Marine Mammals and Noise

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This book can be generally divided into two subject areas, the generation and propagation of sound that affects marine mammals, and the effects of noise on those mammals. The first subject area includes the basics of acoustics, measurement procedures for underwater sound, a description of how sound propagates under water, ambient noise in the ocean, and the characteristics of a wide variety of sources that are responsible for man-made noise. These sources include transportation vehicles such as boats and aircraft, dredging and boring equipment, sounds generated by oil and gas drilling (including drilling from islands, caissons, ice pads, and drill ships), geophysical survey tools, sonars, and explosives.

The second subject area is the characteristics of marine mammals as they relate mammal-generated noise, the reception of sound and the reaction of these mammals to sound. Topics covered include the sounds made by marine mammals; for example, sounds made by a wide variety of whales, walrus, sea otters, etc. Then, the hearing acuity of these mammals is examined, and a long section is devoted to documented disturbance reactions to the sounds described earlier. An assessment is made of the effects on the hearing of mammals, and a chapter is devoted to the significance of these responses and the impact of noise. One portion of the chapter is devoted to equipment design, the routing and positioning of equipment, and operational procedures that can be used to minimize noise generation.

There is an 80-page section that describes the literature cited in the book, and a glossary of terms used in acoustics.