

The Future of Ocean Governance and Capacity Development

Essays in Honor of Elisabeth Mann Borgese (1918–2002)

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The Marine People Partnership: Building a Workforce for Our Ocean Industries through Ocean Literacy

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The announcement in 2010 of the National Shipbuilding Procurement Strategy¹ triggered murmurs of excitement across the broader marine industry in Canada. Embedded in this contract was a promise of meaningful contribution, beyond Canada's navy, to amplify benefits across the tiers and sectors of the marine industry. It also signaled a concomitant investment in the development of a present and future workforce to support these burgeoning industries. The announcement soon triggered ripples of additional federal and provincial investment and attention to ocean activities relating to research and observation, ocean technology innovations and entrepreneurship, and marine renewable energy. As the ripples of interest amplified across secondary and tertiary ocean sectors, optimism swelled at the possibility of establishing an integrated, modern, and sustainable national marine industry. But infusion of funding could only breathe air into the lungs of the industry. It needed to be animated with people.

The need for an experienced and available workforce quickly became a much-debated topic that sparked predictions of skills shortages and competency gaps. These shortages and gaps were as much related to succession interruptions arising from a long prelude of relative inactivity in the central industry (i.e., shipbuilding), as they were to the reticence of employers or potential employees to pursue the type of deeply marinized training and specialization required to elevate workforce skill to the vanguard of the industry. Challenges of looming mass retirements were predicted, while entry level roles went ignored by a young cohort of new talent lured to higher profile industries. A robust national workforce strategy for the broader industry would have had

1 The National Shipbuilding Procurement Strategy was announced by the Canadian government for a new fleet of naval and Coast Guard ships. It is now referred to as the National Shipbuilding Strategy.

to consider roles ranging from new apprentices and Red Seals² on the skilled trades side, as well as the engineering technicians, engineers, and other traditional professional roles on the design and innovation side. Add to that list the numerous operational, management, supervisory, business development, and project management roles that sustain these sectors and, finally, the research and observation roles that carve the academic anchors to the industry. In other words, just about every role that can conceivably be done in, on, or around our oceans. Perhaps because of this complexity, a robust national workforce strategy has yet to be launched.

With so much opportunity, it was hoped, and perhaps expected, that recruitment would present the lowest hurdle. But, for an industry that has been beset by disheartening cycles of boom and bust, repatriation of experienced workers from more stable or lucrative industries presented a daunting and immediate challenge. Any optimism in the ease of recruitment was doused by the reality that the industry, lacking visibility and prominence, was simply not on the career radar of our next generation of workers.

The Marine People Partnership (MPP) was formed in 2014³ to examine these workforce challenges, focusing research and program development on building national workforce pipelines for the future. What became evident early in the project was the critical role that ocean literacy and career literacy would play in both re-orienting experienced domestic talent towards marine careers, and in cultivating sustainable succession by attracting new young talent. MPP activities, with an eye on the future workforce, have focused primarily on the latter group. The principal query being, how to engage future workforce in an industry that is prolific and yet invisible?

A study of more than 14,000 youth across the province of Nova Scotia challenged several prevailing assumptions, including that young people have (a) ample exposure to, (b) high levels of awareness of, (c) strong interest in, and (d) positive attitudes towards our oceans and their industries; all common prerequisites for career consideration.⁴ Surprisingly, the study found that youth in the region do not have much exposure to oceans. Indeed, during the

2 The Interprovincial Red Seal Program was established to help harmonize training and certification requirements for skilled trades across Canada.

3 The Marine People Partnership was formed with support from Irving Shipbuilding as part of their value proposition commitment to strengthen the Canadian marine industry under the National Shipbuilding Strategy.

4 S. Scully, *Student Intentions and Perceptions Study: Findings, Analysis and Recommendations* (Halifax: Institute for Ocean Research Enterprise, June 2016), <http://iore.ca/marine-people-partnership-mpp/>.

pilot study conducted in Antigonish, Nova Scotia, a disproportionate number of students indicated that they had not visited the ocean in the past year, and most students could not recall the last time they had had an ocean encounter. Correspondingly, in the Primary to Grade 12 school system, few ocean concepts are included in the curriculum. Apart from an optional, non-academic science course offered in grade 11, there are limited opportunities to explore ocean sciences in the public-school system. These findings underscore the point that our youth have had limited opportunities for planned or spontaneous learning about our oceans from the two most obvious channels to do so.

The study also revealed low levels of awareness of the myriad marine sectors and careers, many of them operating literally in the students' backyards. Data from surveying more than 14,000 students indicated highest levels of awareness for traditional marine careers such as the Navy (87 percent), shipbuilding (64 percent), and commercial fishing (75 percent), but little awareness of other newer, non-traditional ocean careers such as ocean robotics (32 percent), ocean technologist (35 percent), and marine fitter (underwater welder—16 percent). This data suggested that public understanding of what comprised the region's marine industry had not progressed much beyond the turn of the century—the other century!

In a region surrounded by water, it is easy to assume that youth interest in oceans is both inherent and unavoidable. However, the study showed that only 13 percent of youth indicated they would be interested in a career in the marine industry. Even more disheartening were their explanations. Nearly 40 percent of open-text responses conveyed apathy or lack of curiosity towards oceans. The responses included:

- Grade 7 male, “because I don’t have enough interest in the sea and stuff that has to do with that job”
- Grade 8 female, “I do not care about the ocean or anything that it inhabits. If jobs in the marine industry is all Nova Scotia has to offer, then I won’t be living here”
- Grade 7 female, “because I don’t have any interest in marine science”

Perhaps even more alarming was the 37 percent of youth who provided disparaging or fearful responses:

- Grade 9 female, “fish are gross and I don’t care about whales”
- Grade 7 male, “because I hate fishing and getting dirty”
- Grade 6 male, “because I don’t like being around the water where it’s really cold”
- Grade 7 male, “because I don’t like water its spooky”

Such fear, apathy or disdain for a resource that should inspire inquisitiveness and adventure must give pause to those of us tasked with educating the next generation.

Overall, open-text responses revealed that perceptions and intentions were subject to early bias formed from lack of information or misinformation:

- Grade 8 female, “because I am interested more in jobs that involve math and science”
- Grade 6 male, “because I would like to be an engineer when I grow up and I don’t really like marine jobs in general”

Not only did these responses express opinions that were misinformed, they demonstrated that perceptions of ocean careers among this cohort remain anchored to stereotypes of traditional, brawn-oriented versus contemporary, brains/high tech-oriented careers. A second 2017 study, with Indigenous youth from Mi’kmaq community schools found similar results, demonstrating that these biases, in addition to being formed early, are pervasive across regional cultures.⁵

In addition to lack of exposure, awareness, misinformation, and lack of curiosity-born interest, another surprising factor at play was the region’s marine heritage. A common assumption was that the region’s long history of marine activities would work to favor attitudes and interest. Heritage seemed to work counterintuitively, reinforcing negative and narrow stereotypes and assumptions, and denigrating ocean careers rather than legitimizing them. Some youth indicated that they were directly coached by parents to not pursue ocean careers:

- Grade 9 male, “A large amount of my family has had a job related to the marine industry so I am aware that it would not be in my best interest to pursue one.”

This revealed additional hurdles: (1) negative narration and (2) parental influence. Both point to a stark need for ocean literacy and career literacy for youth and their parents.

Formal ocean education has typically focused on life science and ecological concepts, as these present compelling and accessible curricular entry points. Ocean literacy is necessary to build awareness of other concepts and disciplines within the ocean domain, including marine engineering, technology, ocean economics, and other career themes. Several marine sectors lend themselves to an integrated curriculum that can include concepts relating to engineering, ecology, economy, and sustainability, as well as culture and society, and innovation and entrepreneurship. Where teachers themselves might not be well informed about regional ocean industries, several groups exist, like

5 S. Scully and A. Naylor, *Student Intentions and Perceptions Study: Mi’kmaq Schools. Report of Findings, Analysis, and Recommendations* (Halifax, NS: Institute for Ocean Research Enterprise, 2017), <http://iore.ca/marine-people-partnership-mpp/>.

MPP, OCEANS-NS, and Techsploration to provide the professional development and resources to support teachers in delivering experiential instruction.

We also need to look to extracurricular activities and programs like those offered through Nova Scotia Sea School to contribute to the ocean literacy offerings with experiential and hands-on opportunities.⁶ A robust ocean education in school, coupled with extracurricular programs, can have expanded reach and impact, particularly to under-represented workers, including First Nations youth, females, new immigrants, and African Nova Scotians.

But a focus on ocean literacy in schools will only solve half of the problem. Studies have found that parents are the strongest influencers in young peoples' career decisions. Their influence is irrefutable and constant, from extra-curricular choices, to course selection, to spontaneous experiences and conversations at home, and of course, to post-secondary and career pathways. As the adage goes, a little information can be a dangerous thing, and in this case, it may inform negative narration that explicitly or implicitly steers young people away from emerging and fascinating marine industries. Ocean literacy initiatives must be augmented to have a dual focus that includes parents to help them build awareness, overcome bias of traditional industries, dispel perceptions of more privileged pathways, and to provide the endorsement that our young people need to consider an ocean career.

For some, interest and curiosity in the ocean is born from some exceptional experience that sparked a desire to know more. For some, their involvement in oceans has been serendipitous and uncalculated. Indeed, this has been true for many entrepreneurs in ocean technology and marine energy sectors who had a good idea that took off once applied to a marine environment. For others, it was the absence of direct experience that generated intrigue, letting imagination turn vicarious two-dimensional experiences into pivotal career deciding occurrences. This reminds us that the opportunity to engage youth does not require coastal access. Experiential learning is not reliant on 'sand between the toes'. It requires 'hands on' and 'heads on' exploration that can occur in any classroom or region.

Perhaps the most disheartening finding from the study discussed here, was that so many youth were dismissing an entire industry of potential career options for themselves because of lack of awareness, misinformation, and bias. Opportunities to cultivate engagement and curiosity had gone unexploited. Ocean literacy coupled with career literacy can address these issues and build awareness of the 'new' ocean careers and pathways. It can highlight the innovative and high-tech reality of modern-day ocean careers, unite previously

6 "Our Programs," The Nova Scotia Sea School, <http://www.seaschool.org/programs>.

polarized sentiments relating to ocean ecology and ocean economy, and leverage curiosity and cultivate it into passion. Marine careers aside, our youth simply need to be more informed about a key resource that covers 70 percent of the planet, of which less than 5 percent has been explored! Ocean industries generate C\$4.5 billion for Eastern Canada's regional economy,⁷ and provide approximately 35,000 jobs to families in the region.⁸ We owe it to our youth to give them an opportunity to understand this resource and this industry better, so that even if they choose not to explore a marine career—it will at least be an informed 'no'.

⁷ Halifax Partnership, *Halifax Investment Profile* (2016).

⁸ "Halifax: Canada's Ocean City," Halifax Partnership, 2017, <http://CanadasOceanCity.com>.