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ELECTROPHORETIC EVIDENCE OF HYBRID SNOW CRAB, *CHIONOECETES BAIRDI* × *OPILIO*

Karinen and Hoopes (1971) and Hoopes et al. (1972) reported finding snow (Tanner) crabs in the southeastern Bering Sea which possessed morphological characteristics that were atypical for either *Chionoecetes bairdi* or *C. opilio* and, instead, were intermediate. The females of this form appeared to have reduced reproductivity, as many were nongravid at maturity, and those that were gravid possessed abnormally small egg clutches containing large numbers of dead eggs. These conditions were presented as evidence of hybridization. Hybrid-type males constituted 1.0% of all male snow crabs captured, while hybrid-type females made up 0.4% of the females captured.

Karinen (1974) confirmed the above reports and found that hybrids made up 4.6% of the snow crabs collected in the Bering Sea and were most abundant west of lat. 166°W. The carapace width frequency of the hybrids was intermediate between *C. bairdi* and *C. opilio*—providing additional evidence of hybridization.

The purpose of the present study was to determine if electrophoretic differences between the parent species and the hybrid could be detected.

The samples used were collected from the southeastern Bering Sea in July 1974, identified, and frozen by National Marine Fisheries Service (NMFS) personnel. The general proteins of leg

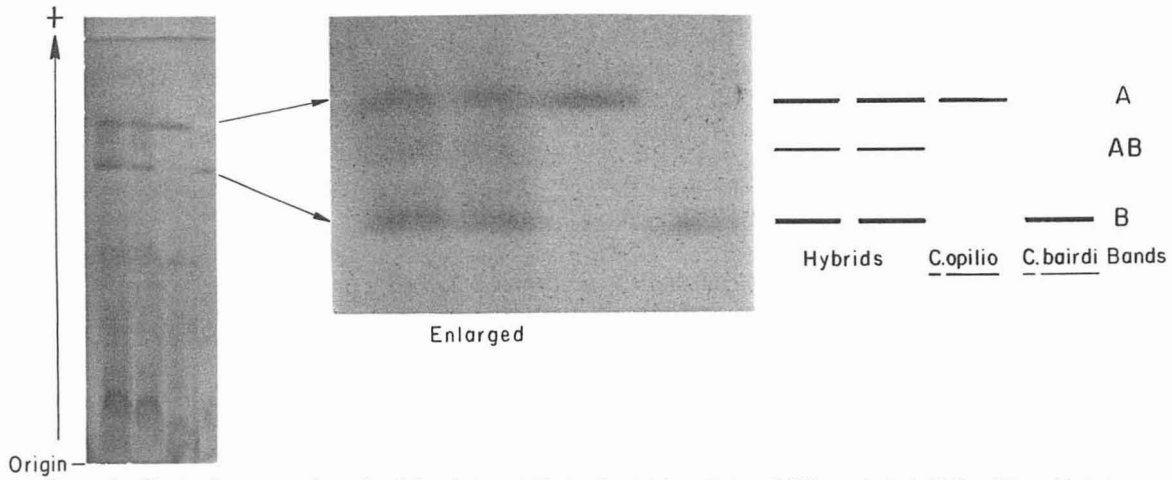

FIGURE 1.—Electropherogram of starch gel showing general muscle protein patterns of *Chionoecetes bairdi*, *C. opilio*, and hybrids.

muscle tissue from 10 *C. bairdi*, 5 hybrids, and 10 *C. opilio* were examined electrophoretically using the methods of Johnson et al. (1972) and the buffer system of Ridgway et al. (1970).

The electrophoretic patterns of general muscle proteins are shown in Figure 1. All *C. opilio* patterns possessed a single band (A), while all *C. bairdi* showed a slower anodally migrating band (B). The five hybrids possessed three bands: A, B, and an intermediate band AB which indicates hybridization between *C. bairdi* and *C. opilio*.

The intermediate band (AB) was less intense than either of the other bands (A or B). A 1:2:1 ratio is expected in random combination of dimeric protein. I thus assume that there is non-random association between the protein units.

Further investigation is needed to determine if the electrophoretic patterns reported here are evident in all possible crosses between the two parent species and that the parental patterns are invariant throughout their ranges.

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EFFECTS OF BENZENE ON GROWTH, FAT CONTENT, AND CALORIC CONTENT OF STRIPED BASS, *MORONE SAXATILIS*

The San Francisco Bay area is a major terminus and refinery area for crude oil, and oil-related activities in the area are expected to increase because of the Alaska pipeline and expanded drilling on the outer continental shelves of California and Alaska. The San Francisco Bay-delta region supports a number of fisheries, including the most important recreational striped bass, *Morone saxatilis*, fishery on the west coast. Information on the toxicity of aromatics in crude oil to striped bass and other fisheries is needed.