

Letters to the Editor

To the Editor:

The recent "Census of Marine Life" issue of *Oceanography* was outstanding on many counts. One was the wide diversity of authors' specialties: biologists, physicists, chemists, acousticians, engineers, etc., all working on the common topic of life in the sea. This was not always the case. This *Oceanography* issue made me think about my first exposure to life in the sea.

As a career meteorologist with little knowledge of life in the sea, I came to the Office of Naval Research (ONR) to lead an Ocean Sciences Division, that included "Ocean Biology" run by Eric Hartwig and Bernie Zahuranec. Both patiently taught biology to a physicist. Others must have done the same, because we now have an excellent interdisciplinary community of biologists, and physicists (plus chemists, geologists, etc.) as evidenced by the aforementioned author diversity. Great progress.

Whenever I discussed my division's work around the dinner table, my family only showed interest in the biological part. Physical oceanography or marine meteorology, even wind and waves, only elicited polite patience. Life in the sea, however, captured their interest. It still does.

One day I saw my first bioluminescence pictures. I was told this was common in the sea but rare on land. That evening on a family walk, fireflies lit up. I proudly told the family this was "...a rare example of terrestrial bioluminescence". That phrase still rings out in the Weinstein family whenever someone sees fireflies. Bioluminescence was only one of the wonders of life that I learned. The diversity was wonderful. It still is. This *Oceanography* issue shows how vital that diversity is to society.

I end with one more story. One day, one of Eric Hartwig's successors in Ocean Biology started a presentation with the statement that the goals of all life in the ocean are to "eat, avoid being eaten, procreate, defecate, and respire." Someone from the Anti-Submarine Warfare part of the department, called out "Those are my goals, too!" I guess that shows how we are all in this world together.

Alan Weinstein
Office of Naval Research

To the Editor:

Kudos on an outstanding issue of *Oceanography*! The Census of Marine Life is, indeed, a daunting proposition, but it is one that must be addressed. Your final editorial comment was right on target—"unless we begin—we won't even know what we don't know."

I also want to take this opportunity to suggest that a future issue of *Oceanography* could be similarly devoted to a "census of microbial marine life." As you know, less than one tenth of a percent of the microorganisms living in the oceans have been isolated and characterized. Based on molecular signatures, we know that vast numbers of microbes exist in the oceans and in the ocean floor. These yet-to-be-cultured microbes represent a new scientific challenge and another need for a census.

Thank you for considering my suggestion and for your continued dedication to the ocean sciences.

D. Jay Grimes
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