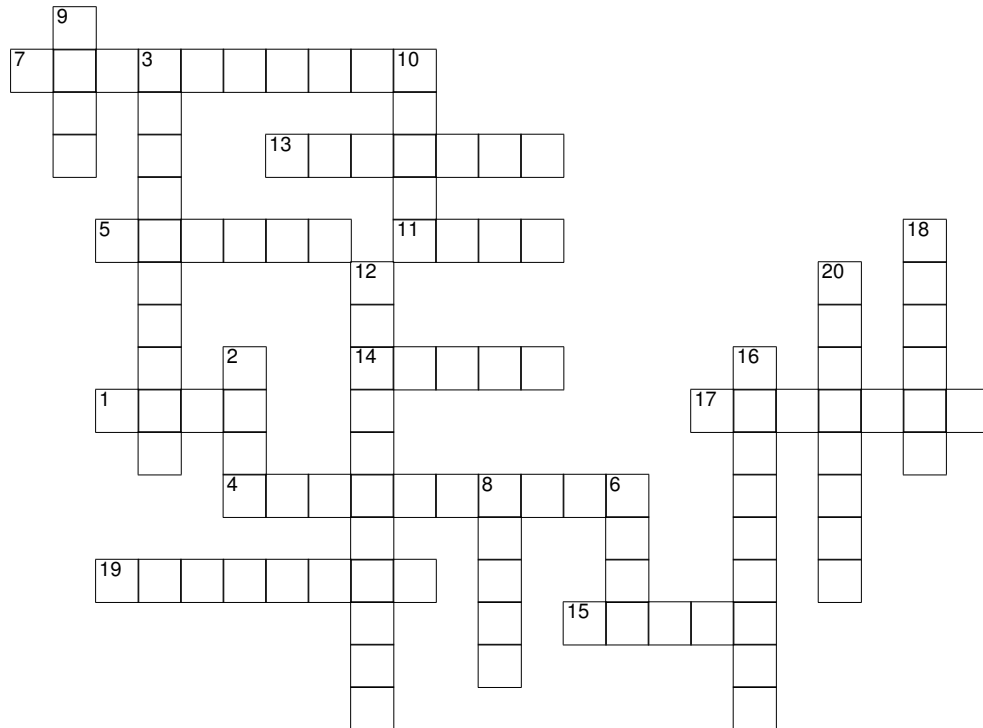


An acoustical crossword puzzle

Prepared by the ASA Student Council*

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Across 1 Distinct sequences of clicks made by sperm whales; concluding passage of music 4 Device used for the detection, recording, and measurement of sound underwater 5 Principle that sound travels along the path that takes the least time 7 Two equally spaced dipoles 11 Elastic waves in plates 13 Frequency value equal to half the sampling rate of a recorder 14 Showed that acoustic intensity decreases as the inverse square of the radial distance; $e^{i\pi} + 1 = 0$ 15 Acronym of ocean channel ~1 km deep through which sound propagates over large distances 17 Suggested that points on a wavefront are sources of spherical waves 19 Stated that the kinetic and potential energies are equal in plane progressive waves

Down 2 Number comparing speed of object to speed of sound 3 Dependence of phase speed on frequency 6 Greek nymph who could only speak the last words spoken to her 8 First proved the existence of electromagnetic waves 9 Intonation in which musical intervals are based on rational numbers 10 Temperament in which musical intervals are related by irrational numbers 12 Image of the frequency spectrum of an acoustic signal over time 16 Plot of an organism's absolute thresholds of hearing across a frequency range 18 Organ used to produce sound in reptiles, amphibians and mammals (including humans!) 20 Inventor of modern ultrasound who derived coefficient of nonlinearity of liquids

*The first three attendees to complete this puzzle will win a prize. Submit your solution at the ASA Student Council booth.