AQUAFISH INNOVATION LAB

Oregon State University | Corvallis, Oregon, USA 97331
www.aquafish.oregonstate.edu

CELL PHONE FISH MARKETING NETWORKS IN KENYA, GHANA, AND UGANDA

Caleb Price, Stephanie Ichien, and Hillary Egna

INTRODUCTION

Improving aquaculture productivity and expanding market access for rural fish farmers can greatly increase income generation and food security in developing nations.

For small-scale aquaculture in Africa, many of the challenges to growth of the sector result from inadequacies in the flow of information along the fish value chain.
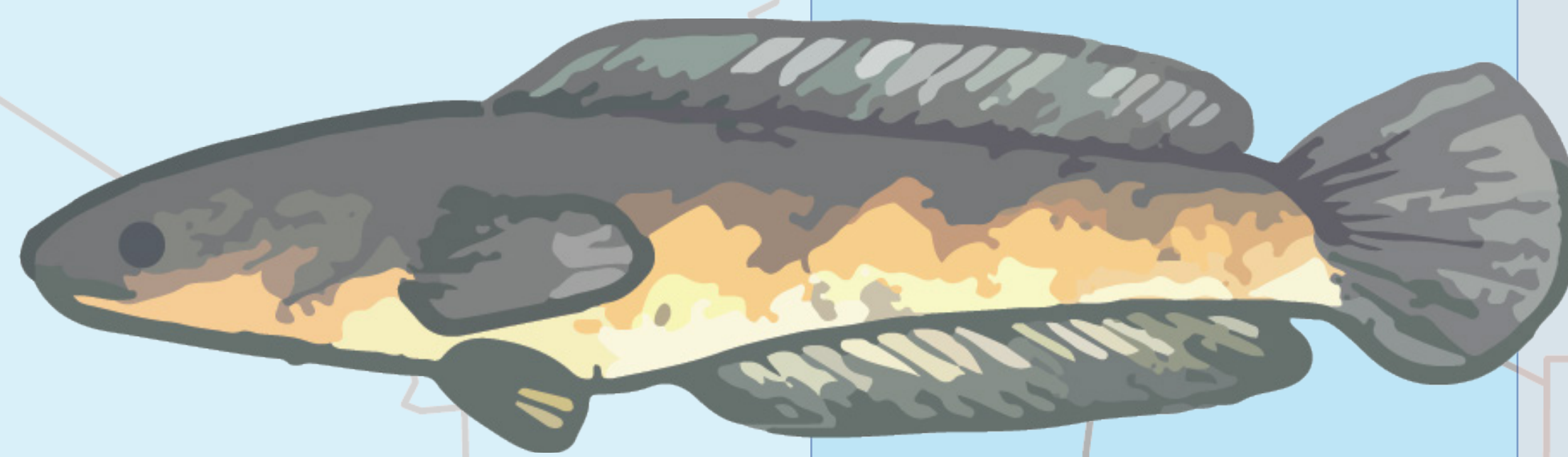
Technology can spur collaboration by connecting players in the value chain where a lack of timely communication and knowledge transfer may be inhibiting growth and opportunity for product movement. The AquaFish Innovation Lab has partnered with researchers in Kenya, Ghana and Uganda to develop and implement technologies that provide text-based market data and information via cell phones.

UGANDA

Smallholder farmers in Uganda routinely face setbacks resulting from difficulties in accessing markets, including lack of real-time market information. Achieving transparency in the value chain is essential for helping farmers receive fair market values for their fish products, and for finding buyers in a timely manner to prevent post-harvest losses.

For many farmers, mobile phones represent the most appropriate and efficient means of communications, providing savings in time and money. Mobile phones give farmers access to information on prevailing market prices of cultured fish in various markets, providing them with leverage to improve their bargaining position and sell fish at higher prices.

AquaFish researchers initiated a pilot study in Uganda to evaluate the feasibility for establishing a mobile-phone network for delivering fish market data. Researchers held focus-group interviews with fish farmers in five separate regions of the country to assess the current uses of mobile phones for information transfer along the value chain.

Results of the study indicate that many fish farmers currently use their mobile phones to acquire technical guidance on aquaculture and to communicate with traders and other farmers who provide information on agricultural inputs and market data. However, more support is needed to better disseminate information on market prices and fish production, as many farmers rely on word-of-mouth communication from extension officers, limiting availability and flow of information.

Farmers also identified limitations to the use of mobile technology for disseminating fish market data, including poor network coverage, frequent power cuts, lack of calling credit, and awareness of the service. Nevertheless, the fast growth of mobile technology and expanding connectivity holds great promise for boosting access to information for fish farmers in Uganda.

GHANA

In Ghana, AquaFish researchers developed a service called the Seafood Market Information System (SMIS), a web-based tool that provides tilapia market information online as well as voice and SMS/text messaging.

AquaFish researchers collaborated with officers from the Fisheries Commission and the local programming company Farmerline to create a central database hosted by researchers at the Kwame Nkrumah University of Science and Technology. The database is populated with farm gate and market data for tilapia from several locations throughout the country.

This mobile system and integrated database collects market information from supply and demand centers in a user-friendly format. The system then disseminates this data in near real-time to both registered and ad-hoc users by either pushing market data through to registered subscribers, or by sending data in a text message to users who send a request via SMS short-code.

Figure 1: A Schematic Diagram of Seafood Marketing Information System

SEAFOOD MARKETING INFORMATION SYSTEM

Partners and Content Providers
- AquaFish Innovation Lab Personnel
- Ministry of Fisheries
- Fisheries Commission
- Water Research Institute
- Fish Farmers & Fishermen
- Seafood Traders & Retailers
- Other stakeholders

Data & Information Input → Marketing Information Exchange Platform → Voice / SMS Query & Information Flow →

Users / Stakeholders
- Farmers & Fishermen
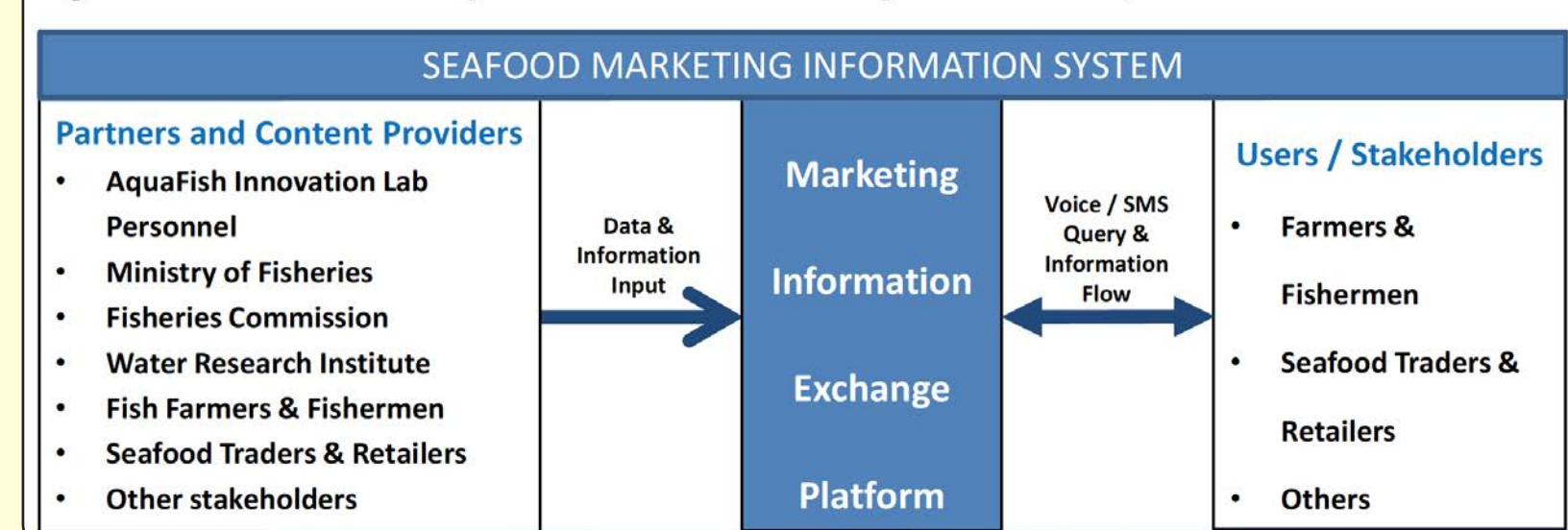- Seafood Traders & Retailers
- Others

Figure from Quagraine, K., S. Amisah, and A. Attah. 2016. *Development of a cell-phone based Seafood Marketing Information System (SMIS) in Ghana: Applications to Tilapia.* AquaFish Innovation Lab, Oregon State University. Corvallis, Oregon 97331.

This method of linking fish farmers and fishers with markets will be particularly effective in Ghana, as mobile phone technology is available to 94% of the population.

Fish farmers and traders alike are benefiting from the services provided by this SMIS, which likely will result in increases in fish quality and yield, reductions in post-harvest losses, and improved incomes across the board. Additionally, the system improves efficiencies throughout the value chain for tilapia, connecting fish farmers to buyers in the market and providing current market prices, which allow farmers to receive higher prices for their product.

Future plans for SMIS in Ghana include expanding its functionality applicability to the marine artisanal fisheries subsector, providing buyer/seller matching services, and providing potential group marketing services for smallholder fish farmers and fishers.

KENYA

In Kenya, AquaFish researchers evaluated the feasibility of building a farmed fish marketing database into an existing network, called the Enhanced Fish Marketing Information System (EFMIS), which provides market information to the capture fisheries sector.

Initiated in 2009, and continuing to this day, the EFMIS is a joint effort between the Kenya Marine and Fisheries Research Institute and the International Labour Organization. EFMIS has made significant progress in expanding the flow of information along the fisheries value chain in Kenya, including establishing a market data and information collection service, creating a system that provides up-to-date market information for more than 150 landing sites on Lake Victoria via mobile technologies, and creating and maintaining a repository of critical fisheries market data (Abila et al. 2013).

AquaFish researchers conducted a pilot study and a workshop to train fish farmers on EFMIS functionality, and determined that creating a dedicated system for synthesizing daily market information on farmed fish to end-users would bolster the aquaculture sector in Kenya.

The EFMIS has proved to be very popular among end-users, with the demand for services growing rapidly throughout the Lake Victoria region shortly after the system was launched. Researchers hope to integrate market prices and data for farmed fish alongside the capture fisheries market data that is currently curated and distributed through the EFMIS, further extending the benefits of this system to fish farmers throughout the country.

Richard O. Abila, W. Ojwang, A. Othina, C. Lwenya, R. Oketch, and R. Okeyo. 2013. *Using ICT For Fish Marketing: The EFMIS Model In Kenya.* Technical Report. DOI: 10.3362/2046-1887.2013.005

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