

**NORTH CENTRAL REGIONAL AQUACULTURE CENTER EXTENSION PROJECT  
Addendum**

**Chairperson:** Joseph E. Morris, Iowa State University

**Industry Advisory Council Liaison** Bill West, Black Creek, Wisconsin

**Funding Request:** \$60,505

**Duration:** 2 Years (September 1, 2008 - August 31, 2010)

**Objectives:**

1. To develop an online Fish Health Certificate Program for producers, providing them with relevant risk assessment and management principles and practices to reduce losses due to fish diseases and set up mechanisms to collect data on the impact of the training on the individual fish operations and the industry in general.
2. Development and presentation on workshops focused on AIS-HACCP training.

**Proposed Budgets:**

<b>Institution</b>	<b>Principal Investigator</b>	<b>Objec-tive</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Total</b>
Iowa State University	Glenda D. Dvorak	1	\$3,031	\$3,122	\$6,153
University of Wisconsin-Stevens Point	Christopher F. Hartleb	1	\$3,890	\$2,890	\$6,780
Wisconsin Department of Agriculture, Trade, and Consumer Protection	Myron J. Kebus	1	[\$2,500]	[\$1,500]	[\$4,000]
University of Wisconsin-Madison	Jeannette McDonald	1	\$19,038	\$18,534	\$37,572
Michigan State University	Ronald E. Kinnunen	2	\$5,995	\$4,005	\$10,000
<b>Totals<sup>1</sup></b>			<b>\$31,954</b>	<b>\$28,551</b>	<b>\$60,505</b>

<sup>1</sup>Totals are not a summation of the numbers above because the budgets for Myron Kebus' involvement are included in the University of Wisconsin-Madison's budget.

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## JUSTIFICATION

Aquaculture in the U.S. continues to be the fastest growing segment of agriculture with annual increases in production averaging 17% (value of sale) and market demand frequently exceeds production. In support of this industry, live fish are often transported throughout the United States. Along with this interstate transport, there are associated concerns related to biosecurity issues, e.g., infectious diseases can have catastrophic effects on the industry.

During the annual meeting of the Aquaculture Risk Management Project in 2002, stakeholders and experts representing the four major finfish aquaculture sectors (catfish, trout, salmon, and baitfish) identified disease as the greatest risk factor of economic concern in fish farming. Consequently, the program earmarked funds to study fish disease prevention and control and to create educational and outreach programs.

Recent events in fish health and disease detection have shown that producers are at the forefront of disease management and often suffer most when newly emerging diseases impact the industry through detection and regulation (e.g., viral hemorrhagic septicemia [VHS] in 2006). Educating producers on disease prevention and control can help them reduce disease risks and protect their economic investment. For this reason, development of an online fish health training program for producers is proposed to provide them with relevant risk assessment and management principles and practices to reduce losses due to fish diseases. These modules will be developed, narrated, reviewed, revised, and published in an easy to access online format for producers. Modules demonstrating the appropriate preparedness, action, and assistance that producers can take when diseases are a concern at their fish farm will be included and current diseases of concern will be used as relevant examples. The modules will include discussion of VHS, Spring Viremia of Carp (SVC), Largemouth Bass Virus (LMBV), and Heterosporis. Producers who complete the online training will receive a certificate of completion. Also, the knowledge gained by producers completing the course will help them be better prepared to work with veterinarians and fish health specialists on disease concerns on the farm.

To insure the needs of the intended audience are met, the project will include personnel with experience in fish diseases and prevention (Dvorak, Hartleb, and Kebus), fish producer education (Hartleb), and Web-based learning modalities (McDonald).

The use of specialized delivery technologies, such as Web-based learning, can provide efficient and timely access to learning materials (Harris 1999). Online learning allows for flexibility of access to course materials from anywhere at anytime, minimizing the issues of location and distance (Edge and Loegering 2000). In early 2004, 63% of Americans had access to the Internet and that grew to 73% by the beginning of 2006. Forty million Americans rely on the Internet as their primary source for news and information about science. This is second only to television. Over 60% of Americans have said they would turn to the Internet first for information about science. While 87% of Internet users report they use the Internet as their primary research tool because of convenience, the Internet provides a better understanding of science information, and it is easier to search (Horriagan 2006).

In asynchronous online learning, users can access the online material at anytime. The goal of any instructional system is to promote learning. Therefore, as learning material is developed the educator must tacitly know the principles of their audience. This is especially true for online learning, where the educator (fish health specialist) and the learner (fish producer) are separated. Strategies should be used in online learning that allow the learner to perceive and attend to the information in an applied or working format so that it has real-world and immediate application. Anderson and Elloumi (2004) suggest that effective online learning should attempt to:

1. Present new information so that it can relate to current working knowledge.
  - a. Information critical to learning should be highlighted both on the screen and verbally.
  - b. Learners should be told what knowledge they should take away from each lesson.
  - c. The difficulty level of the material must match the cognitive level of the learner, so that the learner can both attend to and relate to the material. This is best achieved by involving the learner in the design and development of content in the lesson.

2. Learners must construct a memory link between the new information and some related information already known and understood.
  - a. Incorporate previously understood or accessed information into each module so that the learner has a framework onto which to build and incorporate new information.
  - b. Provide conceptual and real-world models and examples into each lesson module so that new information can be immediately applied.
3. Information should be presented in chunks or learning modules to prevent overload during the learning process.
  - a. Online learning materials should present between five and nine items on a screen to facilitate efficient processing in working memory. Items should be reinforced with graphics and verbal commentary.
  - b. A generalized information map, which may be linear, should be used to present the material. As the lesson progresses, each item in the generalized information map should be broken into sub-items. At the end of each lesson, the generalized information map should show the learner the relationship of each sub-item to the general topic.
4. Strategies should be used that promote long-term storage of knowledge gained in each lesson by understanding, applying, and evaluating the material to on-farm and best management practices.

Educational material has traditionally been presented through a variety of media including face-to-face, video conferencing, audio conferencing, radio, television, and correspondence. Each media represents some form of balance between interaction (between instructor and learner) and independence of time and distance. Web-based learning supports these modalities through asynchronous delivery and digital interaction. In fact, Web-based content for online learning can become too large a domain if all forms of media are included, so a clearly designed set of learning modules that emphasize content, with reinforced applied examples, developed for a specific learning audience, can be an effective educational tool.

Program evaluation is equally important for project output assessment for educational efforts. Evaluation can help to facilitate effective program planning, implementation, and improvement. Development of assessment tools should address the users' perceptions of effectiveness and usefulness but also test the knowledge gained by the participants.

The potential exists for aquatic invasive species (AIS), including the VHS virus, to spread to uninfested waters through the transport of wild harvested baitfish and aquacultured fish. Baitfish and aquaculture industries are diverse and complex, as are their risks of spreading AIS. Most industry segments pose no or very low risk of spreading AIS. To deal effectively and fairly with this potential vector, it is important to characterize the industry according to their risks of spreading AIS. Without adequate risk assessment of individual operations, regulations could be imposed which would unnecessarily negatively impact the economy of these industries and still not effectively reduce the risk of spreading AIS. One approach to this problem is to apply the Hazard Analysis and Critical Control Point (HACCP) concept similar to that used by the seafood industry to minimize seafood consumption health risks. The advantages of this system are that it can effectively deal with a diverse industry, it has proven to be a good partnership between industry and government regulators, and is effective when properly applied. The HACCP approach concentrates on the points in the process that are critical to the safety of the product, minimizes risks, and stresses communication between regulators and the industry.

## **RELATED CURRENT AND PREVIOUS WORK**

In 2004, the University of Wisconsin-Madison (UW-Madison) and the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) proposed to the Aquaculture Risk Management Project (ARMP) that training veterinarians to perform Fish Health Inspections and Veterinary Health Assessments would lower the risk of disease transmission. They argued that, with their broad training in animal health and proven record of assisting animal agriculture, veterinarians are ideally suited to fill this role once appropriately trained in fish health issues. With funding provided by the ARMP, an online training program for veterinarians was created. It went online March 1, 2006 and 48 veterinarians have since taken the online course and received certification. The proposed project capitalizes on the

investment already made in gathering experts and visual resources allowing the final budget to be less than half what it cost to produce the modules for veterinarians. An overview of the online course can be seen at: <http://vetmedce.vetmed.wisc.edu/fhm>.

The University of Wisconsin-Stevens Point (UW-Stevens Point) Northern Aquaculture Demonstration Facility (NADF) received a USDA-Cooperative State Research, Education, and Extension Service (CSREES) grant in 2006 that included funding to assist with the development of a fish producer online education course and certification in aquatic animal health. The application and training of fish farmers in best management practices should be useful to current aquaculturists and prospective fish farmers and be beneficial in the future development of a sustainable and environmentally sound industry. Many of the projects listed within the USDA-CSREES grant proposal directly address the research needs identified under the subheadings in the federal Joint Subcommittee on Aquaculture, Aquaculture Research and Development Strategic Plan (JSA-SP) that was prepared for the Committee on Health, Safety, and Food of the National Science and Technology Council in 1994. The NADF's proposed partnership with the Wisconsin DATCP, Division of Animal Health and the UW-Madison School of Veterinary Medicine to create an online fish producer health assessment course and certification to help detect and diagnose pathogens and diseases associated with fish farms in the northern region directly addresses research needs identified by the JSA-SP. Educating farmers is the first line of defense and detection of diseases at commercial fish farms and is a vital part of integrated aquatic animal health management.

The Center for Food Security and Public Health (CFSPH) at Iowa State University was established in 2002 with the mission to increase national preparedness for the accidental or intentional introduction of disease agents that threaten food production or public health. The Center has a strong history of developing and providing animal disease and prevention education at the national level to a variety of audiences, including veterinarians, livestock producers, extension specialists, and the general public. The CFSPH has also conducted a number of training programs (face-to-face and Web-based) on disease awareness and prevention. Course evaluations and outcome assessment tools were developed and used to obtain learning feedback for content modification and improvement for each of these programs.

In July 2007 Ron Kinnunen worked with the Michigan Wholesale Bait Association and the Michigan Aquaculture Association on coordinating an AIS-HACCP Training Workshop that focused on practices that the industry can take to deal with new regulations implemented by the State of Michigan on VHS Management Zones for wild baitfish harvest from the Great Lakes. Kinnunen worked with Michigan Baitfish Association leaders on developing model AIS-HACCP and biosecurity plans that would keep their businesses viable and also deal with the new VHS Management Zone regulations. The AIS-HACCP approach was first pilot tested with the Michigan Wholesale Bait Association and the U.S. Fish and Wildlife Service hatchery managers and ecological services personnel in the southwest region. Results of these pilot tests were very positive. Both groups appropriately applied the principles of AIS-HACCP and each felt that the approach was workable from a business/public hatchery management perspective and that it could significantly reduce the risk of spreading AIS. Pilot project participants also provided suggestions to modify the draft manual. Comments from agency, industry, and university reviewers were also incorporated into the training manual (Gunderson and Kinnunen 2001). A second edition of the training manual was completed with an emphasis to assist natural resource agency personnel prevent the spread of AIS in their work activities (Gunderson and Kinnunen 2004).

### **ANTICIPATED BENEFITS**

Diseases constitute the largest single cause of economic losses in aquaculture (Meyer 1991). There are few treatments available for current and emerging aquaculture diseases and often the best treatments are education, preparedness, and following best management practices. Few fish culturists involved in aquaculture have extensive training in fish health management and detection and rely on aquatic veterinarians for diagnoses and treatments. But disease outbreak can happen rapidly and, depending on the culture system, can spread quickly and result in high mortalities. Although diseases at fish culture facilities have been around as long as aquaculture, interstate transport, stocking, wild harvest, and the emergence of exotic diseases have increased the rate of disease transmission and introduced new diseases into aquaculture facilities. Development of aquaculture drugs and diagnoses techniques of

aquatic diseases often lag behind the occurrence of new and emerging diseases. Disease prevention is the principal method of dealing with the rapid occurrence of new diseases and aquaculture industry members are at the forefront of disease prevention and detection.

Aquatic animal health and fish disease management are extremely relevant to the aquaculture industry in the North Central Region (NCR) because the industry has experienced both long-term and recent disease issues that have resulted in significant changes to the regulation of the industry and economic losses associated with fish mortalities and greater requirements for disease detection and assessment on the farm. As a result, the aquaculture industry has requested more information on understanding fish health and mechanisms by which fish farmers can be better trained to prepare, identify, and manage disease outbreaks at the farm. Though previous attempts at educating and assisting fish farmers with aquatic disease issues have addressed the subject with printed information and workshops, few have had region-wide impact and none have attempted to prepare the aquaculture industry for whole farm disease management.

For the proposed extension project, a series of online fish health learning modules developed for the aquaculture industry will be created and implemented to better educate the fish farmer about aquatic diseases and on-farm fish health management. By utilizing an asynchronous delivery system, an Internet-based set of educational modules will present best management practices that will assist the fish farmer in developing biosecurity plans and educating and bringing to the forefront risk factors in farm management and disease control. Fish farmers will not only be shown techniques for evaluating disease introduction, transmission, and basic pathological signs, but they will also be shown how to minimize disease occurrence and prepare for infections and proper disease risk management along with explanations and examples of veterinary inspection, health assessment, and disease treatments. This proposed work will also aid the fish farmer in understanding the veterinary health assessment report and upon completion of the online learning modules the fish farmer can obtain a certificate of completion that can help veterinarians recognize the aquaculture facility as one educated on methods of disease prevention and one prepared to cooperate with the veterinarian in implementing proper treatment procedures.

While long term impacts (e.g., environmental and economic changes) of educational training programs can be difficult to quantify, the incorporation of outcome assessments and course evaluations can provide useful information regarding the effectiveness of the program modules.

Short-term outcome indicators would reflect a change in the knowledge, skills, attitudes, motivation, and awareness of participants, while intermediate outcome indicators would reflect a change in behaviors, practices, policies, and procedures. These tools can serve to measure changes in awareness or attitudes as well as any response (e.g., implementation of procedure or policy changes) implemented by the fish producer on the fish farm following completion of the course. Additionally, feedback from participants is essential for continued improvement of the course.

Awareness is one of the most essential steps in disease prevention. Fish producers are the first line of defense for aquatic diseases, and, therefore, are essential for the prevention and detection of aquatic animal diseases. Increasing awareness of current and emerging diseases and the proper implementation of prevention and control measures among these individuals helps not only to prevent the incursion of emerging diseases, such as VHS, but can help minimize economic impacts from more commonly seen diseases, such as *Heterosporis*.

The AIS-HACCP approach has many advantages. It can effectively deal with a diverse industry and diverse risk factors associated with a variety of plant, invertebrate, vertebrate, and pathogen AIS. If it develops as it has in the seafood industry, this approach should prove to be a good partnership between industry and government regulators. It can help avoid overly restrictive regulations, and, if properly applied, can be effective at reducing the risk of spreading AIS via baitfish and aquaculture practices. The HACCP approach concentrates on the points in the process that are critical to the environmental safety of the product, minimizes risks, and stresses communication between regulators and the industry. With proper cooperation among industry representatives, resource management agencies, and other AIS experts, the AIS-HACCP approach will reduce the risk that AIS will be established in new locations while maintaining the economic viability of the baitfish and aquaculture industries. It can provide a mechanism

for AIS-free certification, and it can instill confidence in the public that state and federal fish stocking programs are conducting their activities in an environmentally responsible manner.

## OBJECTIVES

1. To develop an online Fish Health Certificate Program for producers, providing them with relevant risk assessment and management principles and practices to reduce losses due to fish diseases and set up mechanisms to collect data on the impact of the training on the individual fish operations and the industry in general.
2. Development and presentation on workshops focused on AIS-HACCP training.

## PROCEDURES

### Fish Health Modules (Objective 1)

Part One: Development of the online Fish Health Certificate Program for producers.

1. Module 1: Introduction – goals and information that aquaculture producers should ascertain from each module, types and format of questions that will be presented in post-test, and information map of the topics covered in each module.
  - a. Regional Fish Production – a general description of the fish species raised in the NCR, wild harvest and fully cultured species, production levels, and economic impact.
  - b. Farm Types and Culture Systems – presentation on the typical farm types in the NCR and the disease risks associated with production systems ranging from intensive to extensive.
  - c. Regulatory Agencies – an overview of the agencies responsible for fish health, veterinary assessments, and regulations in the NCR.
2. Module 2: Risk Management and Biosecurity – an overview of the methods used to implement risk management programs at aquaculture facilities with an emphasis on biosecurity measures that can help reduce the risk of introduction or spread of diseases at an aquaculture facility.
  - a. Best Management Practices (BMPs) – a review of BMPs in the NCR that help to reduce disease risk at the farm and how an on-farm management plan can both prepare and reduce the occurrence of aquatic diseases in aquaculture.
  - b. Loss Events – how to prepare for and recover when disease outbreaks occur at the farm.
  - c. Continuing Education – additional educational information the producer can access to further their knowledge of aquatic animal diseases.
  - d. Available Veterinary Services – types and contact information for veterinarians in the NCR.
  - e. Accurate Record Keeping – detailed description of how to accurately prepare and record on-farm fish health information.
  - f. State and Federal Guidelines and Policies – an overview of state and federal guidelines on aquatic animal health.
3. Module 3: Water Quality – goals of water quality management, monitoring and disease prevention.
  - a. Water Condition – a review of the proper water characteristics for successful culture of various fish in the NCR.
  - b. Physical and Chemical Water Components – an overview of the primary components of water that should be monitored and could be managed such as temperature, dissolved oxygen, pH, nitrogen and phosphorus components, flow, and aeration.
  - c. Effluent – coverage of the production, collection, treatment, and monitoring of aquaculture facility and production system waste.
4. Module 4: Preparing for Fish Health Inspections – presentation on how and why a fish health inspection is conducted at an aquaculture facility and how the producer has a significant role in a

successful inspection.

- a. What to Expect at an Inspection – an overview of the steps involved when a veterinarian inspects an aquaculture facility.
  - b. How to Prepare for an Inspection – how the producer can adequately prepare for a fish health inspection and how the producer can assist the veterinarian.
  - c. Regulatory Consequences – a presentation on fish health regulations including the “do’s” and “don’ts” of proper fish health management at aquaculture facilities.
  - d. Supplies and Equipment – a review of what the veterinarian will need to successfully complete the fish health inspection and how the producer can assist and expedite the inspection process.
  - e. Collection, Shipping, and Specimens – a presentation in the proper techniques for collecting voucher specimens and preparing them for shipment to a diagnostic lab.
5. Module 5: Understanding Veterinary Health Assessments – much confusion arises when a veterinarian visits a fish farm to perform an inspection and provides the producer with the health assessment. This module will provide explanations about the health assessment report and how the information can be used by the fish farmer to reduce risk, enact best management practices, and prevent and treat diseases.
- a. Understanding Veterinary Assessments and Reports – various assessments and reports will be presented showing the results of fish health inspections with detailed information on data within the report and how a fish producer can use the information to improve fish health management on the farm.
  - b. Treatments and Medications - a review of various fish disease treatments and currently available medications. This sub-topic will not educate the fish farmer on how to perform their own treatments and applications of medicine but will present potential options and emphasize how a veterinarian can assist the producer in deciding on the most cost-effective treatment when disease occurs at the fish farm.
  - c. Follow-up Assessments – disease prevention and treatment is an ongoing process that will be explained and overall management strategies will be presented to reduce disease risk in the future.
6. Module 6: Case Studies – detailed presentation on the emergence, detection, diagnosis, impact, and prevention methods for common and recently emerging diseases. This module may be updated as newer emerging diseases appear in the aquaculture industry and additional prevention and preparedness techniques are developed.
- a. Viral Hemorrhagic Septicemia (VHS)
  - b. Spring Viremia of Carp (SVC)
  - c. Largemouth Bass Virus (LMBV)
  - d. Heterosporis

Each module will be based on a template for an asynchronous online environment based on a platform already used for an online training program for veterinarians created and hosted by the UW-Madison School of Veterinary Medicine. This will allow aquaculture producers to complete the online certification program from their own computer and at their own pace and time. In designing the learning modules for this online fish health certification, the instructors’ planned pedagogical approach described in the outline, the nature of the content, and the constraints and features of the online asynchronous environment will help determine how the producers apply the risk management techniques and recommended disease management and best management practices described in each module.

Dr. Myron J. Kebus is the Wisconsin State Fish Veterinarian and the primary author of the veterinary Fish Health Medicine Certificate Program. It is based on long experience working with fish farmers and veterinarians on fish health. These modules will be the basis for the producer modules. Dr. Christopher F. Hartleb is a teaching and research faculty member in aquaculture and Co-Director of the UW-Stevens Point NADF with close connections with regional aquaculturists. Drs. Hartleb and Kebus will be responsible for developing outlines and storyboards for each module and editing content for each topic and sub-items. This includes:

- Creating the scripts and PowerPoint presentations for the modules;

- Narrating the online modules and working with Jeannette McDonald in producing the online content and PowerPoint presentations for each module;
- Using the peer reviews to edit each modules content; and
- Providing comments and reviews from the pilot online modules with aquaculture industry producers so that evaluation and impact data can be forwarded to Glenda Dvorak at Iowa State University (ISU) for outcome evaluation and assessment.
- Dr. Hartleb will also serve as the liaison with aquaculture industry producers evaluating and reviewing drafts of the online modules.

#### Part Two: Develop outcome assessment tools to determine the impact of the online Fish Health Certificate Program for producers

Glenda Dvorak will work closely with UW-Madison participants to design and develop tools for evaluating the course, the level of knowledge gained by the participants, and outcome indicators. Assessment will be conducted by a series of short evaluation surveys incorporated into the Fish Health Certificate Program Web-based modules. These surveys will be designed to provide feedback from the participants in regards to the course (e.g., usefulness, accessibility, user-friendliness) as well as to aid in assessing the knowledge gained by the course participants following completion of each module and the course overall (short-term outcomes).

Data collected will include a short pre-assessment survey prior to the participant beginning the course. Similar questions will be repeated at the end of the course to assess any change in knowledge, skills, attitudes, motivation, or awareness of the participants. Learners will take a short quiz at the end of each module as a way to enhance, as well as assess, learning of the material presented. A follow-up survey will be sent to all participants six months after completing the online training program. This will help determine (1) any actions, changes in practices, policies, or procedures the participants implemented at their fish facility following the completion of the course and (2) to test retention of knowledge from the course (intermediate outcomes). Although outside of the scope (timeframe) of this proposal, long-term impacts should be assessed with future funding. Impacts such as changes in environmental (reduction in disease occurrence) or economic conditions (healthier fish) could be evaluated.

Data from these various surveys will be collected and forwarded to ISU as available (quarterly) and data received prior to the end of the grant cycle will be assessed and analyzed for the project final report.

#### Project Outputs

This grant will provide the resources to create the online training program and test the system in Wisconsin and Iowa, or any other state requesting to participate. Once the system is operating smoothly, it could be adapted for delivery on a national basis. It is envisioned that states could either decide to accept the producer certificate awarded through this program (reciprocity) or could work with work group members to modify the modules to create a state-specific program that would address specific needs of their state. Alternatively, USDA could assume full responsibility for administration of the program.

**Schedule for Completion of Objective 1**

Outcomes /Activities	Yr 1				Yr 2				Responsible Party(ies)
	Oct-Dec	Jan-Mar	Apr-June	July-Sept	Oct-Dec	Jan-Mar	Apr-June	July-Sept	
Develop outline, storyboard, edits for Module 1	✓								Content Expert and Project Staff
Narrate and produce module		✓							Project Team
Peer review (content experts and producers), edits		✓	✓						Project Staff
Pilot with producers, collect evaluation data			✓	✓	✓	✓	✓	✓	Project Staff
Develop outline, storyboard, edits for Module 2	✓								Content Expert and Project Staff
Narrate and produce module		✓							Project Team
Peer review (content experts and producers), edits		✓	✓						Project Staff
Pilot with producers, collect evaluation data			✓	✓	✓	✓	✓	✓	Project Staff
Develop outline, storyboard, edits for Module 3		✓							Project Staff, Evaluator
Narrate and produce module			✓						Project Staff, UTMB, Design Team
Peer review (content experts and producers), edits			✓	✓					Project Staff, UTMB
Pilot with producers, collect evaluation data				✓	✓	✓	✓	✓	
Develop outline, storyboard, edits for Module 4		✓							Content Expert and Project Staff
Narrate and produce module			✓						Project Team
Peer review (content experts and producers), edits			✓	✓					Project Staff
Pilot with producers, collect evaluation data				✓	✓	✓	✓	✓	Project Staff
Develop outline, storyboard, edits for Module 5			✓						Content Expert and Project Staff
Narrate and produce module				✓					Project Team
Peer review (content experts and producers), edits				✓	✓				Project Staff
Pilot with producers, collect evaluation data					✓	✓	✓	✓	Project Staff
Develop outline, storyboard, edits for Module 6			✓						Content Expert and Project Staff
Narrate and produce module				✓					Project Team
Peer review (content experts and producers), edits				✓	✓				Project Staff
Pilot with producers, collect evaluation data					✓	✓	✓	✓	Project Staff
Design and develop tools for collecting impact data				✓	✓				
Pilot test data collection						✓			
Revise tools as needed per pilot test							✓		

## **HACCP- AIS Workshops (Objective 2)**

Activities will be centered on five workshops within the NCR conducted within a 24-month period. Ron Kinnunen and Jeff Gunderson will lead these efforts. As part of these workshops an overview of AIS-HACCP principles will be presented to participants and resource materials distributed. AIS-HACCP plans developed by workshop participants will utilize the A-HACCP Training Curriculum that Jeff Gunderson and Ron Kinnunen have co-authored. Formal written evaluations will be completed at the end of each workshop by the participants. Participants will receive a certificate shortly after workshop completion.

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## PROJECT LEADERS

<u>State</u>	<u>Name</u>	<u>Institution</u>
Iowa	Glenda D. Dvorak	Iowa State University
Michigan	Ronald E. Kinnunen	Michigan State University
Wisconsin	Christopher F. Hartleb	University of Wisconsin-Stevens Point
	Myron J. Kebus	Wisconsin Department of Agriculture, Trade, and Consumer Protection
	Jeannette McDonald	University of Wisconsin-Madison

## **PARTICIPATING INSTITUTIONS AND PRINCIPAL INVESTIGATORS**

### **Iowa State University (ISU)**

Glenda D. Dvorak

### **University of Wisconsin-Stevens Point (UW-Stevens Point)**

Christopher F. Hartleb

### **Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP)**

Myron J. Kibus

### **Michigan State University (MSU)**

Ronald E. Kinnunen

### **University of Wisconsin-Madison (UW-Madison)**

Jeanette McDonald

**BUDGET**

ORGANIZATION AND ADDRESS Iowa State University Ames, IA 50011				USDA AWARD NO.				Year 1: Objective 1							
PROJECT DIRECTOR(S) Glenda D. Dvorak				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)					
				Funds Requested by Proposer		Funds Approved by CSREES (If different)									
<b>A. Salaries and Wages</b>				<b>CSREES FUNDED WORK MONTHS</b>											
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. <u>3</u> Other Professionals .....						.06				\$2,284					
c. ___ Paraprofessionals.....															
d. ___ Graduate Students.....															
e. ___ Prebaccalaureate Students.....															
f. ___ Secretarial-Clerical.....															
g. ___ Technical, Shop and Other .....															
<b>Total Salaries and Wages</b> ..... →										\$2,284					
B. Fringe Benefits (If charged as Direct Costs)										\$ 747					
<b>C. Total Salaries, Wages, and Fringe Benefits (A plus B)</b> ..... →										\$3,031					
D. Nonexpendable Equipment (Attach supporting data. List items and dollar amounts for each item.)															
E. Materials and Supplies															
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.)															
<b>K. Total Direct Costs (C through I)</b> ..... →										\$3,031					
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 in on/off campus bases.)															
<b>M. Total Direct and F&amp;A/Indirect Costs (J plus K)</b> ..... →										\$3,031					
N. Other..... →															
<b>O. Total Amount of This Request</b> ..... →										\$3,031					
<b>P. Carryover -- (If Applicable)</b> .....				<b>Federal Funds: \$</b>				<b>Non-Federal funds: \$</b>				<b>Total \$</b>			
<b>Q. Cost Sharing/Matching (Breakdown of total amounts shown in line O)</b>															
Cash (both Applicant and Third Party) .....				→											
Non-Cash Contributions (both Applicant and Third Party) .....				→											
<b>NAME AND TITLE</b> (Type or print)				<b>SIGNATURE</b> (required for revised budget only)								<b>DATE</b>			
<b>Project Director</b>															
<b>Authorized Organizational Representative</b>															
<b>Signature (for optional use)</b>															

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 the reviewing the collection of information.

**BUDGET**

ORGANIZATION AND ADDRESS Iowa State University Ames, IA 50011				<b>USDA AWARD NO.    Year 2: Objective 1</b>			
PROJECT DIRECTOR(S) Glenda D. Dvorak				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)
				<b>Funds Requested by Proposer</b>	<b>Funds Approved by CSREES (If different)</b>		
<b>A. Salaries and Wages</b>				<b>CSREES FUNDED WORK MONTHS</b>			
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. <u>3</u> Other Professionals . . . . .					.06		\$2,353
c. ____ Paraprofessionals.....							
d. ____ Graduate Students.....							
e. ____ Prebaccalaureate Students.....							
f. ____ Secretarial-Clerical.....							
g. ____ Technical, Shop and Other .....							
<b>Total Salaries and Wages</b> ..... →							\$2,353
B. Fringe Benefits (If charged as Direct Costs)							\$ 769
C. <b>Total Salaries, Wages, and Fringe Benefits (A plus B)</b> ..... →							\$3,122
D. Nonexpendable Equipment (Attach supporting data. List items and dollar amounts for each item.)							
E. Materials and Supplies							
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.)							
K. <b>Total Direct Costs (C through I)</b> ..... →							\$3,122
L. <b>F&amp;A/Indirect Costs.</b> (If applicable, specify rate(s) and base(s) for on/off campus activity. Where both are involved, identify itemized costs in on/off campus bases.)							
M. <b>Total Direct and F&amp;A/Indirect Costs (J plus K)</b> ..... →							\$3,122
N. <b>Other</b> ..... →							
O. <b>Total Amount of This Request</b> ..... →							\$3,122

P. Carryover -- (If Applicable) . . . . .	Federal Funds: \$	Non-Federal funds: \$	Total \$
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Q. <b>Cost Sharing/Matching (Breakdown of total amounts shown in line O)</b>			
Cash (both Applicant and Third Party) .....		→	
Non-Cash Contributions (both Applicant and Third Party) .....		→	

<b>NAME AND TITLE</b> (Type or print)	<b>SIGNATURE</b> (required for revised budget only)	<b>DATE</b>
<b>Project Director</b>		
<b>Authorized Organizational Representative</b>		
<b>Signature (for optional use)</b>		

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## BUDGET EXPLANATION FOR IOWA STATE UNIVERSITY

(Dvorak)

### Objective 1

- A. Salary and Wages.** Year 1 and Year 2: Partial salary (6%) for three Academic Staff at Iowa State University to peer review each module, develop outcome assessment and course evaluation tools, and assess these tools during the piloting of the course. (Year 1: \$2,284, Year 2: \$2,353) [Differences in salary between Years 1 and 2 reflect the annual 3% salary increase at Iowa State University.]
- B. Fringe benefits.** The fringe benefit rate for Academic Staff at Iowa State University is 32.7%. (Year 1: \$747; Year 2 \$769).

**BUDGET**

ORGANIZATION AND ADDRESS Northern Aquaculture Demonstration Facility & Department of Biology University of Wisconsin-Stevens Point 800 Reserve Street, Stevens Point, WI 54481				<b>USDA AWARD NO.</b>		<b>Year 1: Objective 1</b>	
				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) Christopher F. Hartleb				<b>Funds Requested by Proposer</b>	<b>Funds Approved by CSREES (If different)</b>		
<b>A. Salaries and Wages</b> 1. No. of Senior Personnel		<b>CSREES FUNDED WORK MONTHS</b>			\$2,000		
		Calendar	Academic	Summer			
a. <u>1</u> (Co)-PD(s) .....				0.3			
b. ____ Senior Associates .....							
2. No. of Other Personnel (Non-Faculty)							
a. ____ Research Associates-Postdoctorates . . .							
b. ____ Other Professionals .....							
c. ____ Paraprofessionals.....							
d. ____ Graduate Students .....							
e. ____ Prebaccalaureate Students .....							
f. ____ Secretarial-Clerical .....							
g. ____ Technical, Shop and Other .....							
<b>Total Salaries and Wages</b> ..... →					\$2,000		
B. Fringe Benefits (If charged as Direct Costs)					\$ 890		
<b>C. Total Salaries, Wages, and Fringe Benefits (A plus B)</b> ..... →					\$2,890		
D. Nonexpendable Equipment (Attach supporting data. List items and dollar amounts for each item.)							
E. Materials and Supplies					\$1,000		
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.)							
<b>K. Total Direct Costs (C through I)</b> ..... →					\$3,890		
L. <b>F&amp;A/Indirect Costs.</b> (If applicable, specify rate(s) and base(s) for on/off campus activity. Where both are involved, identify itemized costs in on/off campus bases.)							
<b>M. Total Direct and F&amp;A/Indirect Costs (J plus K)</b> ..... →					\$3,890		
N. Other ..... →							
<b>O. Total Amount of This Request</b> ..... →					\$3,890		
<b>P. Carryover -- (If Applicable)</b> .....		<b>Federal Funds: \$</b>	<b>Non-Federal funds: \$</b>	<b>Total \$</b>			
<b>Q. Cost Sharing/Matching (Breakdown of total amounts shown in line O)</b>							
Cash (both Applicant and Third Party) ..... →							
Non-Cash Contributions (both Applicant and Third Party) ..... →							
<b>NAME AND TITLE</b> (Type or print)	<b>SIGNATURE</b> (required for revised budget only)			<b>DATE</b>			
Project Director							
Authorized Organizational Representative							
Signature (for optional use)							

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**BUDGET**

ORGANIZATION AND ADDRESS Northern Aquaculture Demonstration Facility & Department of Biology University of Wisconsin-Stevens Point 800 Reserve Street, Stevens Point, WI 54481				<b>USDA AWARD NO.</b> <b>Year 2: Objective 1</b>					
				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)	<b>Funds Requested by Proposer</b>	<b>Funds Approved by CSREES (If different)</b>
PROJECT DIRECTOR(S) Christopher F. Hartleb									
<b>A. Salaries and Wages</b> 1. No. of Senior Personnel			<b>CSREES FUNDED WORK MONTHS</b>			\$2,000			
			Calendar	Academic	Summer				
a. ____ (Co)-PD(s) .....					0.3				
b. ____ Senior Associates .....									
2. No. of Other Personnel (Non-Faculty)									
a. ____ Research Associates-Postdoctorates . . .									
b. ____ Other Professionals .....									
c. ____ Paraprofessionals.....									
d. ____ Graduate Students .....									
e. ____ Prebaccalaureate Students .....									
f. ____ Secretarial-Clerical .....									
g. ____ Technical, Shop and Other .....									
<b>Total Salaries and Wages</b> ..... →						\$2,000			
B. Fringe Benefits (If charged as Direct Costs)						\$ 890			
<b>C. Total Salaries, Wages, and Fringe Benefits (A plus B)</b> ..... →						\$2,890			
D. Nonexpendable Equipment (Attach supporting data. List items and dollar amounts for each item.)									
E. Materials and Supplies									
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.)									
<b>K. Total Direct Costs (C through I)</b> ..... →						\$2,890			
L. <b>F&amp;A/Indirect Costs.</b> (If applicable, specify rate(s) and base(s) for on/off campus activity. Where both are involved, identify itemized costs in on/off campus bases.)									
<b>M. Total Direct and F&amp;A/Indirect Costs (J plus K)</b> ..... →						\$2,890			
N. Other ..... →									
<b>O. Total Amount of This Request</b> ..... →						\$2,890			
<b>P. Carryover -- (If Applicable)</b> .....			Federal Funds: \$	Non-Federal funds: \$	Total \$				
<b>Q. Cost Sharing/Matching (Breakdown of total amounts shown in line O)</b>									
Cash (both Applicant and Third Party) ..... →									
Non-Cash Contributions (both Applicant and Third Party) ..... →									
<b>NAME AND TITLE</b> (Type or print)	<b>SIGNATURE</b> (required for revised budget only)					<b>DATE</b>			
Project Director									
Authorized Organizational Representative									
Signature (for optional use)									

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## BUDGET EXPLANATION FOR UNIVERSITY OF WISCONSIN-STEVENSON POINT

(Hartleb)

### Objective 1

- A. Salary and Wages.** Year 1: Partial summer salary for Co-PD to develop outlines and storyboards for each module, including digital photographs of aquaculture facilities and disease prevention measures, time to narrate each module and work with production team, and time for liaison duties to review modules with content experts and aquaculture industry producers (\$2,000). Year 2: Partial summer salary for Co-PD to complete work on modules from Year 1 (\$2,000).
- B. Fringe benefits.** Years 1 and 2: 44.5% (institutional rate at UW-Stevens Point) for Co-PD.
- E. Materials and Supplies.** Year 1: Purchase digital SLR camera and macro lens for photographing aquaculture facilities, disease prevention measures, and content for online modules (\$1,000).

**BUDGET**

ORGANIZATION AND ADDRESS Research and Sponsored Programs University of Wisconsin-Madison 750 University Ave., Madison, WI 53706-1490				USDA AWARD NO.				Year 1: Objective 1							
PROJECT DIRECTOR(S) Jeannette McDonald				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)					
<b>A. Salaries and Wages</b>				<b>CSREES FUNDED WORK MONTHS</b>											
1. No. of Senior Personnel				Calendar		Academic		Summer							
a. <u>1</u> (Co)-PD(s) .....						0.72				\$4,957					
b. ____ Senior Associates .....															
2. No. of Other Personnel (Non-Faculty)															
a. ____ Research Associates-Postdoctorates . . .															
b. ____ Other Professionals .....															
c. ____ Paraprofessionals.....															
d. ____ Graduate Students.....															
e. <u>3</u> Prebaccalaureate Students.....										\$7,293					
f. ____ Secretarial-Clerical.....															
g. ____ Technical, Shop and Other .....															
<b>Total Salaries and Wages</b> ..... →										\$12,250					
B. Fringe Benefits (If charged as Direct Costs)										\$4,288					
<b>C. Total Salaries, Wages, and Fringe Benefits (A plus B)</b> ..... →										\$16,538					
D. Nonexpendable Equipment (Attach supporting data. List items and dollar amounts for each item.)															
E. Materials and Supplies															
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.)										\$2,500					
<b>K. Total Direct Costs (C through I)</b> ..... →										\$19,038					
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 in on/off campus bases.)															
<b>M. Total Direct and F&amp;A/Indirect Costs (J plus K)</b> ..... →										\$19,038					
N. Other..... →															
<b>O. Total Amount of This Request</b> ..... →										\$19,038					
<b>P. Carryover -- (If Applicable)</b> .....				Federal Funds: \$				Non-Federal funds: \$				Total \$			
<b>Q. Cost Sharing/Matching (Breakdown of total amounts shown in line O)</b>															
Cash (both Applicant and Third Party) .....										→					
Non-Cash Contributions (both Applicant and Third Party) .....										→					
<b>NAME AND TITLE</b> (Type or print)				<b>SIGNATURE</b> (required for revised budget only)						<b>DATE</b>					
Project Director															
Authorized Organizational Representative															
Signature (for optional use)															

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**BUDGET**

ORGANIZATION AND ADDRESS Research and Sponsored Programs University of Wisconsin-Madison 750 University Ave., Madison, WI 53706-1490				<b>USDA AWARD NO.</b> <b>Year 2: Objective 1</b>				
				Duration Proposed Months: <u>12</u>  <b>Funds Requested by Proposer</b>	Duration Proposed Months: _____  <b>Funds Approved by CSREES (If different)</b>	Non-Federal Proposed Cost-Sharing/Matching Funds (If required)	Non-federal Cost-Sharing/Matching Funds Approved by CSREES (If Different)	
<b>PROJECT DIRECTOR(S)</b> Jeannette McDonald								
<b>A. Salaries and Wages</b>				<b>CSREES FUNDED WORK MONTHS</b>				
1. No. of Senior Personnel				Calendar	Academic	Summer		
a. <u>1</u> (Co)-PD(s) .....					0.72		\$5,047	
b. ___ Senior Associates .....								
2. No. of Other Personnel (Non-Faculty)								
a. ___ Research Associates-Postdoctorates . . .								
b. ___ Other Professionals . . . . .								
c. ___ Paraprofessionals.....								
d. ___ Graduate Students.....								
e. <u>3</u> Prebaccalaureate Students.....							\$7,571	
f. ___ Secretarial-Clerical.....								
g. ___ Technical, Shop and Other .....								
<b>Total Salaries and Wages</b> ..... →							\$12,618	
<b>B. Fringe Benefits (If charged as Direct Costs)</b>							\$4,416	
<b>C. Total Salaries, Wages, and Fringe Benefits (A plus B)</b> ..... →							\$17,034	
<b>D. Nonexpendable Equipment (Attach supporting data. List items and dollar amounts for each item.)</b>								
<b>E. Materials and Supplies</b>								
<b>F. Travel</b>								
<b>G. Publication Costs/Page Charges</b>								
<b>H. Computer (ADPE) Costs</b>								
<b>I. Student Assistance/Support (Scholarships/fellowships, stipends/tuition, cost of education, etc. Attach list of items and dollar amounts for each item.)</b>								
<b>J. All Other Direct Costs (In budget narrative, list items and dollar amounts and provide supporting data for each item.)</b>							\$1,500	
<b>K. Total Direct Costs (C through I)</b> ..... →							\$18,534	
<b>L. F&amp;A/Indirect Costs.</b> (If applicable, specify rate(s) and base(s) for on/off campus activity. Where both are involved, identify itemized costs in on/off campus bases.)								
<b>M. Total Direct and F&amp;A/Indirect Costs (J plus K)</b> ..... →							\$18,534	
<b>N. Other</b> ..... →								
<b>O. Total Amount of This Request</b> ..... →							\$18,534	
<b>P. Carryover -- (If Applicable)</b> . . . . . <b>Federal Funds: \$</b>				<b>Non-Federal funds: \$</b>		<b>Total \$</b>		
<b>Q. Cost Sharing/Matching (Breakdown of total amounts shown in line O)</b>								
Cash (both Applicant and Third Party) ..... →								
Non-Cash Contributions (both Applicant and Third Party) ..... →								
<b>NAME AND TITLE (Type or print)</b>				<b>SIGNATURE (required for revised budget only)</b>				<b>DATE</b>
<b>Project Director</b>								
<b>Authorized Organizational Representative</b>								
<b>Signature (for optional use)</b>								

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 the reviewing the collection of information.

## BUDGET EXPLANATION FOR UNIVERSITY OF WISCONSIN

(McDonald)

### Objective 1

- A. Salary and Wages.** Year 1: 5% time for each of four production staff (Project Director, Editor, Web Developer, Graphic Artist/Programmer) to create, modify, edit, and publish 4 modules (\$12,250). Year 2: 5% time for each of four production staff to create, modify, edit, publish the remaining modules, as well as pilot and revise all the modules (\$12,618).
- B. Fringe Benefits.** Years 1 and 2: Fringe benefits rate is 35% for academic staff.
- J. All Other Direct Costs.** Subcontract with the Wisconsin Department of Agriculture, Trade, and Consumer Protection to (Year 1) gather content for online modules (\$1,000) and market the program to producers at a national aquaculture conference, location to be determined (\$1,500) and (Year 2) market the program to producers at a national aquaculture conference, location to be determined (\$1,500).

**BUDGET**

ORGANIZATION AND ADDRESS Michigan Sea Grant Michigan State University 710 Chippewa Square, Suite 202, Marquette, MI 49855				<b>USDA AWARD NO.</b>				<b>Year 1: Objective 2</b>							
				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) Ronald E. Kinnunen				<b>Funds Requested by Proposer</b>		<b>Funds Approved by CSREES (If different)</b>									
<b>A. Salaries and Wages</b>				<b>CSREES FUNDED WORK MONTHS</b>											
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. ____ Prebaccalaureate Students.....															
f. ____ Secretarial-Clerical.....															
g. ____ Technical, Shop and Other .....															
<b>Total Salaries and Wages</b> ..... →															
B. Fringe Benefits (If charged as Direct Costs)															
<b>C. Total Salaries, Wages, and Fringe Benefits (A plus B)</b> ..... →															
D. Nonexpendable Equipment (Attach supporting data. List items and dollar amounts for each item.)															
E. Materials and Supplies						\$1,975									
F. Travel						\$3,600									
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.)						\$ 420									
<b>K. Total Direct Costs (C through I)</b> ..... →						\$5,995									
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 in on/off campus bases.)															
<b>M. Total Direct and F&amp;A/Indirect Costs (J plus K)</b> ..... →						\$5,995									
N. Other..... →															
<b>O. Total Amount of This Request</b> ..... →						\$5,995									
<b>P. Carryover -- (If Applicable)</b> .....				<b>Federal Funds: \$</b>				<b>Non-Federal funds: \$</b>				<b>Total \$</b>			
<b>Q. Cost Sharing/Matching (Breakdown of total amounts shown in line O)</b>															
Cash (both Applicant and Third Party) .....										→					
Non-Cash Contributions (both Applicant and Third Party) .....										→					
<b>NAME AND TITLE</b> (Type or print)						<b>SIGNATURE</b> (required for revised budget only)						<b>DATE</b>			
<b>Project Director</b>															
<b>Authorized Organizational Representative</b>															
<b>Signature (for optional use)</b>															

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 the reviewing the collection of information.

**BUDGET**

ORGANIZATION AND ADDRESS Michigan Sea Grant Michigan State University 710 Chippewa Square, Suite 202, Marquette, MI 49855				<b>USDA AWARD NO.</b>		<b>Year 2: Objective 2</b>	
				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) Ronald E. Kinnunen				<b>Funds Requested by Proposer</b>	<b>Funds Approved by CSREES (If different)</b>		
<b>A. Salaries and Wages</b> 1. No. of Senior Personnel		<b>CSREES FUNDED WORK MONTHS</b>					
		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. ____ Prebaccalaureate Students .....							
f. ____ Secretarial-Clerical .....							
g. ____ Technical, Shop and Other .....							
<b>Total Salaries and Wages</b> ..... →							
B. Fringe Benefits (If charged as Direct Costs)							
<b>C. Total Salaries, Wages, and Fringe Benefits (A plus B)</b> ..... →							
D. Nonexpendable Equipment (Attach supporting data. List items and dollar amounts for each item.)							
E. Materials and Supplies				\$1,325			
F. Travel				\$2,400			
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.)				\$ 280			
<b>K. Total Direct Costs (C through I)</b> ..... →				\$4,005			
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 in on/off campus bases.)							
<b>M. Total Direct and F&amp;A/Indirect Costs (J plus K)</b> ..... →				\$4,005			
N. Other ..... →							
<b>O. Total Amount of This Request</b> ..... →				\$4,005			
<b>P. Carryover -- (If Applicable)</b> .....		<b>Federal Funds: \$</b>	<b>Non-Federal funds: \$</b>	<b>Total \$</b>			
<b>Q. Cost Sharing/Matching (Breakdown of total amounts shown in line O)</b>							
Cash (both Applicant and Third Party) ..... →							
Non-Cash Contributions (both Applicant and Third Party) ..... →							
<b>NAME AND TITLE</b> (Type or print)		<b>SIGNATURE</b> (required for revised budget only)				<b>DATE</b>	
<b>Project Director</b>							
<b>Authorized Organizational Representative</b>							
<b>Signature (for optional use)</b>							

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## BUDGET EXPLANATION FOR MICHIGAN STATE UNIVERSITY

(Kinnunen)

### Objective 2

- E. Materials and Supplies.** 132 training packages (79 in Year 1 and 53 in Year 2) will be produced at a cost of \$25 each. Each training package will have a manual (\$10), video (\$5), CD (\$5), and newly developed Field Guide to Fish Invaders of Great Lake Region and record keeping forms (\$5).
- F. Travel.** Activities will be centered on a set of five workshops (3 in Year 1 and 2 in Year 2) conducted within the NCR at locations to be determined. Travel expenses for each of the five workshops will average \$1,200 for two trainers.
- J. All Other Direct Costs.** Year 1: Phone (\$60), Fax (\$30), and Postage (\$120); Year 2: Phone (\$40), Fax (\$20), and Postage (\$80).

**BUDGET SUMMARY ALL PARTICIPATING INSTITUTIONS**

**Year 1**

	<b>ISU</b>	<b>UW-Stevens Point</b>	<b>UW-Madison</b>	<b>MSU</b>	<b>TOTALS</b>
Salaries and Wages	\$2,284	\$2,000	\$12,250		\$16,534
Fringe Benefits	\$ 747	\$ 890	\$4,288		\$5,925
Total Salaries, Wages, and Fringe Benefits	\$3,031	\$2,890	\$16,538		\$22,459
Nonexpendable Equipment					
Materials and Supplies		\$1,000		\$1,975	\$2,985
Travel				\$3,600	\$3,600
All Other Direct Costs			\$2,500	\$ 420	\$2,920
<b>TOTAL PROJECT COSTS</b>	<b>\$3,031</b>	<b>\$3,890</b>	<b>\$19,038</b>	<b>\$5,995</b>	<b>\$31,954</b>

**Year 2**

	<b>ISU</b>	<b>UW-Stevens Point</b>	<b>UW-Madison</b>	<b>MSU</b>	<b>TOTALS</b>
Salaries and Wages	\$2,353	\$2,000	\$12,618		\$16,971
Fringe Benefits	\$ 769	\$ 890	\$4,416		\$6,075
Total Salaries, Wages, and Fringe Benefits	\$3,122	\$2,890	\$17,034		\$23,046
Nonexpendable Equipment					
Materials and Supplies				\$1,325	\$1,325
Travel				\$2,400	\$2,400
All Other Direct Costs			\$1,500	\$ 280	\$1,780
<b>TOTAL PROJECT COSTS</b>	<b>\$3,122</b>	<b>\$2,890</b>	<b>\$18,534</b>	<b>\$4,005</b>	<b>\$28,551</b>

### **SCHEDULE FOR COMPLETION OF OBJECTIVES**

Objective 1: Initiated in Year 1 and completed in Year 2 (see page 10 for more detail).

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

## **LIST OF PRINCIPAL INVESTIGATORS**

**Glenda D. Dvorak**, Iowa State University

**Christopher F. Hartleb**, University of Wisconsin-Stevens Point

**Myron J. Kebus**, Wisconsin Department of Agriculture, Trade, and Consumer Protection

**Ronald E. Kinnunen**, Michigan State University

**Jeanette McDonald**, University of Wisconsin-Madison

## VITA

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### EDUCATION

B.S. Iowa State University, 1995, Zoology; Minor: Animal Ecology  
M.S. Iowa State University, 1997, Fisheries Biology-Aquaculture  
D.V.M. Iowa State University, 2001, Veterinary Medicine  
M.P.H. University of Iowa, 2003, Public Health,

### BOARD CERTIFICATION

Diplomate, American College of Veterinary Preventive Medicine, 2007

### POSITIONS

Veterinary Specialist (2003-present), Center for Food Security and Public Health and College of Veterinary Medicine, Iowa State University  
Adjunct Instructor (2002-2003), College of Veterinary Medicine, Iowa State University  
Associate Veterinarian (2001-2002), All Creatures Small Animal Hospital, Indianola, Iowa  
Research Assistant (1995-1997), Program Assistant (1993-1997), North Central Regional Aquaculture Center, Iowa State University

### SCIENTIFIC AND PROFESSIONAL ORGANIZATIONS

American Veterinary Medical Association  
Iowa Veterinary Medical Association (Public Health Committee)  
Iowa Public Health Association  
Iowa Veterinary Rapid Response Team  
National Society of Public Health Educators

### SELECTED PUBLICATIONS

- Dvorak, G.A. Rovid-Spickler, and J.A. Roth. 2007. Handbook for zoonotic diseases for companion animals. Iowa State University, Ames.
- Dvorak, G. 2004. Disinfection 101 (Overview document). Center for Food Security and Public Health. Iowa State University, Ames.
- Bickett-Weddle, D. and G. Dvorak. 2004. Biological risk management: general prevention practices. Center for Food Security and Public Health, Iowa State University, Ames.
- Dvorak, G. 2004. Bioterrorism and high consequence pathogen diseases wallchart. Journal of the American Veterinary Medical Association. 227(3):supplement to issue.
- Dvorak, G. 2002. Biosecurity on the farm. Center for Food Security and Public Health. Iowa State University, Ames.
- Steneroden, K, G. Dvorak, and D. Bickett-Weddle. 2002. Biological risk management for veterinary clinics. Center for Food Security and Public Health. Iowa State University, Ames.
- Mischke, CC, G.D. Dvorak, and J.E. Morris. 2001. Growth and survival of hybrid sunfish larvae in the laboratory under different feeding and temperature regimes. North American Journal of Aquaculture 63:265-71.

## VITA

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## EDUCATION

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

## POSITIONS

Professor of Fisheries Biology & Aquaculture (2007-present), Co-Director (2006-present), Northern Aquaculture Demonstration Facility, Associate Professor of Fisheries Biology and Aquaculture (2002-2007), and Assistant Professor of Biology and Water Resources (1996-2002), Department of Biology University of Wisconsin-Stevens Point  
Researcher Assistant (1992-1996), Maine Cooperative Fish and Wildlife Research Unit, University of Maine  
Research Assistant (1990-1992), Lakes Fish Condition Program, University of New Hampshire  
Research Assistant (1988-1990), Rensselaer Fresh Water Institute, Rensselaer Polytechnic Institute

## SCIENTIFIC AND PROFESSIONAL ORGANIZATIONS

American Fisheries Society, Fish Culture Section  
North American Benthological Society  
Wisconsin Aquaculture Industry Advisory Council  
World Aquaculture Society / U.S. Aquaculture Society

## SELECTED PUBLICATIONS

- 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.
- Hartleb, C.F. 2004. Floating raceways to raise yellow perch at cranberry farms. *Aquaculture Magazine* Jan/Feb.
- Hartleb, C.F. 2003. Food chain dynamics and diets of larval and post-larval yellow perch in culture ponds. *In* Barry, T.P. and J.A. Malison (eds.), *Proceedings of Percis III: The Third International Percid Fish Symposium*, University of Wisconsin Sea Grant Institute, Madison.
- Hartleb, C.F. and S. A. Timm. 2000. Survival and hatching success of stonefly eggs (*Paragnetina media*) following ingestion by three stream fishes. *Journal of Freshwater Ecology* 15:107-114.
- Hartleb, C.F. and J.F. Haney. 1998. Use of a thermal and light refugium by *Daphnia* and its effects on foraging pumpkinseeds. *Environmental Biology of Fishes* 51:339-349.
- Hartleb, C.F. 1996. Ecology and performance of stocked brook trout (*Salvelinus fontinalis*) in two Maine ponds. Doctoral dissertation, University of Maine, Orono.
- Hartleb, C.F. and J.R. Moring. 1995. An improved gastric lavage device for removing stomach contents from live fish. *Journal of Fisheries Research* 24:261-266.
- Hartleb, C.F., J.D. Madsen, and C.W. Boylen. 1993. Environmental factors affecting seed germination in *Myriophyllum spicatum* L. *Aquatic Botany* 45:15-25.

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## EDUCATION

B.S. Michigan State University, 1986, Biology  
M.S. University of Wisconsin-Madison, 1990, Veterinary Science-Aquaculture  
D.V.M. University of Wisconsin-Madison, 1992, Veterinary Medicine

## POSITIONS

Director (1999-present), Division of Animal Health Aquaculture Program, Wisconsin Department of Agriculture, Trade & Consumer Protection  
Adjunct Professor (2005-present), University of Wisconsin, School of Veterinary Medicine, Madison  
Consultant (April 2002), Infectious Salmon Anemia Emergency Program, USDA, Eastport, Maine  
Owner Private Practitioner (1993-1999), Wisconsin Aquatic Veterinary Service  
Associate Private Practitioner (1992-1993), Lake Mills Veterinary Clinic  
Assistant Research Specialist (1987-1988), University of Wisconsin-Madison Aquaculture Program, University of Wisconsin-Madison

## SCIENTIFIC AND PROFESSIONAL ORGANIZATIONS

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

## SELECTED PUBLICATIONS

- Kebus, M.J. 2005. Aquaculture fish health. A manual of Best Management Practices for aquaculture in Wisconsin and the Great Lakes Region. Malison, J.A. and C.F. Hartleb (eds.). University of Wisconsin Sea Grant Institute, Madison.
- Kebus, M.J. 2004. Wisconsin's veterinary approach to fish health. *In* Aquaculture Biosecurity. Blackwell Publishing.
- Kebus, M.J. 2003. Waste management: aquaculture and fisheries. *Journal of the American Veterinary Medical Association* 223(1):56-57.
- Hedrick, R.P., O. Gilad, S. Yun, J.V. Spagenberg, G.D. Marty, R.W. Nordhausen, M.J. Kebus, H. Bercovier, and A. Eldar, 2000. A herpesvirus associated with mass mortality of juvenile and adult koi, a strain of common carp. *Journal of Aquatic Animal Health* 12:44-57.
- Kebus, M.J., M.T. Collins, M.S. Brownfield, C.H. Amundson, T.B. Kayes, and J.A. Malison. 1992. Effects of rearing density on the stress response and growth of rainbow trout. *Journal of Aquatic Animal Health* 4(1):1-6.
- Kebus, M.J., M.T. Collins, M.S. Brownfield, C.H. Amundson, T.B. Kayes, and J.A. Malison. 1992. Measurement of resting and stress-elevated serum cortisol levels in rainbow trout (*Oncorhynchus mykiss*) in experimental net-pens. *Journal of the World Aquaculture Society* 23(1):83-88.

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### EDUCATION

B.S. Michigan State University, 1976  
M.S. Michigan State University, 1979  
Ph.D. Michigan Technological University, 1997

### POSITIONS

Michigan Sea Grant Extension Agent (1982-present), Upper Peninsula, Michigan State University  
Fisheries Pathologist (1981), Rangen Research Laboratory, Hagerman, Idaho  
Fisheries Biologist (1979-1980), U.S. Fish and Wildlife Service, Leetown, West Virginia

### SCIENTIFIC and PROFESSIONAL ORGANIZATIONS

American Fisheries Society, Salmonid Section  
International Association for Great Lakes Research  
Alliance for Marine Remote Sensing

### SELECTED PUBLICATIONS

- Kinnunen, R.E., M.C. Gould, and P. Cambier. 2005. Composting commercial fish processing waste from fish caught in the Michigan waters of the Great Lakes. Michigan State University Technical Bulletin, East Lansing.
- Pangle, K. L., T. M. Sutton, R. E. Kinnunen, and M. H. Hoff. 2005. Effects of body size, condition, and lipid content on the survival of juvenile lake herring during rapid cooling events. Journal of Great Lakes Research 31:360-366.
- Pangle, K.L., T.M. Sutton, R.E. Kinnunen, M.H. Hoff. 2004. Overwinter survival of juvenile lake herring in relation to body size, physiological condition, energy stores, and food ration. Transactions of the American Fisheries Society 133 (5):1235-1246.
- Hinshaw, J.M., G. Fornshell, R.E. Kinnunen. 2004. A profile of the aquaculture of trout in the United States. Report for USDA Risk Management Agency, Federal Crop Insurance Corporation, through Mississippi State University, Starkville.
- Kinnunen, R.E., editor. 2002. Environmental Strategies for Aquaculture Symposium Proceedings (December 2000). 62<sup>nd</sup> Midwest Fish and Wildlife Conference, Minneapolis, MN. NCRAC CD Series #101, NCRAC Publications Office, Iowa State University, Ames.
- Gunderson, J.L. and R.E. Kinnunen. 2001. Aquatic nuisance species-Hazard analysis and critical control point training curriculum. Michigan Sea Grant Publication No. MSG-00-400, East Lansing.
- Kinnunen, R.E. 2000. A white paper on the status and needs of salmonid aquaculture in the North Central Region. North Central Regional Aquaculture Center. Michigan State University, East Lansing.
- Kinnunen, R.E. 1996. Walleye fingerling culture in undrainable ponds. Pages 135-145 in R.C. Summerfelt, editor. Walleye culture manual. NCRAC Culture Series #101, NCRAC Publications Office, Iowa State University, Ames.

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### EDUCATION

B.S. University of Northern Colorado, 1974, Deaf Education; Minors: Chemistry and Math  
D.V.M. Colorado State University, 1981, Veterinary Medicine  
Ph.D. University of Wisconsin-Madison, 1998, Distance Education

### POSITIONS

Faculty Associate (1998-present), University of Wisconsin-Madison  
Distance Learning Consultant (1996-1998), School of Human Ecology and University of Wisconsin-Extension  
Graduate Project Assistant (1994-1996) and Teaching Assistant (1994), Distance Education/Learning Project of the Wisconsin Small Business Development Center (SBDC)  
Project Coordinator and Curriculum Developer (1993-1994), Oscar Mayer Agricultural Institute  
Microbiologist (1992-1993), Department of Medical Sciences, School of Veterinary Medicine, UW Madison

### OTHER EXPERIENCE AND PROFESSIONAL MEMBERSHIPS

National Johnes Working Group – Co-chair, Education Committee  
American Veterinary Medical Association  
International Association for Paratuberculosis  
U.S. Animal Health Association  
Association for the Advancement of Computing in Education  
Wedemeyer Award, Outstanding Distance Researcher of the Year (National competition). 1999  
Wisconsin Continuing Education Association – Vice President, 1997-1999

### SELECTED PUBLICATIONS

- McDonald, J. 2002. Is 'as good as face-to-face' as good as it gets? *Journal of Asynchronous Learning Networks* 6(2). [http://www.aln.org/alnweb/journal/jaln\\_vol6issue2.htm](http://www.aln.org/alnweb/journal/jaln_vol6issue2.htm)
- McDonald, J. and C. Gibson. 1998. Interpersonal aspects of group dynamics and group development in computer conferencing. *American Journal of Distance Education* 12(1):7-25.
- McDonald, J., P. Garties, M. Hanson, G. Slygh, and J. Schroeder. 1995. Internet use in the classroom: In search of constructivist practice. *Journal of Visual Literacy* 16:91-108.
- Chung, W.B., L.R. Bäckström, J. McDonald, and M.T. Collins. 1993. *Actinobacillus pleuropneumoniae* culture supernatants interfere with killing of *Pasteurella multocida* by swine pulmonary alveolar macrophages. *Canadian Journal of Veterinary Research* 57:190-197.
- Chung, W.B., L.R. Bäckström, J. McDonald, and M.T. Collins. 1993. The (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium) colorimetric assay for the quantitation of *Actinobacillus pleuropneumoniae* cytotoxin. *Canadian Journal of Veterinary Research* 57:159-165.
- McDonald, J., M.T. Collins, and R.S. Lambrecht. 1989. Radiometric detection of *Mycobacterium paratuberculosis* from clinical specimens. Pages 146-152 in A.R. Milner and P.R. Wood (ed.) *Johnes's Disease. Current trends in research diagnosis and management*, CSIRO Publications, Melbourne, Australia.