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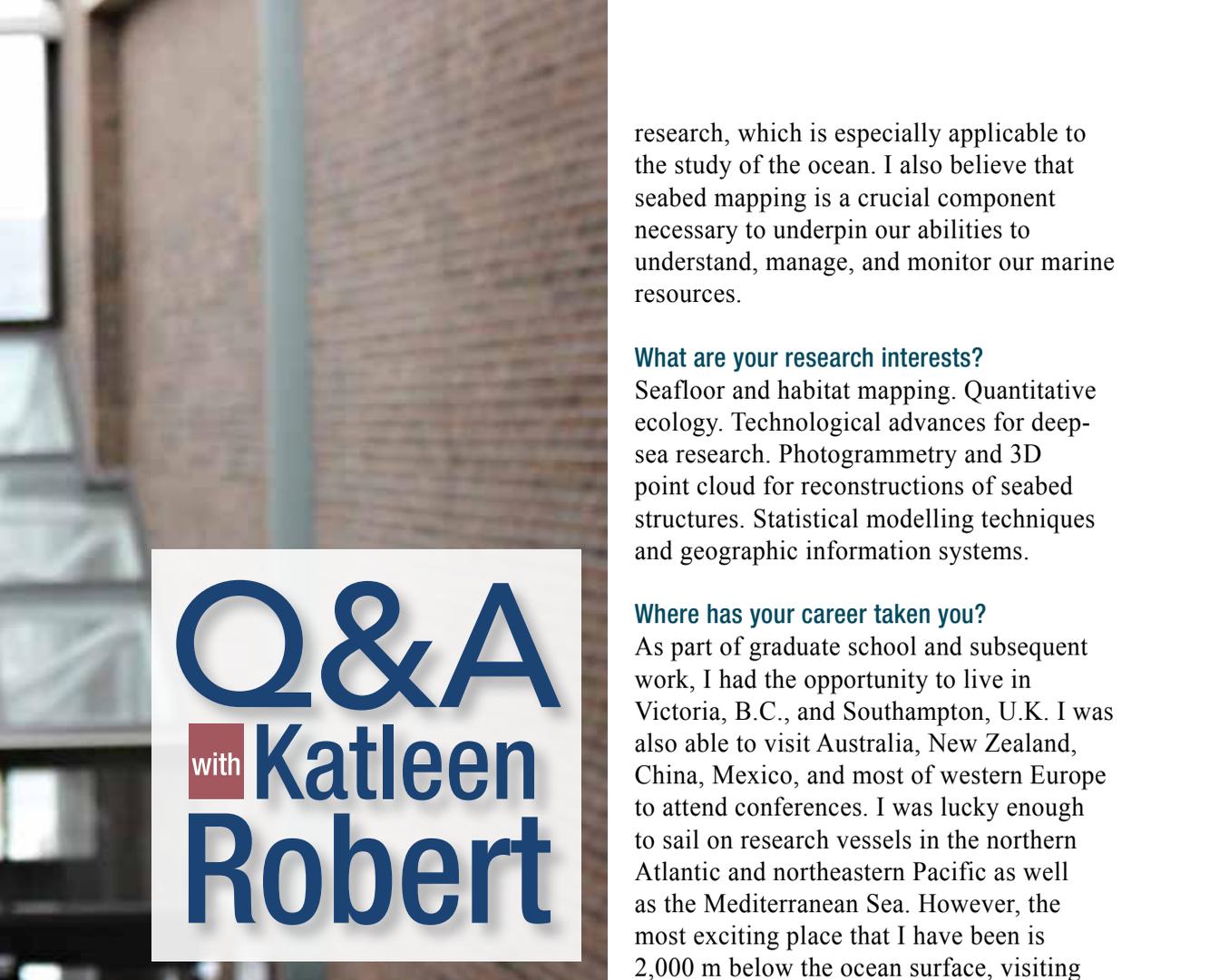
Where were you born? Where is home today?

I was born and grew up in the suburbs of Montreal. Today, I live in Paradise, N.L.

What is your occupation?

I am an Assistant Professor within the School of Ocean Technology, Fisheries and Marine Institute (MI) of Memorial University, where I hold the Canada Research Chair in Ocean Mapping.

I have a M.Sc. from the University of Victoria working with cabled observatories to look at the response of benthic fauna to temporal changes in environmental variables. My PhD is from the University of Southampton where I focused on high resolution deep-sea mapping to study how environmental variables drive spatial



Q&A

with **Katleen Robert**

patterns in benthic habitats. Building on this, in my laboratory at MI – 4D Oceans – we look at mapping the spatio-temporal complexity of our ocean to understand the relationships between species, habitats, resources, human activities, and changing environmental conditions.

I have worked with remotely operated vehicles, autonomous underwater vehicles, and human occupied vehicles; and participated in 10 offshore research expeditions on Canadian, American, British, Irish, and Spanish vessels looking at seafloor environments such as abyssal plains, submarine canyons, and cold-water coral reefs.

Why did you choose this occupation?

I really enjoy the discovery component of

research, which is especially applicable to the study of the ocean. I also believe that seabed mapping is a crucial component necessary to underpin our abilities to understand, manage, and monitor our marine resources.

What are your research interests?

Seafloor and habitat mapping. Quantitative ecology. Technological advances for deep-sea research. Photogrammetry and 3D point cloud for reconstructions of seabed structures. Statistical modelling techniques and geographic information systems.

Where has your career taken you?

As part of graduate school and subsequent work, I had the opportunity to live in Victoria, B.C., and Southampton, U.K. I was also able to visit Australia, New Zealand, China, Mexico, and most of western Europe to attend conferences. I was lucky enough to sail on research vessels in the northern Atlantic and northeastern Pacific as well as the Mediterranean Sea. However, the most exciting place that I have been is 2,000 m below the ocean surface, visiting a hydrothermal vent on the west coast of Canada in the submersible *Alvin*.

If you had to choose another career, what would it be?

I would have liked to join the coast guard or the circus.

What hobbies do you enjoy?

I enjoy sailing, rock climbing, scuba diving, and aerial silks.

Where do you like to vacation?

These days most of my vacations are linked to conferences or involve visiting family in Montreal or Toronto. The place I would really like to visit is Japan. Luckily the next Deep-Sea Biology Symposium will be there in 2021; I might get lucky enough to attend.

Who inspires you?

Marie Tharp. You probably have never heard of her, but you most likely have seen her work. With her colleague, Bruce Heezen, they created ocean maps in greater details than had previously been accomplished, starting in the 1950s before women could join ship expeditions. When they were published, these maps were crucial in supporting emerging ideas regarding seafloor spreading and continental drift.

What do you like most about working in this field?

Doing fieldwork, especially offshore and in deeper settings where so much still remains to be discovered. I love watching seafloor features getting mapped for the first time at high resolution and knowing that I am the first person to see them.

What technological advancements have you witnessed?

I have only been doing this for 10 years, but already I have seen huge changes in the amount of data that are being acquired. At the beginning of my PhD, I spent hours digitizing video tapes; now I am acquiring terabytes of

4K videos and soon this will be routinely done using autonomous underwater vehicles.

What does the future hold for this industry?

I hope to see the entirety of the world's ocean mapped before I retire. Considering global initiatives such as Seabed 2030, I think this is very likely to happen. Afterwards, we can concentrate on acquiring higher and higher resolution data.

What new technologies would you like to see?

We are already seeing huge improvements in the capacity of autonomous vehicles, but I look forward to seeing swarms of them characterizing multiple parts of our marine ecosystem in a coordinated effort using intelligent adaptive approaches. To process all the acquired data, I look forward to greater application of machine-learning approaches to large ocean datasets.

What advice do you have for those just starting their careers?

Learn how to learn. It is a very fast moving industry and you will need a strong ability to learn independently if you want any hope of keeping up.