

In Memoriam Carl J. Sindermann 1922–2019

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**IN MEMORIAM
CARL J. SINDERMAN
1922–2019**

Dr. Carl James Sindermann, an Honored Life Member of the National Shellfisheries Association, died in Easton, MD, on April 26, 2019, at the age of 96. Carl's distinguished career began in the 1950s and spanned six decades as a highly respected research scientist, administrator, and author. Carl's first interest in parasitology was piqued by a senior project at the University of Massachusetts when he successfully described the complete life cycle of an invasive flatworm known to be destroying native earthworms. His curiosity turned to the marine environment during graduate school when he discovered a fungal agent that caused mortalities in herring. After earning his doctorate, Carl worked briefly in academia before dedicating himself to the ranks of civil service as a research scientist. His accomplishments in research and talent for administration were rapidly recognized, and he quickly advanced to lead several east coast fishery research laboratories (more below) early in his career. In addition to a vast legacy of technical publications, Carl is credited with guiding generations of scientists in his insightful series of "how to" (or "how not to") career books.

Dr. Sindermann was born in North Adams, MA, on August 28, 1922 and lived nearby in Blackinton where he met and married his high school sweetheart, Joan Provencher. In 1946, Carl enrolled in the University of Massachusetts on the G.I. Bill after serving in the U.S. Army in Europe during WWII. He graduated with a bachelor of science in zoology in 1949 and earned a Ph.D. in biology from Harvard University in 1953. Early in his career, Carl enjoyed teaching at Harvard Medical School and Brandeis University in Boston and spent the summers in Maine with Joan and their growing family where he conducted research at Boothbay Harbor Fisheries Research Laboratory.

Dr. Sindermann left academia in 1956 to accept a research position with the former federal Bureau of Commercial Fisheries (BCF) at Boothbay Laboratory where his investigative and administrative competencies swiftly propelled him into the executive arena. In 1963, Dr. Sindermann became the director of a BCF facility, Oxford Biological Laboratory (now National Oceanic and Atmospheric Administration's Cooperative Oxford Laboratory in partnership with Maryland Department of Natural Resources), which opened in 1960 to investigate epizootic mortalities of eastern oysters in Chesapeake and Delaware bays. Under Dr. Sindermann's direction, Oxford Laboratory rapidly became an epicenter of fish and shellfish disease research and shellfish culture. In 1967, Dr. Sindermann moved to Miami, FL, to assume duties as the director, Tropical Atlantic Biological Laboratory and then directorship of the Middle Atlantic Coastal Fisheries Center in 1970 in Sandy Hook, NJ. In the latter position, he provided oversight of several National Marine Fisheries Service laboratories including Sandy Hook Laboratory (NJ), Milford Laboratory (CT), and Oxford Laboratory (MD). In 1976, he advanced to assistant director for environmental management of the Northeast Fisheries Science Center in Sandy Hook, NJ. After 35 years of federal service, Dr. Sindermann entered well-earned retirement in 1990 and moved with his wife back to the eastern shore of Maryland to reside near family. With much to say but much still left unsaid (Sindermann 2015), he returned to the Cooperative Oxford Laboratory as a visiting scientist spending many

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productive hours mentoring and adding to his vast legacy of scientific publications over the next 29 years.

Dr. Sindermann's intellect, keen wit, and diplomacy gained him the respect and admiration of scientists, managers, and administrators at local, regional, national, and international levels. His interactions with scientists in Japan, South Korea, and Taiwan in the 1960s and 1970s set the stage for long-term international collaborations that provided direct exposure to successful shellfish production programs. Research biologists from the United States and Japan simultaneously compared two different culture methods of growing oysters on raised wooden racks or suspended from rafts at the Oxford Laboratory and Sendai, Japan. This new technology of shellfish raft culture in shallow coastal waters quickly resulted in a major food-producing industry for Japan. These early collaborations led to the establishment of a U.S./Japan Joint Panel on Natural Resources (UJNR) for Aquaculture to facilitate future opportunities for technology transfer between the two nations. The UJNR (Aquaculture) celebrates its 50th anniversary this year.

Dr. Sindermann was recognized not only for his research acumen but also for his role in the development of international protocols to secure safety in international fisheries trade. His expertise in fish and shellfish disease led him to be concerned about proposed imports of shellfish into the United States despite warnings by scientists that live imports can lead to disease events in similar or disparate species. He provided expert guidance on this and other critical issues during his service on the International Council for the Exploration of the Sea (ICES) working groups in the 1970s and 1980s (e.g., Fisheries Improvement, Marine Aquaculture, Marine Pathology, and Introduced Species, the latter which he chaired for a decade). A key outcome of the working groups was the issuance of the ICES "Code of Practice" which provides measures for the safe transfer of aquatic species to new locations to reduce the risks of pathogen introductions. These guidelines remain the standard followed today by most European countries and much of the United States.

When Dr. Sindermann became the director, Middle Atlantic Coastal Fisheries Center in 1975, his attention was drawn to the impacts of coastal pollution on marine organisms; likely a consequence of the center's location on the New York Bight (Ford 1999). Dr. Sindermann rapidly integrated his disease expertise with escalating evidence that linked contaminants to disease in marine fish and successfully navigated the center into becoming a leader in marine environmental pollution research. In 1996, he produced the seminal publication *Ocean Pollution—Effects on Living Resources and Humans*.

Over the decades of his career, Dr. Sindermann produced several major contributions to science on ocean pollution, coastal pollution, and marine aquaculture. A prolific writer, he produced more than 150 scientific articles and books during his career and into his retirement. An early article *Disease in Marine Populations* (1963a) was the basis of his 1970 book *Principal Diseases of Commercially Important Marine Bivalve Mollusca and Crustacea* which won the Wildlife Society of America award for best scientific publication in fisheries. In 1990, Dr. Sindermann expanded and reissued the book in two volumes. The thousand-page treatise remains a fundamental resource to fishery and environmental scientists today.

Carl received many honors and awards throughout his career, only a few of which are noted here. He was selected as an Antarctic observer by the U.S. Department of State and was an invited lecturer at the Royal Society of London and the Zoological Institute of the Soviet Academy of Sciences. In 1967, he was a member of a BCF advisory group to the National Aeronautic and Space Administration on back contamination from lunar exploration. In 1975, he was awarded a silver medal from the Department of Commerce for administrative and research activities. He was the president (1980–1981) and board member of the World Mariculture Society, and the chairman of New Jersey Sea Grant Advisory Board (1981–1983). He served on numerous grant evaluation panels for National Science Foundation, National Sea Grant Program, U.S. Department of Agriculture, and other agencies. In 1991, Dr. Sindermann was selected as an Honored Life Member of the National Shellfisheries Association. He also served on editorial boards of major scientific journals including *Aquaculture*, *Chesapeake Science* (now *Estuaries and Coasts*), *Journal of Fish Biology*, *Journal of Invertebrate Pathology*, and *Proceedings of the National Shellfisheries Association* (now *Journal of Shellfish Research*), and he was a scientific editor of *Fishery Bulletin*.

Although Dr. Sindermann left academia early in his career to join the federal service, he continued to maintain strong university connections with teaching institutions and students as a visiting or adjunct professor. He taught courses in invertebrate zoology, marine biology, fish pathology, and marine parasite ecology at a number of universities including Georgetown, Florida Atlantic, Lehigh, Cornell, Miami, Guelph, and Rhode Island. Dr. Sindermann was an insightful mentor who encouraged students and

colleagues to challenge the dogma of science and overcome inherent biases in the scientific field. He produced a unique and engaging series of "how to" books offering career advice to both budding and advanced scientists with such titles as *Winning the Games Scientists Play* (1982), *Survival Strategies for New Scientists* (1987b), *The Woman Scientist* (1992), and *The Scientific Research Laboratory Director* (2012).

Dr. Sindermann attributed the completion of the last book in his "how to" series (*World Travels with a Peripatetic Marine Scientist* 2015) to his family who helped to guide its review, illustration, and publication. In his *Forward*, Carl described the joint endeavor as "...a family production and I am happy with it. Writing the book has of course brought to mind many pleasant places and days and people, so the whole exercise has been another pleasant journey for us...."

Dr. Sindermann was preceded in death by his wife of 72 years who often accompanied him on his travels to participate in scientific meetings and advisory councils across the



United States and abroad. They are survived by four children, 11 grandchildren, and eight great-grandchildren. Their oldest son, James Joseph Sindermann, died a few months after the death of his father. His professional and personal achievements leave behind indelible legacies that will be revered by his colleagues, the scientific community, and his family and friends for many generations. His keen intellect, perceptive insights, and wise counsel benefited many and were tremendously impactful to ocean policy and stewardship. He was an outstanding scholar, leader, gentleman, mentor, and role model. He will be long remembered by a cadre of scientists, administrators, students, and friends for his warm wit and modest decorum as well as his many outstanding contributions to the advancement of science.

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