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COMMUNICATION AND BEHAVIOR OF WHALES

ROGER PAYNE, Ed.

Boulder: Westview Press. 1984. Pp. 643. \$35.00

Communication and Behavior of Whales is important in several respects. It is the first collection of essays on whale research using passive observation of live animals in their natural habitat. It makes a break with dependence on dead animals and it finds new truths in the process. It is based on the 1980 AAAS symposium.

The book is also a tribute to the ability of a small group of often poorly funded researchers to discover new truths. Roger Payne, editor, and the twenty-five other authors are truly pathfinders in these new techniques. One author supported her own research by waiting on tables—a real tribute to low overhead and minimal administration!

Prior to the late 1960s most whale research used dead specimens donated by the whaling industry, and later by kills taken under special permit. This meant that an individual whale could be sampled only once. Thus, most data was a comparative average based on a commercial harvest sample. For instance, reproductive rates were based on in-uterus fetus counts and on analysis of scars on the ovary that are associated with whalebirth.

Sampling from harvested specimens introduces substantial bias because harvesters may seek out whales with particular economic value (large size) or may find that some whales, i.e., pregnant females, are easier to pursue. The resulting harvest may be the slower, smaller lunged (more opportunity for harpooning), older, pregnant, geographically convenient, or other subset of the general population. Management or science based on such a sample leads to conclusions about demographics, anatomy, reproductive rates, and stock viability that may not be valid. Of course, the use of dead specimens eliminates the opportunity for research into topics such as communication, kinship, and migration. Research using captive animals, or in circumstances where animals interact with their observers (touching, playing, distracting), is equally suspect. The special intelligence of whales compounds this behavioral distortion because individuals learn to repeat what the observers want to see most. Passive observation has none of these problems.

In addition to direct scientific value, this research has had important political and management implications. Passive observation of live animals has allowed scientists to pursue their professions without depending on whale killing and it has neutralized the whaling industry's claim that their enterprise was necessary to supply corpses for research.

Interested readers will want to study the volume for its comprehensive cataloguing of facts. The amazing uniqueness of certain research results, however, will only be appreciated by experts. For example, it may seem obvious that individual whales can be identified from flukes, fins, and whole animal traits (bumps, grooves and scars) but this technique has only been recognized for a decade or so. Consider that if you are working with a carcass there is no opportunity to test your ability to recognize the individual again. Aged and landed specimens rarely maintain their subtle distinctions, anyway.

Almost every reader will find a favorite essay or two. As an economist, I am partial to the two papers on migratory distinctions and stock identification (Payne and Guinee, Darling and Jurasz). This research on population composition is at the heart of management decisions. For example, the suggestion that Eastern North Pacific Humpbacks form one intermingling stock—despite the existence of a couple of winter assembly spots—means that managers can be less concerned if Humpback observations in a particular area diminish. There is, however, very little known about behavioral distinctions (versus anatomical or geographical uniqueness) that would support the hypothesis that new subspecies can be identified within an otherwise identical population on a basis of behavior alone.

Other papers consider vocalizations, breeding behavior, and research techniques. The annotated bibliography by James Bird took years to assemble and is the most comprehensive available, although somewhat dated because it includes no publications after 1980.

The research reported in this book is exceptional in the same way as Goodall's chimpanzee or Fossey's gorilla work. It gives us insight into these great marine mammals without the expense and ethical compromise of slaughter. The knowledge it presents is vital for preservation of the vast habitats required to assure the survival of the endangered animals. Read it as a scientist or wildlife manager, or merely as a model for your own creativity.

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