

North Pacific Research Board: Semi-annual Progress Report

Project #: R0316

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

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Project Summary: The 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 are 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: We currently have 21 gravid females and 1 male BKC in captivity. All crabs are being held at 2-4 C until hatching, which should occur in March or April of 2004. A poster about the seawater system was presented at the 2003 Alaska Chapter AFS meeting in Fairbanks. On 8 January, embryos from seven females were digitally photographed and measured to assess development; they are now at development stage 12 (Fig. 1). Yolk sacs were still present but almost consumed. Appendages and chromatophores were apparent, and heartbeats were discernible. Mean egg diameter (Fig. 2) was 1.224 mm (± 0.028 sd), and eyespot length was 0.321 mm (± 0.030 sd).

We are now cultivating diatoms (*Thalassiosira nordenskjoeldii*) as one potential food source for crab larvae. When larvae begin hatching, adult female crabs will be placed in isolation chambers overnight, and larvae will be collected the following morning. Three separate experiments will be conducted to determine optimal diet, temperature, and density for cultivation. Each treatment will consist of 6 replicates containing 20 larvae each. Treatments will be conducted in 3” pvc cylinders with mesh bottoms, suspended in a glass beaker (total volume about 600 ml). Four Diets will be tested, including no food (control), *Artemia* supplemented with isochrysis paste, *Artemia* s/w *Thalassiosira*, and *Artemia* s/w isochrysis paste plus live *Thalassiosira*. Three experimental temperatures (3C, 6C, and 9C) will be tested, using diet 2 (*Artemia* s/w iso paste), at a density of 20/ beaker. Three different densities (10, 20, and 40/ beaker) will be tested, using diet 2, at 6C.

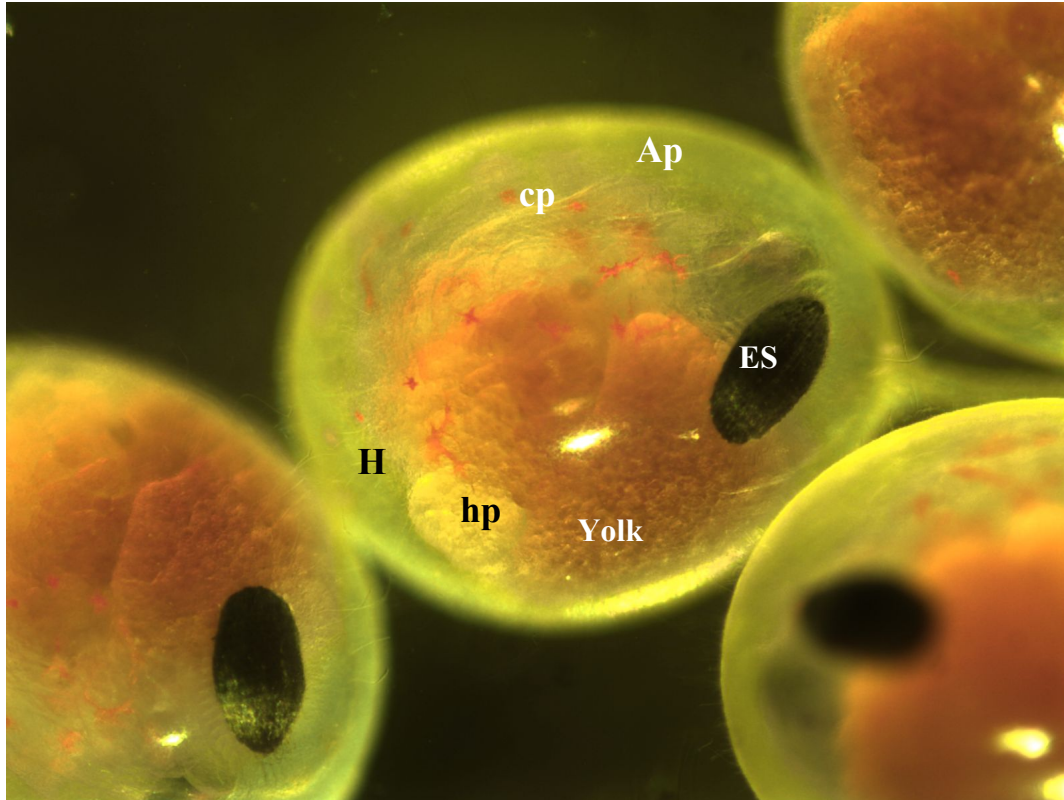


Fig. 1. Blue king crab embryos. Ap, appendages; cp, chromatophores, ES, eyespot; H, heart; hp, hepatopancreas.

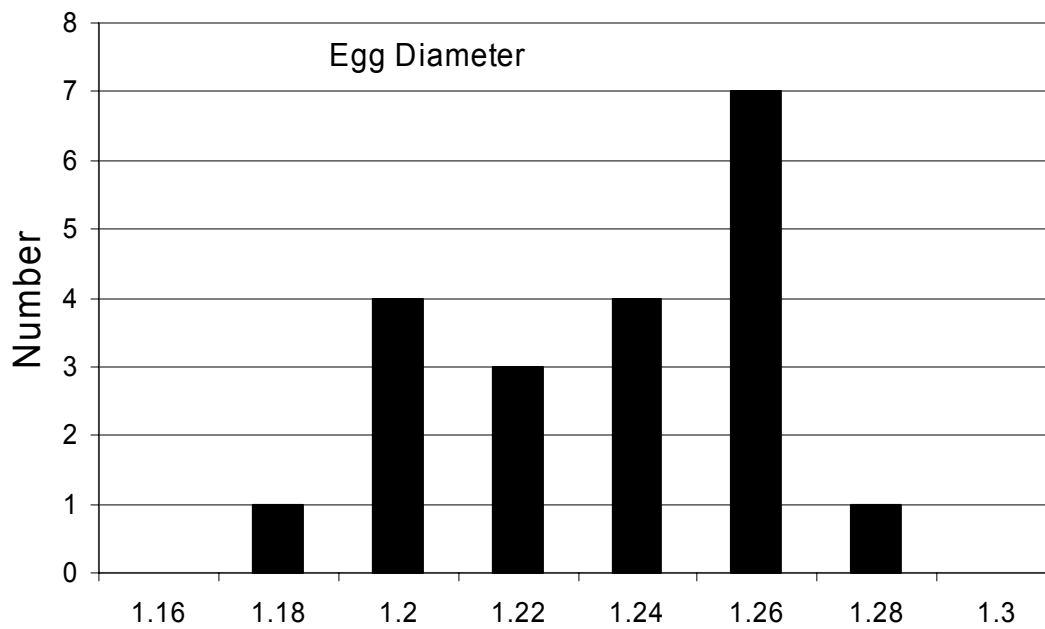


Fig. 2. Egg diameters for seven blue king crab females sampled January 8, 2002.