Abstract

In 1962 Rachel Carson's book *Silent Spring* challenged the world to reevaluate the use and disposal of manmade chemicals. The initial reaction to this classic book was outrage by industry, bewilderment from government, and deep concern on the part of the general public. In the intervening years, attitudes of outrage and bewilderment have disappeared and a growing concern for protecting the environment has emerged among all factions of our society. Accompanying this concern has been an ever increasing trend towards cooperation and responsible action by involved parties. Fundamental to this trend is an awareness of potential hazard posed by manmade chemicals to the environment and agreement on measures which must be taken to avert deterioration of the environment.

Laboratory testing of new chemicals on selected biota has become the primary means for evaluating the potential threat of chemicals to the environment. Although the amount of plant testing has been minimal in the past, it is almost certain that more plant testing will be conducted in the future in an effort to curtail and avoid the decline of plant life in threatened habitats. Thus, it is very timely to examine plant tests in current use in an effort to ascertain if they are economically and scientifically sound and whether or not the laboratory data from these tests are being interpreted accurately for the purpose of environmental protection.

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the current testing system. Achieving the Vision: Marshalling the Scientific Community The report concludes that substantial benefits will result from achieving the vision but that it will require coordinated efforts and resources over the next several decades by scientists from government, industry, universities, consulting laboratories, and the public interest community. In this paper, we provide an overview of some recently introduced principles and ideas for speech enhancement with linear filtering and explore how these are related and how they can be used in various applications. This is done in a general framework where the speech enhancement problem is stated as a signal vector estimation problem, i.e., with a filter matrix, where the estimate is obtained by means of a matrix-vector product of the filter matrix and the noisy signal vector. In this framework, minimum distortion, minimum variance distortionless response (MVDR), tradeoff, maximum signal-to-n