North Pacific Research Board: Quarterly Progress Report

Project #: R0316

Title: EFH for Blue King Crab *Paralithodes platypus*: Development of larval cultivation techniques

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Project Summary: The ultimate goal of this effort is to understand the relationship between Essential Fish Habitat (EFH) for "overfished" Pribilof Islands blue king crab (BKC) and survival in the first year of life. The first year's goals will be to develop techniques for cultivation of BKC larvae, verify our ability to raise them in the laboratory, and determine the optimum conditions for cultivation. Subsequent years work will focus on settlement behavior and habitat selection, survival of larval and juvenile BKC, and competitive interactions with juvenile red king crab.

Progress Summary: Since July, we have been holding BKC females in captivity in the KFRC laboratory. We currently have 5 gravid females, 2 males, and 3 old-shell females. All crabs are being held at 3-5 C until hatching, which should occur in March or April of 2004. This is the first attempt to maintain king crabs in a recirculating seawater system, and we are still learning how to control and adapt the system to their requirements. One thing we learned was that our O2 levels were way above saturation, and may have been a source of stress to the crabs. A poster about the seawater system will be presented at the upcoming AFS meeting in Fairbanks.

During the recent quarter, we have begun purchasing much of the equipment necessary for cultivation efforts. Chillers, extra tanks, and incubators were purchased, along with pumps and additional parts for the recirculating system, such as a foam-fractionating protein skimmer. One factor that has affected survival of crab larvae in previous studies is lack of an appropriate vessel in which to cultivate the zoea larvae. Larvae need to be suspended in moving water in order to prevent entrapment in "dead-spaces" with decaying food particles. This requires a container in which upwelling or circulating currents can be maintained. To meet this need, co-investigator Sara Persselin has designed specialized flow-thru kreisels for culture of crab larvae, and is in the process of obtaining bids for their construction.

In early October, we received another 17 female BKC from the Bering Sea, thanks to assistance from Skip Gish of the Alaska Dept. of Fish and Game. We are now well supplied with crabs, and will be monitoring their health over the next few months.