

Proposal #: 20WCR007-003

Project Title: Creating new products and markets – Development of techniques for the cultivation of monkeyface pricklebacks as a sustainable alternative to unagi

Applicant: San Jose State University Research Foundation

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

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Abstract: Unagi, or freshwater eel is extremely popular in sushi restaurants and Japanese cuisine. However, wild populations have declined dramatically and current farming practices are not sustainable. Monkeyface pricklebacks (*Cebidichthys violaceus*) are eel-like fishes that live in rocky intertidal and shallow subtidal habitats on the U.S. West Coast. This species is a potential alternative to freshwater eels traditionally used for unagi and could provide a highly sustainable product. Monkeyface pricklebacks are herbivorous, consuming over 60 species of algae and marine plants. It is the herbivorous nature that make this species particularly attractive for aquaculture development. The primary goal of our project is to partner with industry (TwoXSea and Monterey Bay Seaweeds) and scientists at NOAA to develop techniques to farm 2 monkeyface pricklebacks, process the product into an alternative to unagi, and begin to develop a new market. We will (1) conduct research on optimal temperatures for reproduction, larval rearing, and growth; (2) conduct controlled feeding studies to measure growth on single and mixed-species seaweed diets and novel seaweed-based pellets produced with our fish feed mill; and (3) create a production manual for culturing monkeyface pricklebacks and other herbivorous species, while testing and promoting the product as a sustainable alternative to unagi.

Summary of potential commercial benefits to the fishing community of the research results: The project has the potential to create jobs through the production, distribution, and marketing of a new seafood product as a sustainable alternative to unagi. One of the hallmarks of the MLML Aquaculture Center since its inception, is that research conducted at our facility is non-proprietary in nature and cannot be used to benefit a single business. Thus, all the information learned through this project will be made available to other entrepreneurs that are interested in farming this or related herbivorous species. We have also included funding to work collaboratively with commercial fishermen to obtain the broodstock for the proposed experiments.
