Proposal to the Connecticut Department of Agriculture for the
2006 Agriculture Viability Grants Program

Farm Viability Grant

Submitted by
The Town of Madison, CT, and the Madison Shellfish Commission

May 31, 2006

Section One – Opportunity

Until the onset of the disease MSX in 1997, the Neck River was one of the most productive shellfishing areas in all of Connecticut. As far back as the colonial period, the Neck had been renowned for the quality and quantity of oysters produced in its relatively tiny waters. Today, there are very few live oysters remaining in the river,

Section Two – Mission Statement

The purpose of this Grant is to begin to restore the oyster population to the Neck River. Bringing oysters back to the Neck will benefit commercial shellfishermen holding leases to the beds under the Neck and the businesses "downstream" of the shellfish harvest industry including wholesalers, transport, and chandlery; restore a key component of the ecosystem and food chain, thereby increasing food stocks for oyster predators; and improve water quality by removing organic matter from the river itself.

Section Three – Goals

The specific goals of this Grant are as follows.

1. Build the physical infrastructure necessary to operate a sustainable and continuously-operating oyster fishery in the Neck River.
    a. Acquire, build, or purchase the components for an oyster grow-out system; transplantation program; preparation and maintenance of the transplantation area; and water quality assessment and monitoring.
2. Implement a successful oyster grow-out program using disease resistant seed, leading eventually to a self-sustaining oyster population in the Neck River that is resistant to MSX and Dermo (the two oyster-killing diseases that have severely damaged the oyster population).
3. Work closely with commercial shell fishermen so as to benefit from their experience and expertise, gain their full support for the program, and enable them to produce and sell significant quantities of oysters to the commercial market.
4. Educate citizens about water quality and the impact of water quality on the ecosystem in general and shellfish in particular.

5. Educate other non-governmental organizations on the impact of environmental factors on water quality and shellfish habitat, thereby gaining their support for improved water quality and initiatives to achieve same.

Section Four - Methods

The Town of Madison and the Madison Shellfish Commission have been engaged for several years in building the expertise, infrastructure, and support that is the foundation for rejuvenating commercial and recreational shellfishing in Madison and environs. Please see Section Seven, Prior Planning, for a detailed history of those efforts and results thereof.

The Madison Shellfish Commission is now fully prepared to begin the restoration process in the Neck River. The steps in this process are outlined below.

Infrastructure improvement and maintenance

1. Remove and dispose of existing Town Dock and ramp at terminus of Neck Road.
2. Expand the bulkhead abutting the Town Dock location to mitigate erosion and provide a solid anchoring location for the upweller.
3. Complete installation of present upweller in the Neck River at existing Town Dock location, including refurbishing of silos, replacement of pump, installation of appropriate hardware, and launching of upweller.
    a. Provide for relocation of upweller and ramp at end of fall season to prevent ice damage
4. Acquire a new aluminum ramp to replace existing rotted ramp, enabling access to the upweller from the terminus of Neck Road.
5. Complete electrical wiring and pump installation for operation of upweller.
6. Refurbish existing Shellfish Commission workboat as necessary.
    a. Commission boat (ensure engines, electrical, safety, mechanical and other systems are fully operational, repair as necessary; prepare hull with bottom paint, launch boat)
    b. Provide routine maintenance and service
    c. Purchase fuel and oil as necessary
    d. Purchase WAAS-enabled GPS for charting of potential habitat, identification of transplant grounds
7. Locate and purchase water quality testing equipment (present equipment on loan from the Department of Aquaculture Lab)

Oyster replenishment

1. Locate and acquire disease-resistant oyster seed for transplantation into the upweller.
2. Engage commercial shellfisherman to assist in developing, implementing, and monitoring oyster grow-out process.
3. Monitor and manage the upweller growth process through periodic maintenance and upkeep.

4. Transfer young oysters to grow-out bags, continuously monitor and manage the bags to ensure healthy growth and identify problems.
5. Identify appropriate locations for transplantation of oysters once they reach the size needed for survival in open waters. This requires systematic water quality, salinity, and temperature monitoring over an extended period. Multiple locations to be identified in order to determine best mix of factors contributing to success or lack thereof.
6. Prepare the transplant location by cleaning the bottom of debris and placing quantities of cleaned shell on the bottom for transplanted oysters to settle on.
7. Continuously monitor the transplant location for water quality, oyster growth, and potential problems.

Publicity and public support

1. Maintain present efforts to engage other Town organizations in discussions about water quality, development, and the impact of same on the Neck River and ecosystem thereof.
2. Continue outreach to citizens through dedication and publicity of new upweller and grow out oyster bags.
3. Create campaign for "Stewards of the Neck River" to encourage landowners to take ownership of the River's water quality through education and outreach.

Assessment

1. Continuously assess the project's progress against the timetable to ensure timeliness of completion of key steps.
2. Assess outcomes of the project via measurement of results against established benchmarks.
    a. Survey of present oyster population in the Neck River (completed)
    b. Assess growth and survivability of transplanted oysters by periodic harvesting and counting in designated locations.
    c. Measure expenditures against budget
3. Success criteria – short term, successfully grow oysters from seed with minimal losses to average size of 45mm.

Section Five - Role of Partners

Key to the success of the program will be the support of local commercial shell fishermen, Town officials, other governmental and non-governmental organizations, and local media.

The Neck River is presently divided into two commercial lease areas. One is leased by the present chair of the Commission, and the other by a pair of local shellfisherman who have expressed their enthusiastic support for this project. In addition, the Commission has identified another person with extensive experience in the operation of upwellers, oyster aquaculture, and commercial shellfishing. This individual will be engaged to oversee the operation of the upweller, train Commission members, provide advice and insight, and ideally minimize errors due to ignorance or oversight.

Town officials have worked closely with the Commission on this project, and have been fully supportive in the transfer of key assets to the Commission. In addition, the Town provides oversight on water quality monitoring, and works closely with Commission members in that capacity.

In addition to local government, the Madison Shellfish Commission has been actively soliciting advice and input from other State and Federal entities. Inke Sunila of the Connecticut Department of Aquaculture has provided expertise both remotely and on-site broadening the knowledge base of Commission members and commercial shellfishermen while vastly decreasing the learning curve. Inke's support will be instrumental in the ongoing monitoring and trouble-shooting of the grow-out of oysters. Inke helped select the site for the oyster upweller.

Mike Ludwig and David Veilleux of NOAA have been very supportive of this project, advising on shellfish restoration techniques and methods.

In addition, Rob Brumbaugh of the Nature Conservancy has been quite helpful in assisting the Commission in water quality issues related to the Neck River uplands, non-point runoff, and related matters. Rob's support and insight will be most helpful in the long-term, as the ultimate success of the project will be highly dependent on the Neck River's water quality. Rob has recently published a practitioner's guide to the design and monitoring of shellfish restoration projects.

Local media has also been an enthusiastic supporter of the Commission's efforts, and has been instrumental in educating the public about the rejuvenation of the Commission and the efforts of the Commission to date.

Local business has also supported these efforts by selling shellfishing licenses and providing advice and equipment to recreational shell fishers.

Section Six – Timetable

Upweller:

1. The project will start July 2006 with the installation of the upweller.
2. Oyster seed will be put into the upweller mid July 06 to start the grow out process.
3. Oyster seed will be transferred to the floating bags in the spring of 07 for final grow out.
4. End June 07, grown out oyster seed, approximately 45mm, will be placed onto commercial beds in the Neck River.

Oyster Sanctuary:

The clean-up of the river bottom and placement of clean shell will take place in the spring of 07. The placement of oyster seed onto the prepared sanctuary oyster bed will take place at the end of June 07.

Outboard motors:

The outboard motors will be refurbished in July, 06.

Section Seven – Prior Planning and Preparation

The Madison Shellfish Commission has been fully staffed (five commissioners) for over two years. The present Commission is engaged, active, diligent, and quite effective. Significant efforts have resulted in an increased awareness of the Town's shellfishing resources among citizens and non-governmental organizations, including the Madison Land Conservation Trust, local developers, etc (need more here).

The Commission fully recognizes the importance of public support for our efforts, and has implemented a very successful public awareness program based on getting citizens engaged in shellfishing themselves. Among the outreach efforts of the Commission have been the fall and spring clam transplants and harvests, which have been well-publicized in local papers, and have brought scores of citizens to the waterfront to harvest shellfish, meet and greet Commissioners, learn about shellfishing in Madison, and enjoy a resource many were previously unaware of.

The Town of Madison has transferred significant assets to the Commission, including two boats and the Town dock on the Neck River. The boats include a 22-foot workboat that is well-equipped for water quality monitoring, transplantation, and surveying and a small inflatable boat well-suited to water quality assessment and habitat surveying in shallower waters.

The Commission has located, purchased, and maintained new assets that will be critical to the success of this effort. Among the acquisitions are a dock/upweller purchased in 2005; 100 grow-out bags; and related supplies and hard goods.

In addition, several members of the Commission have attended educational sessions at various locations on shellfish growth and management; shellfish disease; commercial aquaculture and related topics.

The Commission and Town are also nearing completion of the licensing process for the new upweller, ramp, bulkhead and erosion mitigation process. This process has been ongoing for over nine months, and should come to a successful approval before the end of June, 2006.