

**First Annual Report
AquaFish CRSP Mali Project**

***Aquatic Resource Use and Conservation for Sustainable Freshwater
Aquaculture and Fisheries in Mali***

October 1, 2007 – September 30, 2008

**Cooperative Agreement # 688-A-00-07-00044-00
Leader with Associates Award EPP-A-00-06-00012-00**

Introduction

The Mali Project (“Aquatic Resource Use and Conservation for Sustainable Freshwater Aquaculture and Fisheries in Mali”) is the first associate award received under the prime “Leader with Associates” (LWA) that established the AquaFish CRSP in 2006. The project, which has a planned span of three years (1 October 2007 through 30 September 2010), has the overall goal of “improving the productivity and income of producers in targeted areas of Mali through facilitation of access to technologies and building the capacity of stakeholders involved in freshwater fish farming and capture fisheries management.” Its intent is to work in three major thematic areas to:

- Facilitate access and adoption of improved aquaculture production technologies in targeted areas to increase and diversify the incomes of farmers,
- Develop the capacity of the Government of Mali to help develop and disseminate relevant technologies,
- Identify appropriate strategies for the implementation of integrated rice and fish farming in target areas,
- Help develop an appropriate fisheries management plan to ensure long-term viability and sustainability of capture fisheries in the target area, and
- Help establish linkages useful for further development of aquaculture and fisheries in Mali.

The Mali Project’s Three Theme Areas: The Project’s three-pronged approach towards encouraging the development of sustainable aquaculture and good fisheries management in Mali is being applied through work in these three theme areas:

- Theme I: Pond Culture—Advancing Sustainable Freshwater Aquaculture Practices and Technologies (Theme Leaders Dr. Héry Coulibaly and Dr. Charles Ngugi)
- Theme II: Rice-Fish—Promoting Sustainable Rice-Fish Aquaculture in Irrigated Systems (Theme Leaders Dr. Héry Coulibaly and Dr. Yang Yi)
- Theme III: Fisheries Planning—Building Community and Consensus towards a Fisheries Management Plan (Theme Leaders Mr. Soumaila Diarra and Mrs. Nancy Gitonga)

Theme I is working to identify, develop, and promote appropriate pond culture systems for implementation in Mali. Theme II is working to introduce appropriate adaptations of proven rice-fish systems, based on experience in China, to irrigated systems of the Niger River delta in Mali,

and Theme III is seeking to encourage local involvement (ownership) in the development of sound fisheries management plans, working initially in the Lake Sélingué area.

The Mali Project takes a South-South approach to development, in which scientific expertise and practical experience from two Kenyan institutions (Moi University and FishAfrica) and one Chinese institution (Shanghai Ocean University) are brought to bear on the three areas being addressed.

Collaborating Institutions and Personnel:

AquaFish CRSP, Oregon State University, Corvallis, Oregon, USA

(Lead US Institution)

Hillary Egna, Principal Investigator
James Bowman, Project Coordinator
Dwight Brimley, Business Manager
Lisa Reifke, Graduate Research Assistant
Stephanie Misola, undergraduate assistant

Direction Nationale de la Pêche, Ministère de l'Élevage et de la Pêche, Bamako, Mali

(Lead Mali Institution)

Héry Coulibaly, Principal Investigator and Mali Theme Leader for Themes I & II (Pond Culture and Rice-Fish)
Soumaila Diarra, Mali Theme Leader for Theme III (Fisheries Management)
Madi M. Kheita, Collaborator for Theme II
Alhassane Abdou Sidy Toure, Collaborator for Theme II
Boureima Traore, Collaborator, Theme III

Moi University, Eldoret, Kenya

(Theme I Lead Institution)

Charles Ngugi, PhD, Theme Leader
Mr. Manyala, Collaborator for Theme III

Shanghai Ocean University, Shanghai, China

(Theme II Lead Institution)

Yang Yi, PhD, Theme Leader
Derun Yuan, Assistant Leader and trainer, Theme II
Liping Liu, Assistant Leader and trainer, Theme II

FishAfrica, Nairobi, Kenya

(Theme III Lead Institution)

Nancy Gitonga, Theme Leader

Fisheries Department, Government of Kenya, Nairobi, Kenya

Peter Nzungi, Frame Survey consultant/trainer for Theme III

Sichuan Aquacultural Engineering and Technology Research Center, China

Wu Zongwen, Collaborator, Theme III

Summary of Activities Undertaken

Much of the work conducted during this year was planning and start-up related. First on the agenda was to create an outline for a work plan and to visit Mali to gain first-hand knowledge of the status and constraints of both aquaculture and fisheries and identify potential Malian participants for the project, providing information that would be needed to properly develop the work plan. Work on fleshing out the work plan began soon after that visit and extended into the 2008 calendar year. The Work Plan was further developed through a series of emails in early 2008 and final touches were agreed on during a meeting of the entire team in Busan, Korea, following the CRSP Annual Meeting and WAS World Aquaculture conference there. The final version was submitted to USAID/Mali and approved in early June 2008.

Development of the administrative documents needed to carry out the work—MOUs and Subcontracts—was simultaneously undertaken, leading to signing and execution of two of the needed sets of documents by August. Communication problems and language difficulties slowed the completion of the third set of documents.

Progress Made and Results Achieved

Scoping Visit to Mali, November 25-30, 2007

Theme leaders Charles Ngugi and Nancy Gitonga conducted a scoping visit to Mali from 25 to 30 November, 2007. Theme leader Yang Yi (Theme II) was unable to join the mission at that time due to a scheduling conflict.

The purposes of this visit were to:

- Assess the coordination and organization of agencies already active in the subsector
- Identify potential organizations and personnel for participation in the Mali Project
- Select suitable sites in Mali for activities to be conducted under the three themes and consider logistic arrangements for those activities
- Collect baseline information on fish production and post-harvest technologies in practice
- Evaluate the potential for rice-fish culture in Mali, with a focus on direct economic impacts, potential impacts on public health, household nutrition, and the environment, and the potential role of rice-fish production in poverty alleviation.

Some key observations from the scoping visit:

- Fisheries and Aquaculture in Mali have great potential. More than half of the people in West Africa consume fish products on a daily basis. Regionally, the sector employs about 5 million fishers, fish processors, and fish traders, along with other associated jobs.
- There are 700,000 fishermen in a population of 12 million people in Mali.
- The main species presently cultured in Mali are the Nile tilapia (*Oreochromis niloticus*) and African catfish (*Clarias gariepinus*).
- Aquaculture development is on the increase although not well practiced; the issues of poor soil quality and low water retention in ponds need to be addressed
- There is private sector interest and a need to strengthen private sector capacity.
- Increased capacities for processing and warehousing of fish and fish products are needed.
- There is a need to work towards access investment, training extension agents, and strengthening of linkages between institutions.
- There is a need for a fisheries policy to strengthen the management of fisheries through the development of management plans and implementation strategies.

- Research is needed to assess fish catches, value addition, and breeding grounds.
- Slot sizes need to be defined and gear sizes need to be regulated for the main species (Nile perch, Nile tilapia, and *Synodontis*).
- Efforts should be made to ensure smooth transitions from externally funded efforts to independent commercial aquaculture development effort and sustainability for fisheries in Mali.

Suggestions or recommendations resulting from the visit:

- The appropriate Malian institution to partner with for the new project would be the Direction National de la Pêche (DNP), under the direction of Dr. Héry Coulibaly.
- The following sites are deemed suitable for the activities of the three themes:
 - Theme I, Pond Culture: Bamako peri-urban area (training and pond management and feed trials/demonstrations)
 - Theme II, Rice-Fish Culture: Baguineda (major irrigation area) (training and rice-fish management trials/demonstrations)
 - Theme III, Fisheries Management: Lake Sélingué (training, frame surveys, and stakeholders workshops)

Planning: Development of Project Work Plan

Planning Phase efforts included extensive collaboration between OSU Project leaders Egna and Bowman and the Theme Leaders to draft the initial version of the Work Plan, resulting in a good working draft by the end of the second quarter.

A concurrent effort during the Planning Phase was the development of Indicator Worksheets for and a Project Monitoring Plan (PMP), which entailed a considerable amount of communication between USAID/Mali personnel and OSU PIs Hillary Egna and Jim Bowman. These documents were mostly complete by the end of the second quarter. Some elements of these documents, e.g., the impact indicators and targets that were identified for the project, were worked into the final versions of the Work Plan.

Team meeting in Busan, Korea

Much of this planning work was accomplished through e-mail correspondence. However, in addition an important planning meeting was held in Busan, Korea, following the AquaFish CRSP Annual Meeting (18-19 May) and World Aquaculture Society conference (19-22 May) held there. Team members Hery Coulibaly, Charles Ngugi, Yang Yi, and Nancy Gitonga, together with USAID/Mali CTO Gaoussou Traore and OSU PIs Hillary Egna and Jim Bowman, met there on 22 May, 2008. Although several members of the team (Coulibaly, Ngugi, Gitonga, Traore) had met in Mali in late 2007, this was the first good opportunity for the full team to get acquainted and to have a chance to work on the project Work Plan together, including revising the schedule of activities for each theme and adjusting targets for the selected impact indicators, and to discuss issues related to language and the translation of workshop and other materials into French. It was noted at this meeting that MOUs and Subcontracts remained to be developed and that this process is typically somewhat time-consuming.

During the third quarter the team continued with planning, finalizing the Work Plan, and scheduling of activities for the three themes in Mali, Kenya, and China. The Work Plan was

revised to include changes agreed on at the Busan meeting, and final approval of the revised Plan was given by USAID/Mali on 9 June 2008.

Specific other activities conducted included additional planning and preparation for initial activities for all three Themes. In Kenya, Theme I and III leaders Ngugi and Gitonga prepared workshop materials, including working on translations into French. For Theme I, translations of posters and at least one fish farming handbook were begun. Theme II leader Yang Yi collected information for the rice-fish training to be held for two Malians in China and contacting local authorities in China to arrange for site visits during the training. For Theme III, several meetings were held between the Theme leader and collaborators who will help with the frame survey. Survey forms were developed and the software for the survey was agreed on, including the procedure to source for its use for the Mali Project. Potential translators were identified and translation work was begun.

Development of MOUs and Subcontracts

Considerable effort was spent developing Memoranda of Understanding (MOUs) and subcontracts between the various institutions that are involved in the project. The development of such documents is typically a detailed and lengthy process, and this case has proved to be so as well. Several aspects of this project are different than typical past AquaFish CRSP projects, and these complicated the development of these important documents. MOUs and Subcontracts between OSU and FishAfrica (including work to be done by Moi University) (for the work of Themes I and III) and between OSU and Shanghai Ocean University (for Theme II work) had been completed and signed and were in place by the end of the year, but language barriers and other problems contributed to delays in the signing of agreements between OSU and the DNP. Work to finalize the MOU and Subcontract between OSU and the DNP continues and is expected to be complete very early in the next quarter.

Conference Attendance

Team members from Mali, Kenya, China, Thailand, and the US attended the Annual Meeting of the AquaFish CRSP and World Aquaculture Society's "World Aquaculture 2008" conference in Busan, Korea, from 19-23 May, 2008. Malians Héry Coulibaly (Direction Nationale de la Pêche) and Gaoussou Traore (USAID/AEG/Mali) were joined by Theme Leaders Nancy Gitonga, Charles Ngugi, and Yang Yi and Oregon State University's Hillary Egna and Jim Bowman for these meetings. For our Malian partners this provided excellent opportunities to meet many of the participants in the wider AquaFish Program, both from the US and from participating Host Countries, and to learn how the AquaFish CRSP functions. Participation in the World Aquaculture meetings also brought them into contact with the global aquaculture community, providing examples and models of what aquaculture can and does do in other countries and regions, and giving them many ideas to bring home to Mali.

Training

The Mali Aquaculture and Fisheries Project is largely a training project, utilizing short-term training (workshops and field testing/demonstrations) to reach its targeted audiences in the three Theme areas. One short-term training activity was undertaken during the year, that being the training of two Malians in various aspects of rice-fish culture in China in September. A full report on this training session was included with the 4th quarter report for the project. Other

workshops originally scheduled for the third and fourth quarters were postponed pending the finalization of the required MOUs and subcontracts. Drafts of these documents completed earlier underwent considerable review and revision during this time.

Progress toward Benchmarks, Intermediate Results, and Indicators

Required Impact Indicators, FY '08:

	<u>Targets</u> ¹	<u>FY '08</u>	<u>Cumulative</u>
New technologies under field testing	0	0	0
New technologies made available	0	0	0
Individuals receiving short-term training	15 (8/7)	2 ² (2/0)	2 (2/0)
Farmers who adopted new practices	0	0	0
Fish processors who adopted new practices	0	0	0

Additional Optional Indicators:

	<u>Targets</u> ³	<u>FY '08</u>	<u>Cumulative</u>
Number of Malians who attend international aquaculture meetings	3	—	2
Number of students trained or mentored in Mali	3	—	—
Number of participants trained outside of Mali	8	2 3	2
Additional aquaculture production area resulting from project efforts (either number of additional ponds or rice paddies or additional area in hectares)	1.4 ha	—	—
Estimated increase in fish productivity in ponds or rice-fish systems in targeted areas (kg/ha/yr or percent)	1500kg/ha/yr	—	—
Estimated increase in income for fish farmers in targeted areas (CFA/ha/yr or percent)	? 4	—	—
Number of extension publications developed	10	—	—
Number of frame surveys conducted for lake fisheries	1	—	—
Estimated increase in income for fishermen in targeted areas (CFA/ha/yr or percent)	? 4	—	—

¹ Numbers shown in parentheses indicate male/female split of total targets.

² Two Malians received rice-fish training in China, 16-21 September, 2008.

³ All themes, through 2010.

⁴ Targets were not stated in the Work Plan (DNP to suggest reasonable targets).

Problems Encountered

This first year of the Mali Project has truly been a start-up year, in which a number of factors have combined to get the project off to a slower start than anticipated. Progress was severely affected from the outset by the unsettling events in Kenya, home of two of our Theme Leaders, following the national elections there in late 2007. Those events resulted in the total loss of home and personal safety, followed by dislocation to another part of Kenya, for our Theme Leader Charles Ngugi. The repercussions of that series of events have continued to affect working conditions for Dr. Ngugi until the present.

Working under an associate award is a new experience for all of the partners, presenting new sets of problems and requirements and resulting in an unexpectedly steep learning curve. Another factor is the fact that our core partners are spread literally around the world, including leaders in Mali, Kenya, China, and the US. The sheer physical distances between participants has mostly precluded holding face-to-face meetings in which problems and options could be readily discussed and solutions agreed upon. The modern convenience of email—even if it is working efficiently—can not readily substitute for being able to meet together in a single place. Language has clearly been another problem for the project. While Mali is a French-speaking nation, neither the Theme Leaders nor the Project Coordinator speak French. This barrier has contributed to a slowing of email communications, extra time required for the development of MOUs and Subcontracts, difficulties in developing accurate translations of training materials, and so forth.

Summary

Given the numerous stumbling blocks encountered by the project, an amazing amount has been accomplished during this first year. Working partners and project sites have been selected, a three-year Work Plan has been developed and approved, MOUs and subcontracts have been put into place, and on-the-ground work has begun. This project has the potential to make great contributions to Mali and the region, and the project team looks forward to building momentum and achieving good results as constraints are overcome and the way smoothed out during the second and third years.