

COVE
centre for ocean
ventures & entrepreneurship

**COVE BEST ON:
BLUE ECONOMY STUDENT
THOUGHTS – ONTARIO**

EXECUTIVE SUMMARY

The Blue Economy – all economic activities and careers relating to the ocean and water – is growing and evolving in Canada and across the globe. By 2030, worldwide, the Blue Economy is anticipated to more than double from 2010 levels to over \$4 trillion and provide 40 million jobs.

Canada has the longest coastline in the world, has more lake area than any other country and is home to the Great Lakes and Saint Lawrence River and Seaway, a critical shipping route providing access to the interior of North America. Connected to the ocean through the Saint Lawrence River and Seaway, Ontario plays a vital role in Canada's emerging Blue Economy.

The BEST ON study collected a foundational dataset on Ontario high school student perspectives on their connection to the ocean and water, their future careers, and Canada's growing Blue Economy. This work contributes to the United Nations Sustainable Development Goals focusing on the ocean (Goal 14) and on gender equality (Goal 5). It also supports broader ocean literacy, an outcome of the UN Decade of Ocean Science for Sustainable Development (An inspiring and engaging ocean).

The online questionnaire (open April 11 - 29, 2022) consisted of 22 questions in five areas: (1) Ocean Literacy, (2) STEM and Blue Economy Careers, (3) Post-Secondary Pathways – Intentions and Influences, (4) Career Considerations and Drivers, and (5) Skill and Experience-Building. The survey received 172 responses from students at two Ontario high schools.

Students who participated in the study understand the ocean's key role in their lives: they believe their actions impact the ocean (83%), that the ocean impacts them (64%), and that the ocean plays an important role in addressing the climate crisis (88%). Students are also interested in STEM careers (56% of girls, 59% of boys) and in jobs in the Blue Economy (46% of girls, 64% of boys). Of those interested in Blue Economy jobs, 70% see them as a means to have an impact on the world, identified by 44% of students as important to them when considering their career.

The BEST ON study aims to provide educators, ocean literacy practitioners, and Blue Economy stakeholders with a resource to help them better reach youth in Ontario. Comparing this work to studies conducted in Nova Scotia and New Brunswick, as well as survey responses by gender, support targeted program development. Expanding our understanding of students' connections to the ocean and water can help us to ensure Canada's youth can find their path to the Blue Economy.



KEY FINDINGS

1. OCEAN LITERACY

83% of BEST ON survey respondents believe their actions have an impact on the ocean. 64% feel the ocean has an impact on them. 88% see the ocean as playing an important role in addressing the climate crisis. Only 37% feel connected to their local waterways and 28% see Canada as an ocean nation. Girls more commonly than boys feel unsure about their connection to their local waterways (33% of girls, 20% of boys) and about seeing Canada as an ocean nation (53% of girls, 32% of boys).

2. STEM AND BLUE ECONOMY CAREERS

On a scale of 1 to 10, 56% of girls and 59% of boys chose 8 or more for how much they want to work in STEM fields. 27% of girls and 23% of boys chose 10.

Before participating in the survey, only 17% of respondents had heard of the Blue Economy. Yet, many know of Blue Economy jobs: 88% have heard of the Navy/Armed Forces, 84% have heard of Commercial Fisheries, and of 81% have heard of Ocean and Water Energy Production.

53% of respondents are interested in a job in the Blue Economy: 64% of boys and 46% of girls. Of those, 70% see a job in the Blue Economy as a means to have an impact on the world.

3. POST-SECONDARY PATHWAYS - INTENTIONS AND INFLUENCES

81% of BEST ON participants plan to continue their education after high school (70% university, 10% college) compared to 70% in Nova Scotia and 66% in New Brunswick.

Students get ideas about career goals and job choices most often from the internet (59%), followed by their parents and other family members (58%): 71% of girls and 54% of boys. Students in Nova Scotia and New Brunswick most commonly get ideas about their careers from parents and other family members (66% in Nova Scotia, and 67% in New Brunswick).

4. CAREER CONSIDERATIONS AND DRIVERS

When thinking about their career, 93% of students believe it's important to enjoy their work (93%), also the most common response in Nova Scotia and New Brunswick. 68% want to do work that is meaningful to them. 44% want to make an impact on the world.

5. SKILL AND EXPERIENCE-BUILDING

83% of students see the value in extracurricular activities, and 85% see the value in part-time jobs or co-op placements to their future careers. (In Nova Scotia, these results are 80% and 76%, respectively.)

Building a talented workforce for the growing Blue Economy must include people from across Canada, drawing on all keen and capable youth. The BEST ON study's results identify an opportunity to offer students programming where they can learn about jobs they may enjoy, with an ocean or water focus. To most effectively reach Ontario's youth, ocean literacy initiatives should target parents, and social media campaigns should be used to target youth, especially girls, since students most often get information from these sources about potential career choices.

The Blue Economy is growing rapidly in Canada. Targeted programming and future studies of other regions across the country will help to engage students in the Blue Economy and prepare the workforce of the future.

"THERE'S NEVER BEEN A BETTER TIME FOR CANADA TO REIMAGINE ITS BLUE FUTURE."

— Fisheries and Oceans Canada



INTRODUCTION

CANADA'S WATER ASSETS

Canada has the longest coastline in the world and is one of only six countries on the Arctic Ocean. It has more lake area than any other country in the world,¹ and is home to the Great Lakes and the Saint Lawrence River, the largest supply of freshwater in the world.²

In Ontario, Canada's most populous province, the vast majority of its 14.9 million³ inhabitants live within the Great Lakes basin; though in the north, Ontario borders on Hudson's Bay. Ontario's vast water resources are used for shipping, freshwater, fisheries, hydroelectricity and more.⁴ Connected to the ocean through the Saint Lawrence River and Seaway, the longest deep-draft inland navigation system in the world,⁵ Ontario plays a vital role in Canada's emerging ocean and water economy, better known as the Blue Economy.

THE BLUE ECONOMY

The World Bank defines the Blue Economy as "the sustainable use of ocean resources for economic growth, improved livelihoods and jobs, and ocean ecosystem health."⁶ In 2016, the Blue Economy contributed 1.6 percent – \$31.7 billion – to Canada's gross domestic product, generating almost 300,000 jobs. By 2030, worldwide, the Blue Economy is anticipated to more than double from 2010 levels to over \$4 trillion and provide 40 million jobs.⁷

With this economic potential in mind, Canada is developing a Blue Economy Strategy.⁸ In 2022, a national engagement paper was published that identifies the skills needed for the future of the Blue Economy, such as digitalization and automation, expanding knowledge-intensive sectors, and environmental sustainability.⁹ The Minister of Fisheries and Oceans and the Coast Guard said, "There's never been a better time for Canada to reimagine its blue future."

For the BEST ON study, the Blue Economy definition was expanded to include all economic activities and careers relating to water, including seawater, freshwater, drinking water and wastewater, and the cryosphere (the frozen parts of the planet). Looking at these elements of the Blue Economy:

The BEST ON study collected a foundational dataset on Ontario high school student perspectives on their connection to the ocean and water, their future careers, and Canada's growing Blue Economy.



CONTRIBUTING TO UN SUSTAINABLE DEVELOPMENT GOALS

This study comes at a critical time, when water and ocean issues are growing in importance in Canada and internationally. *Life Below Water – Conserve and sustainably use the oceans, seas and marine resources* – is number 14 of the United Nations’ (UN’s) 17 Sustainable Development Goals (SDGs), to be achieved by 2030.¹⁰ In recognition of the importance of SDG 14, the UN declared 2021 to 2030 the Decade of Ocean Science for Sustainable Development under the slogan “*The science we need for the ocean we want.*”¹¹ The outcomes of the BEST ON study can be used to help support Ontario youth to enter the Blue Economy and to make meaningful contributions to SDG 14 and getting us to the ocean we want.

The BEST ON study also contributes to SDG 5, *Gender Equality*, by collecting data disaggregated by gender. It is internationally recognized that women’s participation and leadership are critical in the fight against climate and ocean change: in 2019, the United Nations Framework Convention on Climate Change launched a Gender Action Plan for the systematic integration of gender considerations in all its activities.¹² The gender-disaggregated data collected for the BEST ON study allows programming to be developed that responds to the needs of people of different genders; to help them to participate and lead in our response to climate change and in the Blue Economy.

PROMOTING OCEAN LITERACY

Ocean literacy, assessed in this study, is gaining recognition internationally and in Canada as central to effective protection and management of our ocean and water resources, and is a vital part of promoting interest in the Blue Economy. In 2018, the Canadian Ocean Literacy Coalition (COLC) formed, and works with organisations across the country to promote and enhance ocean literacy, which they define as “our relationship with the ocean and the waterways that connect us to each other and the sea.”¹³ Ocean literacy – *An inspiring and engaging ocean* – is one of the seven outcomes of the Ocean Decade.¹⁴ And COVE, in its work to propel Canada’s marine technology sector, seeks to increase ocean literacy and develop the next generation of ocean professionals.

GOALS OF THIS STUDY

Canada’s youth will have access to a diverse and an evolving Blue Economy, in areas like clean energy, ocean technologies, and climate science. The BEST ON study aims to help educators, ocean literacy practitioners, and Blue Economy stakeholders to better reach youth in Ontario: by expanding our understanding of students’ connections to the ocean and water, we can take action to increase awareness of the Blue Economy as a fulfilling career option in our global blue future. COVE and others interested in supporting Canada’s future talent and workforce can use this work to inform programming that will ensure Canada’s youth are equipped to tackle our ocean and water challenges in the future and lead in the Blue Economy.

SURVEY AND PARTICIPANTS

COVE first conducted student perception studies in Nova Scotia^{15,16} and New Brunswick¹⁷, and with Mi’kmaq students in Nova Scotia.¹⁸ Building on this work, the BEST ON study sought to support better understanding regional differences in student perceptions, by increasing our knowledge of Ontario students’ perceptions of the Blue Economy and intentions for their careers.

The BEST ON questionnaire was adapted from the 2019 Nova Scotia student perceptions study¹⁰ for the Ontario context, with questions added to focus on ocean literacy.¹⁹ Development of the questionnaire was also informed by inputs from these key stakeholders: Actua, Canadian Ocean Literacy Coalition, Fisheries and Oceans Canada, Ingenium, Ocean School and the SOI Foundation.

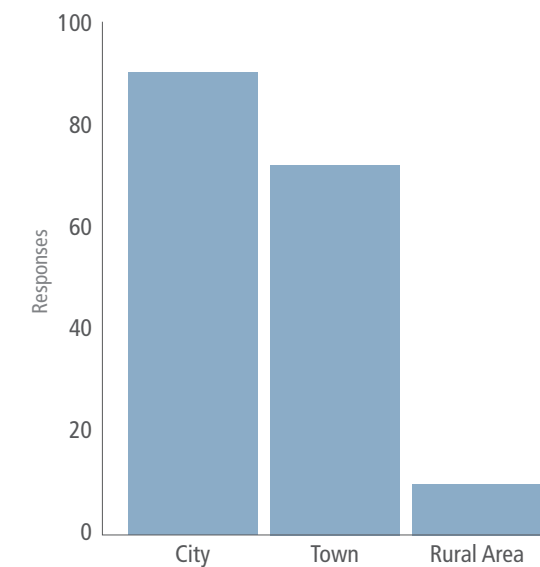
The online questionnaire consisted of 22 questions in five areas: **(1) Ocean Literacy, (2) Blue Economy Careers, (3) Post-Secondary Pathway – Intentions and Influences, (4) Career Considerations and Drivers, and (5) Skill and Experience Building.**

The survey was open from April 11 – 29, 2022, and received 172 responses from students at two Ontario high schools. Survey data were aggregated to maintain anonymity of student responses. The survey was delivered through science classes, which may skew the results toward students interested in STEM.

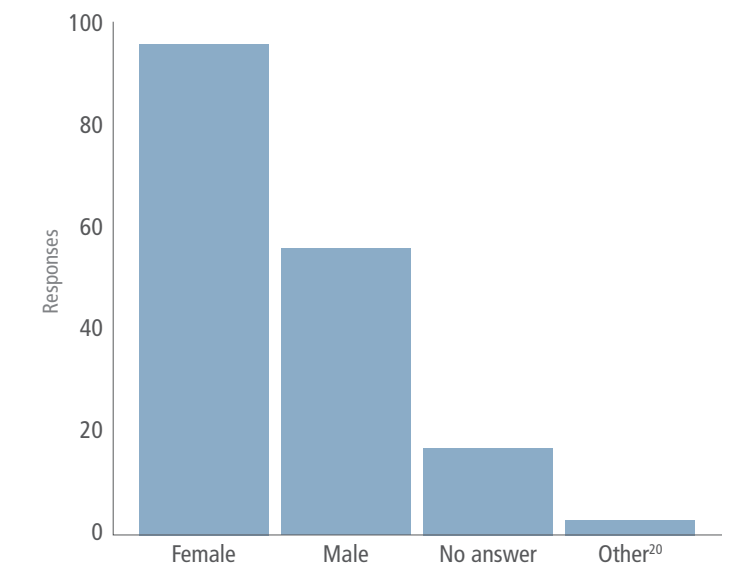


WHO RESPONDED TO THE SURVEY?

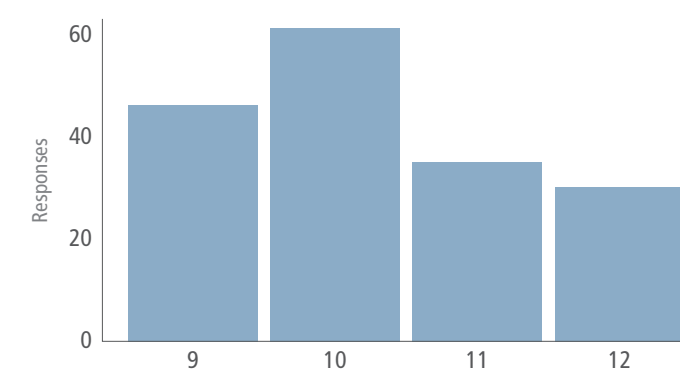
LIVING ARRANGEMENT



GENDER



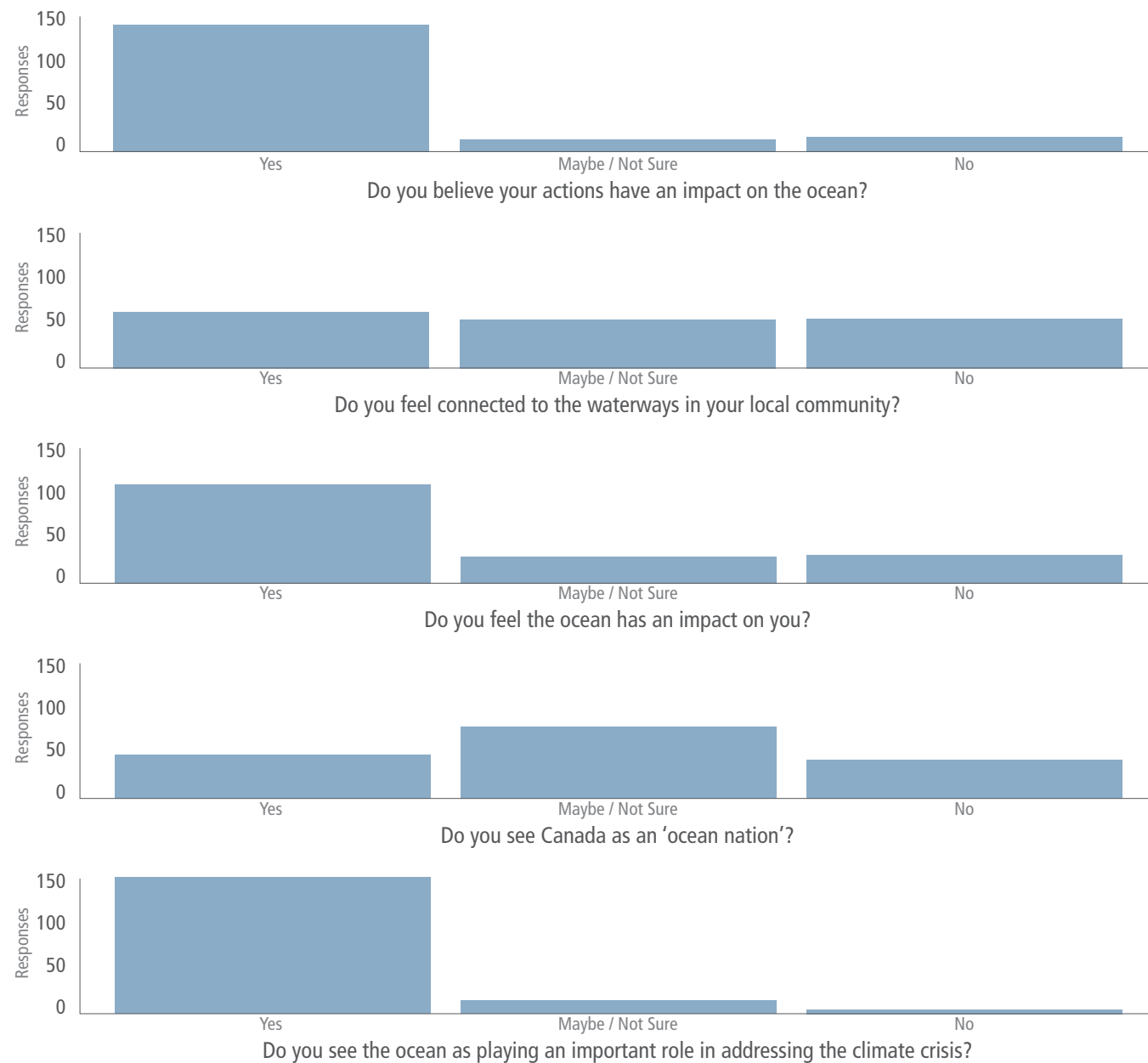
GRADE



OCEAN LITERACY

Students were asked five questions related to their connection to the ocean and local waterways. The results show that 83% of BEST ON survey respondents believe their actions have an impact on the ocean. The perception of this relationship being reciprocal is slightly less, with 64% of respondents feeling the ocean has an impact on them. **The vast majority of respondents, 88%, see the ocean as playing an important role in addressing the climate crisis.** Despite a relatively strong sense of the role of the ocean in their lives and in the Earth's climate, **only 37% of respondents feel connected to their local waterways,** and only 28% see Canada as an ocean nation. Girls more commonly than boys feel unsure about their connection to their local waterways (33% of girls, compared to 20% of boys) and about seeing Canada as an ocean nation (53% of girls, compared to 32% of boys).

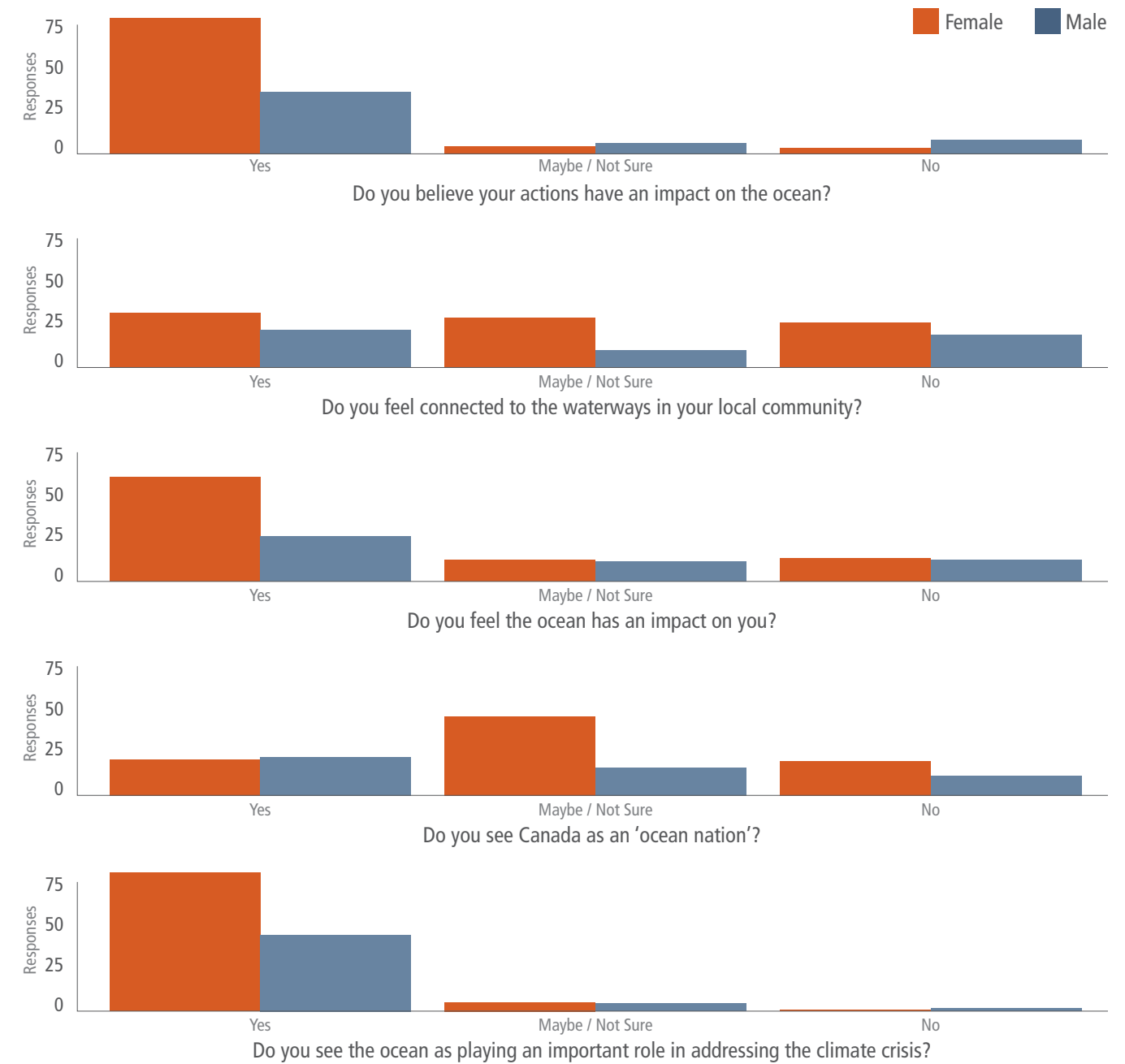
ALL GENDERS



For comparison, COLC's 2020 survey of adult Canadians found that 78% see Canada as an ocean nation.²¹ It also found that 52% see their actions as impacting the ocean. While adults across Canada are more likely to perceive Canada as an ocean nation than BEST ON student respondents (78% vs 28%), the student respondents are more aware that their actions impact the ocean (82% vs 52%).

COLC's Youth Report, addressing youth from across Canada's connection with the ocean,²² found that youth agreed with the importance of strengthening Canadians' relationship with the ocean, arguing "that this relationship is a critical one for our environmental, cultural, and spiritual health."²³

GENDER BREAKDOWN





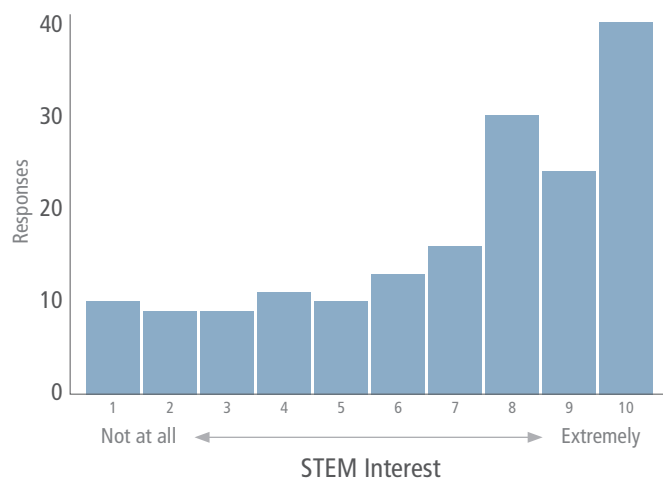
The Ontario science curriculum may be a key component to survey respondents' understanding of the role of the ocean in their lives and in the climate system. Ontario's grade 9 and 10 science curriculum includes two courses with ocean-related outcomes that examine the ocean's role in climate impacts on ocean ecosystems caused by climate change, as well as fisheries in the context of sustainable fishing, Indigenous-led management, invasive species, and the impacts of environmental change and pollution on fish populations.²⁴ Ontario's grade 11 and 12 science curriculum covers a variety of ocean and water topics. Courses have outcomes related to ocean technology used to monitor and track ocean currents, animals, etc., and underwater robotics; pollution and marine plastics and their impacts on ecosystems; and the impacts of warming on ocean ecosystems. They also extensively cover fisheries and aquaculture, examining overfishing, various fishing methods and their impacts on ecosystems, as a natural resource for Canada and how fisheries monitoring (particularly for contaminants such as mercury) and management takes place, for the most part in the context of freshwater ecosystems.²⁵

STEM AND BLUE ECONOMY CAREERS

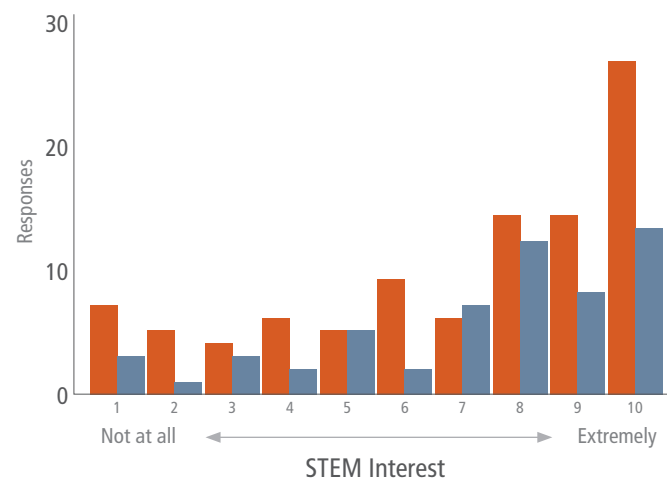
To assess students' interest in STEM and Blue Economy careers, respondents were asked to rate their interest in working in a STEM field and with water, as well as identifying from an indicative list which Blue Economy jobs they are familiar with, and their interest in those jobs.

For STEM broadly, more than half of students chose 8 or more for how much they want to work in STEM fields, (where 1 means 'Not at all' and 10 means 'Extremely'): 56% of girls and 59% of boys. Twenty-seven percent of girls and 23% of boys chose 10.

ALL GENDERS



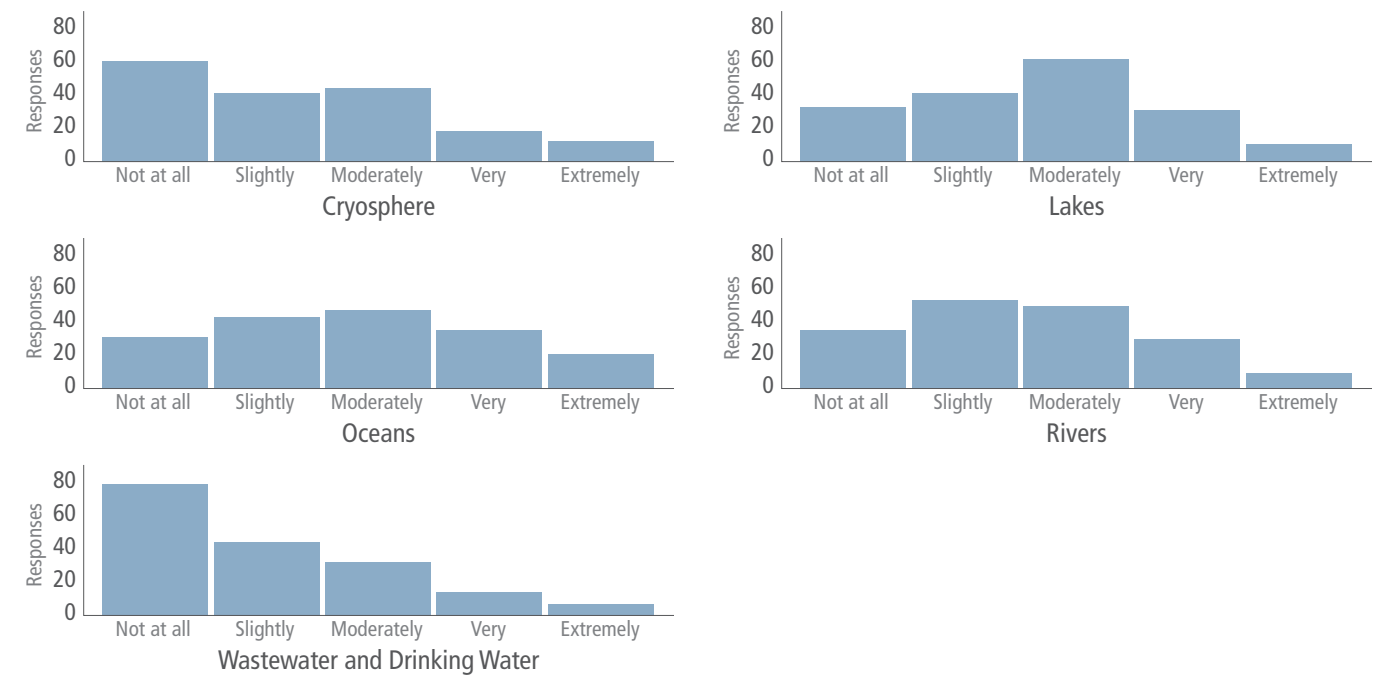
BY GENDER



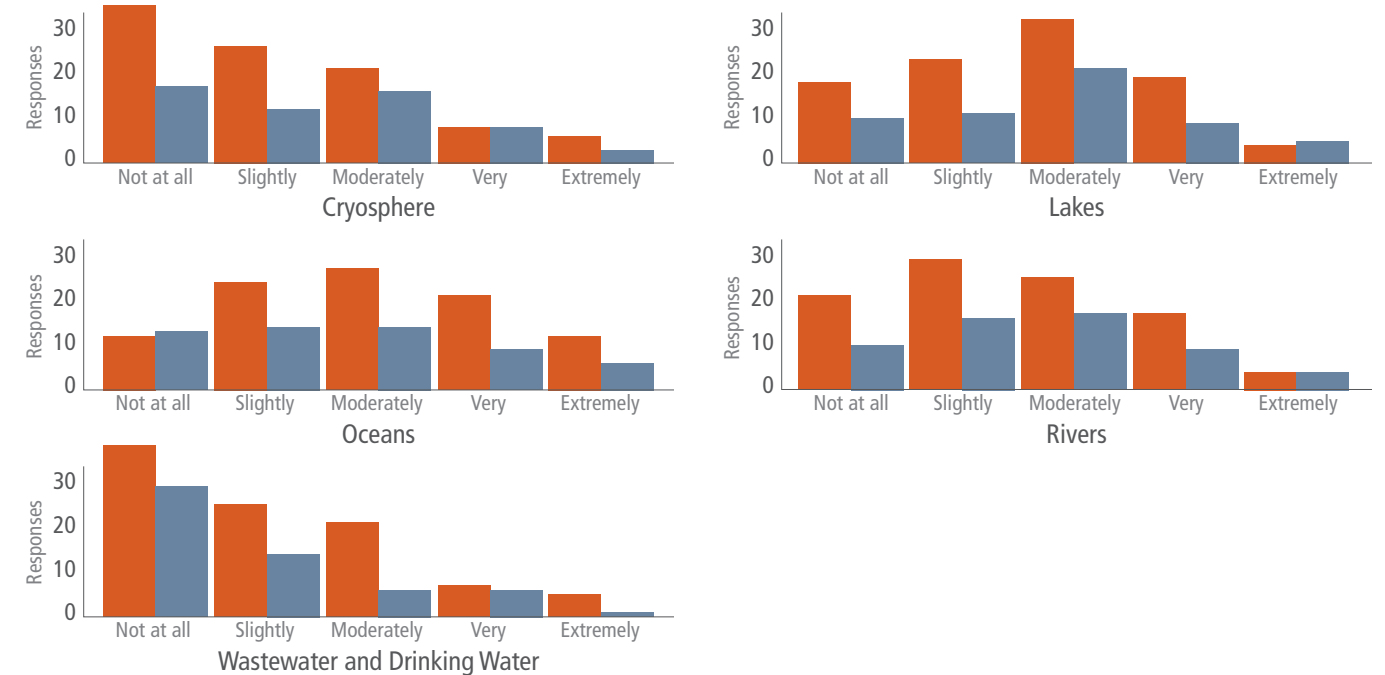
Female Male

Students were asked about their interest in working with water – lakes, rivers, the ocean, wastewater and drinking water, and the cryosphere – on a scale from 'Not at all' to 'Extremely'. The most common response was 'Moderately' for lakes, the ocean, and rivers; and 'Not at all' for wastewater and drinking water, and the cryosphere.²⁶ The lack of interest in the cryosphere could suggest a lack of connection with the distant Arctic. Lower levels of interest in wastewater and drinking water could relate to the general lack of connection students feel with their local waterways, as well as limited knowledge about the importance of safe drinking water and of the adequate treatment of wastewater before re-entry into natural ecosystems.

ALL GENDERS – INTEREST IN WORKING WITH WATER

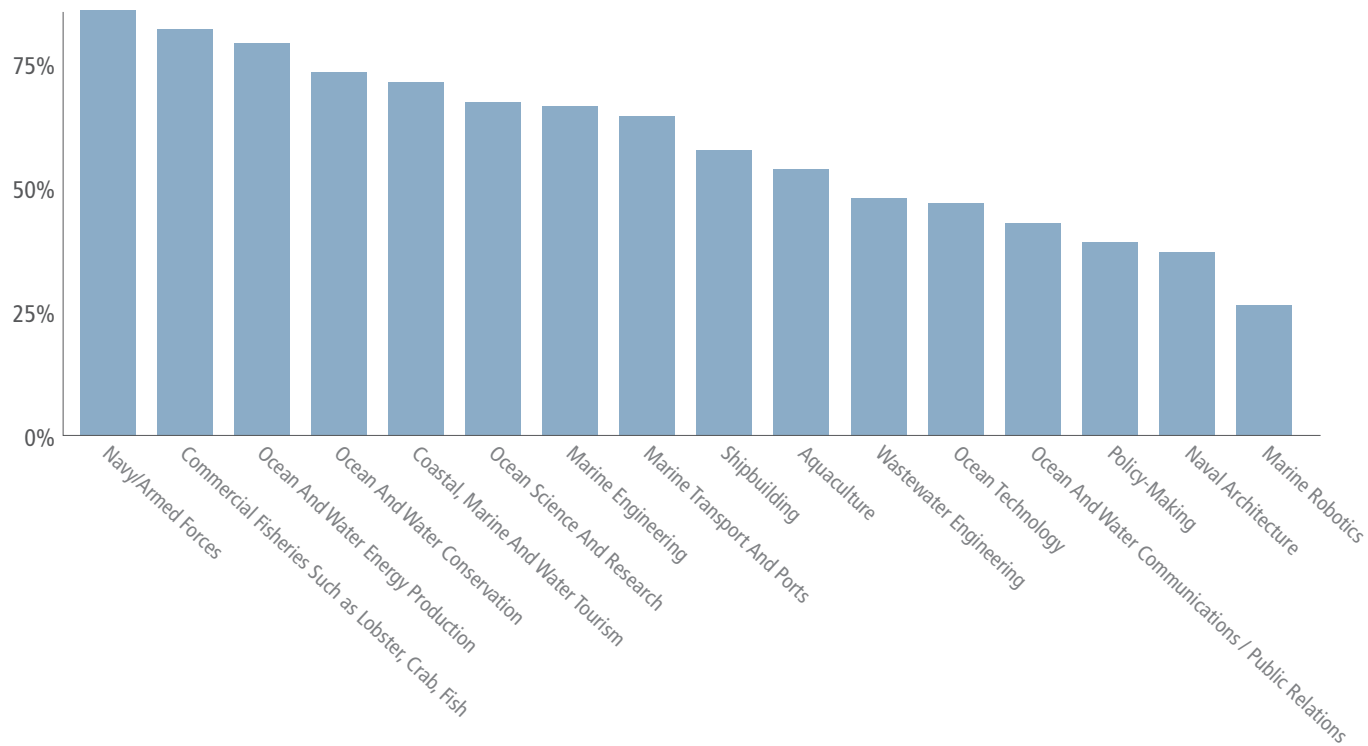


BY GENDER – INTEREST IN WORKING WITH WATER



Before participating in the survey, only 17% of respondents had heard of the Blue Economy. Despite being unfamiliar with the term, many have knowledge of Blue Economy jobs. In particular, most respondents have heard of the traditional areas of the Navy/Armed Forces (88%), Commercial Fisheries (84%), and of Ocean and Water Energy Production (81%). The last may be because, in Ontario, the production of hydroelectric power has high visibility. Two thirds or more of respondents have also heard of Marine Engineering; Marine Transport and Ports; Ocean Science and Research; Ocean and Water Conservation; and Coastal, Marine and Water Tourism.

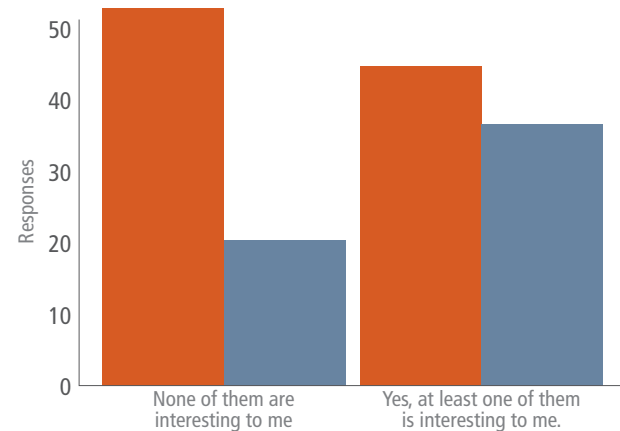
PERCENT WHO HAVE HEARD OF FIELDS IN THE BLUE ECONOMY



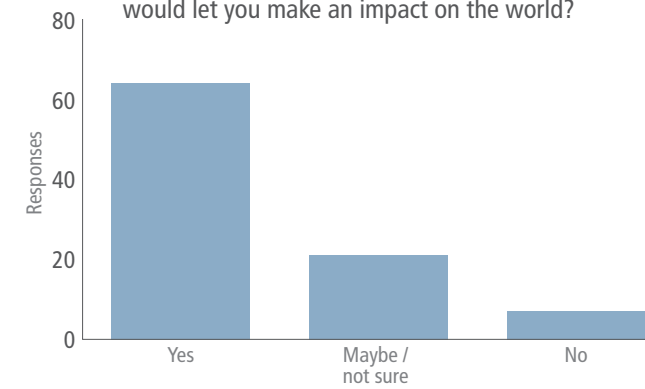
Fifty-three percent of respondents are interested in a job in the Blue Economy (of the jobs listed above), with boys being more likely (64%) than girls (46%). **Of those, 70% see a job in the Blue Economy as a means to have an impact on the world** (or 37% overall); and 52% would consider relocating for a job that interests them. When asked about marine industry jobs, only 12% of Nova Scotian students expressed interest.²⁷ However, this question and the one posed for this report are not identical. Still, there may be a regional difference in how students in Ontario and Nova Scotia perceive a range of Blue Economy jobs.

Seventy-five percent of respondents who are not interested in a job in the Blue Economy (58 of 77) have another career already in mind; just 19% are not interested or find these jobs boring.

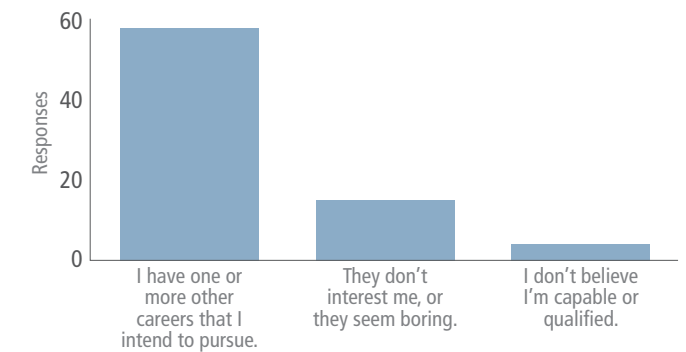
INTEREST IN BLUE ECONOMY JOBS



Among those who are interested: Can you imagine how working in a Blue Economy job would let you make an impact on the world?



Among those who are not interested, they gave the primary reason as:



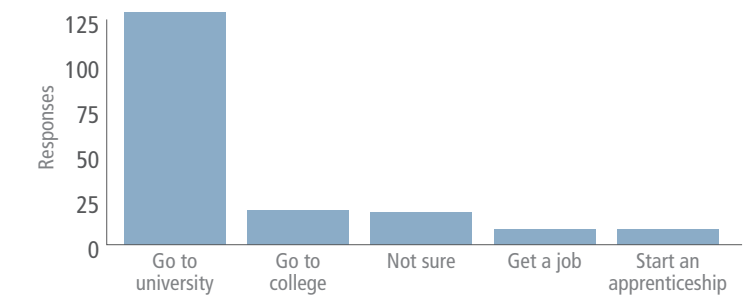
POST-SECONDARY PATHWAY – INTENTIONS AND INFLUENCES

Information about students' intentions and influences for their careers can help create programming that supports students to get to the future they want, and responds to their needs. To assess post-secondary intentions and influences, students were asked about their plans for after high school, their parent's educational background, and where they most commonly get career information.

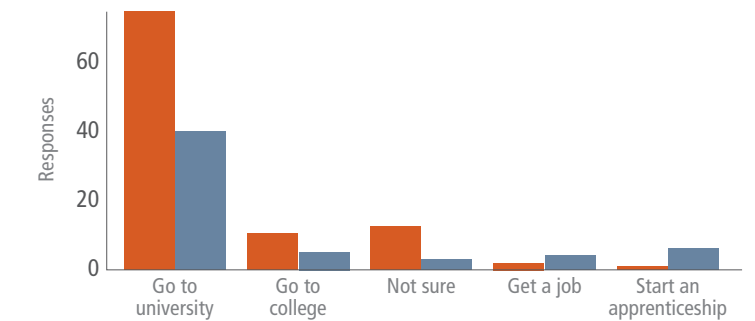
81% of BEST ON participants plan to continue their education after high school (70% university, 10% college), compared to 70% in Nova Scotia and 66% in New Brunswick.²⁸ Girls are slightly more likely to plan to go to university or college (84%) compared to boys (77%), and the data suggests that boys are more likely to choose to start an apprenticeship than girls (11% of boys to 1% of girls).

Note: one student selected that they planned to start their own business.

AFTER HIGH SCHOOL, RESPONDENTS HOPE TO:



BY GENDER





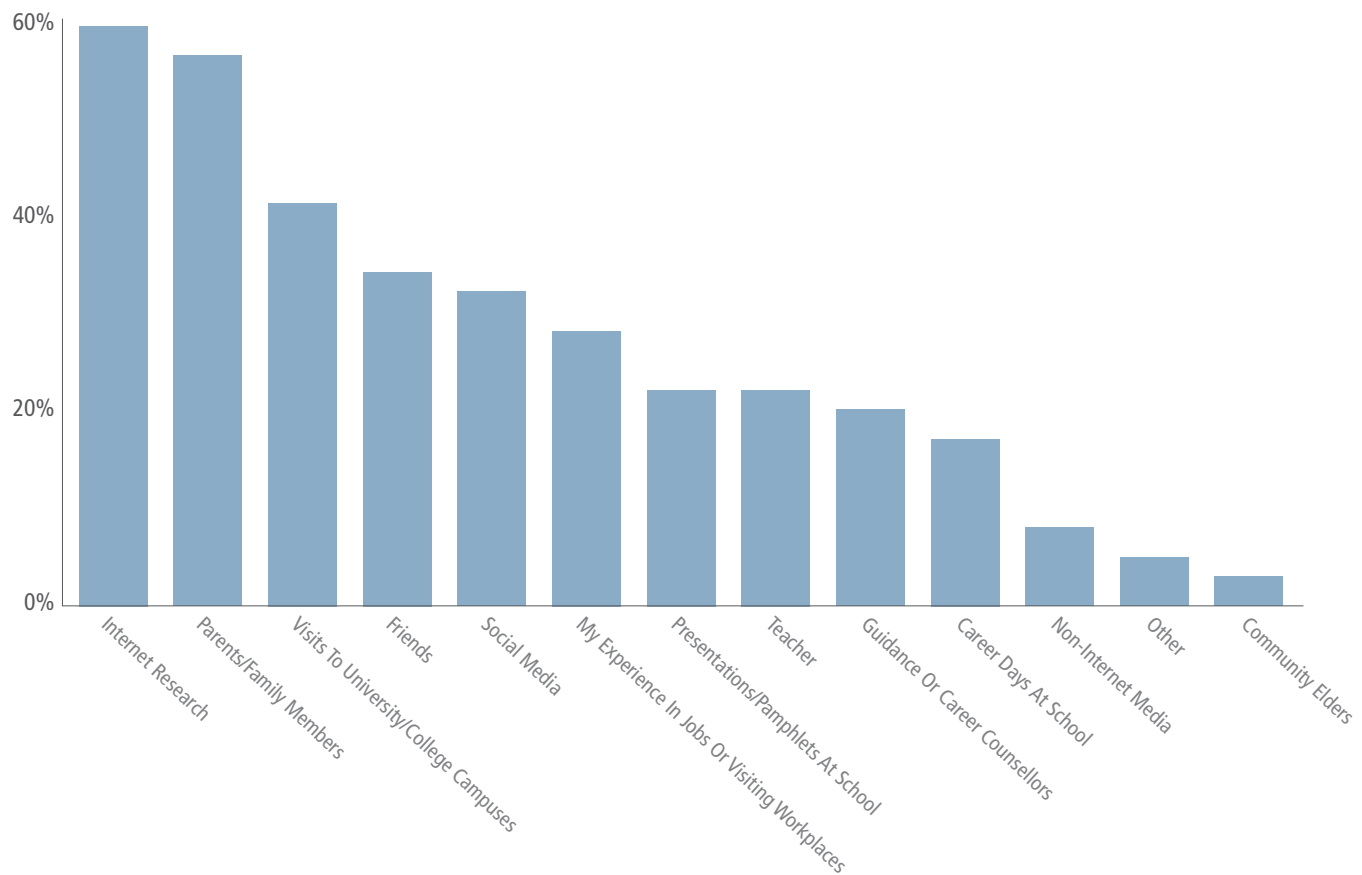
Eighty-four percent of respondents have a parent who attended or is attending university or college. A greater proportion of students whose parents attended college or university plan to do so themselves: 67% (18 of 27) for students whose parents did not and 83% (121 of 145) for students whose parents did.²⁹

When it comes to career goals and job choices, students get ideas most often from the internet (59%), followed by their parents and other family members (58%).³⁰ When the two genders are examined separately, boys get their ideas most often from their parents and other family members (58%), with internet research coming second (54%). **Girls are also significantly more likely than boys to get their ideas from internet research: 71% of girls compared to 54% of boys.**

For regional comparison, students in Nova Scotia and New Brunswick most commonly get ideas about their careers from parents and other family members (66% in Nova Scotia, and 67% in New Brunswick); the second most common response was internet research in Nova Scotia (41%) and friends for New Brunswick (37%).³¹

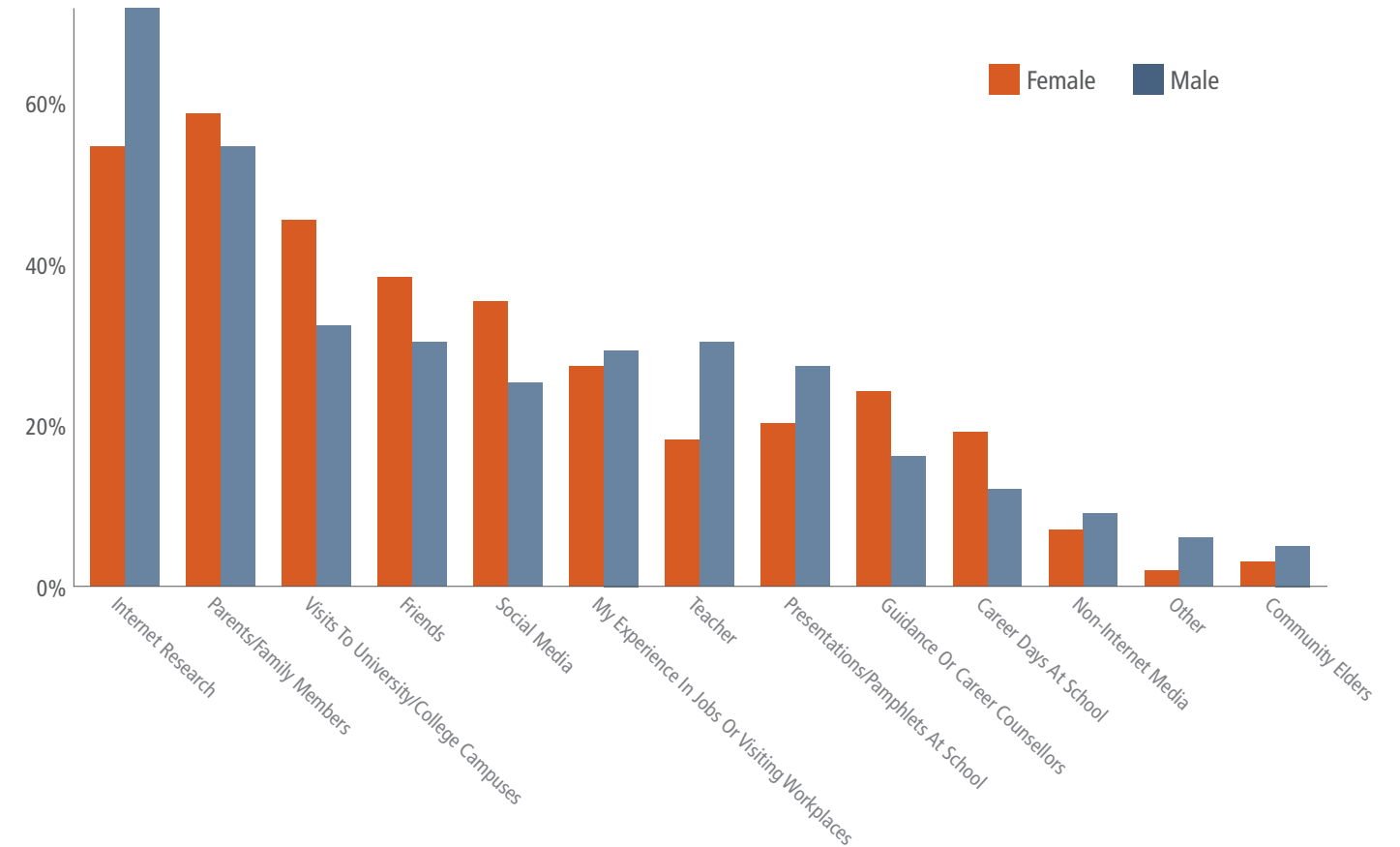
PREFERRED WAYS TO GET IDEAS ABOUT FUTURE CAREER GOALS AND JOB CHOICES

RESPONDENTS WERE ASKED TO SELECT UP TO FOUR.



PREFERRED WAYS TO GET IDEAS ABOUT FUTURE CAREER GOALS AND JOB CHOICES – BY GENDER

RESPONDENTS WERE ASKED TO SELECT UP TO FOUR.



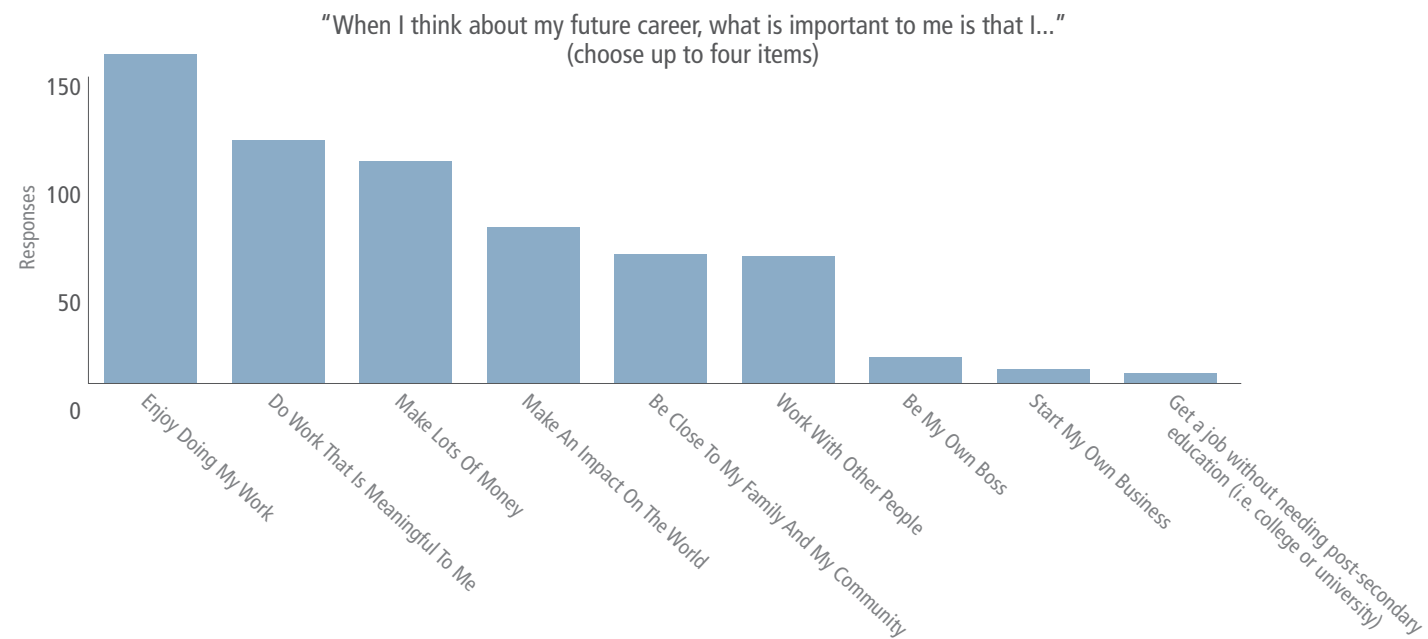
CAREER CONSIDERATIONS AND DRIVERS

When thinking about their career, students overwhelmingly believe it's important to enjoy their work (93%).

Sixty-eight percent want to do work that is meaningful to them, and 44% want to make an impact on the world. These responses show that students are considering the broader implications of their careers, for themselves and society. 'Have a job that I enjoy' was also the most common response in Nova Scotia (81%) and New Brunswick (61%). The second most common response in Nova Scotia and New Brunswick is 'Make lots of money', in contrast to Ontario, where it is the third most common response.³²

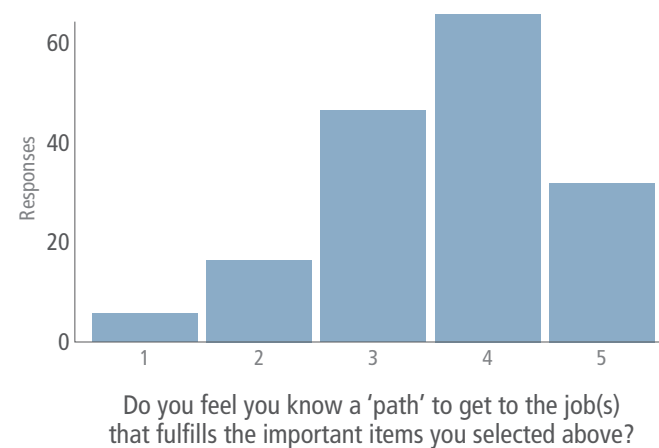
Student responses to the ocean literacy questions show that they see the significant role that the ocean plays in their lives. They also want to have careers where they do something they love and make an impact – and the majority of students interested in Blue Economy jobs (70%) see how working in the Blue Economy would let them make an impact on the world.

These results present an opportunity: increasing awareness of the Blue Economy among students could help them to discover meaningful careers with an impact.



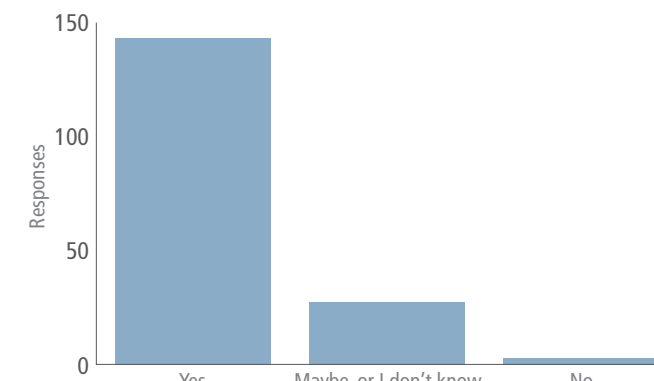
Having identified what is important to their careers, students were asked if they feel they know a path to the jobs that have those qualities. On a scale of one to five (where 1 is 'No clue how to get there' and 5 is 'I definitely know the way'), 68% of students report a 4 or 5. Although this is an encouraging result, there is also an opportunity to support students in finding a path to the careers they want.

68% of BEST ON respondents want to do work that is meaningful to them; 44% to make an impact on the world.

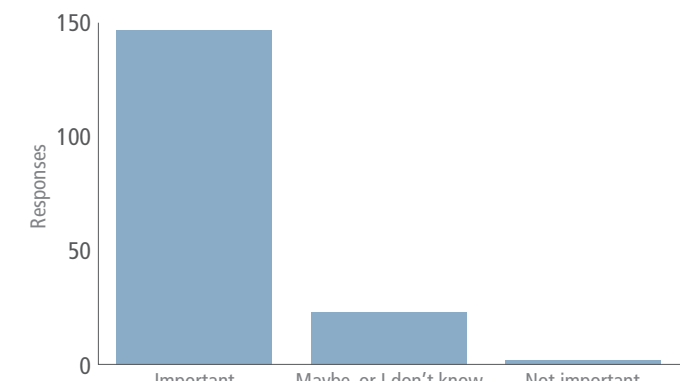


SKILLS & EXPERIENCE-BUILDING

A majority of students see the value in extracurricular activities, 83%, and part-time jobs or co-op placements, 85%, to their future careers (similarly reflected but at slightly lower rates in Nova Scotia, at 80% and 76%, respectively³³). There is an opportunity to create extracurricular activities, jobs and co-op placements that grow students' ocean literacy and provide valuable experiences for their careers: COLC's youth report recommends using professional opportunities (such as volunteering, internships, mentorships, jobs, leadership and training opportunities) as enablers for youth to take action to understand, value and care for the ocean.³⁴



Do you believe that participating in extracurricular activities (sports teams, clubs, bands, theatre, etc.) helps build skills and experience that are useful in a future career?



Do you feel that having a part-time job, summer jobs, or a co-op placement during high school is important to help prepare for your adult career?

CONCLUSIONS

Ontario youth must be considered in initiatives supporting the Blue Economy in Canada. This study found that students understand the important role the ocean plays in their lives, despite living far from an ocean coast. They are familiar with multiple jobs in the Blue Economy (even if they didn't know it by that name), and over half would be interested in a job in the Blue Economy.

Students view extracurricular activities, summer and part time jobs, and co-op placements as valuable for their careers, and by vast majority plan to enrol in post-secondary education. They get their career information most often from the internet, as well as parents and other family members. And students want careers they enjoy, doing work that is meaningful to them.

Ontario has a large population to draw on in support of a growing Blue Economy. Building a talent base is not restricted to coasts, but needs inclusion across Canada to access capable and interested youth.

Programming should include education for parents, and information available through media sources such as websites, because these are where youth are getting information on potential career choices.



In the several years since the student perception studies were conducted in Atlantic Canada, the ocean and Blue Economy have taken centre stage, nationally and across the world. The Ocean Decade launched; COLC has grown a community of ocean literacy practitioners from across the country; Canada launched a process to develop a national Blue Economy Strategy; and COVE has scaled up connecting youth with ocean career opportunities by hosting co-op hours and experiential learning activities at COVE and on the water with oceanographers and marine professionals, as well as running STEM-based camps for underrepresented youth. These initiatives have changed the national conversation about ocean literacy and the Blue Economy, and increased their visibility across the country.



The speed with which the Blue Economy is growing in Canada, along with regional differences in geography, proximity to the coast, etc., account for the differences between the BEST ON and Atlantic Canada study questionnaires, and are also factors, among others, impacting student responses.

Similarities between the Ontario and Atlantic Canada studies include that students in both regions show an interest in career-skill development through extracurriculars, jobs and co-op placements. BEST ON respondents and students in Nova Scotia and New Brunswick also report having a job that they enjoy as the most important aspect of their career. These results present an opportunity to offer students programs where they can learn about jobs they may enjoy with an ocean focus.

A notable difference in the regional results is in how students get career information. BEST ON respondents most commonly get ideas from internet research, whereas students in Nova Scotia and New Brunswick most commonly get ideas from their parents, suggesting that programs to support ocean literacy and awareness of Blue Economy careers may be most effective if tailored for each region.

The BEST ON study collected data disaggregated by gender, which along with region, is a way that programming can be tailored to effectively reach specific demographics. In particular, jobs in the Blue Economy often require a STEM education, and this study's results suggest that girls are as interested in working in STEM fields as boys (though boys are more likely to show interest in having a job in the Blue Economy). This despite women's enrolment in tertiary education in Canada exceeding men's (79% for women, 59% for men),³⁵ but only 13% of women enrolling in STEM programs, compared to 18% of men, making women's enrolment in STEM 30% lower than men's.³⁶ Additionally, girls who participated in the study get ideas about their careers more often than boys from the internet, providing an impetus for online campaigns that engage with girls. And, girls are also more likely to feel unsure about their connection to their local waterways, as well as about seeing Canada as an ocean nation, suggesting there is local ocean literacy work that could be done to engage girls in Ontario.

Next steps in this research could include survey studies in northern and western Canada. Targeted studies should also be conducted to support a better understanding of Indigenous perspectives – work which has been conducted in Mi'kmaq Schools in Nova Scotia and can be used as a guide.³⁷ Finally, studies should be conducted that look at people of non-binary gender identities.

COVE and the author are grateful to the following organisations for their key inputs to the survey development and support: Actua, Canadian Ocean Literacy Coalition, Fisheries and Oceans Canada, Ingenium, Ocean School and SOI Foundation.

The BEST ON survey was conducted during the global COVID-19 pandemic, an especially challenging time for students and educators. COVE and the author are grateful for the support of the school boards and school administrators, the teachers who delivered the survey, and to each of the 172 students who took the time to participate, share their views, and give us this valuable data that will help inform how we teach about and connect with the ocean in Ontario.

APPENDIX: SURVEY QUESTIONNAIRE

STUDENT DEMOGRAPHICS

1. What grade are you in? (9, 10, 11, 12)
2. Where you live is best described as a... (city, town, rural)
3. You identify as... (open response)

OCEAN LITERACY

4. Do you see Canada as an ocean nation? (Yes/No/I don't know)
5. Do you think your actions have an impact on the ocean? (Yes/No/I don't know)
6. Do you think the ocean has an impact on you? (Yes/No/I don't know)
7. Do you feel connected to the waterways in your community? (Yes/No/I don't know)
8. Do you see the ocean as playing an important role in addressing the climate crisis? (Yes/No/I don't know)

BLUE ECONOMY CAREERS

9. How much do you want to work with/in/on/around? (Not at all/Slightly/Moderately/Very/Extremely):
 - lakes
 - rivers
 - the ocean
 - the cryosphere (the frozen parts of the planet)
 - wastewater and drinking water
10. How much do you want to work in Science, Technology, Engineering, Math, or Medicine (STEM) fields? (scale of 1 to 10)
11. Have you heard of the Blue Economy? (Yes/No)

12. The following are "Blue Economy" careers; they all involve working with water. Please select the ones you had heard of before taking this survey:

- Ocean and water energy production (e.g., wind, wave, hydroelectric, oil and gas)
- Navy/armed forces
- Shipbuilding
- Marine engineering (i.e., engineering of boats, ships, submarines, and equipment used at sea)
- Commercial fisheries (e.g., lobster, crab, fish)
- Marine transport and ports
- Aquaculture (e.g., food and medicine)
- Marine robotics
- Ocean technology (e.g., hull design, system electronics, sonar technologies)
- Ocean science and research (e.g., study the physics, chemistry, geology or biology of the ocean; study ocean governance and fisheries management; study marine mammal behaviour)
- Wastewater engineering (e.g., chemical, civil, biological engineering)
- Naval architecture (e.g., ship designer)
- Ocean and water conservation
- Policy-making (e.g., ocean governance, defining and managing Canada's Marine Protected Areas)
- Ocean and water communications (e.g., communications, social media and public relations)
- Coastal, marine and water tourism

13. Are you interested in a job in the Blue Economy? (Yes/No/I don't know)

- If yes, if you were offered a job that interests you, but the job required you to be located on the West, North, or East Coast of Canada, would you be open to moving there?
- If yes, can you imagine how working in a Blue Economy job would let you make an impact on the world? (Yes/No/I don't know)
- If no, what is the primary reason why none of the Blue Economy jobs interest you? (They don't interest me, or they seem boring; I don't believe I'm capable or qualified; I have one or more other careers that I intend to pursue; open response (note: open-text responses coded and grouped by theme))

POST-SECONDARY PATHWAY - INTENTIONS AND INFLUENCES

14. After I finish high school I would like to:

- Go to University
- Start my own business
- Go to College
- Get a job straight away
- Start an apprenticeship
- I don't know
- Do something else

15. I think the best way to get ideas about my future career goals and job choices is from... (Select up to four boxes):

- Presentations/Pamphlets from school
- Guidance or Career Counsellor
- Friends
- Parents/Family Members
- Internet
- Media (TV, Radio)
- Social Media
- Teacher/Principal
- Community Elders
- Career days at school
- Visiting Post-Secondary Campuses
- Current Employment/Visiting Workplaces
- Other way(s)

16. Did any of your parents or guardians go to College or University, or do they go now? (Yes/No/I don't know)

17. Do you know someone who works in a skilled trade? (e.g., cook or baker, carpenter or brick and stone mason, heavy duty equipment technician) (Yes/No/I don't know)

CAREER CONSIDERATIONS AND DRIVERS

18. When I think about my future jobs, what is important to me is... (Tick up to four boxes):

- Stay close to my family and my community
- Have a job that I enjoy
- Be my own boss
- Start my own business
- Get a job without needing post-secondary education (i.e. college or university)
- Make an impact on the world
- Have a job with meaning
- Work with other people
- Make lots of money
- I don't know

19. I feel that I know a path to the jobs that have what is important to me (scale of 1 to 5)

SKILL & EXPERIENCE BUILDING

20. Do you feel that doing extracurricular activities (i.e., sports teams, clubs, music bands, theatre, etc.) will help build skills and experiences useful for a future career? (Yes/No/I don't know)

21. Do you feel that having a part-time job or doing co-op in high school is important to building your skills and experience for a future career? (Yes/No/I don't know)

REFERENCES AND NOTES

- ¹ [Water sources: lakes - Canada.ca](#)
- ² The Great Lakes make up 18% of the world's fresh surface water. [Great Lakes ecoregion | National Oceanic and Atmospheric Administration](#)
- ³ Almost one third of the Canadian population. [Population estimates, quarterly](#)
- ⁴ [Water sources: lakes - Canada.ca](#)
- ⁵ [The Economic Impacts of the Great Lakes – St. Lawrence Seaway System](#)
- ⁶ [Blue Economy Definitions According to the World Bank](#)
- ⁷ The Ocean Economy in 2030 (2016) [The Ocean Economy in 2030 | en | OECD](#)
- ⁸ Find out more about the Blue Economy Strategy, planned for release in late 2022: [Blue Economy Strategy](#)
- ⁹ [Engaging on Canada's Blue Economy Strategy - What we heard](#)
- ¹⁰ [Goal 14 | Department of Economic and Social Affairs](#)
- ¹¹ [The Ocean Decade](#)
- ¹² [The Gender Action Plan | UNFCCC](#)
- ¹³ [Canadian Ocean Literacy Coalition](#)
- ¹⁴ [Ocean Decade Mission and Vision](#)
- ¹⁵ [COVE WORKFORCE INITIATIVE: Student Intentions and Perceptions Study 2016](#)
- ¹⁶ [COVE WORKFORCE INITIATIVE: Student Intentions and Perceptions Study 2019](#)
- ¹⁷ [COVE WORKFORCE INITIATIVE: Student Intentions and Perceptions Study 2018](#)
- ¹⁸ [COVE WORKFORCE INITIATIVE: Student Intentions and Perceptions Study 2017](#)
- ¹⁹ In line where relevant with the Canadian Ocean Literacy's (COLC's) pan-Canadian ocean literacy survey (2020): [CANADIAN OCEAN LITERACY SURVEY](#)
- ²⁰ For the survey question, "I identify as...", aimed at collecting gender identities, 20 answers did not categorise into female and male; 17 did not refer to gender; and the last three responses were 'other', 'unlabeled', and 'idk'. Throughout the report, in figures representing the different genders, only a comparison between those who identify as female and male is made due to low counts for other genders, to ensure student anonymity.
- ²¹ [CANADIAN OCEAN LITERACY SURVEY](#)
- ²² Though primarily from Ontario and Quebec
- ²³ [YOUTH AND OCEAN LITERACY IN CANADA](#)
- ²⁴ [The Ontario Curriculum, Grades 9 and 10: Science, 2008 \(revised\)](#)
- ²⁵ [The Ontario Curriculum, Grades 11 and 12: Science, 2008 \(revised\)](#)
- ²⁶ The frozen parts of the planet
- ²⁷ [COVE WORKFORCE INITIATIVE: Student Intentions and Perceptions Study 2019](#)
- ²⁸ [COVE WORKFORCE INITIATIVE: Student Intentions and Perceptions Study 2019](#), [COVE WORKFORCE INITIATIVE: Student Intentions and Perceptions Study 2018](#)
- ²⁹ The data also found that 74% of students know someone who works in a skilled trade. No trend was found connecting students who are unsure about plans for after high school with their grade.
- ³⁰ Of note is that the survey may be skewed toward students interested in STEM (discussed above), which may also skew responses toward the university and college level education required to work in STEM fields. Since parents are the second most important source for students when seeking career information, the respondent sample may also be skewed toward parents who hold university or college degrees.
- ³¹ [COVE WORKFORCE INITIATIVE: Student Intentions and Perceptions Study 2019](#), [COVE WORKFORCE INITIATIVE: Student Intentions and Perceptions Study 2018](#)
- ³² Of note is low response rates related to entrepreneurial pathways: 7% of responses for being their own boss and 4% for starting their own business (reflected also in the Nova Scotia survey at slightly higher rates: 13% and 11%, respectively).
- ³³ These data were not collected in the New Brunswick survey.
- ³⁴ The other key enabler youth identified was education opportunities.
- ³⁵ Percentage of the most recent five-year age cohort that has left secondary school. [Global Gender Gap Report 2021 | World Economic Forum](#)
- ³⁶ [Gender differences in STEM enrolment and graduation: What are the roles of academic performance and preparation?](#)
- ³⁷ [COVE WORKFORCE INITIATIVE: Student Intentions and Perceptions Study 2017](#)

COVE's Workforce Initiative was established to explore workforce development issues and advise on a national human resource development strategy. Conceived from Irving Shipbuilding's Value Proposition commitment under NSPS, the objective of the Workforce Initiative is to propose objective and relevant recommendations aimed at overcoming challenges to developing a highly trained, skilled, and available workforce. The workforce in question spans the continuum from skilled trades and technology workers to professionals or knowledge workers (i.e. engineers, marine architects), entrepreneurs, and leadership roles. The overarching objective of this initiative is to provide the necessary workforce to establish an innovative, sustainable, and globally competitive marine industry.



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