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In the most advanced infections, fish appear to have a reduced swimming ability. Also, there appears to be an atrophy of internal organs, as many are displaced by the mass of xenomas. Nepszy et al. (1978) suggests that a mass mortality of smelt infected with Glugea hertwigi was due to changes in the host's center of gravity, thus reducing swimming ability; malformed organs, resulting in physiological stress; and probable intestinal occlusion, resulting in starvation or absorption of toxic wastes. Cause of death in mosquitofish may be similar.

There is much to be learned about this *Glugea* sp. Of particular interest is its impact on mosquitofish populations, considering that mosquitofish are being evaluated for even more intensive culture for mosquito control in California.

ACKNOWLEDGMENTS

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RESPONSE OF THE MOHAVE CHUB, GILA BICOLOR MOHAVENSIS, TO DEWATERING OF AN ARTIFICIAL IMPOUNDMENT

The Mohave chub once inhabited the Mojave River, but this endangered species now survives in only a few man-made refugia in the southwest (Miller 1968, St. Amant and Sasaki 1971, Pister 1980). The Fort Soda refugium, San Bernardino County, has provided habitat for "pure" populations of this species for the past 50 years. The Bureau of Land Management and the Department of Fish and Game have been evaluating the various aquatic habitats at Fort Soda for the past several years to identify habitat requirements of the Mohave chub and to develop a management plan.

During May 1979, over 3,500 Mohave chub were transferred from a temporary holding pond to their historic pond habitat at Fort Soda. This transfer was the final phase of a coordinated effort between the Department and the Bureau to improve one of the existing habitats for this species. The fish had been temporarily transferred while their historic pond was dredged to remove sediments washed in over the past several years. These sediments had not only reduced the available surface habitat by approximately 30% but also permitted the encroachment of aquatic vegetation.

Draining of the temporary pond required 1 day. The majority of fish were seined from the pond as the waters receded. As the water level dropped a series of smaller pools were exposed, each containing several fish. Channels were subsequently dug between the higher pools and the sump area to speed the draining process. This afforded an opportunity to observe the response of chub to declining water levels within these smaller pools.

Initially, fish in the higher pools were quiescent. As the water level dropped to a depth of about 8 cm, swimming movements increased until the outflow to the interconnecting channel was located. Once the fish found the outflow they actively swam down the channel with the current. It is unlikely that the flow within the channel (approximately 100 ml/s) physically moved the fish downstream. When the fish reached a pool area within the channel they stopped and swam slowly around as if again seeking the outflow. Once the outlet was located the fish again actively moved down the channel, often exposing much of the body. This behavior continued until all fish (24–30) either reached the downstream trap net or the main pool.

While the Mohave chub may have moved to safety in response to temperature change (Alder 1975), it is very likely that lateral line detection of subtle water current prompted the downstream movement (Dijkgraaf 1963). Survival of the species in the desert for centuries has likely hinged on this behavioral response. The author believes this behavior may be unique to desert species, and is unaware of similar behavior by other species documented in the literature.

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Assessing the Effects of Power Edited by Van Winkle; Pergamon

This volume presents the procand Development Administration Institute. In the United States moconcentrated upon the impacts scientists have begun to concen-

The fundamental question ask power plants on young fish affect germane to this question were c mortality rates, especially for you design of monitoring programs as with simulation models. The partior more of these five areas.

Three of the papers deal with p Columbia River, and striped bass

The state-of-the-art being what presented, however, do provide with the problems inherent in at

This volume, while dealing with for fishery scientists working with techniques, and population mode eggs and larvae.—*Michael L. Joh*

Wild Geese

By M. A. Ogilvie, Buteo Books, Ve

Wild Geese is a veritable comp Anser, of the world. With the exce provides the reader with a thoro to exploitation. He has accomplish using the systematic approach of each dealing with a selected aspeldentification; Ecology, Food, and Distribution and Status; Migration

Overall the book is excellent; he chapter on breeding Ogilvie practors such as nest placement a and copulation are described in cadd further to this excellent chapter.

The chapter on "Counting, Ring will be of at least some practical an historical review of the study of census organized by James Moffit techniques, including rotary-wing each method are evaluated. Also in the descriptions of methods of cachapter terminates with a good direcruitment and mortality, and the

"Exploitation and Conservation has influenced the protection and of the problems which continue to particularly common outside of Norelated to the complex political patterns, appear to be a major hind management regulations, crippling systems and their objectives, trans species-by-species account of the world concludes the chapter.