Northeastern Regional Aquaculture CENTER	**Summaries of Projects 2005-2011** **Northeastern Regional Aquaculture Center**

Aquaculture Health Hazards: Developing Outreach Services to the Region's Farmers via Extension and Aquatic Animal Health Professionals Using a HACCP Approach

Funding level:	$196,312
Project start date:	1 March 2011
Project duration:	2 years
Participants:	University of Connecticut, University of Maine, Salem State College, University of Delaware, The Pennsylvania State University, Rutgers University, University of Massachusetts, University of Maryland, Roger Williams University, Delaware State University, Cornell Cooperative Extension, University of New Hampshire, Cape Cod Cooperative Extension & Woods Hole Sea Grant, University of Rhode Island

The aquaculture industry experiences significant economic losses as a result of vectors that cause disease, pests that render product unmarketable, and closures of harvest areas due to the presence of organisms that cause human illness. Loss of farmed product or human illness caused by eating contaminated seafood adversely impacts profitability, trade, and public perception. Frequently, the cause of mortality events remains unknown or is identified only when it is too late to control or correct. Previous NRAC projects and those supported by other agencies have identified the causes of many major diseases, husbandry methods and diagnostic tools to aid in their prevention and treatment, and determined the efficacy of disease-resistant or tolerant stocks. In addition, guidelines have been developed to address these risks through the implementation of best management practices and biosecurity measures. However, the results of those research and outreach efforts need to be compiled and integrated into a widely available, readily accessible, and user-friendly format to be fully utilized by industry. The goal of this project is to develop a comprehensive outreach program containing up-to-date and science-based information about major diseases of aquatic organisms, pests of aquaculture species, and organisms that cause human illness, as well as guidelines for monitoring, recording, evaluating and sampling of stocks at the farm level. Appropriate response measures will be developed using a "Hazard Analysis and Critical Control Points (HACCP)" approach to prevent the spread of fish and shellfish diseases and occurrences of human illness. This project will engage all of these stakeholders in planning for and managing aquaculture hazards in the Northeast United States.

Breeding Resistance to Sea Lice and Infectious Salmon Anemia virus in Atlantic Salmon

Funding level: $199,614
Project start date: 1 March 2011
Project duration: 2 years
Participants: University of Maine, Stoney Brook University

Sea Lice, in particular *Lepeophtheirus salmonis,* is an important parasite of farmed and wild salmonids, causing direct losses due to the damage caused by the parasite directly to the fish and indirect losses due to the requirement for therapeutic treatments. It has also been implicated in the spread of serious infectious fish pathogens such as Infectious Salmon Anemia virus (ISAv) and the bacteria *Vibrio anguillarum* and *Aeromonas salmonicida*. However, the role of sea lice role in the spread of infectious diseases has not been confirmed. This project will investigate three important interactions between sea lice and Atlantic salmon. The first objective will investigate the genetics of resistance to sea lice infestation by Atlantic salmon families developed at the USDA-ARS National Cold Water Marine Aquaculture Center (NCWMAC) at Franklin, Maine. In the second objective, we will determine if sea lice infection predisposes fish to infection with ISAv or, conversely, if early ISAv is a risk factor for sea lice infestation. The role sea lice as vectors of ISAV will also be established by determining the location of the virus on or in the parasite after it has fed on infected fish, how long ISAv survives on the surface of the parasite and in its digestive system, as well as establishing if sea lice are a major vector transmitting the disease between among farmed salmon within and between farms and between wild fish and farmed fish.

Examination of Finfish Pathogen Physiology and Predictive Ecology in Bivalve Integrated Multi-Trophic Aquaculture

Funding level: $200,000
Project start date: 1 February 2010
Project duration: 2 years
Participants: University of Maine, University of Connecticut

Fish farmers using integrated multi-trophic aquaculture need to have a clear understanding of how the culturing of filter-feeding bivalves in proximity of finfish cages will impact disease transmission at their farms. This project builds on results of a previous NRAC project "Investigations into the potential health and economic benefits of bivalve/finfish co-culture," by investigating interactions among two additional pathogens (Infectious Pancreatic Necrosis virus and *Francisella* sp.) and mussels and finfish. This study will also assess the economic costs and benefits of integrated multi-trophic aquaculture based upon disease risk. Infectious Pancreatic Necrosis virus (IPNv) is an important Atlantic salmon disease that is endemic to the northeastern United States. *Francisella* sp. is an intracellular bacterium believed endemic to Maine waters in natural cod populations and has the potential of becoming an emerging pathogen as cod culture increases. This project will benefit regional aquaculture by demonstrating potential benefits and risks (reservoirs for disease) of co-culturing mussels (*Mytilus edulis*) with Atlantic salmon or Atlantic cod.

Assessment of Environmental Impacts of Oyster Aquaculture in New England Waters

Funding level:	$199,994
Project start date:	11 January 2010
Project duration:	2 years
Participants:	Maine Aquaculture Innovation Center, Pemaquid Oyster Company, Inc., Blue Hill Hydraulics, Pacific Shellfish Institute, Plymouth Marine Laboratory, University of Connecticut

This project focuses on interactions of oyster farms with phytoplankton, marine invertebrates and fish. The goal is to develop guidelines for farm-siting and carrying capacity. The project uses an aquaculture GIS format (STEM-GIS) to contrast Maine and Connecticut sites' bathymetry, water velocities and directions, phytoplankton depletion by the shellfish, ecological information about the farms, aquaculture activities and BMP recommendations and an oyster growth module which may be used to optimize shellfish production. We have assembled a team of experts from the U.S. east coast (oyster farmers, shellfish ecophysiologists, and hydraulic engineers), the U.S. west coast (participant in two Sea Grant National Marine Aquaculture Initiatives (NMAI), and experts from the U.K.

Novel Methodologies to Overwinter Cultured Hard Clams in the Northeast United States

Funding level:	$200,402
Project start date:	11 January 2010
Project duration:	2 years
Participants:	Rutgers University, University of Maine, Haskins Shellfish Research Laboratory, Baruch College

This project will examine experimentally new overwintering technologies for cultured hard clam juveniles in ME, NY, and NJ. The new methodology is based on 12 years of successful overwintering of cultured juveniles of *Mya arenaria* in Maine. Success of initial overwintering trials warrant large-scale regional tests of the new methodology. We will examine two experimental field trials from Nov 2009 to April 2010, and Nov 2010 to April 2011 in the three states to examine spatial and temporal variation in the new overwintering technique. Commercial quantities of local hard clam seed (3 sizes: 4 to 5.9 mm; 6 to 7.9 mm; 8 to 9.9 mm) will be overwintered in each state for a 5-month period. To determine if success is related to seed source, we will conduct a reciprocal study by taking seed originating/reared in each state, and overwintering seed in the other states. In each state, we will compare survival of overwintered seed using the new technique to survival of seed overwintered in protected field plots, as is the current, standard, practice. In addition, we will follow the fate of local seed that survive the new overwintering methods in protected field plots in each state for 6 months. Biochemical assays will be conducted on clams from all size classes and origins at each field site overwintered using the new methodology to measure energy use through the overwintering period and to determine if the Maine genetic strain is better adapted to temperature stress by using less energy stores. Simultaneously measuring biochemical composition and environmental parameters should also provide an understanding of how the various clam strains respond physiologically to local conditions and culture methods.

Assessment of Grow-Out Strategies for the Green Sea Urchin

Funding level:	$156,933
Project start date:	1 July 2009
Project duration:	3 years
Participants:	University of Maine, University of New Hampshire

We will identify the most cost-effective and efficient nursery strategy for raising hatchery-produced urchins from 5mm to 15mm, suitable for release onto sea-bottom lease sites. We will also examine and refine the methodology and economic viability of tank-based urchin aquaculture, and compare success with that of "ranching" urchins on the sea bottom. After 3 years, we expect to have enough baseline information to conduct an economic analysis. Recommendations and information will then be made available to stakeholders in the urchin industry via web-based forums, public meetings, and printed pamphlets.

Selection for Enhanced Disease Resistance and Growth Performance in Cross-Bred Oysters, *Crassostrea virginica*

Funding level:	$232,416
Project start date:	1 July 2009
Project duration:	2 years
Participants:	University of Maine, Marine Biological Laboratory, Rutgers University, State of Connecticut

This collaborative broodstock-development program will provide commercial and public oyster hatcheries with high performance, disease resistant broodstock so that growers in the northeast have access to oyster seed with enhance survival and growth that, in turn, leads to increased oyster production throughout the region. Previous work demonstrated hybrid vigor for growth and disease resistance when two stocks of oysters, the University of Maine's UMFS stock and Rutgers University's NEH stock are cross-bred. We will test whether hybrid vigor is also realized when the UMFS stock is crossed with the recently developed and putatively disease-resistant Clinton stock. Stocks will be compared to pure line controls in a replicated field trial conducted at seven grow-out sites in ME, MA, RI, CT, and NJ. Growth and survival, whole wet weight, meat weight and yield will be determined. Oysters in each stock at each site will be monitored for the prevalence and intensity of the diseases MSX, SSO, Dermo and ROD using QYCR and histology-based methods. We will also develop a set of guidelines for ensuring the timely distribution of improved lines from our program to the industry.

The Infection Cycle of Viral Hemorrhagic Septicemia virus

Funding level:	$199,263
Project start date:	1 July 2008
Project duration:	2 years
Participants:	Cornell University, New York Sea Grant Program, Lake Champlain Sea Grant Program, Pennsylvania Sea Grant Program

We have observed that important fish species vary in susceptibility to Viral Hemorrhagic Septicemia virus (VHSv) IVb. We will conduct controlled laboratory-based infectivity studies with VHSv IVb to compare what we hypothesize to be fish that may differ significantly in their ability to be infected with the virus and development of disease. A better understanding of species susceptibility to VHSv IVb will support the development of effective strategies to limit disease losses as well as limit risk of exposure to carrier fish. We have developed a quantitative RT-PCR (qRT-PCR) in our laboratory and have used that diagnostic and research tool to identify the presence of VHSv IVb in diagnostic and surveillance efforts over the past two years. During this project, we will conduct the specific efforts to develop the body of information that will support a request to the appropriate organizations for recognition of the qRT-PCR as a validated test. We will conduct technology-transfer workshops for the aquaculture community to provide the most contemporary information regarding the emergence of VHSv IVb in the Northeastern United States. Presentations will be made to members of the commercial aquaculture community at two different locations to facilitate attendance.

NRAC Extension Project

Funding level:	$299,944
Project start date:	1 July 2008
Project duration:	2 years
Participants:	University of Connecticut, University of Maryland, University of Delaware, MIT Sea Grant, Cornell University, West Virginia University, University of Rhode Island, Roger Williams University, Pennsylvania Sea Grant, Salem State College, University of New Hampshire

The Northeast Aquaculture Extension Network (NAEN) is an assemblage of extension professionals from Land and Sea Grant Institutions, state and private universities, and outreach associations throughout the Northeast region of the United States. Working with the Northeastern Regional Aquaculture Center (NRAC), the Northeast Aquaculture Extension Network will produce and deliver accurate and credible science-based aquaculture information, educational materials and outreach activities to stakeholders in a manner that is efficient and effective. The primary audience we serve is practicing and new aquaculturists as well as prospective producers, wholesalers and retailers, state and regional industry associations, resource managers, elected and appointed officials, and extension professionals who work in areas related to aquatic animal and plant production. Our vision is that the information and products developed by the NAEN will result in improved stakeholder knowledge and increased

public awareness of the social, economic and environmental importance of commercial aquaculture in the Northeast U.S. and will facilitate NRAC's goal to increase both the value and volume of commercial freshwater and marine aquaculture products.

Creation of a Tetraploid Broodstock for the Bay Scallop *Argopecten irradians*

Funding level:	$128,197
Project start date:	1 July 2008
Project duration:	3 years
Participants:	Martha's Vineyard Shellfish Group, Inc., Rutgers University

The first step of the project includes the production of a starter triploid bay scallop population through the use of chemicals. This step has already been achieved through funding through MSAIC (Massachusetts Shellfish Aquaculture Innovation Consortium). The second step of the program involves selecting triploid broodstock scallops by testing the ploidy of all ripe animals found in the starter population. Once a ripe triploid broodstock is gathered, they will be spawned and their fertilized eggs treated with chemicals to induce tetraploidy. If successful, the tetraploid scallops will be grown at the Martha's Vineyard sites. Before they are sexually mature, they will be transferred to a recirculating quarantine facility at the Rutgers University Haskins laboratory in New Jersey. The third step of the project will be crossing the first tetraploid broodstock for the bay scallop naturally with wild diploid scallops to produce marketable triploids. This all triploid natural population will be grown on Martha's Vineyard and monitored for performance (growth, yield, survival glycogen muscle content, rate of reversion). The tetraploids will also be self-crossed to determine if a population of tetraploid scallops can be sustained.

Targeted Biosecurity Education and BMP Development Program for Aquaculturists, Extension Agents, researchers and Regulators

Funding level:	$89,920
Project start date:	1 July 2008
Project duration:	2 years
Participants:	Microtechnologies, New York Department of Conservation, Roger Williams University, University of West Virginia

This project will provide regionally focused, practical training in aquaculture biosecurity and Best Management Practices (BMPs) for industry, extension agents, researchers and regulators in the Northeast in order to reduce disease and lower production costs. This goal will be achieved through the following activities and materials: 1) Five two-day interactive biosecurity/BMP training workshops conducted in Maine, Rhode Island, West Virginia, New York and Pennsylvania; 2) Production of a Biosecurity/BMP Resource Manual, adaptable to specific species and/or facility design, and distributed at workshops and beyond (most likely via Internet); 3) Creation and maintenance of a public access web-based database with information resources relevant to aquaculture stakeholders, including current disease research, fish health resources, state/federal/international testing requirements and other regulatory information, as well as updates to biosecurity/BMP recommendations.

Investigation into the Potential Health and Economic Benefits of Bivalve/Finfish Co-Culture

Funding level: $150,000
Project start date: 1 June 2008
Project duration: 2 years
Participants: University of Maine, Rutgers University

This project will result in direct answers to industry's concern about the role that mussels may play in perpetuating or limiting the spread of diseases. Project design will focus on mussels (*Mytilus edulis*) as a bivalve model for investigations into the associated aquatic animal health benefits or risks of integrated shellfish/finfish aquaculture. Based on the fact that bivalves are bio-acccumulators, our hypothesis is that they have the potential to act as sensitive pathogen bio-monitors or disease sinks. Under these circumstances co-cultured mussels may serve as a biological filter by reducing or eliminating pathogen loads while enhancing the environmental sustainability and economic feasibility of marine finfish aquaculture. Conversely, if mussels possibly act as a vector for certain pathogens, the gained knowledge can be used by growers as a risk management tool. Our project will expand on earlier work by targeting two significant finfish pathogens of Atlantic salmon (*Salmo salar*), an established cultured marine species in the northeastern United States.

Deterring Duck Predation With Underwater Sound

Funding level: $108,000
Project start date: 1 June 2008
Project duration: 3 years
Participants: Maine Cultured Mussels, Inc., University of Maine

A cost-effective, underwater acoustic duck deterrent buoy will be designed. We will build nine units and evaluate their effectiveness in a variety of mussel farm settings, including longline, raft, and bottom cultures in mid-coast Maine. Three mussel farms will collaborate in evaluating the effectiveness of the buoys and in developing optimal deterrent strategies at various sites and under a range of duck predation threats. The results of our work will be reported to industry in the form of on-site workshops, articles published in the industry media, peer-reviewed journal articles, fact sheets, and a project website.

Evaluation of Putatively QPX-Resistant Strains of Northern Hard Clams Using Field and Genetic Studies

Funding level:	$263,490
Project start date:	1 March 2008
Project duration:	2.5 years
Participants:	Marine Biological Laboratory, University of Washington, Rutgers University

Juvenile Oyster Disease (JOD) is a major problem for the oyster industry in the Northeastern US, causing up to 90% losses at enzootic sites. Marker-assisted selection (MAS) may provide a powerful tool in the development of oysters resistant to JOD. We will take advantage of the experimental infection protocols for JOD developed at University of Rhode Island and the genetic research resources developed at RU for the eastern oyster to: a) Identify markers associated with resistance to JOD; b) improve our basic knowledge of the genetic mechanisms of resistance to JOD; c) provide genetic tools to be used in the identification and creation of resistant strains through marker-assisted selection (MAS); and, d) create new lines resistant to JOD and well-adapted to local growing conditions in Southern New England. This knowledge will benefit the scientific community by providing new tools for oyster disease research and ultimately the oyster industry by providing means to efficiently and rapidly develop oyster strains resistant to diseases.

Development of JOD-Resistant Lines and Markers for Eastern Oyster Aquaculture

Funding level:	$209,269
Project start date:	3 October 2007
Project duration:	3 years
Participants:	University of Rhode Island, Rutgers University, Roger Williams University

Our hypothesis is that “resistance” of hard clams to QPX disease is linked to their physiological-based genetic adaptation to colder climates. The genes responsible for these physiological adaptations are likely associated with temperature dependent metabolic processes that are linked with immune function. Our objectives are: to identify populations of QPX resistant hard clam strains (MA origin, QPX survivors of MA origin and Canadian origin clams) that exhibit both an ability to grow well and resist disease in Mid Atlantic and New England conditions; to characterize molecular mechanisms associated with superior performing hard clams; to provide fast growing, QPX resistant hard clam broodstock to aquaculture and to provide molecular analysis methods for QPX resistant broodstock selection. We will establish a website, to provide ongoing updates and results of the study. At least two referred journal articles will be published and 1000 copies of an informational handout will be produced. A workshop will be held at NACE in 2010 and scientific presentations will be made at the NSA.

Evaluating Restoration and Mitigation of Aquatic Plant Species and Markets to Advance Commercialization of the Industry

Funding level:	$449,903
Project start date:	1 January 2007
Project duration:	3.5 years
Participants:	University Maryland, Delaware State University, Maine Aquaculture Association, West Virginia University

Twelve aquatic plant species will be evaluated for growth and nutrient uptake performance in the laboratory and various field settings, mesocosms, stormwater ponds, and hatchery effluent in multiple states (DE, MD, ME and WV) providing necessary ground truthing for applications where sales and industry potential is greatest in the industry: restoration and mitigation, and markets. In addition, preliminary evaluation of individual plant performance of several species growth will be conducted providing methodology and the basis for industry to implement this advanced culture practice not previously used. Costs and economic potential for all field applications and an assessment of market potential in the Northeast will also be conducted. Outreach programs are integrated in all aspects of the project including workshops and training for extension personnel, plant nurseries, hatchery operators, developers, nursery contractors, homeowners and community associations. Other outreach and dissemination efforts include: the first comprehensive database of nutrient uptake potential for aquatic plants, culture technology and economic analysis factsheet, presentations at state and regional meetings for the targeted stakeholders and web-based aquatic plant and nutrient management summary.

Development of Environmental Code of Practice and BMPs for East Coast Shellfish Growers

Funding level:	$220,114
Project start date:	1 January 2007
Project duration:	2 years
Participants:	East Coast Shellfish Growers Association

Through a stakeholder workshop process, develop a Code of Practice and a model BMP manual for the east coast shellfish aquaculture industry. Review extant literature, survey regulatory needs and do shellfish industry interviews outside of the workshop process and incorporate these into the products. Work throughout the process to maximize industry buy-in and regulatory agency recognition. Develop strategies to assist in future adoption of BMPs at the farm level. Secure non-NRAC funding to extend the work to states south of the NRAC region.

Cross Breeding and Field Trials of Disease-Resistant Oysters

Funding level:	$248,436
Project start date:	15 June 2006
Project duration:	2 years
Participants:	University of Maine, Marine Biological Laboratory, Rutgers University, University of Rhode Island, Martha's Vineyard Shellfish Group, Roger Williams University, CT Bureau of Aquaculture, University of Connecticut

Using common garden field-trials we propose to test the hypotheses 1) that oysters selected from local natural environments in southern new England that have survived heavy, annual disease pressure will survive well, grow better and yield more than those selected from more southerly climes (i.e., the Rutgers NEH stock) and 2) that enhanced resistance to multiple diseases can be achieved by continued interline crossing and backcrossing between the currently available NEH and Maine UMFS stocks to produce advanced generation hybrid stocks. Oysters from four separate stocks will be obtained, conditioned, and spawned using methods that minimize the effects of inbreeding in the hatchery. We will produce pure line (EGP, Clinton, HEH and UMFS) progeny as well as F_1 hybrid (NEH x UMFS) and backcross (F_1 x NEH and F_1 x UMFS) offspring via strip-spawning and small-batch fertilization methods. The culture of the larval and early juvenile stages will follow typical industry practice, and 1000 juvenile seed from each line will be deployed in triplicate at grow-out sites in ME, MA RI, CT and NJ. Growth and survival of each replicate will be monitored at each site every two months. Sampling will continue until 18 months of age at which time the average whole wet weight and meat weight for each breeding programs at the Marine Biological Laboratory and the Darling Marine Center.

Evaluation of Hard Clam, *Mercenaria mercenaria*, Stocks for QPX-resistance

Funding level:	$71,173
Project start date:	15 June 2006
Project duration:	2 years
Participants:	Rutgers University, Woods Hole Oceanographic Institution, Marine Biological Laboratory

Three selected aquaculture stocks of commonly used hard clams (Massachusetts (MA), New Jersey (NJ) and South Carolina (SC) were reared in a single hatchery. These stocks were planted in replicate plots in Barnstable Harbor, MA and Dry Bay, NJ in the spring of 2008 and grown to market size. Growth, survival and QPX prevalence and weighted prevalence were measured in fall 2008, spring 2009 and fall 2009. Growth was similar at both sites for the first summer, but during the second year growth was better in MA. Overall survival was better for all stocks in NJ when compared to MA. Survival of NJ stocks was 53.4 and 34.8% (for NJ and MA, respectively) closely followed by those of MA (41.8 and 26.2% in NJ and MA, respectively). Stocks from SC seed had the highest prevalence and weighted prevalence of QPX and the lowest survival (36% and 6.6%) in NJ and MA, respectively). At least some individuals of each stock

became infected with QPX at both sites, but this study confirms earlier work that suggests that QPX becomes more pathogenic along a gradient starting in Virginia and continuing at least to Cape Cod. In addition, seed produced from stocks of NJ and MA origin have more resistance than those produced from stock of more southern origin.

Effect of Temperature on the Infection of Hard Clams (*Mercenaria mercenaria*) by the Protistan Organism, QPX

Funding level: $154,805
Project start date: 1 September 2006
Project duration: 2 years
Participants: Marine Biological Laboratory, Roger Williams University, University of Connecticut

Previous work has identified characteristics of the QPZ organism and the disease it causes in hard clams, but we still do not have important information needed for prevention and management of the disease in aquacultured stocks. Because the invertebrate hard clam host is ectothermic and lives in an aquatic medium characterized by thermal flux, environment is even more important in the pathogensis of disease than in homeothermic vertebrates. In this grant we will investigate the following objectives. 1) Is temperature at the time of exposure to QPX important in the development of QPX disease? Evidence indicates that the innate immune system of the clam is temperature controlled (as are systems in all ectothermic animals). We will determine if poor activation of the clams innate immune system in the early spring and late fall permit infection of the clam by QPX (which can still proliferate well at those temperatures). 2) This study will determine if the innate immune system is altered in clams bred over generations at higher average temperatures (southern clams) such that these inbred clams immune systems can not respond at the environmental temperatures that routinely occur in late spring/early summer in the more northern coastal areas (vs. the innate cytometry, we will develop a method of measuring the innate immune system of hard clams that can then be used to evaluate potential broodstock for low temperature immune system activation ability. 3) If we are correct, the information generated in the grant will be used in the genomic search for "QPX resistance" in hard clams by directing the search towards genes that regulate the activation of the innate immune system at low temperatures.

Development of Genetic Markers to Assess Disease Resistance in the Eastern Oyster

Funding level: $128,486
Project start date: 1 February 2005
Project duration: 3 years
Participants: Marine Biological Laboratory, Martha's Vineyard Shellfish Group, Inc., Connecticut Bureau of Aquaculture

A primary objective of our research was to demonstrate seed originating from local wild oysters, that have experienced heavy disease (Dermo) pressure, could significantly contribute to the development of disease resistance in cultured oysters. We were able to demonstrate this by

characterizing infection, growth, and physiology in oysters spawned from two distinct groups of broodstock. One broodstock population originated from Edgartown Great Pond in Edgartown, MA (EDG) and had annually consistently heavy Dermo pressure. The control population was from Tisbury Great Pond in West Tisbury, MA (TSB), where there had been no identified disease outbreak due to Dermo. These two broodstock populations were spawned in July 2005, and seed from both broodstock populations placed in ADPI bags for 18 months and routinely monitored (see Part II for details). Oysters from the EDG broodstock showed increased survival compared to those from Tisbury (TSB). Our data indicates that even though both groups of oysters were grown side by side, the TSB oysters had a higher prevalence of Dermo and furthermore the intensity of the disease was increased. These results suggest that *P. marinus* proliferates to a lesser degree in oysters from a population that has experienced heavy disease pressure. To our knowledge this is the first report of such a case from wild populations, and indicates local survivors of disease are good candidates for improved broodstock.