

Designing community surveys to provide a basis for noise policy

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Citation: [The Journal of the Acoustical Society of America](#) **67**, S33 (1980); doi: 10.1121/1.2018171

View online: <https://doi.org/10.1121/1.2018171>

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WHY PUBLISH WITH US?

A particularly useful waveform for modulation of the carrier (primary) beam of a parametric acoustic source is one in which the "self demodulation" which occurs for $\theta = 0$ is vastly different from the $\theta \neq 0$ case. The particular modulation considered here has the property of transmitting a cw signal with a directivity pattern which peaks off-axis while the on-axis transmission consists of impulsive

noise. For active sonar applications, this technique allows one to form a conical rather than endfire beam by filtering on-axis energy from the echo returns. The MRA of the cw beam can be steered by varying the modulation or primary source level, thus allowing the possibility of higher volume scanning rates without sacrifice of angular resolution.

WEDNESDAY MORNING, 23 APRIL 1980

BALLROOM SOUTH, 8:30 TO 10:40 A.M.

Session O. Noise III: Community Attitudinal Surveys

Jack Shampan, Chairman

Environmental Protection Agency, AW-471, Office of Noise Abatement and Control, Washington, D.C. 20460

Invited Papers

8:30

O1. Designing community surveys to provide a basis for noise policy. James M. Fields (National Research Council Senior Resident Research Associate, Noise Effects Branch, NASA Langley Research Center, Hampton, VA 23665)

Social surveys of human response to noise will make a greater contribution to noise abatement policy if the surveys give special attention to selected aspects of three types of study variables: physical noise characteristics, subjective human responses, and nonacoustical neighborhood characteristics. A re-analysis of several surveys shows that better estimates of the effects of noise characteristics (time of day, ambient levels, noise, and number tradeoff) require that (1) the precision of the noise measurements is specified, (2) sufficient independence of the study variables is insured by the sample design, and (3) the precision of the social survey estimates is increased by better sample and data collection designs. Surveys can provide better information about human response if questionnaires (1) share core annoyance questions between surveys, (2) include more meaningful indicators of human impact, and (3) ascertain public opinion about alternative noise control policies. An analysis of the effect of non-acoustical neighborhood characteristics shows that such local variables provide useful information for public policy when they are based on the reports of trained observers rather than on the subjective impressions of the social survey's respondents.

9:00

O2. Validation of annoyance scales for social surveys of community reaction to noise exposure. S. Fidell and S. Teffeteller (Bolt Beranek and Newman Inc., P.O. Box 633, Canoga Park, CA 91305)

Judgments of the degree to which each of a set of terms describes annoyance due to exposure to community noise sources were analyzed to produce a five interval, closed response category scale. This scale, useful for questionnaire items dealing with annoyance in social surveys of community response to noise exposure, was then used by a group of people to rate the annoyance of a set of commonly heard noise sources. Mean absolute differences in sound levels associated with each response category were determined as an aid to interpretation of the scale. Research sponsored by the Office of Noise Abatement and Control of the Environmental Protection Agency.

9:15

O3. The reliability of social survey data on noise effects. Fred L. Hall and S. Martin Taylor (McMaster University, Hamilton, Ontario, Canada L8S 4K1)

The results of household interviews provide essential data for the formulation of noise control policies. However, only a few studies have investigated the reliability of such data, in terms of a test-retest comparison. To help provide better evidence of reliability, 212 persons in the vicinity of Toronto International Airport were re-interviewed in the summer of 1979, using essentially the same questionnaire they had answered in the summer of 1978. To test whether the reliability is affected by noise level, the sample was stratified by both aircraft and road traffic noise levels. Results show that, on an individual level, reliability of attitude scores is not particularly high (correlation coefficients of 0.50 ± 0.05 for several scales for both aircraft and road traffic noise), and that the reliability is