BC COMMERCIAL FISHING SECTOR LABOUR MARKET STUDY

Final LMI Report

April 2024

MALATEST

Prepared by R.A. Malatest & Associates Ltd. on behalf of the BC Commercial Fishing Caucus.

Canada BRITISH COLUMBIA

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The views and opinions expressed in this report are those of its authors and not the official policy or positions of the Government of British Columbia.

Executive Summary

The BC Commercial Fishing Caucus (BCCFC) partnered with the Ministry of Post-Secondary Education and Future Skills to undertake a sector engagement and labour market study to examine the key human resource issues facing British Columbia's commercial fishing sector, as well as several related sectors in the blue economy. The purpose of this research was to examine the human resource requirements of the commercial fishing sector and the impacts of skills requirements, training, and new technologies for the sector and to identify transferable skills that could support greater labour mobility across the sector as well as with the other blue economy employers. BCCFC contracted R.A. Malatest & Associates Ltd. (Malatest) to conduct the research and analysis for this project.

The study consisted of two phases: Phase I, *Sector Engagement*, involved key informant interviews and focus groups with key sector stakeholders to identify key research questions (for Phase II), and develop an understanding of the general context of the sector. The final report from Phase I was submitted in Spring of 2023.

Phase II was the L*abour Market Study* portion of this project. During this portion of the project, multiple research methods and lines of evidence were used to collect a robust set of data for analysis and triangulation. Research activities included a review of secondary data and literature from relevant sources, including Statistics Canada and BC Stats data sets, a survey of more than 100 employers in the commercial fishing sector and blue economy in BC, key informant interviews with employers, new entrants to the sector and industry and training institution representatives, as well as focus groups with industry and training institution representatives. Key findings from this research are summarized below.

The commercial fishing sector is currently challenged by a tight labour market.

While the workforce of BC's commercial fishing sector has gradually declined, there remain strong opportunities for the sector to expand to further contribute to BC's future economic growth, if workforce challenges are addressed. Current challenges that contribute to the declining workforce include difficulty obtaining licenses and complying with regulations, reduced fisheries access due to the establishment of Marine Protected Areas, and fluctuations in product prices. While climate change and changes in market demand have resulted in the decline in some fishing sectors, there are emerging opportunities in other sectors to cultivate and expand current production.

To accommodate and capitalize on these emerging opportunities, there is a need for the sector to ensure that there will be a sufficient workforce to support such growth. Currently, a significant proportion (43%) of employers reported that they were currently experiencing job vacancies at the time of the survey. Approximately one-third of employers who responded to this survey (31%) reported one to four vacant job positions, while 11% reported having five or more vacant positions. One-half of employers who completed the survey reported a negative impact to their revenue over the last two years due to job vacancies. Employers have had limited success using various strategies to fill job vacancies, including hiring through their existing networks, advertising vacancies through local advertisements and job search websites, and offering good working conditions and flexible work. Notwithstanding the overall decline in the workforce over the past several years, there appears to be a high level of optimism among employers that the sector will witness a considerable

expansion over the next five to ten years. Work in the sector tends to be seasonal, however, employment stability is a priority of workers. This presents an opportunity to cross-train workers to be employed in related sectors of the blue economy during the "off-season".

Recommendation: A number of strategies may be considered to promote the recruitment and retention of workers, including establishing mechanisms that might lead to industries "sharing" workers from sectors experiencing downturn or temporary loss of work. Industry job boards may be used by employers to advertise openings. Examples include job boards offered by Fish Safe BC and the Association of British Columbia Marine Industries. Another strategy is to enhance access to the Temporary Foreign Worker Program by educating employers on the program and developing a Labour Market Impact Assessment Toolkit to support program applications. Additionally, mitigating the seasonality of work can help meet employee needs for job stability. A strategy to increase opportunities for year-round employment is to cross-train employees to work in the blue economy during the 'off season'. Examples of work include assisting with vessel maintenance, conservation efforts, salvage operations, and tourism. This can help ensure the sector retains skilled workers, by keeping workers "on the water", and minimizing the risk of workers leaving the commercial fishing sector to join other sectors. Additionally, to remain operational year-round and maximize the value of seafood products, some businesses reported diversifying the range of seafood products that are harvested, processed, and sold.

More work can be done to support youth to participate in the commercial fishing sector.

The commercial fishing sector workforce is rapidly aging; however, the sector faces challenges with attracting youth and addressing barriers to entry. Some employers who participated in key informant interviews shared their perceptions of why youth are a difficult demographic to reach. It was noted that low starting wages offered by some businesses and the nature of the work, including the manual work of processing fish and the tough, cold conditions that can be experienced while fishing do not appeal to some youth. It was further noted that the transition from family-owned business to more corporate ownership has meant that some of the inter-generational transfer of skills was now less common in the sector than in the past. However, as noted by new entrants, there are plenty of attractants to the sector, including the opportunities for seamanship, opportunities to remain in one's local community, the ability to be out on the water, the sense of adventure, entrepreneurship, and the ability to provide food for the community. A challenge to remaining in the sector, as noted by new entrants, was the lack of financial security due to fluctuations in harvesting quotas and the market price. Motivation to join the sector exists among youth; youth would benefit from greater supports to be exposed to the sector. Best practices can be obtained from other jurisdictions with policies and programs that support the recruitment and retention of new entrants. The Port of Seattle's Workforce Development Policy aims to facilitate events and work-related experiences to create linkages between K-12 education and future marine-related employment opportunities. Additionally, the Young Fishermen's Development Act, a U.S. policy, provides funding to jurisdictions to support youth in entering and remaining in the commercial fishing sector.

Recommendation: It is vital for the fishing sector to attract the new generation of workers to carry on the sector. The sector may consider developing and implementing promotion strategies that highlight positive aspects of commercial fishing to enhance youth's perceptions of the sector and help youth better understand the type of work available in commercial fishing. Speakers' series, field trips and/or the distribution of promotional materials by sector associations and school counsellors to K-12 students may enhance perceptions of the sector and help youth better understand the type of work available in commercial fishing. Attention should also be paid to strengthening the relationship with BC secondary and post-secondary education institutions, in which youth can be provided with exposure to the sector via co-op and/or mentorship type programs. Some harvesters have also offered high school students a "day on the boat" experience to expose new entrants to the sector. Promotion could be targeted to rural and remote communities, where hiring tends to be especially difficult. In addition to attracting youth to the sector, there would also be an opportunity to market the sector to new immigrants, some of which may have a fishing/marine background prior to moving to Canada. Any sector promotion would be taken on by industry.

Employers would benefit from support with implementing technological changes.

Technological advancements in the commercial fishing sector have helped businesses become more efficient and productive. Examples of advancements include satellite technology and the use of artificial intelligence to aid in electronic monitoring, stock assessment and catch identification. As technology advances, there are more opportunities to use it to assist workers and employers in the sector. While some businesses in the sector have invested in and rely on technology, others experience barriers that prevent them from making technological advancements, and often continue to operate on a manual, small-scale level. Employers who participated in key informant interviews often cited financial barriers in terms of purchasing, developing, and/or maintaining technology. Additionally, some employers refrained from purchasing new technology due to uncertainty as to whether it would yield a return on investment due to declining fish stocks and fluctuations in species availability.

Technology innovation centres and food hubs can help mitigate these barriers and support employers with adopting technology. Some innovation centres offer funding for applied research and testing, and businesses can go to innovation centres to trial equipment before making a purchase. Dock+, a food hub in Port Alberni, is the only remaining facility focused on the seafood sector. Innovation centres currently available in BC include North Island College's Centre for Applied Research, Technology, and Innovation, the BC Centre for Agritech Innovation, the Camosun Technology Access Centre, and the British Columbia Institute of Technology's Food Technology program. The University of British Columbia's Food and Beverage Innovation Centre will open in spring of 2024.

Recommendation: Consider exploring the establishment of permanent technology innovation centres with a seafood-related focus to further support employers with the adoption of technology.

There is a demand for training to increase professionalism and retention in the sector.

Based on survey responses, credentials most in demand for harvesting positions included Fishing Master (1-4), Marine First Aid Certificate, and the Marine Emergency Duties Certificate. Aquaculture employers often looked for a BC driver's license, Registered Professional Biologist (RPBio), and Master Mariner.

Employers who responded to the survey were asked to share any training or education that they believed would be valuable for the sector; the most frequent response was business management training (18%), including food supply chain management, business planning, and communications. Demand for programs around seafood processing was high (14%), with respondents commenting on the importance of learning basic fileting skills, quality control, and value-added processing. Additionally, 14% identified sustainability and traceability. A high demand for quality control and traceability courses was also expressed during a focus group with employers, as such training can promote a stronger linkage between harvesting and processing.

During interviews, employers were asked whether any upskilling or training on new technology would be valuable to their company and the wider commercial fishing sector; two out of fourteen employers noted that basic computer literacy skills would be valuable.

Post-secondary training and education institutions partner with industry members to understand the labour force needs of the sector to inform program development. Based on their communications with industry members, representatives of post-secondary institutions were asked which skill types and training they expected to increase in demand throughout the commercial fishing sector. Key areas included the use of electronic navigation tools, knowledge and understanding of the impacts of climate change on fisheries, multi-species harvesting and processing, training for marine deckhands, and seafood business training.

First Nations peoples comprise over 30% of the commercial fishing workforce and over 40% of the fish handling, processing, and sales employment base. Given the integral nature of fishing in many of BC's First Nation communities, some stakeholders emphasized the need for laddered training for such workers.

A challenge reported by two out of five representatives of post-secondary institutions that participated in interviews was declining enrollment in programs. Institutions attributed declining enrollments to a lack of interest in entering the commercial fishing sector among prospective students due to a perceived lack of viability of a career in the commercial fishing sector, as well as uncertainty in government regulations and licensing. Key informants noted that some businesses are no longer willing to offer their employees post-secondary education and training opportunities because their lack of certainty in the commercial fishing sector has made them consider whether they receive a return on their investment in education and training. A strategy identified by key informants to address uncertainty in the future of the sector was to offer training for multi-species harvesting and processing, and value-added processing.

Some key informants (21%) noted that developing certifications recognized across multiple sectors

can support the commercial fishing workforce in developing transferable skills to other sectors of the blue economy. Key informants commented that certifications for refrigeration technicians and welding would be particularly valuable.

Recommendation: There is a need for upskilling and reskilling to ensure the sector remains viable in the face of labour shortages and economic and environmental influences. Training around multi-species processing and higher value-added processing may help maximize the value for BC seafood products. Working with a variety of products reduces dependence on any one species and can help employers be better positioned to adapt to the changing market conditions and environmental factors. Quality control and traceability (see page 23 for definition) training can help harvesters better understand their role in the value chain and promote greater collaboration between harvesters and processors.

First Nations stakeholders indicated the value of laddered training. This could include, for example, introductory training to orientate new workers to basic deckhand activities, followed-up with fishboat captain/skipper training, enterprise training for operating a fisheries business; and/or training to engage in fisheries management. Funding for such training could possibly be accessed through the Pacific Integrated Commercial Fisheries Initiative (PICFI).

A professional designation for fish harvesters, recognized by industry in BC, may help to improve professionalism in the harvesting subsector. Designation could be offered at different levels, from crew members to owner-operators. Additionally, certifications recognized across multiple sectors, including refrigeration technicians and welding, can help employees develop transferable skills to the blue economy.

Additionally, entrepreneurial training can equip fishers to use their 'off-season' as an opportunity for entrepreneurial activities, such as eco-tourism. Cross-training workers to work in related sectors of the blue economy may also help the workforce. The training mentioned above may be offered as micro-credentials, to ensure timely and flexible upskilling and reskilling.

Human resource and training needs can be addressed through a Human Resource Council

Human resources councils and organizations that provide human resources information to support the commercial fishing and blue economy sectors currently exist. However, enhanced collaboration across subsectors, with a provincial focus, can further support the commercial fishing sector address human resource and training needs. Formal leadership may help advocate for and promote the industry in BC.

Recommendation: There should be some consideration given to establish a Human Resources Council that would consist of possibly broader marine-related organizations that can help develop and implement strategies that would be of benefit to the fishing and related blue economy sectors. Such an organization could help implement some of the recommendations outlined in this report.

MALATEST

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BACKGROUND

1 BACKGROUND

1.1 Project Background

The BC Commercial Fishing Caucus (BCCFC) was established in 2010 to bring commercial fishing interests into integrated marine planning in BC. One of the BCCFC's goals is to ensure the sector has the human resources needed to be successful, and to help ensure that the sector has a supply of well-educated, trained, and experienced professionals to manage and execute a variety of functions for the commercial fishing sector in the province. The wild fishery is critical in terms of food security and supporting a variety of coastal communities, marine sub-sectors, and related professions in the blue economy across BC's coast.

Over the past few decades, the sector has faced many challenges including rapidly changing fish stocks due to human and environmental factors. Licensing and regulatory practices have also made fishing less financially viable for many smaller, independent operators, many of whom have already left the sector. Attraction and retention of skilled and knowledgeable workers is also a challenge due to the seasonal nature of the work and the ever-decreasing availability of local labour, as many families and residents of BC's coastal communities have already left the sector due to the adverse market conditions and associated financial risks. Due to these pressures, the sector has witnessed a marked change in terms of economic output and the sector's labour market. The sector requires forward-looking research into transferrable skills and training to adapt to new, emerging technologies, and identify related sectors in the blue economy (industrial marine, oceanography, coastal pilotage, processing and distribution) where workers can be cross-trained or upskilled to ensure a resilient and adaptable workforce.

The Ministry of Post-Secondary Education and Future Skills (PSFS) provided the funding to undertake this Labour Market Study to examine the key human resource issues facing BC's commercial fishing sector, as well as several related sectors in the blue economy in BC With the funding from this agreement, BCCFC sub-contracted R.A. Malatest & Associates Ltd. (Malatest), to conduct this labour market research. The research was undertaken in two phases: Phase I, an engagement of BC commercial fishing sector stakeholders to establish key research priorities, and Phase II, the in-depth labour market research to examine the human resource requirements of the commercial fishing sector that examined such factors as the impacts of new technologies, skills requirements and training in digital skills for remote workers and identify transferable skills that could support greater labour mobility across the sector as well as with the other blue economy employers.

Research activities undertaken included quantitative and qualitative research involving a secondary research and gap analysis, key informant interviews, focus groups, the design and administration of a survey of employers within the commercial fishing sector and blue economy employers, and high-level data analysis.

1.2 Governance Committee

To support this labour market study, BCCFA convened a Governance Committee (GC) that represents the diverse perspectives of the BC commercial fishing sector based on engagement conducted in Phase I. The purpose of the Governance Committee was to provide feedback on project deliverables, informally support data collection activities by reaching out to colleagues and encouraging participation and ensure effective project oversight. The labour market optimism expressed in initial meetings by GC

members given license reform and local management is not captured in this document, neither are the opportunities for labour market innovation that some GC members anticipate with these changes.

1.2.1 Governance Committee Members

Jim McIsaac	Managing Director, BCCFA
Des Nobels	Chair, Coastal Community Network & Groundfish Development Authority
Cam Pirie	President, WalCan Seafood
Sonia Strobel	Co-Founder and CEO, Skipper Ottos Community Supported Seafood
Andy Olson	CEO, Nuu-Chah-Nulth Seafood LP
Emily Orr	Business Agent, UFAWU-Unifor
Megan Eadie	Executive Director, BC Crab Fisherman's Association
Debra Hellbach	Manager, Centre for Seafood Innovation, Vancouver Island University
Rick Williams	Researcher, Canadian Council Professional Fish Harvesters
Nico Prins	Executive Director, BC Shellfish Growers Association
Leann Collins	Director, Association of BC Marine Industries
Defacto members	
Kevin Romanin	Ministry of Water, Land and Resource Stewardship (Observer status)
Matthew Boddy	Ministry of Post Secondary Education and Future Skills (Observer status)

1.2.2 Inputs and Activities of Governance Committee Members

R.A. Malatest & Associates Ltd. was contracted to conduct all research and analysis activities required for this project, as well as preparing draft copies of all major deliverables for submission to the Ministry. These drafts were then submitted to the Governance Committee for review and comment; once these deliverables were approved by the Governance Committee, these documents were submitted to the Ministry for review and comment.

The Governance Committee reviewed and approved of the following elements of this Labour Market Research Project:

- Project methodology and work plan;
- Findings and Report for Phase I, Sector Engagement;
- Data collection instruments for Phase II;

- Literature review for Phase II;
- Data collection activities and summary for Phase II (including employer validation PowerPoint deck); and
- Final Report for the Phase II Study

In addition, several Governance Committee members provided informal and ad hoc support to this research project by promoting data collection activities and encouraging participation among their colleagues.

2

METHODOLOGY

2 METHODOLOGY

2.1 Phase I Engagement

Phase I of the project, sector engagement, began with eleven key informant scoping interviews with a diverse group of key stakeholders representing different harvesting and processing perspectives, as well as other stakeholders within the sector and members within the wider blue economy. The purpose of the interviews was to identify research priorities for Phase II and to identify broad sector trends and influencing factors that should be accounted for in the research. The interviews were conducted between March 2 and March 27, 2023. Interviews were conducted virtually and lasted between 30 and 45 minutes. The Governance Committee provided input on and supported Malatest with identifying potential interviewees to be contacted. Malatest recruited interviewees via invitation letters emailed to prospective participants, as well as an FAQ document about the Phase I research of the project.

To support these interviews, Malatest developed a semi-structured interview guide. The guide was designed to ensure that key topics of interest to this phase of research were covered, while also providing flexibility for interviewees to provide additional information or context on issues they considered important and allow researchers to probe any unexpected themes or issues raised in the interview.

2.2 Phase II Labour Market Study

Phase II, the labour market study, commenced following Phase I. Based on findings from Phase I, Phase II focused on several key areas:

- Collecting a clear picture of the skills and necessary credentials for key occupations in the sector for all of the subsectors (harvesting, processing and aquaculture);
- Enumerating job vacancies in the sector and the financial impact labour shortages have had and are expected to have on the industry;
- Examining the future of the commercial fishing sector including the impacts of new technologies;
- Specifying skills requirements and training in digital skills for the commercial fishing workforce operating in rural and remote communities;
- Identifying transferable skills in the wider blue economy, particularly for those areas also experiencing their own labour shortages;
- Identify opportunities to help ensure that workers are retained in the sector, as well as opportunities for employers to tap into new potential labour sources;
- Identifying any diversity and inclusion considerations (including, but not limited to, potential barriers to participation for underrepresented groups) in the sector;
- Understanding education, training, and mentorship requirements for key positions in the sector, and how post-secondary institutions and training organizations can support the industry.

To address these information needs, Malatest engaged in four main research activities: a literature review, a comprehensive survey of current employers/owner-operators, interviews with post-secondary institutions and employers in the BC Commercial Fishing sector and with blue economy employers, and

focus groups with employers, post-secondary institution representatives, and new entrants to the sector. Malatest's approach to each of these research methods is described in further detail in the following sections.

2.2.1 Literature Review and Environmental Scan

A literature review of peer-reviewed and grey literature was conducted to provide a comprehensive overview of BC's commercial fishing sector's labour market conditions and economic trends, including a description of the workforce profile. This report was designed to provide an examination of recent trends and developments in the sector, as pertaining to human resources issues, as well as to highlight labour market initiatives undertaken in other jurisdictions. Sources drawn on include Tax-Filer data, Labour Force Survey Data, BC Statistics – Exports by Commodity, and Department of Fisheries and Oceans Canada (DFO) tonnage statistics. Key findings from the literature review and environmental scan are included in this report (see Sections 3, 4, and 5), but more detailed information is contained in the stand-alone report, titled the Secondary Research and Gap Analysis Report (May 2023).

2.2.2 Survey

A survey of current employers/owner-operators was developed to collect data on key occupations and associated skills in the sector, barriers to participation for new entrants, and future digital skills/new technology opportunities within the sector. Our approach to surveying is described in the sub-sections below.

Survey Sampling and Administration

The survey was administered from September 11th, 2023 to January 3rd, 2024. The survey was distributed to employers, based on an initial sample of 425 businesses developed by Malatest. This sample was built by searching license holders from the Government of Canada website. The contact names of the license holders were then searched using the Dun and Bradstreet company database for detailed contact information. It should be noted that the sample was not exhaustive of the entire sector, but rather was a starting point for snowball sampling. Malatest also accessed a variety of search engines and the Association of BC Marine Industries (ABCMI) to build up the sample of employers. Surveys were primarily completed online, or by telephone, with some surveys completed during in-person visits to employers in communities where the commercial fishing sector has a large presence. To encourage survey completions, participants were offered the option to enter into a prize draw to win a $500 VISA gift card or a case of smoked tuna. The total sample developed for the employer survey numbered 425 establishments.

Malatest emailed an invitation on behalf of BCCFC, inviting employers to participate in the survey. To boost completions, Malatest phoned non-responding sample members between December 4th, 2023 and January 3rd, 2024 to ask that they complete the survey. Respondents who agreed completed the survey over the phone or were resent the survey email invitation to complete the survey on their own. In addition, some organizations (such as ABCMI) also included information about the survey to members and encouraged their members to participate in the study. The survey had an expected target of between 80-100 employer completions.

Survey Completions

In total, 80 employers fully completed the survey, and 29 employers partially completed the survey. A partial completion was defined as a respondent answering up to Question B1 or further. In total, 109

people responded to the survey, which represented a 26% overall response rate (see **Table 2.1**) and exceeded the target of 80-100 completions.

Table 2.1: Survey Completions by Subsector

Subsector	Full Completions	Partial Completions	% of Completions (Full and Partial)
Harvesting	28	14	39%
Aquaculture[1]	17	4	19%
Processing	17	5	20%
Blue Economy	18	6	22%
Total	**80**	**29**	**100%**

2.2.3 Key Informant Interviews

Interviews were conducted with three key informant groups: employers, post-secondary and training institutions, and new entrants. Our approaches to interviewing these groups are described below.

Employers

Between November 7th and December 8th, 2023, Malatest conducted fourteen interviews with employers. Most of these interviews were conducted during Malatest's site visits to Victoria, Richmond, Prince Rupert, and Nanaimo, while some were conducted virtually (see **Table 2.2**). There were seven interviews conducted with employers that operate businesses in the harvesting subsector, while the completion target was 8-10, and one interview was completed with an employer in the blue economy, while the completion target was 5-7. Despite making multiple attempts to contact employers, it was difficult to identify and engage employers from these sectors. However, seven interviews were completed with 'other' employers, all of which worked in the processing sector, which exceeded the target of 1-2 interviews. Additionally, data from blue economy employers was collected through responses to the survey, and participation in a focus group of employers. Interviewees were provided a gift card for their participation. Interviewees were identified from existing directories of industry members, as well as blue economy employers from the ABCMI directory. To the greatest extent possible, Malatest aimed to recruit individuals who had not already participated in an interview or focus group in Phase I, to ensure broad engagement with the sector and avoid research fatigue among industry members. To support these interviews, Malatest developed a semi-structured interview guide, which was modified as appropriate based on new findings that were uncovered during the course of the study.

[1] Over half of aquaculture employers who responded to the survey represented shellfish aquaculture.

Table 2.2: Employer Interview Completions

Sector	Organization	Mode of Interview
Harvesting	Northern Native Fishing Corporation	Site Visit (Prince Rupert)
	Lax Kw'alaams Fishing Enterprise	Site Visit (Prince Rupert)
	Finest at Sea	Site Visit (Victoria)
	Dakini Tidal Wilds	Virtual
	Pacific Legacy Seafood Inc	Virtual
	National Indigenous Fisheries Institute	Virtual
	Hillis Bros Fishing Ltd.	Virtual
		Total Harvesting = 7
Blue Economy	Seed Science Ltd.	Virtual
		Total Blue Economy = 1
Processing	Dolly's Fish Market	Site Visit (Prince Rupert)
	Aero Trading Co Ltd.	Site Visit (Prince Rupert)
	Grand Hale Marine Products	Site Visit (Richmond)
	7 Seas Canadian Fish Company	Site Visit (Richmond)
	True World Foods Of Canada Inc.	Site Visit (Richmond)
	St Jean's Cannery	Site Visit (Nanaimo)
		Total Processing = 6
		Overall Total = 14

Post-Secondary and Training Institutions

Malatest conducted five interviews with members of Post-Secondary and Training Institutions that provided training that supported BC's commercial fishing sector (see **Table 2.3**). The purpose of these interviews was to determine the available programs, skills, and certifications that could be leveraged to support BC's Commercial Fishing sector, as well as any training in new technologies and digital skills for new entrants in the sector. Interviews were conducted over video conference and lasted 30 to 45 minutes. Malatest worked with the Governance Committee to identify prospective interviewees and recruited key informants to participate.

Table 2.3: Post-Secondary and Training Institution Interview Completions

Institution	Area of Education / Training	Number of Interviews
North Island College	Continuing Education and Training; Applied Research and Technology	2
University of British Columbia	Sustainable Aquaculture; Food Resources and Economics	2
British Columbia Institute of Technology	Food Technology	1
Total		**5**

New Entrants

Malatest conducted one-on-one interviews with two new entrants. New entrants are defined as those aged 30 or under, with less than five years' experience in the commercial fishing sector. Participants were offered a gift card as a gratuity for participation. Malatest worked with the BC Young Fishermen's Network to recruit interviewees and posted targeted social media advertising. The group hosted a large gathering with over 120 in attendance at the end of January 2024, unfortunately, this was too late for our interview timing. Despite substantial recruitment efforts, challenges with reaching this population,

including a small population to pull from and limited interest from this group, led to low participation (n=2). Interviews were approximately 30 to 45 minutes in length and were conducted virtually over Microsoft Teams. Topics explored included factors that attract people to the sector, ways to promote retention, and training for new entrants.

2.2.4 Focus Groups

Malatest held three focus groups with two different stakeholder groups: post-secondary and training institutions that focused on programs related to the commercial fishing sector, and employers operating businesses within the sector. The purpose of the focus groups was to ensure that our findings resonated with the needs and goals of the sector. Our approaches for hosting these focus groups are described below.

Post-Secondary and Training Institutions
Representatives of Vancouver Island University were recruited with support from the Governance Committee. To incentivize participation, participants were offered a gratuity. Six participants attended the session, with representation from the Fisheries and Agriculture Department, the Centre for Seafood Innovation, the Faculty of Science and Technology, the Faculty of Trades and Applied Technology, and Professional Development and Training. The focus group was conducted over video conference and lasted approximately an hour and a half. To support the focus group, Malatest developed a facilitator's guide, which covered topics such as currently available programs, skills, and certifications that could be leveraged to support BC's commercial fishing sector, as well as training in new technologies and digital skills for new entrants in the sector.

Employers
Malatest hosted two focus groups with employers in the commercial fishing sector: one session with six employers operating businesses within the processing subsector and blue economy, and a one-on-one session with one employer in the harvesting subsector. Participants were offered a gratuity to incentivize participation. The focus group began with a presentation of the preliminary findings, followed by a discussion of the findings. The discussion provided attending employers the opportunity to provide feedback on the results and provide considerations to be incorporated into this report. In general, the feedback of the focus groups suggested that there was high level support for the key findings of the research that was completed.

2.3 Data Analysis Approach

Survey responses were analyzed quantitatively, using summary statistics and, where supported by sample size, cross-tabulations as relevant to the research questions. For example, some cross-tabulations by subsector (harvesting, aquaculture, processing, and blue economy) were considered. Due to small sample sizes, we were not able to examine responses by region. Open-ended comments in surveys were coded thematically and summarized qualitatively and quantitatively when possible.

Qualitative data from interviews and focus groups were analyzed and coded thematically, with attention given to areas of convergence and divergence among respondents.

2.4 Limitations and Cautions

Strong efforts were made to conduct robust, multi-method research and triangulate findings. However, the research may still have limitations, as described below, and should be interpreted with these in mind.

2.4.1 Survey Sampling Bias

Notwithstanding that there appears to be a large number of fishing-related enterprises in BC, there was very limited contact details for such establishments. This suggests that while there may be a high number of business establishments, many would be non-operational or very small scale in size (i.e. 1 person operator) that they would not be listed in typical commercial directories. Approximately 425 businesses were contacted to participate in the survey, which would only be a small proportion of the number of business entities reported by Statistics Canada as being in the sector[2]. Additionally, not all businesses had an equal chance of being sampled for the survey, as our sample list was supplemented with available public listings of businesses. Although survey results provide insight into the experiences and perspectives of employers in the commercial fishing sector and the blue economy, the results do not necessarily reflect the perspectives of all employers. In this context, caution should be used in interpreting the survey results.

Despite efforts to obtain a regionally representative sample of information from employers, provincial representation in the final sample included a high proportion of respondents from the Vancouver Island/Coast region (47%) as well as the Mainland/Southwest BC region (42%). In contrast, there was lower representation from employers located in other regions including the Cariboo/North (7%), and Thompson/Okanagan/Kootenay (2%) (see **Table 2.4**). It should be noted, however, that additional data was completed from the North as part of site visits to Prince Rupert. Given the limited responses from regions outside of Vancouver Island/Lower Mainland, and initial comparisons of results from Vancouver Island and the Lower Mainland yielding very little to no difference, analysis of the survey data was not completed on the basis of region.

Table 2.4: Survey Completions by Region

Region[3]	Full Completions	Partial Completions	% of Total Completions
Vancouver Island/Coast	41	10	47%
Mainland/Southwest	32	14	42%
Cariboo/North	5	3	7%
Thompson/Okanagan/Kootenay	1	1	2%
Did not report region	1	1	2%
Total	**80**	**29**	**100%**

Although data was collected from employers across all subsectors of the commercial fishing sector and the blue economy, not all subsectors were proportionally represented in the research (see **Table 2.5**). While aquaculture was represented through survey responses and post-secondary key informant

[2] The BC Business Directory typically over-estimates the number of active businesses, as businesses that have ceased operations, or are not actively still operating, remain in the directory until a formal notice of shutdown is provided.

[3] Based on geographic regions.

interviews, employers in this subsector did not participate in the employer interviews or focus groups. To mitigate challenges associated with differences in participation, findings were broken down by subsector, and key areas of convergence within subsectors were examined and highlighted.

Table 2.5: Employer Representation in Data Collection

Subsector	Estimated Proportion of Commercial Fishing Sector (2022)[4]	Data Collection Item	Proportion of Total Responses Per Data Collection Item
Harvesting	~54% of jobs in sector	Survey	39%
		KIIs (employer)	50%
		KIIs (post-secondary) *	25%
		Focus Group (employer)	17%
Aquaculture	~18% of jobs in sector	Survey	19%
		KIIs (employer)	0%
		KIIs (post-secondary) *	25%
		Focus Group (employer)	0%
Processing	~28% of jobs in sector	Survey	20%
		KIIs (employer)	43%
		KIIs (post-secondary) *	25%
		Focus Group (employer)	33%
Blue Economy	N/A (no proportion, as blue economy is separate from the commercial fishing sector)	Survey	22%
		KIIs (employer)	7%
		KIIs (post-secondary) *	25%
		Focus Group (employer)	50%

**Please note that two post-secondary interviewees provided training and education for multiple subsectors.*

2.4.2 New Entrants Participation

Despite efforts to reach new entrants, only two participated in interviews. As Malatest did not have contact details for any new entrants, we relied on word-of-mouth and social media advertising to recruit for interviews. Although they do provide a window into the experiences of new entrants, findings based on information gathered from new entrants should be interpreted with caution and should not be interpreted as representative of all new entrants to the commercial fishing sector.

2.4.3 Limited Accuracy of Employer Predictions

Our survey asked for employers' estimates or expectations for workforce and business expansion. In our experience, employers tend to overestimate their future business operations growth and hiring needs. Most businesses anticipate growing their operations and market share over the medium to long term; while most business owners would concede that not all businesses within a sector can achieve higher-than-average growth within a given period, most also believe that their business will be successful in doing so. This optimism in estimates tends to result in sector-wide estimates that could be overly optimistic.

[4] NAICS 1141, Taxfiler data and LFS data, NAICS 1125, Census Table 98-10-0448-01 as well as data sourced from DFO and BC Statistics reports, NAICS 3117 – Statistics Canada Table Employment by Industry Annual, Table 14-10-0202-01.

2.4.4 Self-Selection Bias

Data from the survey, key informant interviews, and focus groups are subject to self-selection bias on the part of participants. Those with greater interest in the subject matter, for example, due to facing hiring challenges themselves, may have been more motivated to participate and share their experiences than employers not facing these issues. This introduces a potential source of bias in the summary of findings for this study.

3

FINDINGS: CURRENT LABOUR MARKET

3 FINDINGS: CURRENT LABOUR MARKET IN COMMERCIAL FISHING

This project has defined the commercial fishing industry as including commercial fishing, aquaculture, and seafood processing. This definition roughly aligns with the North American Industrial Classification System (NAICS) codes 1141 (fishing), 1125 (aquaculture) and 3117 (seafood product preparation and packaging) (see **Table 3.1**).

Table 3.1: NAICS Code Definitions

North American Industry Classification System (NAICS) 2022	Industry	Description
1141	Fishing	Establishments primarily engaged in the commercial catching or taking of finfish, shellfish, and other marine animals from their natural habitats.
1125	Aquaculture	Establishments primarily engaged in farm-raising aquatic animals and plants, including establishments primarily engaged in raising both aquatic animals and plants in integrated growing operations / aquaponics. These activities can occur both in natural waters and in artificial aquatic impoundments and include the use of some form of intervention in the rearing or growing process to enhance production.
3117	Seafood product preparation and packaging	Establishments primarily engaged in canning seafood, including soup; smoking, salting and drying seafood; preparing fresh fish by removing heads, fins, scales, bones and entrails; shucking and packing fresh shellfish; processing marine fats and oils; and freezing seafood. Establishments known as floating factory ships, that are engaged in shipboard processing of seafood, are included.

Our research and sector engagement in Phase I of this project identified the need for a clear understanding of the current labour market of the commercial fishing sector. Our research in Phase II targeted this area for further data collection and analysis.

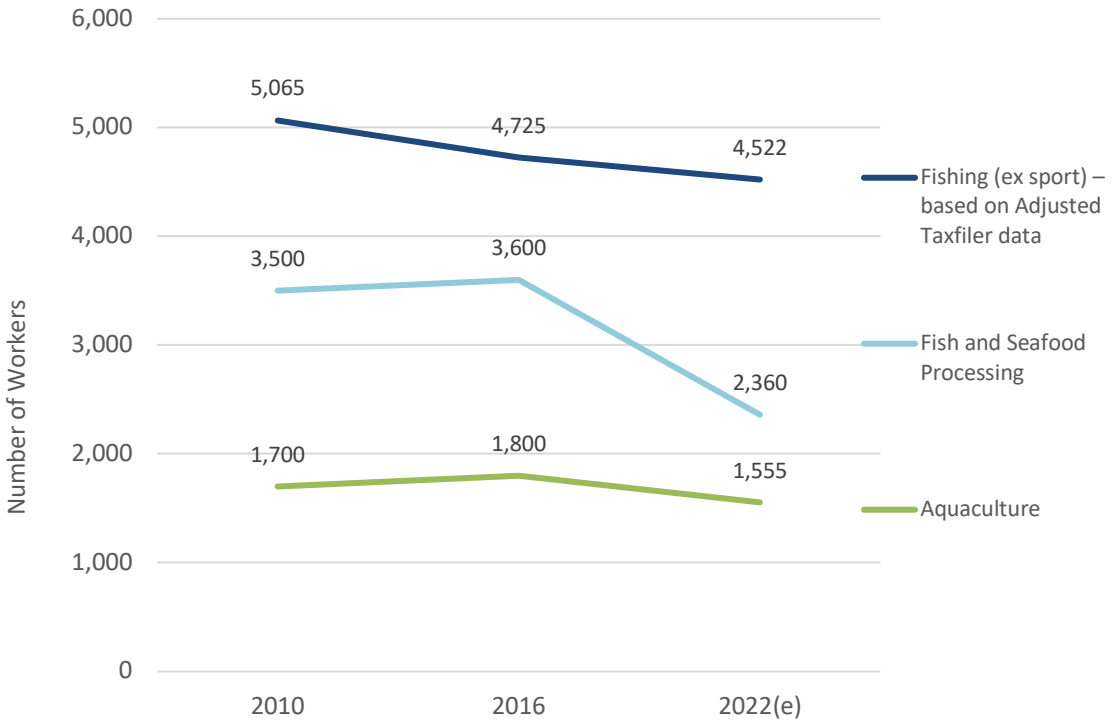
The survey asked employers a variety of questions about their workforce's size and composition by role and season, vacancies, and other items. Key findings from this survey, relevant to current labour market conditions, are discussed below and supplemented with employment data from Statistics Canada and Taxfiler data.

3.1 Estimate of Workforce Size

Taxfiler data (2010-2019) for individuals who reported income from fishing employment was analyzed to estimate the size of the harvesting subsector and estimates of employment in the aquaculture and seafood processing sector are based on information collected in the Labour Force Survey (LFS) for the seafood processing sector (NAICS 3117) and in the 2021 Census for aquaculture (NAICS 1125). While annual employment data is not available for employment in the aquaculture sector, employment estimates were sourced from various reports including a 2022 DFO report as well as the 2018 study produced by BC Statistics (British Columbia's Fisheries and Aquaculture Sector, 2016 Edition).

As shown in **Figure 3.1**, approximately 4,522 people were employed in harvesting (NAICS 1141), 2,360 people were employed in processing (NAICS 3117), and 1,555 people were employed in aquaculture (NAICS 1125). The sector, as a whole, has experienced a gradual decline over the period from 2010 to 2022, with an overall decline of 17.8%. The most significant job losses occurred in the processing subsector (32.6% decline), followed by harvesting (10.7% decline), then aquaculture (8.5% decline).

Figure 3.1: Workforce Size by Industry Subsector



Source: NAICS 1141, Taxfiler data and LFS data, NAICS 1125, Census Table 98-10-0448-01 as well as data sourced from DFO and BC Statistics reports, NAICS 3117 – Statistics Canada Table Employment by Industry Annual, Table 14-10-0202-01.

Using data from the survey of employers conducted in Phase II of this project, we examined the workforce size of individual businesses within the sector. Employers who responded to the survey were asked to report the total number of positions in their company. The mean number of positions was approximately 16, with one-half of respondents (49%) reporting employing between one and five positions. Please note that 2% of the most extreme observations were excluded from analysis to prevent distortion of the data.

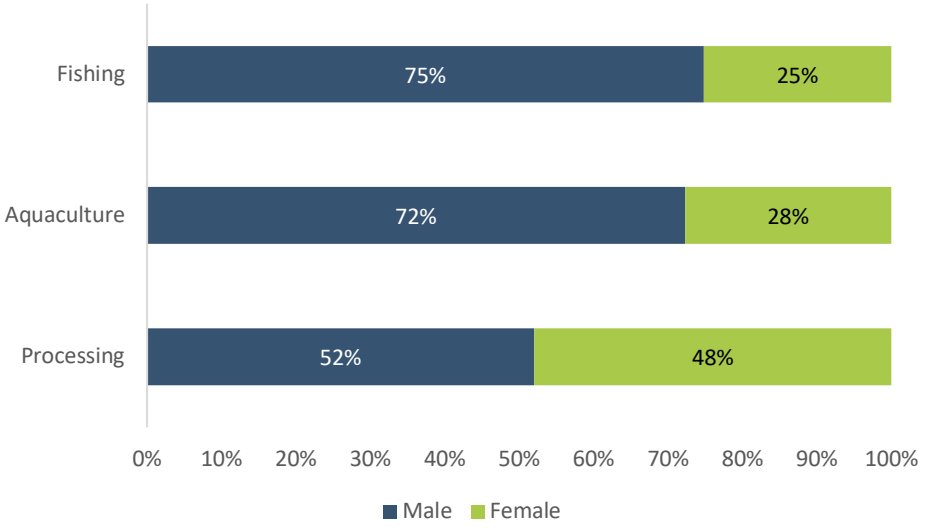
3.2 Workforce Demographics

The following section discusses the workforce demographics of BC's commercial fishing sector. Data from the 2021 Census and Taxfiler data (2000-2019) were used to estimate the composition of gender, age and First Nations representation.

3.2.1 Gender Composition of Workforce

Overall, the workforce in BC consists of nearly an equal amount of men and women: men make up 51.7% of all employees across all industries in BC, and women make up 48.3% of all employees[5]. However, women tend to be underrepresented in the commercial fishing workforce, particularly in fish harvesting and aquaculture (see **Figure 3.2**) where they represent only one-quarter of total employment. An exception is employment in the seafood processing sector; men and women are equally represented (make up 52% and 48%, respectively).

Figure 3.2: Workforce by Subsector and Gender



Source. Statistics Canada. Table 98-10-0592-01 Class of worker by industry groups, labour force status, age and gender: Canada, provinces and territories and census divisions

While initiatives to increase gender-diversity exist, such as Canada's Generation Equality Forum, much more work must be done to ensure gender equity within the commercial fishing sector and blue economy.

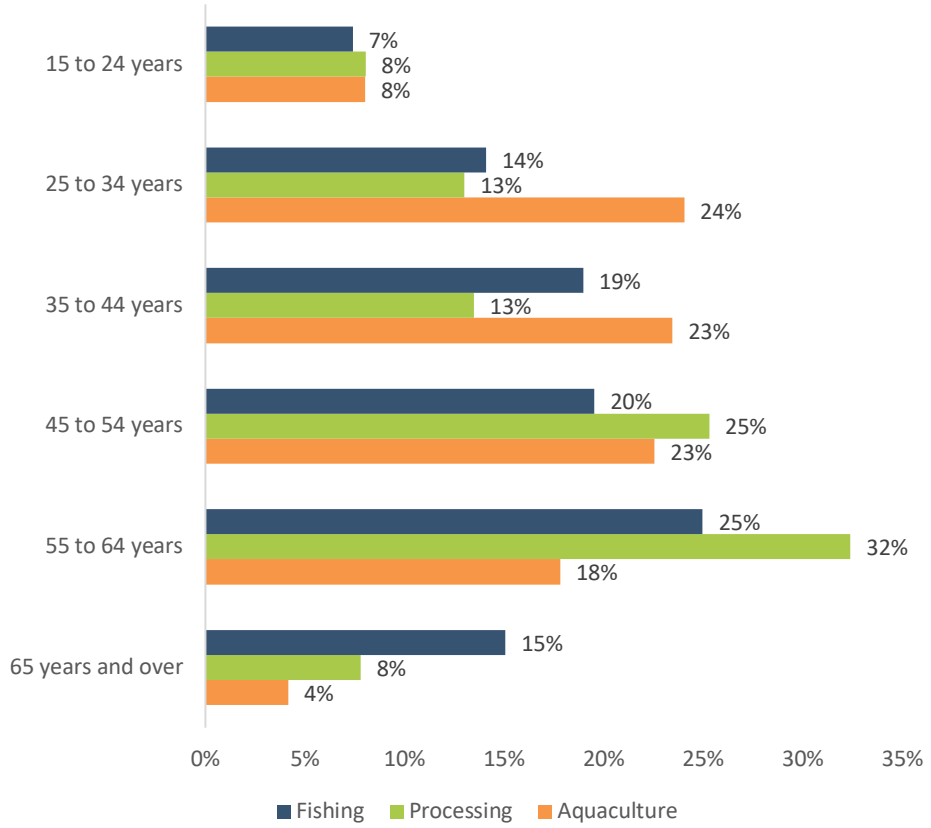
Women's participation in the harvesting sector has remained stable from 2000-2019 (at 23% in 2019), however, participation in waged work within the subsector has steadily declined over the same period, from 48.7% of positions filled by women in 2000, to 36.4% in 2019. Although it is not fully understood why representation of women within waged harvesting work has fallen as much as it has in the past twenty years, it is possible that the increased concentration of ownership by large commercial fishing companies has also resulted in hiring practices that disadvantage women or work environments that are unappealing. Findings from research examining women's employment in the wider blue economy suggest that work environments can be hostile and unsafe for women, which discourages them from applying to these positions. Women who do take on male-dominated seafaring positions have also reported sexual harassment and abuse,[6] which dissuades them from staying in the industry.

[5] Statistics Canada. Table 14-10-0335-02 Proportion of women and men employed in occupations, annual, inactive
[6] BCCIC's all-youth UN Ocean Conference Delegation. *Achieving Equity in Canada's Blue Economy*. June 2021

3.2.2 Age Composition of Workforce

The commercial fishing sector in BC has a disproportionate number of older workers. A majority of workers in the processing subsector (57%) and 45% of workers in harvesting are between the ages of 45 and 64. Workers in processing are nearing retirement; nearly one-third of the labour force is between the ages of 55 and 64 years (see **Figure 3.3**).

Figure 3.3: Age Composition of Workforce



Source: Statistics Canada. Table 98-10-0592-01 Class of worker by industry groups, labour force status, age and gender: Canada, provinces and territories and census divisions

3.2.3 First Nations Representation

First Nations peoples comprise over 30% of the commercial fishing workforce and over 40% of the fish handling, processing, and sales employment base[7]. Relative to other sectors of the economy, the fishing sector has above-average representation of First Nations employees. Nearly one-quarter (23%) of respondents to the survey represented wholly or partially First Nation owned companies. First Nations people in BC actively participate in the commercial fishing industry. Along the Pacific Coast, many First Nations people carry a deep spiritual connection with the marine life, such as salmon they share territory with, but threats like habitat loss, climate change, industrial development along salmon

[7] BC Ministry of Agriculture. Northern Shelf Bioregion MPA – Economic Impacts, January 2020

migration routes, and fish farms have meant salmon are disappearing from the waters.[8] The federal government, has created targeted programs for First Nations to increase participation in commercial fishing businesses[9], such as through the Pacific Integrated Commercial Fisheries Initiative (PICFI). There are also specific capacity building strategies in the BC commercial fishing industry that are designed to support the participation of Indigenous groups. These strategies are typically designed to address the unique challenges and opportunities that Indigenous groups face in the industry, including issues related to access to resources, governance, and cultural values. Some of these strategies include:

Strategies to Promote Indigenous Participation in Fishing

- **Access to Traditional Fishing Grounds**: Efforts to provide access to traditional fishing grounds can help to support the cultural and economic needs of Indigenous groups in the industry. This can include efforts to secure fishing rights and access to resources through co-management agreements and other forms of collaborative governance.
- **Culturally Relevant Training and Education**: Providing training and education programs that are culturally relevant can help to support the participation of Indigenous individuals and communities in the industry. This can include programs that incorporate traditional knowledge and values, and that are delivered in ways that are sensitive to cultural differences. For example, First Nations commercial fishing enterprises can receive training and mentoring support through PICFI.
- **Partnership Building**: Building partnerships and networks with Indigenous communities and organizations can help to increase collaboration and knowledge sharing. This can include partnerships between Indigenous groups and industry organizations, as well as partnerships with other stakeholders in the industry.
- **Capacity Building for Indigenous Organizations**: Building the capacity of Indigenous organizations can help to support the participation of Indigenous groups in the industry. This can include efforts to provide training and resources to Indigenous organizations, and to support the development of governance structures that are aligned with Indigenous values and perspectives. There are programs like the **Aboriginal Aquatic Resource and Oceans Management (AAROM) Program**[10] designed to support Indigenous groups as they develop, grow and maintain aquatic resource and oceans management departments. The **Seafood Business Accelerator**[11] program also provides

[8] Johnson, Rhiannon. "*Pacific Coast Indigenous Nations See a Glimmer of Hope for the Future of Salmon*." CBC News, 4 February 2023.
[9] Ecotrust Canada. *Just Transactions, Just Transitions: Towards Truly Sustainable Fisheries in British Columbia*. https://ecotrust.ca/wp-content/uploads/2018/11/Fisheries-2018-JustTranscations_JustTransitions.pdf
[10] Government of Canada, Fisheries and Oceans Canada. *Aboriginal Aquatic Resource and Oceans Management (AAROM) Program*. 14 Jan. 2018. https://www.dfo-mpo.gc.ca/fisheries-peches/aboriginal-autochtones/aarom-pagrao/index-eng.html
[11] "Seafood Business Accelerator." Seafood Business Ac. Accessed March 7, 2024. https://www.seafoodbusinessaccelerator.ca/.

business system and food supply chain training along with coaching, project implementation and mentorship, all of which helps Indigenous fishers/harvesters capture more value for their catch.

- **Access to Capital**: Access to capital is a critical factor in the success of any business, and Indigenous groups in the industry may face unique challenges in accessing financing. Capacity building strategies can include efforts to increase access to loans, grants, and other forms of financing for Indigenous groups in the industry. For example, PICFI offers funding to support First Nations interested in opening or expanding an aquaculture business.
- **Resources Reconciliation Agreements**: The Fisheries Resources Reconciliation Agreement (FRRA) was signed in 2021 between eight First Nations of the central and north coasts of British Columbia and Haida Gwaii, the Great Bear Initiative Society, and the Government of Canada[12]. The FRRA intends to support more collaborative, coordinated and efficient approaches to the governance and management of fisheries resources between First Nations and Canada. The agreement will also improve economic access to fisheries and provide further opportunities for First Nations to participate in the marine economy.

[12] Government of Canada, Fisheries and Oceans Canada. "Government of Canada." *Pacific Region | Fisheries and Oceans Canada*, / Gouvernement du Canada, 3 Aug. 2022, www.pac.dfo-mpo.gc.ca/reconciliation/docs/frra-arrh-eng.html.

4

FINDINGS: SECTOR TRENDS AND FORECASTS

4 FINDINGS: SECTOR TRENDS AND FORECASTS

4.1 Economic and Environmental Influences

BC's commercial fishing sector is affected by a number of influences, including licensing and government regulation, and changes in market demands, which in turn impact the demand for and availability of labour. In this section, we will examine the current and anticipated pressures faced by the commercial fishing sector, with the objective of establishing some of the key human resource and labour market issues facing the sector. We also identify opportunities for the success of the sector. Findings in this section are based on the literature review and survey data.

4.1.1 Licensing and Government Regulations

Government regulations, license costs, and quota leases are a pressure on the sector that can drastically affect workers and employment. Fishing seasons and catch limits for different species restrict when one can fish and how much can be caught by commercial fishers. One of the largest impacts of government regulation is the licenses and quotas system currently in place by the DFO.

Commercial fishing in BC is regulated through licenses and quotas. Fishers and farmers must have a license to fish, and the government sets quotas on the amount of fish that can be caught in a particular area or season.[13] Investors, corporations, and BC-based fish processing companies continue to buy up fishing licenses and quotas. These licenses are then leased to harvesters who sell their catch back to the processors, which 'prices out' many small to medium operators who cannot compete financially[14]. Many commercial licences and quotas in BC are transferable and can be bought, sold, and leased like a commodity. Demand and speculation can push the purchase price beyond the reach of independent fish harvesters, leading to the rise of speculators such as corporations, investors, including foreign-owned companies.[15]

Challenges related to obtaining licensing and complying with regulations were raised by survey respondents when discussing succession planning. Some employers (3%) reported that difficulty obtaining licenses, and lack of certainty in the future of the sector due to ever-changing regulations, has deterred potential successors from joining the commercial fishing sector. Please note that the survey question about challenges with succession planning was open-ended. It is possible that greater than 3% of employers experience challenges related to licenses and regulations, as some employers may not have discussed such challenges when responding to this question.

One proposed solution to the licenses and quotas issue is to move to an owner-operator approach which is common in Atlantic Canada. Since the late 1970s, licences in most key fisheries in Atlantic

[13] Government of Canada, Fisheries and Oceans Canada. *Commercial Fishing Licence Information| Pacific Region | Fisheries and Oceans Canada*. https://www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/licence-commercial-permis-eng.html

[14] "*B.C. Fishers Floundering as Deep Corporate Pockets Buy up Licences*" Politics Today, 10 May 2023, https://www.politicstoday.news/british-columbia-today/b-c-fishers-floundering-as-deep-corporate-pockets-buy-up-licences/

[15] "*Fishing for Answers: Who Gets to Fish for B.C. Salmon in the Future?*", Today in BC, 9 January 2023, https://www.todayinbc.com/news/fishing-for-answers-who-gets-to-fish-for-b-c-salmon-in-the-future/

Canada were issued to independent harvesters (owner operator fleets), rather than to processors and investors.[16]

It has been noted that unrestricted ownership and open transferability of fishing licences and quota are negatively affecting the viability of many historically important values in BC's fishing industry. This is suggested to be because conservation and economic growth are the only two measures indicating successful fishery management. However, such a limited scope ignores the richer aspects of Canada's fisheries and discredits their incredible value socially and culturally and overlooks many of the fisheries' more nuanced intangible benefits.[17]

4.1.2 Marine Protected Areas

Marine Protected Areas (MPAs) are legally protected spaces where human activities are restricted to varying degrees. MPAs contribute to the long-term conservation of nature with associated ecosystem services and cultural values. MPAs can contribute to the prevention of species loss, and the protection of diversity in marine ecosystems. Protecting fish stocks is vital for the sustainability of the commercial fishing sector. However, the expansion of MPAs also mean that there is a reduction in the geographic areas in which commercial fishing can operate. The proportion of coastline designated as MPA has increased from almost 0% in the 1980s to the current state, in which there are over 185 MPAs protecting 28% of BC's coastal waters. There is concern among the commercial fishing sector that this significant expansion in MPAs has further eroded the ability of the sector to operate efficiently in several areas of the province.

[16] Government of Canada, Fisheries and Oceans Canada. *Comparative Analysis of Commercial Fisheries Policies and Regulations on Canada's Atlantic and Pacific Coasts | Pacific Region*. 24 March 2021, https://www.pac.dfo-mpo.gc.ca/consultation/fm-gp/socio-econ/docs/gp-report-rapport-eng.html

[17] Ecotrust Canada. *Understanding Values in Canada's North Pacific.* https://ecotrust.ca/wp-content/uploads/2020/03/1-Fisheries-2013-UnderstandingValuesCanadasNorthPacific-Report.pdf

4.1.3 Market Demand

Multiple factors can affect market demand in the commercial fishing sector. One is the level of demand for the species of fish or seafood that is being fished. If there is high demand for a particular species, then the current licensing system (as discussed in the previous section) may create a sense of scarcity, which could drive up prices and create a perception of higher value for the product. Consumer preferences can also play a role in market demand for BC commercial fishing products. For example, certain types of fish or seafood may be more popular in certain markets or regions, based on cultural or dietary preferences. The perception of local food is often aligned with many definitions of "healthy" and "socially responsive", presenting opportunities for premiumization.[18] This, along with effective marketing and promotion can help to increase market demand for BC commercial fishing products by raising awareness of the product and its unique qualities, as well as creating a perception of value for the product can have a profound impact on market demand. As detailed in Table 4.1, during the period from 2015 to 2020, the prices received for several key fish products declined, which was echoed in many of the employer interviews where they discussed market-related issues. However, prices for other seafood products witnessed a significant increase over the same time period. The fluctuating prices for BC seafood products poses a significant challenge in a sector that has an issue in terms of recruiting new workers to the sector.

Table 4.1: Aquaculture and Wild Commercial Fisheries Prices[19]

	5 Year Average Price 2015-2019	2020 vs. 5 Yr. Avg. % Change
Aquaculture Prices		
Salmon	8.24 $/Kg	-16.1%
Geoducks and Other Clams	6.84 $/Kg	6.8%
Oysters	1.92 $/Kg	36.1%
Invertebrates	5.87 $/Kg	29.7%
Wild Commercial Fisheries Prices		
Salmon	3.92 $/Kg	-32.3%
Herring	0.79 $/Kg	-8.0%
Groundfish	1.25 $/Kg	-40.6%
Shellfish	11.29 $/Kg	-3.4%

One of the issues that BC fish harvesters face is that they often cannot get their catch to local markets. Due to the way licensing works (discussed in the previous section), most active fish harvesters in BC lease the right to fish from licence and quota owners. They, therefore, do not have the authority to decide when they fish or where the fish they catch is sold. Furthermore, a number of fish processing facilities in BC are owned by foreign entities, which dictate what proportion of the catch can be sold within BC versus exported for use in other jurisdictions. This contributes to the fact that 85% or more of

[18] BC Stats. "B.C. Agrifood and Seafood Domestic Consumption Study" February 2018, https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/agriculture-and-seafood/farm-management/market-development/4496_bcstats_locafoodconsumption_finalreport_mar_22.pdf

[19] B.C. Ministry of Agriculture, Food & Fisheries, Oct 2021. A 4-year average (2016-19) is used to compare with the 4-year average of wild commercial fisheries (which accounts for cyclical fluctuations in wild fish populations)

BC fish is sold to overseas markets.[20] In 2020, BC exported $1.3 billion in seafood products to 66 markets. The top seafood export markets included the United States ($841 million), China ($234 million), Japan ($70 million), and Hong Kong ($36 million).[21]

Maximizing the value for BC seafood products was also seen as a challenge for many BC harvesters/employers. Key informants reported that processed seafood is often destined for international markets, with very little value-added through secondary processing. A number of key informants noted that BC does not have the same range / breadth of training that would allow many processors to expand product lines to produce higher value products. Similarly, harvesters also indicated that there was a need to better understand their role in the final product value and to maximize the quality of harvested seafood. Harvesters could be supported to meet these objectives through training in such areas as quality control and traceability of their product(s).

Traceability is the ability to fully trace a product from its point of origin to the point of sale. Traceability promotes attainment of regulatory standards and quality assurance measures.

Examples of value-added processing include:

- Varied cuts;
- Smoked products; and
- Pre-made meals.

4.1.4 Technological Advancements

Technological advancements have been made in the commercial fishing sector. Satellite technology such as StarLink[22] are connecting vessels with regulators and markets in real time. AI is being piloted for fish recognition to aid in electronic monitoring, stock assessment and catch identification. As technology advances, there are more opportunities to use it to assist workers and employers in the sector. An example of advancing technology that will assist in limiting bycatches is the "Smart Tuna Hook" technology that uses AI to reduce bycatch and improve the sustainability of tuna fishing in Canada.[23] There is also potential for software using sensors and algorithms to detect the size and species of the fish caught on the hook and can automatically release non-target species.[24]

There is also the Fisheries and Oceans Canada's National Vessel Monitoring System (VMS) which is a satellite based, near real-time, positional tracking system. The VMS helps conservation and ecosystem management by providing information that:

- Helps manage sustainable fisheries resources;

[20] Fawcett-Atkinson, Marc. B.*C. Harvests 196,000 Tonnes of Fish a Year. Most of It Is Exported and That's a Problem, Advocates Say*. 25 Sept. 2020

[21] Ministry of Agriculture, Food & Fisheries – Sector Insights & Corporate Initiatives Unit, "Sector Snapshot 2020: B.C. Seafood" December 2021

[22] "Starlink | Maritime." https://www.starlink.com/maritime

[23] Smart Tuna Hook | Bycatch Management Information System (BMIS). https://www.bmis-bycatch.org/mitigation-techniques/smart-tuna-hook

[24] Khokher, M. Rizwan, et al. "*Early Lessons in Deploying Cameras and Artificial Intelligence Technology for Fisheries Catch Monitoring: Where Machine Learning Meets Commercial Fishing*." Canadian Journal of Fisheries and Aquatic Sciences, 5 July 2021, pp. 1–10, https://doi.org/10.1139/cjfas-2020-0446

- Guides compliance program enforcement activities;
- Supports protected area establishment and management;
- Reveals positions of potential illegal activity and contributes to the prosecution of offenders; and
- Shows the status of fish stocks and fish movement and contributes to increased accuracy and the timeliness of catch and effort information.[25]

These kinds of advancements assist in improving the sustainability of commercial fishing in BC. Expansions on the VMS system could help predict the abundance and distribution of fish stocks, analyze data on fishing quotas, catch limits, and other regulations to help fishermen to target their efforts more effectively and reduce overfishing.

By investing in new technologies and infrastructure, fishing operations can become more efficient and productive, and can better compete with other producers. This can include investments in equipment such as fishing gear, processing equipment, and transportation, as well as investments in facilities such as ice plants, cold storage, processing plants, and transportation hubs. This will also assist workers in their impressions of safety and job security if regular updates are made to ships to improve workflow and boat safety.

4.2 Current Workforce Trends

The following section examined the current labour market conditions affecting the commercial fishing sector in BC. Data in this section is primarily based on the findings from the employer survey and key informant interviews.

4.2.1 Current Seasonality of Employment

The following section examined seasonality of employment within the commercial fishing sector and blue economy, from the perspectives of both employers and new entrants.

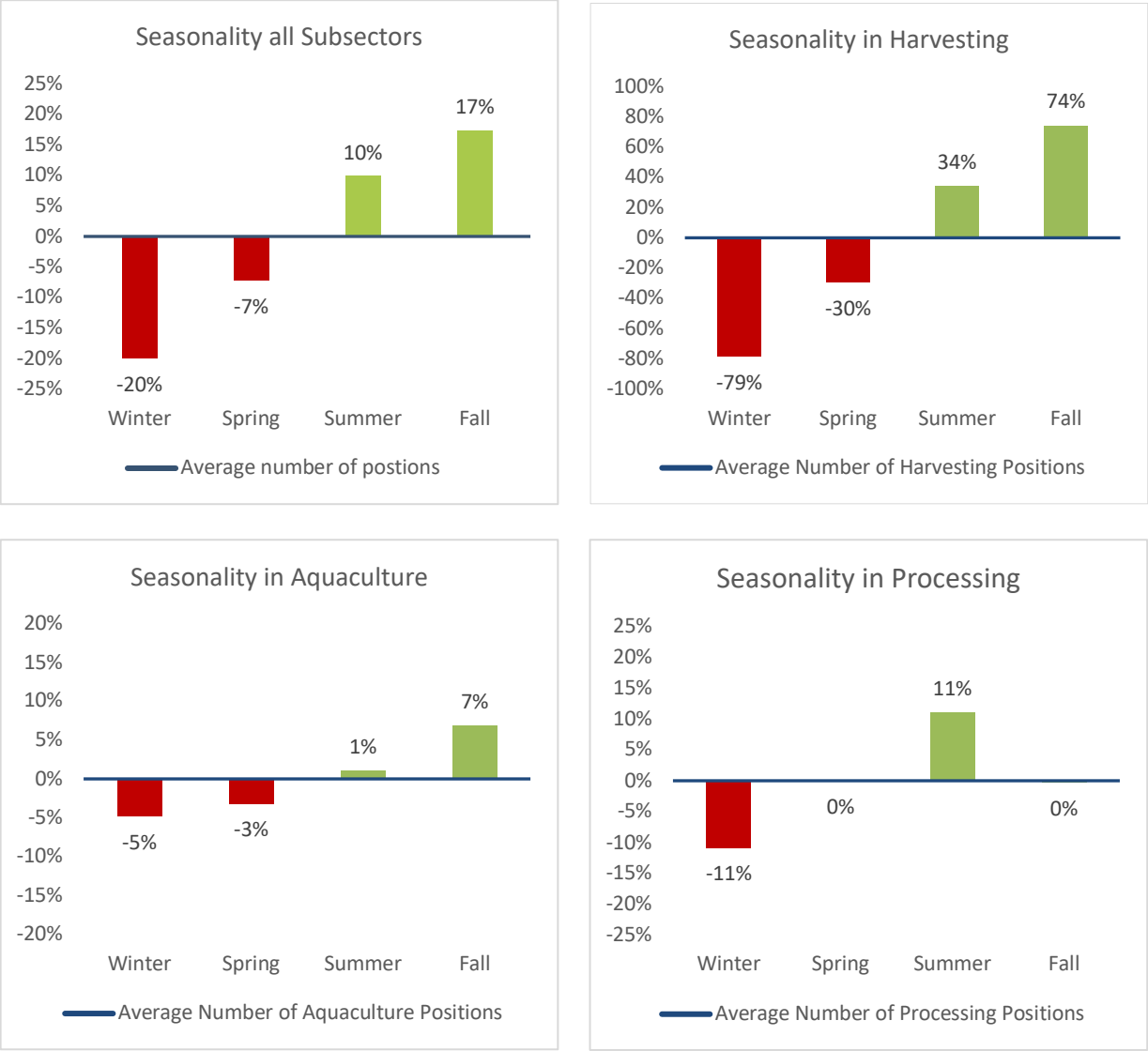
Survey respondents were asked to report the number of positions they employ in the winter (defined as December through February), spring (March through May), summer (June through August), and fall (September through November). The average number of positions was calculated for each sector, and the number of positions employed during each season was compared to the average (see **Figure 4.1**). Overall, lower than average workers were employed in winter (-20%) and spring (-7%), and higher than average workers were employed in summer (10%) and fall (17%).

Seasonality of employment was also broken down by subsector. Harvesting experienced the greatest seasonality out of all subsectors, with employment rates in the winter 79% below the overall average across all seasons, 30% below average in the spring, 34% above average in the summer and 74% above average in the fall. In comparison to harvesting, processing experienced less seasonality, ranging from a low of 11% below average in winter, and 11% above average in the summer. Seasonality in aquaculture

[25] Government of Canada, Fisheries and Oceans Canada. *National Vessel Monitoring Service*. 19 June 2019 , https://www.dfo-mpo.gc.ca/fisheries-peches/sdc-cps/vessel-monitoring-surveillance-navire/index-eng.html

was minimal, ranging from a low of 5% below average in winter, to a high of 7% above average in the fall.

Figure 4.1: Seasonality of Employment



Source: Survey of Employers within the commercial fishing and blue economy sectors conducted for this project, henceforth noted as Survey (2023)

Employment stability tends to be a high priority for workers, however, work in the commercial fishing sector tends to be seasonal. Among employers who participated in key informant interviews, 64% indicated that seasonality was not an issue for the labour market of the commercial fishing sector, while 36% indicated seasonality was an issue. The seasonality of work in the sector is affected by many factors, including market demand, environmental conditions, and the space available to work with seafood products. Some key informants offered perspectives as to why seasonality poses a threat to the labour market; most reported that their inability to offer full time work year-round makes attracting employees difficult. Another explanation was having to lay-off workers in the 'off-season' makes it

difficult to facilitate long-term career paths for employees. Employee retention is threatened, as workers move on to other companies or sectors which may offer greater stability and progression.

> *"In the summer my workforce is double the size. I have to consistently hire then let go – which makes it difficult to create a long-term career path for employees."*
>
> - Blue economy, key informant interview

Strategies used to mitigate the seasonality of work were shared by key informants and a focus group participant. Some key informants discussed hiring students during the busy, summer season, as they tend to look for employment during the summer. A key informant within the harvesting subsector indicated that seasonality was not an issue for their company and commented that the seasonality of work was perceived as a benefit by some fishermen, who enjoyed having time off work during the 'off season'. Additionally, a harvester who participated in a focus group explained that their crew work only a couple months out of the year, and that many of their workers have other jobs to supplement their income. Notably, the harvester reported that one of their workers was also employed at a tug operation, and that their crew members come to work for them because of the pay, and because they enjoy fishing and 'being on the water'. Cross-training such workers who enjoy 'being on the water' to work in other marine industries can help facilitate year-round employment. Examples of work in other industries include assisting with vessel maintenance, conservation efforts, salvage operations, and tourism (e.g., boat tours, aquaculture tourism, etc.), and culinary tourism. The Association of British Columbia Marine Industries hosts a job board of openings within the marine sector[26]. Additionally, training could be completed during the off season, when employees may have more time to devote to training.

> *"Most of my crew work a couple months. For the most part, they have other work they'd be doing. It's not enough to make a living… People come to fish because the pay is good for the time that they work, and they like the work… they just like to go fishing… but, they can't survive off the income from fishing alone."*
>
> - Harvester, employer's focus group

Some employers reported using strategies to keep their companies operational year-round. A common strategy was diversifying the range of seafood products that are harvested, processed, and sold. Working with a variety of products reduced dependence on any one species and helped employers be better positioned to adapt to the changing market conditions and environmental factors.

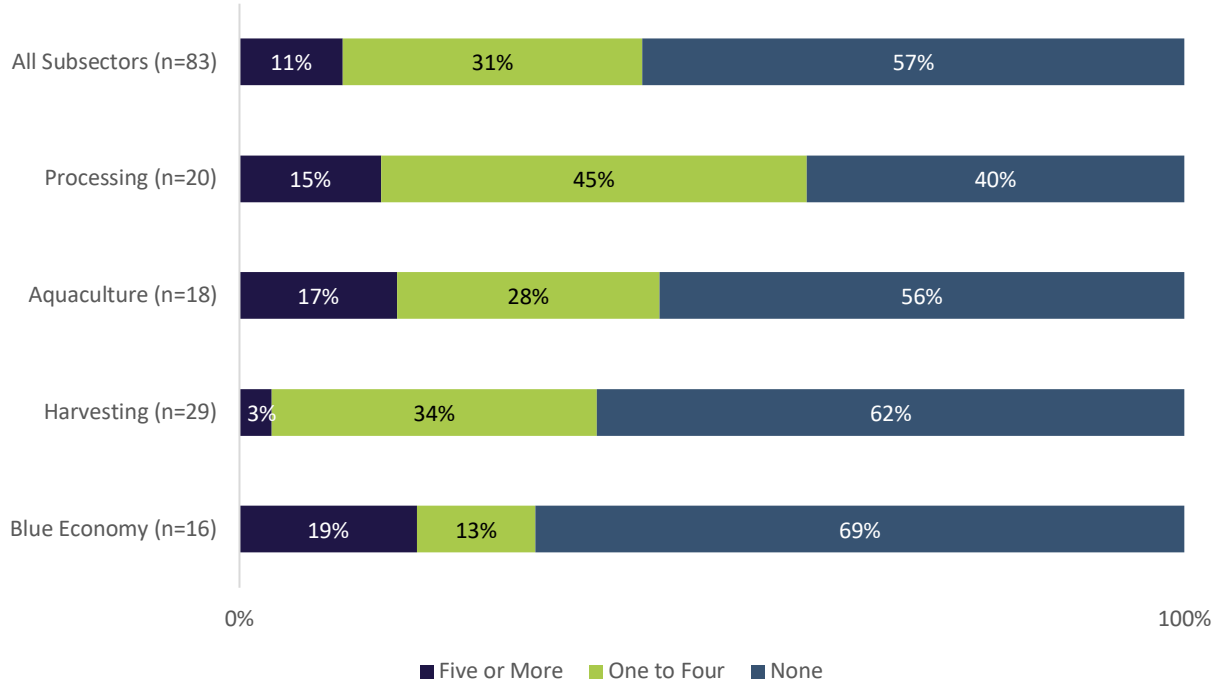
[26] "Jobs Board." *Association of British Columbia Marine Industries*, www.abcmi.ca/jobs?current_page=1&sort_type=featured_recent&filter=%7B%7D&display_type=default. Accessed 13 Mar. 2024.

4.2.2 Current Workforce Vacancies

While this study was not focused on the supply-demand dynamics of the sector, data was collected as to the impact of job vacancies on the sector. Just under one-half of employers surveyed (43%) were currently experiencing any job vacancies at the time of the survey[27]. Approximately one-third of employers (31%) had one to four vacant job positions, while 11% had five or more vacant positions (see **Figure 4.2**). The highest value, an outlier, was excluded from analysis to prevent distortion of the data. Job vacancies were broken down by subsector. Employers operating businesses in the processing and aquaculture subsectors experienced the highest rates of job vacancies, with 60% of processors experiencing vacancies, and 45% of employers within aquaculture experiencing vacancies.

Based off data collected from the survey of employers, the vacancy rate in BC's commercial fishing / blue economy sector was estimated to be 8.3% at the time of the survey. The vacancy rate is nearly double that of BCs' all-industry average of 4.2% in August 2023[28].

Figure 4.2: Employer Reported Job Vacancies



Source: Survey
Valid *n* varied by item; please refer to figure for details. Note that those who selected "Don't know / Prefer not to answer" were excluded from the analysis.

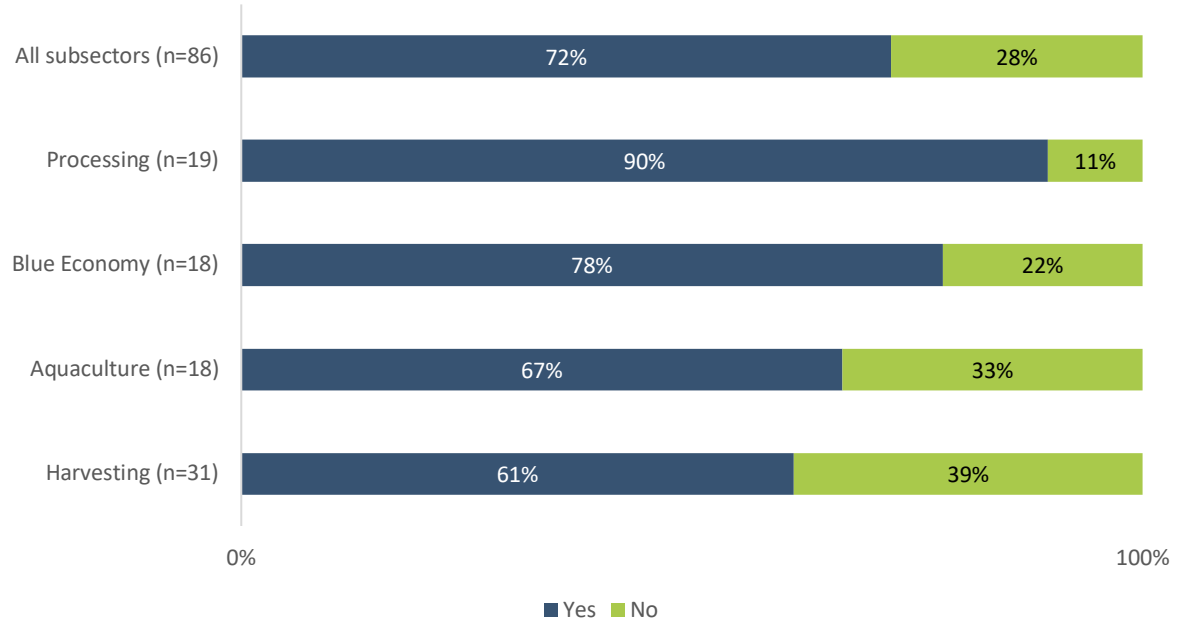
[27] Please note that the survey was administered from September 11th to January 3rd. The busiest season tends to be fall (September through November), and the slowest season tends to be winter (December through February). About 45 responses were obtained in the fall, and about 65 responses in the winter. Seasonal differences in vacancies were likely balanced out across responses.

[28] Blackwell, Jack. "CPABC BC Labour Market CPABC: BC Labour Market Cools, but Still Resilient." Home, CPABC, 14 Nov. 2023, www.bccpa.ca/news-events/cpabc-newsroom/2023/november/cpabc-bc-labour-market-cools-but-still-resilient/.

While most employers surveyed were not currently experiencing vacancies at the time of the survey, a majority of employers (72%) have faced difficulty filling vacancies (see **Figure 4.3**). Processors most frequently reported difficulty filling job vacancies (90%), followed by blue economy (78%), aquaculture (67%), and harvesting (61%) employers.

Vacancies in processing may be the most difficult to fill due to negative perceptions of the work. Processing jobs were often described by employers as "repetitive", "tough", and "dirty".

Figure 4.3: Employer Reported Difficulty Filling Job Vacancies



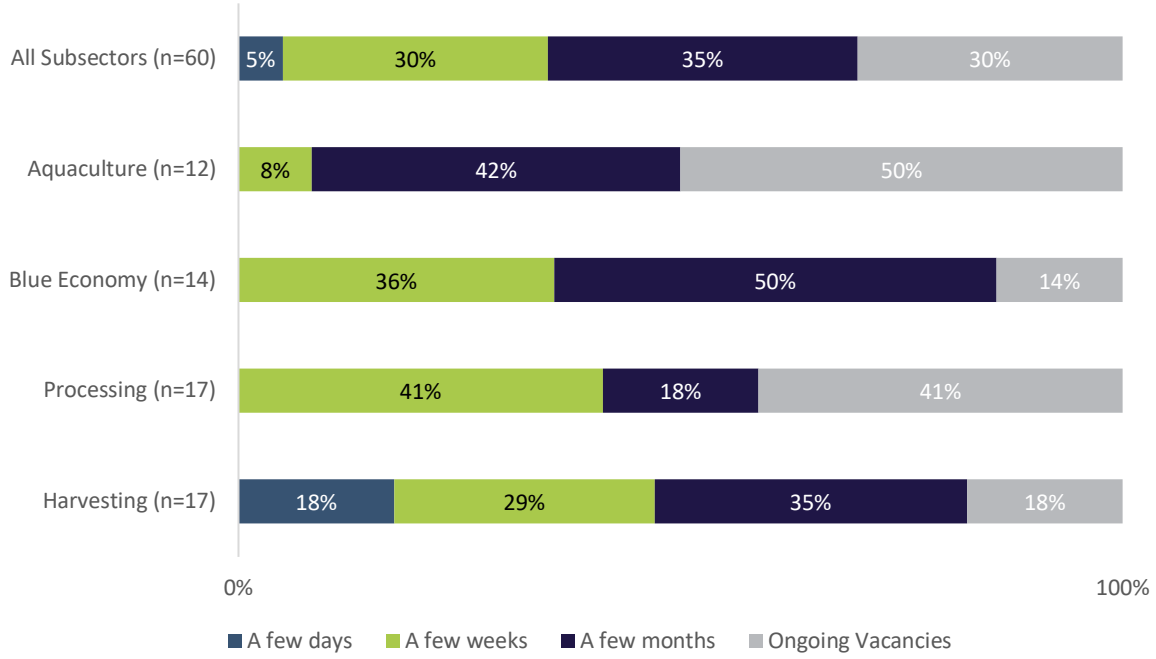
Source: Survey (2023)
Valid *n* varied by item; please refer to figure for details. Note that those who selected "Don't know / Prefer not to answer" were excluded from the analysis.

Among employers experiencing job vacancies, over one-third (35%) reported that filling vacancies takes a few months, while 30% of employers reported having ongoing vacancies that are never filled[29]. Approximately 35% of business owners and operators reported taking a few days to few weeks to fill vacancies (see **Figure 4.4**).

Across all subsectors of the commercial fishing sector and the blue economy, job vacancies in aquaculture took the longest time to fill, with 42% of employers indicating that it takes a few months to fill vacancies, and 50% reporting ongoing vacancies that are never filled. Aquaculture was followed by business owners and operators in the blue economy, 50% of which reported taking either a few months to fill vacancies and 14% of which reported ongoing vacancies.

[29] Ongoing vacancies that are never filled are defined as jobs that are vacant for one year or more.

Figure 4.4: Employer Reported Time to Fill Job Vacancies

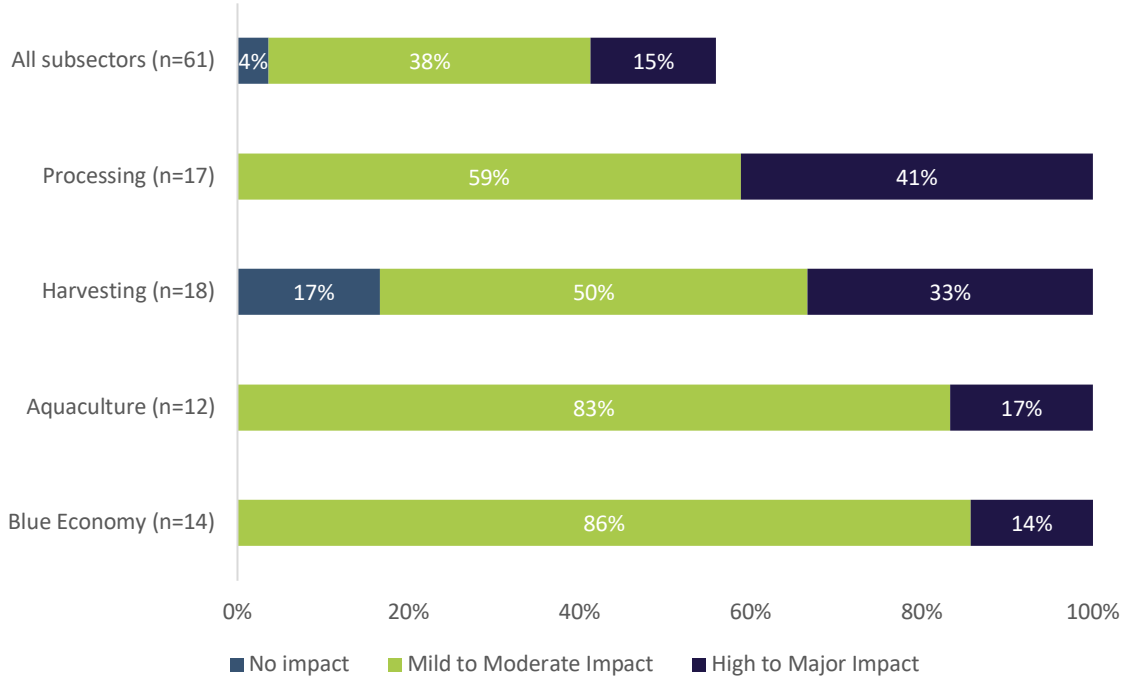


Source: Survey (2023)
Valid *n* varied by item; please refer to figure for details. Note that those who selected "Don't know / Prefer not to answer" were excluded from the analysis.

Business owners and operators who reported experiencing current job vacancies were asked to identify the impact that vacancies have had on business revenue over the last two years. Overall, 52% of employers who completed the survey reported a negative impact to their revenue due to job vacancies, with 38% indicating either a mild or moderate negative impact, and 15% indicating a high or major negative impact (see **Figure 4.5**). The impact of job vacancies on business revenue was broken down by subsector. Employers who most frequently reported a high to major impact included those within processing (41%) and harvesting (33%). Declines in revenue reported by employers in the survey are reflected in the gradual decline in economic output between 2010 and 2022 seen in fishing (-38.0% contribution to BC GDP) and aquaculture (-20.6% contribution to BC GDP)[30].

[30] Statistics Canada. Table 36-10-0402-01 Gross domestic product (GDP) at basic prices, by industry, provinces and territories (x 1,000,000)

Figure 4.5: Employer Reported Impact of Job Vacancies on Business Revenue



Source: Survey (2023)
Valid *n* varied by item; please refer to figure for details. Note that those who selected "Don't know / Prefer not to answer" were excluded from the analysis.

Respondents who indicated job vacancies had either a moderate, high, or major negative impact on business revenue in the last two years were asked to describe how vacancies affected their operations. The most frequently reported response was that employers had to limit operations (64%). Employers noted turning away work due to a lack of labour availability and disruptions to regular operations as they had to step in to fill vacant roles.

> *"We can't hire, so we can't fill the orders. We can't hire drivers, so we depend on outside trucking, which eats into the bottom line."*
>
> -Blue economy employer, survey

> *"There are small windows to catch certain species and if I can't find crew, I miss those windows."*
>
> -Harvester, survey

Some employers also noted that staff were unable to work due to vacancies. Other common impacts included management and employees stepping in to fill vacancies (10%), and higher workloads and longer work hours (10%).

> *"Our management team has to take on these [vacant] roles."*
>
> -Processor, survey

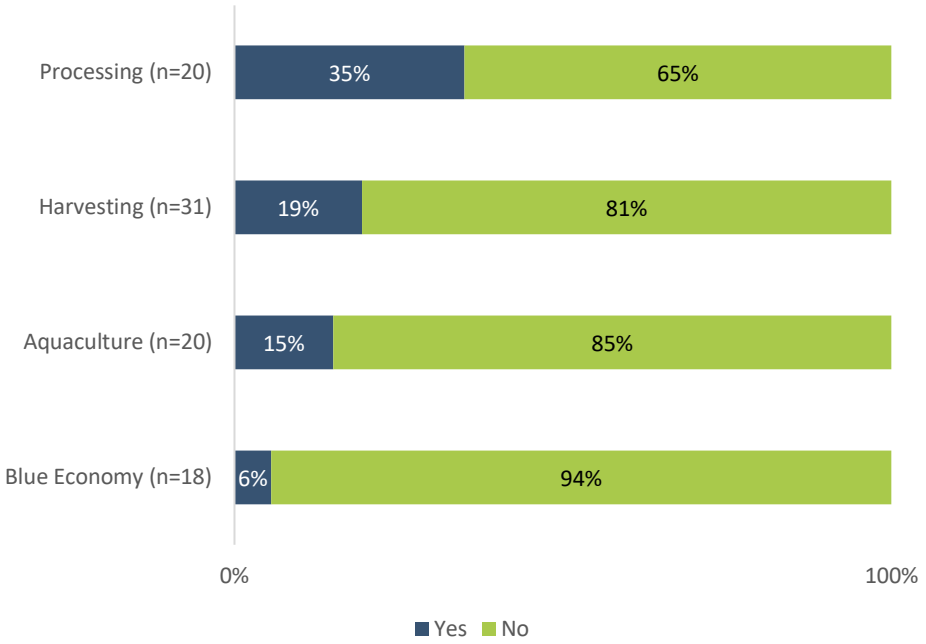
Survey respondents who indicated that they did not have difficulty filling job vacancies were asked to share how they successfully recruit candidates to fill job vacancies. The most frequently cited method was hiring through their existing networks and by word of mouth (40%), followed by advertising job postings (27%) or through local advertisements or job search websites, such as Indeed. Some employers noted that offering good working conditions (20%), including fair wages and prioritizing workplace safety helps attract candidates, as well as offering flexible work (13%).

A strategy used by some employers to fill job vacancies is hiring Temporary Foreign Workers (TFWs). Canada's TFW Program (TFWP) allows employers to hire TFWs to fill temporary positions when no qualified Canadians are available. TFWs are intended to be hired as an interim fix to labour shortages, until more permanent solutions, such as market adjustments to wages, are implemented. Under the TFWP, occupations within primary agriculture can be filled through the Seasonal Agricultural Worker Program and the agricultural stream, both of which require that production be included on the National Commodities List, and the stream for high-wage positions and the stream for low-wage positions, both of which do not require production to be on the National Commodities List. Seafood is not included on the National Commodities List[31], so the Seasonal Agricultural Worker program and agricultural stream of the TFWP are not currently accessible to employers in the commercial fishing sector. Out of the subsectors of the commercial fishing sector, only employers within the processing sub-sector can apply for the TFWP.

Among employers who operate processing businesses that responded to the survey, 35% reported employing TFWs (see **Figure 4.6**). Employers within harvesting and aquaculture reported hiring TFWs at lower rates (19% and 15%, respectively). These results indicate that TFWs are hired by employers through avenues other than seasonal worker programs, however, access to TFWs for harvesting and aquaculture are still lower than that of processing.

[31] Government of Canada, Employment and Social Development. *Hire a Temporary Worker through the Seasonal Agricultural Worker Program – Overview.* 21 Mar. 2023, www.canada.ca/en/employment-social-development/services/foreign-workers/agricultural/seasonal-agricultural.html.

Figure 4.6: Employer Reported Use of Temporary Foreign Workers



Source: Survey (2023).
Valid *n* varied by item; please refer to the figure for details. Note that those who selected "Don't know / Prefer not to answer" were excluded from the analysis.

While employers were not asked directly about challenges with the TFWP during key informant interviews and in the survey, some key informant interviewees (14%) and a couple survey respondents (2%), brought up challenges with the TFWP. Challenges included issues around requirements for TFWs, such as the requirement to offer full time work and fish processing labour not being deemed 'skilled' work. Another challenge with the TFWP was the long wait time for applications to be approved. As of 2024, the average processing time for TFWP applications in BC was 9 weeks[32]. While TFWs are intended to be a temporary fix to labour shortages, some employers who participated in the survey and key informant interviews commented that TFWs would help solve labour shortages in the sector and advocated for increased accessibility to the program.

4.3 Anticipated Workforce Trends

The following sections examine anticipated workforce trends, including workforce expansion, business expansion and succession planning, using data from the survey and key informant interviews.

[32] Government of BC, Ministry of Labour. Register to Hire Foreign Workers. 5 Feb. 2024. https://www2.gov.bc.ca/gov/content/employment-business/employment-standards-advice/employment-standards/hiring/hire-temporary-foreign-workers/register-as-employer/start

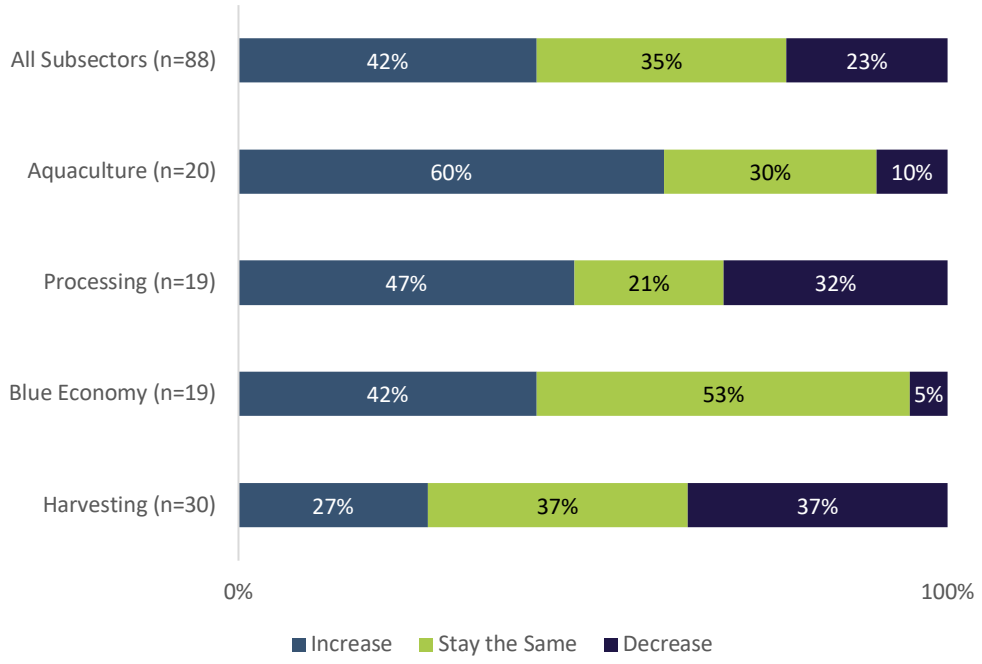
4.3.1 Workforce Expansion

> The BC Fishing sector has steadily declined over the past decade; over the period from 2010 to 2022, the sector has declined **17.8%** (see Section 3.1).

Workforce expansion refers to the increase in the number of workers employed by a business. Employers who responded to the survey were asked whether they expected their workforce to increase, decrease, or stay the same over the next 5-10 years. Responses varied, with 42% of employers expecting their workforce to increase, 35% expecting no significant change in their workforce, and 23% anticipating their workforce to decrease (see **Figure 4.7**). Please note that employers tend to overestimate their future business operations growth and hiring needs. Most businesses anticipate growing their operations and market share over the medium to long term; while most business owners would concede that not all businesses within a sector can achieve higher-than-average growth within a given period, most also believe that their business will be successful in doing so. This optimism in estimates tends to result in sector-wide estimates that could be overly optimistic.

Employers operating businesses in the aquaculture subsector (60%) were most likely to expect their workforce to increase over the next 5-10 years. Harvesters tended to anticipate their workforce to either remain the same (37%) or decrease (37%). Responses among employers in the processing and blue economy subsectors varied.

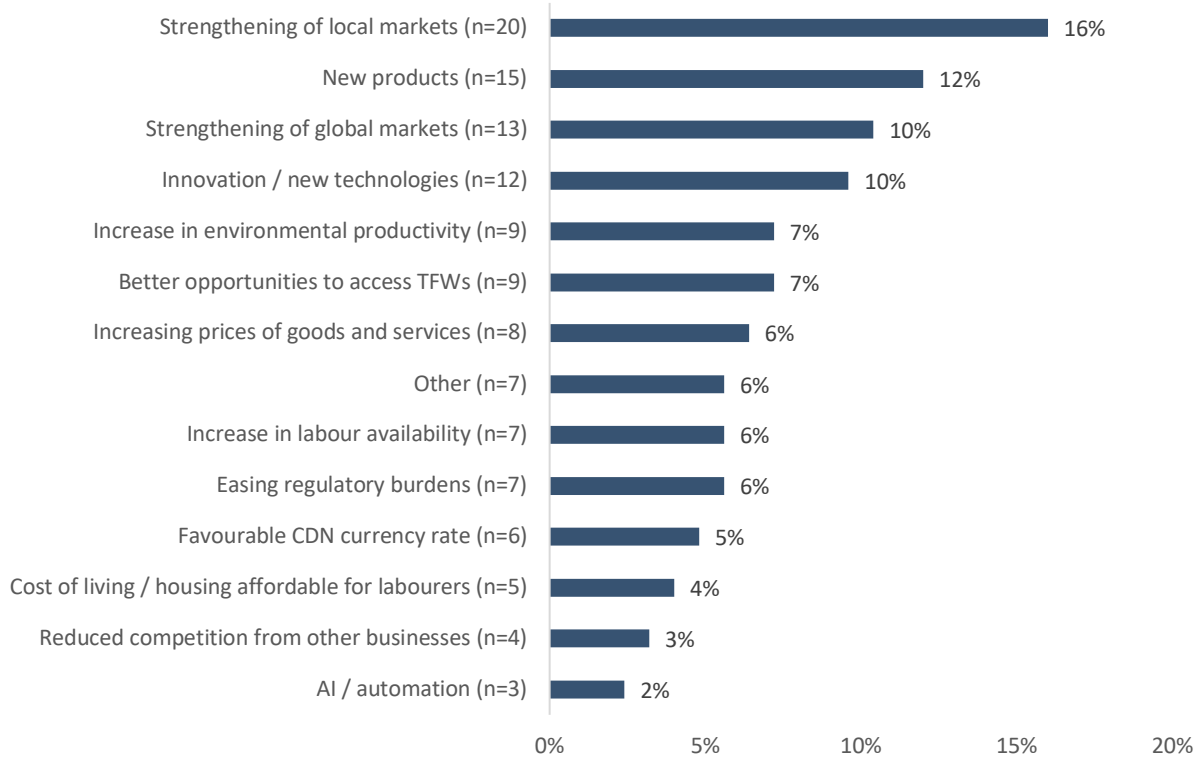
Figure 4.7: Employer Reported Anticipated Workforce Expansion



Source: Survey (2023).
Valid *n* varied by item; please refer to figure for details. Note that those who selected "Don't know / Prefer not to answer" were excluded from the analysis.

Employers who expected their workforce to expand over the next 5-10 years were provided thirteen potential factors that may contribute to workforce increase and were asked to indicate which factors they believed would contribute to this increase (see **Figure 4.8**). Employers were also given the option to provide an open-ended response. The most frequently reported factors were strengthening of local markets (16%), new products (12%), strengthening of global markets (10%), innovation and new technologies (10%), an increase in environmental productivity (7%), and better opportunities to access TFWs (7%).

Figure 4.8: Factors Contributing to Workforce Expansion



Source: Survey (2023)
Valid *n* varied by item; please refer to figure for details. Note that those who selected "Don't know / Prefer not to answer" were excluded from the analysis.

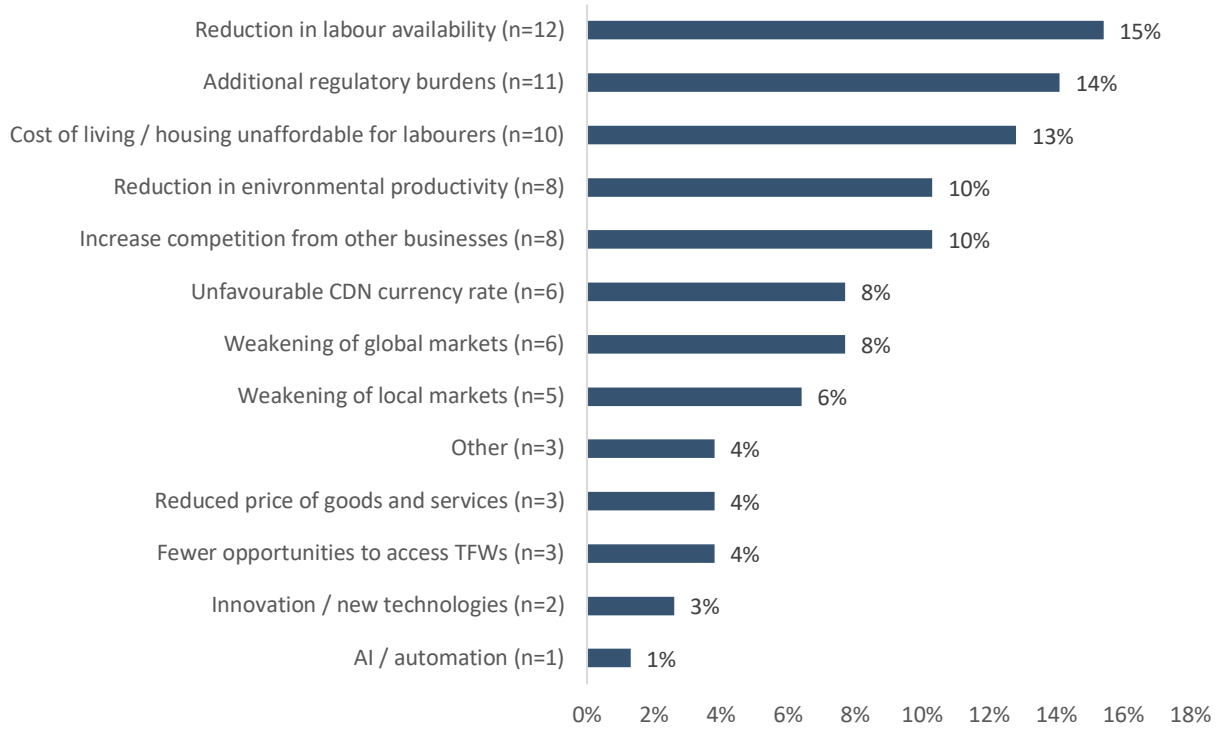
Not included in the drop-down list of factors contributing to workforce expansion was First Nations involvement. Many BC First Nations leaders have lobbied for the transition away from open-net salmon farms. Open net farms along wild salmon migration routes may expose salmon to pathogens, and their closure can protect the Aboriginal right to fish for food, and social and ceremonial purposes of the First Nations along the migratory routes of salmon[33]. However, there will undoubtably be impacts associated with the Federal government's decision to phase out open-pen salmon farms by 2025. While some operators may move to contained (on land) systems, other operations may discontinue operations altogether. Currently, there are 15 open-pen salmon aquaculture operators in BC and not all operations

[33] Canada, Fisheries and Oceans. "Transition Plan for Open-Net Pen Salmon Farming in British Columbia." *Canada.Ca*, Government of Canada, 22 June 2022, www.canada.ca/en/fisheries-oceans/news/2022/06/transition-plan-for-open-net-pen-salmon-farming-in-british-columbia.html.

will convert to contained processes[34]. It should also be noted that this dispute is being taken to court by the BC salmon aquaculture industry. Closure of the operations may result in higher demand for wild salmon and could lead to greater employment in the fish harvesting sector.

Employers who indicated that they expected their workforce to decrease over the next 5-10 years were provided a drop down list of thirteen potential factors that may contribute to this decrease and indicated which they believed were contributing factors (see **Figure 4.9**). Employers were also given the option to provide an open-ended response. The most commonly reported factors were a reduction in labour availability (15%), additional regulatory burdens (14%), high cost of living and unaffordable housing for labourers (13%), reduction in environmental productivity (10%), and increased competition from other businesses (10%).

Figure 4.9: Factors Contributing to Decrease in Workforce



Source: Survey (2023)
Valid *n* varied by item; please refer to figure for details.

4.3.2 Business Expansion

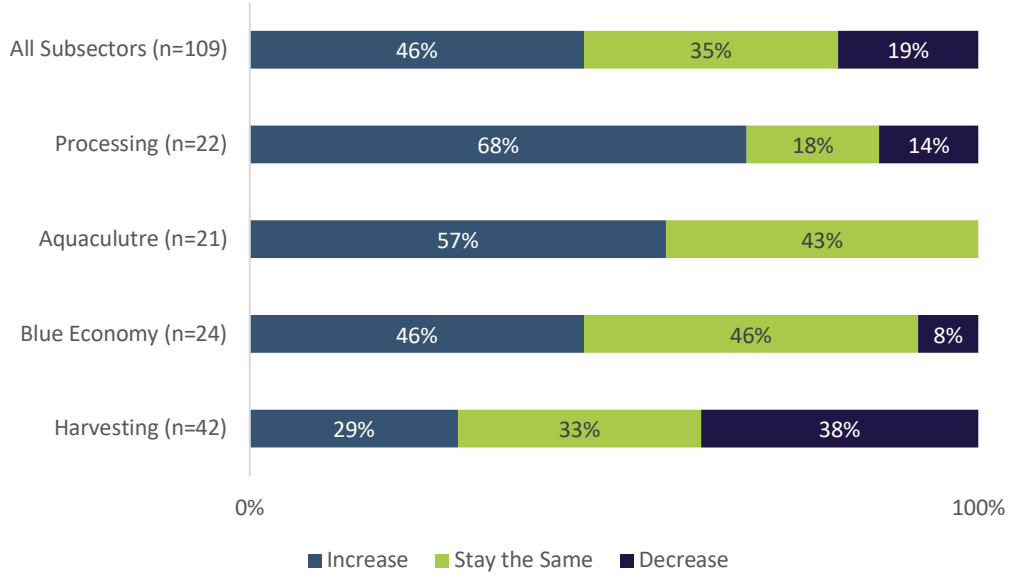
Business expansion refers to the growth of the size and scale of business operations. Employers who responded to the survey were asked whether they expected their business to expand, remain unchanged, or decrease over the next 5-10 years (see **Figure 4.10**). The highest proportion of respondents expected an expansion (46%), followed by 35% of respondents who expected no significant

[34] "B.C. Indigenous Leaders Lobby for Transition from Open-Net Salmon Farms | CBC News." *CBC News*, CBC/Radio Canada, 8 Nov. 2023, www.cbc.ca/news/canada/british-columbia/open-net-salmon-farms-transition-1.7021807.

change and 19% of respondents who expected a contraction. The distribution of results closely aligns with expectations for workforce expansion, noted previously in this section.

Expectations for the change in businesses was broken down by subsector. Employees operating processing businesses were most likely to expect their business to expand (68%), followed by aquaculture (57%), then blue economy (46%). Only 29% of employers within the harvesting subsector expected their business to expand over the next 5-10 years. Most harvesters expected their business to either remain the same (33%) or contract (38%).

Figure 4.10: Employer Reported Anticipated Business Expansion

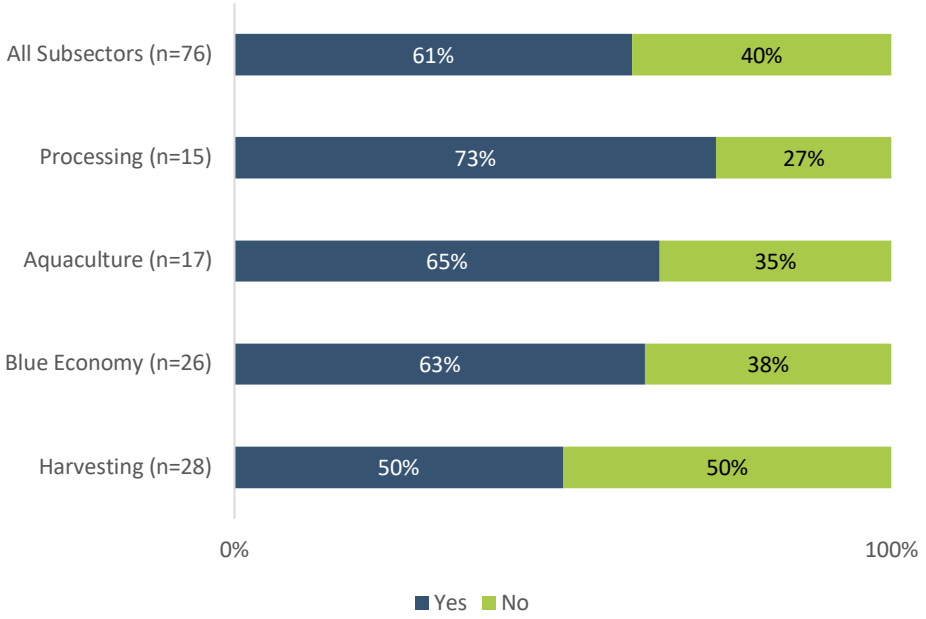


Source: Survey (2023)
Valid *n* varied by item; please refer to figure for details. Note that those who selected "Don't know / Prefer not to answer" were excluded from the analysis.

4.3.3 Succession Planning

Succession planning refers to the process of passing leadership roles down to employees, after leaders have stepped down, and is critical for the continuation of businesses. With the rapidly aging workforce, succession planning is becoming increasingly important in the commercial fishing sector. Survey respondents were asked whether they expect succession planning will be an issue for their company in the next 5-10 years (see **Figure 4.11**). Most (61%) flagged succession planning as an issue. Employers operating businesses in the processing subsector (73%) were most likely to foresee succession planning as an issue, while those in harvesting were least likely to expect issues with succession planning. Processors may be most likely to anticipate issues with succession planning, as their subsector is declining at a quicker rate than other subsectors within commercial fishing. A traditional mechanism for recruitment and retention of workers in harvesting, family connections, may alleviate issues with succession planning.

Figure 4.11: Do you expect succession planning will be an issue for your company in the next 5-10 years?

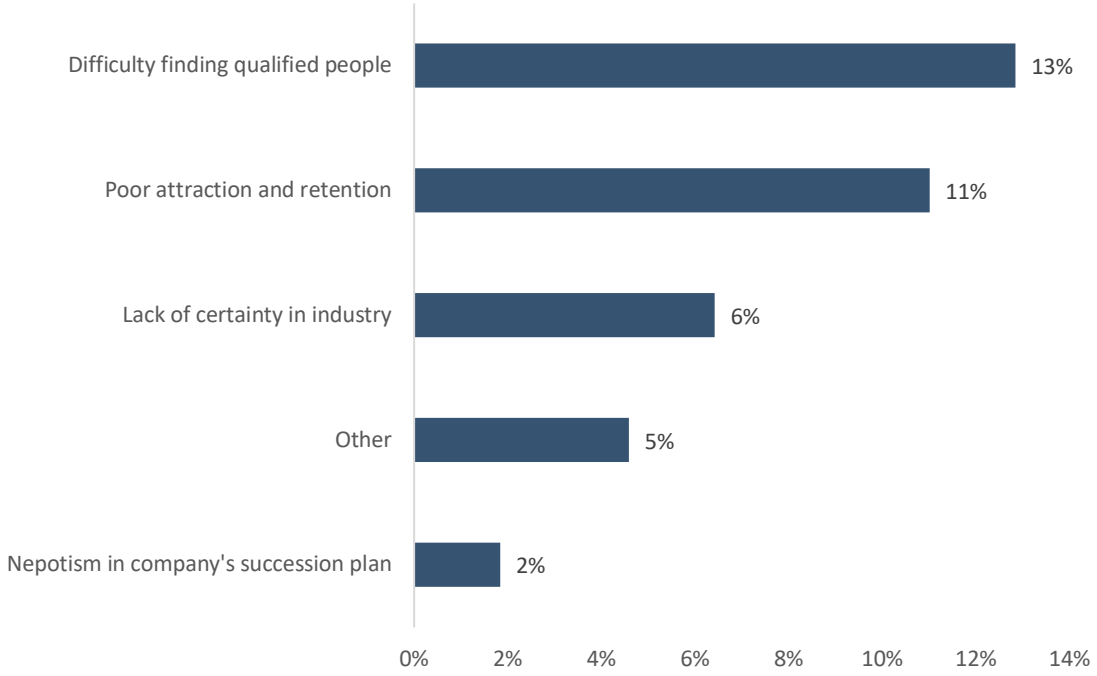


Source: Survey (2023)
Valid *n* varied by item; please refer to figure for details. Note that those who selected "Don't know / Prefer not to answer" were excluded from the analysis.

Harvesters may be less likely to anticipate issues with succession planning because one of the key avenues for succession planning in fish harvesting is **family connection**. Many fishermen and fisherwomen pass down fishing licenses and boats to their family members and may already have a succession plan in place.

Respondents who indicated that they expect succession planning to be an issue for their company in the next 5-10 years were asked to describe the main challenges or barriers their company faces when it comes to succession planning (see **Figure 4.12**). Please note that survey responses were gathered through an open-ended text box. Difficulty finding people qualified to take over the company was the most commonly reported challenge (13%), as many of their employees do not stay with the company long enough to gain skills to take over operations. Employers also reported that difficulty attracting and retaining workers impeded succession planning (11%). Similarly, 6% of respondents reported that perceived uncertainty of the future of the commercial fishing industry made it difficult to attract and retain possible successors. Uncertainty was attributed to dwindling stocks of fish, such as salmon, and low prices. Other challenges and barriers (5%) included difficulty accessing training for potential successors, such as business education, the financial cost of succession planning, and a lack of automation and technology to make the company viable in the future.

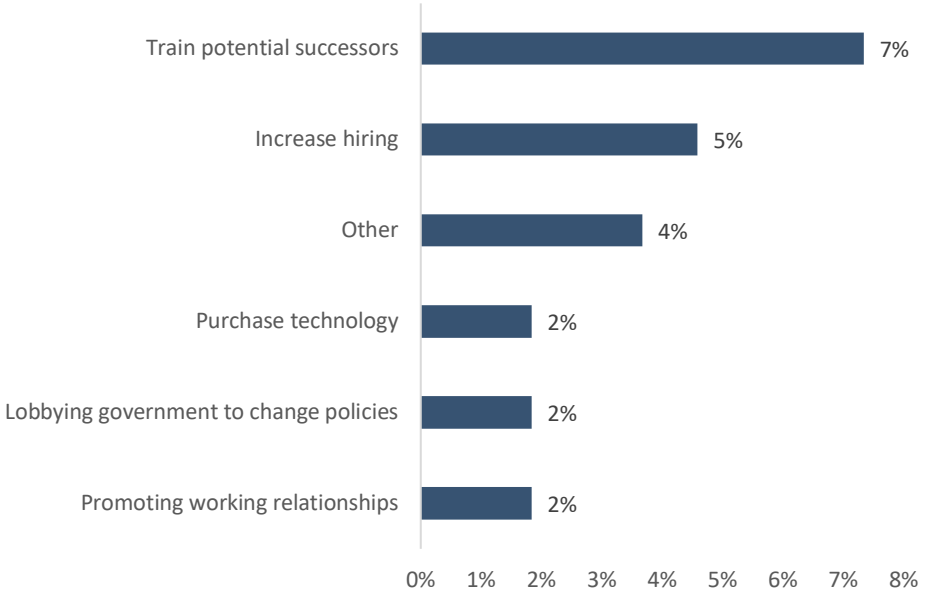
Figure 4.12: Employer Reported Challenges of Succession Planning



Source: Survey (2023)
Valid *n* =34. Note that those who selected "Don't know / Prefer not to answer" were excluded from the analysis.

Employers who reported experiencing challenges or barriers with succession planning were asked to describe steps being taken by their company to mitigate such challenges (see **Figure 4.13**). Out of the 22 respondents, providing training and mentorship to employees was the most common response (7%). Areas of focus included building leadership skills and providing business management training. Another strategy was focusing on hiring workers (5%), including participating in job fairs, hiring from local areas, and working with post-secondary institutions to recruit graduates. Some (2%) of employers reported purchasing technology to reduce the number of labourers needed to maintain operations, including automated oyster grading equipment. Other strategies included lobbying government to make policy changes to better support the commercial fishing sector (2%), such as streamlining regulatory processes, and promoting working relationships within the company (2%). Other strategies included using consulting sources to build a succession plan, partnering with investors, finding onsite housing for employers to improve retention of potential successors, and passing operations down to family.

Figure 4.13: Employer Reported Steps Taken to Mitigate Challenges of Succession Planning



Source: Survey (2023)
Valid *n* = 22. Note that those who selected "Don't know / Prefer not to answer" were excluded from the analysis.

5

FINDINGS: ATTRACTION AND RETENTION ISSUES

5 FINDINGS: ATTRACTION AND RETENTION ISSUES

5.1 Current Trends and Gaps in Attraction, Hiring, and Retention

5.1.1 Employer Perspectives

Hiring Challenges

Employers described their hiring experiences during key informant interviews. Most employers who were interviewed reported being short-staffed. Many shared perceptions of why these hiring challenges exist: over one-third noted that the workforce is aging out, and one-fifth made comments that working in the commercial fishing sector is “tough” and “not attractive”, which dissuades people from working in the sector.

Among employers who reported hiring challenges, a wide range of occupations were noted as difficult to hire for, including:

- Processing plant worker, fish (NOC 94142),
- Factory maintenance person (NOC 7320),
- Warehouseperson (NOC 75101),
- Boiler operator (NOC 92100),
- Machine operator, fish processing (NOC 94142),
- Refrigeration technician (NOC 72402),
- Fishmonger (NOC 65202),
- Skipper, fishing vessel (NOC 83121), and
- Fisherman/woman (NOC 83121).

When employers were asked whether they were aware of any regional differences in the difficulty of attracting applicants, some (36%) agreed. Employers reported difficulty hiring in rural and remote areas due to the cost of getting workers to rural areas, the lack of housing availability, and the incentive to work in larger cities due to higher wages. Some also noted difficulty hiring in Northern BC due to a small workforce in comparison to areas with greater population density.

Employers were asked to comment on the feasibility of establishing mechanisms that might lead to industries ”sharing” workers from sectors experiencing downturn/temporary loss of work. Most (50%) expressed interest. A common suggestion (29%) was accessing virtual or physical job boards, where job openings in the commercial fishing sector can be posted. Job boards currently exist, such as the Fish Safe job board[35], where employers within BC can post job openings.

When asked whether their business has found that technological changes or updates had been helpful in addressing labour shortages, only 14% of key informant interviewees agreed, as most employers interviewed had not yet implemented technology. Changes implemented by these two employers included streamlining IT and building in-house technologies to reduce the amount of manual tasks.

[35] SmartJobBoard, jobs.fishsafebc.com/. Accessed 12 Mar. 2024.

Some (29%) believed technology would not be helpful in addressing labour shortages, while a majority hoped to implement technology, but faced barriers in doing so. A key barrier was the financial cost of purchasing equipment and staffing to operate and maintain equipment. Funding programs offered by the federal and/or provincial government can offer employers capital support to purchase and maintain technology to help further implement technology in businesses throughout the sector. Some programs are described below. Increasing sector awareness of funding programs can help employers access and benefit from capital support.

Funding Programs to Support Technology Adoption in BC's Commercial Fishing Sector*

Business Scale-up and Productivity Program (BSP)[36]*

Delivered by: Pacific Economic Development Canada (PacifiCan)

Funding for: accelerating business growth through:

- Technology commercialization, including late-stage product development and technology demonstration (Technology Readiness Levels 7-9). Preference given to value-added agriculture/agritech, natural resources value-added processing, export orientation, among others.
- Productivity improvement
- Business scale-up

Eligibility: high growth businesses (revenue increases of at least 20% year-over-year).

Amount: up to 50% of eligible costs may be requested.

*Application intake is currently closed (as of March 2024), however, future opportunities to apply will be available.

British Columbia Salmon Restoration and Innovation Fund (BCSRIF)[37]*

Delivered by: Department of Fisheries and Oceans Canada and the Province of British Columbia

Funding for: protection and restoration activities for Pacific salmon and other priority wild fish stocks, as well as projects promoting environmental and economic sustainability of BC's fish and seafood sector.

- Infrastructure, such as adopting new technologies, processes, or equipment, and training associated with adoption of new technologies.
- Innovation
- Science partnerships

Eligibility: high growth businesses (revenue increases of at least 20% year-over-year).

Amount: for commercial organizations, up to 90% of eligible costs for organizations with < 19 employees; 75% of eligible costs for those with 20 – 499 employees; 50% of eligible costs for those with 500+ employees.

*Application intake is currently closed (as of March 2024), however, future opportunities to apply will be available.

[36] Government of Canada, Pacific Economic Development. *Business Scale-up and Productivity (BSP) in British Columbia*. 2 Nov. 2023. www.canada.ca/en/pacific-economic-development/services/funding/business-scale-up-productivity.html#eligcosts.

[37] Government of Canada, Fisheries and Oceans Canada. *British Columbia Salmon Restoration and Innovation Fund.* 26 July. 2023. www.dfo-mpo.gc.ca/fisheries-peches/initiatives/fish-fund-bc-fonds-peche-cb/index-eng.html.

An additional barrier against implementing technology noted by employers was a lack of consistent product volume to see a return on investment, or general uncertainty as to whether the use of technology would yield a return on investment. Technology innovation centres may help reduce uncertainty on employers' part. Businesses can go to innovation centres to do applied research or trial equipment. Additionally, centres can assist with sourcing funding for applied research towards the development of new packaging, products, or services. Examples of innovation centres and a seafood processing hub available in BC include:

The Centre for Seafood Innovation (CSI) at Vancouver Island University was a 3-year pilot innovation hub to help seafood producers with value-added processing of sustainable harvests. CSI offered businesses applied research and development, science and technology services, among others.

*CSI was a 3-year pilot that ended in March 2024.

The Centre for Applied Research, Technology and Innovation (CARTI) at North Island College connects researchers and students with businesses to conduct research initiatives. Businesses can partner with CARTI to build new technology, get support with proposal development, promote applied research and innovation activities, and access specialized equipment.

The BC Centre for Agritech Innovation (BCCAI) at Simon Fraser University helps small and medium enterprises (SMEs) develop sustainable technology solutions to challenges.

The Camosun Technology Access Centre (CTAC) at Camosun College helps local and regional companies access specialized technology, equipment and expertise.

The Food Technology program at the British Columbia Institute of Technology enables industry to engage in product development, explore and adopt advanced process technologies, and engage in continuous learning.

The Food and Beverage Innovation Centre at the University of British Columbia connects researchers with public and private institutions to provide support and solutions throughout the product development cycle.

The Dock+, part of the BC Food Hub Network, offers shared facilities, such as a commercial kitchen, which can be used by food processors to support product innovation.

Other jurisdictions in Canada have had success with seafood innovation centres, such as Newfoundland's Centre for Aquaculture and Seafood Development, and Prince Edward Island's BioFoodTech Centre. The establishment and/or expansion of permanent innovation centres, with a focus on seafood processing and commercial fishing technologies, may be explored as a strategy to

further support the sector in implementing technology, as recommended by an assessment of the seafood subsector in BC, commissioned by the Ministry of Agriculture and Food[38].

Employers noted that regulations can sometimes make implementing technology difficult, such as difficulty expanding the space of an operation to accommodate for equipment. Other issues around regulations including the requirement that fish be weighed in totes (which involves more damaging handling of fish) rather than the use of new technologies that allow for real time weight measurement of fish while in transportation tubes/piping. Streamlining of regulations was recommended to help mitigate such barriers.

Finally, a common theme that arose when employers discussed labour shortages in interviews (36%) was the difficulty of attracting young workers. Some employers shared their perceptions of why youth are not attracted to the sector: it was noted that low starting wages and the nature of the work, including the manual work of processing fish and the tough, cold conditions of fishing, do not appeal to youth. However, it was also noted that given the seasonal nature of the work, more could be done to promote the sector to summer students who would be open to such work during the busier summer season.

5.1.2 New Entrants Perspectives

Interviews were conducted with two new entrants to BC's commercial fishing sector, defined as those under the age of 30 and with less than 5 years of experience working in the sector. Due to this small sample size (n= 2), findings from this section should be interpreted with caution and should not be viewed as a representation of all new entrants.

Topics discussed in interviews with new entrants included attractions and challenges to work in the fishing sector, as well as training that would be helpful to work in the sector. When asked to describe

[38] GSGislason and Associates for the BC Ministry of Agriculture and Food. *The seafood processing sector in British Columbia: An assessment*, March 2023.

what attracted them to the commercial fishing sector, new entrants noted the opportunities for seamanship and community, the ability to be on the water, the sense of adventure, and the ability to provide food for their community. One of the two participants made comments regarding motivations to remain in the fishing sector, noting that fishing has been passed down through families, and that people remain in the sector because it is a part of their identity and a family obligation.

A challenge to remain in the sector, as noted by both participants, was the lack of financial security due to fluctuations in harvesting abundance and the price market. Additionally, a participant reported that the fishing sector is sometimes described as a "sunset industry", an established industry seeing a decline in profitability and survivability. It was noted that the instability and volatility of the industry can be a threat to attraction and retention of workers. Additionally, difficulty obtaining boats and licenses is a barrier for youth to participate in the fishing sector. Notwithstanding these concerns, both participants anticipated remaining in the commercial fishing sector.

One of the participants felt that there is a lack of information available on how to enter the fishing industry, and that the industry is not approachable. It was noted that captains tend to hire through established connections, and for individuals interested in joining the sector, that do not have connections, it can be difficult to know where to start. Resources on careers in the commercial fishing sector are currently available. For example, the Fisheries Council of Canada provides information about different jobs within the sector[39]. Additionally, there are publicly available job boards for openings in the sector.

[39] "All Hands on Deck." Fisheries Council of Canada, 5 Jan. 2024, fisheriescouncil.ca/seafoodcareers/.

5.1.3 Policies in Other Jurisdictions that Support New Entrants

Policies to support the recruitment and retention of new entrants in the commercial fishing and blue economy sectors exist in jurisdictions similar to BC. Recognizing the necessity of training new workers to join commercial fishing and related sectors, the Port of Seattle developed a Workforce Development Policy[42], which includes goals specific to the recruitment and retention of youth. The intent of the policy is to facilitate a continuum of events and work-related experiences that create linkages between K-12 education and future marine-related employment opportunities. Youth-specific goals are noted below:

Port of Seattle Workforce Development Policy Directive: Youth-Specific Goals	
Adopt Career Connected Learning[40] best practices into workforce development, internships, and fellowships for all four phases: **(i)** Provide youth introductory exposure to jobs in port-related sectors. **(ii)** Provide youth direct exposure to port-related sectors. **(iii)** Provide youth supervised, practical application of skills and knowledge. **(iv)** Provide workforce-ready youth the preparation for employment.	**Youth Employment:** **i)** Expand the Port of Seattle Internship Program, such as increasing the number of high school and college interns. **ii)** Support the placement of "**opportunity youth**[41]" in compensated internships and job opportunities.

The Young Fishermen's Development Act[43] is a federal bill enacted by the United States in 2021 to provide training, education, outreach, and technical assistance initiatives for young fishermen. Under this law, grants are provided to support initiatives that support fishermen, such as seamanship, marketing, and fisheries management. An example of an initiative funded by grants offered through the Young Fishermen's Development Act is the State of Alaska's "Food from the Sea[44]" career development program. This program works with members of the fishing industry to identify training needs and develop or update resources and programming to address those needs.

These policies help support jurisdictions to promote and encourage youth to enter and remain in the marine and/or commercial fishing sectors and are intended to build the next generation of the workforce.

[40] Career Connected Learning is defined as a continuum of events and work-related experiences that create linkages between K-12 education and future employment opportunities.
[41] Opportunity youth are defined as people between 16 and 24 years of age who are neither enrolled in school nor employed. In many cases, these young people are experiencing challenges that become barriers to participating in the workforce, such as involvement in the criminal justice system.
[42] Port of Seattle. Port of Seattle Commission. *Workforce Development Policy Directive*, 2020. Web. 19 Mar. 2024.
[43] United States, Congress, *Young Fishermen's Development Act*. Vol. 166, 1AD.
[44] Kiest, Kristina. "Sea Grant Selects 'Food from the Sea' Career Program Development Projects." *NOAA Sea Grant*, 14 Dec. 2023, seagrant.noaa.gov/sea-grant-selects-food-from-the-sea-career-program-development-projects/.

6

FINDINGS: TRAINING AND SKILLS NEEDS

6 TRAINING AND SKILLS NEEDS

6.1 Current and Anticipated Training Needs

Employer Perspectives

Survey respondents were asked to share insights as to any training or education that is not currently offered by training institutions or professional associations that they believe would be valuable for the commercial fishing sector in BC. Seventeen respondents made comments. The most frequent response was business management training (18%), including food supply chain management, business planning, and communications. Demand for programs around seafood processing was high (14%), with respondents commenting on the importance of learning basic fileting skills, quality control, and value-added processing. Additionally, 14% identified sustainability and traceability. A high demand for quality control and traceability courses was also expressed during a focus group with six employers, as such training can promote a stronger linkage between harvesting and processing. Currently, much of this training is available in BC. This may indicate that awareness of existing training programs could be promoted.

Not all employers required that applicants have extensive education or training. Among employers who participated in interviews, two out of fourteen stated that workers learn 'on the job'. Both employers spoke to processing positions and noted that since a wide range of work is done across processing plants, skills cannot easily be standardized. These employers reported that it is better for workers to learn skills that are specific to the processing done at their plant, rather than going to a post-secondary program to learn a large variety of skills, which may not necessarily be applicable to their plant. Additionally, when survey respondents were asked the highest minimum level of education they expect from qualified candidates, those who employ roles in the processing subsector often indicated less than high school, or high school and/or occupation-specific training. Employers in processing did not look for many credentials when hiring workers; they often only required applicants to have a BC driver's license.

> There are few educational or training requirements for entry-level roles in the commercial fishing sector, due to the sector's heavy reliance on on-the-job training, and the abundance of unskilled or semi-skilled work.

Employers within harvesting who responded to the survey expected some post-secondary education from fishing masters and officers, marine engineers, fishermen and fisherwomen, and fishing vessel deckhands. For a majority of positions, employers expected either less than high school, or high school and/or occupation specific training. Credentials most in demand for harvesting positions included Fishing Master (1-4), Marine First Aid Certificate, and the Marine Emergency Duties Certificate.

Aquaculture employers reported the qualifications they expect managers and labourers to have, including a BC driver's license, Registered Professional Biologist (RPBio), and Master Mariner. In terms of education, employers expected high school and/or occupation specific training, or less than high school.

During interviews, employers were asked whether any upskilling or training on new technology would be valuable to their company and the wider commercial fishing industry. However, most of the

employers interviewed did not use technology. Processers often noted that uncertainty in the availability of seafood products diminished the return on investment of technology to support processing. Two out of fourteen employers made comments about a need for training. Both noted that basic computer literacy skills would be valuable.

> "*I will need people with some software skills, but nothing too sophisticated. We do lots of manual work and on a small scale. There is no ROI (return on investment) for expensive machines (e.g., $250,000). We would need a predictable volume of produce.*"
>
> -Processor, employer key informant interview

New Entrant Perspectives

New entrants were asked to describe any training or education that would be helpful for young fishers starting out in the sector. Both indicated training to learn how to fish, such as fishing mentorships and peer-to-peer learning that happens naturally on the boat. One of the participants noted that people are often unaware of opportunities to join the fishing industry, and thus miss out on learning opportunities that happen on the job. Increasing awareness of opportunities to work and learn from harvesters through word of mouth, or advertising, may help increase youth's access to training.

First Nations Perspectives

A number of First Nations stakeholders noted that it was essential that both entry-level and advanced training be provided to their members to sustain fishing in many communities. Stakeholders indicated that they were supportive of a "laddered" program whereby basic fishing/marine skills can be provided to new entrants, with more advanced training be made available to ladder such individuals into more senior positions. This could include, for example, introductory training to orientate new workers to basic deckhand activities, with follow-up training to include possible training as fishboat captain, enterprise training for operating the fisheries business; and/or training to engage in fisheries management. Funding for such training could possibly be accessed through the Pacific Integrated Commercial Fisheries Initiative (PICFI).

Post-Secondary Institution Representatives

Representatives of post-secondary institutions who participated in interviews were asked how their institutions stay up-to-date regarding the labour needs of the commercial fishing sector. Participants reported communicating with industry members by attending industry conferences, holding learning councils and program advisory committees that include both faculty and industry members, and through joint projects between institutions and industry partners. Based on their communications with industry members, participants were asked which skill types and training they expected to increase in demand throughout the commercial fishing sector. Key areas included the use of electronic navigation tools, knowledge and understanding of the impacts of climate change on fisheries, multi-species harvesting and processing, training specific for marine deckhands, and seafood business training.

There was some consensus among employers and post-secondary institutions regarding the training needs of the commercial fishing sector. Both groups indicated the value of training for harvesting and processing, seafood business training, and training related to sustainability. While post-secondary

representatives discussed training on the use of electronic navigation tools, employers often did not discuss training related to the use of technology.

6.2 Training Gaps, Challenges, and Opportunities

Survey respondents and representatives of post-secondary institutions who participated in key informant interviews or focus groups provided information on challenges related to training and raised opportunities to help mitigate such challenges. For context, key informants who participated in interviews and focus group participants represented the following education and training programs:

- Marine training
- Master of Food Resources Economics
- Food Safety and Food Commercialization
- Aquaculture Technician programs
- Bachelor programs, with a minor in aquaculture
- Resources Management and Protection

A challenge reported by two out of five representatives of post-secondary training and education institutions that participated in interviews was declining enrollment in programs. Institutions attributed declining enrollments to a lack of interest in entering the commercial fishing sector among prospective students due to a perceived lack of viability of a career in the commercial fishing sector, as well as uncertainty in government regulations and licensing. Key informants noted that some businesses are no longer willing to offer their employees post-secondary education and training opportunities because their lack of certainty in the commercial fishing sector has made them consider whether they receive a return on their investment in education and training. Additionally, some key informants reported that their programs have been, or are becoming, irrelevant due to declines in species in BC, such as wild salmon. A strategy identified by key informants to address uncertainty in the future of the sector was to offer training for multi-species harvesting and processing, and value-added processing. A key informant suggested offering this training as a micro-credential, to promote accessibility for people already working in the sector who may not have much time to spare for training. Another opportunity raised was to provide training around entrepreneurship opportunities, such as equipping sector members to do eco-tourism alongside their regular job.

Micro-credentials are short-duration, competency-based credentials, that allow individuals to gain skills that can help enhance employability. Micro-credentials can increase access to post-secondary education for those who may not be able to or do not wish to enroll in longer post-secondary programs. Since 2020, PSFS has funded the development of more than 130 micro-credentials across the public post-secondary system[45].

[45] Ministry of Advanced Education and Skills Training. “Micro-Credentials.” *Province of British Columbia*, Province of British Columbia, 22 Feb. 2024, www2.gov.bc.ca/gov/content/education-training/post-secondary-education/micro-credentials.

Some employers reported challenges with succession planning, and commented that business ownership is becoming increasingly challenging to obtain. Training opportunities are available in BC to support the workforce in addressing such challenges. The provincially funded Quadrant Marine Institute offers a Marine Service Manager Training and Certification course, to help managers build capacity and capability in their businesses[46]. Areas of training include running a business, including succession planning, managing employees, work safe, finance, contracts, legal matters, and insurance, among others.

As discussed in section 4.2.2, some employers may be unaware of the Temporary Foreign Worker Program (TFWP), or struggle with the application process. Training to support employers with the TFWP is available, such as Food Processing Skills Canada's (FPSC) Immigration Ready Bootcamp, which helps businesses learn how to hire individuals and grow their business workforce through Canada's immigration strategy[47]. This program includes information about what government looks for in TFWP applications, steps on how to prepare an LMIA, and information about application processing times, fees, and employer compliance obligations.

Some key informants (21%) noted that developing certifications recognized across multiple sectors can support the commercial fishing workforce in developing transferable skills to other sectors of the blue economy. Key informants commented that certifications for refrigeration technicians and welding would be particularly valuable. Additionally, interest was expressed in developing a professional designation for fish harvesters in BC. Professional fish harvester designations exist in other jurisdictions, such as Newfoundland. Newfoundland's designation is run by the Professional Fish Harvesters Certification Board (PFHCB), a non-profit organization, and designation is obtained through a mix of work experience and training, such as courses in basic safety[48]. PFHCB has three levels of certification (Apprentice, Level I and Level II), which are described further in the table below.

PFHCB Professional Fish Harvester Designations		
Level of Certification	**Training / Experience Required**	**Position**
Apprentice	Sponsored by an owner-operator / skipper and complete a basic safety course.	Crew member
Level I	2 years minimum full-time fishing, 60 land-based education credits.	Can act as an operator
Level II	5 years minimum full-time fishing, additional 60 land-based education credits.	Can act as an operator

Newfoundland has found that the designation of Professional Fish Harvesters helps to support professionalism in the sector and has given fishermen a greater sense of pride and security. Additionally, the training system brings people quickly into the fishing sector; those with no experience in fishing can become skilled crew workers in two years, and owner-operator's in five years.

When asked to describe challenges associated with running education and training programs, participants of the post-secondary training institution focus group noted difficulty recruiting faculty.

[46] "Marine Service Manager Training & Certification." *Quadrant Marine Institute*, www.quadrantmarine.com/msm. Accessed 27 Mar. 2024.
[47] "Immigration Ready Bootcamp." *Immigration Ready*, immigrationready.ca/. Accessed 27 Mar. 2024.
[48] "Certification Structure." *PFHCB*, www.pfhcb.com/certification-structure. Accessed 27 Mar. 2024.

Similar to comments made by business owners and operators in the commercial fishing industry regarding difficulty attracting employees, post-secondary members reported that some potential faculty recruits found the wages offered insufficient to offset the high cost of living, making it difficult to recruit faculty. Additionally, focus group participants commented that the financial costs of regulatory compliance are a challenge to delivering quality aquaculture programs. A strategy recommended was to offer work-integrated learning positions to students, rather than learning directly on campus.

7

SUMMARY

7 SUMMARY

This section provides a summary of key findings, broken down by workforce demographics, economic and environmental influences, current and anticipated workforce trends, attraction and retention, and training and skills needs.

7.1 Workforce Demographics

Estimates of the workforce size in 2022 indicate that approximately 4,522 people were employed in harvesting (NAICS 1141), 2,360 people were employed in processing (NAICS 3117), and 1,555 people were employed in aquaculture (NAICS 1125). The sector, as a whole, has experienced a gradual decline over the period from 2010 to 2022 (17.8% decline), with the most significant job losses occurring in the processing subsector (32.6% decline).

Women tend to be underrepresented in the commercial fishing workforce, particularly in fish harvesting and aquaculture. An exception is employment in the seafood processing sector; men and women make up 52% and 48%, respectively[49]. The underrepresentation of women in the fishing sector may be attributed to a variety of reasons, including hiring practices that disadvantage women, and work environments that are hostile and unappealing[50].

The sector's workforce has a disproportionately high number of older workers. A majority of workers in the processing subsector (57%) and 45% of workers in harvesting are between the ages of 45 and 64[51].

First Nations peoples in BC actively participate in the commercial fishing industry[52]. Nearly one-quarter (23%) of survey respondents represented wholly or partially First Nation owned companies.

7.2 Economic and Environmental Influences

The commercial fishing sector faces current and future pressures that will have human resource and labour market implications, as well as opportunities to further contribute to BC's further economic growth. Challenges complying with government regulations and a lack of certainty in the future of the sector due to ever-changing regulations can deter people from joining the commercial fishing sector. Demand and investor speculation push the purchase price of licenses and quotas beyond the reach of some independent fish harvesters. Multiple factors can affect market demand in the commercial fishing sector. One is the level of demand for the species of fish or seafood that is being fished. One of the issues that BC fish harvesters face is that they often cannot get their catch to local markets. Since most active fish harvesters in BC lease the right to fish from licence and quota owners, they do not have the authority to decide when they fish or where the fish they catch is sold. One proposed solution to the licenses and quotas issue is to move to an owner-operator approach which is common in Atlantic Canada. Since the late 1970s, licences in most key fisheries in Atlantic Canada were issued to

[49] Statistics Canada. Table 98-10-0592-01 Class of worker by industry groups, labour force status, age and gender: Canada, provinces and territories and census divisions

[50] BCCIC's all-youth UN Ocean Conference Delegation. *Achieving Equity in Canada's Blue Economy*. June 2021

[51] Statistics Canada. Table 98-10-0592-01 Class of worker by industry groups, labour force status, age and gender: Canada, provinces and territories and census divisions

[52] BC Ministry of Agriculture. Northern Shelf Bioregion MPA – Economic Impacts, January 2020

independent harvesters (owner operator fleets), rather than to processors and investors.[53] Additionally, maximizing the value for BC seafood products was also seen as a challenge for many BC harvesters/employers. Key informants reported that processed seafood is often destined for international markets, with little value-added through secondary processing.

Marine Protected Areas (MPAs) are areas of water where human activity is restricted, for the sake of ecological protection. Despite their contributions to the prevention of species loss and the protection of diversity in marine ecosystems, there is concern among fish harvesters that MPAs are increasingly restricting access to fisheries.

Technological advancements in the commercial fishing sector have helped businesses become more efficient and productive. Examples of advancements include satellite technology and the use of artificial intelligence to aid in electronic monitoring, stock assessment and catch identification. As technology advances, there are more opportunities to use it to assist workers and employers in the sector.

7.3 Current and Anticipated Workforce Trends

Employment in the commercial fishing sector is influenced by season. Our research indicates that, compared to the average workforce size, fewer than average workers are employed in the winter and spring, and more than average workers are employed in the summer and fall. Seasonality is most extreme in the harvesting subsector, as harvesting is heavily influenced by environmental factors, such as the abundance of seafood products and weather. While seasonality was not an issue for a majority of employers surveyed (64%), employment stability is a priority of workers. A strategy to promote year-round employment is to cross-train employers to work in other marine industries during the 'off season'. Additionally, to remain operational year-round, some companies reported diversifying the range of seafood products that are harvested, processed, and sold.

A key research area identified for Phase II of this project was to enumerate the job vacancies in the sector and the financial impact of labour shortages. Based off data collected from the survey of employers, the vacancy rate in BC's commercial fishing / blue economy sector is 8.3%, which was almost double that of BC's all -industry average (4.2%). Just under one-half of employers (43%) indicated that they were experiencing vacancies during the time which they were surveyed. For those who did experience vacancies, unfilled positions tended to have a negative impact on business revenue, and vacancies were highest in the processing and aquaculture subsectors. Survey respondents offered strategies used to successfully recruit candidates and fill job vacancies, including hiring through their existing networks and by word of mouth, followed by advertising job postings or through local advertisements or job search websites, such as Indeed. Some fish harvesters have offered high school students a day on the boat experience to expose potential new entrants to the industry. Some employers noted that offering good working conditions, including fair wages, and prioritizing workplace safety helps attract candidates, as well as offering flexible work. Processors are most likely out of all subsectors to hire TFWs, with 35% reporting employing TFWs. Employers within harvesting and aquaculture reported hiring TFWs at lower rates (19% and 15%, respectively).

[53] Government of Canada, Fisheries and Oceans Canada. *Comparative Analysis of Commercial Fisheries Policies and Regulations on Canada's Atlantic and Pacific Coasts | Pacific Region*. 24 March 2021, https://www.pac.dfo-mpo.gc.ca/consultation/fm-gp/socio-econ/docs/gp-report-rapport-eng.html

Notwithstanding the overall decline in the workforce over the past several years, there appears to be a high level of optimism among employers that the sector will witness a considerable expansion over the next five to ten years. Some employers (42%) expected an increase in workforce size, 35% expected no change, and only 23% expected a decrease. Expectations for business expansions were nearly identical to expectations for workforce expansion, as the number of workers needed tends to align with the volume of business operations. Those operating businesses in the processing and aquaculture subsectors were most likely to anticipate their workforce size and operations to increase.

Succession planning is critical to the continuation of businesses, as a large cohort of the workforce is aging out. Most employers (61%) foresee succession planning as an issue for their company in the next 5-10 years. Key challenges faced included difficulty finding people qualified to take over the business and difficulty attracting and recruiting workers to sustain operations. Employers often cited the perceived uncertainty of the future of the commercial fishing sector as a deterrent to entering or remaining in the sector. Mitigating steps taken by employers included mentoring and training employees around business management and leadership. Some employers have focused on increasing their workforce size by participating in job fairs and working with post-secondary institutions to recruit graduates.

7.4 Attraction and Retention

Some employers interviewed reported being short-staffed, with one-third attributing the shortage to an aging workforce, and one-fifth commenting that people are not attracted to the sector, with some processors describing their work as "repetitive", "tough" and "dirty". To address labour shortages, employers expressed interest in establishing mechanisms to support recruitment and retention, such as a virtual or physical job board, where openings in the commercial fishing sector could be posted.

Innovation centres and food hubs can support businesses with the development and testing of technology. Dock+, a food hub in Port Alberni, is the only remaining food hub in BC focused on the seafood sector. The Centre for Seafood Innovation, a 3 year pilot offering of Vancouver Island University finished in March 2024. Other food related centres exist in BC, such as North Island College's Centre for Applied Research and Technology Innovation, the BC Centre for Agritech Innovation, the Camosun Technology Access Centre, the British Columbia Institute of Technology's Food Technology program, and the University of British Columbia's Food and Beverage Innovation Centre.

A key objective of the research was to identify potential barriers to participation for underrepresented groups in the sector, and to identify considerations to include such groups. This research found several reasons as to why youth are a difficult demographic to reach, including low starting wages and the nature of the work, such as the manual labour involved in processing. Additionally, a new entrant noted that the lack of job security seen in some harvesting positions threatens attraction and retention of workers. Youth also face barriers in participating in the sector, including difficulty obtaining boats and licenses. For some youth who are interested in joining the sector, that do not have connections to the sector, it can be difficult to know where to start.

It was noted that the sector needed to do a better job in terms of providing exposure to youth as to the opportunities available in the fishing sector. Many stakeholders indicated that they felt that there should be greater linkages between schools and commercial fishing operations. Students could be exposed to fishing-related occupations through more partnerships with schools, including where

appropriate career exploration programs (orientation to commercial fishing), as well as possibly using co-op/internship type programs to provide students with exposure to the sector. Best practices can be obtained from other jurisdictions with policies and programs that support the recruitment and retention of new entrants. For example, the Port of Seattle's Workforce Development Policy aims to facilitates events and work-related experiences to create linkages between K-12 education and future employment opportunities. Additionally, the Young Fishermen's Development Act, is a federal program that provides funding to jurisdictions to support youth in entering and remaining in the commercial fishing sector and/or the broader blue economy sector.

Finally, given the highly seasonal nature of the commercial fishing sector, some consideration should be given as to how to better access students/youth during the summer season. While the sector will be in competition from other sectors for such workers (i.e. tourism and hospitality), work can be done to build linkages with Student Employment Centres and/or Youth agencies to promote the opportunities available to such youth to work in this sector.

7.5 Training and Skills Needs

A key area identified for Phase II of the research was to identify the skills and credentials for employment in the commercial fishing sector. Based on survey responses, employers within harvesting who responded to the survey expected some post-secondary education from fishing masters and officers, marine engineers, fishermen and fisherwomen, and fishing vessel deckhands. Credentials most in demand for harvesting positions included Fishing Master (1-4), Marine First Aid Certificate, and the Marine Emergency Duties Certificate. Aquaculture employers often looked for a BC driver's license, Registered Professional Biologist (RPBio), and Master Mariner. In terms of education, aquaculture employers expected high school and/or occupation specific training, or less than high school. Employers in processing did not look for many credentials when hiring workers; they often only required applicants to have a BC driver's license. Likewise, those who employ roles in the processing subsector excepted less than high school, or high school and/or occupation-specific training.

This research aimed to understand how post-secondary and training institutions can support the commercial fishing sector. Survey respondents were asked to share any training or education that they believe would be valuable; seventeen respondents made comments. The most frequent response was business management training (18%), including food supply chain management, business planning, and communications. Demand for programs around seafood processing was high (14%), with respondents commenting on the importance of learning basic fileting skills, quality control, and value-added processing. Additionally, 14% identified sustainability and traceability. A high demand for quality control and traceability courses was also expressed during a focus group with employers, as such training can promote a stronger linkage between harvesting and processing. Given the integral nature of fishing in many of BC's First Nation communities, some stakeholders emphasized the need for laddered training for such workers. This could include, for example, introductory training to orientate new workers to basic deckhand activities, with follow-up training to include possible training as fishboat captain, enterprise training for operating the fisheries business; and/or training to engage in fisheries management. Similarly, professional designation of fish harvesters can help to promote professionalism and enhance the sense of pride and security that harvesters feel in their work. Offering designation in levels, from crew workers to owner-operators, may also allow a fast-track approach to bringing people into the fishing sector.

Post-secondary institutions often partner with industry members to understand the labour force needs of the sector to inform program development. Based on their communications with industry members, participants were asked which skill types and training they expected to increase in demand throughout the commercial fishing sector. Key areas included the use of electronic navigation tools, knowledge and understanding of the impacts of climate change on fisheries, multi-species harvesting and processing, training specific for marine deckhands, and seafood business training.

A challenge reported by two out of five representatives of post-secondary training and education institutions that participated in interviews was declining enrollment in programs. Key informants noted that some businesses are no longer willing to offer their employees post-secondary education and training opportunities because their uncertainty in the commercial fishing sector has made them consider whether they receive a return on their investment in education and training. A strategy identified by key informants to address uncertainty in the future of the sector was to offer training for multi-species harvesting and processing, and value-added processing. Working with a variety of products reduces dependence on any one species and can help employers be better positioned to adapt to the changing market conditions and environmental factors, and value-added processing may help maximize the value for BC seafood products.

During interviews, employers were asked whether any upskilling or training on new technology would be valuable to their company and the wider commercial fishing industry. While identifying the impacts of new technologies on the future of the commercial fishing sector was a key area of focus for the research, most of the employers interviewed stated that they did not use technology; two out of fourteen employers noted that basic computer literacy skills would be valuable.

This research aimed to identify transferable skills in the wider blue economy. Cross-training workers to work in related sectors of the blue economy may also help the workforce build relevant skills. Some key informants (21%) noted that developing certifications recognized across multiple sectors can support the commercial fishing workforce in developing transferable skills to other sectors of the blue economy. Key informants commented that certifications for refrigeration technicians and welding would be particularly valuable.

8

RECOMMENDATIONS

8 RECOMMENDATIONS

Informed by Phase I and II research findings, Malatest has developed a series of recommendations for next steps to support employers in BC's commercial fishing sector.

8.1 Develop Sector Promotion Strategies

The commercial fishing sector is facing a growing shortage of labour, and a rapidly aging workforce. It is vital for the sector to attract the new generation of workers. Industry may consider developing and implementing promotion strategies that highlight positive aspects of commercial fishing to enhance youth's perceptions of the sector. When asked to describe what attracted them to the commercial fishing sector, and what motivates them to remain in the sector, new entrants noted the opportunities for seamanship and community, being out on the water, the sense of adventure, and the ability to provide food for their community. Additionally, employers who participated in the focus group emphasized the importance of promoting the culture of fishing, including self-employment opportunities, to help attract new entrants. Enhancing such positive aspects of the sector and providing information on the type of work available in commercial fishing can help youth better understand opportunities for careers in the sector and attract new entrants. Strategies include speakers' series, field trips and promotional materials distributed by sector associations and by school counsellors to K-12 students. Furthermore, opportunities exist to expand awareness of the sector in BC secondary schools by increasing the extent to which the fishing sector is promoted through career programs, as well as the use of co-op/internship type programs which could provide youth with exposure to the sector. Additionally, promotion could be targeted to rural and remote communities, where hiring tends to be especially difficult. Lastly, any attraction strategy should also encompass actions to promote the sector to recent immigrants to Canada, especially those who have previously worked in a fishing and/or marine occupation.

Barriers to participating in the commercial fishing sector faced by youth include difficulty obtaining licenses and boats, as well as difficulty accessing information about entering the sector. Offering bursaries and financial incentives to high school students, as well as increasing the number of work-integrated learning positions in the sector, can help youth build connections and support them to join and remain in the industry.

8.2 Develop Mechanisms to Promote Recruitment and Retention

Employers who participated in this research identified attraction and retention of workers as an ongoing challenge. Several strategies were developed to support employers with hiring.

Job boards can be used by employers to advertise job openings in the commercial fishing sector and/or associated marine industries and help those new to the sector identify opportunities to enter. Additionally, this may help provide those with seasonal jobs in the sector with year-round employment, as they can find other jobs in the sector that match their skillset and interests to fill their 'off-season'. This may help the sector retain skilled and knowledgeable workers. We recommend that employers in the commercial fishing sector use job boards offered by industry to advertise vacancies. Examples include Fish Safe's job board, available to BC employers in the commercial fishing sector, and ABCMI's job board, available to BC employers in the blue economy.

The Temporary Foreign Worker Program (TFWP) can be used by processors to help fill job vacancies. However, not all employers are aware that the program exists, and some struggle with the application process. Providing education on the TFWP for processors could address this gap. It was noted that the Labour Market Impact Assessment, a component of the TFWP application process, can be confusing and tedious. We recommend that Immigration, Refugees and Citizenship Canada (IRCC) and Employment and Social Development Canada (ESDC) be approached to develop a toolkit for the commercial fishing sector on the LMIA to support employers with TFWP applications.

Recognizing the seasonal nature of employment in the sector, more should be done to link to agencies that specialize in summer youth employment, including WorkBC programs such as the Bladerunner program who target at risk youth aged 15-29 years of age.

8.3 Increase Accessibility to Technology

While technology to support businesses in the commercial fishing sector exist, some employers face barriers in purchasing and maintaining equipment. Barriers include the financial cost of purchasing and maintaining equipment, uncertainty as to whether equipment will yield a return on investment, and regulations. Existing programs offered by the federal and/or provincial government intended to support the sector with the development and/or implementation of technology can help employers pay for the cost of equipment, for expansion of spaces to house equipment, and for the workers needed to operate and maintain equipment. Additionally, technology innovation centres, with a focus on seafood processing, packaging innovations, and commercial fishing applications, can help employers conduct applied research, develop technology, as well as trial equipment, to help minimize the risk of adopting new technology. Regulations which make the adoption of technology difficult, such as limitations around the space in which a business can operate in, may be streamlined to further support the sector.

8.4 Support to Address Current and Future Training Needs

As discussed in this report, there are opportunities to better meet the training and skill needs of employers. The harvesting sector faces some challenges with the seasonality of work, including difficulty attracting and retaining workers, many of which prefer jobs with greater stability. A few strategies were identified to help keep companies operational year-round. There is a potential for fishers to use the 'off-season' as opportunities for entrepreneurial, eco-tourism activities, such as providing guided fishing tours. Providing training on entrepreneurial activities can help businesses remain competitive. Additionally, training around multi-species processing and higher value-added processing can help businesses stay operational year-round and allow processors to expand product lines to produce higher value products.

A demand by employers for training around quality control and traceability was identified through our research. Training can help harvesters better understand their role in the value chain and promote a stronger linkage between harvesting and processing.

A motivation to join the fishing sector is a love for fishing and 'being on the water'. Cross-training such workers to work in other marine industries can help facilitate year-round employment and help the workforce build relevant skills. Examples of work in other industries include assisting with vessel maintenance, conservation efforts, salvage operations, and tourism (e.g., boat tours, aquaculture tourism, etc.), and culinary tourism. The industry may consider offering entry-level training for people interested in entering the blue economy sector. Training could be broad to expose learners to various

subsectors. Additionally, openings in the marine sector are advertised on job boards, such as the Association of British Columbia Marine Industries job board.

Professional designation of fish harvesters in BC may help to increase professionalism of the commercial fishing sector. This designation may be recognized at the industry-level, and could be offered at different levels, such as a crew worker up to an owner-operator. Certifications recognized across multiple sectors can support the commercial fishing workforce in developing transferable skills to other sectors of the blue economy. Key informants commented that certifications for refrigeration technicians and welding would be particularly valuable.

First Nation workers would also benefit from a laddered training approach, in which new workers could be provided with entry level skills, with an opportunity to participate in further training that could lead to training as fishboat captain, enterprise training for operating the fisheries business; and/or training to engage in fisheries management. Funding for such training could possibly be accessed through the Pacific Integrated Commercial Fisheries Initiative (PICFI).

The areas of training mentioned above may be offered as micro-credentials, to allow people already working in the commercial fishing sector a timely and flexible way to upskill or reskill.

8.5 Consideration to Establish a Formal Human Resource Planning Council for the BC Fishing/Blue Economy Sector

Human resources councils and organizations that provide human resources information to support the commercial fishing and blue economy sectors currently exist. Examples include the Canadian Agricultural Human Resources Council, Food Processing Skills Canada, and the Canadian Council of Professional Fish Harvesters. Human resources councils to support the commercial fishing and blue economy sectors exist at the national level; these councils offer support to BC. However, enhanced collaboration across sectors, with a provincial focus, may help further advocate for and promote the industry in BC. In terms of current and future leadership to address the human resource and training needs for the sector, there should be consideration given to establish a Human Resources Council that would consist of possibly broader marine-related organizations that can help develop and implement strategies that would be of benefit to the fishing and related blue economy sectors. Such an organization could help implement some of the recommendations outlined in this report.

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