

ECONOMIC IMPACT ASSESSMENT

Chairperson: James A. Held, UW-Stevens Point Northern Aquaculture Demonstration Facility

Industry Advisory Council Liaison: Robert Baldwin

Extension Liaison: James A. Held

Funding Request: \$115,000

Duration: 2 Years (September 1, 2012 - August 31, 2014)

Objectives:

1. Characterize the aquaculture industry throughout the NCR (species, systems, purpose, size, sales, jobs, etc.).
2. Determine the direct, indirect and induced contributions of the aquaculture industry to regional and state-by-state economies.

Proposed Budgets:

Institution	Principal Investigator	Objective(s)	Year 1	Year 2	Total
University of Wisconsin-Stevens Point Northern Aquaculture Demonstration Facility	Christopher F. Hartleb	1-2	\$55,000	\$18,284	\$73,284
University of Wisconsin-Extension	Steven C. Deller	1-2	\$12,845	\$4,155	\$17,000
Ohio State University	Laura G. Tiu	1-2	\$12,358	\$12,358	\$24,716
Totals			\$80,203	\$34,797	\$115,000

Non-funded Collaborators:

Institution	Collaborator
University of Wisconsin-Extension	James A. Held and Ronald E. Johnson
University of Wisconsin-Madison	Jeffery A. Malison

TABLE OF CONTENTS

SUMMARY OVERVIEW (PARTICIPANTS, OBJECTIVES, AND PROPOSED BUDGETS)	1
JUSTIFICATION	4
RELATED CURRENT AND PREVIOUS WORK	4
ANTICIPATED BENEFITS.....	5
OBJECTIVES.....	5
PROCEDURES.....	6
FACILITIES	7
REFERENCES.....	7
PROJECT LEADERS.....	9
PARTICIPATING INSTITUTIONS AND PRINCIPAL INVESTIGATORS	10
BUDGETS	
BUDGET AND BUDGET EXPLANATION FOR EACH PARTICIPATING INSTITUTION	10
Ohio State University (Tiu – Objectives 1 & 2)	10
University of Wisconsin-Stevens Point (Hartleb – Objectives 1 & 2)	13
University of Wisconsin Extension (Deller – Objectives 1 & 2).....	16
BUDGET SUMMARY FOR EACH YEAR FOR ALL PARTICIPATING INSTITUTIONS	19
SCHEDULE FOR COMPLETION OF OBJECTIVES.....	20
LIST OF PRINCIPAL INVESTIGATORS AND PROJECT LEADERS.....	21
CURRICULUM VITAE FOR PRINCIPAL INVESTIGATORS AND PROJECT LEADERS	22

JUSTIFICATION

The North Central Region (NCR) of the U.S. has a significant and highly diverse aquaculture industry, providing food fish, live fish for stocking lakes and ponds, and baitfish used for recreational fishing. To facilitate the growth and promotion of the industry, information on the impact of the industry on local and regional economies is needed. This information is needed to improve the awareness of the value of the industry by political entities, decision makers and the general public. Because of the industry's diversity and state-by-state variations in productivity, it is difficult to generalize about the economic importance that aquaculture has on any one state in the region. Therefore, both regional and individual state analyses are needed. This type of information is best gathered by survey-type studies.

Beyond the intrinsic value of the products, the aquaculture industry has economic impact on many other industries and services within the region. Economic impact assessment is a widely used analysis to help determine how a particular industry or event fits into the local economy. In aquaculture, a good example of this can be found in baitfish production. This sector of aquaculture not only impacts fish farmers, bait haulers, fish farming equipment producers, and distributors, but it also has a significant effect on all of the industries related to sport-fishing tourism, including sporting goods shops, restaurants, resorts, boat dealers, marinas, fishing guides, etc.

The standard approach to conduct such economic multiplier analysis is input-output modeling via the IMPLAN (MIG, Inc., Hudson, Wisconsin) modeling system. Input-output is akin to a "spreadsheet of the economy" with the columns of the spreadsheet capturing buyers or demand and rows capturing sellers or supply. An individual cell in the spreadsheet captures the flow of dollars from buyers (demand) to sellers (supply). Because supply must equal demand, one can track how changes in any one part of the economy (i.e., one part of the "spreadsheet") ripple through and affect other parts of the economy. This ripple effect is what is referred to as the multiplier effect. This approach has been widely used throughout the U.S. to assess a vast range of economic events.

This project proposes to conduct direct mail and electronic media based surveys of aquaculture producers throughout the 12-state region and a variety of suppliers and end users in selected states. The purpose of these surveys is to collect information that characterizes the size and scope of the aquaculture industry as it relates to each of the states within the region, and the region as a whole. We will then conduct the appropriate IMPLAN analyses for each state and the region. Finally, we will produce one regional and 12 state informational publications containing selected findings of the analyses along with descriptive summaries for use by extension personnel, educators, researchers and the industry at large. An overall report including an executive summary detailing the specifics of the survey findings and IMPLAN analysis will also be produced.

RELATED CURRENT AND PREVIOUS WORK

Characterize the Aquaculture Industry throughout the NCR (Objective 1)

Although a great deal of work has been done in the NCR to characterize certain components of the agriculture industry (e.g., dairy, beef, poultry, and agronomic crops), relatively little study has been done on the aquaculture industry. Johnson et al. (2009) created an informational pamphlet characterizing the value and economic impact of the Wisconsin aquaculture industry. That publication (found at <http://www.uwsp.edu/cols-ap/nadf/Pages/documents.aspx>) cited economic indicators such as sales revenue, jobs, and taxes paid as well as descriptions of the industry to emphasize the importance of aquaculture to Wisconsin.

Tiu authored *A 2010 Ohio Aquaculture Feasibility Study* (<http://southcenters.osu.edu/aqua/extension/OhioAquacultureIndustryAnalysis.pdf>) that identified industry barriers, production methods, and marketing strategies, and provided recommendations for acceleration of Ohio's aquaculture industry. This study found that significant opportunities exist within the industry and growth potential is evident. Willingness of producers and new entrepreneurs is the key to successfully

accelerating the Ohio aquaculture industry. Additionally, the potential for additional job creation and unique position development exists with the continued acceleration of the industry. This economic activity surrounding the state's aquaculture businesses will be helpful with Ohio unemployment rates, and also a valuable economic development driver.

Although these two pamphlets have served as useful educational tools for informing, these initial economic brochures relied heavily on U.S. Department of Aquaculture (USDA) Aquaculture Census data and would benefit from the more comprehensive survey results proposed in this project. In particular, information is needed on how aquaculture impacts businesses that may be dependent on but not directly related to aquaculture (e.g., businesses associated with sport fishing).

Determine the direct, indirect and induced contributions of the aquaculture industry to regional and state-by-state economies (Objective 2)

Economic impact assessment is widely used analysis to help policy makers think about how a particular industry or event fits into the local economy. By analyzing the "multiplier effect" one can gain a better understanding of how the local economy is structured. For example, an industry located in a smaller more remote rural area will have a smaller economic impact than the same industry located in a larger more urban area. The reason is the ability of larger urban economies to capture and retain the activities associated with that industry. Because markets are "thinner" in rural areas, the ability to capture and retain activities associated with the industry will be weaker. This difference can be measured and analyzed by deconstructing economic multipliers.

The standard approach to conduct such economic multiplier analysis is input-output modeling via the IMPLAN modeling system. Input-output is akin to a "spreadsheet of the economy" with the columns of the spreadsheet capturing buyers or demand and rows capturing sellers or supply. An individual cell in the spreadsheet captures the flow of dollars from buyers (demand) to sellers (supply). Because supply must equal demand one can track how changes in any one part of the economy (i.e., one part of the "spreadsheet") ripple through and affect other parts of the economy. This ripple effect is what is referred to as the multiplier effect.

This approach has been widely used throughout the U.S. to assess a vast range of economic events. In Wisconsin the most recent examples include the impact of agriculture on the Wisconsin economy including each county in Wisconsin (<http://www.uwex.edu/ces/ag/wisag/>) along with an ongoing study looking at the contribution of hospitals on the Wisconsin economy along with each county in Wisconsin (<http://www.uwex.edu/ces/cced/economies/hospitals.cfm>). To our knowledge, this study will be the first of its kind to assess the impact of the aquaculture industry on state and regional economies of the North Central Region.

ANTICIPATED BENEFITS

There is a need for information to educate the public, bureaucrats, and regulators on the value of the aquaculture industry's contribution to regional and state economies. This approach will maximize the applicability of our work by emphasizing high quality deliverables for immediate use by the industry. Educational materials will emphasize the value of local food production, environmental sustainability, and resource enhancement to elevate public awareness of the benefits of commercial aquaculture and dispel misinformation. The political effectiveness fact sheet will be particularly useful in leveraging support for the industry when presented to state and federal political entities as well as university and technical college administrators.

OBJECTIVES

1. Characterize the aquaculture industry throughout the NCR (species, systems, purpose, size, sales, jobs, etc.).
2. Determine the direct, indirect and induced contributions of the aquaculture industry to regional and state-by-state economies.

PROCEDURES

Characterize the Aquaculture Industry throughout the NCR (Objective 1)

Descriptive survey research will be used to assess the economic impact of aquaculture in the NCR. A questionnaire will be developed by Ohio State University (OSU) and the University of Wisconsin Extension (UWEX) investigators and distributed to identified target audiences including aquaculture producers, suppliers, retailers, and end-users (e.g., consumers, fishermen, pond owners). Within USDA as well as numerous other agricultural economics centers, such as the UW Center for Dairy Profitability and the UW Center for Cooperatives, there are established standard templates for collecting cost of production data. Our proposed survey instrument will follow the standard form used in studies of cost of production.

The producer questionnaire will focus on collecting information regarding species cultured, size of operation, culture methods, and purpose of the fish cultured as well as dollar value of sales, taxes paid, and number of employees. Producers will be identified through state aquaculture associations, licensing agencies, natural resource departments, and extension services. Initial contacts with producers will be primarily via electronic media (e-mail) with direct mail used for producers without electronic contact capabilities. Follow up on the initial contacts will be conducted by telephone. The goal of this portion of the project is to contact all major producers in each state and as many minor producers as is practical.

Retailer and end-user questionnaires will concentrate on retail values, and recreation associated expenditures (e.g., pond supplies, fishing gear, vacation room and board). The primary method of surveying these affiliated businesses will be by telephone.

We have standard policies in place to assure confidentiality which includes strict rules on non-disclosure. In our experience with other cost of production surveys, farmers understand the need for the research and the data. They also appreciate the track record university researchers have with confidentiality.

Determine the direct, indirect, and induced contributions of the aquaculture industry to regional and state-by-state economies (Objective 2)

Data from the results of each survey will be analyzed in detail to characterize the industry and quantify its direct and indirect economic impacts. The economic contribution of aquaculture to regional and state economies will be modeled using the IMPLAN modeling system. IMPLAN allows for the construction and application of detailed input-output models of the regional economy. Input-output can be viewed as a spreadsheet of the economy with the columns representing industries, household, and institutional demand and the rows representing supply. The model captures the flow between supply and demand. By changing any one element of the economy, such as aquaculture production, the ripple or multiplier effect of that change throughout the entire economy can be traced. Data from the most currently available base year will be used. Existing agriculture, consumer, and natural resource databases will also be used to supplement the survey results and provide a comprehensive picture of the economic effects of the aquaculture industry within each state and the region.

The cost of production estimates that will be derived from the survey work will serve three purposes. First, we will construct an expenditure profile for the "typical" aquaculture producer which will then be used to model economic impacts. If a typical producer has expenses that follow this pattern, and we have so many producers, we can then estimate the economic impact of that spending on the regional

economy. Second, these cost of production estimates are valuable to producers in their self-assessment of their own operations. If the “industry standard” (based on the survey results) provides a benchmark, aquaculture producers can compare their own operations to that benchmark. In order for a firm to assess its profitability and performance it must have a reasonable understanding of its costs of production. But without benchmarks to which to compare itself, an individual firm’s own expenditure profile cannot provide the insights the owner/operator requires. Third, once collected, these costs of production data can be used to estimate cost functions which in turn can be used to discuss notions of size efficiency as well as operational efficiencies. Thus, the cost of production data collected via the proposed survey work will allow us to: (1) estimate an average expenditure profile which provides a benchmark for the industry, (2) assess the economic impact of the industry, and (3) assess notions of size and operational efficiencies.

Deliverables

Thirteen separate data sets will be compiled that will characterize the production and economic value of the aquaculture industry in the NCR. A separate data set will be prepared for each of the 12 states in the region, and an additional set will be prepared for the NCR as a whole. To ascertain the relative importance of the various facets of the industry, each data set will contain information collected on the following parameters: (1) species or species groups; (2) system types (e.g., ponds, flow-through, net pens, and recirculation systems; (3) purpose of production or targeted market (e.g., food fish, bait fish, private pond stocking, public waterway stocking, nutritional supplements, etc.); (4) size of operations; (5) sales of product; and (6) jobs created.

This new information, together with existing databases, will be utilized to produce 13 separate educational brochures (one for each of the 12 states, and one for the entire NCR) that will characterize the industry and describe the existing economic impacts, as well as the predicted future impacts, of the aquaculture industry in the NCR. A summary report will be written detailing the methods used, completed data sets, and findings of the IMPLAN analysis. The summary report will also include an executive summary that condenses the information included in the summary report into bullet points and graphic representations to highlight the findings of the study. Copies of the educational brochures will be supplied to state aquaculture associations, regional and state extension programs, and university-based aquaculture research and education programs for promotional and educational activities.

FACILITIES

The expertise of the work group is considerable. Held, Tiu, Malison, and Johnson have a rich history with the aquaculture industry in the NCR, are aware of the needs of the industry, and have previously produced numerous educational publications that support and inform aquaculturists, end-users, and decision makers. Informational pamphlets characterizing the value and economic impact of the Wisconsin aquaculture industry have been created and examples of that work can be found at <http://www.uwsp.edu/cols-ap/nadf/Pages/documents.aspx>. Although these pamphlets have served as useful educational tools for informing, these initial economic brochures relied heavily on USDA Aquaculture Census data and would benefit from the more comprehensive survey results proposed in this project. Tiu recently completed a research project designed to characterize the aquaculture industry in Ohio and measure the impact of the Ohio State University aquaculture program on the industry. Steven Deller is a professor of agricultural and applied economics at the University of Wisconsin and has extensive experience with economic modeling using IMPLAN software and databases. He was a significant contributor to Wisconsin’s previous economic impact pamphlet, and has a good understanding of aquaculture-specific input-output analysis.

REFERENCES

Johnson R.E., Held, J.A., and Deller, S. C. 2009. Wisconsin aquaculture industry: value and economic impact. <http://www.uwsp.edu/cols-ap/nadf/Pages/documents.aspx>

Tiu, L.G. 2010. Ohio aquaculture industry analysis: Ohio Aquaculture Strategic Plan. The Ohio State University South Centers. Retrieved from The Ohio Department of Agriculture Online: [http://www.agri.ohio.gov/public_docs/forms/Aquaculture/OhioAquacultureIndustryAnalysis%20\(final\).pdf](http://www.agri.ohio.gov/public_docs/forms/Aquaculture/OhioAquacultureIndustryAnalysis%20(final).pdf)

Deller S.C., and D. Williams. 2009. The contribution of agriculture to the Wisconsin economy. University of Wisconsin-Extension publication #A53A0. Madison, Wisconsin. <http://www.uwex.edu/ces/ag/wisag/>

PROJECT LEADERS

<u>State</u>	<u>Name/Institution</u>	<u>Area of Specialization</u>
Ohio	Laura G. Tiu Ohio State University	Aquaculture, Aquaculture Extension and Education
Wisconsin	James A. Held University of Wisconsin Extension	Aquaculture
	Christopher F. Hartleb University of Wisconsin-Stevens Point	Aquaculture
	Steven C. Deller University of Wisconsin-Extension	Agricultural and Applied Economics and Extension

PARTICIPATING INSTITUTIONS AND PRINCIPAL INVESTIGATORS

Ohio State University

Laura G. Tiu

University of Wisconsin-Extension

Steven C. Deller

University of Wisconsin-Stevens Point

Christopher F. Hartleb

ORGANIZATION AND ADDRESS The Ohio State University Office of Sponsored Programs 1960 Kenny Road Columbus, OH 43210-1016			USDA AWARD NO. Year 1, Objectives 1 and 2			
PROJECT DIRECTOR(S) Laura G. Tiu			DURATION PROPOSED MONTHS: _12_	DURATION PROPOSED MONTHS: _____	Non-Federal Proposed Cost- Sharing/ Matching Funds (If required)	Non-federal Cost- Sharing/Matchi ng 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						
2. No. of Other Personnel (Non-Faculty)						
a. ____ Research Associates/Postdoctorates.....						
b. ____ Other Professionals						
c. ____ Paraprofessionals						
d. ____ Graduate Students.....						
e. _1_ Prebaccalaureate Students				10,400		
f. ____ Secretarial-Clerical.....						
g. ____ Technical, Shop and Other.....						
Total Salaries and Wages						
B. Fringe Benefits (If charged as Direct Costs)				458		
C. Total Salaries, Wages, and Fringe Benefits (A plus B) g				10,858		
D. Nonexpendable Equipment (Attach supporting data. List items and dollar amounts for each item.)						
E. Materials and Supplies						
F. Travel				1500		
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) g				12,358		
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) g						
N. Other g						
O. Total Amount of This Request g				12,358		
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) g						
- Non Cash Contributions (both Applicant and Third Party)						
AME AND TITLE (Type or print)			SIGNATURE (required for revised budget only)			DATE
Project Director						
Authorized Organizational Representative						
Signature (for optional use)						

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0524-0039. The time required to complete this information collection is estimated to average 1.00 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

ORGANIZATION AND ADDRESS The Ohio State University Office of Sponsored Programs 1960 Kenny Road Columbus, OH 43210-1016				USDA AWARD NO. Year 2, Objectives 1 and 2			
PROJECT DIRECTOR(S) Laura G. Tiu				DURATION PROPOSED MONTHS: <u>12</u>	DURATION PROPOSED MONTHS: _____	Non-Federal Proposed Cost- Sharing/ Matching Funds (If required)	Non-federal Cost- Sharing/Matchi ng Funds Approved by CSREES (If Different)
A. Salaries and Wages	CSREES-FUNDED WORK MONTHS						
	Calendar	Academic	Summer				
1. No. Of Senior Personnel							
a. ____ (Co)-PD(s).....							
b. ____ Senior Associates							
2. No. of Other Personnel (Non-Faculty)							
a. ____ Research Associates/Postdoctorates.....							
b. ____ Other Professionals							
c. ____ Paraprofessionals							
d. ____ Graduate Students.....							
e. <u>1</u> Prebaccalaureate Students				10,400			
f. ____ Secretarial-Clerical.....							
g. ____ Technical, Shop and Other.....							
Total Salaries and Wages	g						
B. Fringe Benefits (If charged as Direct Costs)				458			
C. Total Salaries, Wages, and Fringe Benefits (A plus B)	g			10,858			
D. Nonexpendable Equipment (Attach supporting data. List items and dollar amounts for each item.)							
E. Materials and Supplies							
F. Travel				1500			
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)	g			12,358			
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	g						
O. Total Amount of This Request	g			12,358			
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)							g
- Non Cash Contributions (both Applicant and Third Party)							
AME AND TITLE (Type or print)				SIGNATURE (required for revised budget only)			DATE
Project Director							
Authorized Organizational Representative							
Signature (for optional use)							

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0524-0039. The time required to complete this information collection is estimated to average 1.00 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

BUDGET EXPLANATION

(Tiu)

Objectives 1 & 2

- A. Salaries and Wages.** Year 1: \$10,400 (\$10/hour for 20 hours/week) and Year 2: \$10,400 (\$10/hour for 20 hours/week). Hire an undergraduate student to assist OSU extension personnel with all aspects of collecting and inputting data from various questionnaires and development of outreach materials.
- B. Fringe Benefits.** The fringe rate charged on undergraduate students at The Ohio State University is 4.4%.
- F. Travel.** Year 1 (\$1,500) & Year 2 (\$1,500): Transportation, meals, and lodging for one OSU extension specialists to attend two regional workshops annually, at locations to be determined, to collect, report and share information from the project at \$750/workshop.



TEL : (614) 292-7978 FAX: (614) 292-4315
matherny.1@osu.edu
www.rf.osu.edu

July 3, 2012

Dr. Joseph E. Morris, Director
North Central Regional Aquaculture Center
Iowa State University
339 Science II
Ames, Iowa 50011-3221

SUBJECT: Project entitled "Economic Impact Assessment" (PA005 44605)

Dear Dr. Morris:

As the Authorized Organizational Representative (AOR) I would like to inform you Ohio State University wishes to participate in the above referenced project as a subcontractor to Michigan State University.

Dr. Laura Tiu will serve as the Principal Investigator of the subcontract and she has access to all of the necessary equipment, laboratory, and office space to successfully undertake this project. I also approve the budget as submitted for Dr. Tiu's involvement in this project.

Upon issuance of approval to the North Central Regional Aquaculture Center for this project, The Ohio State University will enter into a formal agreement with your institution.

Sincerely,

A handwritten signature in black ink that reads "P. Matherny". The signature is written in a cursive, flowing style.

Paul O. Matherny, Senior Sponsored Programs Officer
The Ohio State University, Office of Sponsored Programs

ORGANIZATION AND ADDRESS University of Wisconsin-Stevens Point 2100 Main Street, Stevens Point, WI 54481			USDA AWARD NO. Year 1, Objectives 1 and 2			
PROJECT DIRECTOR(S) Christopher F. Hartleb			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)
A. Salaries and Wages	CSREES-FUNDED WORK MONTHS					
	Calendar	Academic	Summer			
1. No. Of Senior Personnel						
a. ____ (Co)-PD(s)						
b. ____ Senior Associates						
2. No. of Other Personnel (Non-Faculty)						
a. ____ Research Associates/Postdoctorates						
b. ____ Other Professionals						
c. <u>2</u> Paraprofessionals				35,511		
d. ____ Graduate Students						
e. ____ Prebaccalaureate Students						
f. ____ Secretarial-Clerical						
g. ____ Technical, Shop and Other						
Total Salaries and Wages g						
B. Fringe Benefits (If charged as Direct Costs)				14,489		
C. Total Salaries, Wages, and Fringe Benefits (A plus B) g				50,000		
D. Nonexpendable Equipment (Attach supporting data. List items and dollar amounts for each item.)						
E. Materials and Supplies				3500		
F. Travel				1500		
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) g				55,000		
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) g						
N. Other g						
O. Total Amount of This Request g				55,000		
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)..... g						
- Non Cash Contributions (both Applicant and Third Party)						
AME AND TITLE (Type or print)			SIGNATURE (required for revised budget only)			DATE
Project Director						
Authorized Organizational Representative						
Signature (for optional use)						

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0524-0039. The time required to complete this information collection is estimated to average 1.00 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

ORGANIZATION AND ADDRESS University of Wisconsin-Stevens Point 2100 Main Street, Stevens Point, WI 54481			USDA AWARD NO. Year 2, Objectives 1 and 2			
PROJECT DIRECTOR(S) Christopher F. Hartleb			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/Matchi ng Funds Approved by CSREES (If Different)
A. Salaries and Wages	CSREES-FUNDED WORK MONTHS					
	Calendar	Academic	Summer			
1. No. Of Senior Personnel						
a. ____ (Co)-PD(s)						
b. ____ Senior Associates						
2. No. of Other Personnel (Non-Faculty)						
a. ____ Research Associates/Postdoctorates						
b. ____ Other Professionals.....						
c. <u>1</u> Paraprofessionals				11,204		
d. ____ Graduate Students						
e. ____ Prebaccalaureate Students.....						
f. ____ Secretarial-Clerical.....						
g. ____ Technical, Shop and Other						
Total Salaries and Wages g						
B. Fringe Benefits (If charged as Direct Costs)				4,796		
C. Total Salaries, Wages, and Fringe Benefits (A plus B) g				16,000		
D. Nonexpendable Equipment (Attach supporting data. List items and dollar amounts for each item.)						
E. Materials and Supplies				1500		
F. Travel				784		
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) g				18,284		
L. F&A/Indirect Costs (If applicable, specify rate(s) and base(s) on 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) g						
N. Other g						
O. Total Amount of This Request g				18,284		
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)..... g						
- 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)						

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0524-0039. The time required to complete this information collection is estimated to average 1.00 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

BUDGET EXPLANATION FOR UNIVERSITY OF WISCONSIN-STEVENSON POINT

(Hartleb)

Objectives 1-2

- A. Salaries and Wages.** For year 1, the salaries of 2 LTE's (1,000 and 775.55 hours at \$20/hrs.) are requested. For year 2, the salary of 1 LTE (560.2 hrs. at \$20/hrs.) is requested. LTE responsibilities will be to design and prepare surveys and questionnaires, contact and interview (electronic and telephone) industry employees as described in Procedures, collect and input data from various questionnaires, and develop outreach materials.
- B. Fringe Benefits.** 40.8% in 2012-2013, and 42.8% in 2013-2014.
- E. Materials and Supplies.** \$3,500 in year 1 and \$1,500 in year 2 are requested for general office supplies needed for data collection and analysis and preparation of reports and extension publications.
- F. Travel:** \$1,500 in year 1 and \$784 in year 2 is requested for meals, lodging, and transportation for an extension specialist to attend 2 regional workshops in year 1 and 1 in year 2 to report and share information from the project.



University of Wisconsin-Stevens Point

Office of Provost and Vice Chancellor

Stevens Point WI 54481-3897
715-346-4686; Fax 715-346-4132
www.uwsp.edu/admin/acadaffairs

July 2, 2012

Dr. Joseph E. Morris, Director
North Central Regional Aquaculture Center
Iowa State University
339 Science II
Ames, Iowa 50011-3221

SUBJECT: Project entitled "Economic Impact Assessment"

Dear Dr. Morris:

As the Authorized Organizational Representative (AOR) I would like to inform you that the University of Wisconsin-Stevens Point (UW-Stevens Point) wishes to participate in the above referenced project as a subcontractor to Michigan State University. Dr. Christopher Hartleb will serve as the Principal Investigator of the subcontract, and he has access to all of the necessary equipment, laboratory, and office space to successfully undertake this project.

I also approve the budget as submitted for Dr. Christopher Hartleb's involvement in this project. Upon issuance of approval to the North Central Regional Aquaculture Center for this project, UW-Stevens Point will enter into a formal agreement with your institution.

Sincerely,

A handwritten signature in cursive script that reads "Katherine Jore".

Dr. Katherine P. Jore
Associate Vice Chancellor for Personnel, Budget & Grants

ORGANIZATION AND ADDRESS University of Wisconsin-Extension 432 N. Lake Street, Room 601 Madison, WI 53706			USDA AWARD NO. Year 1, Objectives 1 and 2				
			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) Steven C. Deller			Funds Requested by Proposer	Funds Approved by CSREES (If different)			
A. Salaries and Wages		CSREES-FUNDED WORK MONTHS					
		Calendar	Academic	Summer			
1. No. Of Senior Personnel							
a. ____ (Co)-PD(s)							
b. ____ Senior Associates							
2. No. of Other Personnel (Non-Faculty)							
a. ____ Research Associates/Postdoctorates							
b. ____ Other Professionals.....							
c. ____ Paraprofessionals							
d. ____ Graduate Students							
e. <u>2</u> Prebaccalaureate Students.....					\$2,700		
f. ____ Secretarial-Clerical.....							
g. ____ Technical, Shop and Other							
Total Salaries and Wages g					\$2,700		
B. Fringe Benefits (If charged as Direct Costs)					\$95		
C. Total Salaries, Wages, and Fringe Benefits (A plus B) g					\$2,795		
D. Nonexpendable Equipment (Attach supporting data. List items and dollar amounts for each item.)							
E. Materials and Supplies					\$8,800		
F. Travel					\$750		
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.)					500		
K. Total Direct Costs (C through J) g					\$12,845		
L. F&A/Indirect Costs (If applicable, specify rate(s) and base(s) on 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) g							
N. Other g							
O. Total Amount of This Request g					\$12,845		
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)..... g							
- Non Cash Contributions (both Applicant and Third Party)							
AME AND TITLE (Type or print)				SIGNATURE (required for revised budget only)		DATE	
Project Director							
Authorized Organizational Representative							
Signature (for optional use)							

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0524-0039. The time required to complete this information collection is estimated to average 1.00 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

ORGANIZATION AND ADDRESS University of Wisconsin-Extension 432 N. Lake Street, Room 601 Madison, WI 53706			USDA AWARD NO. Year 2, Objectives 1 and 2				
			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) Steven C. Deller			Funds Requested by Proposer	Funds Approved by CSREES (If different)			
A. Salaries and Wages		CSREES-FUNDED WORK MONTHS					
		Calendar	Academic	Summer			
1. No. Of Senior Personnel							
a. ____ (Co)-PD(s)							
b. ____ Senior Associates							
2. No. of Other Personnel (Non-Faculty)							
a. ____ Research Associates/Postdoctorates							
b. ____ Other Professionals.....							
c. ____ Paraprofessionals							
d. ____ Graduate Students							
e. <u>2</u> Prebaccalaureate Students.....					\$2,700		
f. ____ Secretarial-Clerical.....							
g. ____ Technical, Shop and Other							
Total Salaries and Wages g							
B. Fringe Benefits (If charged as Direct Costs)					\$95		
C. Total Salaries, Wages, and Fringe Benefits (A plus B) g					\$2,795		
D. Nonexpendable Equipment (Attach supporting data. List items and dollar amounts for each item.)							
E. Materials and Supplies							
F. Travel					\$860		
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.)					\$500		
K. Total Direct Costs (C through J) g					\$4,155		
L. F&A/Indirect Costs (If applicable, specify rate(s) and base(s) on 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) g							
N. Other g							
O. Total Amount of This Request g					\$4,155		
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)..... g							
- Non Cash Contributions (both Applicant and Third Party)							
AME AND TITLE (Type or print)			SIGNATURE (required for revised budget only)			DATE	
Project Director							

Authorized Organizational Representative							
Signature (for optional use)							

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0524-0039. The time required to complete this information collection is estimated to average 1.00 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

BUDGET EXPLANATION FOR UNIVERSITY OF WISCONSIN-EXTENSION

(Deller)

Objectives 1-2

- C. Salaries and Wages.** For Year 1 Student wages (270 hr/yr @ \$10 per hour) and for Year 2 Student wages (270 hr/yr @ \$10 per hour) are requested to assist with data procurement.
- D. Fringe Benefits.** The fringe benefit rate for students is 3.5%.
- E. Materials and Supplies.** For Year 1 \$8,800 is needed for IMPLAN data procurement.
- F. Travel.** For Year 1 \$750 and for Year 2 \$860 is requested for meals, lodging, and transportation for an extension specialist to attend a regional workshops to report and share information from the project.
- J. All Other Direct Costs.** For Year 1 \$500 and Year 2 \$500 is requested for general office/lab supplies including photocopying, duplication, postage and telephone charges.

BUDGET SUMMARY FOR EACH PARTICIPATING INSTITUTION

Year 1

	OSU	UW-SP	UW-EX	TOTALS
Salaries and Wages	\$10,400	\$35,511	\$2,700	\$48,611
Fringe Benefits	\$458	\$14,489	\$95	\$15,042
Total Salaries, Wages, and Fringe Benefits	\$10,858	\$50,000	\$2,795	\$63,653
Nonexpendable Equipment				
Materials and Supplies		\$3,500	\$8,800	\$12,300
Travel	\$1,500	\$1,500	\$750	\$3,750
All Other Direct Costs			\$500	\$3,000
TOTAL PROJECT COSTS	\$12,358	\$55,000	\$12,845	\$80,203

Year 2

	OSU	UW-SP	UW-EX	TOTALS
Salaries and Wages	\$10,400	\$11,204	\$2,700	\$24,304
Fringe Benefits	\$458	\$4,796	\$95	\$5,349
Total Salaries, Wages, and Fringe Benefits	\$10,858	\$16,000	\$2,795	\$29,653
Nonexpendable Equipment				
Materials and Supplies		\$1,500		\$1,500
Travel	\$1,500	\$784	\$860	\$3,144
All Other Direct Costs			\$500	\$3,000
TOTAL PROJECT COSTS	\$12,358	\$18,284	\$4,155	\$34,797

SCHEDULE FOR COMPLETION OF OBJECTIVES

Objective 1: Initiated in Year 1 and completed in Year 2.

Objective 2: Initiated in Year 1 and completed in Year 2.

LIST OF PRINCIPAL INVESTIGATORS AND PROJECT LEADERS

Laura G Tiu, Ohio State University

Christopher F. Hartleb, UW-Stevens Point Northern Aquaculture Demonstration Facility

Steven C. Deller, UW-Extension

James A. Held, UW-Extension

VITA

Laura G. Tiu
Ohio State University, South Centers
1964 Shyville Road
Piketon, OH 45661-9749

Phone: 740-289-2071, x 121
Fax: 740-289-4591
E-mail: tiu.2@osu.edu

EDUCATION

B.S. Silliman University, Philippines, 1986, Biology/Marine Biology
M.S. Mississippi State University, 1990, Wildlife Ecology/Fisheries
Ph.D. The Ohio State University, 2010, Agricultural and Extension Education

POSITIONS

Senior Research and Extension Associate, The Ohio State University (11/03 – Present)
Research and Extension Associate, The Ohio State University (9/98 – 11/03)
Co-Investigator for Aquaculture, Kentucky State University (10/92 – 7/98)

SCIENTIFIC AND PROFESSIONAL ORGANIZATIONS

National Aquaculture Extension Steering Committee
National Association of State Aquaculture Coordinators
North Central Regional Aquaculture Center (NCRAC) Extension Technical Committee
Ohio Aquaculture Association & Fish Farmers of Ohio Association
The Ohio Leadership Education and Development (LEAD) Program
U.S. Chapter World Aquaculture Society
World Aquaculture Society

SELECTED PUBLICATIONS

- Tiu, L.G. 2010. Assessment and Future Direction of The Ohio State University Aquaculture Program. Doctoral Dissertation. Agricultural and Extension Education, Ohio State University, Columbus, Ohio
- Wang, H.P., L. Li, G. K. Wallat, B. Brown, H. Yao, Z. Gao, L. G. Tiu, P. D. O'Bryant, D. Rapp, and R. MacDonald. 2009. Evaluation of relative growth performance and genotype by environment effects for cross-bred yellow perch families reared in communal ponds using DNA parentage analyses. *Aquaculture Research* 40:1363 - 1373.
- Gao, Z., H. P. Wang, D. Rapp, DP. O'Bryant, H. Yao, G. K. Wallat, W. Wang, R. MacDonald, and L. G. Tiu. 2009. Gonadal sex differentiation in the bluegill sunfish *Lepomis macrochirus* and its relation to fish size and age. *Aquaculture* 294:138–146.
- Wang, H.P., G. K. Wallat, R. Hayward, L. G. Tiu, P. O'Bryant, and D. Rapp. 2009. Establishment of mostly-male groups of bluegill by size-selection and evaluation of their growth performance. *North American Journal of Aquaculture* 71: 216-223.

VITA

Jeffrey A. Malison
Emeritus, University of Wisconsin- Madison
Demonstration Facility
4536W Charlottes Way
Mercer, WI 54547

Phone: (608) 444-2769
Fax:
E-mail: jmalison@wisc.edu

EDUCATION

B.S. University of Wisconsin-Stevens Point, 1976
M.S. University of Wisconsin-Madison, 1980
Ph.D. University of Wisconsin-Madison, 1985

POSITIONS Place these in order of newest to oldest

Professor Emeritus, University of Wisconsin-Madison (2012-present)
Director (1995-2011), Assistant Director (1990-1995), and Associate Researcher (1987-1990), University of Wisconsin Aquaculture Program, University of Wisconsin-Madison; Co-director, UW-Stevens Point Northern Aquaculture Demonstration Facility (2006-present)

SCIENTIFIC AND PROFESSIONAL ORGANIZATIONS

American Fisheries Society
World Aquaculture Society
Wisconsin Aquaculture Industry Advisory Council
Wisconsin Aquaculture Association

SELECTED PUBLICATIONS

- Held, J.A., J.A. Malison, G.J. Fischer and S.E Kaatz. 2010. Production parameters and breakeven costs for yellow perch grow-out in recirculation aquaculture systems. www.aquaculture.uwsp.edu
- Fischer, G.J., J. Held, C. Hartleb, and J. Malison. 2009. Evaluation of brook trout production in a coldwater recycle aquaculture system. *Aquacultural Engineering* 41: 109-113.
- Malison, J.A., and J.A. Held. 2007. Farm-based production parameters and breakeven costs for yellow perch grow-out n ponds in southern Wisconsin. 12 pp. North Central Regional Aquaculture Center Fact sheet series 112. Ames, Iowa.
- Ng, Yuliana, S. Hanson, J.A. Malison, B.C. Wentworth, and T.P. Barry. 2006. Genistein and other isoflavones in soybeans inhibit estrogen metabolism in salmonid fish. *Aquaculture* 254: 658-665.
- Hart, S.D., D.L. Garling, and J.A. Malison. 2006. Yellow perch (*Perca flavescens*) culture guide. 104 pp. North Central Regional Aquaculture Center Culture series #103. Ames, Iowa.
- Jurgella, G.F., T.P. Barry, A. Marwah, J.A. Malison, and R.E. Peterson. 2006. Effects of xenobiotics and steroids on estrogen metabolism in lake trout. *General and Comparative Endocrinology* 148: 273-281.
- Lima, L.C., L.P. Ribeiro, J.A. Malison, T.P. Barry, and J.A. Held. 2006. Effects of temperature on performance parameters and the cortisol stress response of surubim *Pseudoplatystoma sp.* *Journal of the World Aquaculture Society* 37: 89-95.
- Malison, J.A., and C.F. Hartleb, eds. 2005. Best management practices manual for aquaculture in Wisconsin and the Great Lakes region. 125 pp. Publication WISCU-H-05-001. University of Wisconsin Sea Grant Institute, Madison, Wisconsin.

VITA

Christopher F. Hartleb
Professor of Biology
Co-Director Northern Aquaculture Demonstration Facility
Department of Biology
800 Reserve Street
University of Wisconsin-Stevens Point
Stevens Point, WI 54481

Telephone: (715) 346-3228
Fax: (715) 346-3624
E-Mail: chartleb@uwsp.edu

EDUCATION

B.S. Rensselaer Polytechnic Institute, 1990, Biology
M.S. University of New Hampshire, 1992, Zoology (Limnology)
Ph.D. University of Maine, Maine Coop. Fish & Wildlife Research Unit, 1996, Fisheries Biology

POSITIONS

Professor of Fisheries Biology & Aquaculture, Department of Biology, University of Wisconsin-Stevens Point (2006-Present) Co-Director, Northern Aquaculture Demonstration Facility, University of Wisconsin-Stevens Point (2006-Present) Associate Professor of Fisheries Biology & Aquaculture, Department of Biology, University of Wisconsin-Stevens Point (2002-2006) Assistant Professor of Biology & Water Resources, Department of Biology, University of Wisconsin-Stevens Point (1996-2002) Researcher Assistant, Maine Cooperative Fish & Wildlife Research Unit, University of Maine (1992-1996) Research Assistant, Lakes Fish Condition Program, University of New Hampshire (1990-1992) Research Assistant, Rensselaer Fresh Water Institute, Rensselaer Polytechnic Institute (1988-1990)

SCIENTIFIC AND PROFESSIONAL ORGANIZATIONS

American Fisheries Society, Fish Culture & Education Sections
Wisconsin Aquaculture Industry Advisory Council
World Aquaculture Society / U.S. Aquaculture Society
Wisconsin Aquaculture Association

SELECTED PUBLICATIONS

- Koehler, R.A., B. Sloss and C.F. Hartleb. 2011. Population distribution of North American yellow perch (*Perca flavescens*) analyzed with microsatellite loci. *in prep.*
- Fischer, G.J., Hartleb, C.F., Held, J.A., Holmes, K. and J. Malison. 2009. Evaluation of brook trout in a coldwater recycle aquaculture system. *Aquacultural Engineering*, 41: 109-113.
- Malison, J.A., and C.F. Hartleb (eds.). 2005. A Manual of Best Management Practices for aquaculture in Wisconsin and the Great Lakes Region. University of Wisconsin Sea Grant Institute, Madison, Wisconsin.
- Hartleb, C.F. 2004. Floating raceways to raise yellow perch at cranberry farms. *Aquaculture Magazine* Jan/Feb.

VITA

James A. Held
University of Wisconsin-Extension
302 S. Main St
Lake Mills, WI 53551

Phone: (920) 648-2902
Fax: (920) 648-3646
E-mail: jaheld@wisc.edu

EDUCATION

B.S. Zoology; University of Wisconsin-Milwaukee 1986

POSITIONS

Aquaculture Outreach Specialist (2007-Present), University of Wisconsin-Extension
Senior Research Specialist (2003-2007), University of Wisconsin-Madison Aquaculture Program,
University of Wisconsin-Madison
Research Specialist (1995-2003), University of Wisconsin-Madison Aquaculture Program,
University of Wisconsin-Madison
Associate Research Specialist (1988-1995), University of Wisconsin-Madison Aquaculture Program,
University of Wisconsin-Madison

SCIENTIFIC AND PROFESSIONAL ORGANIZATIONS

World Aquaculture Society
Wisconsin Aquaculture Industry Advisory Council

SELECTED PUBLICATIONS

- Held, J.A., J.A. Malison, G.J. Fischer and S.E. Kaatz. 2010. Production parameters and breakeven costs for yellow perch grow-out in recirculation aquaculture systems. www.aquaculture.uwsp.edu
- Malison, J.A., J.A. Held, and S.E. Kaatz. 2010. Sex determination of yellow perch (*Perca flavescens*) by external morphology. *North American Journal of Aquaculture* (accepted)
- Fischer, G.J., J. Held, C. Hartleb, and J. Malison. 2009. Evaluation of brook trout production in a coldwater recycle aquaculture system. *Aquacultural Engineering* 41: 109-113.
- Johnson R.E. and Held, J.A.. 2009. Wisconsin Aquaculture Industry: Value and Economic impact. www.aquaculture.uwsp.edu
- Malison, J.A., and J.A. Held. 2008. Farm-based production parameters and breakeven costs for yellow perch grow-out in ponds in southern Wisconsin. 12 pp. North Central Regional Aquaculture Center Fact sheet series 112. Ames, Iowa. <http://www.ncrac.org/Topics/ypproductionparameters.htm>
- Lima, L.C., Lincoln, R.P., Malison, J.A., Barry, T.P., and J.A. Held. 2006. Effects of temperature on performance characteristics and the cortisol stress response of surubim (*Pseudoplatystoma sp.*) *Journal of the World Aquaculture Society* 37- 1, pp. 89 – 95.
- Held, J.A., J.A. Malison, and T.P. Barry. 2004. Production characteristics of hybrid walleye (*Sander vitreus* female x *S. canadensis* male) reared to food size in ponds. In *Proceedings of Percis III: The Third International Percid Fish Symposium* (Barry, T.P., and J.A. Malison, Eds.), pp. 33-34. University of Wisconsin Sea Grant Institute, Madison, Wisconsin.

VITA

Ronald E. Johnson
Northern Aquaculture Demonstration Facility
P O Box 165
Bayfield, WI 54814

Phone: (715) 779-3189
Fax: (715) 779-3189
E-mail: ron.johnson@uwsp.edu

EDUCATION

B. S. University of Minnesota, 1975

POSITIONS

Aquaculture Outreach Specialist-Northern, University of Wisconsin – Extension, (January, 2007-Present)
Associate Outreach Specialist, University of Wisconsin Stevens Point, (July-Dec., 2006)
Associate Outreach Specialist, University of Wisconsin Madison, (April-June, 2006)
Aquaculture Liaison, Wisconsin Department of Agriculture, Trade and Consumer Protection, Sept. (2005-April, 2006)
Program & Planning Analyst-Advanced, Wisconsin Department of Agriculture, Trade and Consumer Protection, (March, 2005-September, 2005)
Consultant, Wisconsin Aquaculture Association, (September, 2004-March, 2005)
Owner, Iron River Trout Haus B & B, Trout Farm, (December, 1993-April, 2004)
Curator of Birds, Miami Metrozoo, (1982-1993)

SCIENTIFIC AND PROFESSIONAL ORGANIZATIONS

Wisconsin Aquaculture Association
Wisconsin Aquaculture Industry Advisory Council
National Association of State Aquaculture Coordinators

SELECTED PUBLICATIONS

Johnson R.E. S.E. Kaatz and M. Bandli. 2011. Guide for Wisconsin Farm-Raised Fish (in preparation)

Johnson R.E. and M. Bandli. 2010. Aquaculture and Food Fish Processing
www.aquaculture.uwsp.edu

Johnson R.E. and Held, J.A. 2009. Wisconsin Aquaculture Industry: Value and Economic impact.
www.aquaculture.uwsp.edu

Kaatz S.E. and R.E. Johnson. 2008. Wisconsin Farm-Raised Fish: Local, Healthy and Environmentally Friendly. www.aquaculture.uwsp.edu

VITA

Steven C. Deller
Department of Agricultural and Applied Economics
Taylor Hall - 427 Lorch Street
University of Wisconsin-Madison
Madison, Wisconsin 53706

Phone: (608) 263-6251
FAX: (608) 262-4376
E-MAIL: scdeller@wisc.edu

EDUCATION

B.A. Western Illinois University, 1982, Economics.
M.S. University of Illinois at Urbana-Champaign, 1985, Economics.
Ph.D. University of Illinois at Urbana-Champaign, 1988, Agricultural Economics.

POSITIONS

July 2000 to present Professor of Agricultural and Applied Economic, University of Wisconsin-Madison. Affiliated faculty member, Department of Urban and Regional Planning, University of Wisconsin-Madison. Affiliated faculty member, Gaylord Nelson Institute for Environmental Studies, University of Wisconsin – Madison. Affiliate faculty member, Center for Community Economic Development, University of Wisconsin-Extension. Affiliate faculty member, Local Government Center, University of Wisconsin-Extension. Appointment: 85% extension, 15% research.

January, 1993 to June 2000 Assistant to Associate Professor of Agricultural and Applied Economic, University of Wisconsin-Madison. Appointment: 85% extension, 15% research.

SCIENTIFIC AND PROFESSIONAL ORGANIZATIONS

American Agricultural Economics Association, North American Regional Science Association, Community Development Society, Southern Regional Science Association, Mid-Continent Regional Science Association, Western Regional Science Association, Phi Kappa Delta, Gamma Sigma Delta, National Forensic Union

SELECTED PUBLICATIONS

Deller, S. C., Deller, M. and Amiel., L. (forthcoming). Model Uncertainty in Economical Criminology: An Application of Bayesian Model Averaging with Rural Crime Data. *International Journal of Criminology and Sociological Theory*. (forthcoming).

Stallmann, J. and Deller, S. C. (forthcoming) State Tax and Expenditure Limitations and Economic Performance. *Public Budgeting and Finance*. (forthcoming).

Deller, S. C. and Sundaram-Stukel, R. (forthcoming). Spatial Patterns in the Location Decisions of U.S. Credit Unions. *Annals of Regional Science*. (forthcoming).

Maher, C. S. and Deller, S. C. (under contract). *The Fiscal Health of U.S. Cities*. Boca Raton, Florida: Taylor & Francis. (under contract).

Maher, C., Deller, S. C. and Amiel, L. 2011. Property Tax Limits and Fiscal Burdens: The Role of Organizational Structure. *Public Administration Quarterly* 35(2):202-237.

Deller, S. C. 2010. Spatial Heterogeneity in the Role of Microenterprises in Economic Growth *Review of Regional Studies*. 40(1):70-96.

Goetz, S., G., Deller, S. C. and Harris, T. (eds). 2009. *Targeting Regional Economic Development*. London: Routledge Publishing.

