

Extension Addendum

EXTENSION ADDENDUM⁶

Project *Termination Report* for the Period
September 1, 2008 to August 31, 2012

NCRAC FUNDING: \$50,505 (September 1, 2008 to August 31, 2010)

PARTICIPANTS:

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Industry Advisory Council Liaison:		
William West	Blue Iris Fish Farm, Black Creek	Wisconsin

REASON FOR TERMINATION

The objectives were completed and the funds terminated.

PROJECT 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.

⁶ NCRAC has funded a number of Extension activities, both as stand-alone projects or as components of species- or topical-specific projects. This Progress Report is for one of the 13 stand-alone "Base" Extension projects and is an Addendum to the 11th "Base" Extension project which is chaired by Joseph E. Morris. This is a project that had two years of funding and began September 1, 2008.

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PRINCIPAL ACCOMPLISHMENTS

OBJECTIVE 1

Development of an online Fish Health Certificate Program for producers that will provide them with relevant risk assessment and management principles and practices to reduce losses due to fish diseases is now complete. Part one of the fish health certificate program included the development of a six module web-based learning program. Modules 1-6 of the asynchronous learning program have undergone peer review, revisions based on those reviews were made, and the modules have been published, available at http://ce.vetmed.wisc.edu/Fish_Producer_Courses. The modules contain information about:

1. Introductory principles and practices such as regional fish production, farm types in the NCR, principle culture systems, and the myriad of regulatory agencies involved in the U.S. aquaculture.
2. Risk management and biosecurity methods that can assist producers in reducing the risk of introduction of diseases at aquaculture facilities. This module reviewed topics, e.g., Best Management Practices, loss events, continuing education, veterinary services, record keeping, and links to state and federal guidelines and policies.
3. Water quality management and monitoring, and disease prevention that includes reviews of water characteristics, physical and chemical water components, and effluent discharge at aquaculture facilities.
4. Fish health inspections, with particular emphasis on what producers should expect at an inspection, how producers can prepare for inspections, regulatory consequences, supplies and equipment required at an inspection, and how samples are collected, shipped, and what type of voucher specimens may be collected.
5. Veterinary health assessments and reports are presented showing typical results of a fish health inspection. Information included shows a producer how they can use the information to improve fish health management at their facility. This included a review of treatments and medications and the role of follow-up assessments.
6. Case studies describing diseases based on water quality problems, environmental diseases, bacterial infections and ectoparasites have been developed. Case studies specific to Koi herpes virus, largemouth bass virus, infectious salmon anemia, spring viremia of carp, and viral hemorrhagic septicemia have been developed based on actual “real-world” examples.
7. Evaluation and outcome assessment tools have been developed. Mechanisms are in place to collect data on the finished products.
8. Free access was provided for the complete online program for those that agreed to complete a pre- and post-program survey.

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OBJECTIVE 2

A publication entitled “Biosecurity for Aquaculture Facilities in the North Central Region” was developed and is now available through NCRAC.

Kinnunen has coordinated a number of AIS- HACCP training courses at numerous locations with a varied audience base. For instance a 3-day AIS HACCP Training course was held at Bay Mills, Michigan in 2008. Formal evaluations from attendees rated the course as excellent. The 33 attendees included state and tribal fishermen/ processors, fish farmers, and state regulators along with representatives from major firms from around the U.S. dealing with fishery products.

Kinnunen has also provided preventative information and AIS-HACCP materials to the Colorado Division of Wildlife regarding the control of quagga mussel veligers on Kokanee salmon eggs. Kinnunen’s role in this area is also exemplified by his attendance at the Trade Workshop II that was sponsored by the Great Lakes Commission. Those in attendance learned about the success of AIS-HACCP and how it has been widely adopted by the baitfish and aquaculture industries and may provide a model for other sectors to follow.

In 2010 Kinnunen conducted 1-d AIS- HACCP Training Workshops in Ashland, Nebraska and Spirit Lake, Iowa. Those in attendance included state fish hatchery and fish management personnel, private sector aquaculture personnel, and an aquatic veterinarian. Attendees indicated in a written evaluation that they would use the material learned and implement plans at their own facilities within the next several months.

Kinnunen also coordinated a second 3-d Seafood HACCP Training course at Bay Mills, Michigan along with Mike Erdman (Menominee County Extension Director) and Jim Thannum (Great Lakes Indian Fish and Wildlife Commission). Formal evaluations from attendees rated the course as excellent. The 40 attendees included state and tribal fishermen/processors, fish farmers, state regulators, along with representatives from major firms from around the U.S. dealing with fishery products.

Kinnunen also attended a meeting hosted by the Wisconsin Department of Natural Resources in Manitowish Lakes, Wisconsin to discuss the invasion of spiny water fleas into lakes in northern Wisconsin and Michigan’s western Upper Peninsula. He shared with the group the AIS-HACCP program and how natural resource management agencies could use this program to prevent the spread of aquatic invasive species by way of their assessment operations. Similar efforts included: (1) Wild Rivers Invasive Species Coalition Annual Meeting; (2) a Central Upper Peninsula all agency meeting that included officials from the U.S. Fish and Wildlife Service, U.S. Forest Service, National Park Service, and Michigan MDNRE where the program efforts were highlighted; and (3)

began evaluating the use of AIS-HACCP at Cabala’s Master Walleye Circuit fish tournaments and attended events in Escanaba and Sault Ste. Marie, Michigan. Kinnunen developed a display on aquatic invasive species and surveyed tournament anglers on their current practices to prevent the spread of AIS. At these two tournaments he evaluated procedures that could be critical control points to prevent the spread of AIS. Tournaments attract participants from many states and have the potential to spread AIS.

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IMPACTS. The complete Fish Health Certificate Program was peer reviewed in the summer of 2011 and was published online (<http://www.ncrac.org/node/329>) in November of 2011. As of September 15, 2012, 268 participants from over 30 states and eight countries completed the course. As part of the course requirements, participants were asked to complete a short survey prior to taking the course (Pre-Survey), immediately following completion of the course (Post-Survey), and six months after taking the course (Follow-Up Survey).

Information gathered was used to assess short-term and intermediate outcome indicators, as well as feedback for improvement of the course.

Pre-Survey.—The majority of course participants indicated they were taking the course to learn how to improve the health of fish on their farm/facility (74%), to learn what biosecurity for fish farms involves (62%), and to learn how to implement biosecurity on their farm/facility (52.5%).

Most respondents (90.9%) indicated that implementing biosecurity measures would serve to prevent disease from entering farm/facility. Many (84.2%) also felt it would increase the health of fish. Others (36.4%) indicated it had economic benefit and increases sales of product.

Almost half (47.3%) of the respondents reported never having had a fish health inspection/or fish health assessment conducted for their farm/facility. Of those indicating “yes” for having these procedures for their farm facility, 31.5% had a fish health inspection, 21.2% had a fish health assessment. Of those indicating “no”, 13.5% were interested in using them for their farm/facility. The majority (47.2%) of respondents felt current fish health inspection regulatory requirements seemed reasonable. Lastly respondents were asked about the availability and use of fish veterinarians in their area. Approximately one-third of respondents indicated they did not know if there were any aquatic veterinarians in their area. Another third were aware of an aquatic veterinarian in their area; twenty percent replied that no aquatic veterinarian was available for their area. Only 15.7% of respondents indicated ever working with an aquatic veterinarian on their farm/facility.

Post-Survey.—Upon completion of the online course, participants were asked to take a short post-course survey. Only 61 of the 268 (22.7%) participants completed the post-survey. All respondents indicated the information in the course was very useful; almost half (41%) ranked the course as “extremely useful”. Prior to this course, the majority (62.7%) of respondents had never attended an aquaculture biosecurity course/workshop. All respondents indicated they would recommend the course to others.

Respondents were asked their opinion about the level of biosecurity used on their farm (after taking the course). The majority (42.4%) felt their level of biosecurity was high, 22% indicated moderate levels of biosecurity, and 8.5% reported low levels of biosecurity.

Respondents were then asked to rate various biosecurity elements. This was a similar question to the pre-survey, and was used to see if the information contained in the modules, changed the participants knowledge or perception of biosecurity measures and importance. In the Post- Survey, all biosecurity elements (water quality, record keeping, visitor control, cleaning and disinfection, diagnostic testing, and fish health assessment) were rated as extremely important. Three parameters (record keeping, visitor control, and diagnostic testing) which were ranked as moderately important in the pre-survey, were increased in rank to extremely important in the post survey, potentially indicating an increased awareness of the

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importance for these biosecurity measures.

Respondents were asked how likely they were to implement new or enhanced measures of biosecurity on farm/facility after taking course. The majority (75%) indicated highly likely, 18.3% indicated somewhat likely and 3.3% indicated either not likely or it was required.

Respondents were asked who should pay for the cost of fish health regulatory requirements. The majority (73.8%) of respondents indicated costs should be a combination of producer financing and State/or Federal funds.

Twelve respondents (19.7%) felt producers should be responsible.

Follow-Up Survey.— On August 21, 2012, a follow up survey was emailed out to participants (n=205) that had taken the course at least 6-months prior. Only 43 responses (21%) were received, however not all questions were answered by those responding. The majority of respondents (60.5%) indicated that they had implemented new or enhanced measures of biosecurity on their farm since taking the course. Biosecurity elements that were reported as enhanced from previous measures were cleaning and disinfection (60.7% of respondents), record keeping

(60% of respondents), water quality (42.3% of respondents) and visitor control (40.7% of respondents). Respondents felt that the implementation of biosecurity measures helped in keeping diseases from spreading onto farms (65.5%) and increased the health of fish (58.6%)

The majority of respondents (42.1%) reported they had not worked with an aquatic veterinarian since taking the online course. Additionally, over half (52%) had not had a fish health inspection or assessment since taking the course.

AIS-HACCP workshops have been attended by commercial culturists, state and federal natural resource personnel, as well as Native Americans, many of whom have implemented the principles of AIS-HACCP into their operations.

RECOMMENDED FOLLOW-UP ACTIVITIES

Survey results from the Fish Health Certificate Program for Aquaculture Producers online course indicated this can serve as a useful tool to increase education and awareness of fish health and biosecurity issues in aquaculture for producers. For the majority of survey respondents (62.7%), this was the first aquaculture biosecurity course/workshop they had “attended”. The course was well received by participants, who also indicated they would recommend the course to others. Many participants reported implementing enhanced fish health and biosecurity measures at their facility or farm after taking the course, and almost half of the respondents on follow-up had had a fish health inspection or assessment conducted on their facility. The survey results suggest there may be a gap of information on where or how to identify aquatic veterinarians in the producers area. There will continue to be a need for additional workshops in AIS-HACCP

training, especially given the changing environmental and legal landscape for the aquaculture industry. The utility of these workshops is evident by the wide audience base that has attended the workshops noted in this report.

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SUPPORT

NCRAC has provided \$60,505 which is the entire amount allocated for this 2-year project.

PUBLICATIONS, MANUSCRIPTS, OR PAPERS PRESENTED

See the Appendix for a cumulative output for all NCRAC-funded extension activities.