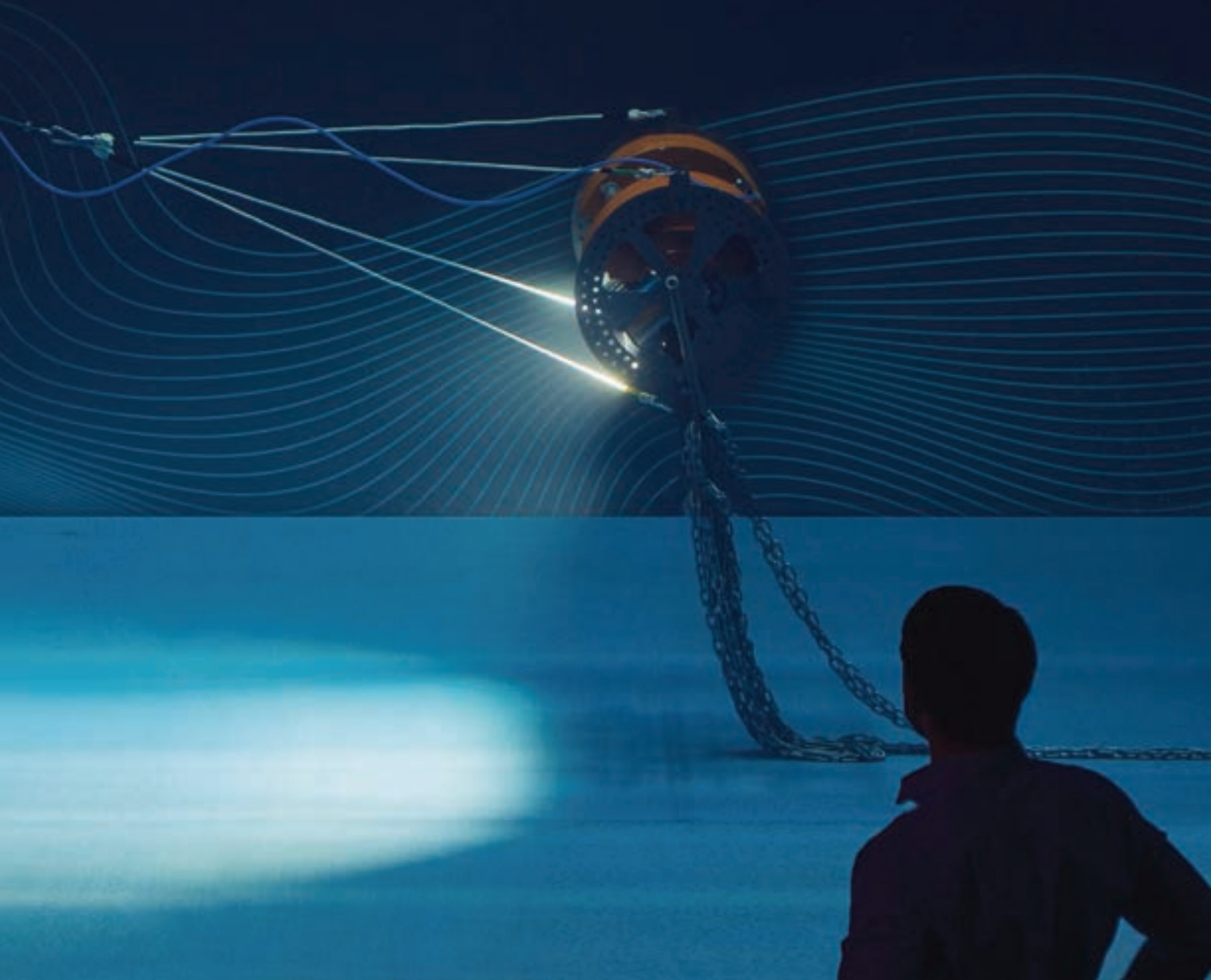# COVE

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WHITE PAPER:
## THE CANADIAN OCEAN ENTERPRISE 2022

# EXECUTIVE SUMMARY

Quantifying the size and the breadth of the Ocean Enterprise in Canada was first reported by COVE in The Canadian Ocean Enterprise 2020 whitepaper[1]. The baseline report compared Canada's experience to that of the UK and the US and assessed this industry subset relative to the broader Canadian economy. This follow-up study provides great insight into the dynamic and growing Ocean Enterprise in Canada. Two years on, in the standardized 2022 biennial report, we see changes among the companies that make up this sector, as well as strengths that hold up alongside international comparisons.

While this report will reference The Canadian Ocean Enterprise 2020 whitepaper, it serves as a standalone report that describes the ocean enterprise sector and the positioning of the Canadian industry within it.

The Ocean Enterprise is defined as the companies that provide platforms, technology, and information services that deliver ocean observations, measurements, analyses and forecasts that enable operations in the wider Blue Economy. The high-tech Ocean Enterprise is a force multiplier for the whole Blue Economy, including the full value chain of fisheries, aquaculture, shipbuilding, energy, transportation, tourism, ocean science and other activities.

Identifying the characteristics of the Ocean Enterprise provides insight into how and where these companies are forming and growing. It also provides foundational information for furthering the beneficial ecosystem. COVE, with an affiliation to many of the companies included in this study, observes the impacts these businesses have on the growing Blue Economy daily.

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[1]COVE, "White Paper: The Canadian Ocean Enterprise 2020". Published 2021
https://coveocean.com/wp-content/uploads/2021/10/COVE_Whitepaper_8.5x11_Oct5_2021_DIGITAL.pdf.

# KEY FINDINGS

**1.** The number of identified **Ocean Enterprise companies increased from 2020 to 2022, from 122 to 160, an increase of 31%**. Most of these companies were formed within the last two years, while others were existing firms that report starting Ocean Enterprise activities over the last two years.

**2.** The Ocean Enterprise **employs more people per company than typical Canadian businesses**. Employers show confidence that both revenue and headcount will continue to increase. **The Ocean Enterprise did not appear to stagnate during the pandemic**.

**3.** Most of Canada's Ocean Enterprise companies continue to have their **Canadian headquarters in Nova Scotia, British Columbia, or Newfoundland and Labrador**. However, growth was seen in provinces distant from the coasts.

**4.** An increasing number of Ocean Enterprise companies **deliver intermediary activities that create value-added services or analyses** in addition to providing technological means to undertake ocean observations and measurements.

**5.** The Canadian Ocean Enterprise is export-focussed and reports a large number of key market areas. **Notably, the Arctic and Antarctic are important markets for Canadian companies, more so than has been reported in recent studies in the UK and US.**

This report was informed by ongoing partnership with the Society for Underwater Technology (SUT) and the Marine Technology Society (MTS), who were involved with creating this definition for 'Ocean Enterprise'. The methodology for this study has been used in international studies in the UK since 2009 and the US in 2015 and 2020. This second Canadian study was conducted May to September 2022 to provide a comparative national and international analysis.

The Canadian Blue Economy is well integrated within the Global Blue Economy, with our Ocean Enterprise tightly connected in particular with the US and the UK Ocean Enterprises. This report was informed by ongoing partnership with the Society for Underwater Technology (SUT) and the Marine Technology Society (MTS), who oversee comparative studies and were involved with creating this definition for 'Ocean Enterprise'. The methodology for this study has been used in international studies in the UK since 2009 and the US in 2015 and 2020, published after COVE's 2020 Canadian report.

This second Canadian study was started in May 2022 to provide a comparative national and international analysis. An online survey tool reached identified companies which may qualify under the definition of 'Ocean Enterprise'. The study's results report only those companies that self-identified as Ocean Enterprises within the survey and are presented in this report.

The survey period was June to July 2022. It recorded 85 responses from Ocean Enterprise companies, a statistically relevant 53% response rate. The data was aggregated and tabulated to maintain company privacy and to generate the following analyses. Many of the companies included in the 2020 report were also included in 2022. Most of the respondents are solely providers of the equipment that makes ocean observations possible, while 26% of respondents identified solely as intermediaries, creating value-added data products and services, and 25% participate in both activities. Relative to 2020, an increase in companies acting as intermediaries was observed.

Most of the respondents reported being in business for 1-5 years, while there was a drop in the proportion of companies that have operated for more than 10 years. Analyzing the identified Ocean Enterprise companies reported on in the 2020 and 2022 studies suggests that this is likely an underrepresentation within this industry. Looking into participating companies' reported years of operation in the past and reference to their founding dates suggests that a larger proportion of this group of companies still exists. In 2020, there were a number of companies that were started 2-3 years prior. This spike is still present in 2022, between 4-5 years of operation. This seems to suggest that longevity outpaces the typical success rate of new companies nationally. There was an increase in companies in their first year of business. It is notable that this surge occurred alongside the easing of COVID-19 restrictions and reopening of the economy.

The geographic distribution remained largely the same as in 2020. Notably, Alberta now has companies operating within the definition of an Ocean Enterprise and New Brunswick saw an increase from 3 to 5 companies, proportionally 1%. The Atlantic provinces continue to maintain dense Ocean Enterprise activity having a per capita representation of companies around 5 times that of the next highest province. The distribution appears to have remained consistent nationally as the Ocean Enterprise grows.

Between 2020 and 2022, there was an increase in the proportion of companies that fall within the range of 251-500 employees, while 46% of the respondents have 20 employees or fewer. This last group is made up primarily of companies in operation for 5 years or less. The Ocean Enterprise maintains its 2020 status of employing more people per company than the typical Canadian business. Optimism abounds, 75% of the respondents project that their headcounts will increase within the next 12 months.

As in 2020, the most frequently selected revenue range by companies was $1-$5M. In all, 40% of the responding group of companies reported revenues under $1M, most represented by companies that have been in operation for 5 years or less. 72% of reporting companies estimate that their revenues will increase within the next 12 months. Both total employment and total revenue for the Ocean Enterprise is likely higher than the original estimates set in 2020.

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## MEASURING OCEAN ENTERPRISE SUCCESS

This follow-up study has provided great insight into the dynamic and growing Ocean Enterprise community in Canada. The formation of new companies or expansion by companies into this market is growing. The majority maintained positive anticipation of employment and revenue within the next 12 months.

The growth reported in this follow-up study indicates the value of measuring Canada's Ocean Enterprise biennially. There is opportunity for this analysis to become more expansive as the total number of companies within the Ocean Enterprise increases. In future studies, performing geographic economic analysis to uncover potential regional strengths and weaknesses could pose opportunities for optimization of the Ocean Enterprise in Canada. This may provide more insight as to what factors influence particular geographic locations becoming such hotspots for ocean technology.

# INTRODUCTION

Ascribed as high value, the ocean economy is diverse and represents many industries[2]. Yet it lacks an industry- or government-recognized definition in Canada. The purpose of this study is to build an established assessment of the size and economic impact of Canada's Ocean Enterprise. The Ocean Enterprise is comprised of two main categories of companies: "Providers" and "Intermediary" companies and is the business component of the Blue Economy.

Ocean Enterprise activities include the companies providing technologies and value-added products and services related to the world's oceans, coasts, and tidal reach environments, as well as Canada's Great Lakes system. The study does not extend to end-users who derive societal or economic benefits and services.

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[2]OECD. (2016). *The Ocean Economy in 2030*. Paris: OECD Publishing.

# DEFINITIONS

As in past reporting, this report observes the definitions from The Canadian Ocean Enterprise 2020 based upon the framework for Ocean Enterprise developed for the 2015 US Ocean Enterprise and codified in the 2020 US Ocean Enterprise study[3]. There are three principal components in the Ocean Enterprise according to this framework. For consistency the same definitions provided in the 2020 US Ocean Enterprise study are used in this study:

**Providers** deliver the technological means to undertake ocean observations and measurements.

**Intermediaries** make use of ocean, coastal and lakes measurements, observations, and models as inputs to create value-added information products in support of end-users.

**End-users** are Public and Private organizations that derive safety, economic or stewardship benefits from Blue Economy products and services.

**Providers** manufacture sensors, instruments, and platforms; provide the data infrastructure that manage and communicate ocean data; and develop and maintain the data management systems, software tools, and models that are used to help turn ocean data into useful information. Examples include, but are not limited to, final and component products associated with monitoring buoys, satellite or air-based observation systems, underwater or surface observation systems and platforms, instruments for navigation and positioning, communication and reporting systems for observation data, and IT infrastructure.

**Intermediaries** combine, synthesize, or integrate ocean data to create a value-added data product or service. Examples include, but are not limited to, weather or surf forecast services, ocean temperature and current modeling, environmental hazards evaluation or research systems, coastal threat models, fisheries monitoring, and related activities.

**End Users** use ocean data in products or services but are not an ocean data products or services company. End users are generally the ultimate beneficiary of ocean observations, measurements, and models. Examples include, but are not limited to, operational end-users such as freight shipping, offshore oil and gas extraction, fishing fleet operation or charter boat services; science end-users such as academic research departments; policy end-users such as government regulators; or public end-users such as users of seasonal retail outlooks, and weather or surf websites and apps.

Public expenditures in Canada support a large portion of ocean observations and annually create a significant amount of industry critical data through groups such as the Department of Fisheries and Oceans (DFO), Environment and Climate Change Canada, other government bodies, post-secondary institutions, and non-profit research groups. This study focusses on private sector provider and intermediary business activities[4].

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[3] NOAA, 2021. The Ocean Enterprise 2015-2020: A study of U.S. Blue Economy business activities. https://cdn.ioos.noaa.gov/media/2021/12/OE-REPORT-2015_2020-FINAL_120721_web.pdf

[4] n 2, pg 7.

## METHODOLOGY

This study began by reviewing the Canadian companies identified in the 2020 Ocean Enterprise Study that fit the definition of provider or intermediary. This was done through confirmation of active business operations. The list was then expanded using Canadian ocean industry lists, industry email lists, and company websites. Industry experts were consulted to review whether there were any companies that had been omitted or companies that no longer existed. The final list for 2022 comprised 160 companies that fit this definition, 32 (or 20%) of which were resident COVE companies at the time the survey was conducted.

An online survey tool was sent to the 160 identified companies. The survey was also distributed using social media, including COVE's LinkedIn platform and shared in-person at industry events. The survey design mimicked the 2020 Canadian Ocean Enterprise study to allow comparisons to be made. The survey period was June to July 2022. Eighty-five responses from companies identifying as operating within Canada as an Ocean Enterprise were recorded, representing a 53% response rate. The survey data was anonymized, aggregated and compiled into this analysis to maintain company privacy.

# CHARACTERISTICS OF THE CANADIAN OCEAN ENTERPRISE
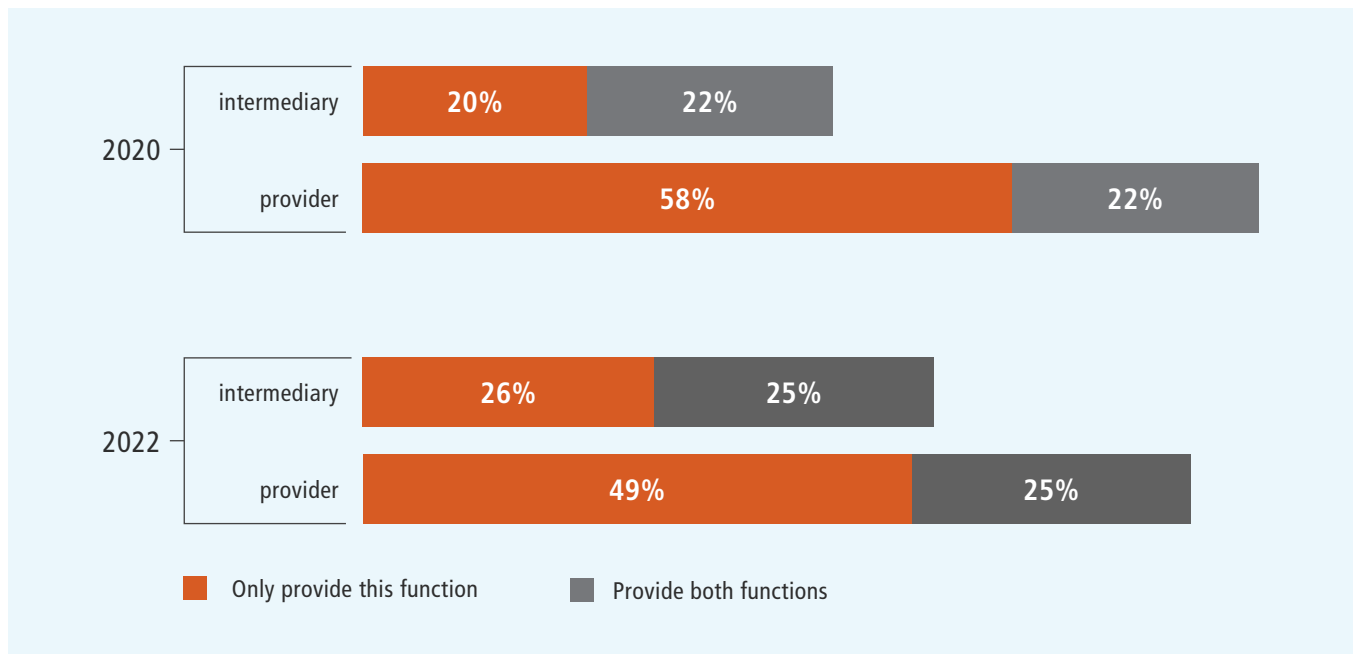


**Figure 1** – Business function of respondents

**Figure 1** categorizes respondents into Providers and Intermediaries for 2020 and 2022. In 2022, 49% of respondents identified themselves as Providers, while 58% of respondents identified themselves as Providers in 2020. This is a lower number than in the US where 68% identified as providers[5]. Twenty-six per cent of the respondents identified as Intermediaries, which is higher than in the US, with 18% identifying as intermediaries[6]. Twenty-five per cent of the respondents identified as providing both functions, more than the US where 14% of the responding companies provide both functions[7].

Seventy-four per cent of the responding companies are still focused on building physical equipment and systems allowing for the collection of ocean data, a small decrease from 80% in 2020. In 2020, it was predicted that there may be an expansion of Intermediary function as this was identified as an area of significant opportunity. The percentage of companies that provide Intermediary functions increased 9% from 2020 to 2022.

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[5] *NOAA*, 2021. The Ocean Enterprise 2015-2020: A study of U.S. New Blue Economy business activity. https://doi.org/10.25923/e6w1-w094, pg 26.
[6] Ibid.
[7] Ibid.

# TIME IN BUSINESS

**Figure 2** shows the time that responding companies have been operating in the Ocean Enterprise. Most respondents reported being in business for 2-3 years. Of these young companies, the majority are newly formed companies participating in the Ocean Enterprise. A small number of these companies were newly captured in 2022 and were underreported in the 2020 study, reflecting a growing awareness among young companies of this biennial study. The rest are companies that existed prior to 2020, but whose activities were not directed toward the marine sector, and therefore did not fit within the definition of an Ocean Enterprise.
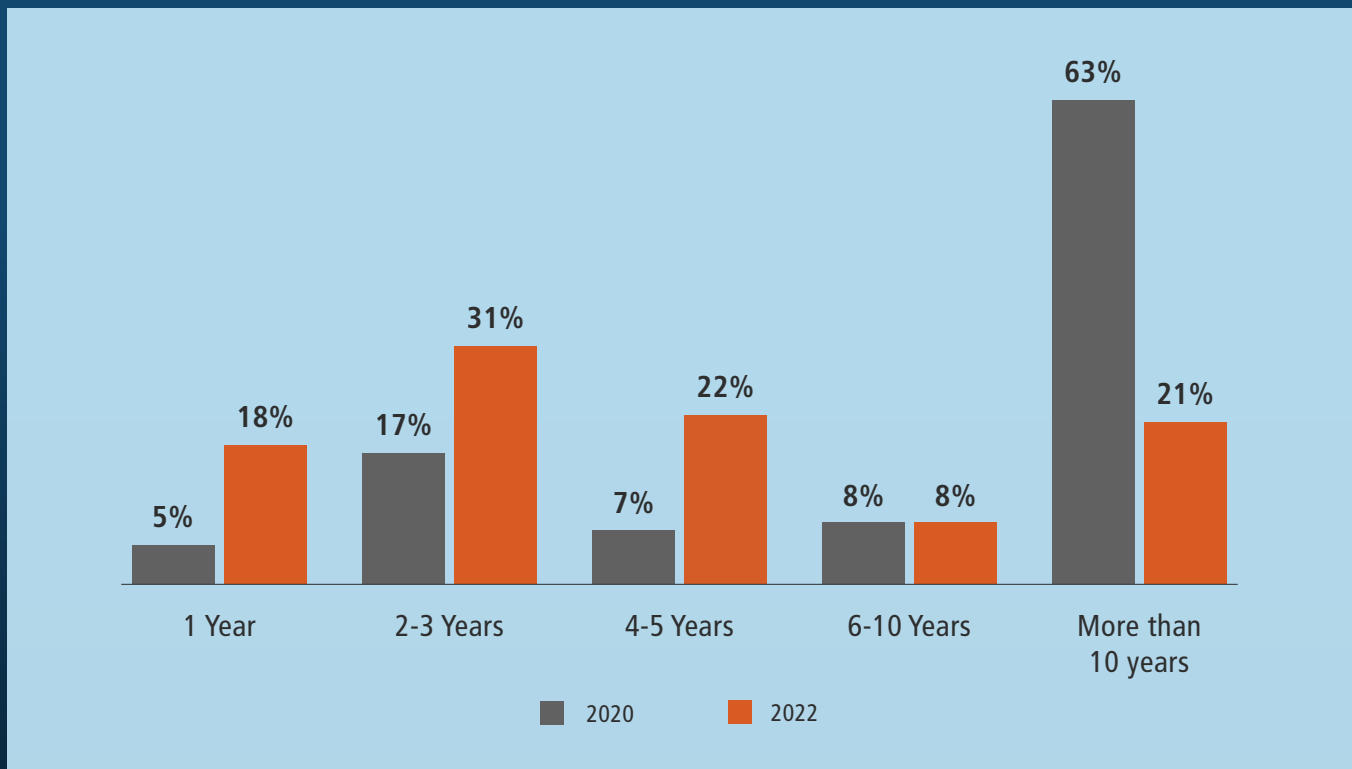


**Figure 2** – Organizational experience in the Ocean Enterprise

From 2020 to 2022, there was a significant drop within the survey respondent group of companies operating for more than 10 years. However, analyses conducted by COVE indicate this as likely underreported, with many companies captured in 2020 operating for more than ten years still active in the Ocean Enterprise. The US distribution of companies' time in business corresponds more closely with the Canadian Ocean Enterprise 2020 data[8].

In 2022 there is again a surge of reporting companies that started business within the Ocean Enterprise 2-3 years ago. Like 2020, young businesses appear to be more prevalent in the Ocean Enterprise compared to the overall economy. There is a greater proportion of companies in 2022, 18%, within the 1-year age group. This indicates an influx of newly formed companies and/or companies newly entering the Ocean Enterprise. The opinion of the author is that this surge could be explained by the easing of COVID-19 restrictions as the economy reopened, or simply that increased awareness of the Ocean Enterprise attracts or inspires the formation of new companies.

[8]n 5, pg 33.
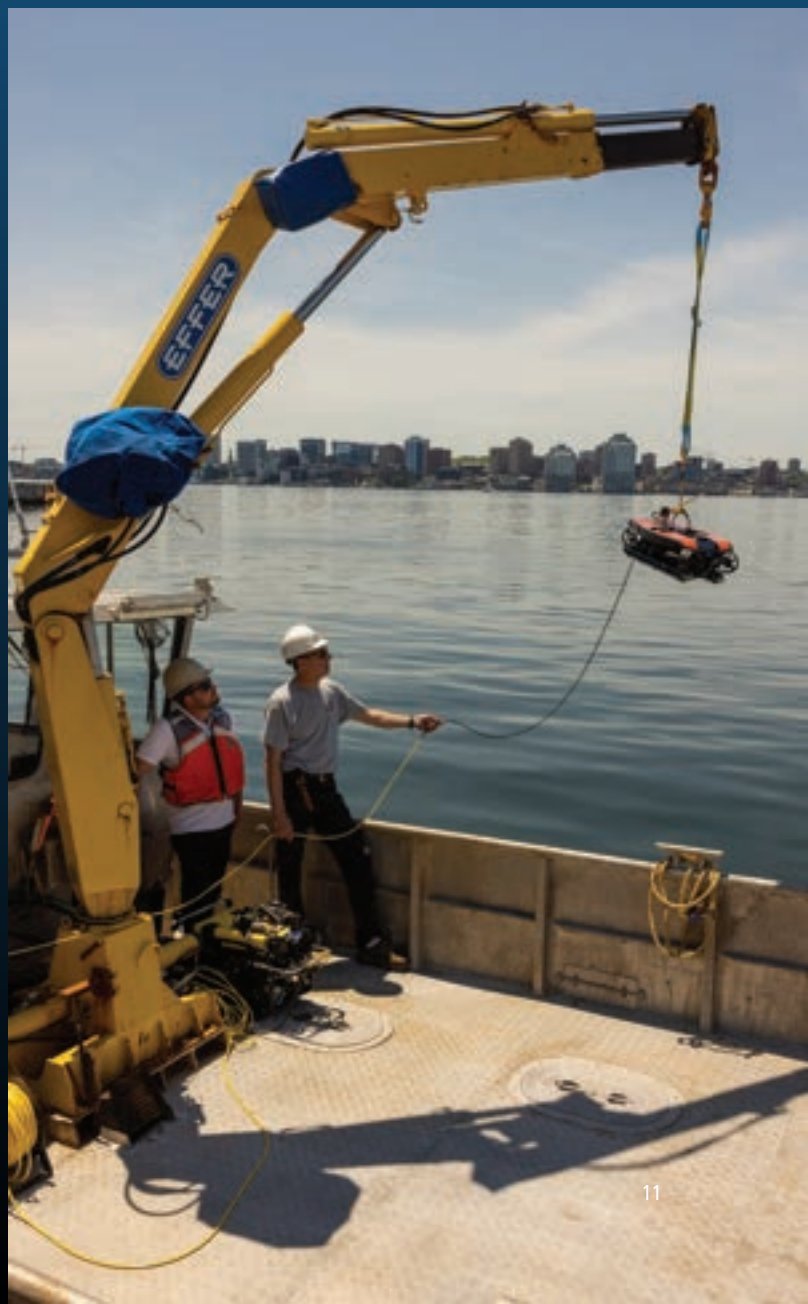
# PRIMARY LOCATION OF IDENTIFIED COMPANIES

**Figure 3** shows the provincial distribution of the Canadian head offices of the 160 identified companies. Companies were asked to report the address of their Canadian head office which was verified through internet searches. Saskatchewan, Manitoba, and the territories did not have any companies that fit within the Ocean Enterprise definition. Notably, Alberta (AB) now has companies that are operating in the Ocean Enterprise though none were reported in 2020. Nova Scotia (NS) is home to the most Ocean Enterprise companies, followed by British Columbia (BC), and Newfoundland and Labrador (NL).
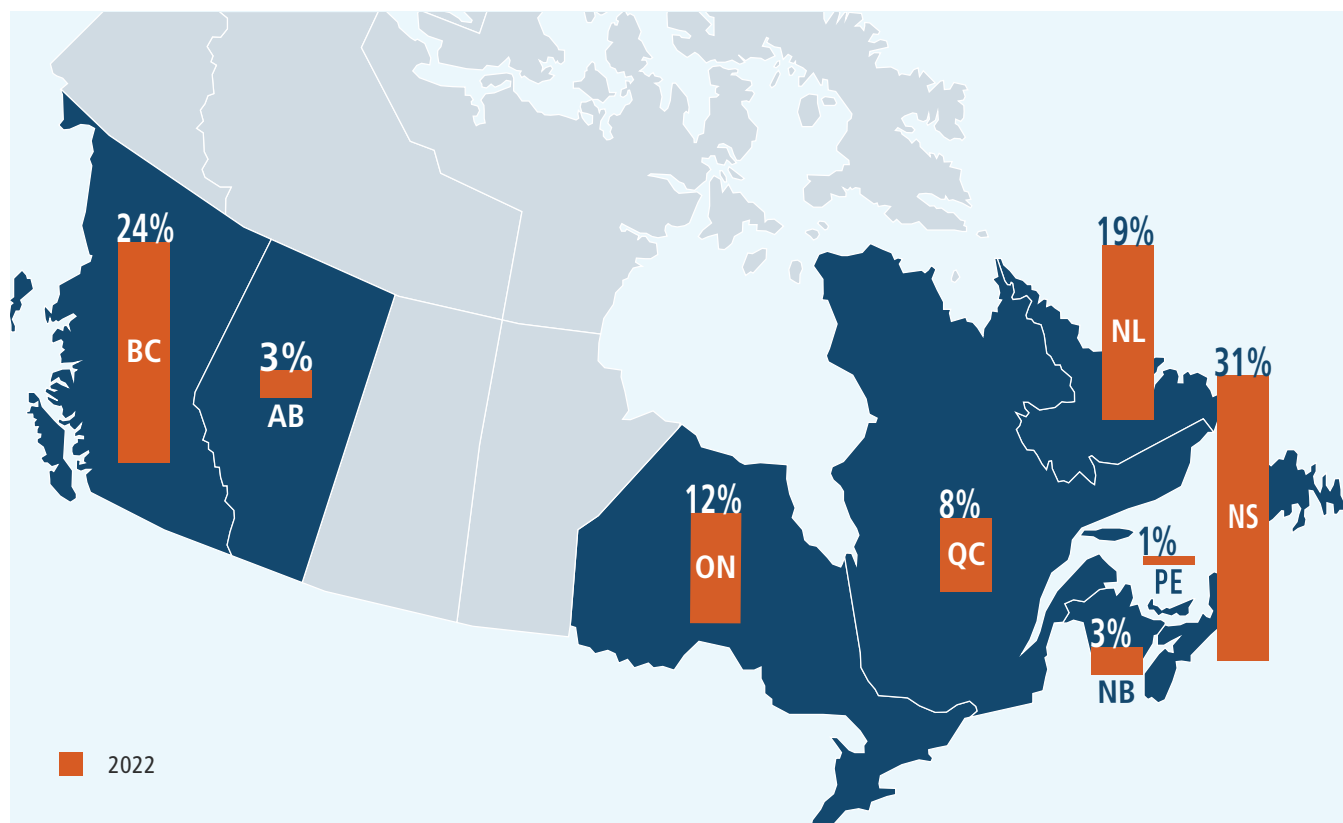


**Figure 3** – Location of Ocean Enterprise businesses

**Figure 4** shows the growth by province within the Ocean Enterprise. As was the case in 2020, the location distribution that places the majority of Ocean Enterprise companies in Nova Scotia (NS), British Columbia (BC), and Newfoundland (NL) is not surprising as these coastal provinces have long histories of contributing to ocean economic activities. New Brunswick increased their activity from 2-3% within two years. Overall, the distribution appears to have remained consistent as the industry grows, with the Atlantic provinces (NS, NL, NB and PE) representing most of the industry's head office locations at 54%. The per capita representation of companies in the Atlantic provinces is remarkable, remaining around five times higher than BC, the next highest.
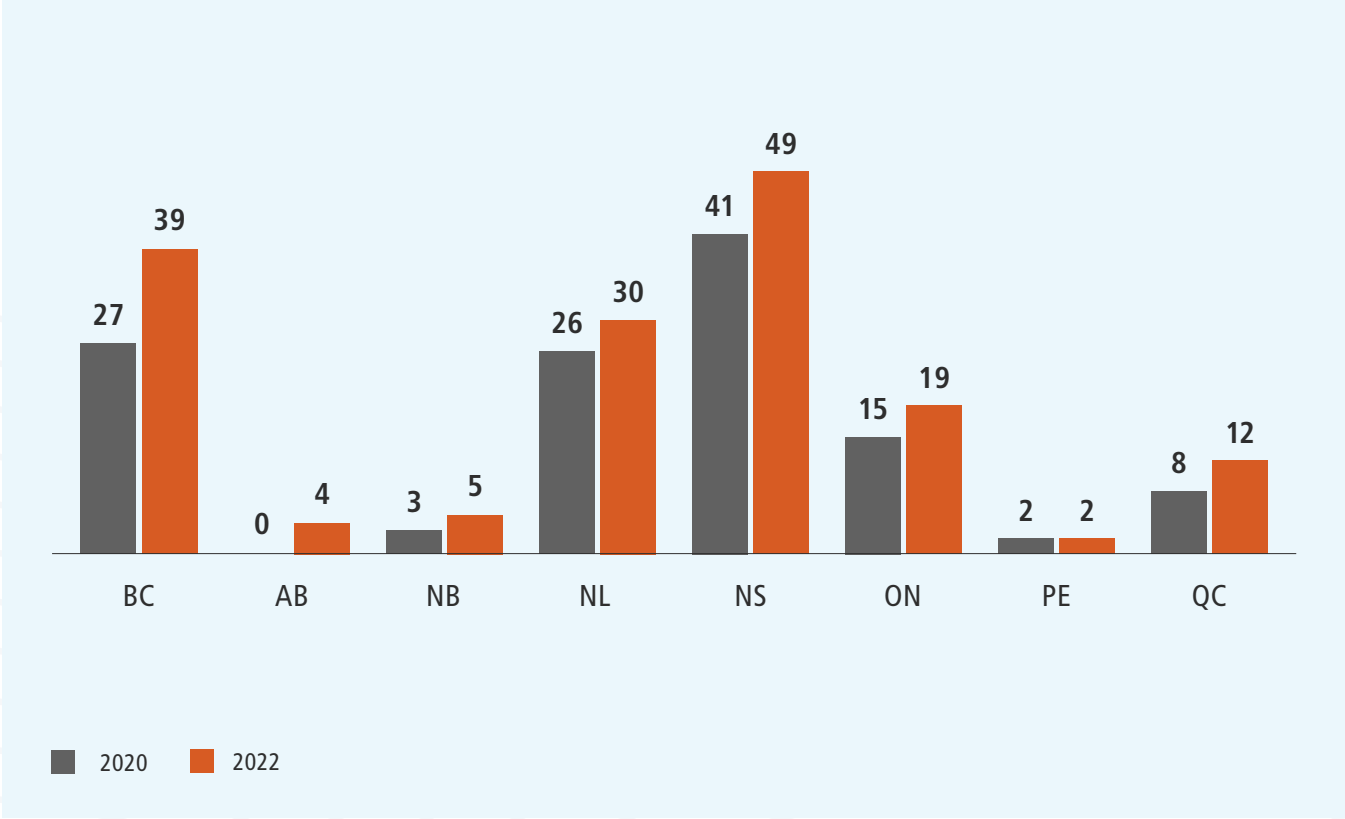


Figure 4 – Ocean Enterprise businesses headquartered in Canada

# OCEAN ENTERPRISE EMPLOYMENT

**Figures 5 and 6** display the employment distribution and the expected 12-month employment for the responding group. Responding Ocean Enterprise companies employ more people than the average business in Canada. Seventy-one per cent of responding companies are classified as small businesses (100 employees or less), compared to the national average of 97.9%[9]. This classification is comparable to the responding group in the US with 82% of their respondents being classified as small businesses[10]. There is an increase in the proportion of companies that fall within the range of 251-500 employees, representing 12% in 2022, up from 2% in 2020. Notably, 46% of the respondents have 20 or fewer employees. This is likely related to the proportion of young companies that are still in an early growth phase with low number of employees. Just under half of the respondents, 49% (Figure 2), reported being in business for less than 3 years.
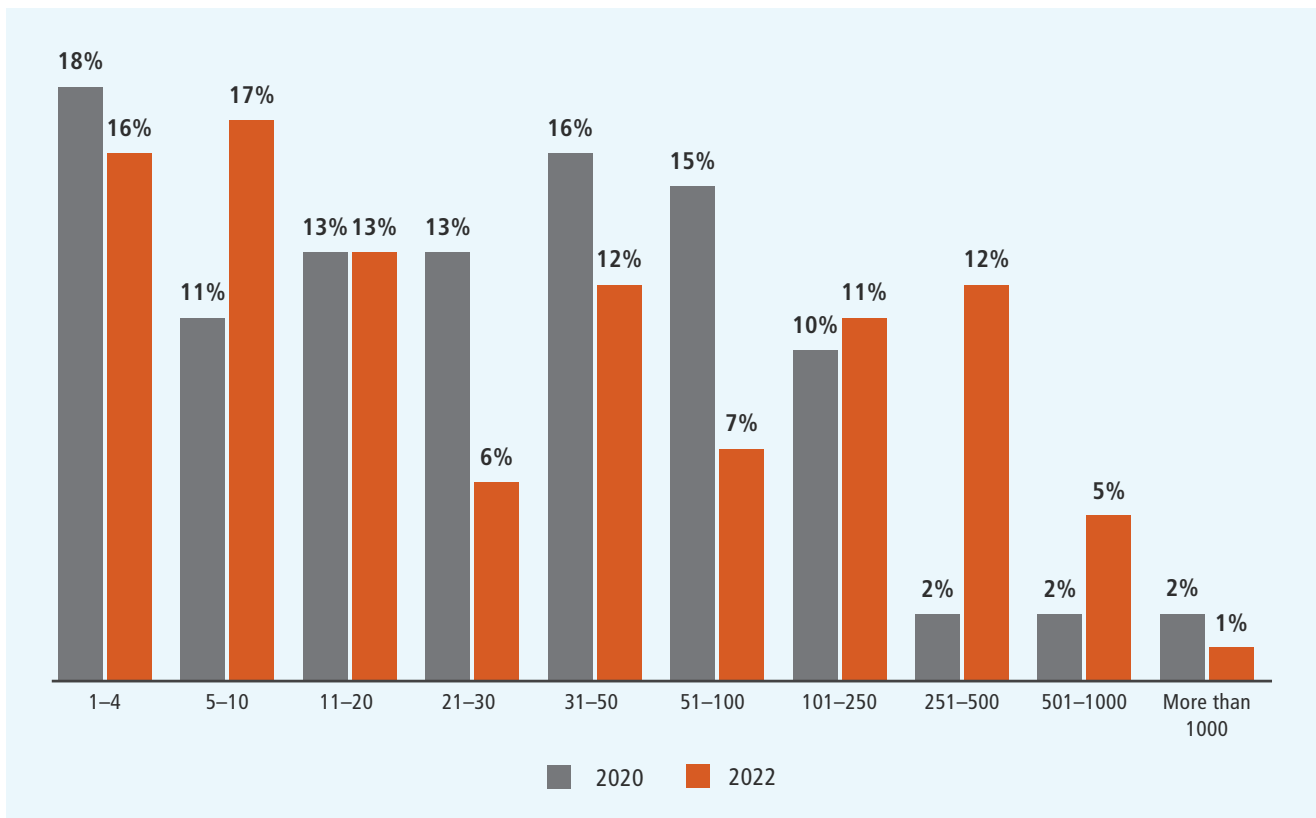


**Figure 5** – Business size of survey respondents

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[9]Innovation, Science and Economic Development Canada. Key Small Business Statistics – 2021. Ic.gc.ca/eic/site/061.nsf/eng/h_03147.html.
[10]n 5, pg 25.

Seventy-five percent of responding companies project employment growth within the next 12 months. Only 4% expect their numbers to decrease, half the amount that expected decreasing employment in 2020. Considering the number of young companies in the sector in combination with the expectations of existing companies, there appears to be strong optimism for the future in the Ocean Enterprise.
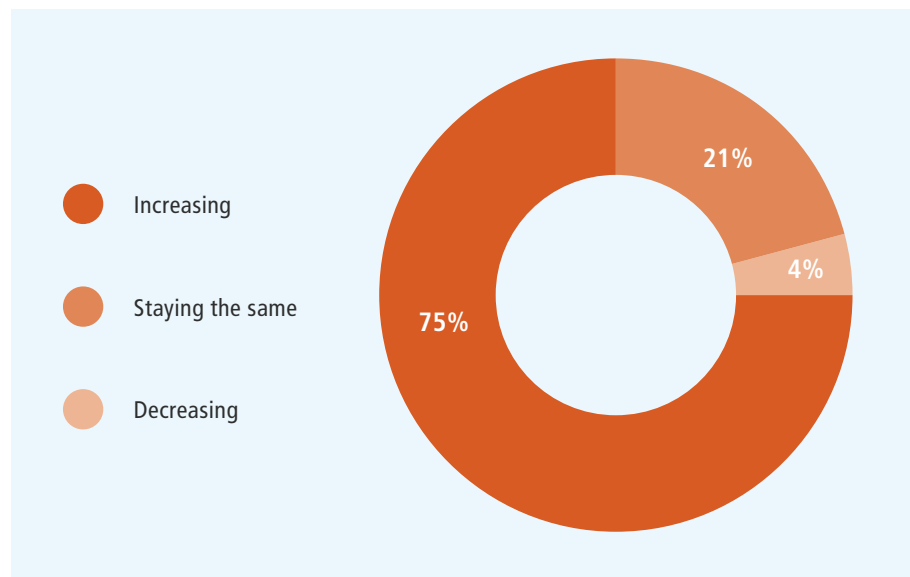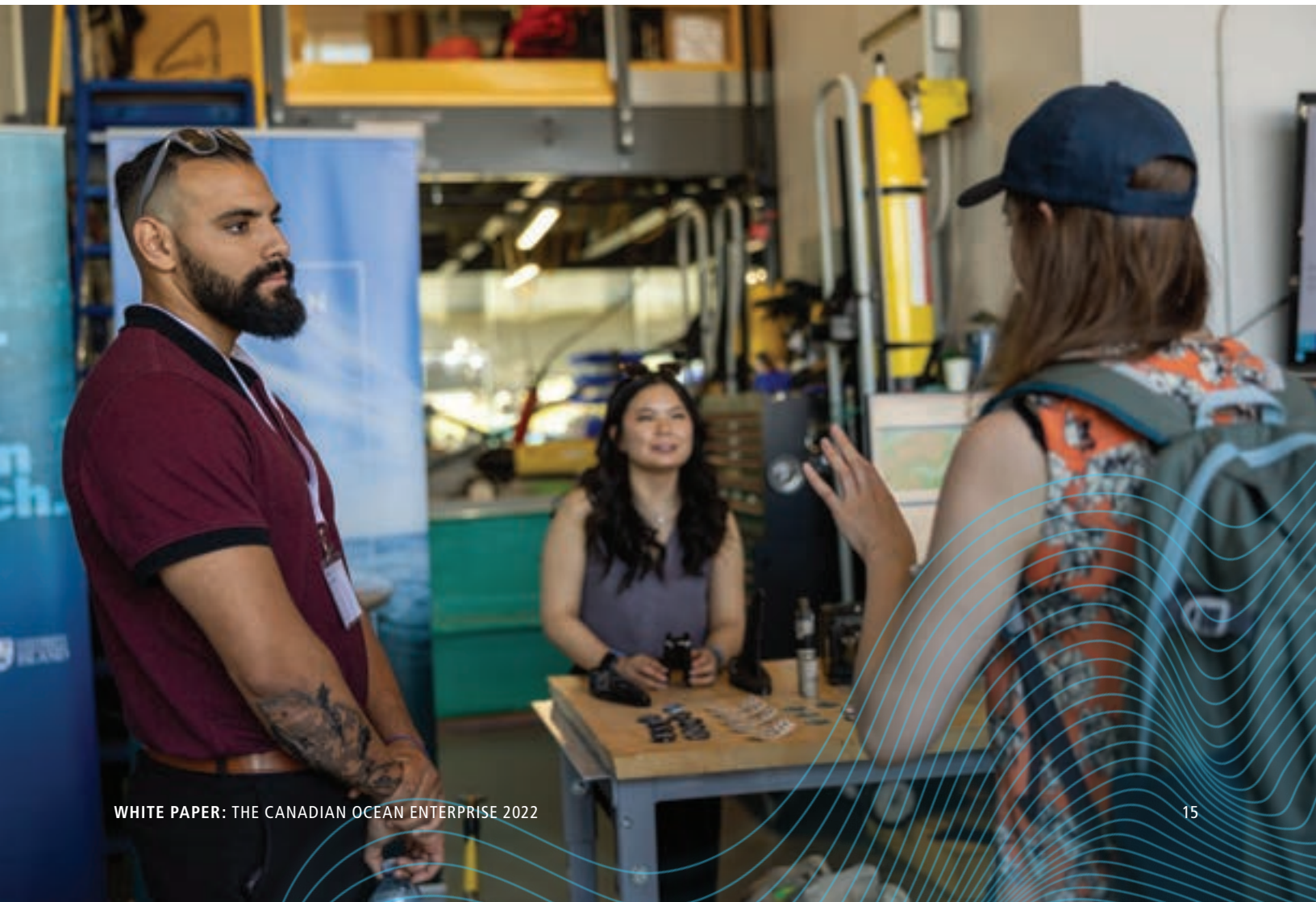


- Increasing
- Staying the same
- Decreasing

21%

4%

75%

**Figure 6 –** Employment projections for the next 12 months

# OCEAN ENTERPRISE REVENUE ESTIMATES

**Figures 7** and **8** display the revenue distribution and the anticipated revenue projections within the next 12 months. Most companies report revenues between $1-$5M, with 28% of respondents reporting themselves in this range. There remains a notably small proportion of companies reporting revenue in the $500K-$1M range, though the gap between this and other revenue categories has shrunk since 2020. Forty-seven per cent of respondents in 2022 reported revenues under $1M. Most of the revenue within this responding group was represented by companies in operation for less than 5 years. It is reasonable to anticipate the revenue distribution to shift towards the larger revenue brackets, with 72% of respondents estimating that their revenues will grow within the next 12 months.
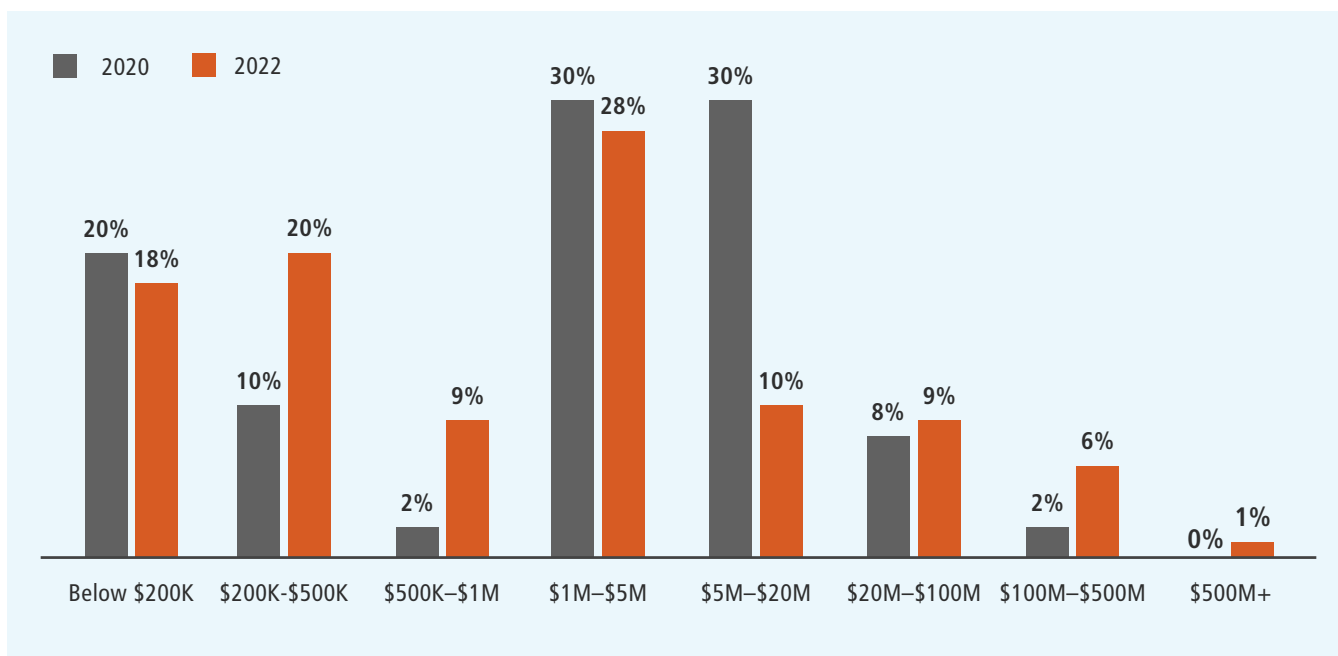


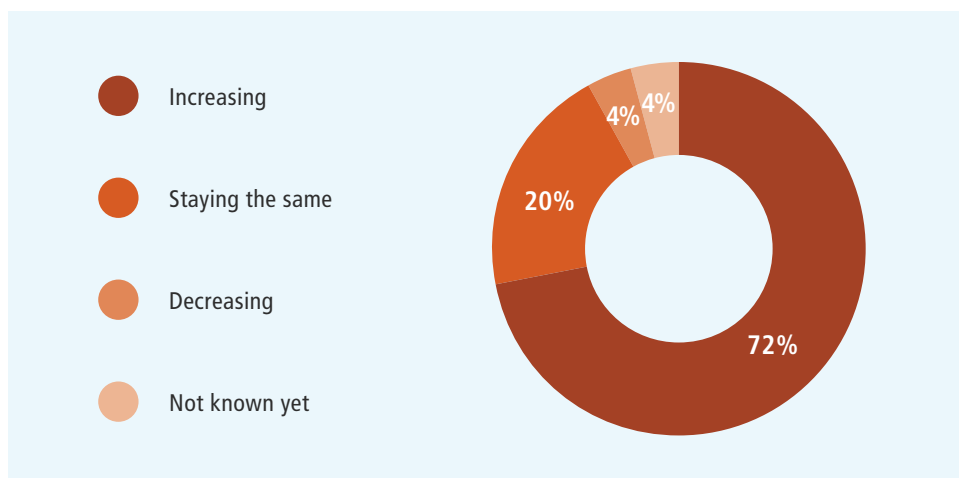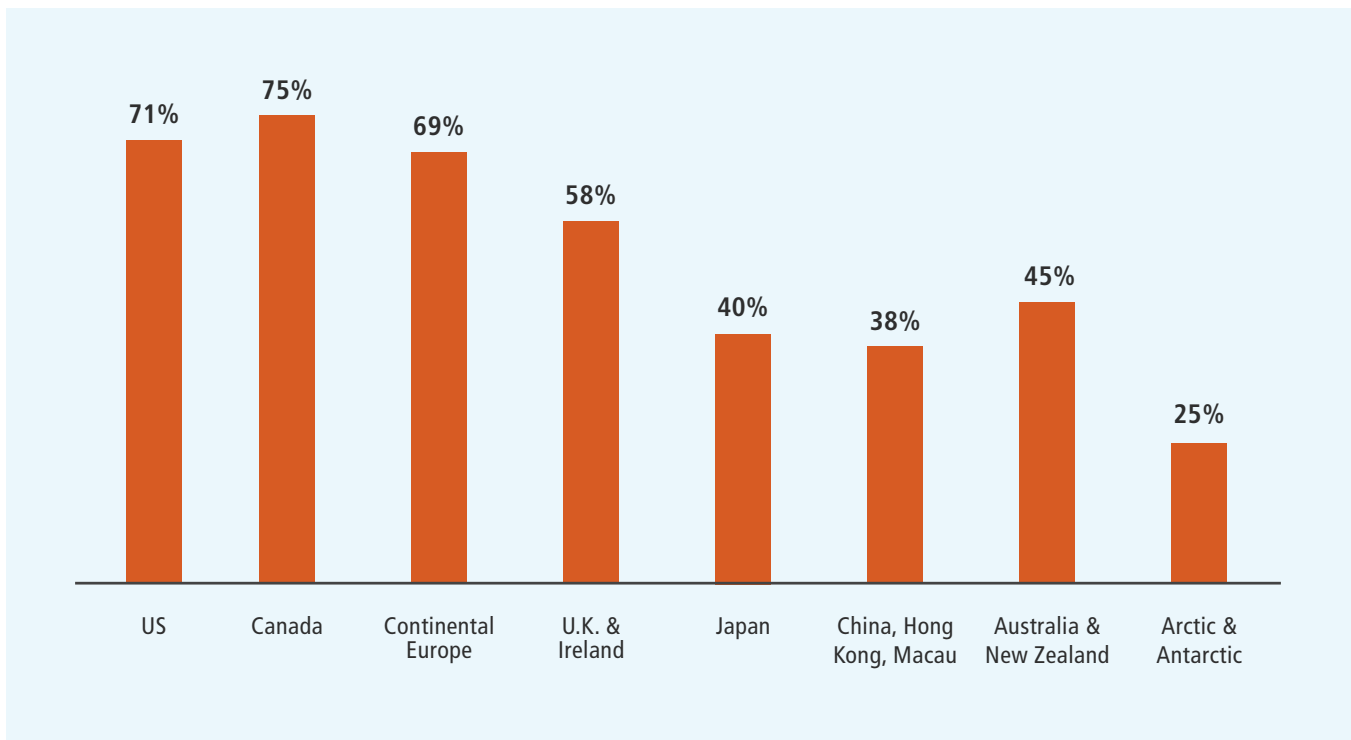**Figure 7** – Revenue distribution of Ocean Enterprise respondents



**Figure 8** – Revenue projections for the next 12 months

# KEY MARKETS



**Figure 9** – Important market areas of respondents, 2022

**Figure 9** displays several market areas identified by the responding companies as important markets; respondents were allowed to select as many markets as applied. Canada remained the most important market area at 75%. The US was the next most important at 71%, followed by continental Europe at 69%. Ireland, the UK, Japan, Southeast Asia, China, Korea, Australia and New Zealand were significant market areas as well. Antarctica and the Arctic remain points of interest as 25% of the respondents identified these regions as important areas representing niche markets for Canada. Canada's geography allows for developing experience with harsh weather conditions and operations in remote areas. This could provide Canadian Ocean Enterprise companies the opportunity to develop technologies and solutions that suit these markets. The US reported that only 7% of their respondents identified this area as important in 2020[11].

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[11] n 5, pg 40.

## DISCUSSION

This follow-up study has provided the opportunity to analyze the growth of Canada's Ocean Enterprise over a period of time. The baseline of business identified in 2020 remains strong, expanding domestically and internationally. The growth of the Ocean Enterprise is indicated by reported companies' employment and revenue, and positive expectations for expansion.

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This study provided some insight that will help stakeholders keep track of the Canadian Ocean Enterprise as it grows. Moving forward, supplemental research incorporating official Canadian statistical databases is anticipated as a source in future biennial reports for metrics such as overall revenue and employment associated with the Ocean Enterprise to most accurately quantify growth. Obtaining aggregate data over time can objectively demonstrate trends in the Ocean Enterprise and its contribution to the broader Canadian Blue Economy. Looking ahead to 2024, it may be useful to conduct case studies with companies with revenues between $500K-$1M to gain a better understanding why there is a lower proportion of businesses reporting in this range.

This analysis suggests that the activities of Provider and Intermediary functions within the Canadian Ocean Enterprise are increasing, with increase in total revenue and employment from that reported in 2020 estimated as $1.1-$1.3 billion CAD and 6000 employees respectively. The number of Ocean Enterprise companies in the Atlantic provinces is proportionally high and has notable impact on the economy given the employment level per company and the density of companies in this region.

The biennial survey and reporting provide a crucial baseline to monitor and investigate forming trends, and to understand the performance of this important facet of the Blue Economy, the Canadian Ocean Enterprise.
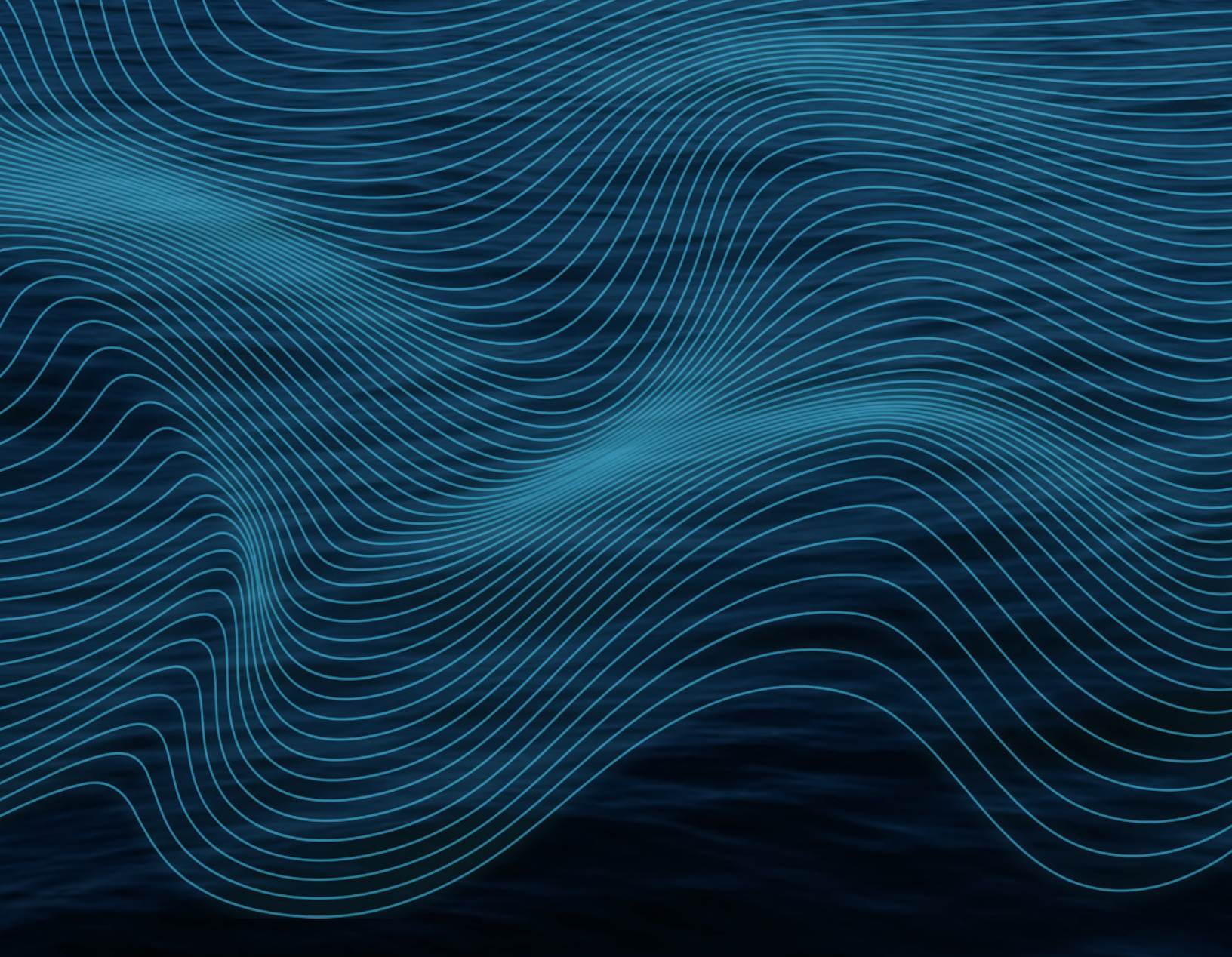
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