

# Best Management Practices for Channel Catfish Farming in Alabama

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## Introduction

Aquaculture grew rapidly during the past 50 years, and it is continuing to expand. This growth is possible because of an increasing demand for fisheries products and failure of capture fisheries to keep pace with demand. It is doubtful that aquacultural production can continue to increase fast enough to meet the rising demand for fisheries products (1). Channel catfish farming in the United States has followed the global trend with expansion from about 2,500 acres in the early 1960s to around 190,000 acres at present (2). In Alabama, catfish farming has increased from a few farms in the early 1960s to about 28,000 acres in 2002.

Recent environmental concerns could greatly complicate the future of aquaculture. Although these concerns have been directed primarily at marine shrimp farming and cage culture of salmon in marine environments, there has been at least one report critical of channel catfish farming (3). Concerns about aquaculture include wetland destruction, conversion of agricultural land to ponds, water pollution, loss of biodiversity, competition for water use, use of toxic or bioaccumulative chemicals, inadvertent fuel or other chemical spills, and negative social impacts (4). The main environmental concern about channel catfish farming is water pollution by pond effluents. Other environmental issues raised about aquaculture in general appear less problematic in catfish farming

According to federal regulations, effluents from aquaculture farms in the United States are subject to permitting under the National Pollution Discharge Elimination System pursuant to the requirements of the Clean Water Act (5), but in some states, aquaculture effluents have not been subject to permitting. The United States Environmental Protection Agency (USEPA) has recently initiated rule-making related to aquaculture effluents nationwide, and the channel catfish industry will have to comply with effluent regulations that were published by EPA in draft form in early September 2002, and are expected to be finalized by June 2004 (6).

The Alabama Catfish Producers (ACP), in a proactive effort to minimize the impact of pending effluent regulations, contracted with Auburn University to make an environmental assessment of catfish farming in the state (7). This study suggested that pollution of natural waters by catfish farming could be prevented or minimized through application of reasonable practices to reduce the volume and improve the quality of effluents. Application of specific management practices to prevent or lessen water pollution or other adverse environmental impacts is commonly used in terrestrial agriculture and other endeavors. Such practices are known as best management practices or BMPs. Many of the BMPs for catfish farming represent the most efficient way of conducting production activities and may actually reduce production costs in the long run.

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The ACP contracted again with Auburn University to conduct an environmental audit of selected catfish farms to determine the practicality of installing BMPs. This effort further supported the use of BMPs for lessening pollution loads in pond effluents. The ACP has cooperatively provided assistance in support of the Alabama Department of Environmental Management's (ADEM) efforts to rely on effective BMPs to the extent possible, and ADEM recognizes ACP stewardship in supporting development of practical, reasonable, and effective aquaculture BMPs to ensure the protection of water quality in Alabama. Auburn University, ACP, ADEM, and the United States Department of Agriculture Natural Resources Conservation Service (NRCS) collaborated in preparing a formal list of BMPs.

The activities leading up to formalization of the BMPs are provided in the table.

To the extent allowed by EPA rules, ADEM intends to rely on these EPA recognized BMPs in implementing any mandated regulatory or water quality requirements, including inspections and any potential compliance action, if needed (8). ADEM anticipates that catfish producers who implement and maintain BMPs will meet or exceed any ADEM effluent standard. ADEM has committed to work in cooperation with the ACP to update the BMPs, if needed in the future.. The BMPs may be obtained from the NRCS website (<http://www.al.nrcs.usda.gov/SOsections/Engineering/BMP/index.html>). Since some farmers may not find it convenient to use the website, the BMPs are presented in this manual.

**References**

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(4) Boyd, C. E. and J. W. Clay. 1998. Shrimp Aquaculture And The Environment. Scientific American 278:58-65.

(5) Boyd, C. E. 2000. Water Quality – An Introduction. Kluwer Academic Publishers, Boston, Massachusetts. 330 pp.

(6) Federal Register. 2000. Environmental Protection Agency, Effluents Guidelines Panel. Federal Register: June 16, 2000 (Volume 75, Number 117, Pages 37783-37788). Office Of The Federal Register, National Archives And Records Administration, Washington, D.C.

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(8) Boyd, C. E. and R. F. Hulcher. 2001. Best Management Practices For Channel Catfish Farming In Alabama. Ala. Agr. Exp. Sta., Auburn University, Highlights Of Agricultural Research 48(Fall):1-4.

**Activities Leading up to Formalization of BMPs**

Activity	Date
Environmental assessment	1997-1999
Farmer meeting to discuss environmental assessment	October 1999
Environmental audit	1999-2000
First draft of BMPs	March-May 2000
Review of draft BMPs by selected farmers, extension agents, and researchers	May-July 2000
Revision to prepare second draft of BMPs	August-Sept. 2000
Farmers meeting to review draft BMPs	October 2000
Revision to prepare third draft of BMPs	Nov.-Dec. 2000
Review of draft BMPs by employees of ADEM, NRCS, and USEPA	Jan.-April 2001
EPA/ADEM aquaculture site visit in Alabama	March 2001
Revision to prepare fourth draft of BMPs	April August 2001
Farmers meeting to review draft BMPs	October 2001
Revision to prepare fifth draft of BMPs	Nov.-Dec. 2001
Final editing of BMPs and installation on NRCS website	Jan.-Feb. 2002
EPA recognition of ACP BMPs for Alabama	Sept. 2002
Publication of manual	2003