



The Nature of Water

MARCH 6TH & 7TH, 2023
MLK JR. BUILDING, WEST PAULEY BALLROOM, 2ND FLOOR
2495 BANCROFT WAY, BERKELEY, CA 94720

DR. PETER G. BREWER

Ocean Chemist

Monterey Bay Aquarium Research Institute (MBARI)



BIOGRAPHY

Dr. Brewer is an ocean chemist at the Monterey Bay Aquarium Research Institute (MBARI). Prior to joining MBARI in 1991 he spent 24 years at the Woods Hole Oceanographic Institution. He has led more than 40 deep-sea cruises, served as Chief Scientist on well over 100 ROV dives, and on major expeditions worldwide. He is a Fellow of, and the 2016 Maurice Ewing Medal awardee, of the American Geophysical Union and of the American Association for the Advancement of Science. In 2010 he received the Zheng Zhong Distinguished Visiting Fellowship from Xiamen University, and a UK Royal Academy of Engineering Distinguished Visiting Fellowship. He was appointed as an independent scientist to the Gulf of Mexico Research Institute (GoMRI) Board overseeing the research devoted to the impacts of the Deepwater Horizon oil spill.

In 2012 he received an Einstein Visiting Professorship from the Chinese Academy of Sciences, and was made an Honorary Professor at Northwestern Polytechnical University, Xi'an. In 2018 he was presented with the International Scientific Cooperation Award by the Chinese Academy of Sciences. In 2019 he received the medal for International Science and Technology Cooperation by the People's Republic of China. At MBARI he served as President and Chief Executive Officer from 1991-1996, completing major laboratory and SWATH ship construction programs and doubling the size of the Institution, before returning to full time research. He has devised novel techniques for measurement and for extracting the oceanic signatures of climate change. His interests include the geochemistry of gas hydrates, the impacts of the growing oceanic fossil fuel CO₂ signal, and the development of in situ laser Raman spectroscopy for real-time measurement in the deep-sea.

His most recent work covers the impacts of ocean warming through direct application of the Arrhenius, and Gibbs, activation energies to changing ocean oxygen consumption rates, direct observation of the hydrogen bonded molecular structure of water in the ocean, and the molecular basis for the activation energy of viscous flow in sea water. He is now bridging the 100+ year divide between the fluid dynamical, and chemical physics, approaches to small scale fluid flow in the ocean.

He is author, or co-author, of over 200 scientific papers, and the editor of several books.

TALK TITLE

**Hydrogen bonds
and microbial
swimming - and
sperm too**

QUOTE

"The mechanical work of a swimming microbe breaks hydrogen bonds and thus easily clears a path through the molecular crowd in its way.

This finding bridges the 50+ year long divide between the fluid dynamics and chemical physics views of microbial swimming efficiency."

Dr. Peter G. Brewer