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feature article

Offshore Research from a Musical Perspective

—C. Forbes Horton '02, Shellfish Operations Manager & Research Vessel Captain, UNH's Open Ocean aquaculture Demonstration Project

The rumble of a research vessel's engines below deck sometimes reminds me of riding the Number One Express train to class.

My academic career began at a small music school in New York City's Greenwich Village. I played upright bass and studied Jazz. After a semester I realized that a career in music might be different from my boyhood dream of playing in the smoky underground layer of the Village Vanguard, or the elevated stage of the Blue Note. My gigs in coffee shops and at company functions were tolerable, and some were even fun, but endless renditions of "The Girl from Ipanema" were a long way from the thrilling, interwoven horn parts and improvised melodies I had dreamt of performing.

When I transferred to the University of New Hampshire, though my musical interest still burned deeply, I was looking for something new. I had heard through a family friend that Jackson Estuarine Laboratory needed a lab technician. The idea of a lab coat, test tubes, and beakers could not have been more unappealing, but I decided to investigate the tip nonetheless. After getting lost twice on the way to UNH's most secretive and remote outpost, I finally arrived, 20 minutes late. There I discovered the most amazing thing: on Adams Point between Great and Little bays was a modest brick building with a view that could stop time.

I found someone inside and asked if they knew where I could find Dr. Richard Langan. "He's out on the oyster float," a young woman said with a smile and directed me toward the dock. As I made my way out to the pier, I saw rows of tanks gurgling with seawater. People were jotting in note pads and reading numbers off of strange looking instruments. Not a lab coat or beaker in sight.

On the dock I introduced myself to Dr. Langan and apologized for my tardiness. He wasted no time, instructing me to get on the boat and immediately explaining the principles of shellfish aquaculture in an estuarine environment. I smiled and nodded as if I understood, and wondered, what am I getting myself into?

After the tour, we returned to his office and discussed the job. He was looking for someone who could run boats, and who was mechanically inclined and eager to learn. I described my experience working with a professional yacht delivery crew, and my extensive sailing background, and he offered me the job. It took a week to realize the opportunity I had been given, and after a month I could not believe my good fortune. I was



working on the water every day, learning to grow one of the most delicious creatures in the sea, *Crassostrea virginica*, the American oyster.

Evolving Perspective

Not to say that the evolution from music to biology major was easy. My academic world, formerly made up of key signatures and accidentals, was now composed of mitochondrial membranes and long carbon chain interactions.

Initially, I was frustrated with biology's seeming lack of flexibility and imagination. Research science did not seem to enjoy the same level of personal interpretation as music. It was not until I started asking my own questions that I realized that creative thought was necessary in the sciences. Data may have little room for personal interpretation, but the development of hypotheses and methods of data collection require free thinking.

As I became more involved with research, my preconceptions of the world of science changed. I had once believed in the stereotype of scientists using thick tape holding their glasses together and pocket protectors to store their pens. That image was completely shattered by the professors and professionals I encountered-all of them extremely intelligent and often as creative as the hippest of my Jazz instructors.

Changing Course

My undergraduate research experience at Jackson Lab profoundly changed my career goals. After graduation, Dr. Langan invited me to work on his latest shellfish project, the cultivation of blue mussels in the open ocean, and I jumped at the chance. The mussel culture work is part of UNH's Open Ocean Aquaculture Demonstration Project (OOA), a team of scientists working together to develop environmentally friendly methods of raising finfish and shellfish in the Gulf of Maine.

Together, Dr. Langan and I pioneered the design of a submerged mussel longline system that is at the forefront of offshore mussel aquaculture technology. Five years after we started the project, he gave me the reins. Now I manage the blue mussel field operations and am the captain of UNH's newest research vessel. My responsibilities involve the development and testing of new materials and equipment, as well as the techniques of their use. I am engaged in the project's final stage of technology transfer, instructing local fishermen how to farm mussels as a commercial venture.

Presently, there are four longlines, anchored three miles off the coast of Rye, N.H., with six more scheduled for installation this spring. We hope mussel farming will prove viable as a source of income for New England fishermen; a ten-longline farm has the potential to produce 200,000 pounds of mussels with a market value of nearly a quarter of a million dollars. These farms require only weekly tending, so the work could be accomplished with little impact on a fisherman's existing schedule.

Making the Connection

When I tell the story of my academic past I often receive puzzled looks, but I never felt the transition was drastic or convoluted. There is a direct connection between art and science, and I think an understanding of both is one of the many ingredients for a successful scientific career.

My experiences at UNH are largely responsible for the transition from a career in music to a career in marine science. The professors I worked with, and the opportunities they provided, allowed me to develop skills and knowledge that could not be gained elsewhere. I often think about my music study when I am frozen to the core, soaking wet, and standing on the deck of a research vessel in January. But all it takes is the humming of a few bars of "The Girl from Ipanema," and the thought is quickly gone.

Author Bio

Cleaveland Forbes Horton graduated from UNH in 2002 with a B.S. in Marine and Fresh Water Biology. He now manages the shellfish aquaculture operations for UNH's Open Ocean Aquaculture (OOA) demonstration project and also captains the Meriel B., a fifty-foot research vessel. "I spend most of my time at sea, at the OOA site, tending the farm and testing new equipment," he explains. He wants to continue his career in aquaculture, focusing mainly on equipment design and function.