

Maryland Department of Natural Resources' Grant Proposal For Federal Blue Crab Fishery Disaster Funding

Introduction and Background

Sections 312 and 315 of the Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Reauthorization Act of 2006, provide for the declaration, by the Secretary of Commerce, of a commercial fishery failure due to a fishery resource disaster. In May 2, 2008, letters to Secretary of Commerce Carlos Gutierrez, Governors Timothy M. Kaine and Martin O'Malley requested a disaster assistance evaluation for those Chesapeake Bay fishermen who have suffered hardships related to extremely low and unstable abundance of the blue crab population.

As a result, economic losses have been accumulating over the last decade as blue crab abundance in Chesapeake Bay has remained at extremely low levels and harvest has declined precipitously. In 2008, the economic losses may have been compounded as the states of Maryland and Virginia and the Potomac River Fisheries Commission (PRFC) implemented regulations to maximize the chance for building the crab population and associated fisheries by reducing the bay-wide harvest of female crabs by 34 percent.

The request for a disaster assistance evaluation in 2008, and for a subsequent three-year period, is based mainly on commercial fishery losses (harvest opportunities) due to adverse environmental conditions in Chesapeake Bay. These conditions include the catastrophic loss of essential habitat, a decline in water quality, an overabundance of native and non-native predators, and the decimation of key prey species for the blue crab.

The National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) responded to Governor O'Malley's request in a letter dated September 22, 2008 and stated that they had found that bay-wide Maryland and Virginia landings value for the soft and peeler blue crab fishery have decreased by 41 percent. Therefore, they determined that a commercial fishery failure has occurred under MSA Section 312(a) for the soft and peeler blue crab commercial fishery in both Maryland and Virginia waters.

In a press release dated November 18, 2008, the NOAA NMFS announced that the states of Maryland and Virginia would each be eligible for up to \$10 million to assist watermen who have been economically hurt by the commercial fishery failure in the soft shell and peeler blue crab fishery in Chesapeake Bay. In response to the determination by NOAA NMFS and the subsequent funding provided through the Consolidated Security, Disaster Assistance, and Continuing Appropriation Act of 2009, the Maryland Department of Natural Resources (DNR) has developed a spending plan that we believe addresses the impacts of the disaster and alleviates the future potential for a similar disaster. This plan is designed to employ commercial blue crab fishermen in an effort to restructure the fishery, provide new economic opportunities and restore important habitat for the blue crab.

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The DNR held three meetings with the commercial crabbing and processing industries beginning in May 2008 to identify projects that could be funded with currently available FY09 state capital funds and federal fishery disaster funds, if available. The scope of work provided below reflects those projects identified through those deliberations.

Statement of Work

The DNR's plan for addressing the impacts of the Chesapeake Bay blue crab fishery disaster and alleviate the future potential for disaster consists of three components: 1) restructure the blue crab fishery; 2) create economic and diversification opportunities for commercial crabbers; and 3) rehabilitate important blue crab habitat.

1) Restructure the Blue Crab Fishery

Project 1A: License Restructuring - Maryland currently has 6,200 licensed commercial crabbers, only 1,800 (29%) of whom have actively fished between 2004 and 2007. The amount of latent, and possibly active, commercial crab licenses should be reduced in order to ensure the maintenance of a viable fishery that can support full-time watermen. It is anticipated that latent licenses may become active as the population rebuilds in response to management actions recently taken by Maryland, Virginia and the Potomac River Fisheries Commission.

Maryland proposes to collaborate with the Environmental Defense Fund and fishery management experts from the Bay and around the country to discuss and evaluate the current licensing and management structure of the blue crab fishery, establish a goal for the number of commercial crabbers that is both economically and biologically sustainable, and develop a licensing and management structure to achieve and maintain this goal over time. Reducing the number of commercial crabbers, and possibly establishing a separate license for the soft and peeler crab fishery, will require the use of various management tools including statutory and regulatory measures and market processes. One strategy being considered is to reduce the number of commercial crab licensees by implementing a voluntary reverse auction system¹. Reducing the number of commercial crab licensees to a sustainable level will offer greater flexibility, predictability and security for the full time waterman and a more stable and sustainable blue crab fishery. A new licensing structure may provide an opportunity for sector specific management actions and prevent one sector of the fishery (i.e. soft and peeler crab fishery) from being disproportionately impacted for reasons attributed to outside their fishing sector.

¹ A reverse auction is a tool used in industrial business-to-business procurement. It is a type of auction in which the role of the buyer and seller are reversed, with the primary objective to drive purchase prices downward. In an ordinary auction (also known as a forward auction), buyers compete to obtain a good or service. In a reverse auction, sellers compete to obtain a business.

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Project 1A Budget Estimate: \$3.8 million over three years.

Project 1B: Management Supported Stock Assessment and Cooperative Research Projects – Additional information would facilitate the restructuring of the Chesapeake Bay commercial blue crab fishery, and ensure the implementation of effective and equitable management strategies. Maryland proposes to utilize a portion of this funding to expand its cooperative data collection program, initiate new cooperative research projects with commercial crabbers, and conduct a benchmark assessment of the blue crab population. This proposed work is described below:

- Stock Assessment – Maryland and Virginia would each contribute a portion of funds to outside experts who would conduct a benchmark (complete update) stock assessment of the blue crab population. The last benchmark assessment was in 2005 and resulted in the spawning abundance target that is currently guiding fishery management. Data collected since the 2005 assessment could significantly improve resolution on management strategies. For example, a new assessment would likely establish separate fishery management goals for male and female blue crabs, thereby ensuring greater effectiveness of management actions.
- Cooperative Research Projects – Commercial crabbers comprise 'ready-made infrastructure' for conducting research on blue crab populations because the fishing fleet is made up of experienced captains of vessels that can deploy sampling gear. There are many critical outstanding questions that would improve our ability to effectively manage blue crabs. As an extension to the ongoing cooperative program between commercial crabbers and the State, watermen would be employed to further assist the State in determining the effects of size, shape and position of cull rings in controlling crab harvest; evaluating biodegradable escape panels for crab pots; conducting spatial surveys of female crab abundance during and following the fall migratory period; and conducting mortality studies of peelers in shedding operations.

Project 1B Budget Estimate: \$690,000 over three years

- Stock Assessment: \$150,000 (one time expense).
- Cooperative Research Projects: \$540,000 over three years.

Project 1C: Enforcement: Maryland proposes to use a portion of this funding to recruit, train and support a minimum of two blue crab enforcement officers. These officers would be dedicated to enforcement of the blue crab fishery and would also be involved in education projects with watermen. The absence of adequate enforcement increases the risk of overfishing and as a result leads to further impacts to the soft and peeler crab fishery. If additional enforcement personnel can not be obtained, Maryland will need to implement more conservative management

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strategies to ensure achievement of management goals. This can also negatively impact the industry by eliminating their flexibility.

Project 1C Budget Estimate: \$550,000 over three years.

Project 1D: Maryland Crabmeat Quality Assurance Program: Maryland would fund a program that allows for quality control inspections of soft and peeler crabs and processed crab meat in Maryland. The potential for a viable crab processing industry in Maryland remains strong. Prospects are good for maintaining Maryland's image as the country's premier producer of high quality crab products while at the same time increasing the economics of the industry. A long-term commitment to the industry and to the optimal use of crab resources is needed.

To continue support for the Maryland crab industry, Maryland requests funding to continue the Maryland Crabmeat Quality Assurance Program and related technical assistance. This will allow continuation of the currently unfunded program that ensures that safe and high quality crabmeat products are available to Maryland consumers. It will also allow investigations into new processing methods such as improved removal of shell pieces from crabmeat, innovative and safe packaging design and similar activities which would keep Maryland's industry competitive in an increasingly global seafood market.

Innovative processing, packaging and marketing strategies are needed to improve product quality, control costs and meet changing customer requirements. Demonstration projects with industry (primary and secondary processing, use of convenience packaging, etc.) are necessary to support adoption of technologies, improve margins and expand markets. Key to success will be the active involvement of seafood industry suppliers and processors, with technical and marketing support from Maryland universities and agencies.

Project 1D Budget Estimate: \$633,658 over three years.

2) Create Economic and Diversification Opportunities for Blue Crab Fishermen

Maryland began experiencing increased effort on the Chesapeake Bay female blue crab population in the 1980s following significant declines of the Bay's oyster population. Watermen, particularly in the lower Bay, who could no longer rely on a steady fall oyster harvest, began shifting their fishing efforts towards female blue crabs. Today, approximately 70% of Maryland's female blue crab harvest occurs in the lower Bay from September through November.

In an effort to provide economic and diversification opportunities and decrease effort on female blue crab populations, Maryland proposes to provide an oyster aquaculture grants program and training to facilitate the development of oyster aquaculture.

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Recent information from the aquaculture industry, particularly in Virginia, has demonstrated that the use of native oysters in aquaculture using innovative strategies (i.e. use of triploids and/or disease-resistant strains, off-bottom culture) can be economically successful. Maryland's Aquaculture Coordinating Council and Oyster Advisory Commission have both recommended actions to facilitate aquaculture development. This fall, Governor Martin O'Malley publicly announced Maryland's commitment to aquaculture and developed an action plan to address existing obstacles (i.e. lease laws).

As individual watermen and watermen groups begin to transition from a wild put-and-take oyster fishery to one based on privatization and aquaculture, they will require additional knowledge, capital funding and infrastructure support. Outlined below are two areas identified to provide new economic opportunities for affected watermen.

Project 2A: Oyster Aquaculture Training and Education – Commercial crabbers would be given the opportunity to learn through hands-on field and classroom settings about profitable shellfish farming, best management practices and current Maryland aquaculture laws and regulations. Fundamentals could include hatchery operations (short course), seed production (remote setting), nursery operations, data and analysis for growers, managing oyster grounds for profit, and predator control and techniques, etc. A preference to participate in this program will be given to individuals involved in the soft and peeler crab fishery, however, eligibility to participate in this program will be open to all commercial crabbers recognizing that a reduction in overall commercial crabbing effort will improve the sustainability of this resource and dependent fisheries.

- Regional and onsite training would be conducted throughout Maryland and include bottom site review and assessment of potential planting areas (if required), permit application support and providing supporting documents/publications.
- Outreach and extension program curriculums would be provided through the University of Maryland Extension and MD Sea Grant Programs.
- Watermen who complete the 'training certification' would be eligible for aquaculture infrastructure grants. Watermen would be compensated for travel, if required but would not receive a daily stipend for attending the education programs.
- Partial to full scholarships/tuition payments would be available to individuals interested in getting into aquaculture and/or watermen to take relevant college classes.

Project 2A Budget Estimate: \$300,000 over three years.

Project 2B: Oyster Aquaculture Infrastructure Grants – Oyster aquaculture infrastructure grants would be offered to 'certified' watermen (see above) in all Maryland counties where shellfish aquaculture can become a viable business.

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- Funding would be used to construct facilities that include micro-oyster hatcheries, remote setting sites (\$15,000 per site for 2 setting tanks), shellfish nurseries and the supporting materials needed to build oyster cages and/or oyster floats. In addition, funds would purchase larvae and/or seed, establishing and providing set-up and training support of these sites and purchasing shell that's needed for remote setting and bottom treatment, if required/available.
 - *Oyster seed is currently the biggest limiting factor in the establishment of a cost-efficient, large-scale aquaculture effort.*
 - *Additional training support would occur at the time of set-up to assist watermen in setting up and operating the equipment.*
- All constructed facilities would initially be used for industry demonstration and training sites (on public and private lands) and become available for use by watermen groups over time to support Aquaculture Enterprise Zones (AEZ) and Industry Management Areas² (IMA.)
- Funds would not be used to 'upgrade' watermen vessels or provide long-term compensation. The success of the program requires 'sweat equity' on watermen's behalf to ensure their buy-in and commitment to success.
- Field trials would be conducted in cooperation with watermen groups:
 - **Production Gear Trials:** Various types of grow-out equipment could be tested for longevity, maintenance, and productivity. This will allow comparisons to be made and recommendations provided to those seeking to engage in aquaculture using different types of gear.
 - **Performance Field Trials:** One of the most important factors in agriculture is the comparison of varieties to assess their performance in discrete locations. Initial trials would use the selected lines already established within the region but should be integrated into an overall effort to produce oysters that are optimized for various river systems and grow-out methods.

Project 2B Budget Estimate: \$1.2 million over three years.

Project 2C: Maritime and Heritage Geo-Tourism Training – The Chesapeake College in partnership with the Maryland Watermen's Association and the Maryland Small Business Development Center provided DNR a proposal to establish a Heritage Tourism Small Business Training Program for dislocated workers, particularly watermen and their families. This project will provide watermen and other individuals, whose livelihoods have been heavily impacted by the decline in shellfish and finfish populations in Chesapeake Bay, with the skills, knowledge and training to participate in or build heritage geo-tourism businesses associated with Maryland's many maritime attractions, including the Captain John

² Groups of watermen would be permitted to assume the management of natural oyster bars. Allowing watermen and/or watermen groups to manage these areas, individually or regionally through a coordinating organization, would decrease reliance upon public funds with the intent that overtime these IMAs would be funded solely by private funds generated by the operation.

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Smith Chesapeake National Historic Trail. The full proposal requested \$1.5 million in funding, over a three-year period and estimated that 300 people would be retrained. The DNR proposes to provide partial funding assistance for this project to initiate training opportunities for commercial crabbers. A preference to participate in this program will be given to individuals involved in the soft and peeler crab fishery, however, eligibility to participate in this program will be open to all commercial crabbers recognizing that a reduction in overall commercial crabbing effort will improve the sustainability of this resource and dependent fisheries.

Project 2C Budget Estimate: \$500,000 over three years.

3. Rehabilitate Important Habitat for Blue Crabs

Project 3A: Oyster Bar Habitat Rehabilitation Projects – Oyster reefs provide juvenile blue crabs with important structural refuge from predation, and while adult oysters are too large for blue crabs to open and prey upon, crabs feed readily and opportunistically on juvenile oysters. Over the past 25 years, the amount of viable oyster bar habitat in Maryland has declined from 200,000 to 36,000 acres. An increase in oyster bar habitat and dependent oyster populations is expected to increase the food supply for blue crabs and, indirectly, the availability of refuge habitat for juvenile crabs.

Maryland proposes to expand current work programs that employ commercial crabbers at certain times of year to conduct targeted oyster bar habitat rehabilitation projects. A preference to participate in this program will be given to individuals involved in the soft and peeler crab fishery, however, eligibility to participate in this program will be open to all commercial crabbers recognizing that a reduction in overall commercial crabbing effort will improve the sustainability of this resource and dependent fisheries.

Oyster bars targeted for treatment will be bottom mapped and/or surveyed by divers to better understand the bottom condition and determine most effective rehabilitation strategy. Oyster bars covered with up to a few inches of sediment will be bar cleaned. Bar cleaning consists of contracted watermen utilizing dredge gear to retrieve buried oyster shell and replanting this shell back on top of the oyster bar. For oyster bars covered with up to one foot of sediment, DNR applied for a joint permit from the U.S. Army Corps of Engineers and Maryland Department of Environment to reclaim this shell. Under this permit, watermen would be contracted to reclaim this shell using hydraulic clam dredge gear and replant this shell at another location that is less susceptible to sedimentation. Targeted oyster bars will include:

- High salinity regions with high densities of shell deposits and a high probability of receiving a natural spat set.

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- Lower salinity, large sanctuary areas with a high probability for extended survival. These bars would be planted with hatchery seed.
- Managed oyster bars in all salinity regimes. These bars would receive hatchery seed as part of a reserve program to evaluate aquaculture feasibility.
- Aquaculture demonstration areas.

Based upon previous bar cleaning work programs, it is estimated that the cost to rehabilitate one acre of oyster bar habitat is \$2,000 (500 acres / \$1 million). The costs associated with shell reclamation are not known as this is a new program, but estimated to be \$10,000 per acre (100 acres / \$1 million). This higher cost is due to additional effort to reclaim more deeply buried shell and the need to transport reclaimed shell to a more suitable location. We anticipate this effort resulting in the revitalization of a projected 600 acres (over three years) of highly desirable blue crab habitat.

Project 3A Budget Estimate: \$1,526,542 million over three years.

Project 3B: Derelict (Ghost) Pot Removal Program – Crab pots are the primary fishing gear for commercial crabbers in the Chesapeake Bay. A percentage of traps are lost due to severe weather events, severed buoy lines, and from general gear wear and neglect. Crab pots lying derelict on the Bay bottom have generated concerns for many years, chief among which is that they may damage sensitive habitats and “ghost fish” for blue crabs and other species of fish and invertebrates. A program developed to retrieve derelict crab pots would be ideally suited for watermen because they possess intimate knowledge of both the Bay and the crab fishery and they also have ready access to necessary fishing gears.

Maryland proposes to employ commercial crabbers to participate in efforts to retrieve derelict crab pots from targeted areas of Chesapeake Bay. Efforts would be guided by a side-scan sonar data base that indicates areas of the greatest concentration of derelict crab pots – generally at the mouths of tributaries. Technical assistance from the NOAA Chesapeake Bay Program Office and Versar, Inc. will likely be required given their experience in researching this issue. Oversight of these efforts will be done by scientists and the emphasis of the project will be to gather useful data from the retrieved traps in addition to retrieving traps from the Bay in a safe and targeted manner.

Project 3B Budget Estimate: \$799,800 over three years.

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Budget Summary

Project Category	Project Number	Total Budget
1) Restructure the Blue Crab Fishery	1A) License Buy-Backs	\$3,800,000
	1B) Management Supported Data Collection, Research and Stock Assessment	\$690,000
	1C) Enforcement	\$550,000
	1D) Maryland Crabmeat Quality Assurance Program	\$633,658
2) Create Economic and Diversification Opportunities for Blue Crab Fishermen	2A) Oyster Aquaculture Training and Education	\$300,000
	2B) Oyster Aquaculture	\$1,200,000
	2C) Maritime and Heritage Geo-Tourism Training	\$500,000
3) Rehabilitate Important Habitat for Blue Crabs	3A) Oyster Bar Habitat Rehabilitation Projects	\$1,526,542
	3B) Derelict (Ghost) Pot Removal Program	\$799,800
Total		\$10,000,000

Deliverables

The Maryland Department of Natural Resources will provide semi-annual fiscal and performance reports due no later September 30 and March 31st of each year for the duration of this grant.