Steward of the Seas

MBL alumna Jane Lubchenco takes a holistic approach to ocean policy as NOAA's new head

When the president of the United States nominates you to lead a national agency, it's surely a life-changing event. Just ask marine ecologist Jane Lubchenco, who in March was confirmed as the new head of the National Oceanic and Atmospheric Administration (NOAA).

Lubchenco had barely settled into her new office when the president placed her on his Ocean Policy Task Force, which is on a fast track to define policy to restore and protect our marine ecosystems. A coherent plan to keep the oceans healthy has never been achieved in the United States, where a patchwork of federal, state, and tribal laws and private marine interests abides. Yet Lubchenco is energized by the task force's "willingness to tackle some tough issues and do the right thing."

"We know that there are many changes underway that are resulting in degradation of ocean systems, including climate change, nutrient pollution, transport of invasive species, and overfishing," she says. That is driving the task force members, who are from agencies as far-flung as the Navy and the Department of Health, toward a common purpose. "Our focus is very much on having healthy, productive, resilient ocean systems," she says. "There is a common commitment to be good stewards, to work together as partners. And that is pretty remarkable and exciting to be a part of!"

"Our focus is very much on having healthy, productive, resilient ocean systems," she says. "There is a common commitment to be good stewards, to work together as partners. And that is pretty remarkable and exciting to be a part of!"

While Lubchenco is thrilled to help shape a national solution to marine problems she cares deeply about, she is no less enthusiastic about another defining period in her life, when she first discovered her passion for science. Like many other scientists, it was during a summer she spent at the MBL.

"It was just a life-changing experience for me," says Lubchenco of taking the MBL Invertebrate Zoology course which, in its present form, is called Neural Systems and Behavior. Lubchenco grew up in the Colorado Rockies, and was no stranger to freshwater exploration. But in 1968, when she came to the MBL after her junior year in college, she says, "I discovered a whole new (marine) world that I didn't really know existed. And I found it endlessly fascinating. All those exotic creatures, so many different ways of making a living, so many types of body plans. The opportunity to be with world-class faculty at the MBL, each of whom was a specialist in a different type of marine invertebrate . . . the stimulating Friday Evening Lectures, the amazing culture and ambiance of the MBL and Woods Hole. Everything about it was exciting and energizing."

Vital Statistics

POSITION: Under Secretary of Commerce for Oceans and Atmosphere and Administrator of the National Oceanic and Atmospheric Administration (NOAA), the nation's top science agency for climate, oceans, and atmosphere. Lubchenco is the first woman and the first marine ecologist to lead NOAA, which has a $4 billion budget and 12,800 employees.

DEGREES: B.A. Biology, Colorado College; M.S. Zoology, University of Washington; Ph.D. Ecology, Harvard University.

HONORS: Include a MacArthur ("Genius") Fellowship, nine honorary degrees, membership in the National Academy of Sciences, and former presidency of the American Association for the Advancement of Science and of the Ecological Society of America.

BEST MEMORY OF HER MBL EXPERIENCE: "My exposure to the oceans was love at first sight and my life's work was set in motion."

Lubchenco had her first encounter with independent research at the MBL, learning "how to ask research questions and design experiments," she says. "It was a pivotal experience. It was transformative in helping me decide to pursue graduate research in marine sciences. I couldn't get enough of this stuff that I thought was really cool!"

In graduate school, Lubchenco's interests widened from marine invertebrates to the ecological interactions among them. "More recently, I've studied coastal ecosystems around the world," she says. "How do large marine ecosystems work? How are they changing? How are they influenced by human activities? How can we do a better job of managing them? Over time, my questions have evolved, which is what is fun about science."

As the scope of Lubchenco's research expanded, so did her awareness of human-induced threats to ocean health. Her work eventually intersected with that of MBL senior scientist Jerry Melillo, who has long studied the impacts of human activities on the environment. In 1997, Lubchenco and Melillo were among the co-authors of "Human Domination of Earth's Ecosystems," a paper published in the journal *Science*, and now a "citation classic" in the field of ecology. (Eight of Lubchenco's papers have earned this designation, and she is in the top 1% of highly cited ecologists in the world.)

While keeping both feet in marine sciences research as a faculty member since 1977 at Oregon State University, Lubchenco has engaged more and more in public policy, including service on the Pew Oceans Commission and the Joint Ocean Commission Initiative. She has come up against the difficulties of trying to manage the oceans rationally, when so many agencies and national groups have conflicting interests. Yet she sees something different happening on the new Ocean Policy Task Force, which gave its interim report to the president in September and will roll out its full report early next year.

"Our interim report states that healthy oceans matter, that stewardship is important, that we need to do a better job of managing more holistically," she says. "These are very powerful statements that have never been articulated by the federal family before."

As a scientist, the word "holistic" means a great deal to Lubchenco. For the first time, the nation is taking a scientific, ecosystems-management-based approach to stewarding our oceans, rather than tackling problems sector-by-sector and issue-by-issue. This is vital if the oceans are to provide us with "the full suite of ecosystem services that people want and need, whether it's safe seafood, clean beaches, stable fisheries, abundant wildlife, or vibrant coastal communities," Lubchenco says.

In the end, it's an affirmation of what the ecologist in her knows to be true. "It's more a holistic understanding of how our own health, prosperity, and well-being depend intimately on having healthy oceans and coasts." • — DK