

Proposal #: 20GAR001-055

Project Title: Sustainable innovations for the channeled whelk fishery: trap modifications and alternative bait

Applicant: University of New Hampshire

Priority Addressed Priority #2 – Science or Technology that Promotes Sustainable U.S. Seafood Production and Harvesting

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Abstract: Channeled whelks (*Busycotypus canaliculatus*) are predatory marine gastropods that support lucrative commercial fisheries along the east coast of the United States; the highest landings occur in the waters around Massachusetts. Similar to the lobster fishery, channeled whelks are caught in baited traps, yet there is no industry trap standard nor requirement of escape vents. In addition, all whelk fishermen rely on horseshoe crabs (*Limulus polyphemus*), an exploited species in jeopardy, as one of several ingredients in their custom bait blends. Some attempts have been made to develop alternative baits to reduce the amount of *Limulus* needed to fish for whelk, but according to the industry, these products are inferior to using *Limulus*. We propose to work with the whelk industry to develop more sustainable and environmentally-friendly products: (1) channeled whelk traps designed to allow the escape of sublegal whelks, and; (2) an effective channeled whelk bait that utilizes less *Limulus* and more low-cost, low-impact ingredients such as invasive green crabs, surf clam processing waste, and *Limulus* hemolymph waste (leftover after processing for *Limulus* Amebocyte Lysate). Both modified traps and alternative baits will be developed in conjunction with industry input and participation throughout the entire process.

Summary of potential commercial benefits to the fishing community of the research results: The end products of this research are a trap design and bait recipe, applicable for the entire regional channeled whelk fishery, and beneficial to both the fishing industry and the fisheries resource. Incorporating escape vents into whelk traps will reduce sublegal whelk catch, possibly other bycatch, increase efficiency at sea by reducing trap sorting time, and negate the damaging fishing impacts of ghost traps. Formulating a cost-effective, alternative whelk bait will be more sustainable by utilizing existing waste streams from other industries and reducing (possibly eliminating) *Limulus* used in whelk bait, thus placing less pressure on overexploited horseshoe crabs.
