

IOA Medal citations

The IOA's A B Wood Medal and attendant prize is awarded in alternate years to acousticians based in the UK/Europe (even years) and in the USA/Canada (odd years). It is aimed at researchers who are aged under 40, whose work is associated with the sea.

The 2021 and 2022 A B Wood Medals were presented at the IOA's International Conference on Underwater Acoustics 2022, that was held last June in Southampton.

The 2021 A B Wood Medal



Dr Megan Ballard is the recipient of the 2021 A B Wood Medal, her citation reads:

As humans continue to explore and work in the ocean environment, both in person and remotely, and strive to utilise and manage its resources, we have a seemingly endless need for an improved understanding of how sound behaves within that environment. This is because sound is one of the most important ways we interact with the environment, for sensing that environment, and communicating within it.

This award recognises Megan Ballard's numerous and significant scientific advances in a broad range of application areas within underwater acoustics, spanning forward modelling, inference procedures, in situ measurements, laboratory measurements and acoustic remote sensing.

Dr Ballard was introduced to underwater acoustics as an undergraduate at Florida Atlantic University. Her interest in acoustics led her to Penn State University, where her graduate work focused on geoacoustic inversion. The objective of geoacoustic inversion research is to develop methods from which acoustic properties of the propagation environment can be inferred from measurements of the acoustic field. Dr Ballard made a number of advances which allowed for estimates of the geoacoustic properties of a three-dimensional stratified seabed, which is most similar to the real-world environment, and was a significant improvement over previous one- and two-dimensional inversions which required smoothly varying geoacoustic models. Today, this

work has evolved and expanded and is currently being used in a long-term acoustic monitoring system that assesses the health of seagrass meadows on the Texas Gulf Coast.

Upon moving to the Applied Research Laboratories at The University of Texas at Austin, Dr Ballard began to investigate the acoustic properties of marine sediments and, in particular, the acoustic properties of mud. Mud can be composed of the three grain types (sand, silt and clay) found in other sediments, but mixed together in varying proportions along with organic material and infauna. Because of this diversity and the unique electrostatic properties of clay platelets, mud is a material for which there is still no agreed upon forward model for predicting its acoustics properties. Dr Ballard has made numerous advancements toward a better understanding of the acoustic properties of mud, using both idealised laboratory measurements, and in situ measurements, both of which required the development of new and innovative instrumentation.

Megan Ballard has made significant advances in the use of acoustics in areas that span national security to climate science. Her star continues to rise in the fields of ocean acoustics and acoustical oceanography. The research community has benefitted from these advances and, importantly, she continues to produce innovative research and improve upon the advances that she has already made.

The Institute of Acoustics is delighted to award Dr Megan Ballard with the A B Wood Medal, in recognition of the importance of her work in this field. [P12](#)



Left:
Dr Megan Ballard, recipient of the 2021 A B Wood Medal

The A B Wood Medal 2022



Above:
Dr Sophie Nedelec,
recipient of
the 2022
A B Wood Medal

Dr Sophie Nedelec is the recipient of the 2022 A B Wood Medal, her citation reads:

Dr Sophie Nedelec is currently a Natural Environment Research Council-funded Postdoctoral Research Fellow at the University of Exeter. Sophie's work to date has focused on using an understanding of sound in the natural and anthropogenic environment to understand and

protect wildlife better. She has taken a strong interest in the ecological relevance of the particle motion inherent in sound waves, as it is greatly understudied compared to pressure, but is the element that is detected by most of the ears in the ocean (fish and invertebrates). She has a wide, independently developed, collaborative international network across academia, industry and policy. She also has a varied research history and has delivered on outputs in the spheres of both academia and policy.

Sophie has a rare combination of passion, creativity and boundless energy combined with intelligence, meticulousness and critical awareness. Ever since embarking on her Masters, she has tackled some of the most critical outstanding questions in bioacoustics, from developing statistical approaches to predict ecosystem health from coral reef soundscape recordings, through developing inverse filters to control feedback in tank playback experiments, to creating open-source software to calibrate and analyse particle motion recordings made with accelerometers. Sophie has had significant scientific impact given her career stage, as attested by her very strong publication record.

During her time in research, Sophie has developed a wide range of industry and policy partnerships. Her skills as a communicator and networker, empathetic drive to find best outcomes for all, creativity to find

innovative solutions, hard-working mentality and uncompromising attention to detail all make Sophie a valuable asset to everyone with whom she engages. She maintains strong working relationships with government scientists, technologists, consultants, industry representatives and academics throughout the world.

Sophie is a keen spokesperson for exploring and understanding the world of underwater acoustics, engaging with primary and secondary school groups, the general public through the Bristol Festival of Nature, the print and broadcast media, and, with the many undergraduate and postgraduate university students, she has inspired to pursue bioacoustics research projects.

Beyond her science, Sophie often collaborates with artists, musicians and creative technologies to connect audiences with the world of acoustics. She gives acoustic walks in cities and coastlines, bringing sound to life with hydrophones, accelerometers and geophones mounted on bridges, in kayaks and on participants themselves. Sophie is a wonderful mentor to many early career researchers, a tireless advocate for sustainable practices in university teaching and research, a strong voice for better working conditions for women in STEM, and a mother of two wonderful amateur bioacousticians.

The Institute of Acoustics is delighted to award Dr Sophie Nedelec the A B Wood Medal, in recognition of her work in this field. 🌟

Following his graduation from Manchester University in 1912, Albert Beaumont Wood became one of the first two research scientists at the Admiralty to work on antisubmarine defence. He designed the first directional hydrophone and was well known for the many contributions he made to the science of underwater acoustics and for the help he gave to younger colleagues. The A B Wood Medal was instituted after Albert's death by his many friends on both sides of the Atlantic and was administered by the Institute of Physics until the formation of the Institute of Acoustics.