2 million in income, 1,854 FTE jobs, \$19 million and \$16 million in tax revenues generated to the provincial and federal governments respectively. As supply chains and spending extend to other provinces, there are additional economic benefits to the rest of Canada (last column).

Table 9 Total Economic Impacts of LFA 33 Lobster Harvesting and Processing, 2022

	Direct	Indirect	Induced	Province	Canada
Output (000s)	\$245,729	\$148,666	\$45,214	\$439,609	\$610,636
GDP (000s)	\$93,819	\$77,159	\$28,996	\$199,974	\$242,780
Income (000s)	\$49,146	\$41,037	\$12,041	\$102,223	\$142,523
Jobs (FTE)	839	734	282	1,854	2,541
Prov taxes (000s)	\$6,231	\$6,410	\$6,618	\$19,259	
Fed taxes (000s)	\$6,989	\$4,990	\$3,546	\$15,525	\$19,942

Source: Statistics Canada Inter-Provincial Input-Output Model, 2020 Version.

The following table shows the economic benefits of Area 310 lobster as a proportion of the LFA 33 economic benefits according to the share of landings. It has been noted that Area 310 provides a significant portion of the landings for Liverpool Bay license holders.

*Table 10 Total Economic Impacts of Area 310 Lobster Harvesting and Processing, 2022*

	Direct	Indirect	Induced	Province	Canada
Output (000s)	\$8,353	\$5,054	\$1,537	\$14,943	\$20,757
GDP (000s)	\$3,189	\$2,623	\$986	\$6,798	\$8,253
Income (000s)	\$1,671	\$1,395	\$409	\$3,475	\$4,845
Jobs (FTE)	29	25	10	63	86
Prov taxes (000s)	\$212	\$218	\$225	\$655	
Fed taxes (000s)	\$238	\$170	\$121	\$528	\$678

Source: Statistics Canada Inter-Provincial Input-Output Model, 2020 Version.

It is important to recognize the increased economic significance of the lobster fishery given this industry's coastal and rural locations. Unlike urban areas, the fishery supports employment with above-average incomes in rural coastal communities. This is particularly important where there are limited opportunities for equivalent replacements.

### 3. DISCUSSION

Over its long history, the inshore lobster fishery has evolved from a moderate economic activity to a major local and regional economic contributor. Yet, the inshore lobster continues to be an important social link between traditional social and economic life across rural Atlantic Canada. This is exemplified in the structure of the owner-operator fishery, where lobster provides a significant part of the economic foundation of an independent, widely distributed inshore fleet across the region. Inshore lobster is a key component of fisheries operations for the region's commercial and communal commercial licence holders.

In addition to the direct economic benefits derived from harvesting, the inshore lobster fishery generates significant direct economic benefits across the region in the post-harvest value chain activities such as product handling and packing, transportation, processing, marketing, and exporting. Further indirect economic benefits are derived through investment in support industries, such as vessel construction and maintenance, gear manufacture and maintenance, and fuel, storage and bait supply. Many of these support industry operations are local and dependent on a healthy local lobster fishery. As a result, the lobster fishery generates significant induced economic benefits in the region as employment incomes and fishing business profits are spent and invested locally.

In most recent statistics compiled by Fisheries and Oceans Canada (DFO), the Atlantic lobster fishery consists of 2,784 licenses, which is considered to generate direct fishing employment for approximately 7,500 people, which provides significant economic benefits to coastal communities throughout the region, including Indigenous communities. Canadian lobster exports reached a record \$3.26 billion in 2021, which marked a significant increase of over 25% from the previous record of \$2.59 billion in 2019. This rebound is attributed to post-Covid demand for lobster. Sixty-one percent (61%) of these earnings were derived from landings in 300 communities across the Maritimes Region. This illustrates the distributive nature of the lobster industry that provides revenues and profits for licence holders and wages for crew across coastal communities throughout the region.

The economic performance of the lobster fishery is closely tied to global market conditions, the exchange value of the Canadian dollar, fuel price stability, and, increasingly, the global competition for bait species. For example, landings increased during the 2008-09 to 2012-13 period that followed the aftermath of a worldwide financial crisis, which saw several years of lower-than-average prices due to increased supply, a weak market, and a strong Canadian dollar. By 2014-15, the market improved, while the Canadian dollar weakened against the US dollar, thus leading to increasing average landed prices and revenues to lobster licence holders in alignment with the historically high landings levels<sup>2</sup>. Since 2020, the average price of lobster has been \$21.84/kg (\$9.91/lbs), and as a result, the value of the average annual landings from 635 licences in LFA 33 over the past three years (5,716 tonnes) was approximately \$125 million. Of this regional revenue, the average landings for the 37 licence holders in the Liverpool Bay area generate approximately \$7.3 million within the local economy. This is more than six times larger than the contribution of the agriculture sector (crop, livestock and Christmas tree farming) to Queens County<sup>3</sup>.

Furthermore, the economic contribution of the lobster fishery in the Liverpool area has become a critical factor for the well-being and economic resilience of the municipality since the closure of the Mersey Bowater Plant.

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<sup>2</sup> Source: <https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/maritimes/2019/inshore-lobster-eng.html>

<sup>3</sup> [nsfa-fane.ca/wp-content/uploads/2017/07/Statistical-Profile-of-Queens-County.pdf](https://nsfa-fane.ca/wp-content/uploads/2017/07/Statistical-Profile-of-Queens-County.pdf)



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*The closure of the Bowater Mersey paper mill in Liverpool, Nova Scotia, had a substantial economic impact on the community. The mill had been a central economic pillar on the South Shore, providing significant employment opportunities. Its shutdown resulted in the loss of over 300 jobs at the mill itself, with an additional impact on 1,700 employees at three other branches of the company, including the Brooklyn Power Corporation, Oakhill sawmill, and woodlot operations.*

*The closure of the mill led to a decrease in local business activity. For instance, businesses that were indirectly reliant on the mill, such as a convenience store in North Queens, suffered due to the reduced flow of truck drivers carrying logs and other related traffic. Local services such as autobody shops also experienced their worst years in business following the mill's shutdown.*

*The increase in unemployment also led to a rise in the use of local support services, such as food banks, indicating a wider economic strain on the community. This was despite some cushioning from severance packages and unemployment benefits for those directly affected by the closure.*

*Several initiatives have been undertaken to advance economic growth and increase employment in the Municipality. These efforts have included redevelopment of the Bowater facility area, and enhancement of new business development opportunities and involved considerable public consultation to ensure new initiatives were acceptable to the community and would not undermine ongoing economic activities.*

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The economic benefits of the lobster fishery are most often reported at the provincial level. As a result, the direct and indirect benefits of the lobster fishery are viewed through a provincial lens. This connotes an industry that is evenly distributed along the coast and one that can easily migrate activity from one location in the LFA to another<sup>4</sup>, with the implication that the overall health of the fishery will not be affected by local changes. However, as Figure 4 illustrates, different harvesting locations in the LFA contribute differently to the fishery's economic performance depending on specific local environmental conditions. Accordingly, activities that impact the potential harvest of lobster in prime areas can significantly impact the local economy and overall economic performance of the provincial fishery.

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<sup>4</sup> Lobster fishermen must reside in the LFA for which they are licensed and cannot fish for lobsters outside their LFA.

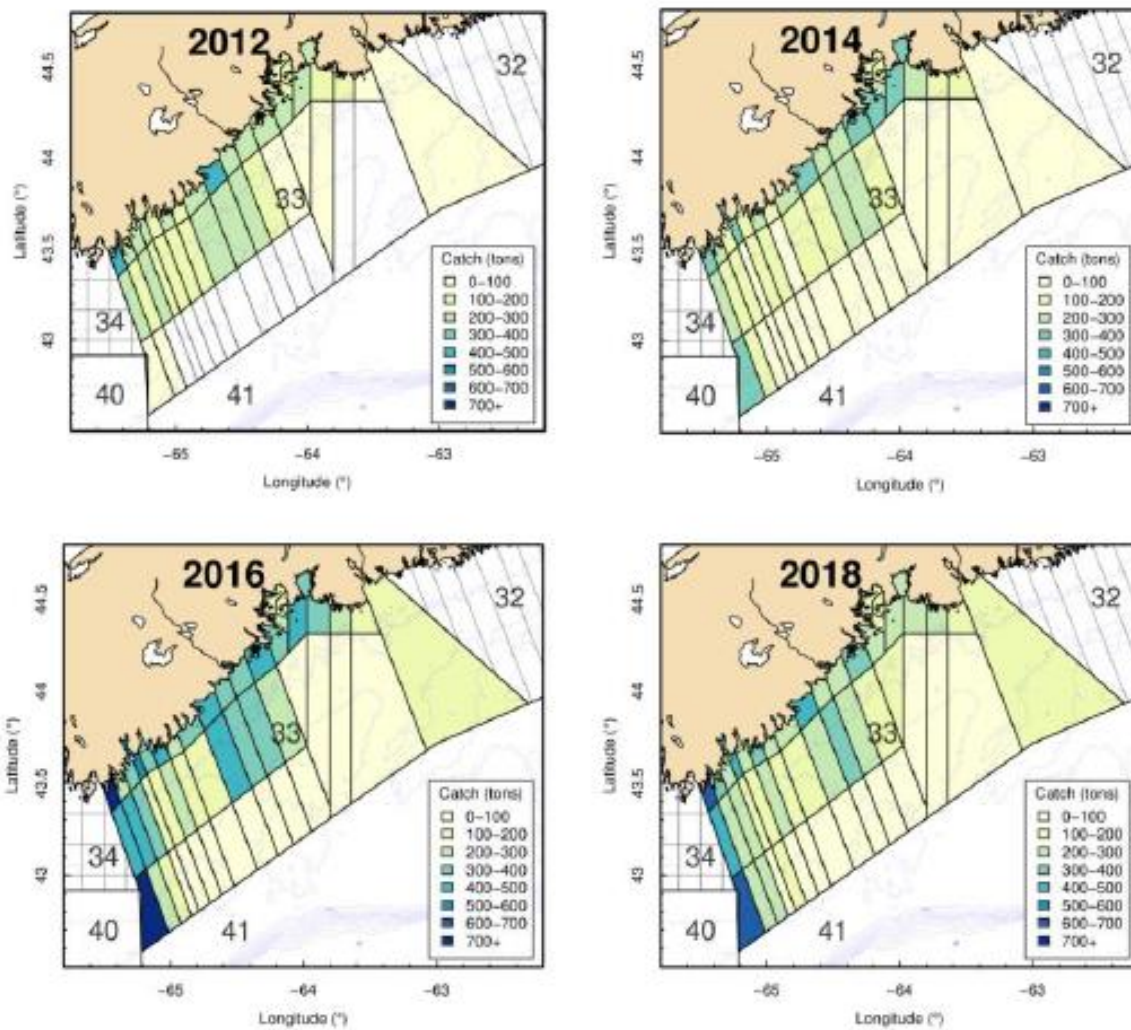


Figure 4: Map of fishery footprint expressed as the amount of landings in each grid of LFA 33 for selected seasons between 2012-2018 (Source: DFO. 2020. Assessment of Lobster (*Homarus americanus*) in Lobster Fishing Area 33 for 2018. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/002).

Decisions regarding uses of marine space that compromise the economic performance of the local lobster fishery may have unforeseen economic impacts. Reduced landings or displacing lobster fishermen from traditional fishing grounds can result in increased costs that may result in earnings less than the costs of fishing (including loan payments, fuel expenses, bait expenses, maintenance, and wages). In addition to the increased transit times to fish in alternative areas, there is a potential for conflict with other fishermen who may already be active in these areas. This conflict may undermine the perception of the viability of the fishery for new entrance, thus discouraging new participants from joining the fishery. A healthy lobster fishery depends on the intergenerational transfer of licences for the continued operation of this culturally and socially important fishery. Intergenerational transfer of lobster licences to younger generations is already a concern amongst the industry participants. Public perceptions of fluctuating market prices, trade disputes, and climate change effects on the fishery have exacerbated confidence in the fishery, and many youth have migrated out of the region for employment.

Furthermore, changing regulations in market countries can result in an unanticipated impact on the economic viability of fishing enterprises. The recent US decision to increase the minimum carapace size

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by 2mm yearly for the next two consecutive years exemplifies this situation. The US decision could result in a decrease of 15% in the marketable harvest in the short term.

Many factors that affect the meta or long-term stability of the fishery are principally matters that can be mitigated by including lobster fishermen in decision-making processes. Furthermore, effective lobster fishermen's participation in local marine spatial planning activities enables full consideration of the need to consider the economic stability and contribution of the industry to the local economy.

## 4. COMMENT AND CONCLUSION

The Kelly Cove Salmon Ltd. (KCS) Application Package, as posted at <https://arb.novascotia.ca/hearings/upcoming-public-hearing-applications-kelly-cove-salmon-ltd-liverpool-bay-queens-county> was reviewed with due consideration to the potential economic impact on the lobster fishery in Liverpool Bay and area.

It was noted that during public consultation sessions, comments offered from stakeholders regarding their concern about the potential adverse economic and social effects of the Project on the lobster fishery were dismissed without evidence, except with reference to anecdotal information that negative impacts did not occur in other sites in the Atlantic Region. Additionally, proponent responses implied that lobster fishermen should provide evidence that negative impacts may occur. Further, there is no evidence in the Application package that due diligence was taken to determine the potential economic impacts of the Project on the local lobster fishery or any other marine use activities in the area. This is contrary to the principles of impact assessment and the application process.

It was also noted that the information provided on the lobster fishery is somewhat outdated (2017) and, therefore, does not give due consideration to the more recent economic impacts of global events on the lobster fishery. This fishery has been significantly affected by the global pandemic, climate change impacts (changing water temperature, increased storm events, etc.), geopolitical disruption of trade and changing trade relationships, changing currency exchange rates, inflation and rising fuel costs. The recent announcement of carapace size increases in the US market highlights the multiple factors that can impact the economic performance of the fishery. Compounding these issues with uncertainty about the Project's economic impact should be avoided.

Considering the significant economic importance of the lobster fishery to the fishing families, supporting enterprises and the community as a whole, the onus should be on the Proponent to conduct a complete social and economic impact assessment of the Project. An economic loss in the lobster fishery should not accompany the proposed benefit of expanding Kelly Cove Salmon operations in Liverpool Bay.

An assessment should clarify potential direct economic impacts and mitigation measures to address these impacts. This assessment should examine and provide evidence of the effects of shifting transit routes to fishing grounds (increased fuel consumption), loss of fishing grounds, and effects on youth entry into the lobster fishery. Possible mitigation measures should be provided where assessment identifies potential economic impacts.

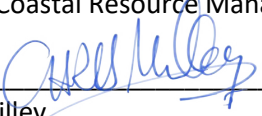
The assessment should build confidence in the community that the Project will not create a situation of winners and losers that will undermine the growth of a sustainable economy in the Liverpool Bay area.

Being dismissive of the lobster fishermen's economic concerns exacerbates the existing uncertainties regarding youth employment opportunities. Without sufficient confidence in the fishery, youth withdrawal can result in a loss of intergenerational employment that can significantly impact the economic viability and sustainability of the industry, affecting not only the fishermen and their families but also the broader community and environment. Several factors can contribute to potentiality, including:

- Loss of local traditional knowledge and skills that have been passed down through generations and workforce aging can decrease economic performance and create health risks within the fishery, ultimately leading to reduced employment.
- Intergenerational employment ensures steady economic activity and social stability in the community. Reduced economic contribution can lead to economic decline in these areas, affecting fishing and related industries and resulting in a general increase in unemployment.
- The loss of younger fishermen can reduce the potential for innovation and adaptation in the lobster fishery since younger generations often bring new ideas and are more open to adopting new technologies and sustainable practices. Fisheries tend to be slower to adapt to environmental changes and market demands when younger fishermen are not involved.

Not to overstate the potential impact of the Kelly Cove Project, expansion of the aquaculture operations may have significant risks of detrimental effects on the economic condition of the Liverpool Bay lobster fishery. These effects are both short-term, due to loss of lobster harvest revenue (potential loss of harvest area and increased transit costs) and long-term, as a result of undermining public confidence in the lobster that can lead to the decreased intergenerational transfer of employment in the fishery. These effects can further undermine the community's long-term economic sustainability. Additionally, It is understood that the expansion of the Kelly Cove Aquaculture operations in Liverpool Bay will not generate new employment in the area, and revenues from the Project will likely be accrued primarily to interests outside the Liverpool area. Accordingly, due consideration should be given to the economic interests of the lobster fishery as part of the application review.

NEXUS Coastal Resource Management prepared this report



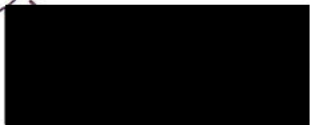
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Chris Milley  
President  
NEXUS Coastal Resource Management Ltd.  
103-287 Lacewood Dr  
Halifax, NS  
B3M3Y7

Chris Milley  
21 Jericho Rd  
Hubley, NS  
B3Z1B8



This is Exhibit "B" referred to in the  
affidavit of Chris Milby  
Sworn/affirmed before me on this 19  
day of January 2024.



JAMES I. SIMPSON  
A Barrister of the Supreme  
Court of Nova Scotia

A handwritten signature in blue ink, appearing to read "James I. Simpson", written over the printed name and title.



Halifax, Nova Scotia

www.nexuscoastal.com

@nexuscoastal.com

## CHRISTOPHER MILLEY, PRESIDENT

### OVERVIEW

Mr. Milley is a marine resource manager with over 35 years of experience in over a hundred local, regional, and international blue economy-related projects in the Caribbean, Central America, and Canada. Mr. Milley has liaised actively with regional and national governments in the Caribbean, multinational agencies, and organizations, such as the CDB, CAICOM, IICA, UNPFII, IMO, FAO, UNESCO's Intergovernmental Oceanographic Commission. He also possesses considerable experience working with Indigenous communities and organizations in Canada.

Mr. Milley has specialized in designing and implementing community-based resource and environmental management policies and programs that balance environmental conservation with sustainable social and blue economic development. He has an intimate familiarity of the human and environment-related issues of Caribbean and Canadian coastal communities with emphasis on the relationships between tradition, culture, and local environment. This includes practical experience in facilitation and organizing community-level meetings and intergovernmental agency meetings. Working with the International Centre for Ocean Development, Mr. Milley led the development of the CARICOM Fisheries Resource Assessment and Management Program (now known as the Caribbean Regional Fisheries Mechanism) during which time he worked as the Secretary of the Caribbean Forum of Permanent Secretaries on Fisheries.

Mr. Milley has a depth of knowledge and experience working with marine sector managers and community organizations, particularly in identification of traditional resource use practices, harvesting areas and use of traditional knowledge. He has had considerable involvement with governments in Canada and the Caribbean in the planning and research that advance marine conservation and management policies and processes. This work has involved development of community management and development plans that link social, economic, and environmental considerations for effective sustainable blue economy development.

Mr. Milley is an Adjunct Professor in the Marine Affairs Program at Dalhousie University where he teaches graduate course Contemporary Issues in Marine Affairs: Marine Spatial Planning and the Blue Economy. He is currently the Research Lead on a DFO-funded, multi-year assessment of coastal restoration priorities in the Inuvialuit Settlement Region. He is a participant on a US-led international experts' roundtable on Climate Change, and a Delegate to the Permanent Forum on Indigenous Issues at the UN Economic and Social Council.

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### EDUCATION

#### **MASTER OF MARINE MANAGEMENT, DALHOUSIE UNIVERSITY**

APRIL 1995

#### **MASTER OF SCIENCE - OCEANOGRAPHY, DALHOUSIE UNIVERSITY**

APRIL 1983

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**BACHELOR OF SCIENCE, MOUNT ALLISON UNIVERSITY**APRIL 1979

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**SKILLS****OCEANS POLICY AND BLUE ECONOMY DEVELOPMENT**

Chris has extensive experience working on Oceans Policy and Planning. This experience includes research, participation on expert panels, provision of technical and advisory support to governments and Indigenous organizations, and preparation of policy and policy review documents regarding governance policies for large marine ecosystem areas. Chris was the lead expert in the development of a cumulative effects management framework under the Beaufort Regional Environmental Assessment Program.

Chris has designed and delivered graduate level courses on Ocean Policy, with an emphasis on Marine Spatial Planning and Blue Economy in the Marine Affairs Program, Dalhousie University.

**MARINE MANAGEMENT**

Mr. Milley has an intimate familiarity of the cultural and environmental issues of marine and coastal resource development and management with a specific emphasis of the relationships between tradition, culture, and local environment. Mr. Milley has a depth of knowledge and experience working with Indigenous and non-Indigenous communities, particularly in identification of traditional resource use practices, harvesting areas and mapping traditional knowledge. This work has been built upon past experience working with community groups and industry representatives to assist them in the development of community management plans that include social, economic, and environmental considerations. Mr. Milley also possesses considerable experience in community facilitation and has been involved in a range of intergovernmental and inter-sectoral negotiations.

**SOCIOECONOMIC RESEARCH AND ASSESSMENT**

Chris has led and participated in numerous projects related to socio-economic studies and evaluations. Chris has worked in international development in the Caribbean and Central America where he managed socio-economic development programs related to ocean resource development and management. He has also managed economic development projects for First Nations in Atlantic Canada. Projects range from Socio-economic Assessments related to offshore oil and gas development in Nova Scotia, Strategic Environmental Assessments, and targeted studies on socio-economic development. Chris coordinated the development and incorporation of the Fishermen and Scientist Research Society, a community-oriented research group involved in fishery research and has collaborated in the design and managed Indigenous inputs to a collaborative research project, Social Research for Sustainable Fisheries, which involved inter-community research on customary decision-making systems.

**IMPACT ASSESSMENT**

Chris has led or contributed to numerous Impact Assessments in Atlantic Canada, Canadian Arctic and Caribbean. This work has involved conducting EAs and IAs for Project Proponent (client), conducting regulatory review of IAs for Government regulatory agencies, and contributing to Regional Strategic Environmental Assessments. He has recently developed and delivered graduate-level curricula on marine impact assessment.

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### **TRADITIONAL KNOWLEDGE STUDIES**

Chris has been involved in the design and implementation of numerous traditional knowledge studies in Atlantic, Arctic and Caribbean communities. These projects have been completed on behalf of communities and community organizations to ensure protection of rights and title in the face of development projects. He has been involved with the development of Traditional Knowledge Study protocols that have been employed in many TK Studies. He was a contributor to a pan-Canadian research project on Traditional Knowledge as a model for improved marine resource management practices in Canada's coastal areas (Atlantic, Arctic, Pacific, and inland lakes regions).

### **FACILITATION OF ENVIRONMENTAL MEETINGS AND CONFERENCES**

Chris has extensive experience in organizing and facilitating workshops, conferences, focus groups and meetings. This experience included international conferences on resource and environmental management, intergovernmental forums for resource decision-making, community meetings and small group workshops in Indigenous communities for resource management planning.

In addition to the day-to-day meeting facilitation activities, Chris has undertaken several projects related to the organizing, securing funding, and implementing marine resource management conferences and regional community events. Furthermore, as a delegate to the UN Permanent Forum on Indigenous Issues he has organized and facilitated workshops at the International Summit (United Nations Declaration on the Rights of Indigenous Peoples).

Chris organized and facilitated numerous Caribbean regional meetings and conferences and also worked as the secretary for the CARICOM Fisheries Steering Committee of Permanent Secretaries that lead to the development of the Regional Fisheries Management Mechanism.

### **MARINE SCIENCE**

Chris has graduate degrees in Oceanography and Marine Management. He has worked as a fishery manager in the Caribbean and with First Nations in Atlantic Canada (Mi'kmaq Fish and Wildlife Commission, Mi'kmaq Confederacy of PEI, and with individual Bands). He is an Adjunct Professor at Dalhousie University where he has conducted research and taught science-based graduate courses in the Faculty of Management and Faculty of Science at Dalhousie University.

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### **RELEVANT RESEARCH CONTRIBUTIONS**

#### **LEAD OR CONTRIBUTING AUTHOR OF THE FOLLOWING PROFESSIONAL REPORTS AND PUBLICATIONS:**

- Masterplan for the Redevelopment of the Island of Barbuda (Fisheries and Blue Economy Components) (in Completion)
  - Uisce Tapa Phase 1 Environmental Effects Monitoring Program, Halagonia Tidal Energy Ltd. (2022)
  - Strengthening Regional SPS Coordination Framework for Fisheries Sector: Institutional Stakeholder Analysis Report (2022)
  - SPS Caribbean Regional Coordination Plan Study & Roadmap (2022)
  - Regional Economic Assessment Report: Food for All in Maseko Sakahikan Innuwak Project (2022)
  - BHP Barbados Seismic Program Fisheries Stakeholder Engagement Plan (2021)
  - Analysis of Moratorium Impacts in Nunavut (2021)
  - Review of Environmental and Energy Development Regulations, Policies and Programs – Nunavut (2021)
  - Review of Hekja and Saglek Basin Development Scenarios (2021)
  - Royalty Scenario for Nunavut Oil and Gas Sector (2021)
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- Government of Nunavut Consultation Strategy for Oil & Gas Related Issues (2021)
  - Nunavut Energy Self-Sufficiency Considerations (2021)
  - Assessment of Economic Potential of the Areas of Interest for MPA Designation – Nunavut (2021)
  - Review and Assessment of Marine Conservation Tools for Nunavut Marine Spaces (2021)
  - Scenarios for the Development of Proposed Marine Protected Areas – Nunavut (2021)
  - Economic and Social Impacts of Measures to Protect The North Atlantic Right Whale (NARW) and Southern Resident Killer Whale (SRKW) (2020)
  - Mi’kmaq Netukulimk Livelihood Considerations (Kwilmu’kw Maw-klusuaqn Negotiation Office) (2020)
  - Livelihood Fisheries Post-Harvest Policy and Protocol, Sipekne’katik Mi’kmaq (2020)
  - Stakeholder and Indigenous Engagement Guidelines for the Federal Contaminated Sites Action Plan, Environment and Climate Change Canada (2020)
  - Multi-objective assessment of the Eastern Caribbean Flyingfish Fisheries (2019)
  - Eastern Shore Development Considerations (Eastern Shore Islands Area Of Interest) (2019)
  - Expert Review of Northern Pulp Ltd Environmental Assessment focus report (2019)
  - Comprehensive and gender-sensitive valuation (social and economic) of the current and potential future contribution of flyingfish and associated pelagic fisheries, Caribbean Regional Fisheries Mechanism (2019)
  - Recommendations for a system to collect and store traditional and /or unpublished knowledge about the ecosystem and fishery through interviews with local fisherfolk and other stakeholders, CRFM (2019)
  - Value Chain Analysis Report – Eastern Caribbean Fisheries, CRFM (2019)
  - A Revised Sub-Regional Fisheries Management Plan for Eastern Caribbean Flyingfish, CRFM (2019)
  - Feasibility Assessment of Electronic Monitoring in Atlantic Canadian Fisheries, Department of Fisheries and Oceans (2018)
  - Snow Crab Traditional Knowledge Report - Labrador (2018)
  - Standard Environmental Assessment Update for Arctic Operations, DND, MARLANT (2018)
  - EAF management and policy cycle implementation of the Eastern Caribbean flyingfish fishery: options for value chain problem-solving, CRFM (2018)
  - Updated FIRMS resource and fisheries inventories for the eastern Caribbean stock of four-wing flyingfish, CRFM (2018)
  - Design for an enhanced data and information repository for EAF management of Eastern Caribbean flyingfish. Caribbean Regional Fisheries Mechanism (2018)
  - Assessment of variable impacts such as climate change, global markets, and fishing pressure on commercial and livelihood fisheries, Caribbean Regional Fisheries Mechanism (2018)
  - Rights-Based Fisheries Management Plan for the Continued Development of Moderate Livelihood Fisheries, Sipekne’katik First Nation, 2018
  - Stakeholder Mapping and Conceptualization of Capelin Workshop, WWF- Canada (2018)
  - Interactive Data Visualization Tool of Shipping in Canada (2017)
  - Review and recommendations for Indigenous Fisheries Management and Governance Model, Listuguj First Nation, (2017)
  - Fisheries Act Legislation Review and Recommendations for Territorial Consideration, Government of Nunavut, (2017)
  - Report on the Review and Assessment of Alternative Bait strategies for Canada’s Lobster Fisheries, WWF- Canada, (2017)
  - Sambro Ledges EBSA Stakeholder Identification and Engagement Report, WWF- Canada (2018)
  - Atlantic Salmon and Arctic Char Traditional Knowledge Report, Torngat Wildlife, Plant & Fisheries Secretariat (2017)
-

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- Socio-economic Market Analysis and Environmental Scan of the Sealing Sector in Nunavut Government of Nunavut, 2016
  - Environmental Assessment of Multiklient Invest Newfoundland and Labrador Offshore Seismic Program, 2017 – 2026 (2017)
  - Stakeholder Engagement and Facilitation for a Tidal In-Stream Energy Conversion (TISEC) Project, Fundy Offshore Research Centre for Energy (FORCE) (2017)
  - Multiklient Invest AS Labrador Offshore Seismic Program Environmental Assessment, 2018-2023 (2017)
  - Screening Level Assessment of the Government of Nunavut's Iqaluit Marine Infrastructure Project, Indigenous and Northern Affairs Canada (2017)
  - Socio-Economic Effects Management Plan (SEEMP) for Liquefied Natural Gas (LNG), Regional Municipality of Guysborough, (2017)
  - Strategic Environmental Assessment Sydney Basin and Orpheus Graben Offshore Cape Breton Nova Scotia, CNSOPB, 2016
  - Indigenous Engagement for Black Point Quarry Project Environmental Assessment, ERD Resources (2015)
  - Beaufort Sea Regional Environmental Assessment Framework - Cumulative Effects Framework, Indigenous and Northern Affairs Canada (2015)
  - Cullaton Lake Mine, Nunavut, Environmental Assessment Review, Indigenous and Northern Affairs Canada (2015)
  - Doris North Mines, Nunavut, Environmental Assessment Review, Indigenous and Northern Affairs Canada (2015)
  - BP Exploration (Canada) Tangier 3D Seismic Survey Environmental Assessment (stakeholder engagement) (2014)
  - Report on Climate Change Vulnerability Mapping, Indigenous and Northern Affairs Canada (2013)
  - Environmental Assessment for Pangnirtung Harbour Regulatory Applications, Pangnirtung, Nunavut, Public Works, and Government Services Canada (2013)
  - Report and Recommendations for GEM Community Engagement Activity Assessments, Natural Resources Canada (2014)
  - Environmental Assessment Report (Class 2 Undertaking) Goldboro LNG Project - Natural Gas Liquefaction Plant and Marine Terminal Review (2013)
  - Inuit Qaujimagatuqangit Study for Qikiqtani Region, MKI (2014)
  - Decision Support Tool for Climate Change Adaptation in Small Coastal Communities in Atlantic Canada, Atlantic Climate Adaptation Solutions Association (2015)
  - Keenan, Erin & M. Fanning, Lucia & Milley, Chris. (2018). Mobilizing Inuit Qaujimagatuqangit in Narwhal Management through Community Empowerment: A Case Study in Naujaat, Nunavut. *ARCTIC*. 71. 27. 10.14430/arctic4699.
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  - Melanie Wiber and Chris Milley 2007, "Seeking Clarity, Legitimacy and Respect: The Struggle to Implement Special Rights" in *Journal of Legal Pluralism and Unofficial Law* 2007 – nr. 55
  - After Recognition: Special Rights in Natural Resource Management. Melanie Wiber and Chris Milley editors.
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- Chris Milley 2007, "Canada's Oceans Act and Oceans Action Plan: Implications and Impacts for First Nations", Assembly of First Nations

**OTHER CONTRIBUTIONS:**

**ACADEMIC SUPERVISOR/CO-SUPERVISOR FOR:**

- Alex Gagne, Masters in Marine Management "Looking for Common Ground: Indigenous Marine Resource Governance and the Pacific Salmon Forum Report", 2009
- Jacquelyn Rutherford, Masters in Marine Management "Shifting Paradigms: An Examination of Self-Determination in Affirming Traditional Coastal Governance in the Mi'kmaq Nation", 2009
- Maria (Bugsy) Delesalle, Master in Marine Management "Fair Trade Fish: A Tool to Protect Culture and Promote Responsible Fisheries Management ", 2011
- Alanna Gauthier, Masters in Marine Management "Using the Sustainable Livelihood Approach to inform the development of a multispecies fishery management plan", 2011
- Brennan Daly, Masters in Marine Management "Putting people first: using the sustainable livelihoods approach to develop a culturally relevant salmon fishery management plan", 2012
- Andrea Flynn, Masters in Marine Management "A Guide for Integrating Inuit Qaujimajatuqangit into Decision-making for Marine Shipping Development in Nunavut", 2013
- Alana Caplan Vineberg, Masters in Marine Management "Offshore Oil and Gas Development in Nunavut: Policy Challenges and Lessons from Atlantic Canada", 2014
- Elizabeth Baker, Masters in Marine Management "Influential or Ignored? The Role of Fishermen in Management of the Nova Scotia Lobster Industry", 2015
- Erin Keenan, Masters in Marine Management "Mobilizing Inuit Qaujimajatuqangit in narwhal management through community empowerment: A case study in Naujaat, Nunavut", 2015
- Taylor Mason, Masters in Marine Management "A Role for Inuit: How northern communities can inform and influence the dynamics of offshore oil and gas development in Nunavut", 2015
- Taylor Brown, Masters in Marine Management "Reconciling Indigenous governance in marine spaces: Mi'kmaq engagement in tidal energy in the Bay of Fundy, N.S.", 2017
- Joana Costa, Masters in Marine Management "Marine protected areas: Potential tools for sustainable community development", 2017
- Helena Cousins, Masters in Marine Management "Ecotourism and Ecological Restoration in Union Island, Saint Vincent and the Grenadines", 2018
- Sara Vanderkaden, Masters in Marine Management "The role of eco-certifications and traceability in supporting the Inuit seal harvest to deliver Inuit rights to food, culture, and economic opportunities", 2019
- Michaela Mayer, Masters in Marine Management "Sea Otter Monitoring to Inform Future Population Management Actions on the Coast of Vancouver Island", 2022
- Corie Rooyackers, Masters in Marine Management "Lessons in use of Marine Protected Areas for the management of two fisheries, manta ray and conch: Comparative analysis of Indonesia and Belize experiences in conservation of economically important species.", 2023

**DEVELOPED CURRICULA AND DELIVERED GRADUATE COURSES IN:**

- Contemporary Issues in Marine Affairs (Marine Spatial Planning and the Blue Economy), Marine Affairs Program and School for Resource and Environmental Management, Dalhousie University
-

- Indigenous Nations and Marine Resource Management, Marine Affairs Program and School for Resource and Environmental Management, Dalhousie University
- Fisheries Management, Marine Affairs Program and School for Resource and Environmental Management, Dalhousie University
- Community and Stakeholder Engagement, School of Planning, Dalhousie University
- Culture and Natural Resources, School for Resource and Environmental Management, Dalhousie University

**PUBLIC CONTRIBUTIONS:**

- Member Fisheries Advisory Group for the Regional Assessment of Offshore Wind Development in Nova Scotia
- Founding member of the DOTCAN Institute, a not-for profit institutes established to advance oceans management technical capacity in West African Nations.
- Delivered numerous corporate and public lectures on:
  - Indigenous Rights-based Resource Management
  - Community-based Fisheries Management
  - Blue Economy and Blue Growth
- Delegate to the United Nations Permanent Forum on Indigenous Issues
- Delegate to the Canada-US Group of Experts on Climate Change
- Founding Member, Fishermen and Scientist Research Society
- Founding Member of the Woodens River Watershed Environmental Organization

**RELEVANT  
PROJECT  
EXPERIENCE**

**INNER BAY OF FUNDY COMMUNITY SOCIAL, CULTURAL, AND ECONOMIC PROFILE**

Canadian Wildlife Service

**SOCIO-ECONOMIC ASSESSMENT OF EASTERN SHORE ISLANDS AREAS OF INTEREST:  
PREPARATION OF THE EASTERN SHORE SOCIAL AND ECONOMIC PROFILE**

Fisheries and Oceans Canada

**REPORT ON ACTIVE REGULATORY APPROACHES FOR MINING EFFLUENT IN CANADIAN AND  
INTERNATIONAL JURISDICTIONS**

Crown-Indigenous Working Group & Fort McKay First Nation

**STRENGTHENING REGIONAL SPS COORDINATION FRAMEWORK FOR FISHERIES SECTOR**

Inter-American Institute for Cooperation on Agriculture & CRFM

**MASTER DEVELOPMENT PLAN FOR POST-IRMA RECONSTRUCTION OF BARBUDA: FISHERIES AND  
BLUE ECONOMY**

Caribbean Development Bank

**INUVALUIT SETTLEMENT REGIONAL COASTAL RESTORATION PROGRAM**

Fisheries and Oceans Canada

**COMPREHENSIVE REVIEW AND ASSESSMENT OF PROPOSED MARINE PROTECTED AREAS ON  
ECONOMIC SECTORS IN NUNAVUT**

Government of Nunavut Fisheries and Sealing Division

**ECONOMIC EVALUATION OF NUNAVUT FISHERIES AND SEALING SECTOR**

Government of Nunavut

**SUSTAINABILITY DETERMINATION OF FISHERIES LIVELIHOODS IN NOVA SCOTIA INDIGENOUS  
COMMUNITIES**

Kwilmu'kw Maw-klusuaqn

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**TECHNICAL AND REGULATORY REVIEW OF OIL AND GAS ENERGY SECTOR AND RENEWABLE ENERGY POLICY DEVELOPMENT**

Government of Nunavut

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Caribbean Natural Resources Institute

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