

Final Report (2010)

Title of Project: Increasing the Availability of Veterinarians for Indiana and Illinois Aquaculturists

Completion Date: September 30, 2010

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Abstract: The objective of this project was to develop and deliver an introductory fish health class for veterinarians and veterinary students, fisheries professionals and students, and other stakeholders in Illinois and Indiana for the purpose of 1) generating interest in the field of aquaculture, 2) transmitting information about opportunities in aquaculture, 3) and providing a basic understanding and working knowledge of fish health in culture settings. A workshop was held September 24-25, 2010 in conjunction with the Purdue University School of Veterinary Medicine Fall Conference, held this year at Purdue University, West Lafayette, IN. "Illinois and Indiana Aquatic Veterinary Medicine Workshop" featured 10 lectures from recognized experts in aquaculture, fish biology, aquatic animal medicine, and aquaculture regulation. An in-depth wet laboratory was held to allow participants to become familiar with basic fish anatomy and behavior, and to teach them how to perform a fish health inspection. Attendees were also introduced to the opportunities for veterinarians in aquaculture via formal lectures and informal discussions with course instructors. Attendees were provided with electronic and hard copies of presentations and supplemental information; these materials have also been posted on the Fisheries and Illinois Aquaculture Center website (<http://fishdata.siu.edu/vet/>). The workshop was recognized as a continuing education opportunity, and attendees were able to get up to 12 continuing education credits from Purdue University School of Veterinary Medicine for participating. Course evaluations collected indicated a high level of enthusiasm for the material and that attendees found the workshop to be highly educational and beneficial to their ongoing education as veterinary professionals.

¹ Dr. Dudis and Mr. Shults were not listed formally on the proposal as Associate Investigators because of their status as government employees, but their contribution of time to the project was acknowledged in the project budget forms (though not considered as matching funds, again because of their employment status) and their contributions were significant and crucial to the overall project success.

Introduction: Many experts agree that aquaculture is the only sustainable means of providing enough seafood supply to meet the ever growing world demand. “In a time when fish from oceans and other waterways are being harvested at unsustainable rates, aquaculture has become the fastest growing food production industry in the world, and a major industry in the United States” (www.iiseagrant.org/topics.html). Today, nearly half of all seafood products produced throughout the world is farmed. Freshwater commercial aquaculture in the United States was valued to be an \$800 million industry in 2005. Additionally, the annual estimated economic value of recreational fresh water fisheries (a significant portion of which is supported by cultured fish) is estimated to be \$25.4 billion.

Promoting and maintaining fish health is one of the primary challenges facing aquaculturists today. Culturists must have effective preventative and therapeutic strategies in their fish health ‘toolbox’ in order to manage livestock health and well-being, minimize costs, and provide a quality product to human consumers worldwide. A crucial component of on-farm livestock health management is ready access to competent veterinary support—culturists need to establish effective working relationships with veterinarians for access to diagnostic services, therapeutants under veterinary feed directives (i.e., Aquaflor[®]) or available by prescription only, and most importantly, experienced guidance in maintaining aquatic animal health.

Unfortunately, many veterinary schools do not offer coursework or ‘hands-on’ training in aquatic animal health, and specialized training in traditional livestock medicine is insufficient to prepare veterinarians for practicing in aquaculture. Such basic aspects of veterinary medicine as method of treatment are called into question when dealing with aquatic animals. Without training in aquatic animal health and judicious use of approved aquaculture drugs, veterinarians are ill-equipped to serve the growing number of aquaculturists in the U.S.

Due to lack of available and trained veterinarians (especially in those areas where the commercial aquaculture facilities are located), fish health and production are not optimized. Appropriate diagnostic and treatment plans are not always implemented leading to decreased production and lost opportunities for revenues. Without access to experienced veterinary support, farmers resort to managing their livestock using the methods available to the home aquarium hobbyist. Use of unapproved drugs and chemicals is common, as is the misuse of approved products. The ultimate consequences of these activities are ineffective health management on the farm, increased losses, and the potential for unsafe product to reach the marketplace.

Our objective was to develop and deliver an introductory fish health class for veterinarians and veterinary students, fisheries professionals and students, and other stakeholders in Illinois and Indiana for the purpose of 1) generating interest in the field of aquaculture, 2) transmitting information about opportunities in aquaculture, 3) and providing a basic understanding and working knowledge of fish health in culture settings.

Narrative Report: A workshop was held September 24-25, 2010 in conjunction with the Purdue University School of Veterinary Medicine Fall Conference, held in 2010 at Purdue University, West Lafayette, IN. “Illinois and Indiana Aquatic Veterinary Medicine Workshop” featured 10 lectures from recognized experts in aquaculture, fish biology, aquatic animal medicine, and aquaculture regulation (see attached agenda). An in-depth wet laboratory was held to allow participants to become familiar with basic fish anatomy and behavior, and to teach them how to perform a fish health inspection. After completion of the wet laboratory, attendees had the opportunity to tour the Purdue aquaculture research facilities in order to become more familiar with fish husbandry sites and equipment. Attendees were also introduced to the

opportunities for veterinarians in aquaculture via formal lectures and informal discussions with course instructors. Attendees were provided with electronic and hard copies of presentations and supplemental information; these materials have also been posted on the Fisheries and Illinois Aquaculture Center website (<http://fishdata.siu.edu/vet/>). The workshop was recognized as a continuing education opportunity, and attendees were able to get up to 12 continuing education credits from Purdue University School of Veterinary Medicine for participating. Approximately 40 individuals (including practicing veterinarians, veterinary students, and aquaculturists) participated in the workshop, and approximately 30 of these individuals participated in the subsequent wet laboratory exercises. Course evaluations collected indicated a high level of enthusiasm for the material and that attendees found the workshop to be highly educational and beneficial to their ongoing education as veterinary professionals.

Potential Applications or Benefits: Certainly, the participants gained a new level of knowledge and comfort in dealing with aquatic animal medicine at the workshop. Many participants were encouraged by their new skills and expressed interest in helping aquaculturists and aquarium hobbyists with disease issues and aquatic animal health management. Undoubtedly, these individuals will be a better resource for aquaculturists in their region as a result of participating in the workshop. In addition to educating those individuals participating in the workshop, by posting the lecture materials on the Fisheries and Illinois Aquaculture Center website, we will make this information accessible to an even wider audience of veterinary professionals wanting to learn more about fish health. Furthermore, this cooperative effort has initiated planning for another aquaculture training workshop, this time targeting USDA Aquaculture Liaisons, to increase their practical knowledge of fish husbandry, health and disease management, etc.; similar spin-off workshops in cooperation with the American Veterinary Medical Association have also been discussed (see **Related Projects** below).

Keywords: fish health, aquaculture medicine, aquaculture drugs, biosecurity

Lay Summary: Promoting and maintaining fish health is one of the primary challenges facing aquaculturists today. Unfortunately, many veterinary schools do not offer coursework or 'hands-on' training in aquatic animal health, and specialized training in traditional livestock medicine is insufficient to prepare veterinarians for practicing in aquaculture. The objective of this project was to develop and deliver an introductory fish health class for veterinarians and veterinary students, fisheries professionals and students, and other stakeholders in Illinois and Indiana for the purpose of 1) generating interest in the field of aquaculture, 2) transmitting information about opportunities in aquaculture, 3) and providing a basic understanding and working knowledge of fish health in culture settings. A workshop was held September 24-25, 2010 in conjunction with the Purdue University School of Veterinary Medicine Fall Conference, held this year at Purdue University, West Lafayette, IN. "Illinois and Indiana Aquatic Veterinary Medicine Workshop" featured 10 lectures from recognized experts in aquaculture, fish biology, aquatic animal medicine, and aquaculture regulation. An in-depth wet laboratory was held to allow participants to become familiar with basic fish anatomy and behavior, and to teach them how to perform a fish health inspection. The workshop was recognized as a continuing education opportunity, and attendees were able to get up to 12 continuing education credits from Purdue University School of Veterinary Medicine for participating. Participants indicated a high level of enthusiasm for the material and found the workshop to be highly educational and beneficial to their ongoing education as veterinary professionals.

International Implications: NA

Media Coverage: The workshop was publicized via the following Purdue University websites:
https://www.cec.purdue.edu/ec2k/CourseListing.asp?master_id=2625&course_area=1240&course_number=151&course_subtitle=00
http://www.purdue.edu/svmengaged/docs/CE_AquacultureProgram2010.pdf

Partnerships with other institutions/individuals initiated or continued by your project:
See **Related Projects** below.

Publications: See presentations that are available for download on the Fisheries and Illinois Aquaculture Center website (<http://fishdata.siu.edu/vet/>).

Undergraduate/Graduate Names and degree: NA

Related Projects: Project investigators Trushenski and Dudis are planning to collaborate again in putting together a training workshop for USDA Aquaculture Liaisons throughout the country. The workshop is in the planning stages at this point, but will likely take place at Southern Illinois University in 2011, and will use and build off of materials developed for the "Illinois and Indiana Aquatic Veterinary Medicine Workshop". There is also interest from the American Veterinary Medical Association to sponsor essentially the same workshop in different locations to increase the awareness of aquatic animal medicine throughout the broader veterinary community. The AVMA was a strong partner in putting on this workshop, contributing materials, door prizes, and feedback on the curriculum. We are hopefully that this curriculum can be used by AVMA in their other education and outreach efforts.

Awards and Honors: NA

Patents/Licenses: NA

Graphs, figures and/or photos: See presentations (<http://fishdata.siu.edu/vet/>) and photos from the workshop (attached).