Title: Characterization of potential aquaculture pond effluents, and physicochemical and microbial assessment of effluent-receiving waters in central Ghana

Author(s): YB Ansah¹, EA Frimpong¹, and S Amisah²

¹. Department of Fish and Wildlife Conservation, 100 Cheatham Hall, Mail Code 0321, Virginia Tech Polytechnic Institute and State University, Blacksburg, Virginia 24061, USA  
². Department of Fisheries and Watershed Management, Kwame Nkrumah University of Science and Technology, Private Mail Bag, University Post Office, Kumasi, Ghana

Date: 01 August 2017  
Publication Number: AquaFish Research Report 13-A04

AquaFish will not be distributing this publication. Copies may be obtained by writing to the authors.

Abstract: An understanding of specific aquaculture systems and the impacts of their management practices leads to sound and cost-effective policies to protect the aquatic environment. Water samples were collected in 2009 from fish ponds, streams that receive effluents directly from ponds and reference streams in Ghana to assess potential environmental impacts of pond aquaculture. Although relatively dilute, fish ponds had higher levels of all physicochemical variables measured compared to those of locations upstream and downstream of farms, and to reference locations. Total nitrogen and BOD₅ were most clearly statistically significant. Of 292 earthen fish ponds surveyed in central Ghana, approximately 92% were used for either Oreochromis monoculture or Oreochromis–Clarias polyculture. These had similar pond water (i.e. potential effluent) quality but different management practices. The study ponds had the potential to pollute effluent-receiving streams, but their actual impacts will depend on how pond effluents are managed. Conventional treatment of effluents from these small-scale, low-volume operations, which discharge relatively dilute effluents infrequently, might not be cost-effective.

This abstract was excerpted from the original paper, which was in the African Journal of Aquatic Science (2013), 38(2): 185-192.