

## PROJECT COMPLETION REPORT

### 95-11 “Developmental Assistance for State Aquaculture Associations in the Northeastern Region “

**Termination Report Period:** April 8, 1996 to February 26, 1998

**NRAC Total Funding:** \$58,740 (April 8, 1996 to April 7, 1997)  
(1<sup>st</sup> No-Cost Ext'n through Feb. 28, 1998; 2<sup>nd</sup> through July 17, 1998)

**Principal Investigator:** John W. Ewart, Delaware Sea Grant Marine Advisory Service

#### Participating Investigators/ Cooperative Agencies:

Dr. Lance L. Stewart	University of Connecticut	Connecticut
Mike Hastings	Maine Aquaculture Innovation Center	Maine
Don Webster	University of Maryland Sea Grant	Maryland
William Burt	Barnstable County Cooperative Extension	Massachusetts
Victoria Smith	New Hampshire Department of Agriculture	New Hampshire
Gef Flimlin	New Jersey Sea Grant Extension Program	New Jersey
Dr. Joe M. Regenstein	Cornell Cooperative Extension Service	New York
Leo Dunn	Pennsylvania Department of Agriculture	Pennsylvania
Dr. Michael A. Rice	Rhode Island Cooperative Extension/Sea Grant Marine Advisory Service	Rhode Island
Linda Marek Howe	University of Vermont Extension System	Vermont
Aggie Spicer	West Virginia University Cooperative Extension	West Virginia
Greg Belanger	Connecticut Aquaculture Association (Tallmadge Brothers, Inc.)	Connecticut
John Volk	Connecticut Department of Agriculture Sound School Vocational Aquaculture Program	Connecticut
John Foltz	Delaware Aquaculture Association (Aqua Farm Products, Inc.)	Delaware
Dr. William Daniels	Delaware State University	Delaware
Karen Hutchinson	Delaware Department of Public Instruction	Delaware
H. Michael Opitz	University of Maine Cooperative Extension	Maine
Chris Bartlett	University of Maine Sea Grant Program	Maine
Frank Gjerset	Atlantic Salmon of Maine	Maine
Frank Ayers	Maine Salmon, Inc.	Maine
Bill Mook	Mook Sea Farm	Maine
David Miller	Atlantic Aquafarms	Maine
Chris Frantsi	Connors Aquaculture	Maine
Ike Levine	Coastal Plantations International	Maine
Mike Ianello	Atlantic Aquafarms	Maine
Joseph McGonigle	Maine Aquaculture Association	Maine
Wendy Bray	Maryland Aquaculture Association, (Biometrics Incorporated)	Maryland
Paul Battistoni	Maryland Aquaculture Association (Aquamar Industries)	Maryland
Dr. Tom Hopkins	Maryland Aquaculture Association (Biometrics Incorporated)	Maryland
Pat Murphy	Maryland Aquaculture Association	Maryland
Stan Serfling	Maryland Aquaculture Association	Maryland
Ken Bergstrom	Massachusetts Aquaculture Association (Fair Acres Farm)	Massachusetts
Richard Kraus	Massachusetts Aquaculture Association, (Aquacultural Research Corporation)	Massachusetts

Richard Nelson	Massachusetts Aquaculture Association (Cotuit Oyster Company)	Massachusetts
Karl Rask	Massachusetts Aquaculture Association (Cape Cod Resource)	Massachusetts
Gordon Wilder	New Hampshire Aquaculture Association	New Hampshire
Brian Doyle	University of New Hampshire Sea Grant Ext'n	New Hampshire
Roland Barnaby	University of New Hampshire Sea Grant Ext'n	New Hampshire
Richard Langan	University of New Hampshire	New Hampshire
Harold Bickings	Aquaculture Technology Program, Cumberland County College	New Jersey
Walter J. Canzonier	New Jersey Aquaculture Association	New Jersey
Tim Jacobsen	Aquaculture Technology Program, Cumberland County College	New Jersey
Dr. John N. Kraeuter	New Jersey Fisheries & Aquaculture Technology Extension Center	New Jersey
George W. Mathis	New Jersey Aquaculture Association (Mathis and Mathis Enterprises)	New Jersey
John Maxwell	New Jersey Shellfisheries Association	New Jersey
Linda O'Dierno	New Jersey Department of Agriculture	New Jersey
Randy Trivette	New Jersey Department of Education	New Jersey
Stewart Tweed	Rutgers Cooperative Extension Service	New Jersey
Jerry Zodl	New Jersey Aquaculture Association	New Jersey
David Morehouse	New York State Aquaculture Association (Morehouse Bait Farm)	New York
Norman Soule	New York State Aquaculture Association (Cold Spring Harbor Fish Hatchery & Aquarium)	New York
Brent Blauch	Pennsylvania Aquaculture Association (Susquehanna Aquacultures, Inc.)	Pennsylvania
Richard Colantuno	National Trout Farmers Assn (Limestone Springs Trout Company)	Pennsylvania
Charles Conklin	Pennsylvania Aquaculture Association (Big Brown Fish Hatchery)	Pennsylvania
Gary Reddinger	Pennsylvania Trout Farmers Association (Cherry Valley Trout Farm)	Pennsylvania
Dr. Thomas Zeigler	Pennsylvania Aquaculture Association (Zeigler Bros., Inc.)	Pennsylvania
Dr. Robert Rheault	Ocean State Aquaculture Association (Moonstone Oysters)	Rhode Island
Roger Clapp	Vermont Department of Agriculture, Food & Markets	Vermont
Shirley Coleman	Vermont Aquaculture Association (Green Mountain Trout Farms)	Vermont
Doug Grimes	West Virginia Aquaculture Association	West Virginia
Stephen Haines	West Virginia Aquaculture Association	West Virginia
Dennis Pitzer	West Virginia Aquaculture Association	West Virginia
Rob Nichols	West Virginia Department of Agriculture	West Virginia
Bill Warnick	West Virginia Department of Agriculture	West Virginia
Ron Widmyer	West Virginia Aquaculture Association (Federal Hill Trout Farm)	West Virginia

**Background:**

At the biennial Northeastern Regional Aquaculture Center (NRAC) industry summit held in Providence, Rhode Island on February 22, 1994, issues related to regulations, fish health, waste management, bird predation, quality assurance and marketing were identified as high priorities for additional research. Industry concerns with regard to the development of state aquaculture associations (a non-researchable topic) emerged as the Summit's highest priority. The consensus among industry representatives at the Summit was that Association sponsored educational activities to give regulatory agency personnel and the public an accurate perception of the economic and environmental costs/benefits of aquaculture are an essential prerequisite to effecting state policy changes.

To assist the industry associations, the NRAC 1993/96 Regional Extension Project (REP) (NRAC project 95-3) organized a Northeast Aquaculture Industry Association Workshop in Boston, Massachusetts on March 15, 1995. The purpose of the workshop was to identify options and determine the best means for industry, extension and the NRAC program to work together to address industry's top 1994 Summit priority. Invited industry representatives (association presidents or officers) from each state were accompanied by a supporting institutional representative (the extension contact or aquaculture coordinator) from their state to promote team building and problem solving at the local level. Representatives from the USDA Aquaculture Office (Drs. Hank Parker and Gary Jensen) were also in attendance and contributed to the discussion.

The need for statewide educational programming through activities such as information booths or displays at public venues, newsletters, seminars, tours/demonstrations and association meetings (open to the public) featuring guest speakers was determined to be a common theme. Workshop participants agreed to form an Industry/Extension Work Group to develop a proposal to request additional support from NRAC for state specific educational efforts. The proposal was submitted as an addendum to the 1993/96 REP "Development of a Northeastern Regional Aquaculture Extension Network". All twelve state aquaculture associations in the northeastern region, working with their extension contact(s), the Aquaculture Coordinator and other agency personnel in their states, participated in the development of the project plan of work.

**Project Objective:**

This proposed addendum expanded Objective 1. of the 1993/96 REP is to:

"Develop educational programs on priority topics identified by industry" - to include additional issue oriented educational activity at the state and local level.

The revised objective was to:

Develop regional educational programs on current topics identified by industry and assist state associations with educational outreach on local priority issues.

**Anticipated Benefits:**

A shared priority and specific goal of the USDA Regional Aquaculture Centers is to promote private-public sector team building to advance development of the northeast aquaculture industry. One avenue to accomplish this goal involves the active involvement of Cooperative Extension and the Sea Grant Advisory Service personnel to work with regional industry to facilitate communication and cooperation among industry, researchers, state regulatory agencies and the public. The Northeastern Regional Aquaculture Center's support for state aquaculture association development has helped to improve the organization and function of state industry groups at the local level, has increased state and local public outreach and education activities and has promoted additional regional industry/extension interaction and collaboration.

**Principal Accomplishments:**

Outreach efforts developed and carried out by the membership of individual state aquaculture associations with the assistance of their state extension contacts included seminars, workshops, in-service teacher training sessions, tours of commercial facilities, invited technical speakers at annual state association conferences and other public meetings, operation of information/display booths at state fairs and other public venues and publications such as conference abstracts, association brochures and fact sheets, topic oriented newsletters (special editions), videos and Internet home pages. Collectively, these activities have educated and informed a large and diverse audience about different aspects of the aquaculture industry in the northeastern region.

### **Impacts:**

The active participation of 12 northeastern aquaculture industry associations at public events within their respective states served to educate public and private sector audiences about the contribution of aquaculture to the state's economy and the management of aquatic resources. The largest week long public venues drew up to 250,000 attendees.

Educational programs, speaker support, information displays, tours and other related project activities planned and carried out by the membership of the state associations increased industry organization and participation in educational programming and outreach at the state/local level.

Project support for invited guest speakers at industry association meetings and other public venues provided opportunities to educate legislators, resource managers, other policy makers and the public about important current topics or issues affecting the aquaculture industry.

Participation of regional extension personnel as collaborators and supporting institutional representatives strengthened industry-extension relations and promoted team building and problem solving at the local level.

Regional extension assistance to develop individual plans of work for state industry associations responded to a top 1994 Industry Summit priority.

### **Recommended Follow-Up Activities:**

As a result of this project, additional association plans of work were developed and included in the second year of the NRAC regional extension project "Northeastern Regional Aquaculture Extension Network" (NRAC project 97-1).

### **Summary Of Publications And Other Outreach Activities:**

#### **Brochures/Fact Sheets**

**New Hampshire Aquaculture: Farming Fish in New Hampshire.** New Hampshire Aquaculture Association and New Hampshire Department of Agriculture Markets & Food. Concord, NH. (Appendix Item #1)

**Pennsylvania Aquaculture Highlights.** Pennsylvania Aquaculture Association. Harrisburg, PA. 1 p. (Appendix Item #1A)

**Pennsylvania Aquaculture Association Member Locations.** (Map). Pennsylvania Aquaculture Association. Harrisburg, PA. 1 p. (Appendix Item #1B)

#### **Newsletters (Special Editions)**

**QPX Advisory Bulletin.** Ocean State Aquaculture Association Special Pub. May 24, 1996. 4 p. (Appendix Item #2)

**Economic Development Issue.** Ocean State Aquaculture Association Special Pub. #97:1. Jan. 23 1997. 12 p. (Appendix Item #3)

**Resources for Educators Using Aqua-culture as a Learning Tool.** Ocean State Aquaculture Association Special Pub. #97:2. Mar. 14, 1997. 4 p. (Appendix Item #4)

#### **Internet Home Pages**

##### **Delaware Aquaculture Association Home Page**

<<http://darc.cms.udel.edu/DAA/daa.html>>

(Appendix Item #5)

##### **West Virginia Aquaculture Association Home Page**

<<http://web.mountain.net/~cybrtimes/wvaquaculture/index.html>> (Appendix Item #6)

#### **Videos**

**Is Aquaculture for You?** 1998. Vermont Aquaculture Association and the University of Vermont Extension System. (15 minutes). (Appendix Item #6A)

**Starting a Fee Fishing Business.** 1998. Vermont Aquaculture Association and the University of Vermont Extension System. (11 minutes). (Appendix Item #6B)

#### **Educational Programs/Guest Speakers**

##### **\*\*Delaware Aquaculture Association\*\***

**In-Service Training Workshop for Vocational Agriculture Faculty and Technology Faculty.** Delaware State University, Dover, DE. Jun. 19, 1997.

##### **\*\*Maine Aquaculture Association\*\***

**Workshop on the Suspension Culture of Mussels.** Ellsworth, ME. Jun. 11, 1996.

**1996 Annual General Meeting of the Maine**

**Aquaculture Association.** Hancock Point, ME. Jun. 24, 1996.

**5th Annual New England Farmed Fish Health Workshop.** Eastport, ME. Apr. 4, 1997. (Appendix Item #6C)

**Meeting of Shellfish Farmers and Researchers.** Walpole, ME. Nov. 18, 1997.

**\*\*Maryland Aquaculture Association\*\***

**Marketing Fisheries and Aquaculture Products.** East Coast Commercial Fishermen's and Aquaculture Trade Expo. Ocean City, MD. Feb. 1, 1998.

**Striper 2000: a Conference on Technological Advances in the Culture of Striped Bass and its Hybrids.** University of Maryland, College Park, MD. Jun. 5-6, 1998. (Appendix Item #7)

**\*\* Massachusetts Aquaculture Association\*\***

**Hard and Soft Shell Clam Workshop.** Yarmouth, MA. Apr. 6, 1996. (Appendix Item #7A)

**Oyster Workshop.** Yarmouth, MA. May 4, 1996. (Appendix Item #7B)

**Building a Consensus Among Massachusetts Finfish and Shellfish Growers.** West Dennis, MA. Dec. 16, 1997..

**\*\*New Hampshire Aquaculture Association\*\***

**Aquaculture Initiatives for New Hampshire.** 14<sup>th</sup> Annual Farm & Forest Expo. Manchester, NH. Feb. 1997. (Appendix Item #8)

**1998 New Hampshire Aquaculture Association Annual Meeting.** 15<sup>th</sup> Annual Farm & Forest Expo. Manchester, NH. Feb. 1998.

**\*\*New Jersey Aquaculture Association\*\***

**The New Jersey Aquaculture Association Annual Conference.** Egg Harbor City, NJ. Dec. 2, 1995. (Appendix Item #9)

**Aquaculture IX, Water Re-Use Systems and Other Hot Topics.** Cumberland County Extension Center, Millville, NJ. Dec. 13, 1997. (Appendix Item #10)

**\*\*New York State Aquaculture Assoc.\*\***

**Aquaculture and Marketing Alternatives for Commercial Fishermen and Aquaculturists.** 1998 Long Island Fishermen's Forum. Riverhead (Long

Island), NY. Jan. 23-24, 1998. (Appendix Item #11)

**\*\*Pennsylvania Aquaculture Assoc.\*\***

**Factors Weighing Upon Profitability.** Pennsylvania Aquaculture Association Annual Meeting. Held in conjunction with the US Trout Farmers Association's 43rd Annual Meeting and Aquaculture in the Mid-Atlantic. Stroudsburg, PA. Sept. 26-28, 1996.

**Water Quality and State NPDES Permits for Aquaculture.** Pennsylvania Aquaculture Advisory Committee meeting. Pennsylvania Department of Agriculture, Harrisburg, PA. Jun. 23, 1997.

**\*\*Rhode Island (Ocean State Aquaculture Association)\*\***

**Recent Innovations in Aquaculture Gear and Equipment.** Speaker: Don Bishop, Fukui Company, Golden lake, Ontario, Canada. Oct. 14, 1996.

**Recent Developments in the European Aquaculture Industry.** Speaker: Dr. Harald Rosenthal University of Keil,, Keil, Germany. Dec. 3, 1996.

**Aquaculture in the Classroom.** Speaker: Timothy Visel, The Sound School, New Haven, CT. Feb. 12, 1997.

**Chilean Scallop Culture.** Speaker: Ed Rhodes, National Aquaculture Coordinator, National Marine Fisheries Service, Washington, DC. Sept. 22, 1997.

**New Jersey's Hard Clam Aquaculture Industry.** Speaker: Gef Flimlin, Marine Agent, Ocean County Cooperative Extension, Toms River, NJ. Nov. 12, 1997

**Design and Construction of Recirculating Systems for Finfish Aquaculture.** Speaker: Bob Dwyer, Aquatic Design and Services Ltd, New Brunswick Canada. Feb. 5, 1998.

**\*\*Vermont Aquaculture Association\*\***

**Alternative Agriculture: The Future of Aquaculture in Vermont.** Speaker: Vermont College, Montpelier, VT. Mar. 24, 1997. (Appendix Item #12)

**\*\*West Virginia Aquaculture Association\*\***

**Economic Opportunities for West Virginia Farm Ponds.** Speaker: Big Rick Camp Fish Farm, Wallace, WV. Oct. 12, 1996. (Appendix Item #13)

**Koi and Goldfish Production in Ponds.** Mineral

County Vo-Tech Center, Keyser, WV. Feb. 15, 1997.  
(Appendix Item #14)

**Seafood HACCP Training.** Harpers Ferry, WV Feb.  
10-13, 1997.

#### Tours of Commercial Aquaculture Facilities

##### **\*\*Delaware Aquaculture Association\*\***

**Fish Haven Farms,** Townsend, Delaware; and **Red Gill Farm,** Townsend, DE. Jun. 19, 1997.

##### **\*\*New Hampshire Aquaculture Association\*\***

**Great Bay Aquafarms,** Newington, NH and **Shy Beaver Farm,** West Buxton, ME. Dec. 12, 1997.  
(Appendix Item #15)

**Downeast Salmon Company,** Bristol, NH; and **Hy-on-a-Hill Trout Farm,** Plainfield, NH. Feb. 28, 1998. (Appendix Item #16)

#### Information Booth/Display

##### **\*\*Delaware Aquaculture Association\*\***

**Coast Day,** Lewes, DE. Oct. 6, 1996.

**East Coast Commercial Fishermen's and Aquaculture Trade Expo.** Ocean City Convention Center, Ocean City, MD. Jan. 17-19, 1997.

**Delaware State Fair.** Harrington, DE. Jul. 17-26, 1997.

**Delaware Farm and Field Day.** Georgetown, DE. Aug. 13, 1997.

**Coast Day.** Lewes, DE. Oct. 5, 1997.

**Interstate Seafood Seminar/Aquaculture in the Mid-Atlantic.** Ocean City, MD. Nov. 5-7, 1997.

**East Coast Commercial Fishermen's and Aquaculture Trade Expo.** Ocean City Convention Center, Ocean City, MD. Jan. 30 - Feb. 1, 1998.

##### **\*\*Maryland Aquaculture Association\*\***

**Saint Mary's Oyster Festival.** Oct. 1996.

**Maryland State Fair.** Aug. 1996

**East Coast Commercial Fishermen's and Aquaculture Trade Expo.** Jan. 1997.

**Queen Annes County Future Farmers of America Program.** Feb. 1997.

**Maryland Aquaculture Association Annual Meeting.** May 1997.

**Maryland State Fair.** Aug. 1997.

**Maryland Aquaculture Advisory Committee Meeting.** Sept. 1997.

**Saint Mary's Oyster Festival.** Oct. 1997.

**East Coast Commercial Fishermen's and Aquaculture Trade Expo.** Jan./Feb. 1998.

**Maryland Department of Agriculture Open House.** Mar. 1998.

##### **\*\*New Hampshire Aquaculture Assoc.\*\***

**14<sup>th</sup> Annual Farm & Forest Expo.** Manchester, NH. Feb. 1997.

**15<sup>th</sup> Annual Farm & Forest Expo.** Manchester, NH. Feb. 1998.

##### **\*\*Pennsylvania Aquaculture Assoc.\*\***

**1997 Pennsylvania State Farm Show.** Harrisburg, PA. Jan. 1997.

**1997 Farm City Day.** Harrisburg, PA. May 1997.

##### **\*\*West Virginia Aquaculture Assoc.\*\***

**Aquatic Resources Show.** Kingwood, WV. Mar. 1997.

**Ohio County Fair.** Wheeling, WV. Jul. 1997

**Jefferson County Fair.** Charles Town, WV. Jul. 1997

**Wirt County Fair.** Elizabeth, WV. Aug. 1997

## TECHNICAL ANALYSIS AND SUMMARY

**MAJOR ACCOMPLISHMENTS:** (Apr. 8, 1996 to Feb. 26, 1998)

The following reports describing project related educational activities carried out by the state aquaculture associations were submitted by project participants to the coordinator for compilation. While some state association reports have been subjected to minor editing for formatting purposes, the report contents are presented below as received.

### **\*\* Connecticut \*\***

The Connecticut Aquaculture Association did not participate.

### **\*\* Delaware \*\***

The Delaware Aquaculture Association (DAA) received funding from the Northeastern Regional Aquaculture Center to assist the Association with activities in support of aquaculture industry promotion and educational programming within the state. Delaware Sea Grant Aquaculture Specialist John W. Ewart served as the cooperating investigator and the University of Delaware Sea Grant Marine Advisory Service served as the administering agency for the grant funds.

### **Display for Public Education/Trade Shows**

A tabletop display and VCR/TV were purchased for use by the association at public educational events and venues. The display included mounted photos of targeted species and commercial production facilities, exhibition of videos produced by the Regional Aquaculture Centers, information on aquaculture in the classroom in Delaware, association membership information, distribution of the NRAC newsletter, extension fact sheets, and other related materials. The display was set up at the following venues:

**Coast Day.** Lewes, DE. The annual open house of the University of Delaware College of Marine Studies. Oct. 6, 1996. General audience, 10,000 attendance.

**East Coast Commercial Fishermen's and Aquaculture Trade Expo.** Ocean City Convention Center, Ocean City, MD. Jan. 17-19, 1997. Professional audience (commercial fishermen, aquaculturists), 5,000 attendance.

**Delaware State Fair.** Harrington, DE. Jul. 17-26, 1997. General and agricultural audience, 250,000 attendance.

**Delaware Farm and Field Day.** Georgetown, DE. Aug. 13, 1997. Agricultural audience, 1,500 attendance.

**Coast Day.** Lewes, DE. Oct. 5, 1997. General audience, 10,000 attendance.

**Interstate Seafood Seminar/Aquaculture in the Mid-Atlantic.** Ocean City, MD. Nov. 5-7, 1997. Professional audience (regulators, aquaculturists), 250 attendance.

**East Coast Commercial Fishermen's and Aquaculture Trade Expo.** Ocean City Convention Center, Ocean City, MD. Jan. 30 - Feb. 1, 1998. Professional audience (commercial fishermen, aquaculturists), 5,000 attendance.

### **Educational Programs**

An **In-service Training Workshop for Vocational Agriculture Faculty and Technology Faculty** from high schools throughout the state was held on June 19, 1997 at Delaware State University, Dover, DE. The program included training and instruction in water quality, information and Internet resources, and system design and operation. A low cost, small scale recirculating tank system was constructed and used as an example of what teachers could easily build with a limited budget for use at their school. The workshop also included tours of nearby commercial facilities (Fish Haven Farms and Red Gill Farms).

The annual aquaculture training workshops, initiated in 1995 for experienced and prospective teachers, are a combined effort of the Department of Public Instruction, Delaware Cooperative Extension, the Delaware Sea Grant Marine Advisory Service and the Delaware Aquaculture Association. The aquaculture association provided sponsorship and partial support for workshop materials (literature, handouts, recirculating demonstration system) through the NRAC association assistance grant. In support of aquaculture in the classroom, the Delaware Aquaculture Resource Center maintains a section on its home page <<http://darc.cms.udel.edu/>> entitled **Aquaculture and Aquatic Science Education** with links to curricula, other high school aquaculture programs, online catalogs and various other related resources for teachers.

Project resources were also used to purchase 4 polypropylene tanks for use in the greenhouse teaching laboratory as part of **Delaware Technical**

**and Community College's Aquaculture Certificate Program.** In the six years since the program's initiation at the Del Tech Owens Campus in Georgetown, DE, more than 185 individuals have received training in applied aquaculture. Several of these students are in the process of developing production facilities or are teaching aquaculture in the 9 high school vocational agriculture programs in Delaware that utilize aquaculture in the classroom to teach science and animal husbandry. (Appendix Item #17)

### Publications

A **Delaware Aquaculture Association Home Page** <<http://darc.cms.udel.edu/DAA/daa.html>> was also established to provide information on the industry in Delaware. The DAA Home Page currently carries membership information, a listing of DAA Officers and Directors (1997-1999), the DAA Articles and By-Laws, and a listing of upcoming association meetings and other activities related to state aquaculture development. (Appendix Item #5)

#### **\*\* Maine \*\***

The Maine Aquaculture Association (MAA) received funding from the Northeastern Regional Aquaculture Center to assist the Association with activities in support of aquaculture industry promotion and education programming within the state. Maine Aquaculture Innovation Center Executive Director Mike Hastings served as the cooperating investigator and the Maine Aquaculture Innovation Center served as the administering agency for the grant funds.

### Educational Programs

The Maine Aquaculture Innovation Center (MAIC) acting as fiscal agent for the Maine Aquaculture Association, used its NRAC project funds to provide speaker travel support for the following conferences and workshops:

**A Workshop on the Suspension Culture of Mussels** was held on Jun. 11, 1996 in Ellsworth, ME. Dr. Andre Mallet, Mallet Research Service, Ltd., Dartmouth, Nova Scotia, organized and conducted the educational program on suspended mussel culture to a group of 30 fishermen and potential raft mussel growers. A subset of this group subsequently submitted project proposal to the Maine Aquaculture Innovation Center and to the UpEast Foundation of Wilmington, DE. MAIC granted \$2,500 and UpEast granted \$10,000, to finance the purchase and demonstration of mussel spat collection materials and

European manufactured machinery used for juvenile mussel de-clumping and socking. The Mussel Working Group continues to meet on a regular basis, and several of its more active members have applied for experimental marine lease sites. If approved, mussel grow-out rafts will be placed on the sites, and technology developed elsewhere (primarily Spain, Scotland, and Prince Island) will be tested for its usefulness in Maine.

Travel costs related to the attendance of a state of Maine representative (Dr. Richard Langton, Maine Department of Marine Resources, West Boothbay, ME) at an **International Symposium and Workshop on Stocking and Introduction of Fish in Fresh Water and Marine Ecosystems** held from Mar. 25-29, 1996 at the University of Hull, International Fisheries Institute, Hull, United Kingdom. Dr. Langton has written a report on this conference, but has not yet made an oral presentation to the Association.

The **1996 Annual General Meeting of the Maine Aquaculture Association**, held on June 24, 1996 at Hancock Point, ME. Mr. Greg Belanger, Tallmadge Brothers Oyster Company, Guilford, Connecticut, delivered the keynote address. He described the State of Connecticut's shell distribution program which has allowed Connecticut to significantly enhance its production of American oysters, thus becoming the primary shellfish aquaculture producing state in the Northeast Region.

Travel costs related to the attendance of a State of Maine representative (Dr. John Hurst, Maine Department of Marine Resources) to a **Workshop on *Heterosigma carterae*** held in Seattle, WA on Dec. 11, 1996. *H. carterae* is a toxin producing chrysophyte algae responsible for a number of massive losses of commercially farmed salmon in the Pacific rim area.

Dr. Hurst, a specialist in toxin-producing algae, was interested in a kit intended to allow earlier detection of *H. carterae*, before fish kills occur. Subsequently, Dr. Hurst recommended that Maine salmon farms start to routinely monitor the algae at their sites. He also made arrangements to obtain photographs of the toxic algae with which Maine growers should be concerned. He has emphasized that it will take several years to develop the data base needed for a complete list of the algae which is present in Maine's salmon growing areas. Dr. Hurst made a presentation on the Washington workshop and his



findings at the **5th Annual New England Farmed Fish Health Workshop** held in Eastport, ME on Apr. 4, 1997, attended by over 140 people. (Appendix Item #6C)

Travel costs related to the attendance by Dr. Sharon McGladdery, of the Department of Fisheries and Oceans, New Brunswick, Canada, to attend a **meeting of shellfish farmers and researchers**, held on Nov. 18, 1997 at the Darling Marine Center, Walpole, ME. Dr. McGladdery proposed that she and Dr. Bruce Barber of the University of Maine's School of Marine Science, jointly conduct research concerning *Bonamia*, which infects the European oyster. A limited joint research effort is currently underway.

#### **\*\* Maryland \*\***

The Maryland Aquaculture Association (MAA) received funding from the Northeastern Regional Aquaculture Center to assist the Association with activities in support of aquaculture industry promotion and educational programming within the state. Maryland Sea Grant/Cooperative Extension Agent Don Webster served as the cooperating investigator and the University of Maryland Sea Grant/Cooperative Extension Program served as the administering agency for the grant funds.

#### **Display for Public Education/Trade Shows**

Utilizing the NRAC funds provided for Association Development, the Maryland Aquaculture Association (MAA) and University of Maryland Sea Grant Extension Program (UMSGEP) purchased a two color, multi-sided tabletop displays and a TV/VCR combination. These have been used at industry oriented and high traffic venues to educate the public about the aquaculture industry in Maryland as well as the goals and objectives of the association. Projects and activities have been developed that have involved the MAA, UMSGEP, the Maryland Department of Agriculture (MDA), and the Maryland Aquaculture Advisory Committee (MAAC).

Among the products which this grant was able to leverage was a video on aquaculture production featuring Maryland commercial producers. This was organized in connection with a regularly scheduled Aquaculture Advisory Committee meeting at which producers of various aquaculture commodities were invited to speak on the realities of their business. Sea Grant provided the videographer and editing services for a tape of these presentations. Subsequent videos have been used with the display and TV/VCR at major trade shows and public presentations.

The MAA has used the materials generated by this project as it participated in:

**St Mary's Oyster Festival**, educational display at weekend program, Oct. 1996, general public audience, 10,000 attendance

**Maryland State Fair**, educational display at week long program, Aug. 1996, general public and agricultural audience, 250,000 attendance

**East Coast Commercial Fishermen's and Aquaculture Trade Expo**, educational display at three day trade show, Jan. 1997, professional audience, 5,000 attendance

**Queen Annes County Future Farmers of America** program, educational program, Feb. 1997, 800 attendance

**Maryland Aquaculture Association** Annual meeting, May 1997, professional audience, 45 attending

**Maryland State Fair**, educational display at week long program, Aug. 1997, general public and agricultural audience, 250,000 attendance

**Maryland Aquaculture Advisory Committee** meeting, Sept. 1997, professional audience, 52 attending

**St. Mary's Oyster Festival**, educational display at weekend program, Oct. 1997, general public audience, 11,000 attendance

**East Coast Commercial Fishermen's and Aquaculture Trade Expo**, educational display at three day educational program and trade show, Jan.-Feb. 1998, professional audience, 5,000 attendance

**Maryland Department of Agriculture Open House**, educational display and videos at public educational program, Mar. 1998, 6,000 attendance

#### **Educational Programs**

The Association utilized project travel funds to bring in marketing experts from iced and live fish companies in New York during the East Coast Commercial Fishermen's and Aquaculture Trade Expo on Feb. 1, 1998. Ralph Weaver, Live Fish Broker, Montauk, NY, one of the largest live fish dealers in this region, was supported in this regard. His involvement was part of a comprehensive program on **Marketing Fisheries and Aquaculture Products**.

Support was provided for MAA/NRAC sponsorship of **Striper 2000: a Conference on Technological Advances in the Culture of Striped Bass and its Hybrids** held from Jun. 5-6, 1998 at the University of Maryland in College Park, MD. (Appendix Item #7) The conference, also co-sponsored by the University of Maryland Agricultural Experiment Station and the (US) Striped Bass Growers Association, provided a contemporary outlook on research and policy issues on this species which has grown to become an important segment of the commercial aquaculture industry. Striped bass and its hybrids has always been of particular concern in production in Maryland since traditional markets for the product have existed here. Funds were used for registration of invited speakers from the private sector and other speakers addressing policy problems inherent in industry expansion such as open water culture and the use of exotic animals in production.

### **Publications**

Multiple copies of the NRAC aquaculture video **Northeastern Aquaculture-Farming the Waters** were purchased for distribution throughout the state. Recipients included schools, libraries, and important decision makers to educate a broad range of the Maryland public about the diversity of the aquaculture industry within the region as well as in Maryland.

#### **\*\* Massachusetts \*\***

The Massachusetts Aquaculture Association (MAA) received funding from the Northeastern Regional Aquaculture Center to assist the Association with activities in support of aquaculture industry promotion and educational programing within the state. Barnstable County Cooperative Extension Agent William Burt served as the cooperating investigator and the Barnstable County Cooperative Extension office served as the administering agency for the grant funds.

The MAA scope of work included workshops, travel for speakers at meetings, and travel to obtain information on yellow perch culture. The Association also matched more than 200% of the funding in related expenses (mostly travel) that were covered entirely by members. This included sending a member to Spain to examine shellfish culture methods and marketing systems, and providing for both shellfish and finfish culture interests within the state by establishing two parallel and cooperative segments of the organization. Each section has a co-president, and both sections agree to cooperate with the other if at all possible even

though the subject matter may have no direct bearing at the time.

We continue to make the statement that sending members to other locations that have working technology is a desirable use of funds. We feel that it is in the best interests of the industry in the U.S. to find the best available technology, and to either get the technology to growers here, or send growers there. In some cases, methods are much more advanced overseas. In others, U.S. companies often can do the work faster and less expensively.

Finally, it should be noted that the MAA has been through a time of reorganization, a process which took about two years. The lack of activity on the part of the organization during this funding cycle in no way reflects the current status, with two new and very active co-presidents. For information, contact Robert Wallace, Wellfleet, MA at 508/349-7556.

### **Educational Programs**

#### **Yellow Perch Technology Transfer**

Two members attended the World Aquaculture conference in Las Vegas in Feb. 1997 because of a full day yellow perch symposium, and the presence of several international growers. The methods are well worked out and are in practice in Europe, Canada, and the U.S. Production methods were discussed with growers from France, Norway, Canada, and Maryland. In addition, growers were contacted in New York, Michigan and Minnesota prior to the WAS conference. MAA members will be visiting both the New York and Michigan sites this spring at their own expense, since it was deemed a more encompassing exposure to the methods by attending the WAS symposium.

Dr. Joe Buttner, a freshwater fish aquaculturist/researcher at State University of New York at Brockport, recently accepted an aquaculture faculty position Salem State University in Salem, Massachusetts. Dr. Buttner provided the association a manual on yellow perch culture. Although attempts were made to contact the Aquaculture Coordinator in Wisconsin, no response was received. Missouri has a couple of growers but they buy their fingerlings from Wisconsin or other great lakes states, and have no hatchery capabilities. Ohio has a couple of producers and a large market; the MAA has located a standing order for product. Canada is also aware of the market, but growth rates are slower. Cost analysis for a Canadian firm requiring a full extra year for grow-out alters profitability considerably. A **yellow perch**

**workshop for Massachusetts producers** was held on Mar. 26, 1998 with costs covered by the aquaculture association.

Other workshops sponsored by the Massachusetts Aquaculture Association included:

A **Hard and Soft Shell Clam Workshop** was held in Yarmouth, MA on Apr. 6, 1996. The program reviewed current production methods, markets, regulations and other issues affecting the culture of these species on Cape Cod. The workshop was attended by 80 growers, distributors and other industry participants. (Appendix Item #7A)

An **Oyster Workshop** was held in Yarmouth, MA on May 4, 1996. The program reviewed current production methods, markets, regulations and other issues affecting the oyster industry on Cape Cod. The workshop was attended by 40 growers, distributors and other industry participants. (Appendix Item #7B)

The MAA held a workshop on **Building a Consensus Among Massachusetts Finfish and Shellfish Growers** on Dec. 16, 1997 in West Dennis, MA. Approximately 20 growers attended the workshop to discuss reorganization of the association. Shellfish and finfish divisions of the MAA were formed, with co-presidents, as well as new officers for the 1998 year. All of these factors were very positive developments.

The scope of work included travel for speakers for such meetings. The written scope of work also included rent for meeting space, and several other items which appeared practical and sensible, none of which were included in the actual budget and therefore could not be reimbursed. In addition to the reimbursement requests submitted, members of the association spent about \$14,000 during the project period to further aquaculture interests in Massachusetts. This was done in spite of some very difficult times for the association, and with minimal member participation. It should be taken into account that each association has specific goals and objectives.

Most associations want to further the development of aquaculture in their states. Their methods may vary, due to the specific problems at hand. Extensionsque workshops may not be the best approach. Perhaps a blanket scope of work can be developed, which is general enough to cover likely costs incurred and which would apply to all associations in the region. Our primary needs would be to improve communications and information transfer, especially in the short term "real time" (immediate) sense, rather than a newsletter. Due to the distances involved

between growers, other methods for transferring information have been evaluated. Whereas many fish producers are located in western Massachusetts, it is at least three hours away from most coastal areas. This effectively prohibits most extemporaneous meetings. An email net and faxnet are under development to improve short term communications.

#### **\*\* New Hampshire \*\***

The New Hampshire Aquaculture Association (NHAA) received funding from the Northeastern Regional Aquaculture Center to assist the Association with activities in support of aquaculture industry promotion and educational programming within the state. New Hampshire State Aquaculture Coordinator Victoria Smith served as the cooperating investigator and the New Hampshire Department of Agriculture served as the administering agency for the grant funds.

#### **Display for Public Education/Trade Shows**

A tabletop display board kit was purchased to exhibit various color photos of marine and freshwater aquaculture activities and businesses in New Hampshire. Two freshwater aquariums containing rainbow trout and redbfin shiners were also part of the NHAA information booth. The NHAA display and information booth plus an educational seminar were developed by association members as part of the 1997 and 1998 Farm & Forest Expos held in Manchester, New Hampshire in February of each year. NHAA members and the UNH Extension Aquaculture Specialist answered questions and provided educational materials to the Farm & Forest Expo audiences.

#### **Educational Programs**

An educational seminar **Aquaculture Initiatives for New Hampshire** was presented at the 14<sup>th</sup> Annual Farm & Forest Expo held in Manchester, NH from Feb. 7-8, 1997. The 1998 annual meeting of the New Hampshire Aquaculture Association was held at the 15<sup>th</sup> Annual Farm & Forest seminar included presentations on: 1) **Status Report on Aquaculture in New Hampshire**; 2) **Aquaculture in New Hampshire Classrooms**; 3) **The role of New Hampshire RC&Ds in Aquaculture Development**; 4) **Applications of Recirculating Systems in New Hampshire**; and 5) **Hybrid Striped Bass Aquaculture**. Approximately forty individuals attended the seminar each year.

An **Aquaculture Facilities Bus Tour** was held on Dec. 2, 1997. Two commercial facilities were visited: Great Bay Aquafarms, Newington, NH, a summer flounder hatchery and nursery; and Shy Beaver Farm, West Buxton, ME, a food fish, pond stocking, fee-fishing club enterprise. Thirty individuals participated in the tour. (Appendix Item #15)

An **Aquaculture Facilities Bus Tour** was held on Feb. 28, 1998: Two commercial facilities were visited: Downeast Salmon Company, Bristol, NH, a salmon smolt operation; and Hy-on-a-Hill Trout Farm, Plainfield, NH, a trout hatchery and production facility for stocking, fee-fishing, and restaurant trade. Eighteen individuals participated in the tour. (Appendix Item #16)

### Publications

The New Hampshire Aquaculture Association developed an informational brochure **New Hampshire Aquaculture: Farming Fish in New Hampshire**. (Appendix Item #1) The brochure provides a brief introduction to the state's aquaculture industry, with information on getting started, production technologies, regulatory issues, and public and private sector information resources. Fifteen hundred copies of the brochure were printed for public distribution via the NHAA information booth at public educational events. Additional project funds were utilized for association mailings of meeting announcements and the NHAA newsletter (not produced with NRAC funds).

#### **\*\* New Jersey \*\***

The New Jersey Aquaculture Association (NJAA) received funding from the Northeastern Regional Aquaculture Center to assist the Association with activities in support of aquaculture industry promotion and educational programming within the state. Sea Grant Marine Extension Specialist Gef Flimlin served as the cooperating investigator and the New Jersey Sea Grant Extension Program served as the administering agency for the grant funds.

### Educational Programs

The **New Jersey Aquaculture Association Annual Conference** was held on Dec. 2, 1995 in Egg Harbor City, NJ. (Appendix Item #9) There were 85 people in attendance for the program which contained presentations from the state Secretary of Agriculture and presentations on business aspects of aquaculture, insurance for aquaculture, aquaculture systems, New Jersey fish growers roundup, and the current status and

future outlook for aquaculture in New Jersey. Project funds provided support for speakers from South Carolina, Maine, and Indiana.

The NJAA sponsored **Aquaculture IX, Water Re-Use Systems and Other Hot Topics** held on Dec. 13, 1997 at the Cumberland County Extension Center, Millville, NJ. (Appendix Item #10) There were 93 people in attendance for the program which contained presentations on recirculation system design, components, monitoring/control and current research findings; crab shedding; ornamental plant and fish production; baitfish; and computer software for aquaculture. Project funds provided support for speakers from Maryland, New York, North Carolina, and Pennsylvania.

### Publications

To educate New Jersey audiences about the state and regional aquaculture industry, 20 copies of the NRAC produced videotape **Northeastern Aquaculture: Farming the Waters** were purchased and are being distributed to schools, libraries and legislators.

#### **\*\* New York \*\***

The New York State Aquaculture Association (NYSAA) received funding from the Northeastern Regional Aquaculture Center to assist the Association with activities in support of aquaculture industry promotion and educational programming within the state. Cornell Extension Specialist Dr. Joe M. Regenstein, and Mr. Gregg Rivara served as the cooperating investigator(s) and the Cornell Cooperative Extension Service served as the administering agency for the grant funds.

### Educational Programs

The NYSAA provided partial sponsorship and speaker support for the aquaculture and marketing segments of the educational program at the 1998 Long Island Fishermen's Forum held on Jan. 23-24, 1998 in Riverhead (Long Island), NY. (Appendix Item #11) The sessions entitled **Aquaculture and Marketing Alternatives for Commercial Fishermen and Aquaculturists** featured a presentation by Dr. Susan Ford of Rutgers University entitled **Oyster Diseases-Science and Strategy**. Dr. Ford reviewed the history and known biology of the two protozoan parasites MSX and Dermo. Her presentation also reviewed strategies on how to minimize disease transfers and introductions while lowering mortalities to

already-infected animals. Dr. John Kraeuter reviewed **Mortality in Hard Clams** which covered an NRAC-sponsored project on winter survival as well as other types of mortalities. Approximately 50 persons attended, including representatives from all seven shellfish hatcheries on Long Island.

Another session covered alternatives for fishermen and aquaculturists wishing to market their catch and/or crops outside of the normal wholesale channels. Of particular interest was **Producer Cooperatives -Strength in Numbers** presented by Dr. Bruce Anderson of Cornell University. Dr. Anderson reviewed the types of Coops, how they are put together and the pros and cons of forming a producer cooperative. He also provided examples of successful and failed coops and answered questions from the audience. Other talks of interest included **The Greenmarket: Sell Direct to Consumers in New York State** by Tony Manna, Greenmarket assistant director and **Roadside Stands** presented by Bill Sank of Cornell Cooperative Extension Agriculture program. Approximately 40 individuals attended the session.

#### Publications

To educate New York audiences about the state and regional aquaculture industry, 100 copies of the NRAC produced videotape **Northeastern Aquaculture-Farming the Waters** were purchased and are being distributed to schools, libraries and legislators.

#### Assistance to Industry

Supplies for testing oysters for the parasites MSX and Dermo were purchased. The supplies will be used by state shellfish laboratories to assess the prevalence of the two disease organisms in New York oysters from Nassau and Suffolk Counties. The actual testing will be performed by state employees at no charge to industry as part of a regional assessment of oyster diseases.

#### **\*\* Pennsylvania \*\***

The Pennsylvania Aquaculture Association (PAA) received funding from the Northeastern Regional Aquaculture Center to assist the Association with activities in support of aquaculture industry promotion and educational programming within the state. Pennsylvania State Aquaculture Coordinator Leo Dunn served as the cooperating investigator and the Pennsylvania Department of Agriculture served as the administering agency for the grant funds.

#### Display for Public Education/Trade Shows

A tabletop display was purchased which allowed for photos and information to be mounted and changed as needed. The display was used for the first time at the **1997 Pennsylvania State Farm Show** in Harrisburg, Pennsylvania. Over 250,000 people attended the week long event. The display generated a great deal of positive comments and requests for additional information on aquaculture. The display was also used at smaller events such as the **1997 Farm City Day** held at the Department of Agriculture in Harrisburg, PA. The aquaculture display and accompanying fish tanks were used to educate legislators and school children on how aquaculture touches their lives. The aquaculture exhibit was considered by participants to be one of the highlights of the event. More than 500 school children attended the event. The PAA purchased a VCR and monitor to show the NRAC video **Northeastern Aquaculture-Farming the Waters** and other informational videos at major public events throughout the year.

#### Educational Programs

Two guest speakers were invited to give presentations at the **PAA's Annual Meeting** in the fall of 1996. The meeting was held in conjunction with the joint conference of **US Trout Farmers Association's 43rd Annual Meeting and Aquaculture in the Mid-Atlantic**. Over 160 attendees and 25 exhibiting companies came to the conference, entitled "Factors Weighing Upon Profitability".

Mr. Chuck Hicks of the Missouri Dept. of Agriculture, Jefferson County, Maryland spoke on the subject of production and feeding rates their effect on a farm's profitability. Professor Dennis Corgill from Widener University, Harrisburg, PA discussed anti-trust laws and how they effect fish farmers.

Tom Ellis, of the North Carolina Department of Agriculture was a guest speaker at the **meeting of the Pennsylvania Department of Agriculture's, Aquaculture Advisory Committee** held on Jun. 23, 1997 in Harrisburg, PA. The Advisory Committee is made up of aquaculturists, Secretaries of the Departments of Agriculture and Environmental Protection, and representatives from the Pennsylvania Fish and Boat Commission, and the Pennsylvania Game Commission. Legislators and other interested parties are invited to participate. Mr. Ellis discussed water quality issues

and reviewed North Carolina's general NPDES permit and the newly proposed Idaho general NPDES permit.

### Publications

Two-hundred copies of the NRAC video **Northeastern Aquaculture-Farming the Waters** were purchased for distribution to educators, extension agents and government officials throughout the state.

A one page fact sheet entitled **Pennsylvania Aquaculture Highlights** with statistics and other information on the diversity, major markets and economic value of the state industry and a map of Pennsylvania showing the **location of state commercial aquaculture facilities** (35 producers and 6 suppliers) were developed for public distribution via the association's information display. (Appendix Items #1A&B)

#### **\*\* Rhode Island \*\***

The Ocean State Aquaculture Association (OSAA) received funding from the Northeastern Regional Aquaculture Center to assist the Association with activities in support of aquaculture industry promotion and educational programming within the state. Associate Professor Dr. Michael A. Rice served as the cooperating investigator and the, University of Rhode Island Cooperative Extension/Sea Grant Marine Advisory Service served as the administering agency for the grant funds.

### Educational Programs

At its quarterly meetings, the OSAA has invited a number nationally and internationally recognized speakers to give public lectures on topics of interest to the aquaculture industry and the general public. Some of the speaker's travel expenses were defrayed by NRAC funds. Invited speakers included: Don Bishop of the Fukui Company spoke about **Recent Innovations in Aquaculture Gear and Equipment**; Dr. Harald Rosenthal from the University of Keil in Germany spoke on **Recent Developments in the European Aquaculture Industry**. He also discussed the environmental impacts of aquaculture and means for lessening and mitigating those impacts. Dr. Rosenthal was brought in from Germany in cooperation with the University of Rhode Island. NRAC funds were used to provide part of Dr. Rosenthal's airfare and lodging while in Rhode Island; Timothy Visel of the Sound School in New Haven Connecticut spoke on **Aquaculture in the Classroom** and incorporating aquaculture into secondary school curricula; Ed Rhodes, National Aquaculture

Coordinator for the National Marine Fisheries Service, spoke on **Chilean Scallop Culture** and his nine year experience in private industry producing scallops along the Chilean coast; Gef Flimlin of Ocean County Cooperative Extension in New Jersey spoke on **New Jersey's Hard Clam Aquaculture Industry** and discussed methods of quahog culture used by current or former shellfishermen; Bob Dwyer of Aquatic Design and Services Ltd in New Brunswick Canada spoke on the **Design and Construction of Recirculating Systems for Finfish Aquaculture**.

### Publications

In addition to invited speakers, OSAA projects included a number of published materials including: Seven regular editions of the OSAA Newsletter (produced without NRAC funding).

Three "special editions" of the OSAA Newsletter on topical matters: **QPX Advisory Bulletin**; the **Economic Development Issue**; and a special issue on **Resources for Educators Using Aquaculture as a Learning Tool** (all with either partial or total NRAC funding). (Appendix Items #2,3&4)

Additionally, 20 copies of the NRAC produced videotape **Northeastern Aquaculture-Farming the Waters** were purchased for state wide distribution and use by OSAA and its members.

### Demonstration Project

Supplies were purchased to provide a demonstration of the "belt system" for growing shellfish which was developed by Dr. David Vaughan and co-workers at the Harbor Branch Oceanographic Institution in Fort Pierce, Florida. This demonstration project was offered in conjunction with a Rhode Island Cooperative Extension and Rhode Island Sea Grant sponsored summer course in aquaculture offered during Jul. 1998.

#### **\*\* Vermont \*\***

The Vermont Aquaculture Association (VAA) received funding from the Northeastern Regional Aquaculture Center to assist the Association with activities in support of aquaculture industry promotion and educational programming within the state. Aquaculture Extension Specialist Linda Marek Howe served as the cooperating investigator and the University of Vermont Extension Program served as the administering agency for the grant funds.

### Educational Program

A statewide conference **Alternative Agriculture: The Future of Aquaculture in Vermont** was held at Vermont college, Montpelier, VT on Mar. 24, 1997. (Appendix Item #12) The conference was sponsored by the Vermont Aquaculture Association, the Vermont Department of Agriculture, Food & Markets, and the University of Vermont Extension System. Invited speakers included:

Dr. Kim Harrison, Executive Director, Northeastern Regional Aquaculture Center described the mission, administrative structure, and programs of NRAC; John Litwhiler described Beaver Lake Trout Club, the fee fishing business he operates in Hyde Park, VT; Shirley Coleman described Green Mountain Trout Farm, the stock-rearing facility in Monkton, VT; Dr. Don Hoenig, State Veterinarian for the Maine Department of Agriculture, talked about Developing Cooperative Legislation that helps to promote aquaculture; Dr. Eric May, Fish Health Specialist for the Maryland Department of Natural Resources spoke about developing A Rational Approach to Fish Health Policy and New Technology; Brian Norder, Project Director with the non-profit Vermont Food Venture Center in Fairfax, Vermont discussed the processing as well as consulting services (help with labeling, packaging) they can provide to individuals or businesses interested in developing value-added fish products; Scott Stillman of Cuisine Sous-Vide described the frozen prepared meal they sell and their cooperative work with Vermont producers; Sarah Isham, an Agricultural Loan Officer with Vermont Economic Development Authority (VEDA), described their mission to be a risk lender to encourage diversification of Vermont agriculture and the lending services they provide.

### Publications (Videos)

The VAA, in association with the University of Vermont Extension program developed two educational videos: **Is Aquaculture for You?** (15 minutes) (Appendix Item #6A) and **Starting a Fee Fishing Business** (11 minutes) (Appendix Item #6B) Both videos were written and produced by Linda Marek Howe with the participation and with constant input from members of the aquaculture association. Members reviewed all drafts of scripts, suggested which NRAC and other RAC reports to use as references, appeared in the videos, and even narrated the script on fee fishing. The videos are being used to inform prospective aquaculturists in Vermont and educate other public and school audiences.

### **\*\* West Virginia \*\***

The West Virginia Aquaculture Association (WVAA) received funding from the Northeastern Regional Aquaculture Center in Sept. 1996 to assist the Association with activities in support of aquaculture promotion and educational programing within the state. West Virginia University Extension Aquaculture Specialist Agnes V. Spicer and Mr. Robert Nichols, West Virginia Department of Agriculture served as the cooperating investigator(s) and the West Virginia University Extension Service served as the administering agency for the grant funds.

### Display for Public Education/Trade Shows

With the assistance of the NRAC grant funds, the WVAA developed a 4-panel, table top display with mounted photographs and other educational materials. The display was used by Association members as part of a booth at county fairs and festivals to provide the public with information about the aquaculture industry in West Virginia. Additional equipment purchased to accompany the table top display included a 3.6 cubic foot refrigerator which enabled Association members to provide samples and/or sell aquaculture products directly from the booth. The educational display for the West Virginia Aquaculture Association was operated at the following locations in 1997:

**Aquatic Resources Show.** Kingwood, WV. Mar. 1997

**Ohio County Fair.** Wheeling, WV. Jul. 1997

**Jefferson County Fair.** Charles Town, WV. Jul. 1997

**Wirt County Fair.** Elizabeth, WV. Aug. 1997

### Educational Programs

With the assistance of the NRAC grant funds, the WVAA offered three aquaculture workshops, advertised regionally during 1996 and 1997.

**Economic Opportunities for West Virginia Farm Ponds** was held on Oct. 12, 1996 at the Big Rick Camp Fish Farm, in Wallace, WV. Guest speaker support was provided for Dr. James Tidwell, Kentucky State University to discuss yellow perch culture in ponds. There were 44 participants from 5 states in attendance. (Appendix Item #13)

**Koi and Goldfish Production in Ponds** was held on Feb. 15, 1997 at the Mineral County Vo-Tech Center in Keyser, WV. Guest speaker support was provided for Mr. Ernie Tresselt, Hunting Creek Fisheries, Thurmont, MD to discuss koi and goldfish culture. There were 34 participants in attendance. The Mineral County Vo-Tech center is the site of one of the largest high school production aquaculture systems (producing tilapia and rainbow trout) in West Virginia. (Appendix Item #14)

**Seafood HACCP Training** was held on Feb. 10-13, 1997 in Harpers Ferry, WV. Guest speaker support was provided for Mr. Art Dell'Aria, Virginia Tech University, Blacksburg, VA. This workshop was co-sponsored with the West Virginia Department of Agriculture. During this workshop, four of the seven fish processors in West Virginia received training and certification in HACCP procedures.

### **Publications**

With the assistance of the NRAC grant funds, the Association developed and posted the **West Virginia Aquaculture Association Home Page** for a period of 12 months from Jan. 1 to Dec. 31, 1998. CyberTimes

Inc., an Internet Service provider from Morgantown, WV was contracted to provide technical assistance. Please visit the WVAA web page at <http://web.mountain.net/~cybrtimes/wvaquaculture/index.html>. (Appendix Item #6)

To educate West Virginia audiences about the state and regional aquaculture industry, 203 copies of the NRAC produced videotape **Northeastern Aquaculture-Farming the Waters** were purchased for distribution to county extension offices, agricultural organizations, and high school agriculture-science programs. A total of 1,001 booklets developed by the U.S. Trout Association containing information on food safety and preparation methods for trout products were purchased for distribution at public events by members of the WVAA and by West Virginia University consumer extension agents.

**The Full Report with all the data, tables and appendices is available at the NRAC office upon request.**