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TITLE: William (Bill) M. Hamner (1939 - 2024)

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William (Bill) M. Hamner (1939 - 2024)

William (“Bill”) M. Hamner, a pioneer of ethological studies of avian and aquatic organisms who changed the way we think, particularly about the gelatinous zooplankton that suffuse the world’s oceans, died on 06 June, age 84 (Figure 1). Bill’s innovative approach to investigating pelagic animals married simple observation with unconventional methods in novel situations. This work spanned a half-century, beginning when he boldly moved marine science off the deck of ships, out of indiscriminating trawls that tend to macerate specimens, away from the accessible intertidal zone, and into the blue water of the pelagic realm. Bill’s ethological approach defined much of his life’s work and took him to extreme tropical outposts, the frigid waters of the Antarctic, and the depths of the ocean, always with his life-long collaborator in science and life, Peggy Hamner.

Bill was born in Long Beach, California in 1939. Growing up, he snorkeled with his father in the coastal waters of southern California in search of lobster and abalone and developed a desire to study marine biology. While earning his BA in Zoology at Yale, he married Peggy Prewitt, a student at nearby Wellesley College. After Bill graduated in 1961 they moved to Los Angeles, where Bill began a PhD program at the University of California with George A. Bartholomew. Bill prospered in the interdisciplinary culture favored by Bartholomew. His graduate work on the photoperiodic responses of house finch resulted in publications in *Science* (Hamner 1963) and *Nature* (Hamner 1964). As a Postdoc in the Brain Institute at University of California, Los Angeles, and then as a new faculty member at UC Davis in 1966, he branched out, exploring codling moth diapause and diurnal migratory patterns in marine crustaceans, including benthic isopods and a diversity of planktonic copepods, a shift in research focus due in part to a developing allergy to bird feathers. His early work was largely experimental, motivated by inconsistencies in the literature, which he read voluminously, and illustrated with anecdotal field observations to place a paradox in stark relief; his preferred tools were often transferred from other fields, surpassing disciplinary barriers and incremental change. Raising as many intriguing questions as insightful answers was par for the course for Bill, who was elected a Fellow of the American Association for the Advancement of Science in 1968.

Bubbling underneath, however, was a transformation in Bill’s work and a fundamental change for marine science. Intrigued by the behavior exhibited by plankton, he procured a berth on a midwater trawling cruise to the Gulf of California, aboard Stanford University’s R/V Proteus. During this cruise, he watched trawl after trawl bring aboard animals devoid of context and masses of unidentifiable gelatinous samples, an abomination for an ethologist. He talked a young graduate student (one of the authors: BHR) and a postdoc, Dan Hartline, into joining him on a SCUBA dive in the middle of the ocean to see what was there. That first blue-water SCUBA dive convinced Bill there was an entire ocean filled with

undiscovered organisms making curious livings using novel strategies and exhibiting intriguing behaviors unknown to science. It also demonstrated that this region of the ocean was foreign and disorienting to humans – without borders or reference points – and that new methods would be required to safely observe pelagic communities. Over the next three years, camping on the beach near Puerto Escondido in Baja California in 1970, at the Lerner Marine Laboratory on North Bimini in 1971–72, and back to the Gulf of California in 1973, Bill, Peggy, and students (including two of the authors: ALA, LPM) spent many hours observing undisturbed plankton *in situ* and in the laboratory. The value of the Bimini trip was two-fold: the Florida Current brought oceanic water close to shore, and the precipitous underwater drop-offs provided access to deep water organisms that migrated to the surface at night. Also, during the Bimini stay, Bill invited underwater photographers Al Giddings and Stan Waterman to visit, with whom he prepared an article for National Geographic, introducing the beauty of blue-water plankton to the world (Hamner 1974). Research articles describing and refining the novel *in situ* method of using SCUBA to study open-ocean planktonic organisms followed (Hamner 1975; Hamner et al. 1975e), creating the scientific blue-water diving technique still followed world-wide today. Bill inspired others to carry his *in situ* observation methods into deep water, beyond the reach of scuba, using advanced technologies including submersibles and Remotely Operated Vehicles.

However, Bill was not one to stick with a new idea and leverage it for all it was worth, nor was he interested in filling in the edifice of science brick by brick after establishing the framework. Focused on innovation rather than renovation, Bill was that rare breed, a ‘mad bomber’ of science, pivoting from one often seemingly outlandish project to another and whose major discoveries and next exciting ideas were the successes that truly advanced science. In the early 1980s, he introduced the scientific world — again via a marvelously written and illustrated National Geographic article (with David Doubilet; Hamner 1982) and accompanying scientific papers (Hamner & Hauri 1981; Hamner et al. 1982) — to the saline lakes of Palau. In these lakes ecological novelty was complemented by the ability to repeatedly sample the same population and environment through time, a challenge for much of plankton biology. Such confinement was integral to revealing the unexpected capacity of jellyfish for diel horizontal migration. Likewise, Bill embedded in plankton research the fundamental intersection of physical oceanography and plankton ecology, particularly around processes that create structure in an oftentimes (to us) featureless sea. Bill thus documented numerous unexpected behaviors in marine taxa: sun-compass migration by moon jellyfishes; schooling, scent tracking, and ice-algae feeding in Antarctic krill; the selective diets exhibited by ctenophores; and the use of mucous webs for feeding by many phyla. The link between form and environment was an abiding interest of Bill’s, and though often attuned to the opportunities provided by exceptions and novelty, he also was struck by the evidence of adaptation that he considered obviously illustrated by the

convergence of so many unrelated taxa on soft transparent bodies in the epipelagic ocean.

Eclectic in his scientific interests, Bill found colleagues in diverse disciplines with whom to develop long-standing collaborations, and he was not averse to revisiting topics with later students for whom he'd negotiate a home-away-from-home, for example at Monterey Bay Aquarium Research Institute or in Palau, from which some of us benefited greatly. His advising style could appear simple — a nudge in the right direction, suggestions to choose among, the guidance to “just do it right”, which would be met with a “good job” when showing him something new (even if it was perhaps something he already suspected) — and reflected his guiding belief that fascinating things were there to be discovered by anyone who looked and shared. And sharing was, Bill understood, key to scientific discovery. Beyond his 70+ scientific papers, he published two further articles for National Geographic Magazine (on Antarctic krill [Hamner 1984] and Australian box jellyfish [Hamner 1994]), his work in Palau was featured in the IMAX movie “The Living Sea”, and he advised the Palau national government and others on marine policy and conservation. Over the entirety of his academic career, Bill mentored more than 30 PhD and MSc students, and served on countless graduate committees. As a professor at UCLA he was PI on several education grants with Peggy that brought the wonders of marine science to hundreds of K-12 teachers, and by extension to tens of thousands of young students. After retirement he volunteered to teach marine science courses for a continuing education program at the University of Alabama.

For their many contributions, Bill and Peggy were awarded NOGIs in 2010 by the Academy of Underwater Arts and Sciences. Bill also was feted at the 7th Jellyfish Blooms Symposium, in Kerala, India, November 2023, the latest in a series of symposia to which Bill's framework of a functional taxonomy for epipelagic organisms including gelatinous zooplankton, his work in plankton ethology, migration, and biophysics of aggregations, had been fundamental. Although he was unable to attend such a distant meeting in person, his impact remained and afforded us the opportunity to ask him questions remotely. Which of his observations most deserved additional work? He responded: how largely radially symmetric plankton could exhibit functional bilateralism, swimming in a particular orientation for tens-of-minutes when exploiting thin, horizontal layers of prey in the open sea. What opportunities were we missing? That most of the people looking at plankton in blue water are recreational and professional scuba divers, not scientists, he said. He thought black-water diving “is neat” and, likewise, an opportunity being largely missed by researchers. That the technological and molecular age is powerful, Bill understood, but he also knew the secret to appreciating the ecology and evolution of plankton is in coupling new techniques with careful first-hand observation of the creatures in their natural habitats. Bill taught us not only to look for, but also to ‘see’, the wonders hiding in plain sight.

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Peggy Hamner provided details on Bill's early life for this obituary, and so much more over the years. Peggy, we are all deeply grateful for you, your support, and friendship. Thank you. Hugs.

References

- Hamner, W. M. 1963. Diurnal rhythm and photoperiodism in testicular recrudescence of the house finch. *Science* **142**: 1294-1295. doi:[10.1126/science.142.3597.1294](https://doi.org/10.1126/science.142.3597.1294)
- Hamner, W. M. 1964. Circadian control of photoperiodism in the house finch demonstrated by interrupted-night experiments. *Nature* **203**: 1400-1401. <https://doi.org/10.1038/2031400a0>
- Hamner**, W. M. 1974. Ghosts of the Gulf Stream: Blue-water Plankton. *Natl. Geogr. Mag.* **146**: 530-545.
- Hamner**, W. M. 1975. Underwater observations of blue-water plankton: Logistics, techniques and safety procedures for divers at sea. *Limnol. Oceanogr.* **20**: 1045-1051. doi: [10.4319/lo.1975.20.6.1045](https://doi.org/10.4319/lo.1975.20.6.1045)
- Hamner**, W. M. 1982. Strange world of Palau's salt lakes. *Natl. Geogr. Mag.* **161**: 264-282.
- Hamner**, W. M. 1984. Krill: Untapped bounty? *Natl. Geogr. Mag.* **165**: 626-643.
- Hamner**, W. M. 1994. Australia's box jellyfish: a killer down under. *Natl. Geogr. Mag.* **186**: 116-130.
- Hamner**, W. M., L. P. Madin, A. L. Alldredge, R. W. Gilmer, and P. P. Hamner. 1975. Underwater observations of gelatinous zooplankton: Sampling problems, feeding biology, and behavior. *Limnol. Oceanogr.* **20**: 907-917. doi: [10.4319/lo.1975.20.6.0907](https://doi.org/10.4319/lo.1975.20.6.0907)
- Hamner**, W. M., and I. R. Hauri. 1981. Long-distance horizontal migrations of zooplankton (Scyphomedusae: *Mastigias*). *Limnol. Oceanogr.* **26**: 414-423. doi: [10.4319/lo.1981.26.3.0414](https://doi.org/10.4319/lo.1981.26.3.0414)
- Hamner**, W. M., R. W. Gilmer, and P. P. Hamner. 1982. The physical, chemical, and biological characteristics of a stratified, saline, sulfide lake in Palau. *Limnol. Oceanogr.* **27**: 896-909. doi: [10.4319/lo.1982.27.5.0896](https://doi.org/10.4319/lo.1982.27.5.0896)



Figure 1. (*Top left*) Bill in his office at the Lerner Marine Lab in Bimini, 1971. Photo credit: A.L. Alldredge. (*Bottom left*) Bill and Peggy Hamner, 2011; screenshot from NOGI awards video. Photo credit: S. Hamner. (*Right*) Bill, preparing for a blue water dive off the team's Boston Whaler, Bimini, 1971-2. Photo credit: L.P. Madin.