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LETTERS

Gray Whale Behavior

After 40 years of protection by international agreement, the population of the California gray whale has grown from an estimated maximum of 500 to $11,000 \pm 3,000$, heartening evidence that effective remedial conservation action is possible. Charges that the whales are now being harassed, that their normal migration pattern is being seriously disrupted by whale-watching boats as the animals pass close to the Southern California coast en route to their Baja California breeding lagoons, are thus particularly disturbing.

The first suggestion that gray whales were being pressured by human activities was advanced in 1965 as one explanation of data indicating that a significant percentage of the herd was migrating south offshore, rather than in sight of land. So meticulously had the migration been described, that any deviation from the shore-hugging route was adjudged both abnormal and man-induced. Since then the "aberrant" route has continued to be used, possibly by an even larger proportion of the animals; its use has generally been interpreted as a retreat from the increasingly heavily trafficked coastal lanes.

Although our knowledge of gray whale behavior derives almost entirely from periods when the animals were under extreme stress-first when they were being constantly hunted and more recently as they were recovering from almost complete annihilation-observations made during those abnormal times came to be accepted as immutable truths. It was assumed, for instance, that along the southern California coast only a corridor 5 kilometers wide skirting the shore was "acceptable" to gray whales traveling south. It now appears that the availability of alternative routes may be but one example of a range and variety of behaviors open to an expanding or stabilizing population. Others include the presence of individual gray whales in San Diego waters and even farther south, "out of season" and for considerable periods of time, and the unprecedented series of episodes in San Ignacio Lagoon last winter, in which an unknown number of whales, singly or in small groups, approached whale-watching cruise boats with evident curiosity and every appearance of seeking human attention.

These and other recent observations suggest a versatility that may only be beginning to proliferate in a population SCIENCE FOR SOCIETY: A Bibliography oth Edition

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that is today overwhelmingly young; they further suggest that we must not continue to overlook the dynamic and fluid character of natural processes. But while they also indicate that we need not automatically interpret every new behavioral occurrence as a response to deleterious human pressures, the fact that few, if any, gray whales living today can have any memory of harm at the hand of humans calls for the most special consideration of the effects of our activities on our fellow creatures.

FAY H. WOLFSON 356 Kolmar Street, LaJolla, California 92037

Utilities and Nuclear Power: One System's Approach

Deborah Shapley (News and Comment, 19 Nov. 1976, p. 814) states (p. 816) that the American Electric Power Company (AEP) "says it will eschew building nuclear plants altogether in the future." I wish to deny the validity of the statement and to clarify the position of AEP in this regard.

It is our firm conviction that both nuclear and coal-fired plants will be needed in the future to meet the energy needs of this nation. Both coal and uranium are indigenous fuels, and neither can fulfill the demands for future electricity supply in the absence of the other.

While AEP has one nuclear unit in operation in southwestern Michigan and a second under construction and planned for commercial operation in early 1978, the fact any additional major generating plant now under construction or planned for operation in the next several years by the AEP system will be coal-fired does not imply AEP's "eschewing" the construction of new nuclear plants "altogether in the future."

The choice of which type of plant to build on the AEP System is under continuing review. A decision in this regard does not rest simply on a long-term economic evaluation-which is increasingly difficult in the light of rapidly changing capital and fuel costs as well as other related uncertainties-but also on such factors as the type and composition of the territory to be served, together with the area's opportunities for and constraints against supporting a particular type of generation; the state of development of the company's generation technology; the company's financial resources at any point in time together with an evaluation of the financial risk and exposure in a specific commitment;



11 FEBRUARY 1977