

**ASSESSING THE STATUS OF AQUACULTURE ASSOCIATIONS IN THE NORTH
CENTRAL REGION**

Chairperson: Carole R. Engle, Engle-Stone Aquatic\$ LLC

Industry Advisory Council Liaison: Phil Shambach

Extension Liaison: Matthew A. Smith

Funding Request: \$34,977

Duration: 1 year (July 1, 2016 to June 30, 2017)

Objectives:

1. To design and implement a survey of aquaculture producers throughout the NCR to identify reasons why they have either never joined a state association, joined but then did not renew their membership, or are current members.
2. To measure how producers value the various types of activities undertaken by state associations, identify the types of services or programs that would attract membership, and identify barriers and challenges to organizing and sustaining state aquaculture associations.
3. To develop strategies likely to increase membership and strengthen state associations.

Deliverables:

1. Final report that summarizes survey results and recommendations for strategies to increase membership and strengthen state associations. Final report will be submitted to NCRAC and to participants in the NCRAC leadership training program.
2. Presentation to NCRAC leadership training program participants.
3. Fact sheet that summarizes key survey results and project recommendations to be distributed to each state aquaculture association and each aquaculture extension specialist in the region. Fact sheet will also be disbursed throughout the NCR via listservs and posted to several NCR university websites and NCRAC's website.

Proposed Budget:

| Institution | Principal Investigators | Objectives | Year 1 Budget |
|--|-----------------------------------|-------------------|----------------------|
| National Aquaculture Association/ Engle-Stone Aquatic\$ LLC | Paul Zajicek/ Dr. Carole Engle | 1, 2, 3 | \$21,000 |
| Michigan State University | Dr. Chris Weeks | 1, 2, 3 | \$3,500 |
| University of Minnesota | Dr. Nicholas Phelps | 1, 2, 3 | \$3,500 |
| Purdue University | Dr. Kwamena Quagrainie | 1, 2, 3 | \$3,477 |
| Ohio State University | Dr. Tom Worley | 1, 2, 3 | \$3,500 |
| Totals | | | \$34,977 |

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PROJECT SUMMARY

The 2015 NCR Call for Statements of Interest included a project to strengthen state associations in the region, with objectives related to assessing state associations and developing strategies to strengthen them. The NCR Board approved a leadership training project, but lacked funding to also assess the status of associations.

Strong industry associations provide support for industry growth. However, in the North Central Region, only four states have active state aquaculture associations, four others have associations that meet infrequently or have minimal activity, and four others no longer have active associations (Figure 1). Strengthening state aquaculture associations would contribute to revitalization of the aquaculture industries in these states.

Given the NCRAC goal of “establishing strong and vibrant state aquaculture associations,” it is essential to first have a thorough understanding of 1) why some aquaculture producers choose to join associations and others do not; 2) how producers value the various types of activities undertaken by state associations; 3) what types of services or programs would attract membership; and 4) what barriers and challenges exist to organizing and sustaining state aquaculture associations. Such information would inform the leadership training program that has been approved by the Board, and form the basis for developing effective strategies to strengthen state associations in the NCR.

JUSTIFICATION

There is ample evidence that strong trade associations contribute to strong industry development. Trade associations are non-profit organizations of businesses that operate in a specific industry. Such associations typically focus on collaborations among companies, but many also engage in a wide variety of other activities. Trade associations can: provide services like organizing conferences, webinars, and workshops, or develop public relations activities to advertise and promote the industry. A recent survey by the American Society of Association Executives listed the following as the 10 most important reasons for a business to join a trade association: 1) networking, 2) events, 3) professional development, 4) learning best practices, 5) access to the latest industry news, 6) access to member-only resources, and 6) supporting the organization's mission. Trade associations have played major roles in the growth and development of many industries in the U.S. Better understanding of the most important expectations and reasons for joining and maintaining membership in the various aquaculture trade associations will help those associations focus on high priority activities and services.

This project represents a collaboration among the National Aquaculture Association, Engle-Stone Aquatic\$ LLC, Michigan State University, the University of Minnesota, The Ohio State University, and Purdue University. The National Aquaculture Association and Engle-Stone Aquatic\$ LLC bring skills and expertise in association building, strengthening, and management. The four universities involved will contribute their extension expertise and skills as well as their familiarity with farmers in the region.

This project addresses Goal #2 of the North Central Regional Aquaculture Center's Strategic Plan, “to build a strong aquaculture community in the North Central states,” specifically Objective B, to “Initiate the NCRAC leadership training program to build capacity within the North Central states’ aquaculture community to more effectively voice the community’s concerns, funding opportunities, and increase networking.” The North Central Region recognized that efforts to strengthen state aquaculture associations and to develop industry leadership in the region would best be accomplished by first assessing existing and previous members of both strong and currently defunct

state aquaculture associations in the region. In fact, the 2015 NCR Call for Statements of Interest included a request for a project that would include an objective related to assessing state associations and developing strategies to strengthen them. However, funding limitations resulted in funding only the leadership training and development portion of the project. The leadership training and development project will benefit from information obtained through a survey of state association members and non-members, both those that used to belong to an association and those that have never belonged to one.

RELATED CURRENT AND PREVIOUS WORK

A survey conducted by the Office of the Director of the North Central Aquaculture Center showed that only one-third of the states in the North Central Region have associations that meet or hold functions on a regular basis (Fig. 1). Yet research has shown that associations contribute to industry growth through increased entrepreneurial activity (Techchandani 2014). This positive effect of associations on the growth of industries occurs in several fashions. Firstly, associations provide an important networking function by organizing conferences, workshops, and other meetings that offer opportunities for interaction among their membership (Greenwood et al. 2002). Centers of expertise can emerge through frequent and effective interactions among the membership in an association (Marshall and Standifrid 2005).

Few formal studies have been done on effects of aquaculture associations on industry growth and development. In a recent study, Prokopovych (2015) found that associations of shellfish growers in the Northeast area of the United States (U.S.) created value and promoted cooperation among shellfish growers in the region. In the Prokopovych (2015) study, shellfish associations on the East Coast were found to organize workshops, conferences, identify research needs, educate the general public on their industry and disseminate industry news, and information to their membership. Shellfish associations disseminated information on shellfish poisonings for specific locations, prevention of spread of invasive species that predate on shellfish, and on research updates.

Prokopovych (2015) asked the shellfish respondents in the sampling frame to respond to questions about the relative importance of a variety of different types of association activities. Ninety percent of industry respondents rated receiving information on issues such as shellfish diseases and invading species that predate on shellfish as “important” or “extremely important.” Seventy-five percent of respondents rated information on products and suppliers at this same level.

In the U.S., there are quite a few aquaculture associations other than the shellfish ones referred to by Prokopovych (2015) that provide a wide variety of services to their members. Engle-Stone Aquatic LLC (ESA) completed a national survey across the United States for the National Aquaculture Association in 2015. This survey provided information on how respondents rate the importance of association functions such as networking, events (eg., conferences and meetings), professional development, learning best practices, industry news, supporting the organization's mission, and public relations. It also asked respondents to rate the value of membership in each association that he/she belonged to as well as to rate the value of a series of individual member benefits such as: media alerts, conferences, webinars, newsletters, representation at trade shows, food shows, engagement with regulatory agencies, and other benefits.

Over half of the respondents in the ESA survey were from the southeast and northeast regions of the U.S. More than 13 different types of aquaculture species groups were represented with relatively more respondents raising trout, oysters, and catfish. Respondents belonged to 47 different state, species, and national associations. These included 10 national associations, 9 species associations, and 28 state associations. However, only 5% of respondents did not belong to any aquaculture association. Ratings by respondents of the various types of functions offered by aquaculture associations revealed that the opportunity for networking received the highest score (4.7 on a 5-point scale), followed by supporting the organization's mission (4.5), events such as conferences

and professional development (4.3), industry news (4.3), public relations (4.2), and learning best practices (4.2). Questions related to loyalty and satisfaction with the various associations indicated that members tended to be more satisfied with national and species associations than with state associations. A number of state associations were found to be struggling with membership and viability. Thus, a survey to identify factors that contribute to strong state associations appears to be relevant and timely, not just to the North Central Region, but to other regions as well.

An important limitation to the ESA survey is that there were very few respondents who were not members of any association, in spite of concerted efforts to obtain responses from both members and non-members of association. There is no way to know whether: 1) those who do not belong to an association are simply the types of individuals who do not join groups; 2) non-respondents were groups of people with needs different from what aquaculture associations provide; or 3) non-respondents were unaware of the benefits/services offered by the various associations.

Moreover, there was very little participation in the ESA survey (1% of respondents) from the North Central Region. Thus, the national survey results do not represent the North Central Region well enough to chart out a plan for stimulating renewed support for aquaculture associations in the North Central Region.

STATEMENT OF DUPLICATION OF RESEARCH

The USDA Current Research Information System (CRIS or REEport) was accessed to review any related or relevant research and that the proposed work is original research and does not duplicate any **previously funded projects in CRIS. The following NOAA databases of previously funded projects were also accessed to ensure that the proposed work does not duplicate previous research:** 1) National Sea Grant Office Funding Page (<http://www.seagrant.noaa.gov/funding/rfp.html>); 2) website of state Sea Grant Program (<http://www.seagrant.noaa.gov/other/programsdirectors.html>); and 3) NOAA Office of Aquaculture Funding Opportunities Page (<http://www.nmfs.noaa.gov/aquaculture/funding/funding.html>).

ANTICIPATED BENEFITS

This project will improve understanding of reasons why some producers join state associations in the North Central Region and others do not. Identification of the types of activities that could be developed by associations that are more likely to attract and retain members is likely to result in greater membership and vibrancy in the medium term. In the long term, the goal is that the information obtained in this survey will have contributed to increased membership in state associations in the region.

Outreach and Evaluation Plan. The LOGIC model for the project is presented on p. 3 of this proposal. Results of the survey and recommended strategies to enhance state associations will be presented to the North Central Regional Aquaculture Center in the final report and will also be made available to participants in the new NCRAC project, “Professional Development Training in the North Central Region.” Presentations will be made in the project workshops to provide participants with project results. Although beyond the expected life of the project, results will be presented at the 2018 NCRAC conference. In addition, a summary of results will be sent to each state association in the North Central Region, and to all extension aquaculture specialists in the region. Extension specialists will assist the state associations with implementing the results of this study. A summary of results will also be posted on the NCRAC website, several NCR university websites, and in a Buckeye Aquafarming article.

The initial step in the evaluation of the project is to measure whether the objectives were accomplished. Thus, successful completion of the project involves completion of the survey, tabulation and analysis of results, and delivery of the final report. In the intermediate term,

following project completion, the evaluation would include monitoring use of survey results in the new project, "Professional Development Training in the North Central Region." In the longer-term, the impact would be based on whether there is increased activity on the part of state associations in the region.

OBJECTIVES

The overall objective of this project is to assess the status of aquaculture associations in the NCR. Specific objectives include:

1. To design and implement a survey of aquaculture producers throughout the NCR to identify reasons why they have either never joined a state association, joined but then did not renew their membership, or are current members.
2. To measure how producers value the various types of activities undertaken by state associations, identify the types of services or programs that would attract membership, and identify barriers and challenges to organizing and sustaining state aquaculture associations.
3. To develop strategies likely to increase membership and strengthen state associations.

PROCEDURES

This project will draw upon results of a recent national survey conducted by Engle-Stone Aquatic\$ LLC (ESA) on behalf of the National Aquaculture Association (NAA) to identify the most important reasons for joining an aquaculture association and what types of services or programs attract membership. The ESA survey followed guidelines of the American Society of Association Executives (ASAE) and took advantage of questions used by ASAE to measure satisfaction with and loyalty to the association.

The survey will be administered to all known aquaculture producers in the North Central Region, regardless of whether they have ever joined an association or not. The list frame for the survey will be developed in consultation with extension aquaculture specialists, existing state aquaculture associations, state aquaculture coordinators, permit listings from state agencies, and industry representatives. The survey design and questionnaire will draw upon the most successful approaches of the NAA survey, but will focus on state-specific information. Given that there are varying preferences by respondents in terms of ways to respond to surveys, a variety of methods will be used. For example, some producers refuse to respond to internet-based surveys, while others prefer them. Thus, to attempt to obtain the highest possible response rate, the survey will be administered as an internet instrument, as an E-mail mailout, and by telephone.

The industry surveys in each state will be expected to provide baseline descriptive information related to the types of individuals who have been active in their state associations and their reasons and motivation for being active. Similar information will be collected from individuals who have not been active in their state aquaculture association and will identify reasons for them not joining or not being active. Information on membership in species-specific and national associations will also be recorded. Additional questions will ask respondents to rate various benefits and services provided generally by associations (i.e. networking opportunities through conferences, industry news through newsletters and alerts, public relations, educational activities, etc.) and then to rate those provided by their state association. Respondents who are members of an association will be asked questions that have been determined to be representative measures of satisfaction with and loyalty to the association (as developed by the ASAE). Such questions will ask respondents to rate (on a 5-point scale) the value received from membership, the likelihood of renewing their

membership, and the likelihood of recommending membership to others. Those who once were members but have not renewed their membership in a state association will be asked why they have not renewed. Respondents who have not been members of an association will be asked what types of benefits/services would entice them to join. Other questions will prompt respondents to indicate the highest priority benefits/services and topics that associations should provide to their members.

For respondents in those states without a state aquaculture association, open-ended questions will be asked about the barriers and challenges to forming an association. If an association once existed in the state, information will be requested on the reasons for its demise. The survey will determine whether producers in states without a state aquaculture association are members of species-specific or national associations and how they value the various services provided by the associations that they do belong to.

The questionnaire developed will include information that will allow for cross tabulations for comparative purposes. Information on farm size, species raised, production systems used, and state where farm is located will be collected. Open-ended questions will be included in the questionnaire that will solicit information related to barriers to formation and continuation of associations, types of benefits and services that would entice them to join an association (for those who are not currently members) or to renew their membership (for current members), and topics, activities, or issues that respondents believe should be addressed by an association or that should be addressed more effectively.

The questionnaire will be reviewed by the extension personnel participating in this project from the North Central Region. The revised questionnaire will be pre-tested in several states in the region (including those with and without a state association). Efforts will be made to pre-test the questionnaire with farmers who belong to an association and with farmers who do not belong to an association. The pre-test will evaluate the clarity of the wording of the questions, the flow of the questions, and the overall ease of administration of the survey. Additional revisions will be made as necessary following the pre-test.

Survey data will be collected, summarized, and described. Cross tabulations of data will allow for comparisons of responses between: 1) members and non-members of state associations; 2) their state association and either species-specific or national associations; 3) states in the region; 4) farm sizes; 5) farms that raise different species; 6) farms that use different production systems (include wild harvested bait and aquaponics); and 7) size of aquaculture industry in the state (based on USDA Census of Aquaculture data).

LOGIC MODEL: ASSESSING THE STATUS OF AQUACULTURE ASSOCIATIONS IN THE NORTH CENTRAL REGION

Situation: There has been a generally declining trend in state aquaculture associations in the North Central Region. Yet, strong and vibrant state associations contribute in many positive ways to growth and development of aquaculture industries.

Goal: To assess the status of state aquaculture associations in the North Central Region.

Objective: To identify key reasons underlying decisions to join state associations, renew memberships, or to not participate in state associations, from which to develop strategies to increase participation in state aquaculture associations.

| Inputs | Outputs | | Outcomes – Impact | | |
|-------------------|--|--|---|--|---|
| | Activities | Deliverables | Knowledge gain | Behavior change | Conditions |
| Project personnel | Design & implement survey of aquaculture producers in region | Descriptive results of survey | Improved understanding of reasons why some producers join and others do not. | New activities by associations that focus on those more likely to attract members. | Increased membership and activity in state associations |
| Project personnel | Analyze survey data | Comparison of responses among members/non-members and across states | Improved understanding of reasons why some producers join and others do not. | New activities by associations that focus on those more likely to attract members. | Increased membership and activity in state associations |
| Project personnel | Disseminate results and conclusions of survey to all associations in region, to NCRAC, to all extension personnel, to all state aquaculture coordinators | 1) Project final report; 2) summaries of key findings; 3) recommendations for strategies to strengthen state aquaculture associations. | Improved understanding of strategies that would likely strengthen state aquaculture strategies and of barriers to organizing and sustaining associations. | New activities by associations that focus on those more likely to attract members. | Increased membership and activity in state associations |

FACILITIES

This project does not require brick and mortar facilities. Computers already available by the NAA, Engle-Stone Aquatic\$ LLC, Michigan State University, the University of Minnesota, The Ohio State University, and Purdue University will be made available for the project.

REFERENCES

Greenwood, R., & Suddaby, R. (2006). Institutional entrepreneurship in mature fields: The Big Five accounting firms. *Academy of Management Journal*, 49(1): 27–48.

Marshall, R. S., & Standifird, S. S. (2005). Organizational resource bundles and institutional change in the U.S. organic food and agricultural certification sector. *Organization & Environment*, 18(3): 265–286.

Prokopovych, B. 2015. The emergence of new markets for environmental services: the role of U.S. shellfish industry associations. Master's thesis, University of Massachusetts, Amherst, Massachusetts.

Teckchandani, A. (2014). Do membership associations affect entrepreneurship? The effect of type, composition, and engagement. *Nonprofit and Voluntary Sector Quarterly*, 43(2 Suppl): 84S–104S.

PROJECT LEADERS

| State | Name/Institution | Area of Specialization |
|---|--|-----------------------------------|
| Michigan | Dr. Chris Weeks/Michigan State University | Aquaculture Engineering/Extension |
| Minnesota | Dr. Nicholas Phelps/University of Minnesota | Fish Disease/Extension |
| Indiana | Dr. Kwamena Quagraine, Purdue University | Economics, Marketing/Extension |
| Ohio | Dr. Tom Worley, The Ohio State University | Agriculture Economics |
| National Aquaculture Association | Dr. Carole Engle/Engle-Stone Aquatic\$ LLC Dr. Paul Zajicek/NAA | Aquaculture Economics |

(One-page vitae are attached for all project participants. Dr. Carole Engle, of Engle-Stone Aquatic\$ LLC, will provide overall leadership for the project with support from Paul Zajicek, of the National Aquaculture Association. Dr. Chris Weeks, of Michigan State University, Dr. Nicholas Phelps, of the University of Minnesota, Dr. Kwamena Quagraine of Purdue University, and Dr. Tom Worley of The Ohio State University, will assist with review of the survey instrument, drafting letters of notification of the upcoming survey, compiling list frames for the survey, review of the project report, and interpretation of survey results.)

Extension/Outreach Coordinator: Matthew A. Smith of The Ohio State University will serve as Extension/Outreach Coordinator for the projects

BUDGET

The proposed budget is for \$34,977 to design and implement the survey, analyze the data and write the report from the project. This includes \$21,000 for the National Aquaculture Association/Engle-Stone Aquatic\$ LLC to manage the overall project, design and implement the survey, analyze the data, and draft the report. Funding also includes \$3,500, primarily in travel for Michigan State University, University of Minnesota, The Ohio State University, and \$3,477 for Purdue University to review the survey instrument, email out a letter of notification for the survey, compile the list frame for the survey, provide assistance with interpretation of results, develop recommendations of strategies to strengthen state aquaculture associations, and review the final report.

UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATIVE STATE RESEARCH, EDUCATION, AND
EXTENSION SERVICE - **BUDGET**

| | | | | | | | | | |
|--|--|--|----------------------------------|---|--|--|--|--|---|
| ORGANIZATION AND ADDRESS National Aquaculture Association P.O. Box 12759 Tallahassee, FL 32317 | | | | USDA AWARD NO. _____ Year 1: Objectives 1, 2, 3 | | | | | |
| | | | | DURATION PROPOSED MONTHS: <u>12</u> | | DURATION PROPOSED MONTHS: _____ | | Non-Federal Proposed Cost-Sharing/Matching Funds (If required) | Non-federal Cost-Sharing/Matching Funds Approved by CSREES (If Different) |
| PROJECT DIRECTOR(S) Paul Zajicek Carole Engle | | | | Funds Requested by Proposer | | Funds Approved by CSREES (If different) | | | |
| A. Salaries and Wages | | | CSREES-FUNDED WORK MONTHS | | | | | | |
| 1. No. Of Senior Personnel | | | Calendar | Academic | Summer | | | | |
| a. ___ (Co)-PD(s) | | | | | | | | | |
| b. ___ Senior Associates | | | | | | | | | |
| No. of Other Personnel (Non-Faculty) | | | | | | | | | |
| b. ___ Other Professionals | | | | | | | | | |
| c. ___ Paraprofessionals | | | | | | | | | |
| d. ___ Graduate Students | | | | | | | | | |
| e. ___ Prebaccalaureate Students..... | | | | | | | | | |
| f. 1 Secretarial-Clerical 0.5 month | | | | | | \$1,000 | | | |
| g. ___ Technical, Shop and Other..... | | | | | | | | | |
| Total Salaries and Wages | | | | | | \$1,000 | | | |
| B. Fringe Benefits (If charged as Direct Costs) | | | | | | 0 | | | |
| C. Total Salaries, Wages, and Fringe Benefits (A plus B) | | | | | | \$1,000 | | | |
| D. Nonexpendable Equipment (Attach supporting data. List items and dollar amounts for each item.) | | | | | | | | | |
| E. Materials and Supplies | | | | | | \$500 | | | |
| F. Travel | | | | | | | | | |
| G. Publication Costs/Page Charges | | | | | | | | | |
| H. Computer (ADPE) Costs | | | | | | | | | |
| I. Student Assistance/Support (Scholarships/fellowships, stipends/tuition, cost of education, etc. Attach list of items and dollar amounts for each item.) | | | | | | | | | |
| J. All Other Direct Costs (In budget narrative, list items and dollar amounts, and provide supporting data for each item.) | | | | | | \$19,500 | | | |
| K. Total Direct Costs (C through J) | | | | | | | | | |
| L. F&A/Indirect Costs (If applicable, specify rate(s) and base(s) for on/off campus activity. Where both are involved, identify itemized costs included in on/off campus bases.) | | | | | | | | | |
| M. Total Direct and F&A/Indirect Costs (K plus L) | | | | | | | | | |
| N. Other..... | | | | | | | | | |
| O. Total Amount of This Request | | | | | | \$21,000 | | | |
| P. Carryover -- (If Applicable) Federal Funds: \$ _____ Non-Federal funds: \$ _____ Total \$ _____ | | | | | | | | | |
| Q. Cost-Sharing/Matching (Breakdown of total amounts shown on line O) | | | | | | | | | |
| Cash (both Applicant and Third Party) | | | | | | | | | |
| - Non Cash Contributions (both Applicant and Third Party) | | | | | | | | | |
| NAME AND TITLE (Type or print) | | | | | SIGNATURE (required for revised budget only) | | | | DATE |
| Project Director | | | | | | | | | |
| Authorized Organizational Representative | | | | | | | | | |
| Signature (for optional use) | | | | | | | | | |

BUDGET EXPLANATION FOR NATIONAL AQUACULTURE ASSOCIATION

(Zajicek/Engle)

OBJECTIVES: 1, 2, 3

E. MATERIALS AND SUPPLIES: (Items and costs)

| Items | Year 1 | Total |
|--|---------|---------|
| Office supplies (pens, paper, toner, etc.) | \$1,000 | \$1,000 |
| | | |
| | | |
| Total | \$1,000 | \$1,000 |

F. TRAVEL (DOMESTIC):

Year 1: All travel is domestic and will be used for survey pre-testing and implementation.

Subcontract from NAA to Engle-Stone Aquatic\$ LLC

| Items | Year 1 | Total |
|--|----------|----------|
| Salaries & Wages | \$18,000 | \$18,000 |
| Fringe Benefits | \$0 | \$0 |
| Total Salaries Wages & Fringe Benefits | \$18,000 | \$18,000 |
| Nonexpendable Equipment | \$0 | \$0 |
| Materials & Supplies | \$500 | \$500 |
| Travel: Project Personnel | \$1,000 | \$1,000 |
| All Other Direct Costs | \$0 | \$0 |
| Total | \$19,500 | \$19,500 |

| | | | | | | | |
|--|--|----------------------------------|----------|---|---|---|---|
| ORGANIZATION AND ADDRESS University of Minnesota 1333 Gortner Avenue St. Paul, MN 55108 | | | | USDA AWARD NO. Year 1: Objectives 1, 2, 3 | | | |
| PROJECT DIRECTOR(S) Nicholas Phelps | | | | DURATION PROPOSED MONTHS: <u>12</u> Funds Requested by Proposer | DURATION PROPOSED MONTHS: _____ Funds Approved by CSREES (If different) | Non-Federal Proposed Cost-Sharing/ Matching Funds (If required) | Non-federal Cost-Sharing/Matching Funds Approved by CSREES (If Different) |
| A. Salaries and Wages | | CSREES-FUNDED WORK MONTHS | | | | | |
| 1. No. Of Senior Personnel | | Calendar | Academic | Summer | | | |
| a. (Co)-PD(s)..... | | | | | | | |
| b. Senior Associates..... | | | | | | | |
| No. of Other Personnel (Non-Faculty) | | | | | | | |
| b. Other Professionals..... | | | | | | | |
| c. Paraprofessionals..... | | | | | | | |
| d. Graduate Students..... | | | | | | | |
| e. Prebaccalaureate Students | | | | | | | |
| f. Secretarial-Clerical..... | | | | | | | |
| g. Technical, Shop and Other | | | | | | | |
| Total Salaries and Wages <input type="checkbox"/> | | | | | | | |
| B. Fringe Benefits (If charged as Direct Costs) | | | | | | | |
| C. Total Salaries, Wages, and Fringe Benefits (A plus B) <input type="checkbox"/> | | | | | | | |
| D. Nonexpendable Equipment (Attach supporting data. List items and dollar amounts for each item.) | | | | | | | |
| E. Materials and Supplies | | | | | | | |
| F. Travel | | | | | \$3,500 | | |
| G. Publication Costs/Page Charges | | | | | | | |
| H. Computer (ADPE) Costs | | | | | | | |
| I. Student Assistance/Support (Scholarships/fellowships, stipends/tuition, cost of education, etc. Attach list of items and dollar amounts for each item.) | | | | | | | |
| J. All Other Direct Costs (In budget narrative, list items and dollar amounts, and provide supporting data for each item.) | | | | | | | |
| K. Total Direct Costs (C through J) <input type="checkbox"/> | | | | | | | |
| L. F&A/Indirect Costs (If applicable, specify rate(s) and base(s) for on/off campus activity. Where both are involved, identify itemized costs included in on/off campus bases.) | | | | | | | |
| M. Total Direct and F&A/Indirect Costs (K plus L) | | | | | | | |
| N. Other..... <input type="checkbox"/> | | | | | | | |
| O. Total Amount of This Request <input type="checkbox"/> | | | | | \$3,500 | | |
| P. Carryover -- (If Applicable) Federal Funds: \$ | | Non-Federal funds: \$ | | Total \$ | | | |
| Q. Cost-Sharing/Matching (Breakdown of total amounts shown on line O) | | | | | | | |
| Cash (both Applicant and Third Party) . | | | | | | | |
| - Non Cash Contributions (both Applicant and Third Party) | | | | | | | |
| NAME AND TITLE (Type or print) | | | | SIGNATURE (required for revised budget only) | | | DATE |
| Project Director | | | | | | | |
| Authorized Organizational Representative | | | | | | | |
| Signature (for optional use) | | | | | | | |

BUDGET EXPLANATION FOR MINNESOTA STATE UNIVERSITY

(Phelps)

OBJECTIVES: 1, 2, 3

A. SALARIES AND WAGES:

There are no salaries or wages charged.

B. FRINGE BENEFITS:

Year 1: \$0 Year 2: \$0.

D. MATERIALS AND SUPPLIES:

| Items | Year 1 | Total |
|-----------------|--------|-------|
| Office supplies | \$0 | \$0 |
| | | |
| | | |
| | | |
| Total | \$0 | \$0 |

E. TRAVEL (DOMESTIC):

Year 1: All travel is domestic and consists of travel expenses to both notify participants about the upcoming survey, to pre-test the survey instrument, to implement the survey, and to participate in project meetings.

| Items | Year 1 | Total |
|---------------------------|---------|---------|
| Travel: Project Personnel | \$3,500 | \$3,500 |
| | | |
| | | |
| Total | \$3,500 | \$3,500 |

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UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATIVE STATE RESEARCH,
EDUCATION, AND EXTENSION SERVICE-**BUDGET**

| | | | | | | | |
|--|--|----------------------------------|----------|---|---|---|---|
| ORGANIZATION AND ADDRESS Michigan State University Dept. of Fisheries & Wildlife East Lansing, MI 48824 | | | | USDA AWARD NO. Years 1: Objectives 1, 2, 3 | | | |
| PROJECT DIRECTOR(S) Chris Weeks | | | | DURATION PROPOSED MONTHS: <u>12</u> Funds Requested by Proposer | DURATION PROPOSED MONTHS: _____ Funds Approved by CSREES (If different) | Non-Federal Proposed Cost-Sharing/ Matching Funds (If required) | Non-federal Cost-Sharing/Matching Funds Approved by CSREES (If Different) |
| A. Salaries and Wages | | CSREES-FUNDED WORK MONTHS | | | | | |
| 1. No. Of Senior Personnel | | Calendar | Academic | Summer | \$2,600 | | |
| a. (Co)-PD(s)..... | | 12 | | | | | |
| b. Senior Associates..... | | | | | | | |
| No. of Other Personnel (Non-Faculty) | | | | | | | |
| b. Other Professionals..... | | | | | | | |
| c. Paraprofessionals..... | | | | | | | |
| d. Graduate Students..... | | | | | | | |
| e. Prebaccalaureate Students..... | | | | | | | |
| f. Secretarial-Clerical..... | | | | | | | |
| g. Technical, Shop and Other | | | | | | | |
| Total Salaries and Wages | | | | | | | |
| B. Fringe Benefits (If charged as Direct Costs) | | | | | \$900 | | |
| C. Total Salaries, Wages, and Fringe Benefits (A plus B) | | | | | | | |
| D. Nonexpendable Equipment (Attach supporting data. List items and dollar amounts for each item.) | | | | | | | |
| E. Materials and Supplies | | | | | \$0 | | |
| F. Travel | | | | | \$0 | | |
| G. Publication Costs/Page Charges | | | | | | | |
| H. Computer (ADPE) Costs | | | | | | | |
| I. Student Assistance/Support (Scholarships/fellowships, stipends/tuition, cost of education, etc. Attach list of items and dollar amounts for each item.) | | | | | | | |
| J. All Other Direct Costs (In budget narrative, list items and dollar amounts, and provide supporting data for each item.) | | | | | | | |
| K. Total Direct Costs (C through J) | | | | | | | |
| L. F&A/Indirect Costs (If applicable, specify rate(s) and base(s) for on/off campus activity. Where both are involved, identify itemized costs included in on/off campus bases.) | | | | | | | |
| M. Total Direct and F&A/Indirect Costs (K plus L) | | | | | | | |
| N. Other..... | | | | | | | |
| O. Total Amount of This Request | | | | | \$3,500 | | |
| P. Carryover -- (If Applicable) Federal Funds: \$ | | Non-Federal funds: \$ | | Total \$ | | | |
| Q. Cost-Sharing/Matching (Breakdown of total amounts shown on line O) | | | | | | | |
| Cash (both Applicant and Third Party) . | | | | | | | |
| - Non Cash Contributions (both Applicant and Third Party) | | | | | | | |
| NAME AND TITLE (Type or print) | | | | SIGNATURE (required for revised budget only) | | | DATE |
| Project Director | | | | | | | |
| Authorized Organizational Representative | | | | | | | |
| Signature (for optional use) | | | | | | | |

BUDGET EXPLANATION FOR MICHIGAN STATE UNIVERSITY

(Weeks)

OBJECTIVES: 1, 2, 3

Funds requested: \$3,500

Grant Period: 7/1/16 - 6/30/17

Grant Title: Assessing the Status of Aquaculture Associations in the North Central Region

A. SALARIES AND WAGES (\$3,500)

Senior Personnel PD/PI - Weeks \$2,600 (3.3% effort) for 12 months with fringe rate \$900 (37.79%) to assist other investigators with survey development, questionnaire review and mailing lists.

C. PERMANENT EQUIPMENT (0)

D. MATERIALS AND SUPPLIES (0)

| Items | Y | T |
|-----------------|-----|-----|
| Office supplies | \$0 | \$0 |
| | | |
| | | |
| Total | \$0 | \$0 |

E. TRAVEL (0)

F. OTHER DIRECT COSTS (0)

G. INDIRECT COSTS (0)

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UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATIVE STATE RESEARCH, EDUCATION, AND
EXTENSION SERVICE

| | | | | | | | |
|--|--|----------------------------------|----------|---|---|---|---|
| ORGANIZATION AND ADDRESS Purdue University Dept. of Agricultural Economics West Lafayette, IN | | | | USDA AWARD NO. Years 1: Objectives 1, 2, 3 | | | |
| PROJECT DIRECTOR(S) Kwamena Quagraine | | | | DURATION PROPOSED MONTHS: <u>12</u> Funds Requested by Proposer | DURATION PROPOSED MONTHS: _____ Funds Approved by CSREES (If different) | Non-Federal Proposed Cost-Sharing/ Matching Funds (If required) | Non-federal Cost-Sharing/Matching Funds Approved by CSREES (If Different) |
| A. Salaries and Wages | | CSREES-FUNDED WORK MONTHS | | | | | |
| 1. No. Of Senior Personnel | | Calendar | Academic | Summer | | | |
| a. (Co)-PD(s)..... | | | | | | | |
| b. Senior Associates..... | | | | | | | |
| No. of Other Personnel (Non-Faculty) | | | | | | | |
| b. Other Professionals..... | | | | | | | |
| c. Paraprofessionals..... | | | | | | | |
| d. Graduate Students..... | | | | | | | |
| e. Prebaccalaureate Students..... | | | | | | | |
| f. Secretarial-Clerical..... | | | | | | | |
| g. Technical, Shop and Other..... | | | | | | | |
| Total Salaries and Wages | | | | | | | |
| B. Fringe Benefits (If charged as Direct Costs) | | | | | | | |
| C. Total Salaries, Wages, and Fringe Benefits (A plus B) | | | | | | | |
| D. Nonexpendable Equipment (Attach supporting data. List items and dollar amounts for each item.) | | | | | | | |
| E. Materials and Supplies | | | | | \$0 | | |
| F. Travel | | | | | \$3,477 | | |
| G. Publication Costs/Page Charges | | | | | | | |
| H. Computer (ADPE) Costs | | | | | | | |
| I. Student Assistance/Support (Scholarships/fellowships, stipends/tuition, cost of education, etc. Attach list of items and dollar amounts for each item.) | | | | | | | |
| J. All Other Direct Costs (In budget narrative, list items and dollar amounts, and provide supporting data for each item.) | | | | | | | |
| K. Total Direct Costs (C through J) | | | | | | | |
| L. F&A/Indirect Costs (If applicable, specify rate(s) and base(s) for on/off campus activity. Where both are involved, identify itemized costs included in on/off campus bases.) | | | | | | | |
| M. Total Direct and F&A/Indirect Costs (K plus L) | | | | | | | |
| N. Other..... | | | | | | | |
| O. Total Amount of This Request | | | | | \$3,477 | | |
| P. Carryover -- (If Applicable) Federal Funds: \$ | | Non-Federal funds: \$ | | Total \$ | | | |
| Q. Cost-Sharing/Matching (Breakdown of total amounts shown on line O) | | | | | | | |
| Cash (both Applicant and Third Party) . | | | | | | | |
| - Non Cash Contributions (both Applicant and Third Party) | | | | | | | |
| NAME AND TITLE (Type or print) | | | | SIGNATURE (required for revised budget only) | | | DATE |
| Project Director | | | | | | | |
| Authorized Organizational Representative | | | | | | | |
| Signature (for optional use) | | | | | | | |

BUDGET EXPLANATION FOR PURDUE UNIVERSITY

(Quagraine)

OBJECTIVES: 1, 2, 3

A. SALARIES AND WAGES:

There are no salaries and wages charged.

B. FRINGE BENEFITS:

Year 1: \$0 Year 2: \$0.

E. MATERIALS AND SUPPLIES:

| Items | Year 1 | Total |
|-----------------|--------|-------|
| Office supplies | \$0 | \$0 |
| | | |
| | | |
| Total | \$0 | \$0 |

F. TRAVEL (DOMESTIC):

Total: \$3,477

Year 1: All travel is domestic and consists of travel expenses to both notify participants about the upcoming survey, to pre-test the survey instrument, to implement the survey, and to participate in project meetings. There will be 5 trips 14 days and 12 overnight stays. Paid mileage (average return of 250 miles @ \$0.54/mile (\$675); lodging for 12 nights stay (\$1,302); and per diem for 14 days (\$1,500).

| Items | Year 1 | Total |
|---------------------------|---------|---------|
| Travel: Project Personnel | \$3,477 | \$3,477 |
| | | |
| | | |
| Total | \$3,477 | \$3,477 |

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UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATIVE STATE RESEARCH, EDUCATION, AND
EXTENSION SERVICE

| | | | | | | | |
|--|--|----------------------------------|----------|---|---|---|---|
| ORGANIZATION AND ADDRESS The Ohio State University South Centers Piketon, OH | | | | USDA AWARD NO. Years 1: Objectives 1, 2, 3 | | | |
| | | | | DURATION PROPOSED MONTHS: <u>12</u> Funds Requested by Proposer | DURATION PROPOSED MONTHS: _____ Funds Approved by CSREES (If different) | Non-Federal Proposed Cost-Sharing/ Matching Funds (If required) | Non-federal Cost-Sharing/Matching Funds Approved by CSREES (If Different) |
| PROJECT DIRECTOR(S) Tom Worley | | | | | | | |
| A. Salaries and Wages | | CSREES-FUNDED WORK MONTHS | | | | | |
| 1. No. Of Senior Personnel | | Calendar | Academic | Summer | | | |
| a. (Co)-PD(s)..... | | | | | | | |
| b. Senior Associates..... | | | | | | | |
| No. of Other Personnel (Non-Faculty) | | | | | | | |
| b. Other Professionals..... | | | | | | | |
| c. Paraprofessionals..... | | | | | | | |
| d. Graduate Students..... | | | | | | | |
| e. Prebaccalaureate Students..... | | | | | | | |
| f. Secretarial-Clerical..... | | | | | | | |
| g. Technical, Shop and Other | | | | | | | |
| Total Salaries and Wages | | | | | | | |
| B. Fringe Benefits (If charged as Direct Costs) | | | | | | | |
| C. Total Salaries, Wages, and Fringe Benefits (A plus B) | | | | | | | |
| D. Nonexpendable Equipment (Attach supporting data. List items and dollar amounts for each item.) | | | | | | | |
| E. Materials and Supplies | | | | \$100 | | | |
| F. Travel | | | | \$3,400 | | | |
| G. Publication Costs/Page Charges | | | | | | | |
| H. Computer (ADPE) Costs | | | | | | | |
| I. Student Assistance/Support (Scholarships/fellowships, stipends/tuition, cost of education, etc. Attach list of items and dollar amounts for each item.) | | | | | | | |
| J. All Other Direct Costs (In budget narrative, list items and dollar amounts, and provide supporting data for each item.) | | | | | | | |
| K. Total Direct Costs (C through J) | | | | | | | |
| L. F&A/Indirect Costs (If applicable, specify rate(s) and base(s) for on/off campus activity. Where both are involved, identify itemized costs included in on/off campus bases.) | | | | | | | |
| M. Total Direct and F&A/Indirect Costs (K plus L) | | | | | | | |
| N. Other..... | | | | | | | |
| O. Total Amount of This Request | | | | \$3,500 | | | |
| P. Carryover -- (If Applicable) Federal Funds: \$ | | Non-Federal funds: \$ | | Total \$ | | | |
| Q. Cost-Sharing/Matching (Breakdown of total amounts shown on line O) | | | | | | | |
| Cash (both Applicant and Third Party) . | | | | | | | |
| - Non Cash Contributions (both Applicant and Third Party) | | | | | | | |
| NAME AND TITLE (Type or print) | | | | SIGNATURE (required for revised budget only) | | DATE | |
| Project Director | | | | | | | |
| Authorized Organizational Representative | | | | | | | |
| Signature (for optional use) | | | | | | | |

BUDGET EXPLANATION FOR THE OHIO STATE UNIVERSITY

(Worley)

OBJECTIVES: 1, 2, 3

A. SALARIES AND WAGES:

There are no salaries and wages charged.

B. FRINGE BENEFITS:

Year 1: \$0 Year 2: \$0.

E. MATERIALS AND SUPPLIES:

Year 1: Summary of project results and the Fact Sheet will be printed and distributed through the South Centers as needed in order to facilitate the dissemination of information.

| Items | Year 1 | Total |
|-----------------------------------|--------|-------|
| Office supplies (toner and paper) | \$100 | \$100 |
| | | |
| | | |
| Total | \$100 | \$100 |

F. TRAVEL (DOMESTIC):

Year 1: All travel is domestic and consists of travel expenses to both notify participants about the upcoming survey, to pre-test the survey instrument, to implement the survey, and to participate in project meetings.

| Items | Year 1 | Total |
|---------------------------|---------|---------|
| Travel: Project Personnel | \$3,400 | \$3,400 |
| | | |
| | | |
| Total | \$3,400 | \$3,400 |

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BUDGET SUMMARY FOR EACH YEAR FOR EACH PARTICIPATING INSTITUTIONS

Summary Budget, Year 1, By Institution

| | National Aquaculture Association | Michigan State University | University of Minnesota | Purdue University | The Ohio State University | Total |
|--|----------------------------------|---------------------------|-------------------------|-------------------|---------------------------|---------------|
| Salaries and Wages | 1,000 | 2,600 | 0 | 0 | 0 | 3,600 |
| Fringe Benefits | 0 | 900 | 0 | 0 | 0 | 900 |
| Total Salaries, Wages, and Fringe Benefits | 1,000 | 0 | 0 | 0 | 0 | 4,500 |
| Nonexpendable Equipment | 0 | 0 | 0 | 0 | 0 | 0 |
| Materials and Supplies | 500 | 0 | 0 | 0 | 100 | 600 |
| Travel | | | | | | |
| Project Personnel | 0 | 0 | 3,500 | 3,477 | 3,400 | 10,377 |
| All Other Direct Costs | | | | | | |
| Subcontract with Engle-Stone Aquatic\$ LLC | 19,500 | 0 | 0 | 0 | 0 | 19,500 |
| TOTAL | 21,000 | 3,500 | 3,500 | 3,477 | 3,500 | 34,977 |

Subcontract from National Aquaculture Association to Engle-Stone Aquatic\$ LLC

Summary Budget, Year 1

| Item | Amount to Engle-Stone Aquatic\$ LLC |
|--|--|
| Salaries and Wages | 0 |
| Fringe Benefits | 0 |
| Total Salaries, Wages, and Fringe Benefits | 18,000 |
| Nonexpendable Equipment | 0 |
| Materials and Supplies | 500 |
| Travel | |
| Project personnel | 1,000 |
| All Other Direct Costs | 0 |
| TOTAL | 19,500 |

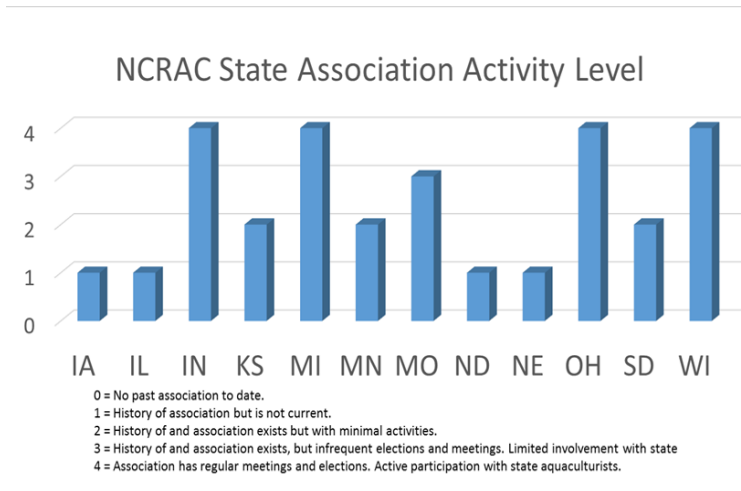


Figure 1. Classification by state of activity level of state aquaculture associations, North Central Region. Source: Office of the North Central Regional Aquaculture Center (2015).

SCHEDULE FOR COMPLETION OF OBJECTIVES

Months 1 to 3: Initiate Objective 1. The survey instrument will be designed, reviewed, and pre-tested in the first 3 months of the project. The list frame of respondents will be developed and all preparations for implementation of the survey completed.

Months 4 to 7: Complete Objective 1. The survey will be implemented and data collection completed. Objective 2 will be initiated with data entered, checked, and cross checked.

Months 8 to 10: Objective 2 will be completed. Data entry will be completed, and data will be summarized and cross tabulated.

Months 11 to 12: Objective 3 will be completed. Project team will identify and recommend strategies to increase membership and strengthen state associations. Final report will be submitted.

PARTICIPATING INSTITUTIONS AND PRINCIPAL INVESTIGATORS

Engle-Stone Aquatic\$ LLC
Carole Engle

University of Minnesota
Nicholas Phelps

Purdue University
Kwamena Quagrainie

Michigan State University
Chris Weeks

The Ohio State University
Tom Worley

National Aquaculture Association
Paul Zajicek

VITA

Carole Engle
Engle-Stone Aquatic\$ LLC
320 Faith Lane
Strasburg, VA 22657

Phone: 870-489-4259
E-mail: cengle8523@gmail.com

EDUCATION

B.S. Friends World College, 1975, Biology/Rural Development
M.S. Auburn University, 1978, Aquaculture Economics
Ph.D. Auburn University, 1981, Aquaculture Economics

POSITIONS

July 1, 2015 – present Member/Manager, Engle-Stone Aquatic\$ LLC
1996-2015 Chairperson/Director, Aquaculture and Fisheries, UAPB, retired June 30, 2015
1994-present Professor, Aquaculture/Fisheries Center, Assoc. Prof. 1988-1994, UAPB
1986-88 Assistant Professor, Economics, Auburn University at Montgomery
1984-85 Fisheries Economist, Inter-American Development Bank, Panama
1981-83 Visiting Professor, Universidad Centroamericana, Nicaragua

SCIENTIFIC AND PROFESSIONAL ORGANIZATIONS

World Aquaculture Society, Director
International Assoc. Aquaculture Economics & Management, Past President, current Board member
U.S. Aquaculture Society (U.S. Chapter of WAS), Past-President
Catfish Farmers of Arkansas, Board member
Catfish Farmers of America
Arkansas Bait and Ornamental Fish Growers Association

SELECTED PUBLICATIONS

Engle, C.R. 2010. Aquaculture Economics and Financing: Management and Analysis. Blackwell Scientific, Ames, Iowa.

Engle, C.R., K. Quagraine, and M. Dey. 2016. Seafood and Aquaculture Marketing, Second Edition. Wiley Science, Inc., Boston, Massachusetts.

Kumar, G., C.R. Engle, and C.S. Tucker. 2016. Costs and risk of catfish split-pond systems. Journal of the World Aquaculture Society 47(3):doi: 10.1111/jwas.12271.

Kumar, G. and C.R. Engle. 2016. Technological advances that led to growth of shrimp, salmon, and tilapia farming. Reviews in Fisheries Science and Aquaculture 24(2):136-152.

Bastola, U., C. Engle, M. Dey, and L. Xie. 2015. Mathematical modeling of channel catfish foodfish production in multiple-batch. Aquaculture Economics & Management 19(4).

Dorr, B. and C.R. Engle. 2015. Influence of simulated double-crested cormorant, *Phalacrocorax auritus*, predation on multiple-batch production of channel catfish, *Ictalurus punctatus*. Journal of the World Aquaculture Society 46(3):319-327.

Johnson, K., C. Engle, and B. Wagner. 2014. Comparative economics of U.S. catfish production strategies: evidence from a cross-sectional survey. Journal of the World Aquaculture Society 45(3):279-289.

VITA

Nicholas B. D. Phelps, Assistant Professor
University of Minnesota, Department of Veterinary Population Medicine
1333 Gortner Ave, St. Paul, MN 55108

Ph: 612-624-7450
Fx: 612-624-8707
Email: phelp083@umn.edu

EDUCATION

| | | | |
|-----|-----------------------------------|------|-----------------------|
| BS | Bemidji State University | 2005 | Aquatic Biology |
| MS | University of Arkansas-Pine Bluff | 2007 | Aquaculture/Fisheries |
| PhD | University of Minnesota | 2012 | Veterinary Medicine |

POSTIONS

2013-Present Assistant professor, Veterinary Population Medicine Dept, College of Veterinary Medicine, University of Minnesota

2009-Present Aquaculture specialist, Extension, University of Minnesota

2009-2013 Instructor, Veterinary Population Medicine Dept, College of Veterinary Medicine, University of Minnesota

2007-Present Lead, Aquatic Diagnostic Program, Veterinary Diagnostic Laboratory, University of Minnesota

2007-2009 Scientist, Veterinary Diagnostic Laboratory, University of Minnesota

SELECTED PUBLICATIONS

Escobar, L. E., J. Escobar-Dodero, G. Kurath, M. E. Craft, N. B. D. Phelps. In press. Potential distribution of the viral hemorrhagic septicemia virus (VHSV) in the Great Lakes region. *Journal of Fish Disease*.

Mor, S. K. *, N. B. D. Phelps. In press. Detection and molecular characterization of a novel piscine myocarditis-like virus from baitfish in the USA. *Viruses*.

Phelps, N. B. D., S. K. Mor *, A. Armién, K. Pelican, S. M. Goyal. 2015. Description of the microsporidian parasite, *Heterosporis sutherlandae* n. sp., infecting fish in the Great Lakes region, USA. *PLOS One* 10(8):e0132027.

Papenfuss, J. T., N. B. D. Phelps, D. Fullton, P. Venturelli. 2015. Smartphones reveal angler behavior: A case-study of a popular mobile fishing application in Alberta, Canada. *Fisheries* 40:318-327.

Phelps, N.B. D., M. E. Craft, D. Travis, K. Pelican, S. M. Goyal. 2014. Risk-based management of viral hemorrhagic septicemia virus (VHSV-IVb) in Minnesota. *North American Journal of Fisheries Management* 34:373-379.

Phelps, N. B. D., S. K. Mor, A. G. Armien, W. Batts, A. E. Goodwin, L. Hopper, R. McCann, T. F. F. Ng, C. Puzach, T. B. Waltzek, E. Delwart, J. Winton, S. Goyal. 2014. Characterization of the novel fathead minnow picornavirus. *PLOS One* 9:e87593.

VITA

Christopher Weeks
PhD, Michigan State University
Department of Fisheries and Wildlife
East Lansing, Michigan 48824

Phone: (517) 353-2298
Fax: (517) 353-7198
E-mail: weekschr@msu.edu

EDUCATION

| | | | |
|-------|----------------------------|------|---|
| B.S. | San Diego State University | 1986 | Aerospace Engineering |
| M.S. | Michigan State University | 1997 | Fisheries and Wildlife – Fish Population Dynamics |
| Ph.D. | Michigan State University | 2007 | Fisheries and Wildlife – Aquaculture/Fish Nutrition |

POSITIONS

| | |
|----------------|--|
| 2008 – Present | Regional Aquaculture Extension Specialist, North Central Regional Aquaculture Center |
| 2012 | Adjunct Professor, University of Alaska |
| 2007 – 2008 | Research Associate / Specialist, Michigan State University Dept. of Fisheries and Wildlife |
| 1996 – 2009 | Consultant, Aquaculture Bioengineering Corp., Rives Junction, Michigan |
| 2003 – 2007 | Lab Manager, Michigan State University Aquatic Animal Health Lab |
| 2002 – 2007 | Graduate Assistant, Michigan State University |
| 2000 – 2001 | Aquaculture Facility Manager, Stoney Creek Fisheries, Harrietta, Michigan |
| 1998 – 2000 | Hatchery Manager, Great Black Creek Fish Co., Black Creek, Wisconsin |
| 1989 – 1993 | Cade Industries, Engineer, San Diego, California; Lansing, Michigan |
| 1986 – 1989 | McDonnell Douglas, Engineer, Long Beach, California |

SELECTED PUBLICATIONS

Colyn, J., G. Boersen and C.T.Weeks. 2014. A strategic plan for a thriving and sustainable Michigan aquaculture – Michigan Sea Grant integrated assessment.
http://michiganaquaculture.org/wp-content/uploads/2014/04/2014-MAA-Strategic-Plan_2.25.14.pdf

Weeks C.T. 2013. Sustainable aquaculture in the north central region US - review of perceptions and recommendations from the aquaculture community. Journal of Extension v51 no.2 - 2COM1.

Weeks C.T. 2011. Incorporating deliverables into the NCRAC project development process. North Central Regional Aquaculture Center Report. North Central Regional Aquaculture Center, December 2011.

Weeks C.T. 2011. NCR aquaculture critical needs assessment report. North Central Regional Aquaculture Center Report, October 2011.

Weeks C.T., L. Tiu and J. Morris, 2010. Improving information transfer to the NCR aquaculture industry, extension priorities and work plan development. Report to North Central Regional Aquaculture Center. East Lansing, Michigan.

VITA

Kwamena K. Quagraine
Dept. of Agricultural Economics, Purdue University
403 W. State St., Krannert Bldg.
West Lafayette, IN 47907-2056

Phone: (765) 494 4200
Fax: (765) 494 9176

EDUCATION

BS. Agriculture, 1982, University of Science and Technology, Ghana
MS Agricultural Economics, 1995, University of Alberta, Edmonton, Canada
Ph.D. Agricultural Economics, 2000, University of Alberta, Edmonton, Canada

POSITIONS

2005 to present: Associate Professor/Aquaculture Marketing Director/Aquaculture Economics & Marketing Extension Specialist, Purdue University and Illinois-Indiana Sea Grant College Program, West Lafayette, IN

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

SELECTED PUBLICATIONS

Quagraine, K.K. (2013) Editor, *The Market for Aquaculture Products: Market Efficiency and Global Competitiveness*. Routledge, Abingdon, Oxon, England. 2013 Engle, C.R. and Quagraine, K.K. (2006). *The Aquaculture Marketing Handbook*. Blackwell Publishing, Ames, Iowa.

Anane-Taabeah, G., K.K. Quagraine, and S. Amisah. Assessment of Farmed Tilapia Value Chain in Ghana. *Aquaculture International*, 1-17 (2015): 10.1007/s10499-015-9960-1.

Ndanga, L.Z.B., K.K. Quagraine, C.C. Ngugi, and J. Amadiva. An Application of Porter's Framework to Assess Aquaculture Value Chain in Kenya. *African Journal of Food, Agriculture, Nutrition and Development*. 15(3) 2015: 10118–10137.

Githukia, C.M., K.O. Obiero, J.O. Manyala, C.C. Ngugi, and K.K. Quagraine. "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) 2014: 694-705.

Ndanga, L.Z.B., K.K. Quagraine and J.H. Dennis. "Economically Feasible Options for Increased Women Participation in Kenyan Aquaculture Value Chain." *Aquaculture*, (414–415) 2013: 183–190.

He, C., K.K. Quagraine, and H.H. Wang. 2013 "Determinants of Shrimp Importation into the USA: An Application of an Augmented Gravity Model." *Journal of Chinese Economics and Business Studies*, 11(3) 2013: 219–228.

Gvillo, R.M., Quagraine, K.K., Olynk, N., and Dennis, J.H. 2013 Are Midwestern Fish Retailers Willing to Pay More for Regionally Grown Fresh-on-ice Fish? *Agricultural Sciences*. 4(6A) 2013: 39-45.

Quagraine, K.K., K.G. Hughes and A. Xing,. "Delineating Shoppers of Live Seafood in the Midwestern United States." *Aquaculture Economics & Management*, 15 (3) 2011: 155-165

VITA

Thomas Worley, Ph.D.
Director, Ohio State University South Centers
1864 Shyville Rd.
Piketon OH 45661

Phone: 740-289-2071
Email: worley.36@osu.edu

EDUCATION

- 1973 B.S. Agriculture, (Agribusiness Management) The Ohio State University.
1977 M.S. Agriculture, (Agricultural Marketing) The Ohio State University.
1990 Ph.D. Agricultural Economics, (Markets and Trade) The Ohio State University.

POSTIONS

- 2005-Present Director, The Ohio State University South Centers, Piketon, Ohio and Associate Professor, Department of Agricultural, Environmental and Development Economics, OSU, Columbus.
2001 - 2004 Coordinator of Operations, The Ohio State University South Centers, Piketon, Ohio.
2000 - 2001 Research and Extension Economist, Piketon Research and Extension Center, The Ohio State University, Piketon, Ohio.
1990 - 2000 State Extension Specialist: Agribusiness and Marketing and Assistant and Associate Professor with tenure, Department of Agricultural Economics, Washington State University, Pullman Washington.

SELECTED PUBLICATIONS

- Boulay, David A., C.T. Worley and Barnes, M. 2008. Engagement through information: supporting technology commercialization. *Journal of Agricultural and Food Information*, Vol 9(4), pp 310-316, 2008.
- Worley, Thomas, John Ellerman, Dave Mangione, et.al. 2004. Meat goat market Analysis: a pilot study of the Somali Market in Columbus Ohio. *Journal of Food Distribution*, Volume 35(1), pp.182-187, March 2004.
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- Worley, Thomas and Jill McCluskey. 2000. Production contracts as a means of vertical coordination with application to the wheat industry. *Journal of Food Distribution Research*, Volume 31(1)pp.215-224, March 2000.
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- Worley, Thomas, Raymond J. Folwell, and Gian Luca Bagnara. 1996. Tarrification under the Uruguay Round of GATT: the case of Swiss asparagus trade. *Journal of Food Distribution Research*, Volume 27(1)pp. 45-49, February 1996.

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EDUCATION

| | | | |
|------|---------------------------------|------|---------------------------------|
| B.S. | Florida Institute of Technology | 1977 | Biology/Marine Biology |
| M.S. | University of Florida | 1986 | Agriculture/Sales and Marketing |

POSITIONS

| | |
|--------------------|--|
| 12/2014 to Present | Executive Director, previously Development Director, National Aquaculture Association. |
| 2012-2014 | Environmental Administrator, Florida Dept of Agriculture and Consumer Services |
| 1999-2012 | Biological Administrator, FDACS 1987- |
| 1999 | Development Representative, FDACS |
| 1978-1986 | Manager, The Bait Box |
| 1969-1976 | Field Biologist, Caretta Research, Inc. |

SCIENTIFIC AND PROFESSIONAL ORGANIZATIONS

American Fisheries Society Florida Aquaculture Association North
American Sturgeon and Paddlefish Society
U.S. Aquaculture Society World Aquaculture Society

SELECTED PUBLICATIONS

Zajicek, P., A.E. Goodwin and T. Weier. 2011. Triploid grass carp: triploid induction, sterility, reversion, and certification. *North American Journal of Fisheries Management* 31(4): 614-618.

Zajicek, P., S. Hardin, and C. Watson. 2009. A Florida marine ornamental pathway risk analysis. *Reviews in Fisheries Science* 17(2): 156-169.

Zajicek, P.W., T. Weier, S. Hardin, J.R. Cassani and V. Mudrak. 2009. A triploid grass carp risk analysis specific to Florida. *Journal of Aquatic Plant Management* 47:15-20.

Boyd, C.E., P.W. Zajicek, J.A. Hargreaves and G.L. Jensen. 2008. Development, implementation, and verification of best management practices for aquaculture *in* C.S. Tucker and J.A. Hargreaves (ed) *Environmental Best Management Practices for Aquaculture*. Blackwell Publishing, Oxford UK.

Jensen, G.L. and P.W. Zajicek. 2008. Best management practice programs and initiatives in the United States *in* C.S. Tucker and J.A. Hargreaves (ed) *Environmental Best Management Practices for Aquaculture*. Blackwell Publishing, Oxford UK.

Hill, J.E. and P. Zajicek. 2007. National aquatic species risk analysis: a call for improved implementation. *Fisheries* 32(11):530-538.