# Development and pilot testing of an innovative demand-led training model to support entry and retention in the Aquaculture sector

## Final report

**July 2020**

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INNOVATION • EXPERIMENTATION • EVALUATION

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***Development and Pilot Testing of an Innovative Demand-led Training Model to Support Entry and Retention in the Aquaculture Sector*** is a research project led by Social Research and Demonstration Corporation (SRDC) and funded by the NL Workforce Innovation Centre (NLWIC).

Established in 2017 by the Government of Newfoundland and Labrador and administered by College of the North Atlantic, NLWIC has a provincial mandate to provide a coordinated, central point of access to engage all labour market stakeholders about challenges, opportunities and best practices in workforce development. The Centre's goal is to promote and support the research, testing and sharing of **ideas** and models of **innovation** in workforce development that will positively **impact** employability, employment and entrepreneurship within the province's labour force and particularly underrepresented groups. Funding for NLWIC is provided by the Department of Immigration, Population Growth and Skills (IPGS) under the Canada-Newfoundland and Labrador Labour Market Development Agreement.

SRDC has provided this *Development and pilot testing of an innovative demand-led training model to support entry and retention in the Aquaculture sector* Final Report to NLWIC as a project deliverable outlined in the Agreement signed on December 19, 2017 between College of the North Atlantic and SRDC. Under that Agreement, the Final Report and all other research project deliverables are the Intellectual Property of IPGS.



# TABLE OF CONTENTS

# INTRODUCTION

The aquaculture industry in Newfoundland and Labrador is experiencing an exceptional period of growth and development. As part of the *Way Forward* vision for sustainability and growth, the provincial government is working with the Newfoundland Aquaculture Industry Association (NAIA) to double the annual salmon and mussel production to 50, 000 metric tonnes and 10, 750 metric tonnes, respectively. Not long ago the industry consisted of small family-owned shops, but over the last 15 or more years, larger companies have emerged with the financial resources to drive expansion of the industry. This expansion is still active today. Atlantic Canada's Northern Harvest Sea Farms was recently acquired by Mowi, a Norwegian multinational company and world leader in salmon production across 25 countries. Grieg is another multinational Norwegian company that has invested in a $250 million project in Newfoundland that will include a hatchery facility in Marystown, and 72 sea cages across 11 sites in Placentia Bay. Meanwhile, Cooke Aquaculture, which originated in 1985 in New Brunswick, is now the fourth largest salmon producer worldwide with farms in the United States, Scotland, Chile, and Spain.

With innovation and expansion comes an increasing need for additional workforce and new types of skills. Labour demands are expected to grow significantly over the next five to ten years, as is the need for strong digital skills and soft Essential Skills. NAIA's recruitment and retention strategy focuses on targeting youth, but also highlights the importance of recruiting workers displaced from other industries and those not currently employed. The current project tests an innovative training model that specifically helps lower-skilled jobseekers who are distant from the labour market or displaced from other sectors enter the aquaculture industry. This project is timely and well-placed to contribute to increased efforts to address labour market challenges, and has generated interest from employers in the region.

The project is funded by the NL Workforce Innovation Centre (NLWIC) and led by Social Research and Demonstration Corporation (SRDC). The program has three components: 5 weeks of Essential Skills training, 7 weeks of technical training, and 5 weeks of work experience. Evidence suggests that Essential Skills training is effective for low-skilled jobseekers when that training is aligned with occupational requirements in the target sector. Focusing on low-skilled jobseekers can help increase rates of entry into and successful completion of technical training. It can also improve job performance and retention in the sector. The training was developed and delivered by the College of the North Atlantic (CNA) and the Marine Institute (MI).

## CURRENT REPORT

This final report presents an overview of the project and addresses the question of whether a demand-led training model for the aquaculture sector can lead to positive training and employment outcomes for participants. This report is the last in a series of reports that detailed a) the process and results of a sector needs analysis (Phase 1 report), b) the research design and instruments (Phase 2 report), and c) the implementation and feasibility of the model (Phase 3 report). The current report first provides an overview of the project and the main findings from previous phases of the project. After a review of the methods and analytic design, the report presents the immediate, intermediate, and long-term participant outcomes. Results will be interpreted in light of recent sector events and the COVID-19 public health crisis of 2020. The report will end with a discussion of the effectiveness of the model, the relevance and applicability of the model, recommendations to improve the model, and opportunities for future research.

# PROJECT OVERVIEW

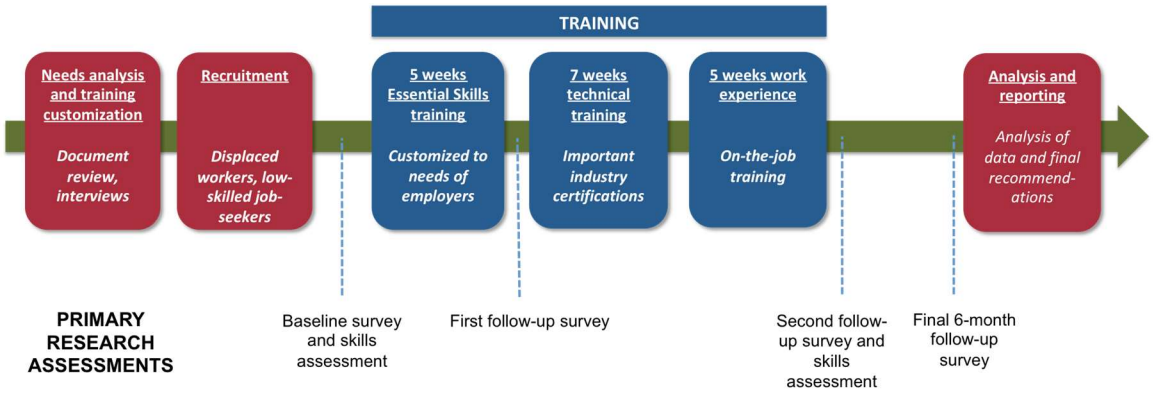
This project was designed to answer two overarching research questions:

1. Is it feasible to develop and implement a sector-specific model of Essential Skills training for the unemployed that is aligned and integrated with technical training and occupational requirements of the aquaculture sector?

2. Does the model lead to positive training and employment outcomes including success with technical training, employment, and longer-term job retention with the aquaculture sector?

Project partners developed a sector-specific training model that began with 5 weeks of sector-specific Essential Skills training delivered by CNA, followed by MI's Technical Certificate – Aquaculture (TCA) involving 7 weeks of technical training and certifications, and 5 weeks on a work experience placement. Figure 1 illustrates this program model and key project activities that support the development and evaluation of the model.

**Figure 1 Overview of the project and program model**




The project spanned five phases of work. During Phase 1, SRDC led a needs analysis of the sector to develop a performance framework for entry-level aquaculture farm work that would inform curriculum development. MI and CNA began recruitment activities. During Phase 2, SRDC finalized a research framework and designed most of the research instruments. MI and CNA finalized the customization of their curriculums and enrolled participants. During Phase 3, CNA and MI delivered the training components and collected research and program data. SRDC conducted implementation research, including key informant interviews with program staff to assess the feasibility of the model. During Phase 4, SRDC completed long-term follow-up data collection with participants and analyzed the program effects on participant outcomes. The results are presented in this report. This report and other knowledge products will support Phase 5, the dissemination of our project findings.

In the next section, we highlight some of the key findings and outputs from our different phases of work. Some important methods and results from our earlier work are presented as part of this report to provide context. However, please refer to the Phase 1, 2, and 3 reports for more detailed information. A list of all reports and deliverables is available in Appendix A.

# PHASE 1: LITERATURE REVIEW AND NEEDS ANALYSIS

## Description

SRDC conducted a needs analysis to understand the key business outcomes of employers and the perceived skill gaps of entry-level aquaculture workers. This analysis was based on a) a review of key documents from the sector and industry, b) key informant interviews with stakeholders, including representatives from the major salmonid producers in the region, c) survey ratings of job

competency and skills completed by industry managers, and d) a focus group with industry managers. Using this information, SRDC developed a performance framework that aligned employers' key business outcomes with the job tasks that supported them, and the required underlying Essential Skills. SRDC provided a summary of the key skill-gap priorities for employers that CNA and MI could use to customize their curriculums.

## Key findings

**Sector context:** It is a very dynamic time and period of transition for Newfoundland's aquaculture industry. Labour demands will grow significantly over the next 5 to 10 years with new expansions and companies in the region. One of the key priorities is innovation and growth of technology to meet the demands for greater productivity and respond to stricter environmental regulations. The skills we provide workers with today must be forward looking. The job and environment of an aquaculture support worker is evolving and changing alongside the industry.

**Skill priorities:** First, the use of technology is advancing rapidly. Even if sites do not currently use computerized operations, it is only a matter of time. New workers need basic computer skills to have the foundation necessary to keep up with technological changes that will affect job tasks across all domains. Second, the ability and motivation to learn will be increasingly necessary for a career in aquaculture. Beyond initial training, workers will need to regularly upgrade their skills as new techniques, equipment, and practices are implemented on farms. If they want to advance in their career, they will need to engage in additional training, which is expected to shift towards online learning. This will require not only computer skills but literacy and document use skills within a digital environment. Finally, soft skills such as communication and working with others will continue to be important. This was one of the lowest rated areas of skills. If the industry successfully attracts more workers from urban areas and other provinces, as well as immigrants, youth, and older adults from other industries, the workforce will become more diverse. Stakeholders see soft skills as critical for ensuring that workers function well together, resolve conflicts in an appropriate way, and communicate clearly and respectfully. Even the forms of communication are changing, with new skills needed in communicating appropriately and maintaining confidentiality through email and social media. Table 1 summarizes some of the skills that are important for entry-level aquaculture workers.

## Table 1 Key skill requirements of entry-level aquaculture workers

| Skill domain | Type of skill |
|---|---|
| Core Essential Skills | ▪ Digital skills (e.g., using emails, database or other software, hardware, operating computerized equipment)<br>▪ Reading and writing (e.g., writing emails, reading manuals)<br>▪ Numeracy (e.g., calculations, working with numbers in a digital environment)<br>▪ Document use (e.g., filling out documents online, reviewing for errors, HR forms) |
| Soft Essential Skills | ▪ Working with others (e.g., being respectful, following instructions)<br>▪ Thinking (e.g., understanding job tasks, identifying problems)<br>▪ Oral communication (e.g., understanding information, asking questions)<br>▪ Continuous learning (e.g., trying new ways of doing things, learning from others)<br>▪ Work ethic and motivation (e.g., sense of belonging, understanding company, interest in aquaculture) |
| Technical Skills | ▪ Technical knowledge (e.g., general aquaculture, environmental sustainability, fish biology, heath and safety)<br>▪ Technical skills (e.g., equipment use and maintenance, rope work, boat operation, feeding, control structures) |

**Project alignment with sector needs:** The findings from the needs analysis demonstrate the relevance of the current project and its alignment with the priorities and directions of the aquaculture industry in Newfoundland. The industry is preparing for the upcoming labour market challenges and recommendations centred on targeting underrepresented populations and untapped labour sources. One of the key recommendations of the NAIA recruitment strategy is to target youth, who typically may not know about aquaculture or may not have a favourable view of the sector. Secondary targets include those displaced from other industries and those currently not employed. A significant proportion of those target groups include individuals with lower skills and possibly less job experience in the Canadian market. The current training model is specifically designed to facilitate the entry of such individuals into the aquaculture sector.

# PHASE 2: MODEL REFINEMENT, CURRICULUM CUSTOMIZATION AND INSTRUMENT DESIGN

## Description

CNA and MI used the findings from Phase 1 to customize their training curriculum to meet the needs of students and employers. SRDC developed a research framework that details the theory of change regarding how the training model leads to a range of immediate, intermediate, and long-term outcomes. Guided by this framework and with input from CNA and MI, SRDC developed research instruments to measure baseline and follow-up outcomes (e.g., surveys). SRDC also prepared other required research materials (e.g., consent form, research summary).

## Key findings

**Curriculum customization:** Based on the results of the needs analysis, CNA ensured the Essential Skills training focused on soft skills such as communication and working with others, as well as personal development (e.g., work ethic, professionalism). Since digital skills were a priority for employers, the curriculum incorporated computer use throughout the program. Customization was limited for technical training because the content internal to each TCA course was regulated and certified. However, MI was able to customize the selection of elective courses beyond the prerequisite five courses. Based on employer feedback, MI replaced the planned mathematics course and a land-based aquaculture course with rope work and outboard motor maintenance.

**Research design and instruments:** The overall research design and key instruments used to determine program outcomes are described in the methods section of this report.

# PHASE 3: TRAINING PILOT

## Description

CNA and MI implemented the training model over 17 weeks. Training began with Essential Skills training on February 18, 2019 and ended with the completion of the work experience on June 14, 2019. During this period, participants completed three research surveys and two Essential Skills assessments. Program staff tracked student participation, progress, and performance, including attendance, grades, certifications, and employer satisfaction with the students. At the end of training, SRDC conducted several key informant interviews with program staff to document their experiences delivering the training, including challenges, adaptations, and lessons learned.

## Key findings

**Recruitment:** Recruitment was a success. CNA and MI received 24 applications and surpassed their goal of 16 participants. A key challenge was the remote location of the training, but MI's physical presence in the community helped promote the program. Low-tech methods such as posters, flyers, and word-of-mouth were especially effective for reaching the target population.

**Participant background:** A total of 16 participants enrolled in the program. The participants were all male, 24 to 73 years of age, and unemployed. The participants were all from Newfoundland and four of the participants identified as Indigenous. Participants appeared to fall into two groups of workers. One group were displaced from other sectors (half from construction), had been working considerably in the last 3 years, and were receiving Employment Insurance. The second group were more disconnected from the labour market, had worked less in the last 3 years, and few were receiving Employment Insurance.

**Participant fit:** Project staff reported that the cohort of participants was a good fit for the program. Participants were diverse in their age, background, and skill levels but program administrators were intentionally flexible in their recruitment process. Despite the diverse skill range, all participants reported gaining something from the program. A few participants suggested that the course could be shorter, which may have reflected the experiences of higher-skilled participants.

**Participant progress:** During the first week, two participants withdrew from the program for personal reasons and the remaining 14 participants completed the Essential Skills training. Another participant withdrew during the third week of technical training because of a job offer in his home community. The remaining 13 participants completed the prerequisite courses to proceed to the work experience. One additional participant did not start the work experience to accept a job offer outside of aquaculture. Twelve participants participated in the work experience and only one participant did not completed the required number of hours.

**Essential Skills training:** The Essential Skills training was delivered mostly as planned, although the instructor adapted some activities to accommodate the wide range of skills (e.g., more time to practice computer skills). One challenge was the limited broadband that prevented students being online at the same time. The students were very eager and engaged in the training (e.g., good attendance, motivated). They formed strong bonds and encouraged each other throughout training. Students provided very positive feedback about the training, particularly praising the computer training and the chance to learn to speak in front of a group. Students suggested that such training should be on-going and could benefit all, even supervisors.

**Technical training:** The skill range of students was similar to previous cohorts, although perhaps a bit broader. However, there was no need to adapt any lessons or assessment to

accommodate low skills, which has occurred occasionally in the past. Most of the students were engaged and had good attendance with the exception of one student who did not pass two of the courses. However, he passed the required perquisites to move onto the work experience with the rest of his classmates. The program administrator was impressed with student performance especially in a classroom context, as many had been out of school for years or decades. The average grades across courses were mostly in the eighties and nineties, with the highest grades in the technical knowledge courses.

**Work experience:** During the Essential Skills training, representatives from Cooke Aquaculture and Mowi Canada East came to speak with students about their companies and job opportunities. All students were placed at their preferred company, with five students at Cooke Aquaculture, six students at Mowi Canada East, and one student at Newfoundland Aquaculture Services (cleaning and maintenance of nets and cages) because he had worked with them previously. Students completed work in hatchery-based smolt production, sea-based fish production, sea-based farm utility work, and net maintenance. Employers were generally satisfied with student performance. Other than one student who did not complete the work term hours, all students received at least a satisfactory evaluation and 75 percent of students received an above satisfactory evaluation. Supervisors described students as good workers and commented on their willingness to learn, their positive attitude and interest in the job, and their ability to work well with others and be a team player. Consistent with the positive ratings from employers, nine students were offered immediate employment.

**Overall experience:** Students were very grateful for the opportunity to participate in the program and excited about pursuing a career in aquaculture. CNA and MI were both pleased with the outcomes of the training pilot and the collaboration between the project partners. They felt the training model was effective for the sector and the Essential Skills training was a key component that bridged students into technical training and the work experience. Partners expressed interest in pursuing a similar model in a different region.

# PHASE 4 AND 5: ANALYSIS AND DISSEMINATION

## Description

SRDC completed long-term follow-up data collection with participants and conducted quantitative and qualitative analysis of the full outcome data set. While the analysis was focused on participant outcomes, SRDC also interpreted the results in light of implementation research results and sector and societal events. The methods and results are presented in the following sections. SRDC will work with project partners and the funder to develop additional knowledge products to dissemination the project findings. A preliminary dissemination plan is available in Appendix B.

# METHODS

This section briefly reviews the methods used to determine whether the program model leads to positive training and employment outcomes for participants. Please see the Phase 2 report for more details about the research design and instruments.

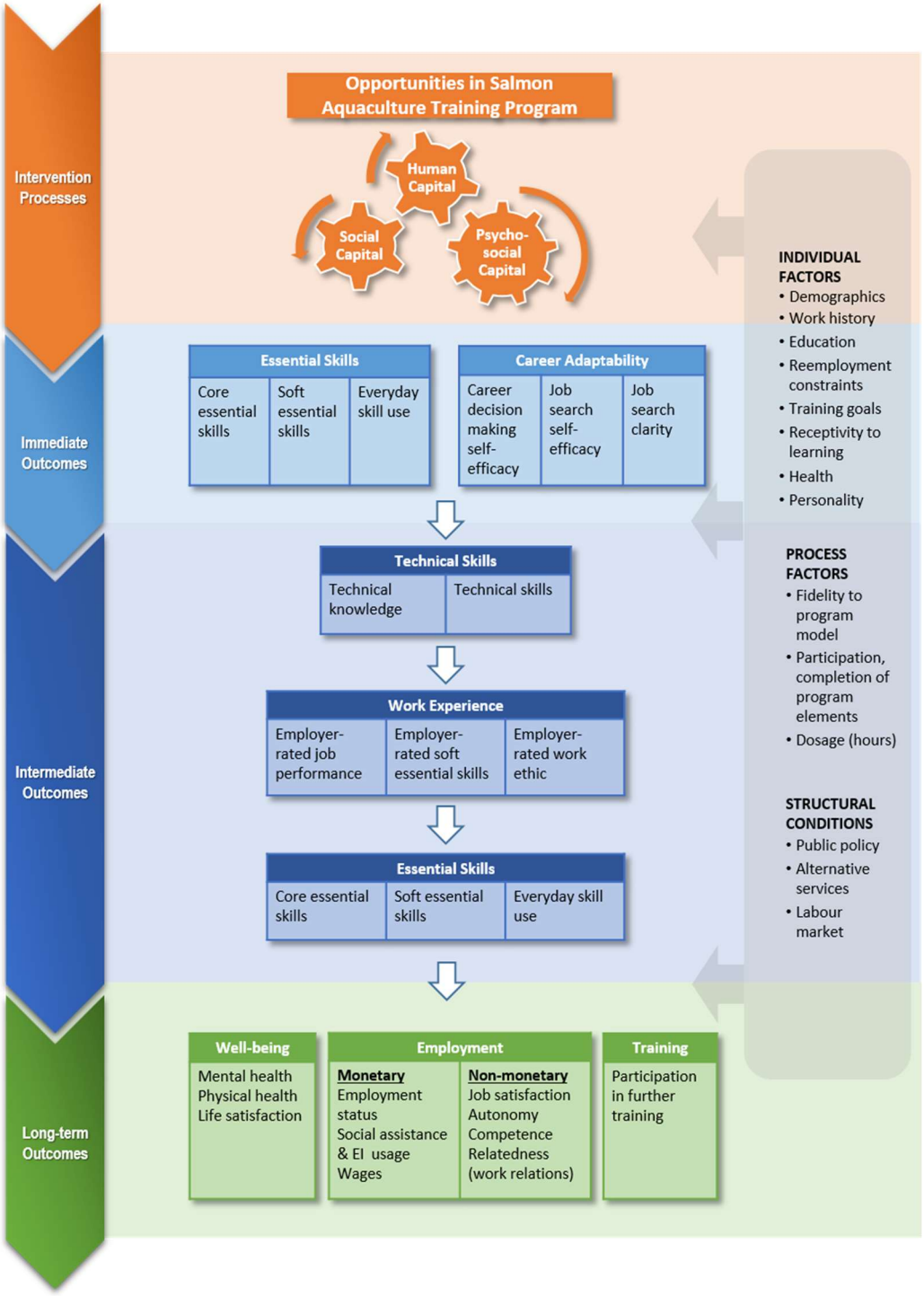
## RESEARCH DESIGN

The research framework is summarized in the theory of change depicted in Figure 2. The theory of change illustrates the types of skill gains and outcomes we expect to see during the delivery of the program and beyond. *Immediate gains* after Essential Skills training lay the foundation for continued *intermediate gains* during the technical training and work experience. Gains from the work experience and the opportunity for employment then drive *long-term gains* in employment and well-being.

To measure these gains, participants completed research assessments and in-program assessments at five different time points:

- **Baseline:** Beginning of the program before training
- **First follow-up (immediate gains):** After Essential Skills training
- **In-program (intermediate gains):** During and after technical training
- **Second follow-up (intermediate gains):** After the work experience
- **Final follow-up (long-term gains):** 9 to 11 months after the end of the program

## Figure 2 Program model theory of change



The theory of change also highlights how contextual factors can affect participant engagement and outcomes. We captured a range of *individual factors* with our surveys to examine whether baseline characteristics and skill levels predict how participants subsequently perform in the program. We measured *process factors* through program data and staff interviews as part of implementation research (see the Phase 3 report). This information can add meaning to participant outcomes, for example, showing that strong gains in a specific skill area may be explained by more intensive curriculum activities, or that poor outcomes are associated with less engagement with training. *Structural conditions* were not formally measured, but our MI partner provided updates on developments in the sector and region and possible impacts on the project and participants.

## ASSESSMENTS

Participants completed the following key assessments presented in Table 2. With the exception of the final survey, CNA and MI program staff administered all of the assessments in-person using paper surveys and paper TOWES assessments. The final survey was administered through an online survey platform, although participants had the choice to complete it over the phone. All original 16 participants were successfully contacted by email or phone, but some participants chose not to participate.

A summary table of the main survey scales is available in Appendix C. This includes information on how items were rated, how subscales were formed, and in which surveys these items appeared. For a copy of the actual instruments, please refer to the Phase 2 report. Because the final survey had not been developed at the time of that report, it is included here in Appendix D.

Several modifications were made to the original design described in the Phase 2 report. First, project staff added an additional follow-up after the work experience, when only two follow-ups were initially planned. Although skill gains are often strongest when observed immediately after Essential Skills training, skills can continue to develop as participants practice their enhanced skills during technical training and in a practical work setting. Second, the final survey was planned for 6 months after the end of the work experience. Because of the emerging COVID-19 public health crisis in the early months of 2020, we delayed the survey to respect the challenging times participants may have been experiencing.

## Table 2 Participant assessments

| Assessment | Time | Instruments | Number completed | Program attrition |
|---|---|---|---|---|
| **Baseline** | Beginning of the Essential Skills training | Survey questions about demographics, work and education history, Essential Skills, behavioural competencies, career adaptability, and well-being<br>Objective nationally recognized TOWES assessment of reading skills, document use, and numeracy | 16 | A total of 16 participants registered for the program. |
| **First follow-up** | End of the Essential Skills training | Survey questions similar to the baseline survey but excluding background questions | 14 | Two participants dropped out in the first week for personal reasons. |
| **In program** | During and end of technical training | Grades and certification for technical courses | 13 | One participant left during technical training to pursue a job opportunity. |
| **Second follow-up** | End of the work experience | Employer ratings of work attitudes and skills, core work competencies, and overall performance | 12 | One participant finished technical training but left for a job opportunity and did not start the work experience. |
| | | Survey questions similar to the baseline survey<br>TOWES assessment | 11 | While 12 participants completed all training components, one did not complete the survey and TOWES.† |
| **Final follow-up** | 9 to 11 months after the end of the work experience | Survey questions similar to the baseline survey with additional items on training and employment outcomes | 9 | All 16 initial registrants were contacted for the final survey, but only 9 completed it. |

†One additional participant beyond the 11 completed this assessment. However, he had left the program after finishing technical training and did not complete the work experience. Because we were interested in measuring whether skills gains were sustained or enhanced across technical training and work experience, his data was excluded from analyses.

# ANALYTIC DESIGN

## Quantitative pre-post analyses

The main design for this project is a comparison of pre-program (baseline) and post-program (three follow-ups) outcomes. If the program improves skill levels and contributes to positive training and employment outcomes, we would expect to see these changes reflected in the follow-up assessments. We can compare a) baseline and first follow-up (immediate gains), b) baseline and second-follow-up (intermediate gains), and c) baseline and final follow-up (long-term gains).

Without a comparison or control group, however, we cannot clearly attribute gains to the program. We do not know how participants may have fared if they had not participated in the program. Even without training, participants could have improved their skills or employment situation through their own job search or self-study. In previous research projects, it was not unusual for the control group to show some skill gains and improvements over time, although gains were typically smaller than those from participants in training.

We conducted statistical tests to determine whether participant changes are statistically significant. With a small sample ranging from 9 to 14 (depending on the follow-up), we need to interpret the results with caution. When we compare baseline to the final follow-up, for example, we can only analyze data for the nine participants who completed both assessments. With small samples, there is low statistical power to detect significant differences. There was also some attrition throughout the project, with several participants leaving the project or not completing follow-up assessments (see Table 2). Sometimes those who leave a program are more likely to have lower skills or perform more poorly. In such cases, follow-up analyses may only capture data from participants who are doing better.

## Qualitative subgroup analyses

A secondary analysis for this project looked at whether the training was more effective for certain types of participants. At baseline, we had identified two groups of participants: displaced and disconnected jobseekers. Some of these participants were hired after the work experience, while others were not. This allowed us to form three groups: Group 1 consisted of displaced jobseekers who were hired, Group 2 consisted of disconnected jobseekers who were hired, and Group 3 consisted of disconnected jobseekers who were not hired. There was no fourth group as all displaced jobseekers were hired.

We explored the baseline characteristics of these three groups and how they progressed through the program (e.g., early skill gains, technical grades, employer ratings). As with the larger group

analyses, we compared pre-program (baseline) and post-program (three follow-ups) outcomes. However, because the sample size of each subgroup was very small (e.g., 3 to 5), we could not rely on statistical techniques or tests. Instead, we were only able to interpret the data qualitatively. Therefore, results should be considered as preliminary patterns that need to be confirmed with further research.

# RESULTS

In this section, we first present program effects on participant skills and well-being indicators, beginning with the skills deemed most important by employers. These were also the skills that were given the most attention during the Essential Skills training. We then share early employment outcomes, examining employer ratings of participants during their work experience. Then we present later employment and training outcomes from the final survey. Lastly, we present our subgroup analyses, looking at differences between displaced and disconnected jobseekers. Please refer to Appendix D for information about how various survey subscales were rated and calculated.

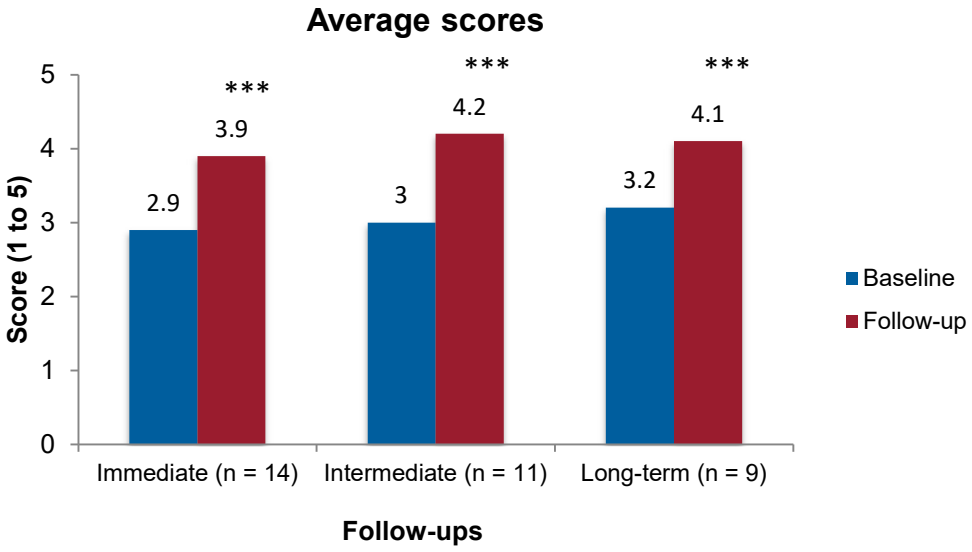
## DIGITAL SKILLS

The growing use of technology on aquaculture sites has increased the importance of digital skills for front-line workers. The skills required to communicate through email, use databases and software, and operate computerized equipment are a top priority for employers. This was a key area of focus for the Essential Skills training. Participants rated their confidence performing various activities using computers, email, the internet, and software applications.

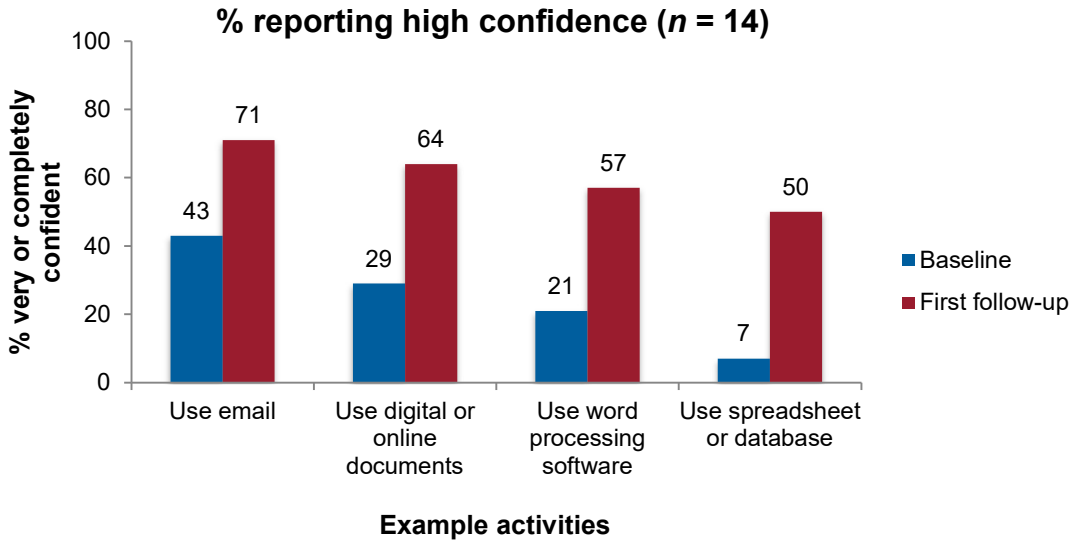
At the first follow-up, participants reported statistically significant immediate gains in their average scores. Figure 3 shows the gains in scores across time and illustrates the gains in confidence across several example items at the first follow-up. These skill gains were sustained at both the second and final follow-ups. These were one of the largest and most enduring skill gains reported by participants in the project. At baseline, digital skills was one of the lowest rated skill domains, but after completing training, many participants expressed gratitude about the opportunity to develop their computer skills in their feedback comments.

> *"I could recommend this course to anyone who wants to learn more about computers. It gives you a sense of accomplishment knowing you can better use a computer."*
> *~ Participant*

## Figure 3 Program effects on digital skills




Note: Marginally significant: *$p$< .10; Statistically significant: **$p$< .05, ***$p$< .01.



## SOFT ESSENTIAL SKILLS

After digital skills, the next priority area reported by employers was soft Essential Skills. These skills were seen as a key area for improvement for front-line workers and training was tailored to address these skill gaps. Participants rated their confidence performing various communication, critical thinking, working with others, and continuous learning activities. At the first follow-up, participants reported statistically significant gains in their average scores for all four domains. Figure 4 shows the gains in scores and illustrates the gains in confidence across several example items.

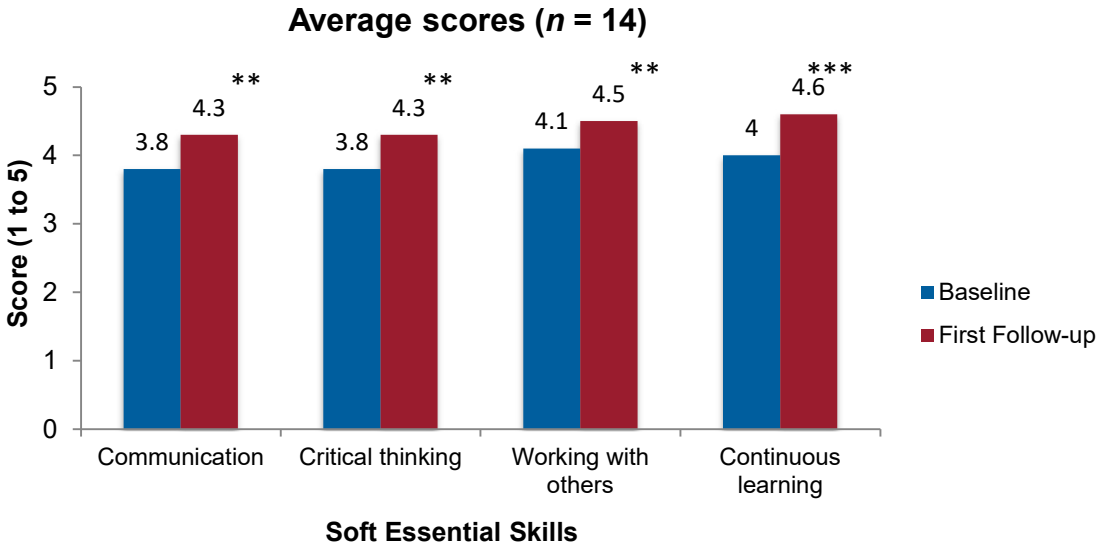
At the second follow-up, after participants had completed the entire training program, participants were still reporting statistically significant gains in their critical thinking and continuous learning, and marginally significant gains in communication and working with others. At the final follow-up, almost a year after the program ended, communication gains were still evident, although other skill gains were not observed (see Table 3). Strangely, we observed a small decrease in working with others, although it was not significant. Perhaps some participants who had moved on to other jobs were not using these skills in their work. Furthermore, some participants who were not employed at the time of the final follow-up may have had less opportunity to practice these skills in their everyday lives.

*"Speaking in class in front of people was hard for me this helped me cope with this problem."*

*~ Participant*

These clear skill gains are not surprising given the prominent focus on soft skills in the curriculum. Although communication skill gains were the only ones to remain significant in the long-term, it was a notable gain for participants. In their satisfaction surveys, many participants commented on the opportunity to build communication skills and practice speaking to a group. Communication skills may also retain greater relevance post-program as they are used in most occupations and in job search.

## Figure 4 Immediate gains in soft Essential Skills




Note: Marginally significant: *$p$< .10; Statistically significant: **$p$< .05, ***$p$< .01.

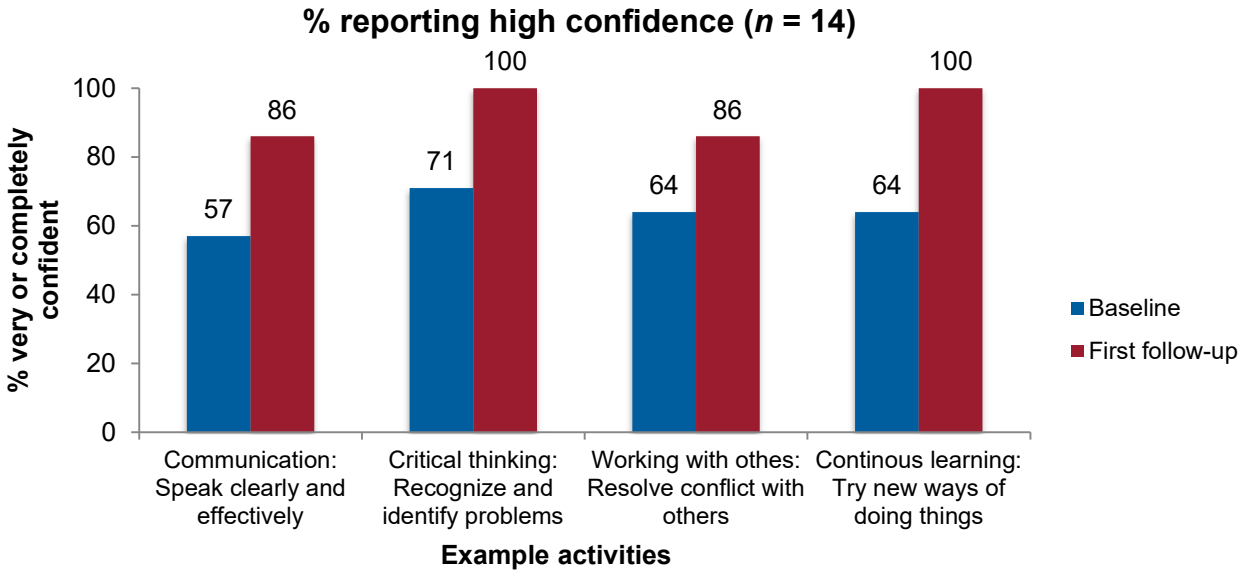


**Table 3 Program effects on soft Essential Skills**

| | Immediate gains First follow-up (*n* = 14) | | | Intermediate gains Second follow-up (*n* = 10)† | | | Long-term gains Final follow-up (*n* = 9) | | |
|---|---|---|---|---|---|---|---|---|---|
| **Skill domain** | **Pre** | **Post** | **Diff** | **Pre** | **Post** | **Diff** | **Pre** | **Post** | **Diff** |
| Communication | 3.8 | 4.3 | 0.5** | 4.0 | 4.4 | 0.4* | 3.9 | 4.2 | 0.3*** |
| Critical thinking | 3.8 | 4.3 | 0.5** | 3.9 | 4.3 | 0.4** | 4.0 | 4.2 | 0.2 |
| Working with others | 4.1 | 4.5 | 0.4** | 4.1 | 4.6 | 0.5* | 4.2 | 4.1 | -0.1 |
| Continuous learning | 4.0 | 4.6 | 0.6*** | 4.1 | 4.5 | 0.4** | 4.1 | 4.4 | 0.3 |

Note: Marginally significant: *$p$< .10; Statistically significant: **$p$< .05, ***$p$< .01. †One of the eleven participants did not answer these questions on his survey.

## BEHAVIOURAL COMPETENCIES

During the needs assessment, employers highlighted the importance of work ethic, including being on time, working hard, listening to supervisors, and not being distracted on the job. The Essential Skills training addressed these gaps with activities devoted to personal development, helping participants better understand employer expectations for work ethic and professionalism (e.g., dressing the part, safety equipment, active listening skills, use of social media, cultural sensitivity, training and development).

The survey included measures of behavioural competencies that are based on the Big Five model of personality that have been shown to correlate to work ethic and job performance.[1] Participants rated how much they agreed with different descriptions about themselves, such as "I am sometimes lazy" and "I handle stress well". These items formed several subscales including *conscientiousness*, the tendency to be responsible, organized, and hardworking, *openness to experiences*, the tendency to be open to new aesthetic, cultural, or intellectual experiences, *extraversion*, orientation of interests and energies toward the outer world of people, *agreeableness*, the tendency to be cooperative and unselfish, and *emotional stability*, the tendency to be emotionally stable and not prone to psychological distress.

[1] The scale used in our surveys was adapted from the Big Five Inventory (BFI-10). Rammstedt, B., & Oliver, P. J. (2007). Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *Journal of Research in Personality, 41,* 203-212. Descriptions of the Big Five dimensions are from the APA Dictionary of Psychology (2018).

Surprisingly, participants did not report any statistically significant gains at the first follow-up, although the average scores show some increases in the expected direction (see Table 4). At the second follow-up, participants reported a marginally significant increase in openness and a statistically significant increase in agreeableness. Participants might have had more opportunities to engage with others in a positive way during the work experience, and learned to be open to a new work environment. These increases however were not sustained at the final follow-up.

**Table 4 Program effects on behavioural competencies**

| | Immediate gains First follow-up (*n* = 14) | | | Intermediate gains Second follow-up (*n* = 11) | | | Long-term gains Final follow-up (*n* = 9) | | |
|---|---|---|---|---|---|---|---|---|---|
| **Competency** | **Pre** | **Post** | **Diff** | **Pre** | **Post** | **Diff** | **Pre** | **Post** | **Diff** |
| Conscientiousness | 4.2 | 4.3 | 0.1 | 4.3 | 4.4 | 0.1 | 4.3 | 4.3 | 0.0 |
| Openness | 3.1 | 3.4 | 0.3 | 3.2 | 3.7 | 0.5* | 3.4 | 3.6 | 0.2 |
| Extraversion | 3.5 | 3.5 | 0 | 3.6 | 3.8 | 0.2 | 3.5 | 3.4 | -0.1 |
| Agreeableness | 3.8 | 4.0 | 0.2 | 3.7 | 4.2 | 0.5*** | 4.1 | 4.1 | 0.0 |
| Emotional stability | 2.9 | 3.1 | 0.3 | 2.9 | 2.9 | 0.0 | 3.1 | 3.0 | -0.1 |

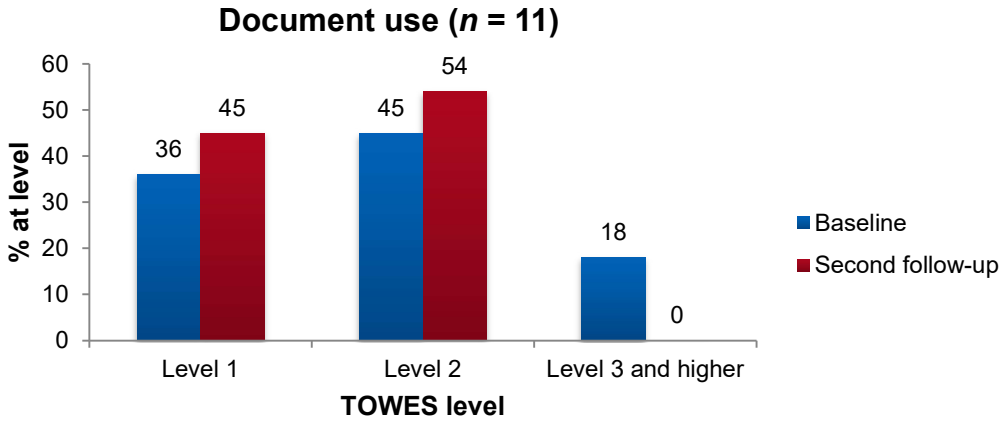
Note: Marginally significant: *$p$< .10; Statistically significant: **$p$< .05, ***$p$< .01.

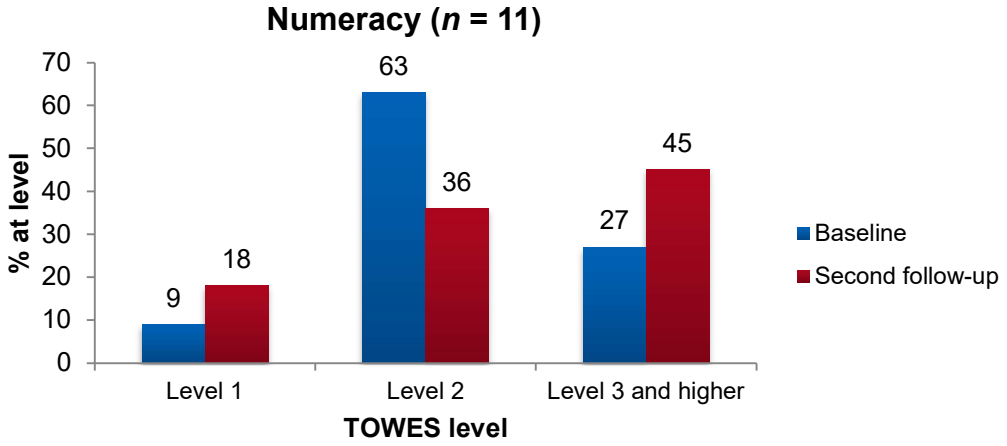
# CORE ESSENTIAL SKILLS

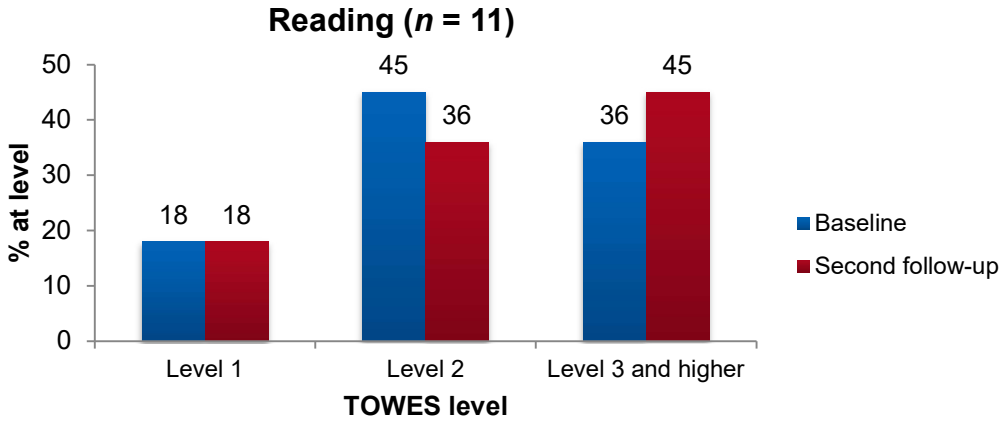
## TOWES assessment and perceived skill gains

Although employers placed greater emphasis on soft skills, most agreed there were some basic core skill gaps in many of their front-line workers. These core skills are important for communication, reading manuals, or entering data and information. The key measure for core Essential Skills was the TOWES assessment of reading, document use, and numeracy completed at baseline and at the second follow-up. The assessments are scored on a scale from 0 to 500 and then transformed into corresponding Levels 1 to 5. Level 3 is commonly considered the level required to work safely and productively and meet the demands of every day life. Figure 5 shows the distribution of levels attained by participants at baseline and the follow-up.

**Figure 5 Intermediate gains in core Essential Skills**


Document use (n = 11)
% at level
60
50
40
30
20
10
0
36
45
45
54
18
0
Level 1
Level 2
Level 3 and higher
TOWES level
Baseline
Second follow-up


Numeracy (n = 11)
% at level
70
60
50
40
30
20
10
0
9
18
63
36
27
45
Level 1
Level 2
Level 3 and higher
TOWES level
Baseline
Second follow-up


Reading (n = 11)
% at level
50
40
30
20
10
0
18
18
45
36
36
45
Level 1
Level 2
Level 3 and higher
TOWES level
Baseline
Second follow-up

None of the changes illustrated are statistically significant. Surprisingly, document use appears to have decreased after training, especially for those who started at Level 3, although on the first follow-up survey, 92.9 percent of participants agreed that the program improved their document use skills. This discrepancy between the objective TOWES assessment and participants' perceived skill gains might point to a misalignment of training and assessment. Because the TOWES assessment was not sector-specific, it may not have captured the gains made by participants in a sector-specific Essential Skills training. Because the follow-up assessment occurred after the work experience, participants' skills may also have diminished because they did not have opportunity to practice their document use skills. They were placed in entry-level positions and were likely not involved in critical data collection or documentation as new employees.

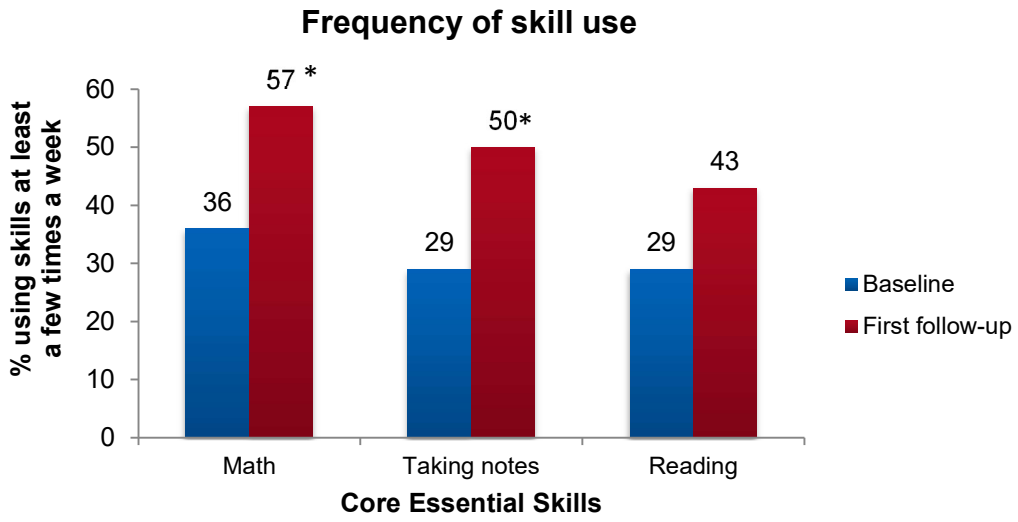
> *"I recommend this course to anything who needs help with computers, essential skills, writing, math, paragraphs. It personally improved my skills. Will be buying my own laptop."*
>
> *~ Participant*

Numeracy showed some gains by participants, with more participants scoring at Level 3 or higher. However, some participants also showed decreases, with an increase in the number of participants scoring at Level 1. On the first follow-up survey, 50 percent of participants agreed that the program improved their math skills, consistent with individual variability in results. Reading also showed some clearer gains by participants with some participants likely shifting from Level 2 to Level 3 and higher. In the first follow-up survey, 71.4 percent of participants agreed that their reading skills improved from the program. Overall, there is some evidence from our TOWES assessment that some individual participants made gains in numeracy and reading, although as group, there were no significant differences.

## Skill use in daily life

During training, participants were most likely practicing skills in the classroom. However, we were also interested in how skill gains might transfer to the daily lives of participants. Participants rated how frequently they performed activities involving math, taking notes, and reading in their daily lives. Participants reported marginally significant increases in their use of math and note taking activities. Figure 6 shows changes in the percentage of participants who reported using skills at least a few times a week. At the second follow-up, participants reported sustained significant gains for taking notes and reading (see Table 5). Interestingly, while the gains in math use decreased slightly and was no longer significant by the second follow-up, reading use increased significantly. Perhaps either during technical training or the work experience, participants had an increased opportunity to practice their reading skills (e.g., reading manuals, instructions, training materials).

## Figure 6 Immediate gains in skill use in daily life




Note: Marginally significant: *$p$< .10; Statistically significant: **$p$< .05, ***$p$< .01.

## Table 5 Program effects on skill use in daily life

| | Immediate gains First follow-up ($n$ = 14) % using skills at least once a week | | | Intermediate gains Second follow-up ($n$ = 11) % using skills at least once a week | | | Long-term gains Final follow-up ($n$ = 9) % using skills at least once a week | | |
|---|---|---|---|---|---|---|---|---|---|
| **Skill domain** | **Pre** | **Post** | **Diff** | **Pre** | **Post** | **Diff** | **Pre** | **Post** | **Diff** |
| Math | 36 | 57 | 21* | 36 | 56 | 20 | -- | -- | -- |
| Taking notes | 29 | 50 | 21* | 27 | 73 | 46** | -- | -- | -- |
| Reading | 29 | 43 | 14 | 27 | 73 | 46** | -- | -- | -- |

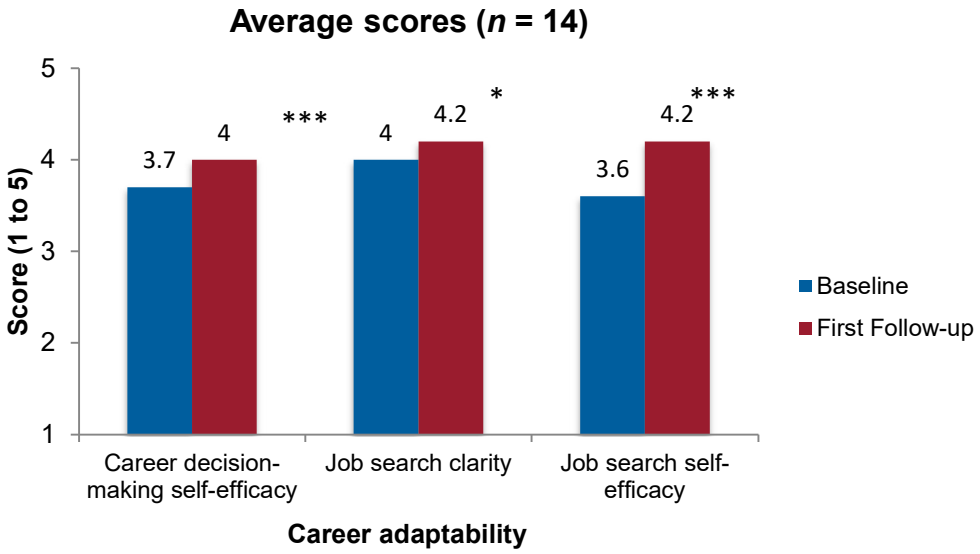
Note: Marginally significant: *$p$< .10; Statistically significant: **$p$< .05, ***$p$< .01.

## CAREER ADAPTABILITY AND RECEPTIVITY TO LEARNING

The Essential Skills curriculum included activities to help participants explore career options (e.g., personality profiles, skills inventory) and develop the skills to search for and apply to jobs (e.g., resumes, cover letters). These types of activities increase *career adaptability*, the skills and resources required to engage in current and future tasks related to one's career and to cope with transitions and challenges. Career adaptability includes *career decision-making self-efficacy*, making decisions and taking actions to find the right career, *job search self-efficacy*, being confident in completing tasks related to finding a job, and *job search clarity,* having clear job search goals. At the first follow-up, participants reported statistically significant gains in both career decision-making self-efficacy and job search self-efficacy, and marginally significant gains in job search clarity. Figure 7 shows the change in average scores for each and illustrates the gains in confidence across several example items at first follow-up.

To develop and enhance one's career and employment prospects, jobseekers and current employees often need to engage in training to upgrade their skills or build new skills for a different occupation or sector. Participants rated how much they agreed with several statements about their perception of learning, such as whether learning improves job prospects. At all follow-ups, participants did not report any changes in their receptivity to learning (see Table 5). Typically, when participants have the chance to experience the benefits of training, their perception towards training improves. However, baseline levels of receptivity were quite high (4.5 out of 5), one of the highest baseline ratings across the skill areas measured. The training program is a 4-month intensive sector-specific program. Participants who signed up for the program were likely highly motivated and understood the value of such training.

## Figure 7 Immediate gains in career adaptability




Note: Marginally significant: *$p$< .10; Statistically significant: **$p$< .05, ***$p$< .01.

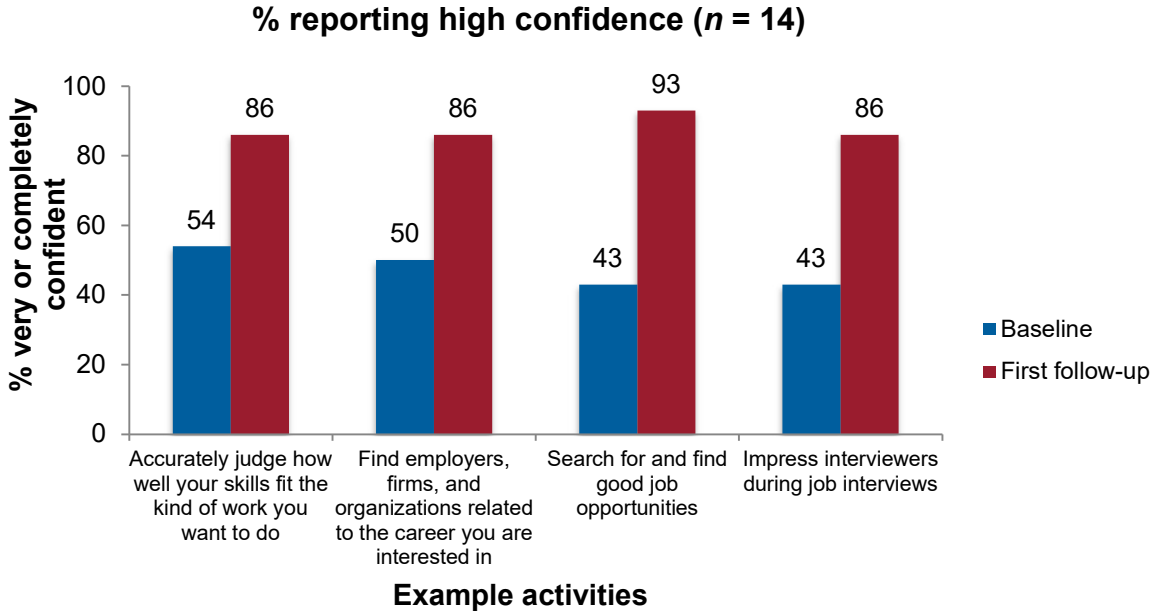


**Table 6 Program effects on career adaptability and receptivity to learning**

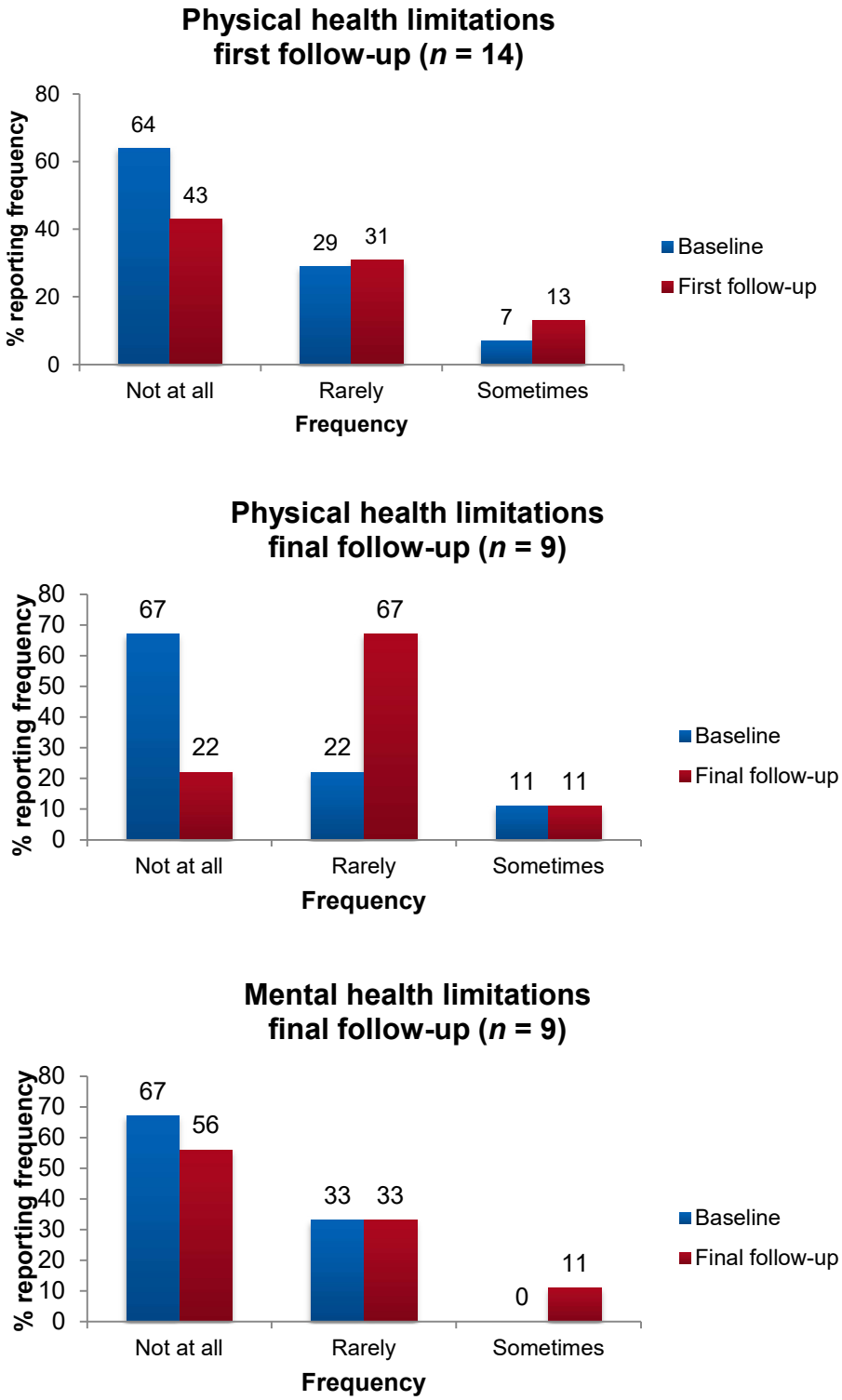
| | Immediate gains First follow-up (*n* = 14) † | | | Intermediate gains Second follow-up (*n* = 11)† | | | Long-term gains Final follow-up (*n* = 9) † | | |
|---|---|---|---|---|---|---|---|---|---|
| **Skill domain** | **Pre** | **Post** | **Diff** | **Pre** | **Post** | **Diff** | **Pre** | **Post** | **Diff** |
| Career decision-making self-efficacy | 3.7 | 4.0 | 0.3*** | -- | -- | -- | 3.8 | 4.1 | 0.3 |
| Job search clarity | 4.0 | 4.2 | 0.2* | -- | -- | -- | 4.0 | 4.1 | 0.1 |
| Job search self-efficacy | 3.6 | 4.2 | 0.6*** | -- | -- | -- | 3.7 | 4.0 | 0.3** |
| Receptivity to learning | 4.5 | 4.5 | 0.0 | 4.4 | 4.3 | -0.1 | 4.6 | 4.2 | -0.4 |

Note: Marginally significant: *$p < .10$; Statistically significant: **$p < .05$, ***$p < .01$. †One participant did not answer the receptivity to learning items at baseline so the sample for the first, second, and final follow-up are 13, 10, and 8 respectively.

## HEALTH AND WELL-BEING

Skills or employment training not only improves participant knowledge and skills but can enhance well-being. There could be immediate effects from training related to increased social engagement, development of new competencies, and taking steps towards a new career and job. It is also possible that effects are most likely observed in the long-term as participants' lives are improved from training and employment outcomes. Participants were asked several questions regarding their health and life satisfaction. Participants indicated how often a physical or health problem limited their daily activities and how often an emotional or health problem such as depression limited their daily activities. Participants did not report any statistically significant changes in their experience of physical or mental health limitations (see Figure 8).

## Figure 8 Program effects on physical and mental health

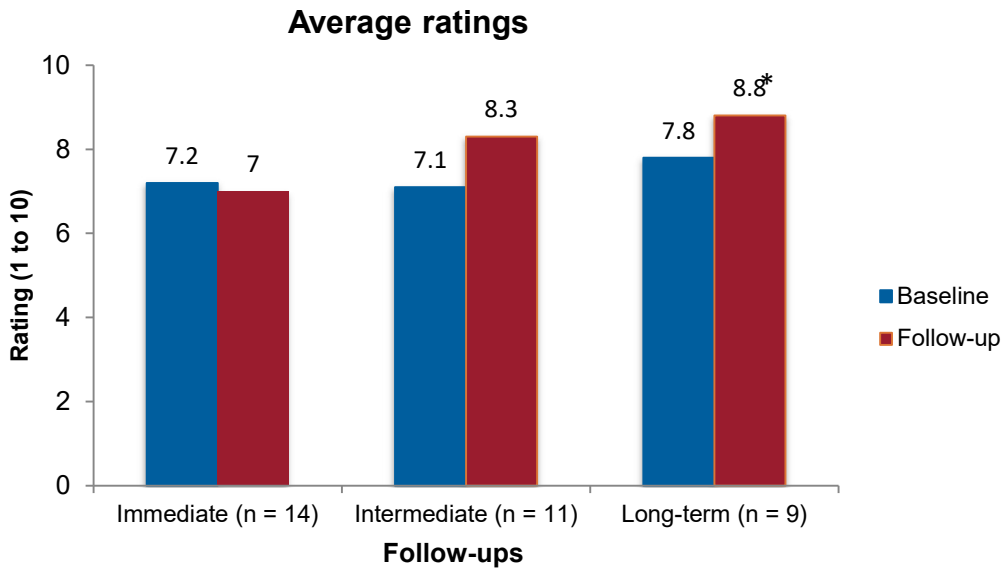


In general, participants did not report frequent health limitations with no participant ever reporting experiencing limitations often. However, when we examine the distributions of participant responses, there is a pattern of increased physical limitations at the first follow-up and increased physical and mental limitations at the final follow-up, although not significant. Early increases in limitations could have been related to stress from being unemployed and learning in a classroom environment, something many of them had not done in decades. Increases at final follow-up might have been related to experiencing the challenges of the COVID-19 pandemic.

*"The Essential Skills training really improved my outlook in life in general."*
*~ Participant*

Participants were also asked to rate their life satisfaction on a scale of 1 to 10. At the first follow-up, participants did not report any statistically significant changes in their life satisfaction. At the second follow-up, participants reported an increase in life satisfaction but it was not statistically significant. However, by the final follow-up, participants reported a marginally significant gain in life satisfaction. Figure 9 illustrates the program effects on life satisfaction across the three follow-ups. These results suggest that in the long-term, the cumulative effects from participation in the various program components and employment outcomes had an observable effect on participants' satisfaction with their lives.

### Figure 9 Program effects on life satisfaction




Note: Marginally significant: *$p$< .10; Statistically significant: **$p$< .05, ***$p$< .01.

# WORK EXPERIENCE OUTCOMES

As part of the work experience component, employers completed several assessments of the participants including ratings of their soft Essential Skills, other general work attitudes and skills, their core work competency performing a range of aquaculture tasks, and their overall performance. Employers' ratings of participant work attitudes and skills are shown in Figure 10. Participants generally demonstrated high levels of most skills, although they scored lower in critical thinking and initiative and creativity. Bars in red highlight soft Essential Skills.

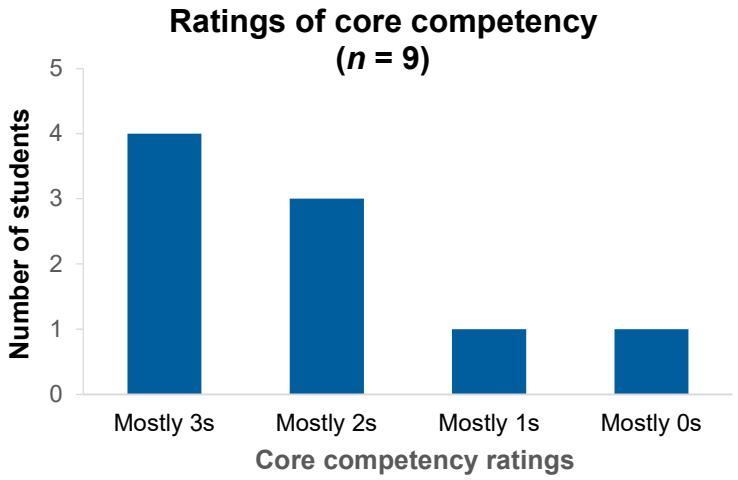
### Figure 10 Employer ratings of participant attitudes and skills


Employers also rated participants' competency performing job tasks using a scale of 0 to 3. Several participants excelled at their work, receiving ratings of 3 for 80 to 100 percent of their rated tasks (see Figure 11). The only student who received primarily ratings of 0 did not complete the required hours for the work experience.

These core competency skills can also be grouped by task domain, such as tasks related to biology and husbandry, feeds and feeding, and health and biosecurity. Participants most often performed tasks related to feeding (average rating of 2.3) and tasks related to biosecurity (average rating of 2.0). Feeding and biosecurity were both areas of technical skill requirements

that were highlighted by employers. Overall, employers were generally satisfied with students as demonstrated by their overall ratings of students in Figure 12. All but one student received a satisfactory rating and 75 percent received an above-satisfactory rating.

### Figure 11 Employer ratings of core work competency




Note: Excludes the 3 participants who were rated on only 3 or less tasks.

### Figure 12 Employer overall evaluation of students

# EMPLOYMENT OUTCOMES

## Intermediate outcomes

> *"It was a great life experience for myself. Finished off work term with full-time job offer, looking forward to doing fishing masters 4 course within next 3 yrs."*
>
> *~ Participant*

At the beginning of the program, all of the enrolled participants were unemployed and ready to engage in the training full-time. Twelve participants participated in all three components of the training (i.e., Essential Skills training, technical training, work experience) and nine were offered immediate employment by their work experience employer. Five participants were hired by Cooke Aquaculture, three participants were hired by Mowi Canada East, and one was hired by Newfoundland Aquaculture Services. Of the three participants not hired, one did not finish the required hours, one was working on a site with no available positions, and one was not hired for unclear reasons.

## Long-term outcomes

During the period between the end of the work experience and the final survey, our MI partner kept us informed about how some of the participants were doing. Indeed, our MI partner continued to work with some of the participants to complete the program or help them connect with work in the industry. In the fall of 2019, we learned from our MI partner that three of our hired participants were unfortunately laid off due to an unexpected large salmon die-off event at Mowi Canada East. It is expected that one of them might be rehired in the future.

Of the original nine participants hired, six completed the final follow-up survey 9 to 11 months post-program, as did the three participants who were not hired. The participants who completed the final survey formed the following groups:

- **Hired-stable group (*n* = 3):** These participants were hired immediately after their work experience and did not experience any known lay-offs.
- **Hired-unstable group (*n* = 3):** These participants were hired immediately after their work experience but were subsequently laid off.
- **Not hired group (*n* = 3):** These participants were not hired after the work experience.

At the final follow-up, the hired-stable group were all still working at the same aquaculture company (see Table 7). In the hired-unstable group, one participant had returned to a job that he had worked at previously in the aquaculture sector, one was unemployed but worked briefly in

construction, and one had not worked since the lay-off. In the not hired group, one participant was working outside of aquaculture, one was unemployed but had worked briefly in construction, and one had not worked since the work experience.

### Table 7 Employment status at final follow-up

| | Hired-stable group (*n* = 3) | Hired-unstable group (*n* = 3) | Not hired group (*n* = 3) |
|---|---|---|---|
| Currently employed | 3 | 1 | 1 |
| Not employed but held recent job | 0 | 1 | 1 |
| Not employed since work experience or lay-off | 0 | 1 | 1 |

## *Job characteristics*

Participants who reported being currently or recently employed were asked a series of questions about their jobs. This included job characteristics (e.g., wages, hours worked) and how satisfied and fulfilled they were at their current or recent jobs. To measure job satisfaction, participants were asked to rate their satisfaction of various job characteristics, such as pay or opportunities for promotion. To measure how fulfilled participants felt at their jobs, they were asked to rate how much they agreed that their needs were being met. This included their *autonomy needs* (e.g., being able to make your own decisions or take on responsibilities), *competence needs* (e.g., feeling competent and successful), and *relatedness needs* (e.g., feeling understood by colleagues and trusting them). Table 8 presents these and other job characteristics across the three groups. We only included participants who were either working or held a recent job (i.e., since their work experience ended or since being laid off).

Overall, the hired-stable group perceived their job as a higher-skilled job, earned higher wages and worked more hours per week, followed by the hired-unstable group, and then the not hired group. Both the hired-stable and hired-not stable groups reported higher job satisfaction and job fulfillment than the not hired group. However, the hired-unstable group reported the highest ratings for competence. Because some of the other participants might have returned to jobs and industries they had worked in previously, they might have experienced higher competence. Those who newly entered the aquaculture industry may still be developing their confidence and competence in their technical skills.

**Table 8 Job characteristics by group**

| | Hired-stable group Continued employment at aquaculture company (n = 3) | Hired-unstable group Laid off from aquaculture company – working or worked elsewhere (*n* = 2) | Not hired group Working or worked elsewhere (*n* = 2) |
|---|---|---|---|
| Education required for job | College, trades, or apprenticeships | High school diploma, on-the-job training | On-the-job training |
| Average hourly wage | $15.60 | $14.00 | $13.50 |
| Average hours per week | 70 | 40 | 37.5 |
| Job satisfaction (1 to 7) | 5.9 | 5.8 | 5.6 |
| Autonomy (1 to 5) | 4.6 | 4.5 | 3.9 |
| Competence (1 to 5) | 3.7 | 4.4 | 4.0 |
| Relatedness (1 to 5) | 3.9 | 3.7 | 3.6 |

### *Income Assistance and Employment Insurance*

The final follow-up survey included questions about Income Assistance (IA) and Employment Insurance (EI). At baseline, five participants reported having received IA in the past 12 months, reporting an average of 8.2 months. Three reported continuing to be on IA. At the final follow-up, only two participants reported being on IA since the start of the program. At baseline, ten participants reported having received EI in the past 12 months, reporting an average of 5.5 weeks. All ten were receiving EI at the time of the baseline survey. At the final follow-up, six participants reported receiving EI since the start of the program. However, in all but one case, the number of weeks ranged from 8 to 17, which could have been at least partially during the training. See Table 9 for IA and EI outcomes by group.

### *Further training*

Table 9 also includes outcomes related to further training. After experiencing the benefits of training, participants can be more open and interested in further training and upgrading of their skills. Only one participant of the nine surveyed reported having completed additional training since the end of the program, a short personal interest course. However, more than half reported some plans for future training. Not surprisingly, the hired-stable group reported interest in aquaculture or job-related training. The hired-unstable group reported interest in a range of

areas both related and unrelated to aquaculture. The not hired group did not report any further plans for training.

### Table 9 Other employment and training outcomes by group

| | Hired-stable group (*n* = 3) | Hired-unstable group (*n* = 3) | Not hired group (*n* = 3) |
|---|---|---|---|
| Number reporting being on IA since the start of the program | 1 | 0 | 1 |
| Number reporting being on EI since start of the program | 3 | 1 | 2 |
| Average weeks on Employment Insurance since start of program | 11.3 weeks | 8 weeks | 19.5 weeks |
| Number who participated in additional training | 0 | 0 | 1 |
| Number who plan to participate in future training | 3 | 2 | 0 |
| Type of future training | Aquaculture; job-related | Aquaculture and personal interest, engineering | -- |

## *Retention in aquaculture and employment rate*

Overall, the nine participants who completed the final survey seemed to be doing fairly well. Only one participant had not worked since the work experience. Most of the others who were not immediately hired or who were laid off were able to find another position or obtain some temporary work. Although the three other hired participants did not complete the final survey, our MI partner believes that two of the three are still employed. Including this informal data, of the original nine who were hired, five are still employed with their respective companies, with three laid-off and one let go for unknown reasons. Of the full 12 participants who participated in all program components, 7 were employed at the final follow-up, including jobs both in and outside of aquaculture.

## DISPLACED AND DISCONNECTED JOB SEEEKERS

In the previous sections, we explored participant skill gains and program outcomes as a group, but participants came from diverse backgrounds with diverse skill levels. Some participants might have benefited more from training than others, but this is obscured when we only look at group-level outcomes. In this section, we explore subgroup outcomes of displaced and disconnected job seekers as they progressed through training to employment. These two groups were identified at baseline from their work history and background characteristics. The displaced group had more work experience and were more highly skilled than the disconnected group.

We examined how these groups differed in their skill gains and performance during training. These differences might explain why some were offered immediate employment after the work experience while others were not. Using data from the 12 participants who participated in the full training program, we explored the experiences of three groups.

- **Group 1 (*n* = 5):** Displaced jobseekers who were hired after the work experience
- **Group 2 (*n* = 4):** Disconnected jobseekers who were hired after the work experience
- **Group 3 (*n* = 3):** Disconnected jobseekers who were not hired after the work experience

We qualitatively compared each group's average scores on the full range of outcomes at baseline, first follow-up, second follow-up, and final follow-up. We also analyzed the gains made by each group at each time point. The full set of tables of average scores and gains for each group are presented in Appendix E. This analysis can provide insight into what is similar about Group 1 and 2 who were both hired, and what differentiates Group 2 and 3 who are both disconnected jobseekers but only one group was hired. Table 10 illustrates some of the key differences between the displaced and disconnected groups at baseline and indicates program outcomes for each group, including who left the program, was hired, or not hired.

### Table 10 Displaced and disconnected jobseekers: Baseline characteristics and program outcomes

| Displaced workers (*n* = 6) | Disconnected workers (*n* = 10) |
|---|---|
| **Demographics** | |
| ▪ All in their 30s and 40s | ▪ Mostly younger or older workers (20% in 20s, 20% in 40s, and 60% 50 or older) |
| ▪ 83% married or common-law | ▪ 40% married or common-law |
| ▪ 1 Indigenous | ▪ 3 Indigenous |
| **Education** | |
| ▪ 67% completed post-secondary education | ▪ 40% completed post-secondary education |
| **Work** | |
| ▪ 83% worked 24 or more months of the last 36 months | ▪ All worked less than 24 months in the last 36 months |
| ▪ 83% reported 10 or more years of experience working in their last industry | ▪ 70% reported 2 or less years of experience working in their last industry |
| ▪ 50% worked in construction | ▪ 50% worked in aquaculture sector |
| **Social assistance** | |
| ▪ All receiving Employment Insurance | ▪ 30% receiving Employment Insurance |
| None receiving Income Assistance | 40% receiving Income Assistance |
| **Program outcome** | |
| ▪ Five were hired after the work experience (Group 1) | ▪ Four were hired after the work experience (Group 2) |
| ▪ One left for a job during the technical training | ▪ Three were not hired (Group 3) |
| | ▪ Two dropped out in the first week, and one left for a job after technical training |

## Baseline skill levels and well-being

***Group 1 started with the highest level of skills and well-being, Group 3 started with the lowest level of skills and well-being, and Group 2 fell in-between.***

With a few exceptions, Group 1 scored higher than the other groups on soft skills, core skills, career adaptability, and behavioural competencies. However, the differences were minor for career adaptability. Interestingly, they reported the lowest job search clarity, which might have

reflected their uncertainty about pursuing a new line of work. They also reported the least health limitations and the highest life satisfaction. The advantages shown by Group 1 were consistent with the demographic differences between displaced and disconnected jobseekers. Group 3 had the lowest scores in most domains and reported the highest health limitations and the lowest life satisfaction. However, they reported the highest ratings for receptivity to learning, frequency of reading in daily life, and agreeableness. Group 2 often scored in between the two other groups.

## Gains from Essential Skills Training

***With more room to improve, Group 2 and 3 both showed large skill gains, especially Group 3. At the end of training, Group 2 and 3 had reduced or closed many of the skills gaps they had with Group 1, who reported fewer and smaller gains.***

After the Essential Skills training, Group 2 and 3 both showed large gains across various skill areas. Group 3 showed the largest gains in many areas, including soft skills, digital skills, and some behavioural competencies. Group 3 was the only group to report an increase in life satisfaction. By the end of training, Group 2 and 3 impressively reduced or closed many of the skill gaps they had with Group 1, and in some cases, even exceeded Group 1's scores. One area were Group 3 was not able to catch up however was in digital skills, where they still lagged behind the other groups. Although Group 1 showed smaller gains, they reported the highest gains in job search clarity, perhaps developing a better sense of their goals and a greater commitment to a career in aquaculture. They also made some large gains in digital skills and career adaptability.

## Performance in technical training and the work experience

***Group 1 and 2 both excelled at technical training and performed well at the work experience. Unlike Group 2, Group 3 was not able to transfer their skills into technical training and the workplace, and performed worse than the other two groups.***

Group 1 performed the best in technical training with the highest average grades across the three groups. They also received the highest employer ratings for core work competencies and were rated well on work attitudes and skills. Group 2 also performed well in technical training with positive ratings from employers and the highest overall rating. Group 3 unfortunately trailed behind the other two groups with the lowest grades and employer ratings. In particular, they were rated low in initiative and creative skills, organizational awareness, organization and time management, and adaptability. Both Group 2 and 3 had some previous experience in aquaculture, with Group 2 reporting slightly stronger experience. Only one participant in Group 1 had previously worked in aquaculture.

## Gains from technical training and the work experience

***Group 2 made the biggest gains and often had the highest scores after technical training and the work experience. Group 1 continued to make small gains in certain areas, as did Group 3. However, Group 3 also saw some their initial large gains diminish.***

Group 2 made the biggest gains and often reported the highest scores in multiple domains after the work experience. Group 2 was also more likely to experience additional gains above and beyond those from the Essential Skills training. In contrast, Group 1 reported only small gains in soft skills and skill use in daily life. Group 3 mostly reported diminished gains since the last follow-up, except for a few additional gains in select areas such as digital skills. Interestingly Group 3 was the only group to show increases in TOWES reading, document use, and numeracy skills, while the other groups showed decreases. This is not quite consistent with the additional gains reported by Group 1 and 2 in their skill use in daily life. Group 2 showed a striking jump in life satisfaction, perhaps reflecting their great success in this portion of the training. Group 1 showed a more modest increase, while Group 3 lost initial gains they had made, perhaps reflecting their more difficult experiences and lack of job offers.

## Long-term gains

***Group 2 reported the highest skill levels, largest net skill gains, and highest life satisfaction, despite having been laid off. Group 1 continued to report small steady gains with skill levels slightly behind those of Group 2 with their life satisfaction holding steady. Group reported net skill gains and an increase in life satisfaction, although their initial large gains had diminished.***

Group 2 showed the highest average scores at the final follow-up and had larger net gains than the other groups. Nonetheless, some of their initial large gains after the work experienced had diminished. Group 2 reported the highest life satisfaction of 10 out of 10. Only two participants from Group 2 completed the final survey, so these patterns need to be interpreted with caution. Interestingly these two participants had been laid off, but still showed sustained skill gains and high life satisfaction. One was however working in a different position in the aquaculture industry.

Group 1 showed some additional small gains in soft skills, career adaptability and emotional stability and reported scores slightly lower than those of Group 2. Their life satisfaction generally remained high at 8.75 out of 10. Four participants completed the survey in Group 1, including three that were still employed with Cooke Aquaculture, and one who had been laid off. At the final follow-up, Group 3 had lost a lot of their initial large gains after the Essential Skills training, although they reported net positive gains in many skill areas. After their life satisfaction

dipped after the work experience, it increased at the final follow-up to 8.33 out of 10. All three participants in Group 3 completed the final survey with one currently working outside of aquaculture.

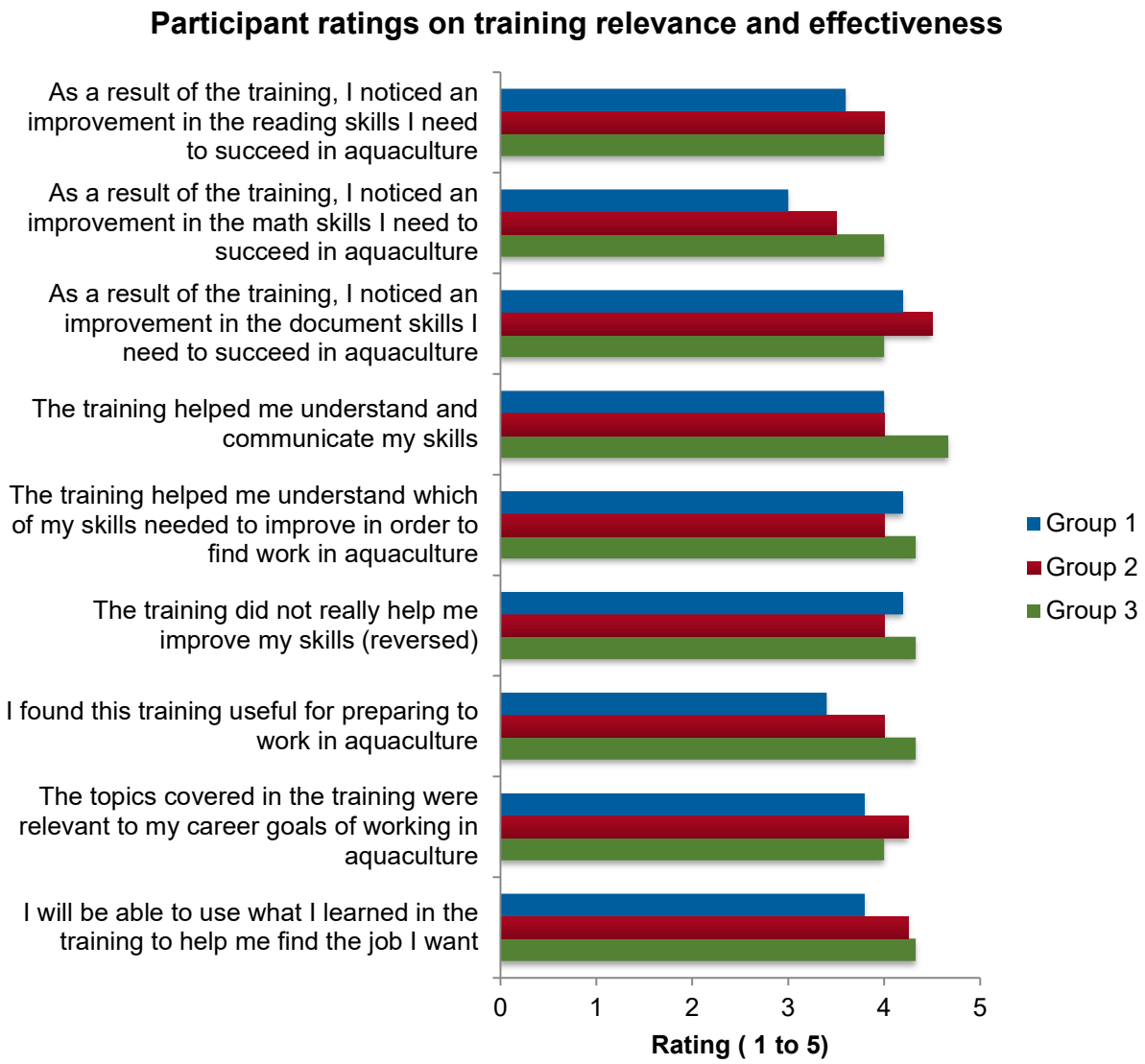
## Overall patterns of group differences

The subgroup analyses points to different experiences with the Essential Skills training and the technical training and work experience. With their higher level of skills, Group 1 did not appear to benefit as much from the Essential Skills compared to the other two groups. When we examine participant feedback on the training, this is reflected in their lower ratings of the relevance and helpfulness of the training (see Figure 13).

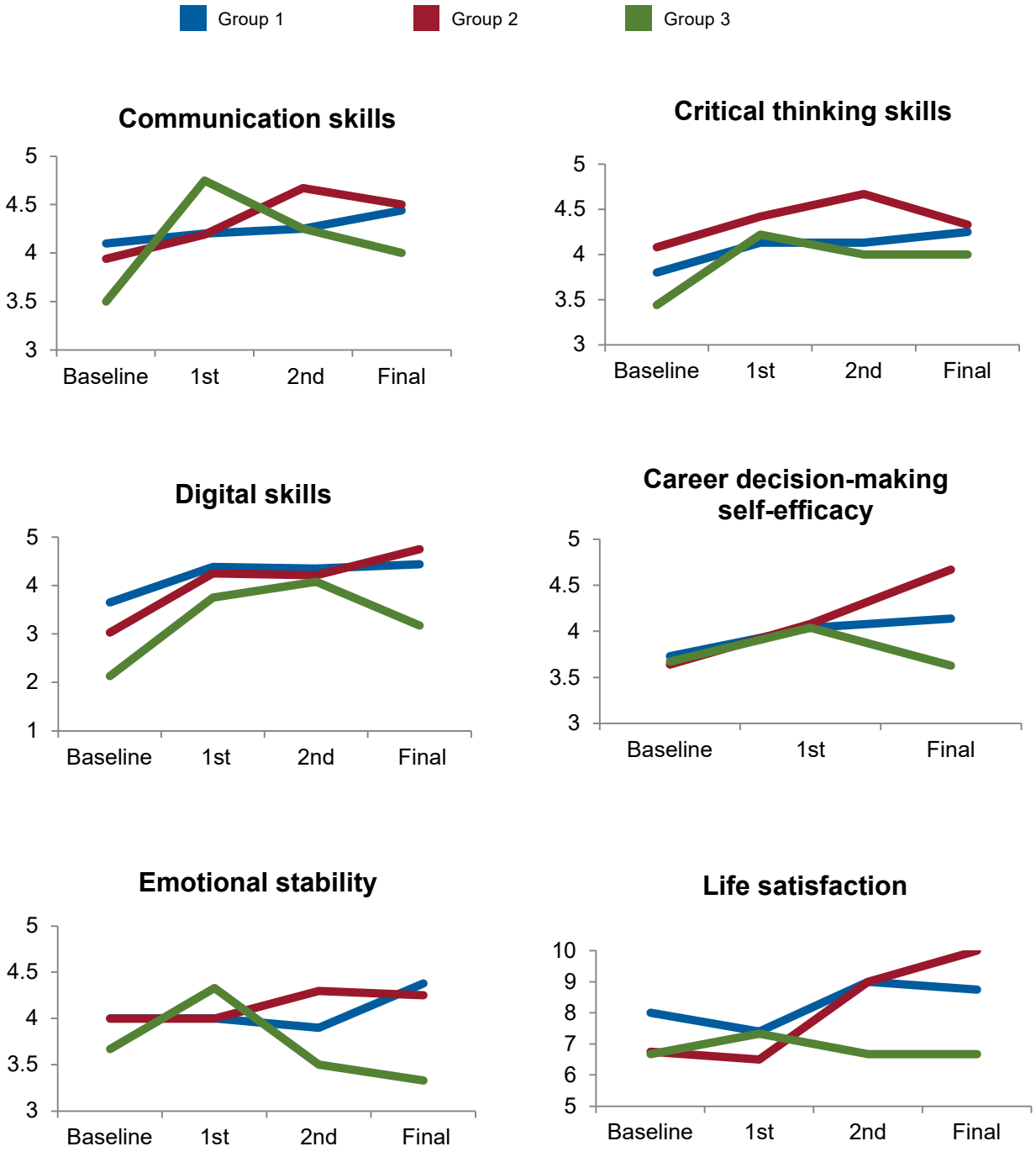
However, both Group 1 and 2 appeared to benefit more from the technical training and work experience. Both groups performed well in training and were rated well by employers. Group 2 especially continued to make additional skill gains. Group 3 struggled more with this portion of training, performing more poorly than the other groups, losing some of their initial gains, and only had gains in targeted areas. This is consistent with their employment outcomes, as Group 1 and 2 were offered immediate employment whereas Group 3 was not. However, it is important to also acknowledge that many factors can affect offers of employment beyond employee performance, including employer needs and positions available. For example, for one of the Group 3 participants, lack of openings was at least a contributor to his employer's decision.

The three groups also showed different patterns of gains. Group 1 started ahead of the others and made small steady gains throughout training. Group 2 made continuous gains peaking after the work experience or the final follow-up. Group 3 made large gains peaking after the Essential Skills training, but then magnitude of these gains diminished over time. Figure 14 provides a quick snapshot of these patterns as they were manifested across a selection of skill and well-being outcomes. It also shows some variability in these patterns. For example, all groups tended to make gains in digital skills while their early gains in career decision-making self-efficacy were quite similar.

### Figure 13 Participant feedback on the Essential Skills training



## Figure 14 Gains across time in selected skills and well-being outcomes



# DISCUSSION

## EFFECTIVENESS OF THE MODEL

The results from our data analyses suggest that a sector-specific training model for entry-level aquaculture work can lead to improved skills, successful completion of technical training and work experience, and long-term job retention within the sector. Below we highlight the key skill, training, employment, and well-being outcomes for participants. Because of the limitations of the research design (e.g., small sample, no control group), it will be important to validate these early findings with more rigorous research methodologies. Nonetheless, these promising results suggest that this training model can be valuable in the sector.

### Transferable skills

***Participants reported significant and sustained intermediate to long-term gains in digital and soft skills, both priority skills areas for employers.***

Digital skills was the lowest-rated domain at baseline, but showed the largest gain across all skills areas. Impressively, these gains were evident at all follow-ups and still significant almost a year later. Meanwhile soft skills also showed significant immediate gains with some skill gains sustained through the second follow-up, and communication gains still evident at the final follow-up. These digital and soft skill gains were observed for all groups of displaced and disconnected participants and participants highlighted these improvements in their feedback on the training. These strong outcomes are likely related to a) customization of the Essential Skills curriculum to focus on these skill domains, and b) use of these skills in technical training and the work experience. A strong alignment between skills that are trained and skills that will be used and practiced in the workplace can support sustained long-term skill development.

*"I learned a lot about excel, word and interacting with people and speaking out in groups. You're never too old to learn new things as long as you put enough effort into it."*
*~ Participant*

***While there were some gains in behavioural competencies and core Essential Skills, both important skill areas for employers, this varied across groups of participants, measures, and component skills.***

There were surprisingly little overall gains observed across the behavioural competencies even though employers generally rated participants well on work attitudes and skills. Employers often described participants as willing to learn, having a positive attitude and interest in the job, and

being a team player. The only significant gains were in agreeableness and openness after completion of the work experience. While there was little change in the group as a whole, disconnected jobseekers appeared to show greater gains than displaced jobseekers. In particular, higher-skilled disconnected jobseekers who excelled at the work experience showed more sustained gains than their lower-skilled counterparts.

There was little change in objective assessments of reading, document use, and numeracy. When we disaggregated results by groups, however, lower-skilled disconnected jobseekers showed small gains in all three domains compared to their fellow participants. These weaker results are inconsistent with participant feedback that indicates at least half or more of them perceived improvement in these skills. Strikingly, over 90 percent reported that their document use skills improved because of the training. It is also inconsistent with participant reports of their skill use in their daily lives. For example, at the second follow-up, participants reported a large increase in their note taking and reading, jumping from 27 percent using the skills at least once a week to 73 percent. These discrepancies might point to a misalignment of training and assessment. Because the TOWES assessment is generic in nature and covers a range of subcomponent skills, it may not have captured the gains made by participants in a sector-specific training program. For example, the instructor used aquaculture-specific documents and activities, and might have focused on the subcomponents skills most relevant to aquaculture work.

***Participants started the training with high receptivity to learning and showed gains in career adaptability.***

*"I found through doing the Essential Skills training that there are things I excel in I didn't know and things I can now work on."*

*~ Participant*

Participants reported high receptivity to change at the start of training, one of the highest rated areas. Consequently, participants did not report much change across the follow-ups, with the exception of higher-skilled disconnected job seekers who reported some net long-term gains. A 17-week sector-specific program likely attracted participants who were already motivated and saw the value of committing to intensive training.

While career adaptability was not a key area of focus for employers, participants reported significant gains, especially in career decision-making self-efficacy and job search self-efficacy. Gains in job search self-efficacy were sustained in the long-term, perhaps because some participants used these skills to find employment after the end of the program. Although the aquaculture industry offers a lot of opportunities, career adaptability remains important to weather unpredictable sector and economic challenges, and to grow one's career within the sector.

## Technical skills

***Most participants performed well in technical training and with a few exceptions, participants were rated well by employers during their work experience.***

Participants performed well on their courses with average grades mostly above 80 percent, and several above 90 percent. All participants were able to complete their prerequisite courses to continue onto the work experience. Over 75 percent of participants performed technical tasks well according to their employers (including only those with more than three task ratings). There were some group differences however, with displaced jobseekers performing the best at technical training and in the workplace, followed by higher-skilled disconnected jobseekers, and then lower-skilled disconnected jobseekers.

## Employment and training

***At total of 9 out of 12 participants were offered immediate employment. After almost a year, the retention rate over 80 percent, not including those who were laid off, and 55 percent including those who were laid off.***

Twelve participants were placed in work experiences, with 11 finishing required hours and 9 offered immediate employment. Of the six employed at Cooke Aquaculture and Newfoundland Aquaculture Services, including both formal and informal data, five were still employed almost a year later, which is an above 80 percent retention rate. If Mowi Canada East had not experienced the salmon die-off, we might also expect that 80 percent, or least two of the three employees, would still have been employed. At least one participant who was laid off might have an opportunity to be rehired in the future. Including all participants who were initially hired, the current retention rate is just over 55 percent. The employment rate is about 58 percent, including those working outside the sector.

Participants who were retained in their work experience companies reported the highest quality jobs, followed by those working in other jobs since they were laid off. These two groups were also more likely to be planning future training, with the first group focused on more aquaculture training, and the second group focused on a mix of aquaculture and other skills training.

## Well-being

***Participants reported few health limitations, but showed a slight increase during COVID times. Life satisfaction increased for all groups of participants, although some experienced greater gains during different parts of the program.***

Participants generally reported very low levels of health limitations and reported little change during the course of the program. There was a slight non-significant increase during COVID times. Participants reported increased long-term life satisfaction, including both displaced and disconnected jobseekers. Interestingly, lower-skilled jobseekers reported the highest gains in life satisfaction after the Essential Skills training, where they benefited the most, whereas displaced and higher-skilled disconnected jobseekers showed more gains after the work experience and post-program.

## Subgroup differences

***Disconnected jobseekers benefited the most from Essential Skills training, especially those starting with lower skills. Displaced jobseekers and higher-skilled disconnected jobseekers benefited more from and excelled in technical training and the work experience.***

While all participants showed mostly positive net gains after the end of the program and almost a year later, it was clear that some program components were more effective for certain groups. Displaced jobseekers started with higher levels of skills and showed less benefits from the Essential Skills training. They reported only small and steady increases in certain domains, such as digital skills, soft skills, and career adaptability. However, they excelled at technical training and in the work experience, and all were offered employment.

In contrast, disconnected jobseekers started with lower skills and showed greater benefits from Essential Skills training. Those who started with the lowest skills reported the largest skill gains. During technical training and the work experience, some disconnected jobseekers were able to excel and continue to experience additional gains. These participants had started the program with slightly higher skills and their good performance on the job led to offers of employment. Some disconnected jobseekers did less well during technical training and the work experience, with many of their initial large skill gains diminishing over time. These participants did not perform as well as the other groups, which may have contributed at least in part to them not being hired. These group patterns suggest that the model was most effective and aligned with the needs of higher-skilled disconnected jobseekers who benefited the most from all training components.

## Impact of sector and public health events

***An unexpected salmon die-off atCanada East sites led to the lay-off of three of our hired participants. The COVID-19 public health did not appear to significantly impact participants or the industry's growth and production.***

In the period between the end of the program and the final follow-up, the province experienced significant industry and public health events. In the fall of 2019, a large die-off of salmon occurred at one of the major regional companies where participants were placed. This led to the immediate suspension of operation at the affected sites and workers were laid off, including three of our participants. This was a high profile event for the sector with significant media coverage. This led to increased scrutiny on the use of open-net pens and its impact on the environment, and criticisms of the government's regulation and oversight of the industry. After reviews by MI and MAMKA[2], licenses were recently reinstated this spring. The reviews indicated unusually high water temperatures and low oxygen were responsible for the die offs and there was no significant damage to the coastline.

Two of the participants have found permanent and temporary work since then, but it will remain to be seen whether they will be rehired or interested in returning to the company. Recently, another smaller die-off occurred at another company in February of 2020, but it appears to have not affected any of our participants. According to our MI partner, these die-offs have not necessarily stopped or significantly slowed down the expansion in the industry and new companies in the region have been hiring graduates of the MI program despite not having fish in the water yet. These sector events highlight the dynamic nature of the industry, especially during this period of growth and transition. Multi-national companies are establishing in the region and adapting to the local environmental and regulatory contexts. The overall industry continues to innovate and leverage new technologies that make production safer and more efficient. While the industry offers exciting job and career opportunities, workers also need to stay adaptable and flexible to cope with continuous change and be ready to develop new skills as the work and industry evolves.

In the early months of 2020, COVID-19 infections emerged as a public health crisis in Canada and across the globe, leading to unprecedented health, social, and economic impacts in recent history. Unfortunately, this pandemic coincided with our research project and led to delays in our final follow-up survey and possibly lower response rates. Participant outcomes might also have been impacted by COVID-19 and the measures taken by communities and by individuals to mitigate risk. On the employment front, our MI partner did not report hearing of any lay-offs or reduction in production, although companies may not have publicly shared such information. Companies did however adopt preventive health measures and social distancing protocols, as did

[2] Marine management partnership between local Indigenous groups

all workplaces that were continuing to operate. For some companies, the movement towards more automated operations, such as remote feeding, was timely for work under social distance conditions. Our MI partner believed that the major impacts on the industry would be decline in market demand and value.

None of the participants that responded mentioned COVID-19 related impacts in their comments. However, participant outcomes might have been affected by this pandemic, such as their health and their ability to secure new employment for those who were actively searching for a job. It is also possible that the skill gains that participants developed from the program might also have helped them better cope with the pandemic and its challenges. Many of the skills gains were in areas that are adaptive in all domains of life, such as soft Essential Skills like communication or working with others.

# RELEVANCE AND APPLICABLITY OF THE MODEL

## Aquaculture sector

There is strong interest and demand for this training model in the Newfoundland and Labrador aquaculture sector. This was evident during early engagement activities with key industry stakeholders, including representatives from NAIA and the top regional employers. Employers expressed great interest in the project and were motivated to participate. Skills training is a growing priority for employers who need to both upgrade the skills of their current employees and hire and train new employees to meet production needs. The industry is experiencing significant growth and expansion that has led to labour shortages that will only increase as older workers retire.

NAIA's recruitment strategy prioritizes youth, displaced jobseekers, and other jobseekers more distant from the labour market. Many of these candidates with lower skills can benefit from sector-specific Essential Skills training that streamlines them into aquaculture work. There has been interest and demand for this training from diverse jobseekers. Recruitment for this project was a success, particularly when it focused on local community members and used low-tech and word-of-mouth methods to reach them. CNA and MI exceeded their target number of interested applicants with 16 enrolling. These participants came from a range of work backgrounds, a wide age range, and included four Indigenous persons. Residents in these regions are often eager to find work that can allow them to stay in their home communities, including those displaced from other sectors. For example, the construction industry has been experiencing recent declines in

demand, which has led to constructions workers leaving the province.[3] Our current project included a significant number of displaced workers from construction who were interested in changing industries to stay closer to home.

CNA and MI view this sector-specific multi-component training as an effective model for the aquaculture sector. This has already led to a second pilot and cohort in the Burin Peninsula. Our MI partner suggested that within a region, employers would likely only have capacity to take in one cohort of participants every two years. However, this model can also be implemented across regions provided that there is engagement with local employers to assess the local demands and needs. Other businesses within aquaculture might also benefit from this model, including mussel farming, seafood processing, and other support industries that may see related growth (e.g., nets and cages, boating, equipment). Technical training does not always need to involve industry or post-secondary certification, but could involve training delivered by the employer or a customized training program designed in collaboration with employers.

## Other sectors and populations

This sector-specific multi-component training model can be effective in sectors and industries, beyond aquaculture. It has already been successfully implemented in other sectors and populations with evaluation data demonstrating positive effects on participant skills and employment outcomes.

For example, SRDC led a large-scale demonstration project *Pay for Success*[4] that tested an outcomes-based funding model with several providers to foster innovation in skills and employment service delivery. One of the providers implemented a sector-specific model that involved intensive employer engagement with a single large employer in garment manufacturing. This engagement informed an occupation-specific Essential Skills training curriculum and ensured the training was aligned to the job performance requirements needed by the employer. The participants were generally lower-skilled jobseekers, including a large proportion of female immigrants. Participants first completed the tailored Essential Skills training, and then transitioned to on-site technical training as part of a work placement. If participants met employer-rated performance standards, they were hired as a permanent employee. Participants showed a wide range of skill gains with almost 75 percent of participants hired at the end of the program. Analyses showed that those who did well in the Essential Skills training were more likely to perform well on the employer-rated performance assessment, and those participants in turn were more likely to be hired.

[3] BuildForce Canada. (2020). *Construction & Maintenance looking forward: Newfoundland & Labrador Highlights 2020-2029*. Ottawa, Ont.: Author.

[4] SRDC. (2017). *Pay for Success Final Report.* Ottawa, Ont.: Author.

SRDC also led another pan-Canadian demonstration project *UPSKILL* that applied a sector-specific Essential Skills training in the tourism industry.[5] In this case, participants were already working in the accommodations and food service industry. The study involved a randomized control trial of 88 firms, mostly hotels, with employees in occupations such as housekeeping, front desk agents, and food and beverage servers. Employees in the program group were offered up to 40 hours of Essential Skills training that was informed by a needs analysis with employers. This ensured the skills training aligned with job performance requirements, which in turn supported employers' business outcomes. There was no need for technical training and work experience as participants were already employed. However, employees were assessed on their job performance and their ability to meet industry standards and certifications. The evaluation demonstrated that the training improved participant skills, job performance, and job retention as well as health and well-being. Employers also reported increased customer satisfaction, cost savings, productivity gains, increased revenues, and an overall return on investment of 23 percent. This project shows that a sector-specific training model can be adapted to upgrade skills of current employees and improve employee retention.

## Opportunities in Newfoundland and Labrador

With a decreasing birth rate, older workers retiring, and an outmigration of youth, aquaculture is not the only sector that is experiencing labour market challenges. Some relevant occupations that expect to see increased demand in upcoming years include machine operators, administrative support positions, and tourism and security related occupations.[6] These occupations typically require a high school diploma or occupation-specific training, and are well-aligned with a sector- or occupation-specific Essential Skills training model. This was successfully demonstrated by *UPSKILL*, where the model was applied in the tourism industry.

As part of the Atlantic Growth Strategy launched in 2016, the province is looking toward immigration to fill labour demands and help grow the local economy. This has included the Atlantic Immigration Pilot program to help employers hire foreign skilled workers and retain international graduates. This includes not only higher-skilled workers, but also intermediate-skilled workers who have a high school diploma (e.g., truck driver, food and beverage server). These candidates who are lower- to intermediate-skilled appear similar to our higher-skilled disconnected jobseekers. The training model was most effective for these participants who needed enhancement of their Essential Skills training, but then had enough skills and resources

[5] Gyarmati, D., Leckie, N., Dowie, M., Palameta, B., Hui, T. S., Dunn, E., & Hébert, S. (2014). *UPSKILL: A credible test of workplace literacy and Essential Skills training.* Ottawa, Ont.: SRDC.

[6] Department of Finance (fall, 2018), as reported in Public Policy Forum. (September 2019). *Hiring and retaining workers in Newfoundland and Labrador: For the long term prosperity of Atlantic Canada.* Ottawa, Ont.: Author.

to successfully transfer their skills to technical training and the workplace. An immigrant-focused training could also prepare participants for the Canadian workplace, which is valued by employers and contributes to success of immigrants on-the-job.

> *"It was a real pleasure, getting to meet the instructors, and doing this course. Hopefully this will pave the way for up and coming people in the future. So happy to have helped in any way I could"*
>
> *~ Participant*

A key challenge for the province has also been retention of immigrants. As discussed at the Atlantic Summit 2020, governments, employers, and communities need to adopt a more holistic approach to retention.[7] It is not only about retaining skilled workers in employment, but about retaining them in the community. Immigrants need supports to integrate in the community, and this importantly includes the integration of family members and spouses. Family members may have less skills and work experience and need supports to enter the labour market. SRDC is currently leading a randomized control trial examining the impacts of a multi-component training program for lower-skilled immigrants, including many refugees and family class immigrants. The model includes Essential Skills training, with some targeted technical training and certification, followed by a work placement with supports from a job coach. Although this model is not sector-specific, it shows how training models that integrate Essential Skills training and work experiences can be effective with immigrants and other lower-skilled jobseekers.

## RECOMMENDATIONS

Below are several recommendations based on the results of this pilot and lessons learned. The first recommendation focuses on critical elements of success that we found in our model and that we recommend be part of future models. The second recommendation offers a suggestion to improve the model for different groups of participants based on our subgroup findings. The final recommendation is focused on measurement and how it can enhance research and service delivery.

[7] Public Policy Forum. (June 2020). *Atlantic Summit 2020: Pivot to Prosperity. Online* conference.

## Design a multi-component training that is informed by employer engagement and needs analysis

***A multi-component training model allows participants to develop transferable skills that can bridge them into technical training and work experience where they can apply and practice their skills.***

> *"The technical training and the work term that I just completed was a great learning for me. I enjoyed everything and every minute of it. Learning in the classroom and heading to work was a great learning time. Which worked out to a full time job. What more can you ask for?"*
>
> *~ Participant*

Our CNA and MI project partners felt that the Essential Skills training provided important preparation that helped bridge participants into the technical training and work experience. While the Essentials Skills and technical training provide more formal skills training, the work experience was also a key experience for students to really understand how much they learned and to put it into practice. Indeed, some groups of participants showed additional skill gains after the work experience, above and beyond gains made during Essential Skills training. This underscores the importance of providing opportunities to use and continue developing skills outside of the classroom. In particular, the opportunity to train in the workplace ensures participants have the skills needed for the job and demonstrates this to the employer. This multi-component training as implemented in this project was especially effective for higher-skilled disconnected jobseekers, but all groups showed gains and benefits from the program. It is recommended that different components can be adapted to the needs of different groups of participants if possible (see recommendation below about tailoring to participant needs).

***Engagement of local employers in a needs analysis ensures training is customized and aligned to employer needs and interests.***

> *"[The student] showed a good understanding of occupational safety procedure and biosecurity issues. Very appropriate training for work in this sector of the aquaculture industry."*
>
> *~ Supervisor*

The needs analysis with regional employers in the sector comprised a significant portion of early project activities. This included a document review, attending a regional industry conference to engage with key stakeholders, key informant interviews, surveys with managers, and a focus group session. Employers were engaged and interested to share what they observed to be the key skill gaps in their entry-level employees, and also what they considered priority skill areas for current and future employees in the industry. These activities provided important information for both our CNA and MI partners to customize their training to the skill requirements and needs of employers, especially those who had agreed to provide work placements. Project partners in

particular felt it was very effective and valuable speaking directly to employers during the focus group session. The employer were generally pleased with the performance of students and offered immediate employment to 75 percent of the participants.

With the early promising results of the current project, CNA and MI implemented a similar model with a second cohort. This took place in the Burin Peninsula region during the late fall of 2019 with students finishing in February 2020. SRDC was not involved in evaluating this pilot. Lessons learned from this second pilot demonstrate the importance of engaging local employers. No needs analysis was carried out with local employers, and the lack of alignment with employer needs contributed to difficulty placing participants. First, the program was not timed well with industry needs. Participants completed their training in the winter when there were few employment opportunities at companies. Winter weather also caused additional delays and interruptions with training. Second, some companies are more interested in hiring higher-skilled and educated employees, while others are more interested in hiring lower-skilled employees that they can train and advance internally. Lack of alignment with the skill and interests of the major employer in the region contributed to the difficulty of placing students. The COVID-19 crisis also affected the success of this second pilot. The lessons learned from this second pilot reiterate the value of employer engagement and tailoring the model to local employer needs.

## Tailor training to participant needs

While the training model was successful overall, our research findings revealed that it was not equally effective for all participants. In future delivery of the model, we might consider different streams of programming to more effectively target the needs of participants. To appropriately stream participants, it will be important to conduct a detailed baseline and needs assessment with participants to ensure they receive the right training and supports.

Displaced jobseekers or participants who have more work experience and higher levels of skill appear to need only some targeted short Essentials Skills training. In this project, they reported gains mainly in the areas of soft skills, digital skills, and career adaptability. A shorter more focused training is more resource efficient and can improve participant engagement and motivation. Disconnected job seekers make large skill gains during Essential Skills training, but some of them need more supports to transfer those skills into technical training and the workplace. During technical training, continued supports can be offered through one-on-one coaching or regular Essential Skills workshops. During the work experience, a job coach can work closely with participants and employers both on- and off-site. The coach can help participants better apply their skills, make changes based on employer feedback, and manage any conflicts or challenges that arise. In *Pay for Success*, more intensive job coaching was helpful for participants who were struggling to meet performance standards during technical training

and at risk of dropping out. The level of intervention can be adjusted as needed since some disconnected jobseekers with higher skills can manage with minimal supports.

## Use well-aligned measures to track participant progress and outcomes

In this project, we tracked participant progress and outcomes from the beginning of the project, through the various training components, and followed up with participants months after the training had ended. When tracking participant outcomes, it is important to select measures that are well-aligned with what is being taught in the training curriculums and what employers want to see in job performance. Ideally the curriculum should already be aligned with employer needs if a needs analysis was conducted. When measures are well-aligned, we are more likely to capture important gains. For example, we saw little gains from our TOWES assessment, which might have reflected misalignment with the sector-specific Essential Skills training, and the types of skills used during the work experience.

From a research perspective, tracking participant outcomes throughout the program allows us to assess how effective each training component is for participants. For example, we were able to examine gains made from the Essential Skills training, and then look at additional gains made after technical training and the work experience. In-program assessments like grades in technical courses or the employer ratings during the work experience provided additional insights into how participants were performing at each point in training. Our long-term follow-up also captured some additional skill gains and changes in life satisfaction that sometimes take time to manifest themselves. Having measures at different time points can present a fuller picture of how participants engaged and benefited from a multi-component training program.

We can also examine how earlier outcomes are predictive of later outcomes. Typically if an early outcome is important for success, we will observe that participants who show success in early outcomes will be more likely to show success in later outcomes. For example, those who performed the best in technical training and the work experience were more likely to be hired. However, we also observed that although all groups of participants had similar scores at the end of Essential Skills training, some of them were not able to translate that success into the next part of training. This suggests that some participants need additional supports to help them build on earlier successes.

From a service delivery perspective, tracking participant progress throughout the program can allow service providers to intervene if participants are not doing as well as expected. If participants report low levels of skills and yet make little gains after Essential Skills training, it might suggest that they are not ready for technical training, or otherwise will need additional supports to succeed. Service providers can also demonstrate success in multiple ways beyond employment outcomes. Even though lower-skilled disconnected jobseekers did not receive job

offers at the end of the program, earlier measures indicate they had great success in the Essential Skills training.

## FUTURE RESEARCH OPPORTUNITIES

The continued growth of the aquaculture industry and demand for new workers presents an opportunity to improve the current model for the sector based on recommendations and lessons from this project. This would build on the momentum and success of the current project and the recent second pilot led by CNA and MI.

a) The results of our subgroup analyses suggest that a multi-stream model for participants with different backgrounds and skills could increase the relevance and effectiveness of the model. Future research could include testing such a model in a region that is currently in need of entry-level aquaculture workers. Higher skilled participant such as displaced jobseekers might receive short-term targeted Essential Skills training while other lower-skilled participants such as disconnected jobseekers would receive longer and more comprehensive Essential Skills training. Increased supports such as one-on-one job coaching and skills workshops can be provided to lower-skilled participants as needed during technical training and the work placement. Because MI also offers a technical certification in mussel farming, we could also explore labour needs of mussel farm employers in addition to salmonid farm employers

b) Instead of trying to meet the needs of a wide group of participants, future research could test a model that is more closely tailored to the specific needs of one population. NAIA's recruitment strategy advocates for targeted recruitment of underrepresented groups, especially youth, but also displaced workers, those distant from the labour market, females, Indigenous people, immigrants, and individuals with disabilities. Such a training model could be customized for any of these populations if a suitable location and demand can be established.

*"I'd recommend this course to any one who is looking to join the work force, ever more so for kids out of high school. For [it] gives them the skills needed to be a good employee."*
*~ Participant*

A program for youth would align well with the priorities of NAIA and the industry and the federal government's focus on youth employment (e.g., Youth Employment and Skills Strategy). This model might work especially well with NEET youth, or youth "not in employment, education, or training". Depending on their educational background, and how distant they are from the labour market, these youth often need additional upgrading of their skills before they can engage in additional training. A youth-specific training model might also include a greater focus on social and emotional skills and certain employability skills. One of the findings from our needs analysis was that employers see

different types of skill gaps in older and younger workers. For example, younger workers tend to have the digital skills that employers seek, but may lack soft skills and other employability skills.

Because youth are more likely to use technology and might be more open to relocation, a social media campaign can be used to attract youth to the program. One of the key challenges in recruitment for the aquaculture sector, especially with youth, is the poor image of the industry. One of the first recommendations of NAIA's strategy is to build a branded more positive image of aquaculture in Newfoundland.

A social media campaign can help dispel some of the misconceptions of work in aquaculture and highlight the benefits of a career in the industry. SRDC recently completed a project that used social media enhanced with social marketing strategies and behavioural insights to help a rural fire department recruit volunteer firefighters beyond their traditional pool.[8] Like the aquaculture sector, rural and small town fire departments need more personnel and have looked to underrepresented populations. However, many community members have misconceptions about volunteering firefighting and are reluctant to apply.

SRDC is also involved in a new project that applies a similar social media recruitment strategy to help the unionized construction trades industry recruit more underrepresented individuals into the workforce. In this project, the recruitment campaign will drive prospective candidates to a virtual assessment and recruitment centre. The second recommendation of NAIA's strategy was to develop a central online recruitment and learning portal for current and prospective workers in the industry. A recruitment strategy and youth-focused pilot training program can be developed to leverage any such portal that may be built or operation in the near future.

c) While exploring future research opportunities within aquaculture are natural next steps, the potential for this model to enhance training and recruitment in other sectors should not be underestimated. By design, this training model can be adapted to the needs of different sectors, industries, employers, and populations. It can be leveraged to support the growth of the economy in key priority industries such as tourism and with key target populations such as immigrants.

# CONCLUSION

The results of this pilot test of a new demand-led sector-specific training model demonstrates its potential to support the continued growth of the Newfoundland aquaculture industry. There is a demand for recruitment and training solutions that will address not only the needs for a larger

[8] SRDC. (2019). *Enhancing recruitment and retention among volunteer firefighters: Final report (unpublished report).* Ottawa, Ont.: Author.

and more diverse workforce, but a more skilled workforce that can adapt to the technological, environmental, and regulatory changes that lie ahead. The findings from this project contribute to the growing body of evidence that demand-led sector-specific training models are effective in improving participant employment outcomes and supporting employers' business goals. These types of models have the potential to support growth in many key sectors that are expected to drive the province's economic future.

This project has put a spotlight on the story of a local industry that begin with small family-owned shops, but is emerging as a powerhouse industry for the province and internationally. It has also shared the story of local residents from different backgrounds and experiences who came together to learn and challenge themselves in new ways, to pursue new employment and careers in their local communities. Although the pilot only involved a small cohort, it has been a meaningful and valued experience for participants who have expressed gratitude throughout the project for the opportunities they have been given.

*"Great experience, got a good career where I am working full time since finishing the training program…thanks to all for making this experience possible."*

*~ Participant*

# APPENDIX A: PROJECT DELIVERABLES

## Table 11 Summary of project deliverables

| Deliverable | Description | Prepared by | Submitted to |
|---|---|---|---|
| **Phase 1: Literature review and needs analysis** | | | |
| Phase 1 report | Reports on the results of a review of online government and industry documents and the development of a preliminary performance framework. Presents the results of engagement activities undertaken to validate the framework, including key informant interviews and survey and focus group with managers. Includes a revised final performance framework, a summary of employer needs, and recommendations for Essential Skills and technical training curriculum development. | SRDC | NLWIC |
| **Phase 2 Model refinement, curriculum customization, and instrument design** | | | |
| Activity report #1 (CNA) | Reports on recruitment activities and presents the proposed tailored Essential Skills training curriculum. Briefly addresses the research ethics process. | CNA | SRDC |
| Activity report # 1 (MI) | Reports on recruitment activities and the customized selection of courses for the technical training. | MI | SRDC |
| Phase 2 report | Introduces the research framework, including the theory of change, the outcomes of interest, and the research and program instruments that will be used to collect the data. Presents a profile of the enrolled participants including background characteristics and baseline levels of skills. Appendices include available instruments and copies of Activity Report #1 form CNA and MI. | SRDC | NLWIC |
| **Phase 3 Training pilot** | | | |
| Activity report #2 and #3 (interim, CNA) | Reviews the training curriculum that was delivered and summarizes student evaluations of the training. Appendices include a detailed curriculum plan, TOWES baseline assessment results, and student feedback surveys. | CNA | SRDC |
| Activity report #2 and 3 (final, CNA) | The interim report is supplemented with TOWES follow-up assessment results and detailed attendance information. | CNA | SRDC |
| Activity report #2 (MI) | Reports on student progress through the technical training and | MI | SRDC |

| | | | |
|---|---|---|---|
| | preliminary work placement preferences. | | |
| Activity report #3 (MI) | Reports on student progress and final outcomes in technical training and the work experience, including outcomes post-program (i.e., immediate hiring by employers). | MI | SRDC |
| Phase 3 report | Presents the methods and results of implementation research, primarily focused on program data and key informant interviews with program staff. Describes how the model was implemented from recruitment through the work experience. Addresses any challenges and adaptations made in programming and student progress, engagement, and completion of program components. Includes some employer assessments of students and student satisfaction with the program. Provides some early assessments of feasibility and demand for the program model from program staff. Activity reports #2 and #3 were not appended to the report because they included identifiable participant information. | SRDC | NLWIC |
| **Phase 4 Analysis** | | | |
| Phase 4 report: Final report | Presents the comprehensive set of results showing program effects on participant skill and employment outcomes. Includes an overview of the project, methods, and summaries of previous phases of work. The report ends by summarizing the key outcomes, addressing the relevance and applicability of the model, and providing recommendations and opportunities for future research. | SRDC | NLWIC |
| **Phase 5: Dissemination** | | | |
| Phase 5: Products supporting dissemination | To be developed by SRDC with support from funder and project partners. See dissemination plan in Appendix B. | SRDC | NLWIC |

# APPENDIX B: DISSEMINATION PLAN

Once the final report has been approved, SRDC will work with the funder and project partners to explore opportunities to disseminate the project findings. SRDC will develop knowledge products as needed with feedback and assistance from the funder and project partners. The table below describes a preliminary knowledge mobilization plan that should not require extensive resources. However, project funder and partners might also wish to explore opportunities for webinars, conference presentations, and other knowledge products (e.g., infographics, online articles). Discussions can also help identify additional audiences that we want to target, such as key stakeholders in other sectors (e.g., tourism). Currently there are no known sensitivities related to broad dissemination of the final report or executive summary, but this will be confirmed with project partners before wider dissemination begins.

### Table 12 Preliminary knowledge mobilization plan

| Audience | Goals | Knowledge products and strategies | Proposed role of funder and project partners |
|---|---|---|---|
| **NLWIC (Funder)** | ▪ Increase knowledge about the results of the project<br>▪ Highlight key successes and lessons learned from the project<br>▪ Fulfill project contract and deliverables | ▪ Final report<br>▪ Presentation and slide deck | ▪ Feedback from NLWIC, CNA, and MI |
| **Aquaculture employers and stakeholders who participated in the project** | ▪ Increase knowledge about the results of the project<br>▪ Increase awareness about the effectiveness of this training model<br>▪ Acknowledge contributions and strengthen relationships | ▪ Email final report or executive summary and encourage sharing of report<br>▪ Follow-up discussions if requested | ▪ Emailed by SRDC or MI |
| **Aquaculture industry** | ▪ Increase awareness of this project<br>▪ Increase awareness and interest in sector-specific Essential Skills training models for current and new | ▪ Third follow-up Cold Harvester magazine article<br>▪ Social media (e.g., link to report, stats, small graphics)<br>▪ MI communications (e.g., | ▪ Explore whether MI can arrange a third and final follow-up article with Cold Harvester<br>▪ Leverage MI's social media network to reach industry stakeholders and partners |

| | | | |
|---|---|---|---|
| | employees | website, newsletter, mailing list) | ▪ NLWIC communications can assist with branding and social media |
| **Skills training and service delivery sector** | ▪ Increase awareness of this project<br>▪ Increase awareness about the effectiveness of sector-specific Essential Skills training models and sector partnerships<br>▪ Increase awareness of employment opportunities in the aquaculture sector | ▪ Social media (e.g., link to report, stats, small graphics)<br>▪ Publishing of final report and executive summary on SRDC website<br>▪ Other NLWIC and CNA communications (e.g., website, newsletter, mailing list) | ▪ Leverage social media network of CNA, NLWIC, and SRDC to reach service providers and other relevant stakeholders<br>▪ NLWIC communications can assist with branding and social media |

# APPENDIX C: SUMMARY OF SURVEY SCALES

## Table 13 Summary of participant and employer survey scales

| Skill and well-being subscales/items | # of items | Rating scale | Baseline | First follow-up | Second-follow-up | Final follow-up | Employer |
|---|---|---|---|---|---|---|---|
| **Soft Essential Skills** | | | | | | | |
| Communication | 4 | 5-point confidence scale | ✓ | ✓ | ✓ | ✓ | |
| Critical thinking | 3 | 5-point confidence scale | ✓ | ✓ | ✓ | ✓ | |
| Working with others | 3 | 5-point confidence scale | ✓ | ✓ | ✓ | ✓ | |
| Continuous learning | 4 | 5-point confidence scale | ✓ | ✓ | ✓ | ✓ | |
| **Behavioural competencies** | | | | | | | |
| Conscientiousness | 2 | 5-point agreement scale | ✓ | ✓ | ✓ | ✓ | |
| Openness to experiences | 2 | 5-point agreement scale | ✓ | ✓ | ✓ | ✓ | |
| Extraversion | 2 | 5-point agreement scale | ✓ | ✓ | ✓ | ✓ | |
| Agreeableness | 3 | 5-point agreement scale | ✓ | ✓ | ✓ | ✓ | |
| Emotional stability | 2 | 5-point agreement scale | ✓ | ✓ | ✓ | ✓ | |
| **Perceived skill gains from Essential Skills training** | | | | | | | |
| Document use improvement | 1 | 5-point agreement scale | | ✓ | | | |
| Numeracy improvement | 1 | 5-point agreement scale | | ✓ | | | |
| Reading improvement | 1 | 5-point agreement scale | | ✓ | | | |
| **Frequency of skill use in daily life** | | | | | | | |
| Math | | 1 = Never, 2 = Rarely, 3 = Less than once a week, 4 = A few times a week, 5 = Every day | ✓ | ✓ | ✓ | | |
| Taking notes | | 1 = Never, 2 = Rarely, 3 = | ✓ | ✓ | ✓ | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Less than once a week, 4 = A few times a week, 5 = Every day | | | | | |
| Reading | | 1 = Never, 2 = Rarely, 3 = Less than once a week, 4 = A few times a week, 5 = Every day | ✓ | ✓ | ✓ | | |
| **Digital skills** | | | | | | | |
| Digital skills | 8 | 5-point confidence scale | ✓ | ✓ | ✓ | ✓ | |
| **Career adaptability and receptivity to learning** | | | | | | | |
| Career decision-making self-efficacy | 9 | 5-point confidence scale | ✓ | ✓ | | ✓ | |
| Job search clarity | 4 | 5-point agreement scale | ✓ | ✓ | | ✓ | |
| Job search self-efficacy | 10 | 5-point confidence scale | ✓ | ✓ | | ✓ | |
| Receptivity to learning | 4 | 5-point agreement scale | ✓ | ✓ | ✓ | ✓ | |
| **Health and well-being** | | | | | | | |
| Frequency of physical health limitations | 1 | 1 = Not at all, 2 = Rarely, 3 = Sometimes, 4 = Often | ✓ | ✓ | | ✓ | |
| Frequency of mental health limitations | 1 | 1 = Not at all, 2 = Rarely, 3 = Sometimes, 4 = Often | ✓ | ✓ | | ✓ | |
| Life satisfaction | 1 | 1 = Very dissatisfied, 7 = Very satisfied | ✓ | ✓ | ✓ | ✓ | |
| **Employment** | | | | | | | |
| Job satisfaction | 6 | 1 = Very dissatisfied, 7 = Very satisfied | | | | ✓ | |
| Autonomy needs | 4 | 5-point agreement scale | | | | ✓ | |
| Competence needs | 4 | 5-point agreement scale | | | | ✓ | |
| Relatedness needs | 4 | 5-point agreement scale | | | | ✓ | |
| **Work skills and attitudes** | | | | | | | |
| Communication | 3 | 5-point scale. 1 = poor, 5 = | | | | | ✓ |

| | | | |
|---|---|---|---|
| | | excellent | |
| Interpersonal and team skills | 5 | 5-point scale. 1 = poor, 5 = excellent | ✓ |
| Quick learner | 3 | 5-point scale. 1 = poor, 5 = excellent | ✓ |
| Critical thinking, analytic, problem-solving | 2 | 5-point scale. 1 = poor, 5 = excellent | ✓ |
| Organization, time management, multi-tasking | 3 | 5-point scale. 1 = poor, 5 = excellent | ✓ |
| Adaptable, flexible | 2 | 5-point scale. 1 = poor, 5 = excellent | ✓ |
| Independent work and judgement | 3 | 5-point scale. 1 = poor, 5 = excellent | ✓ |
| Initiative and creativity | 3 | 5-point scale. 1 = poor, 5 = excellent | ✓ |
| Commitment and dedication | 2 | 5-point scale. 1 = poor, 5 = excellent | ✓ |
| Attitude and approach | 2 | 5-point scale. 1 = poor, 5 = excellent | ✓ |
| Organizational awareness and perceptiveness | 2 | 5-point scale. 1 = poor, 5 = excellent | ✓ |
| Self-worth and personal integrity | 3 | 5-point scale. 1 = poor, 5 = excellent | ✓ |
| **Core work competency (performance on work tasks)** | | | |
| Biology and husbandry | Varies with # tasks performed | 0 = Cannot perform this skill, 1 = Can perform some of this skill satisfactorily but requires some assistance to perform the entire skill, 2 = Can perform this skill well without assistance, 3 = Can perform this skill well with | ✓ |

| | | | |
|---|---|---|---|
| | | speed and quality | |
| Feeds and feeding | Varies with # tasks performed | 0 = Cannot perform this skill, 1 = Can perform some of this skill satisfactorily but requires some assistance to perform the entire skill, 2 = Can perform this skill well without assistance, 3 = Can perform this skill well with speed and quality | ✓ |
| Health and biosecurity | Varies with # tasks performed | 0 = Cannot perform this skill, 1 = Can perform some of this skill satisfactorily but requires some assistance to perform the entire skill, 2 = Can perform this skill well without assistance, 3 = Can perform this skill well with speed and quality | ✓ |

Notes: All subscales were calculated by averaging the ratings across items. Several common scales were used for these survey items including the confidence scale (1 = Not at all confidence, 2 = Not very confident, 3 = Somewhat confident, 4 = Very confident, 5 = Completely confident) and the agreement scale (1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree).

# APPENDIX D: FINAL FOLLOW-UP SURVEY

*[Note this survey was programmed in Voxco and completed online by participants]*

Thank you for participating in the ***Opportunities in Salmon Aquaculture*** training program and research project last year.

Welcome to the 6-month follow-up survey! You will be mailed a $50 cheque for completing this survey.

Who should fill out this survey: This survey is for everybody who signed up to be part of the research project. You filled out a consent form and a baseline survey on February 18, 2019. Even if you didn't start the training program or you left the program before finishing it, we are still interested in learning about how you are doing.

What the survey is about: You are going to be asked questions about your employment situation, your education and training, and your feelings and attitudes about yourself and your life.

Your information is confidential: Your answers will remain confidential and will be used only for research purposes. Your employer will not have access to any information you provide. SRDC is the research organization conducting the survey. SRDC has put in place strict measures to ensure your information is protected and secure. Your information will be stored on an online platform that is protected by a password and can only be accessed by the research team at SRDC. In reports, we will never use your name or any other information that people can use to identify you.

Please enter your full name, and then click the blue arrow pointing to the right to continue.

Please enter your first name. _____

Please enter your last name. _____

**IMPORTANT!**

Is the mailing address below complete and correct?

Please make sure your address includes the correct:

- House, apartment, or P.O. Box number
- Town
- Postal code

☐ YES
☐ NO

If you select "No", you will have the chance to update your address. This is the address we will use to mail you your $50 cheque.

[If no…]

Please enter your correct mailing address below:

_____

If there is any question that you don't want to answer or that you're not sure about, you can choose the **"DK/RF"** (Don't Know/Refused) option.

To start the survey, click the blue arrow pointing to the right.

| | Survey items |
|---|---|
| | **Section A: Employment status and history** |
| Q1 | What is your employment situation right now?<br><br>☐ Currently not doing paid work<br>☐ Currently doing paid work<br>☐ DK/RF |
| | Show Q1a if not working or DK/RF |
| Q1a | Have you had any paid work since you first joined this research study on February 18th, 2019?<br><br>If you started a work experience with the ***Opportunities in Salmon Aquaculture*** training program or you had any other paid job during or after the program, please answer YES.<br><br>☐ Yes<br>☐ No |

| | |
|---|---|
| | ☐ DK/RF |
| | If No or DK/RF, branch to question Q16 (IA questions)<br>If Yes, branch to Q2_previous |
| | The next few questions ask about your current job or business. If you have more than one job, answer for the job where you work the most hours. |
| Q2_current | When did you start this job? Please enter the approximate date if you can't remember the exact date.<br><br>Date you started this job: {insert drop-down of year and month} |
| Q3_current | Please enter the name of your employer or the company that you work for:<br>_____<br>☐ DK/RF |
| Q4_current | What kind of business, industry or service is this job in?<br><br>☐ Aquaculture<br>☐ Fishing<br>☐ Seafood processing<br>☐ Agriculture<br>☐ Forestry<br>☐ Mining, oil and gas<br>☐ Utilities (electricity, gas, water)<br>☐ Construction<br>☐ Manufacturing<br>☐ Transportation<br>☐ Hospitality<br>☐ Retail sales<br>☐ Other, please specify:_____<br>☐ DK/RF |
| Q5_current | Where is your job located?<br>☐ In Newfoundland, within commuting distance from my home<br>☐ In Newfoundland, but NOT within commuting distance from my home<br>☐ In another province or country (Please specify:) _____<br>☐ DK/RF |
| Q6_current | What is your job title? |

| | |
|---|---|
| | _____<br><br>☐ DK/RF |
| Q7_current | What is the typical level of education needed to do your job?<br><br>☐ University degree<br>☐ College, trades, or apprenticeship<br>☐ High school diploma<br>☐ On the job training is all that is required<br>☐ DK/RF |
| Q8_current | How much do you usually earn per hour before taxes and other deductions in this job (that is, what are your gross earnings)? Please guess if you are not sure.<br><br>Wage per hour: _____ (0.00)<br><br>☐ Don't know |
| | If Q9_current = "Don't know" then show Q9a_current |
| Q8a_current | Is there a better way to describe your earnings? Please fill in how much you get paid and indicate how often you get paid this amount.<br><br>_____ (0.00)<br><br>☐ DK/RF |
| | If Q9_current = don't know and Q9a_current != DK/RF, then show Q9b_current |
| Q8b_current | ☐ Every week<br>☐ Every two weeks<br>☐ Twice per month<br>☐ Once per month<br>☐ Other, please specify: _____<br>☐ DK/RF |
| Q9_current | On average, how many paid hours per week do you usually work at this job? Please include overtime hours if you usually work overtime.<br><br>_____ hours<br>☐ DK/RF |
| Q10_current | How many weeks per month do you usually work at this job? |

| | |
|---|---|
| | ☐ 1 week<br>☐ 2 weeks<br>☐ 3 weeks<br>☐ 4 weeks<br>☐ DK/RF |
| | For all answers, branch to Q14 (job satisfaction) |
| Q2_previous | The next few questions ask about your most recent job. If you had more than one job, answer for the job where you worked the most hours. |
| | When did you start this job? Please enter the approximate date if you can't remember the exact date.<br><br>Date you started this job: {insert drop-down of day, month, year} |
| Q3_previous | Please enter the name of your employer or the company that you worked for:<br>_____<br>☐ DK/RF |
| Q4_previous | What kind of business, industry or service was this job in?<br><br>☐ Aquaculture<br>☐ Fishing<br>☐ Seafood processing<br>☐ Agriculture<br>☐ Forestry<br>☐ Mining, oil and gas<br>☐ Utilities (electricity, gas, water)<br>☐ Construction<br>☐ Manufacturing<br>☐ Transportation<br>☐ Hospitality<br>☐ Retail sales<br>☐ Other, please specify:_____<br>☐ DK/RF |
| Q5_previous | Where was your job located?<br>☐ In Newfoundland, within commuting distance from my home<br>☐ In Newfoundland, but NOT within commuting distance from my home<br>☐ In another province or country (Please specify:) _____<br>☐ DK/RF |

| | |
|---|---|
| Q6_previous | What was your job title?<br><br>_____<br><br>☐ DK/RF |
| Q7_previous | What was the typical level of education needed to do your job?<br><br>☐ University degree<br>☐ College, trades, or apprenticeship<br>☐ High school diploma<br>☐ On the job training is all that is required<br>☐ DK/RF |
| Q8_ previous | How much did you usually earn per hour before taxes and other deductions in this job (that is, what were your gross earnings)? Please guess if you are not sure.<br><br>Wage per hour: _____ (0.00)<br><br>☐ Don't know |
| | If Q9_previous = don't know, show Q9a_previous |
| Q8a_previous | Is there a better way to describe your earnings? Please fill in how much you got paid and indicate how often you were paid this amount.<br><br>_____ (0.00)<br>☐ DK/RF |
| | If Q9_previous = don't know and Q9a_previous != don't know, then show Q9b_previous |
| Q8b_previous | ☐ Every week<br>☐ Every two weeks<br>☐ Twice per month<br>☐ Once per month<br>☐ Other, please specify: _____<br>☐ DK/RF |
| Q9_previous | On average, how many paid hours per week did you usually work at this job? Please include overtime hours if you usually worked overtime. |

| | |
|---|---|
| | _____ hours<br><br>☐ DK/RF |
| Q10_previous | How many weeks per month did you usually work at this job?<br><br>☐ 1 week<br>☐ 2 weeks<br>☐ 3 weeks<br>☐ 4 weeks<br>☐ DK/RF |
| Q11_previous | When did this job end? Please enter the approximate date if you can't remember the exact date.<br><br>Date you left this job: {insert drop-down of year and month} |
| Q12_previous | Do you think you will be asked to return to this job at some point in the future?<br><br>☐ Definitely<br>☐ Very likely<br>☐ Somewhat likely<br>☐ Not likely<br>☐ Definitely not<br>☐ DK/RF |
| Q13 | Using a scale of 1 to 7 where 1 means "completely dissatisfied" and 7 means "completely satisfied", how satisfied or dissatisfied are you with each of the aspects of your current or most recent job listed below?<br><br>☐ DK/RF<br><br>Please select the appropriate option for each statement below. |
| | a) Your pay |
| | b) Your job security |
| | c) Support from your supervisor or manager |
| | d) The opportunities for career growth and promotion |
| | e) The opportunities for learning new things and developing your abilities |

| | |
|---|---|
| | |
| | f) All in all, how satisfied would you say you are with your current or most recent job? |
| Q14 | Please tell us how much you agree or disagree with the following statements about your current or most recent job. If you can't decide whether you agree or disagree with a statement, answer "Neutral". |
| | a) My work allows me to make decisions<br><br>☐ Strongly agree<br>☐ Agree<br>☐ Neutral<br>☐ Disagree<br>☐ Strongly disagree<br>☐ DK/RF |
| | b) I can use my judgement when solving work-related problems |
| | c) At my work, I feel free to do my tasks in my own way |
| | d) I can take on responsibilities at my job |
| | |
| | e) I have the ability to do my work well |
| | f) I feel competent at work |
| | g) I succeed in my work |
| | h) I am able to solve problems at work |
| | |
| | i) When I'm with the people from my work environment, I feel understood |
| | j) When I'm with the people form my work environment, I feel heard |
| | k) When I'm with the people from my work environment, I feel as though I can trust them |
| | l) When I'm with the people from my work environment, I feel I am a friend to them |
| Q15 | Have you received any provincial Income Assistance benefits since you first joined this research study on February 18th, 2019?<br><br>☐ Yes<br>☐ No<br>☐ DK/RF |
| | Show Q16a if Q16 = Yes or DK/RF |
| Q15a | What is the total number of months you received Income Assistance benefits since February 18th, 2019?<br><br>Please enter the approximate number of months if you can't remember the exact number. |

| | |
|---|---|
| | _____ months<br>☐ DK/RF |
| Q16 | Have you received any Employment Insurance since you first joined this study on February 18th, 2019?<br><br>☐ Yes<br>☐ No<br>☐ DK/RF |
| | Show Q17a if Q17= yes or Dk/RF |
| Q16a | What is the total number of weeks you received Employment Insurance since February 18th, 2019?<br><br>Please enter the approximate number of weeks if you can't remember the exact number.<br>_____ weeks<br><br>☐ DK/RF |
| | **Section B: Thoughts and feelings about your career** |
| Q17 | How confident are you that you can successfully do each of the following activities? |
| | a) Accurately judge how well your skills fit the kind of work you want to do<br><br>☐ Completely confident<br>☐ Very confident<br>☐ Somewhat confident<br>☐ Not very confident<br>☐ Not at all confident<br>☐ DK/RF |
| | b) Talk with a person already working in the field you are interested in |
| | c) Pick one occupation from a list of possible occupations you are thinking about |
| | d) Choose a career that will fit your abilities and interests |
| | e) Find employers, firms, and organizations related to the career you are interested in |
| | f) Change jobs if you did not like your job |
| | g) Decide what steps to take if you are having trouble with your job |

| | |
|---|---|
| | |
| | h) Pick another occupation or career if you cannot get your first choice |
| | i) Select one education or training program from a list of potential programs you are considering |
| Q18 | Please tell us how much you agree or disagree with the following statements. If you can't decide whether you agree or disagree with a statement, answer "Neutral". |
| | a) I have a clear idea of the type of job I want<br><br>☐ Strongly agree<br>☐ Agree<br>☐ Neutral<br>☐ Disagree<br>☐ Strongly disagree<br>☐ DK/RF |
| | b) I have very clear job search goals |
| | c) I have a clear idea of the type of company I want to work for |
| | d) It is very clear to me where I should be looking for a job |
| Q19 | How confident are you that you can successfully do each of the following activities? |
| | a) Get people you know to connect you with employers<br><br>☐ Completely confident<br>☐ Very confident<br>☐ Somewhat confident<br>☐ Not very confident<br>☐ Not at all confident<br>☐ DK/RF |
| | b) Write resumes that will get you interviews |
| | c) Impress interviewers during job interviews |
| | d) Phone employers to get a job interview |
| | e) Talk to other people to find out about careers and jobs that you are interested in |

| | |
|---|---|
| | f) Talk or write about your skills and experience in a way that will make employers interested |
| | g) Plan and carry out a weekly schedule to look for jobs |
| | h) Find out where there are job opportunities |
| | i) Use many different ways to find job opportunities |
| | j) Search for and find good job opportunities |
| | **SECTION C: Your education and training experience** |
| Q20 | Have you taken any other education, training programs or courses since you first joined this study on February 18th, 2019? Please do not include the *Opportunities in Salmon Aquaculture* training program.<br><br>☐ No, I have not taken any<br>☐ Yes I have taken…<br>☐ DK/RF |
| | If Q20 = no, branch to Q22 |
| Q20b | Check off all that apply<br><br>☐ Career planning or job search workshop<br>☐ Aquaculture related training<br>☐ Other job or work-related training<br>☐ Courses for personal interest to improve my general level of education<br>☐ Other, please specify: _____<br>☐ DK/RF |
| Q21 | How many hours in total did you spend taking all of these courses since February 18, 2019?<br><br>☐ Less than 20 hours<br>☐ Between 20 and 40 hours<br>☐ More than 40 hours<br>☐ DK/RF |
| Q22 | Do you have plans to take more education or training in the next few months? Please do not include any courses you are already enrolled in.<br><br>☐ No<br>☐ Yes, I have made plans to take...<br>☐ DK/RF |

| | |
|---|---|
| | |
| | If Q20= no, branch to Q23 |
| Q22A | Check off all that apply<br><br>☐ Career planning or job search workshop<br>☐ Aquaculture related training<br>☐ Other job or work-related training<br>☐ Courses for personal interest to improve my general level of education<br>☐ Other, please specify... _____<br>☐ DK/RF |
| Q23 | Please tell us how much you agree or disagree with the following statements. If you can't decide whether you agree or disagree with a statement, answer "Neutral". |
| | a) I am more likely to get a better job if I do some learning<br><br>☐ Strongly agree<br>☐ Agree<br>☐ Neutral<br>☐ Disagree<br>☐ Strongly disagree<br>☐ DK/RF |
| | b) Learning new things makes me more confident |
| | c) Getting qualifications takes too much effort |
| | **SECTION D: Your computer, communication, and other skills** |
| Q24 | How confident are you that you can successfully do each of the following activities?<br><br>☐ Completely confident<br>☐ Very confident<br>☐ Somewhat confident<br>☐ Not very confident<br>☐ Not at all confident<br>☐ DK/RF |
| | a) Use the internet to find information |
| | b) Use email to communicate with people you don't know that well (e.g., people at work) |
| | c) Perform basic interactions with a computer (e.g., log on, manage electronic files) |
| | d) Perform transactions online (e.g., pay bills, buy products) |
| | e) Fill out digital or online forms (e.g., job application, sign up for an account) |

| | |
|---|---|
| | f) Use digital or online documents (e.g., instruction manual, information sheets) |
| | g) Use word processing software (e.g., to write and format text) |
| | h) Use spreadsheet or database software (e.g., to enter, find, or organize data) |
| | |
| Q25 | How confident are you that you can successfully do each of the following activities? |
| | a) Ask questions to get information<br><br>☐ Completely confident<br>☐ Very confident<br>☐ Somewhat confident<br>☐ Not very confident<br>☐ Not at all confident<br>☐ DK/RF |
| | b) Speak clearly and effectively |
| | c) Follow spoken instructions |
| | d) Speak with a group of people to plan activities or solve problems |
| | e) Recognize and identify problems |
| | f) Think about options and choose the best course of action when confronted with a problem |
| | g) Find and use information that I need to complete a task |
| | h) Get along well with different personalities, ages, cultures, etc. |
| | i) Resolve conflicts with others |
| | j) Listen and respond to feedback effectively |
| | k) Work with others to accomplish a common goal |
| | l) Learn new information or tasks quickly |
| | m) Recognize my mistakes and learn from them |
| | n) Try new ways of doing things |
| | o) Learn from others |
| | **SECTION E: Your health and everyday activities** |
| Q26 | How often does a physical condition or health problem limit the activities you can do at work, at home, or for fun?<br><br>☐ Often<br>☐ Sometimes<br>☐ Rarely<br>☐ Not at all<br>☐ DK/RF |
| Q27 | How often does an emotional condition or health problem (such as feeling depressed or anxious) limit the activities you can do at work, at home, or for fun?<br>☐ Often<br>☐ Sometimes |

| | |
|---|---|
| | ☐ Rarely<br>☐ Not at all<br>☐ DK/RF |
| | **SECTION F: Your feelings and attitudes about yourself and your life** |
| Q28 | Using a scale of 1 to 10, where 1 means "very dissatisfied" and 10 means "very satisfied", how do you feel about your life as a whole right now?<br><br>☐ DK/RF |
| Q29 | Please tell us how much you agree or disagree with the following statements about yourself. If you can't decide whether you agree or disagree with a statement, answer "Neutral". |
| | a) I am quiet and reserved<br><br>☐ Strongly agree<br>☐ Agree<br>☐ Neutral<br>☐ Disagree<br>☐ Strongly disagree<br>☐ DK/RF |
| | b) I generally trust other people |
| | c) I am sometimes lazy |
| | d) I handle stress well |
| | e) I have artistic interests |
| | f) I like to talk with many different people |
| | g) I tend to find fault with others |
| | h) I do a thorough job |
| | i) I get nervous easily |
| | j) I have an active imagination |
| | k) I am considerate and kind to almost everyone |
| | |

| | |
|---|---|
| Q30 | Do you have any final comments or feedback about your experiences with the research activities or the training program, including the Essential Skills training, the technical training in Aquaculture, and the work experience?<br>_____<br>_____<br>_____<br><br>☐ DK/RF |

Thank you for taking part in the survey and for participating in this research study! You will receive your $50 cheque in the mail at the address you provided us.

# APPENDIX E: SUBGROUP OUTCOMES

The following series of tables present the mean scores for each subgroup for the full range of skills and well-being outcomes from the surveys and the Essential Skills assessments. The tables are colour coded to visually represent group differences. Groups with the highest scores or gains within a skill or outcome are coloured orange, while those with the lowest scores or gains are coloured in blue. Note that for physical and mental health limitations, lower scores represent better health so they are coded with orange, while higher scores are coded blue.

### Table 14 Baseline skills and well-being

| Skill or outcome | 1. Displaced hired (*n* = 5) | 2. Disconnected hired (*n* = 4) | 3. Disconnected not hired (*n* = 3) |
|---|---|---|---|
| Communication | 4.10 | 3.94 | 3.50 |
| Critical thinking | 3.80 | 4.08 | 3.44 |
| Working with others | 4.10 | 4.06 | 3.94 |
| Continuous learning | 4.10 | 4.00 | 3.75 |
| Receptivity to learning | 4.40 | 4.33 | 4.67 |
| Digital skills | 3.65 | 3.03 | 2.13 |
| TOWES reading | 282.20 | 252.25 | 243.33 |
| TOWES document use | 256.20 | 231.00 | 222.33 |
| TOWES numeracy | 279.00 | 269.00 | 267.67 |
| Frequency of math | 4.60 | 4.25 | 3.33 |
| Frequency of taking notes | 3.60 | 3.00 | 3.00 |
| Frequency of reading | 3.40 | 3.00 | 4.33 |
| Career decision-making self-efficacy | 3.73 | 3.64 | 3.67 |
| Job search clarity | 3.75 | 4.13 | 3.94 |
| Job search self-efficacy | 3.66 | 3.48 | 3.53 |
| Conscientiousness | 4.40 | 3.88 | 4.33 |

| | | | |
|---|---|---|---|
| Openness | 3.50 | 3.40 | 2.80 |
| Extraversion | 3.70 | 3.50 | 3.50 |
| Agreeableness | 3.67 | 3.83 | 4.00 |
| Emotional stability | 4.00 | 4.00 | 3.67 |
| Physical health limitations | 1.40 | 1.50 | 1.67 |
| Mental health limitations | 1.20 | 1.25 | 1.67 |
| Life satisfaction | 8.00 | 6.75 | 6.67 |

## Table 15 Immediate gains at first follow-up

| | 1. Displaced hired (*n* = 5) | | | 2. Disconnected hired (*n* = 4) | | | 3. Disconnected not hired (*n* = 3) | | |
|---|---|---|---|---|---|---|---|---|---|
| **Skill or outcome** | **Pre** | **Post** | **Diff** | **Pre** | **Post** | **Diff** | **Pre** | **Post** | **Diff** |
| Communication | 4.10 | 4.20 | 0.10 | 3.94 | 4.19 | 0.25 | 3.50 | 4.75 | 1.25 |
| Critical thinking | 3.80 | 4.13 | 0.33 | 4.08 | 4.42 | 0.33 | 3.44 | 4.22 | 0.78 |
| Working with others | 4.10 | 4.35 | 0.25 | 4.06 | 4.56 | 0.50 | 3.94 | 4.50 | 0.56 |
| Continuous learning | 4.10 | 4.35 | 0.25 | 4.00 | 4.81 | 0.81 | 3.75 | 4.58 | 0.83 |
| Receptivity to learning | 4.40 | 4.47 | 0.07 | 4.33 | 4.75 | 0.42 | 4.67 | 4.22 | -0.44 |
| Digital skills | 3.65 | 4.38 | 0.73 | 3.03 | 4.25 | 1.22 | 2.13 | 3.75 | 1.63 |
| Frequency of math | 4.60 | 4.00 | -0.60 | 4.25 | 5.00 | 0.75 | 3.33 | 4.67 | 1.33 |
| Frequency of taking notes | 3.60 | 4.00 | 0.40 | 3.00 | 4.00 | 1.00 | 3.00 | 4.67 | 1.67 |
| Frequency of reading | 3.40 | 4.00 | 0.60 | 3.00 | 2.75 | -0.25 | 4.33 | 4.67 | 0.33 |
| Career decision-making self-efficacy | 3.73 | 4.04 | 0.31 | 3.64 | 4.08 | 0.44 | 3.67 | 4.04 | 0.37 |
| Job search clarity | 3.75 | 4.25 | 0.50 | 4.13 | 4.13 | 0.00 | 3.94 | 4.00 | 0.08 |
| Job search self-efficacy | 3.66 | 4.10 | 0.44 | 3.48 | 4.15 | 0.68 | 3.53 | 4.17 | 0.63 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Conscientiousness | 4.40 | 4.10 | -0.30 | 3.88 | 4.38 | 0.50 | 4.33 | 4.50 | 0.17 |
| Openness | 3.50 | 3.40 | -0.10 | 3.40 | 3.50 | 0.10 | 2.80 | 3.50 | 0.70 |
| Extraversion | 3.70 | 3.70 | 0.00 | 3.50 | 3.38 | -0.13 | 3.50 | 3.67 | 0.17 |
| Agreeableness | 3.67 | 3.60 | -0.07 | 3.83 | 4.42 | 0.58 | 4.00 | 4.11 | 0.11 |
| Emotional stability | 4.00 | 4.00 | 0.00 | 4.00 | 4.00 | 0.00 | 3.67 | 4.33 | 0.67 |
| Physical health limitations | 1.40 | 2.20 | 0.80 | 1.50 | 1.25 | -0.25 | 1.67 | 2.00 | 0.33 |
| Mental health limitations | 1.20 | 1.40 | 0.20 | 1.25 | 1.00 | -0.25 | 1.67 | 1.67 | 0.00 |
| Life satisfaction | 8.00 | 7.40 | -0.60 | 6.75 | 6.50 | -0.25 | 6.67 | 7.33 | 0.67 |

## Table 16 Intermediate gains at second follow-up

| | 1. Displaced hired (*n* = 5) | | | 2. Disconnected hired (*n* = 4) | | | 3. Disconnected not hired (*n* = 3) | | |
|---|---|---|---|---|---|---|---|---|---|
| **Skill or outcome** | **Pre** | **Post** | **Diff** | **Pre** | **Post** | **Diff** | **Pre** | **Post** | **Diff** |
| Communication | 4.10 | 4.25 | 0.15 | 3.94 | 4.67 | 0.73 | 3.50 | 4.25 | 0.75 |
| Critical thinking | 3.80 | 4.13 | 0.33 | 4.08 | 4.67 | 0.58 | 3.44 | 4.00 | 0.56 |
| Working with others | 4.10 | 4.55 | 0.45 | 4.06 | 4.83 | 0.77 | 3.94 | 4.13 | 0.18 |
| Continuous learning | 4.10 | 4.40 | 0.30 | 4.00 | 4.83 | 0.83 | 3.75 | 4.38 | 0.63 |
| Receptivity to learning | 4.40 | 4.27 | -0.13 | 4.33 | 4.56 | 0.22 | 4.67 | 3.89 | -0.78 |
| Digital skills | 3.65 | 4.35 | 0.70 | 3.03 | 4.21 | 1.18 | 2.13 | 4.08 | 1.96 |
| TOWES reading | 282.20 | 263.00 | -19.20 | 252.25 | 231.67 | -20.58 | 243.33 | 275.33 | 32.00 |
| TOWES document use | 256.20 | 231.00 | -25.20 | 231.00 | 196.00 | -35.00 | 222.33 | 233.00 | 10.67 |
| TOWES numeracy | 279.00 | 278.80 | -0.20 | 269.00 | 248.67 | -20.33 | 267.67 | 283.67 | 16.00 |
| Conscientiousness | 4.40 | 4.20 | -0.20 | 3.88 | 4.83 | 0.96 | 4.33 | 4.33 | 0.00 |
| Openness | 3.50 | 3.40 | -0.10 | 3.40 | 3.50 | 0.10 | 2.80 | 4.30 | 1.50 |
| Extraversion | 3.70 | 3.60 | -0.10 | 3.50 | 3.83 | 0.33 | 3.50 | 4.17 | 0.67 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Agreeableness | 3.67 | 4.07 | 0.40 | 3.83 | 4.33 | 0.50 | 4.00 | 4.11 | 0.11 |
| Emotional stability | 4.00 | 3.90 | -0.10 | 4.00 | 4.33 | 0.33 | 3.67 | 3.50 | -0.17 |
| Life satisfaction | 8.00 | 9.00 | 1.00 | 6.75 | 9.00 | 2.25 | 6.67 | 6.67 | 0.00 |

Note: For several outcomes, there was some missing data from the displaced-hired group (*n* = 4) and for the disconnected-not hired group (*n* = 2).

## Table 17 Long-term gains at final follow-up

| | 1. Displaced hired (*n* = 4) | | | 2. Disconnected hired (*n* = 2) | | | 3. Disconnected not hired (*n* = 3) | | |
|---|---|---|---|---|---|---|---|---|---|
| **Skill or outcome** | **Pre** | **Post** | **Diff** | **Pre** | **Post** | **Diff** | **Pre** | **Post** | **Diff** |
| Communication | 4.10 | 4.44 | 0.34 | 3.94 | 4.50 | 0.56 | 3.50 | 3.75 | 0.25 |
| Critical thinking | 3.80 | 4.25 | 0.45 | 4.08 | 4.33 | 0.25 | 3.44 | 4.00 | 0.56 |
| Working with others | 4.10 | 4.25 | 0.15 | 4.06 | 4.25 | 0.19 | 3.94 | 3.92 | -0.03 |
| Continuous learning | 4.10 | 4.44 | 0.34 | 4.00 | 4.75 | 0.75 | 3.75 | 4.00 | 0.25 |
| Receptivity to learning | 4.40 | 4.25 | -0.15 | 4.33 | 4.83 | 0.50 | 4.67 | 3.56 | -1.11 |
| Digital skills | 3.65 | 4.44 | 0.79 | 3.03 | 4.75 | 1.72 | 2.13 | 3.17 | 1.04 |
| Career decision-making self-efficacy | 3.73 | 4.14 | 0.41 | 3.64 | 4.67 | 1.03 | 3.67 | 3.63 | -0.04 |
| Job search clarity | 3.75 | 3.88 | 0.13 | 4.13 | 4.63 | 0.50 | 3.94 | 4.08 | 0.17 |
| Job search self-efficacy | 3.66 | 3.88 | 0.21 | 3.48 | 4.30 | 0.83 | 3.53 | 3.90 | 0.37 |
| Conscientiousness | 4.40 | 4.13 | -0.28 | 3.88 | 4.75 | 0.88 | 4.33 | 4.17 | -0.17 |
| Openness | 3.50 | 3.40 | -0.10 | 3.40 | 4.30 | 0.90 | 2.80 | 3.50 | 0.70 |
| Extraversion | 3.70 | 2.88 | -0.83 | 3.50 | 4.50 | 1.00 | 3.50 | 3.50 | 0.00 |
| Agreeableness | 3.67 | 4.00 | 0.33 | 3.83 | 4.67 | 0.83 | 4.00 | 4.00 | 0.00 |
| Emotional stability | 4.00 | 4.38 | 0.38 | 4.00 | 4.25 | 0.25 | 3.67 | 3.33 | -0.33 |
| Physical health limitations | 1.40 | 2.00 | 0.60 | 1.50 | 1.50 | 0.00 | 1.67 | 2.00 | 0.33 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Mental health limitations | 1.20 | 1.50 | 0.30 | 1.25 | 1.00 | -0.25 | 1.67 | 2.00 | 0.33 |
| Life satisfaction | 8.00 | 8.75 | 0.75 | 6.75 | 10.00 | 3.25 | 6.67 | 8.33 | 1.67 |

Note: Group 1 n = 5; Group 2 n = 4; Group 3 n = 3. Occasionally there is some missing data for certain items.

## Table 18 Gains across time

| | 1. Displaced hired (*n* = 4 - 5) | | | 2. Disconnected hired (*n* = 2 - 4) | | | 3. Disconnected not hired (*n* = 2 - 3) | | |
|---|---|---|---|---|---|---|---|---|---|
| **Skill or outcome** | First follow-up | Second follow-up | Final follow-up | First follow-up | Second follow-up | Final follow-up | First follow-up | Second follow-up | Final follow-up |
| Communication | 0.10 | 0.15 | 0.34 | 0.25 | 0.73 | 0.56 | 1.25 | 0.75 | 0.25 |
| Critical thinking | 0.33 | 0.33 | 0.45 | 0.33 | 0.58 | 0.25 | 0.78 | 0.56 | 0.56 |
| Working with others | 0.25 | 0.45 | 0.15 | 0.50 | 0.77 | 0.19 | 0.56 | 0.18 | -0.03 |
| Continuous learning | 0.25 | 0.30 | 0.34 | 0.81 | 0.83 | 0.75 | 0.83 | 0.63 | 0.25 |
| Receptivity to learning | 0.07 | -0.13 | -0.15 | 0.42 | 0.22 | 0.50 | -0.44 | -0.78 | -1.11 |
| Digital skills | 0.73 | 0.70 | 0.79 | 1.22 | 1.18 | 1.72 | 1.63 | 1.96 | 1.04 |
| Frequency of math | -0.60 | -0.40 | | 0.75 | 1.08 | | 1.33 | 1.00 | |
| Frequency of taking notes | 0.40 | 1.20 | | 1.00 | 1.67 | | 1.67 | 2.67 | |
| Frequency of reading | 0.60 | 0.80 | | -0.25 | 1.33 | | 0.33 | 1.00 | |
| Career decision-making self-efficacy | 0.31 | | 0.41 | 0.44 | | 1.03 | 0.37 | | -0.04 |
| Job search clarity | 0.50 | | 0.13 | 0.00 | | 0.50 | 0.08 | | 0.17 |
| Job search self-efficacy | 0.44 | | 0.21 | 0.68 | | 0.83 | 0.63 | | 0.37 |
| Conscientiousness | -0.30 | -0.20 | -0.28 | 0.50 | 0.96 | 0.88 | 0.17 | 0.00 | -0.17 |
| Openness | -0.10 | -0.10 | -0.10 | 0.10 | 0.10 | 0.90 | 0.70 | 1.50 | 0.70 |
| Extraversion | 0.00 | -0.10 | -0.83 | -0.13 | 0.33 | 1.00 | 0.17 | 0.67 | 0.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Agreeableness | -0.07 | 0.40 | 0.33 | 0.58 | 0.50 | 0.83 | 0.11 | 0.11 | 0.00 |
| Emotional stability | 0.00 | -0.10 | 0.38 | 0.00 | 0.33 | 0.25 | 0.67 | -0.17 | -0.33 |
| Physical health limitations | 0.80 | | 0.60 | -0.25 | | 0.00 | 0.33 | | 0.33 |
| Mental health limitations | 0.20 | | 0.30 | -0.25 | | -0.25 | 0.00 | | 0.33 |
| Life satisfaction | -0.60 | 1.00 | 0.75 | -0.25 | 2.25 | 3.25 | 0.67 | 0.00 | 1.67 |

## Table 19 Participant feedback on Essential Skills training at first follow-up

| Skill or outcome | 1. Displaced hired (*n* = 5) | 2. Disconnected hired (*n* = 4) | 3. Disconnected not hired (*n* = 3) |
|---|---|---|---|
| The objectives of the training were clearly explained | 4.60 | 4.75 | 4.33 |
| I believe the training achieved its objectives | 4.20 | 4.75 | 4.33 |
| The training did not help me with my specific career goals (reversed) | 4.00 | 3.75 | 3.67 |
| The training helped me understand and communicate my skills | 4.00 | 4.00 | 4.67 |
| The training helped me understand which of my skills needed to improve in order to find work in aquaculture | 4.20 | 4.00 | 4.33 |
| The training did not really help me improve my skills (reversed) | 4.20 | 4.00 | 4.33 |
| I found this training useful for preparing to work in aquaculture | 3.40 | 4.00 | 4.33 |
| The topics covered in the training were relevant to my career goals of working in aquaculture | 3.80 | 4.25 | 4.00 |
| I will be able to use what I learned in the training to help me find the job I want | 3.80 | 4.25 | 4.33 |
| I would recommend the training to others | 4.00 | 4.50 | 4.67 |

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