

## **Kwamena K. Quagraine**

Department of Agricultural Economics / Illinois-Indiana Sea Grant

Purdue University

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### **1. Present Position**

Aquaculture Economics & Marketing Professor / Extension Specialist

### **2. Education**

Ph.D., Agricultural Economics, University of Alberta, Canada

M.S., Agricultural Economics, University of Alberta, Canada

B.S., Agriculture, University of Science and Technology, Ghana

### **3. Professional Experience**

2005 – Present: Director / Assistant Professor / Associate Professor/ Professor, Aquaculture Economics & Marketing / Extension Specialist Purdue University / Illinois-Indiana Sea Grant

2001 – 2005: Assistant Professor, University of Arkansas at Pine Bluff, Pine Bluff, AR

2000 – 2001: Post-Doctoral Fellow, Washington State University, Pullman, WA

### **4. Leadership Development**

2016 – 2017: Purdue University Discovery Park / Entrepreneurial Leadership Academy

2016: Cornell University / Faculty Leadership & Professional Development Program

### **5. Awards and Honors**

2017: Outstanding Service Award, US Aquaculture Society (USAS)

2013: Honorable Mention, Publication of Enduring Quality, Canadian Agricultural Economics Society (CAES)

2012: Mid-Career Award, Purdue University Cooperative Extension Specialists Association (PUCESA).

2009: Distinguished Early Career Award, US Aquaculture Society (USAS)

2009: Member of Purdue University's New Ventures Team/AICC, which received the Distinguished Extension/Outreach Program Group award from Agricultural and Applied Economics Association (AAEA).

### **6. International Fish-Related Technical Experience**

2021: Consultant, U.S. Soybean Export Council, Southeast Asia (USSEC SEA) Aquaculture Project. Aquaculture Economics 101 Workshop - Market Planning and Strategies.

- 2013 – 2018: Lead PI, USAID – Aquaculture and Fisheries Innovation Lab (AquaFish IL) project in Ghana and Tanzania. I supervised a team of scientists and managed projects involving Virginia Polytechnic Institute & State University, VA, University of Arkansas at Pine Bluff, AR, and University of Hawaii at Hilo, HI in the USA; Kwame Nkrumah University of Science and Technology, Ghana; Sokoine University of Agriculture, Tanzania and the Institute of Marine Sciences, University of Dar es Salaam in Zanzibar.
- 2015: Team leader – USAID Bangladesh – Gap Analysis of the Aquaculture Component of the Fisheries sector within the Feed the Future Zone of Influence (FTF ZOI)
- 2013: Consultant, The World Bank Group – Value Chain Analysis for Ghana’s Coastal Artisanal Fisheries.
- 2007 – 2013: (1) Lead PI – Africa Project, USAID – Aquaculture and Fisheries Collaborative Research and Support Program (AquaFish CRSP) project in Ghana, Kenya and Tanzania. Supervised a team of scientists and managed projects involving Virginia Polytechnic Institute & State University, VA and University of Arkansas at Pine Bluff, Arkansas, AR in the USA; Kwame Nkrumah University of Science and Technology, Ghana; Moi University – Eldoret (currently University of Eldoret) and Kenyatta University, Kenya; and Sokoine University of Agriculture, Tanzania.
- (2) Chair, AquaFish CRSP’s Development Theme Advisory Panel (DTAP) on Income Generation for Small-Scale Fishers and Farmers.
- 2005 – 2007: Lead PI – Africa Project, USAID – Aquaculture Collaborative Research and Support Program (Aquaculture CRSP) Work Plan 12 project in Ghana, Kenya and Tanzania. I managed projects administered by Kwame Nkrumah University of Science and Technology, Ghana; Moi University – Eldoret (currently University of Eldoret); and Sokoine University of Agriculture, Tanzania.
- 2002 – 2005: Lead PI – Africa Project, USAID – Aquaculture Collaborative Research and Support Program (Aquaculture CRSP) Work Plan 11 project in Ghana, Kenya and Tanzania. I managed projects administered by Kwame Nkrumah University of Science and Technology, Ghana; Moi University – Eldoret (currently University of Eldoret); and Sokoine University of Agriculture, Tanzania.

## 7. Grants, Contracts and Cooperative Agreements

Total Grants secured as Lead PI / Co-PI: \$8,057,985 since 2005

### ***Funding Agencies:***

- USAID
- NOAA – Sea Grant
- Dept. of Defense
- USDA – Risk Management Agency, Federal/State Market Improvement Program, North Central Regional Aquaculture Center; Illinois Cooperative Extension
- Indiana State Department of Agriculture
- Purdue College of Agriculture / Mary S. Rice Fund

- Purdue College of Agriculture Mission-Oriented Grant
- Indiana Soybean Alliance
- Catfish Farmers of America

## 8. Selected Research / Scholarly Publications

### a. Books

1. Engle, C.R., Quagraine, K.K., and Dey, M.M. *Seafood and Aquaculture Marketing Handbook*. 2<sup>nd</sup> Edition, Wiley-Blackwell Publishing, West Sussex, UK. 2017.
2. Cai, J., Quagraine, K.K., and Hishamunda, N. 2017. *Social and Economic Performance of Tilapia Farming in Africa*. FAO Fisheries and Aquaculture Circular NO. 1132, FIAA/C1132. Rome, Italy.
3. Quagraine, K.K. *The Market for Aquaculture Products: Market Efficiency and Global Competitiveness*. Edited by K.K. Quagraine. Routledge, Abingdon, Oxon, England. 2013

### b. Journal Articles

1. Pinho, S. M., Flores, R. M. V., David, L. H., Emerenciano, M. G., Quagraine, K. K., & Portella, M. C. Economic comparison between conventional aquaponics and FLOCponics systems. *Aquaculture*, 552(15); 737987. 2022.  
<https://doi.org/10.1016/j.aquaculture.2022.737987>
2. Flores, R. M. V., Widmar, N. O., Quagraine, K., Preckel, P. V., & Pedroza Filho, M. X. Establishing Linkages Between Consumer Fish Knowledge and Demand for Fillet Attributes in Brazilian Supermarkets. *Journal of International Food & Agribusiness Marketing*, 1-21, 2021.
3. Akuffo, A.S., Quagraine, K.K., and Obirikorang, K.A. Analysis of the determinants of fish consumption by households in Ghana. *Aquaculture Economics & Management*, 24(3); 294-309, 2020. <https://doi.org/10.1080/13657305.2020.1723734>
4. Chenyambuga, S. W., Munubi, R. S., Madalla, N. A., Quagraine, K., Frimpong, E., and Egna, H. Effects of Fertilization and Concentrate Feeding on Water Quality and Growth Performance of Nile Tilapia (*Oreochromis niloticus*) Grown in Concrete Tanks. *African Journal of Biological Sciences*, 2(4), 65-72, 2020.  
[https://www.afjbs.com/files/1601880160\\_7\\_AFJBS2020065\\_\(p\\_65-72\).pdf](https://www.afjbs.com/files/1601880160_7_AFJBS2020065_(p_65-72).pdf)
5. Quagraine, K.K. Consumer Willingness to Pay for a Saline Fish Species Grown in the US Midwest: The Case of Striped Bass, *Morone saxatilis*. *Journal of the World Aquaculture Society*. 50(1); 163-171, 2019. <https://doi.org/10.1111/jwas.12464>
6. Amankwah, A., and Quagraine, K.K. Aquaculture Feed Technology Adoption and Smallholder Household Welfare in Ghana. *Journal of the World Aquaculture Society*. 50 (4):827-841, 2019. <https://doi.org/10.1111/jwas.12544>
7. Quagraine, K.K., and Chu, J. Determinants of Catch Sales in Ghanaian Artisanal Fisheries. *Sustainability*. 11(2); 298, 2019. <https://doi.org/10.3390/su11020298>

8. Quagraine, K.K., Flores, R.M.V., Kim, Hye-Ji, and McClain, V. Economic Analysis of Aquaponics and Hydroponics Production in the U.S. Midwest, Journal of Applied Aquaculture. 30(1); 1-14, 2018. <https://doi.org/10.1080/10454438.2017.1414009>
9. Amankwah, A., Quagraine, K.K., and Preckel, P.V. Impact of Aquaculture Feed Technology on Fish Income and Poverty in Kenya. Aquaculture Economics & Management. 22(4); 410-430, 2018. <https://doi.org/10.1080/13657305.2017.1413689>
10. Amankwah, A., Quagraine, K.K., and Preckel, P.V. Demand for Improved Fish Feed in the Presence of a Subsidy: A Double Hurdle Application in Kenya. Agricultural Economics. 47(6); 633-643, 2016. <https://doi.org/10.1111/agec.12261>
11. Darko, F.A., Quagraine, K.K., and Chenyambuga, S. Consumer Preferences for Farmed Tilapia in Tanzania: A Choice Experiment Analysis. Journal of Applied Aquaculture 28(3); 131-143, 2016. <https://doi.org/10.1080/10454438.2016.1169965>
12. Anane-Taabeah, G., Quagraine, K.K., and Amisah, S. Assessment of Farmed Tilapia Value Chain in Ghana. Aquaculture International, 24, 903–919, 2016. <https://doi.org/10.1007/s10499-015-9960-1>
13. Ndanga, L.Z.B., Quagraine, K.K., Ngugi, C.C., and Amadiva, J. An Application of Porter’s Framework to Assess Aquaculture Value Chain in Kenya. African Journal of Food, Agriculture, Nutrition and Development. 15(3); 10118–10137, 2015. <https://www.ajfand.net/Volume15/No3/Kwamena13605.pdf>
14. Githukia, C.M., Obiero, K.O., Manyala, J.O., Ngugi, C.C., and Quagraine, K.K. Consumer Perceptions and Preferences of Wild and Farmed Nile Tilapia (*Oreochromis niloticus L.*) and African Catfish (*Clarias gariepinus Burchell 1822*) in Urban Centres in Kenya. International Journal of Advanced Research. 2(7); 694-705, 2014. [https://www.journalijar.com/uploads/934\\_IJAR-3719.pdf](https://www.journalijar.com/uploads/934_IJAR-3719.pdf)
15. Ndanga, L.Z.B., Quagraine, K.K., and Dennis, J.H. Economically Feasible Options for Increased Women Participation in Kenyan Aquaculture Value Chain. Aquaculture. 414–415; 183–190, 2013. <https://doi.org/10.1016/j.aquaculture.2013.08.012>
16. He, C., Quagraine, K.K., and Wang, H.H. Determinants of Shrimp Importation into the USA: An Application of an Augmented Gravity Model. Journal of Chinese Economics and Business Studies. 11(3); 219–228, 2013. <https://doi.org/10.1080/14765284.2013.814466>
17. Gvillo, R.M., Quagraine, K.K., Olynk, N., and Dennis, J.H. Are Midwestern Fish Retailers Willing to Pay More for Regionally Grown Fresh-on-ice Fish? Agricultural Sciences. 4(6A); 39-45, 2013. <https://doi.org/10.4236/as.2013.46A006>
18. Quagraine, K.K., Hughes, K.G., and Xing, A. Delineating Shoppers of Live Seafood in the Midwestern United States. Aquaculture Economics & Management, 15 (3); 155-165, 2011. <https://doi.org/10.1080/13657305.2011.598212>
19. Quagraine, K.K., Xing, A., and Hughes, K.G. Factors Influencing the Purchase of Live Seafood in the North Central Region of the United States. Marine Resource Economics, 26 (1); 59-74, 2011. <https://www.journals.uchicago.edu/doi/abs/10.5950/0738-1360-26.1.59>

20. Quagraine, K.K., Ngugi, C.C., and Amisah, S. Analysis of the use of credit facilities by small-scale fish farmers in Kenya. Aquaculture International, 18 (3); 393-402, 2010. <https://link.springer.com/article/10.1007/s10499-009-9252-8>
21. Quagraine, K.K., Amisah, S., and Ngugi, C.C. Aquaculture Information Sources for Small-Scale Fish Farmers: The Case of Ghana. Aquaculture Research, Vol. 40; 1516-1522, 2009. <https://doi.org/10.1111/j.1365-2109.2009.02252.x>
22. Amisah, S., Adjei-Boateng, D., Obirikorang K. A., and Quagraine, K.K. Effects of clam size on heavy metal accumulation in whole soft tissues of *Galatea paradoxa* (born, 1778) from the Volta estuary, Ghana. International Journal of Fisheries and Aquaculture, 1(2); 14-21, 2009.
23. Amisah, S. Gyampoh, A.B. Sarfo-Mensah, P., and Quagraine, K.K. Livelihood trends in Response to Climate Change in Forest Fringe Communities of the Offin Basin in Ghana. Journal of Applied Sciences and Environmental Management. 13(2); 5–15, 2009. <https://www.ajol.info/index.php/jasem/article/view/55294>
24. Adjei-Boateng, D., Amisah, S., and Quagraine, K.K. Bacteriological contamination of the freshwater clam (*Galatea paradoxa*/born 1778) from the Volta estuary, Ghana. African Journal of Microbiology Research, 3(7); 396-399, 2009.
25. Kumar, G., Quagraine, K.K., and Engle, C. Factors that Influence Frequency of Purchase of Catfish by U.S. Households in Selected Cities. Aquaculture Economics and Management, 12(4); 252-267, 2008. <https://doi.org/10.1080/13657300802494297>
26. Quagraine, K.K., Hart, S.D., and Brown, P.B. An Exploratory Study of Farmers' View on Aquaculture Development in Indiana. Journal of Extension, 46(2); Online Article # 2RIB4. <http://www.joe.org/joe/2008april/rb4.shtml>. 2008.
27. Quagraine, K.K., Hart, S.D., and Brown, P.B. Consumer Acceptance of Locally Grown Food: The Case of Indiana Aquaculture Products. Aquaculture Economics and Management, 12(1); 54–70, 2008.

### **c. Proceedings / Other Publications**

1. Quagraine, K.K. and Shambach, A.M. 2021. "Aquaculture Markets in the Twenty-First Century" Choices. Quarter 4. Available online: <https://www.choicesmagazine.org/choices-magazine/theme-articles/the-economics-of-us-aquaculture/aquaculture-markets-in-the-twenty-first-century>
2. Valle de Souza, S., Quagraine, K. Knudson, W. and Athnos, A. 2021. "Go FISH: U.S. Seafood Consumers Seek Freshness, Information, Safety, and Health Benefits" Choices. Quarter 4. Available online: <https://www.choicesmagazine.org/choices-magazine/theme-articles/the-economics-of-us-aquaculture/go-fish-us-seafood-consumers-seek-freshness-information-safety-and-health-benefits>
3. Akuffo, A.S., and Quagraine, K.K. Local Food Systems and Market Opportunities for Aquaculture. Aquaculture Magazine. April – May, 45(2); 36 – 41, 2019. Available online at: [https://issuu.com/aquaculturemag/docs/aquaculture\\_magazine\\_apr-may2019\\_45](https://issuu.com/aquaculturemag/docs/aquaculture_magazine_apr-may2019_45)

4. Quagraine, K.K., Chu, J., and Meredith, J. 2017. Marketing Choices and Determinants of Profit Margins of Artisanal Fishers in Ghana. In Proceedings of the Eighteenth Biennial Conference of the International Institute of Fisheries Economics and Trade, July 11-15, 2016, Aberdeen, Scotland, UK. <http://ir.library.oregonstate.edu/xmlui/handle/1957/60335>

#### **d. Extension Publications**

1. Quagraine, K. K. “Seafood Survey Results: Consumer Purchase Preferences”. Illinois-Indiana Sea Grant Report IISG21-SAF-RLA-009. <https://iiseagrant.org/wp-content/uploads/2021/04/Seafood-Survey-Results-Consumer-Purchase-Preferences-1.pdf>.
2. Knudson, W., Valle de Souza, S., Quagraine, K. K., Athnos, A., Kinnunen, R., Hitchens, P. and Etumnu, C. Expected 2022. “Reasons Why Seafood is not on Restaurant Menus”. MSU Extension publication.
3. Quagraine, K.K. Profitability of Indoor Production of Pacific White Shrimp (*Litopenaeus vannamei*): A Case Study of the Indiana Industry. Purdue University Extension Publication# EC-797-W / Illinois-Indiana Sea Grant Publication #15-005, May 2015. [https://www.edustore.purdue.edu/item.asp?Item\\_Number=EC-797-W](https://www.edustore.purdue.edu/item.asp?Item_Number=EC-797-W)
4. Quagraine, K.K. Profitability of Hybrid Striped Bass Cage Aquaculture in the Midwest. Purdue University Extension Publication# EC-798-W / Illinois-Indiana Sea Grant Publication #15-004, June 2015. [https://www.edustore.purdue.edu/item.asp?Item\\_Number=EC-798-W](https://www.edustore.purdue.edu/item.asp?Item_Number=EC-798-W)
5. Broughton, M.C., and Quagraine, K.K. Economic Importance of the Aquaculture Industry in Indiana. Purdue University Extension Publication# EC-770-W / Illinois-Indiana Sea Grant Publication #13-70, June 2013. [https://mdc.itap.purdue.edu/item.asp?Item\\_Number=EC-770-W#.Uz2rpVfJaKU](https://mdc.itap.purdue.edu/item.asp?Item_Number=EC-770-W#.Uz2rpVfJaKU)
6. Marshall, M.I., Quagraine, K.K., and Clark, S. Aquaculture Small Business Startup Kit. Purdue University Extension Publication# EC-757-W, February 2009.
7. Quagraine, K. K., and Dennis, J.H. Forming an Effective Fish Farmers’ Marketing Cooperative in Sub-Saharan Africa. AquaFish Collaborative Research Support Program / Purdue University Extension Publication, November, 2009
8. Quagraine, K. K., and Dennis, J.H. Marketing Strategies for Smallholder Fish Farmers in Sub-Saharan Africa. AquaFish Collaborative Research Support Program / Purdue University Extension Publication, November, 2009.
9. Ngugi, C.C., and Quagraine, K.K. Pond Management Fact Sheet: Feeding. AquaFish Collaborative Research Support Program publications, 2009.
10. Ngugi, C.C., and Quagraine, K.K. Pond Management Fact Sheet: Fertilization. AquaFish Collaborative Research Support Program publications, 2009.
11. Ngugi, C.C., and Quagraine, K.K. Pond Management Fact Sheet: Liming. AquaFish Collaborative Research Support Program publications, 2009.
12. Ngugi, C.C. and Quagraine, K.K. Pond Management Fact Sheet: Stocking and harvesting. AquaFish Collaborative Research Support Program publications, 2009.

13. Marshall, M.I., Alexander, C.E., Dennis, J.H., Lopez, R.G., and Quagraine, K.K. Trends in Indiana specialty agriculture. Purdue Agricultural Economics Report: 14–15. 2008.

**e. Instructional Material for Extension**

1. Extension Instructional Video on Aquaponics: DVD and online, 2011  
<http://www.youtube.com/watch?v=26xpMCXP9bw>
2. Extension Instructional Video on Cage Aquaculture: DVD and online, 2011  
<http://www.youtube.com/watch?v=WgfaJvfxA>
3. Indoor Recirculating Aquaculture Analysis (Spreadsheet) 2010  
<http://www.agecon.purdue.edu/aquabusiness/budgets.html>
4. Cage Aquaculture Analysis (Spreadsheet) 2010  
<http://www.agecon.purdue.edu/aquabusiness/budgets.html>
5. Marshall, M.I., K. Quagraine, and S. Clark. “Aquaculture Small Business Startup Kit.” Department of Agricultural Economics, Purdue University. June 2008. Curriculum material developed for beginning aquaculture producers

**9. Paper Presentations**

**a. Invited Papers**

- 2017: “Public Perceptions and Attitudes Towards Aquaculture.” Invited paper presented at the 6<sup>th</sup> National Aquaculture Extension Conference, Boise, ID; June 5-9, 2017.
- 2011: “Aquaculture & Economic Development in the Midwest: The Role of Extension.” Invited paper presented at the 5<sup>th</sup> National Aquaculture Extension Conference, Memphis, TN; June 5-7, 2011.
- 2011: “Indoor Aquaculture Systems: Operational Issues in the North Central Region.” Invited paper presented at Aquaculture America 2011 (Aquaculture on Parade), the National Conference & Exposition of U.S. Aquaculture Society - U.S. Chapter of World Aquaculture Society, National Aquaculture Association and Aquaculture Suppliers Association, New Orleans, LA; February 28 – March 3, 2011.
- 2008: “What Are the Prospects of Aquaculture in Community Supported Agriculture-CSA?” Invited paper presented at Aquaculture America 2008, Orlando, Florida, Feb 9 – 12, 2008.

**b. Selected Papers**

- 1) “The Seafood Basket: Application of Zero-Inflated Models to Fish Count Purchase.” Quagraine, K. K., Valle de Souza, S., Athnos, A., Etumnu, C., Knudson, W., Kinnunen, R. and Hitchens, P. Paper presented at 2021 American Agricultural Economics Association (AAEA) & Western Agricultural Economics Association (WAEA) Joint Annual Meeting in Austin, TX. August 1-3, 2021.
- 2) “U.S. Consumer Preferences and Willingness to Pay for Select Great Lakes Fish”. Athnos, A., Valle de Souza, S., Etumnu, C. E., Quagraine, K. K., Knudson, W., Kinnunen R. and

- Hitchens. P. Poster presented at 2021 American Agricultural Economics Association (AAEA) & Western Agricultural Economics Association (WAEA) Joint Annual Meeting in Austin, TX. August 1-3, 2021.
- 3) "The Live Seafood Market: Analysis of Consumer Willingness-to-Pay". Etumnu, C., Quagraine, K. K., Athnos, A., Valle de Souza, S., Knudson, W., Kinnunen, R. and Hitchens, P. Expected 2021. Paper presented at Aquaculture America 2021 Meeting in San Antonio, TX. August 11-14, 2021.
  - 4) "Bioeconomic modeling of *Litopenaeus vannamei* indoor shrimp farms and low-cost salt mixtures." Quagraine, K. K. and Maier, P. Paper presented at Aquaculture America 2020, World Aquaculture Society, Honolulu, HI. February 11, 2020.
  - 5) "A spatial equilibrium analysis for fish supply and demand in Brazil." Flores, R., Quagraine, K. K., Preckel, P. V., Widmar, N. J. O., paper presented at Aquaculture America 2020, World Aquaculture Society, Honolulu, HI. February 10, 2020.
  - 6) "Economic evaluation of tilapia fingerlings and lettuce production in an aquaponics system in Brazil." Flores, R., Quagraine, K. K., Preckel, P. V., Widmar, N. J. O., Paper presented at Aquaculture America 2020. World Aquaculture Society, Honolulu, HI. February 10, 2020.
  - 7) "Establishing Linkages between Consumer Fish Knowledge and Demand for Fillet Attributes in Brazilian Supermarkets." Flores, R., Quagraine, K. K., Widmar, N. J. O., Preckel, P. V. Paper presented at Aquaculture America 2020, World Aquaculture Society, Honolulu, HI. February 10, 2020.
  - 8) "Tapping into local food systems for aquaculture: what small producers need to know." Quagraine, K. K., Akuffo, A., Paper presented at Aquaculture America 2020, World Aquaculture Society, Honolulu, HI. February 10, 2020.
  - 9) "Economic analysis of aquaponics and Hydroponics production in the US Midwest." Flores, R. and Quagraine, K.K. Paper presented at Aquaculture America 2018, Las Vegas, NV; February 19 – 22, 2018.
  - 10) "Aquaculture and Food Security: An Assessment of Fish Farming Households in Ghana." Akuffo, A. and Quagraine, K.K. Paper presented at World Aquaculture 2017, Cape Town, South Africa; June 26 – 30, 2017.
  - 11) "A Latent-Class Analysis of Household Demand for Seafood in Ghana." Akuffo, A. and Quagraine, K.K. Paper presented at World Aquaculture 2017, Cape Town, South Africa; June 26 – 30, 2017.
  - 12) "Effect of Community Development Outcomes on Seafood Accessibility and Consumption in Tanzania." Akuffo, A. and Quagraine, K.K. Paper presented at World Aquaculture 2017, Cape Town, South Africa; June 26 – 30, 2017.
  - 13) "A Double Hurdle Application of Fishermen's Catch Sales Through Fish Mothers in Ghana." Quagraine, K.K., and J. Chu. Paper presented at the North America Association of Fisheries Economists (NAAFE) Forum 2017, March 21 - 24, 2017, La Paz, Southern Baja California, Mexico.

- 14) "Mobile Phone Technology and Fish Marketing Information System (FMIS) in Ghana." Quagraine, K.K., A. Attah, and S. Amisah. Paper presented at the Aquaculture America 2017, February 19 - 22, 2017, San Antonio, TX.
- 15) "Willingness to Pay for An Unwanted Medicine Collection Program: A double hurdle approach." Delano, S.K.V., and K. K. Quagraine. Paper presented at the 2016 Agricultural & Applied Economics Association (AAEA), July 31-August 2, 2016, Boston, MA.
- 16) "Marketing Choices and Determinants of Profit Margins of Artisanal Fishers in Ghana." Quagraine, K.K. and J. Chu. Poster presented at International Institute of Fisheries Economics & Trade (IIFET) 2016, July 11 – 15 2016, Aberdeen, Scotland.
- 17) "Food Security in Fish Farming Communities in Ghana." Quagraine, K. K. and A. Akuffo. Paper presented at Asian-Pacific Aquaculture (APA) 2016, April 26 - 29, 2016, Surabaya, Indonesia.
- 18) "Health and Cultural Determinants of Household Food Security in Tanzania," Akuffo, A., and K. K. Quagraine. Paper presented at World Aquaculture Society (WAS) 2016, February 22 – 26, 2016, Las Vegas, NV.
- 19) "The Role of Aquaculture in Household Food Security: An Assessment of Rural Farmers in Ghana," Akuffo, A., and K. K. Quagraine. Paper presented at Aquaculture America (AA) 2015, February 19 – 22, 2015, New Orleans, LA.
- 20) "Impact of Aquaculture Feed Technology on Income and Poverty in Kenya," Amankwah, A., and K. K. Quagraine. Paper presented at Aquaculture America 2015, February 19 – 22, 2015, New Orleans, LA.
- 21) "Demand for Improved Fish Feed in the Presence of Subsidy: A Double-hurdle Application in Kenya," Amankwah, A., and K. K. Quagraine. Paper presented at Aquaculture America 2015, February 19 – 22, 2015, New Orleans, LA.
- 22) "Aquaculture Product Development and Marketing Innovation for Sustainable Small-Scale Aquaculture in Kenya," Macaria, S., K. K. Quagraine, C.C. Ngugi, and J. Amadiva. Paper presented at World Aquaculture Society 2014, February 9 – 12, 2014, Seattle, WA.
- 23) "Effects of Fertilization and Feeding Level on Productivity of Tilapia Pond Culture in Ghana," Adjei-Boateng, D., C.D. Prah, R.E. Edziyie, and K. K. Quagraine. Paper presented at Aquaculture 2014, February 9 – 12, 2014, Seattle, WA.
- 24) "Economic Impact Analysis of the Aquaculture Industry in the State Of Indiana," Broughton, M., and K. K. Quagraine. Paper presented at Aquaculture 2013, February 21 – 25, 2013, Nashville, TN.
- 25) "Maintaining Warm Water Temperatures for Indoor Fish Culture in the Midwest U.S.," Rode, R., and K. K. Quagraine. Paper presented at Aquaculture 2013, February 21 – 25, 2013, Nashville, TN.
- 26) "Assessment of Tilapia Value Chain in Ghana," Anane-Taabeah, G., K. K. Quagraine, J. Dennis and S. Amisah. Paper presented at Aquaculture 2013, February 21 – 25, 2013, Nashville, TN.

- 27) "Impact of Aquaculture Best Management Practices Adoption on Technical Efficiency of Kenyan Fish Farms: A Stochastic Frontier Analysis," Amankwah, A., and K. K. Quagraine. Paper presented at Aquaculture 2013, February 21 – 25, 2013, Nashville, TN.
- 28) "Adoption of Aquaculture Best Management Practices in Kenya," Amankwah, A., and K. K. Quagraine. Paper presented at Aquaculture 2013, February 21 – 25, 2013, Nashville, TN.
- 29) "Small Aquaculture Operations in Kenya and Adoption of Aquaculture Best Management Practices" Macaria, S. K., and K. K. Quagraine. Paper presented at Aquaculture 2013, February 21 – 25, 2013, Nashville, TN.
- 30) "Technical Efficiency of Aquaculture Production in Kenya: An Application of Stochastic Frontier Analysis," Munyua, P., K. K. Quagraine, P. Preckel and G. Shively. Paper presented at Aquaculture 2013, February 21 – 25, 2013, Nashville, TN.
- 31) "Technical Efficiency of Aquaculture Production in Kenya: Data Envelopment Analysis, Anova, OLS and Tobit Models in Second Stage Analysis," Munyua, P., K. K. Quagraine, P. Preckel and G. Shively. Paper presented at Aquaculture 2013, February 21 – 25, 2013, Nashville, TN.
- 32) "Economically Feasible Supply Chain Options For Increased Female Participation in Kenyan Aquaculture Chain" Ndanga, Leah Z.B., K. K. Quagraine and J. Dennis. Paper presented at Aquaculture America 2012, February 29 – March 2, 2012, Las Vegas, NV.
- 33) "A Gender Based Value Chain Analysis of the Tilapia and Catfish Aquaculture Chain in Kenya: Key Regional Differences" Ndanga, Leah Z.B., K. K. Quagraine and J. Dennis. Paper presented at Aquaculture America 2012, February 29 – March 2, 2012, Las Vegas, NV.
- 34) "Incentives for Supplying Fresh Fish on Ice in the Midwest," Gvillo, R.M., K.K. Quagraine, N. Olynk, and J. Dennis. Paper presented at Aquaculture America, February 28 – March 3, 2011, New Orleans, LA.
- 35) "Consumer Preference for Farmed Tilapia and Catfish in Ghana and Kenya," Darko, F.A., K.K. Quagraine, J. Dennis, N. Olynk and O. Doering. Paper presented at Aquaculture America, February 28 – March 3, 2011, New Orleans, LA.
- 36) "Heterogeneous Preferences: Consumer Purchase Decision on Live Fish Products," Quagraine, K.K. Paper presented at Aquaculture 2010; March 1 - 5, 2010, San Diego, California.
- 37) "Catfish, *Clarias gariepinus* Fingerlings as Bait for Lake Victoria Commercial Fisheries," Ngugi, C., and K. K. Quagraine. Paper presented at Aquaculture America 2009, Feb 15 - 18, 2009, Seattle, WA.
- 38) "Modeling Purchasing Decisions of Locally Produced Aquaculture Products: A Case Study of Indiana Restaurateurs and Grocers" Quagraine, K.K. and Hart, S.D. Paper presented at World Aquaculture 2008, May 20 - 23, 2008, Busan, South Korea.
- 39) "Study of Fish Farmers Source of Aquaculture Information in Ghana," Quagraine, K.K., S. Amisah, and C.C. Ngugi. Paper presented at World Aquaculture 2008, May 20 - 23, 2008, Busan, South Korea.

- 40) “The Use of Credit in Fish Production in Kenya,” Quagraine, K.K., C.C. Ngugi and S. Amisah. Paper presented at World Aquaculture 2008, May 20 - 23, 2008, Busan, South Korea.

## 10. Student Research and Advising

- a. Ph.D. Degree 4 students
- b. M.S. Degree 17 students

## 11. Professional Services

### a. Editorship

- i. **2007 – Present: Associate Editor, Journal of Applied Aquaculture**. Coordinates the review of submitted manuscripts with focus on economics and social sciences.
- ii. **2007 – Present: Member of the Editorial Board: Aquaculture Economics and Management**, the Journal for International Association of Aquaculture Economics and Management.
- iii. **2011 - Guest Editor: Aquaculture Economics and Management**, Vol. 15, No. 3, 2011; the Journal for International Association of Aquaculture Economics and Management.

### b. Association Activities

- i. **2019 – 2021: Secretary / Treasurer**, US Aquaculture Society (USAS).
- ii. **2015 – 2017: Director**, member of US Aquaculture Society (USAS) Board of Directors – USAS is dedicated to the exchange of information and networking among the diverse constituencies interested in advancing US aquaculture.
- iii. **2016 – 2018: Member**, World Aquaculture Society (WAS) Elections Committee.
- iv. **2018 – 2020: Member**, World Aquaculture Society (WAS) Policy, Rules and Regulations Committee.

### c. Reviewer

- i. **2000 – Present: Journal Reviewer:**
  - Aquaculture Economics & Management
  - Journal of the World Aquaculture Society
  - American Journal of Agricultural Economics
  - Journal of Agricultural and Applied Economics
  - Agricultural and Resource Economics Review
  - Marine Resource Economics
  - North American Journal of Aquaculture Environment and Development Economics
  - Canadian Journal of Agricultural Economics, Agricultural Economics
  - African Journal of Agricultural and Resource Economics
  - International Food and Agribusiness Management Review

- ii. **2017 – Present: Reviewer**, National Science Foundation - NSF. Reviews competitive grant aquaculture-related proposals.
- iii. **2005 – Present: Reviewer**, USDA-NIFA Small Business Innovation Research Program, Marketing and Trade. Reviews competitive grant aquaculture-related proposals.
- iv. **2012 – Present: Reviewer**, NOAA-Sea Grant College Program. Reviews competitive grant aquaculture-related proposals.

**d. Session Organizer/Chair/Moderator**

- i. **2017 - Session Organizer and Chair**, Building Aquaculture Value Chains in Africa, World Aquaculture 2017, Cape Town, South Africa; June 26 – 30, 2017.
- ii. **2017 - Session Organizer and co-Chair**, Aquaculture Economics & Management, World Aquaculture 2017, Cape Town, South Africa; June 26 – 30, 2017.
- iii. **2011 - Session Panelist**, Aquaculture Extension & Economic Development Panel Discussion session, 5th National Aquaculture Extension Conference, Memphis, TN; June 5-7, 2011.
- iv. **2011 - Session Organizer and co-Chair**, Marketing and Globalization session, 9th Asia Fisheries & Aquaculture Forum, Shanghai, China; April 21 – 25, 2011.
- v. **2010 - Session Organizer and co-Chair**, Market Efficiency - Implications for Global Competitiveness session, Aquaculture 2010 - San Diego, California; March 1 - 5, 2010.
- vi. **2008 - Session Chair**, Diversity in Production Economics and Marketing Analysis session, WORLD AQUACULTURE 2008 - The Annual International Conference & Exposition of World Aquaculture Society and Korean Aquaculture Society, Busan, Korea; May 20 – 23, 2008.

**12. Governmental Service Activities**

- i. **2005 – present: Member**, USDA National Organic Program (NOP) Aquatic Species Task Force - Aquaculture Working Group. This group is tasked with developing organic standards for US aquaculture.
- ii. **2005 – 2018: Member**, USAID Aquaculture/Fisheries Collaborative Research Support Program (AquaFish CRSP) Development Themes Advisory Panel (DTAP). The panel is a technical advisory groups is tasked to build community among all CRSP participants, identify potential additional partnerships, and bridge the knowledge gap from local-regional to global development outcomes. Dr. Quagraine leads the “Income Generation” group.
- iii. **2011 – Present: Member**, USDA North Central Region Aquaculture Center (NCRAC) Board of Directors. NCRAC is one of five Regional Aquaculture Centers administered by the USDA's NIFA.
- iv. **2011 – Present: Member**, USDA NCRAC Extension Technical Committee. The technical committee works with the industry advisory council to formulate program priorities.