

NOTICE OF PUBLICATION

AQUACULTURE COLLABORATIVE RESEARCH SUPPORT PROGRAM



RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

Title: Farming Tilapia in Saline Waters

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Date: 6 November 2006

Publication Number: CRSP Research Report 06-211

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Abstract: Although tilapia culture has been limited primarily to freshwater and low-salinity brackish water, a high degree of salt tolerance exhibited by certain species has suggested that they might be cultured in high-salinity brackishwater and marine systems, enabling their exploitation in tropical and coastal areas (Kuo and Neal 1982; Payne 1983; Hopkins et al. 1989; Watanabe, Burnett, et al. 1989; Watanabe 1991; Suresh and Kweilin 1992; Watanabe et al. 1997). In many areas, limited fresh water supply is an important constraint to further expansion of the industry, which will therefore have to turn to mariculture. To date, the most comprehensive research on saltwater culture of tilapia has been conducted with the Florida red tilapia. The objectives of this chapter are to review the biotechnical and socioeconomic data for saltwater culture of the Florida red and other saline-tolerant tilapia, including the areas of hatchery design and management, broodstock husbandry and seedstock (eggs, yolksac fry, and free-swimming fry) production, nursery production of fingerlings, juvenile grow-out in land-based and sea cage

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systems, disease control, economics, and marketing. Although tilapia are being considered for culture in lagoonal systems where salinities under 15 ppt (Legendre et al. 1989), the present review is restricted to high-salinity culture systems of ≥ 15 ppt, conditions tolerated by relatively few species of commercial importance.

This abstract was excerpted from the original paper which was in, C. Lim and C.D. Webster (Editors). *Tilapia: Biology, Culture, and Nutrition*. Food Products Press, Binghamton, pp. 347–448.

CRSP RESEARCH REPORTS are published as occasional papers by the Program Management Office, Aquaculture Collaborative Research Support Program, Oregon State University, 418 Snell Hall, Corvallis, Oregon 97331-1643 USA. The Aquaculture CRSP is supported by the US Agency for International Development under CRSP Grant No.: LAG-G-00-96-90015-00 and by collaborating institutions. <http://pdacrsp.oregonstate.edu>