

Obituary

John Richard Preston, 1945–2021



John Richard Preston passed away on April 20, 2021, in State College, Pennsylvania.

John received a BSc degree in physics from the University of Massachusetts, Amherst; MSc in physics from the University of Maryland, College Park; and MSEE degree in physics from George Washington University, Washington, DC. He received his PhD in acoustics from The Pennsylvania State University (Penn State), University Park.

Initially, John worked at Tetra Tech, Inc., Rosslyn, VA, from 1973 to 1983 and served as vice president at Amron Corporation, Washington, DC, from 1983 to 1989. After 16 years in the private sector, John joined the NATO Centre for Maritime Research and Experimentation (then SACLANTCEN), La Spezia, Italy, as a research scientist from 1989 to 1995. He then joined the Applied Research Laboratory at Penn State from 1995 to 2015 when he retired but remained as emeritus research associate.

Within the community, John was recognized as an exceptionally gifted scientist, both for his attention to experimental detail and his collaborative nature. Collaborative measurements are a crucial part of underwater acoustics research. This is driven by the large resource requirements to conduct them and the technical breadth of data that requires both experimentalists and theorists to interpret. He was chief scientist on several ocean acoustic experiments involving multiple ships and international partners, and he participated in numerous others.

John's major scientific contributions have been in the collection and analysis of data using towed arrays. For the interpretation of long-range reverberation, he developed polar plots in which the towed array beam time series are georeferenced and overlaid on the underlying bathymetry. This allows scattering features to be mapped and potential targets identified and is now standard in many naval operational systems. Later, he pioneered the extraction of quantitative environmental information

from reverberation data, in a number of NATO Rapid Environmental Assessment exercises. He was elected a Fellow of the Acoustical Society of America.

At Penn State, John was asked by the Office of Naval Research to specify a towed research array with a high dynamic range and to oversee its construction, maintenance, and deployment at sea; this became the Five Octave Research Array (FORA). In contrast to many research arrays, FORA worked. This was not simply good luck. The design, choice of manufacturer, and maintenance of it were critical items. As well as the hardware aspects, John spent a great deal of effort making sure the data were accurately calibrated and of the highest quality. Many researchers used the data he collected. He participated in the geoclutter program and follow-on experiments. These determined that geoclutter (spurious seabed scattering that interferes with target detection) was, in some circumstances, really bioclutter (fish).

In summary, during a career spanning 45 years, he pioneered numerous efforts in underwater acoustic measurements and analysis and research array developments. He is clearly recognized as a key leader in the field and a strong and valuable collaborator and will be greatly missed by his colleagues and family.

Selected Publications by John Richard Preston

- Preston, J. R. (2000). Reverberation at the Mid-Atlantic Ridge during the 1993 ARSRP experiment seen by R/V Alliance from 200–1400 Hz and some modeling inferences. *The Journal of the Acoustical Society of America* 107, 237–259.
- Preston, J. R. (2007). Using triplet arrays for reverberation analysis and inversions. *IEEE Journal of Oceanic Engineering* 32, 879–896.
- Preston, J. R., and Ellis, D. D. (2009). Extracting bottom information from towed-array reverberation data. Part I: Measurement methodology. *Journal of Marine Systems* 78, S359–S371.
- Preston, J., and Nisley, R. (1978). Single frequency modulation model for surface reflection of a cw tone. *The Journal of the Acoustical Society of America* 64, 601–604.

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