Proposal #: 20SER031-026

Project Title: Novel technology for development for an in-situ shellfish red tide toxin biosensor and for the assessment of land-based recirculation depuration as a red tide mitigation strategy

Applicant: Mote Marine Laboratory

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

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Abstract: This study explores new technology that promotes sustainable US seafood production and harvesting and leads to strengthening of existing markets and opportunities in shellfish communities. Red tide blooms in recent years have decimated shellfish fisheries and industry needs technology for in-field assessments of red tide toxins that would correlate with regulatory protocols. Current complex procedures force farmers to leave safe product in the water or hold harvested product for extended periods until their status can be confirmed using time-consuming laboratory methods. This conundrum often results in a lag time where farmers must harvest and hope for a good outcome. A reliable and approved field tester could lower the risk and improve the bottom line of, farmers harvesting during a red tide quarantine, allowing the farmer to make a decision on the spot about whether to harvest the product. This project also has the potential to demonstrate that depuration of red tide toxins from shellfish using land-based recirculating systems is feasible. These protocols could enable farmers and regulatory agencies to begin developing commercially feasible depuration systems. Like the potential for a field tester, an approved depuration system would reduce risk and improve bottom lines for shellfish farmers in areas affected by red tide.

Summary of potential commercial benefits to the fishing community of the research results: Red tide is devastating for shellfish farmers in affected areas who have seen an escalating number of red tide related closures of their farms resulting in millions of dollars of lost revenue and numerous lost jobs, and creating economic uncertainty. Tools such as an in-situ toxin tester and effective toxin depuration protocols could lower the risk and improve the bottom line of the Privileged, Confidential, Commercial, or Financial Information - Limited Use shellfish farming industry. With new technology that responds to the needs of the shellfish farmers in red tide impacted regions, these economically valuable communities have the chance to regain, and exceed, their previous prominence in shellfish production