

A BILATERAL GYNANDROMORPH OF THE SNOW CRAB,  
*CHIONOECETES OPILIO*, FROM NEWFOUNDLAND, CANADA

BY

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In July of 1982 an unusual specimen of the snow crab, *Chionoecetes opilio* (O. Fabricius, 1788), was caught by a commercial crab fisherman at a position approximately 40 km N.E. of St. John's, Newfoundland, at a depth of 185 m. The animal was of 102 mm carapace width, indicating that it was probably sexually mature (Watson, 1970, found that 50% maturity occurred at 57 and 50 mm for males and females, respectively). Its shell condition was classified as new, being hard with very little epibiotic growth, indicating that it had probably molted recently. Further external examination revealed that this animal is apparently a true bilateral gynandromorph. When viewed dorsally (fig. 1) the right side of the animal is typical of mature males while appendages on the left side are greatly reduced in size in proportion to the carapace width.

Ventrally the body of the animal was differentiated bilaterally into a male and a female side. The right half exhibits a typical male abdomen which is broad at the base but tapers anteriorly to a slightly rounded tip. The left half exhibits the broad rounded configuration typical of a sexually mature female snow crab (fig. 2).

Beneath the abdomen the secondary sexual characteristics are again typical and complete for each sex on their respective sides. On the male half, pleopods are modified so as to effect the transfer of spermatophores into the seminal receptacle while the female half of the animal consists of a seemingly complete seminal receptacle and biramous pleopods used for egg attachment (fig. 3).

Although dissection of the animal in order to determine whether or not spermatophores were present in the vas deferens and whether there were mature ova in the ovary could have been informative, this was not attempted as the specimen had been cooked and frozen upon collection in a misguided attempt at preservation.

Although gynandromorphism, bisexuality, and hermaphroditism are uncommon in decapod crustacea, sexual abnormalities have been described in several species, including *Jasus frontalis* (H. Milne Edwards, 1837) (by Bürger, 1902), *Homarus gammarus* (L., 1758) (by Gordon, 1957), *H. americanus* H. Milne Edwards, 1837 (by Chace & Moore, 1959), *Hyas coarctatus* (L., 1758) (by Hartnoll, 1960), and *C. opilio* (O. Fabr., 1788) (by Ito, 1965). All describe sex-

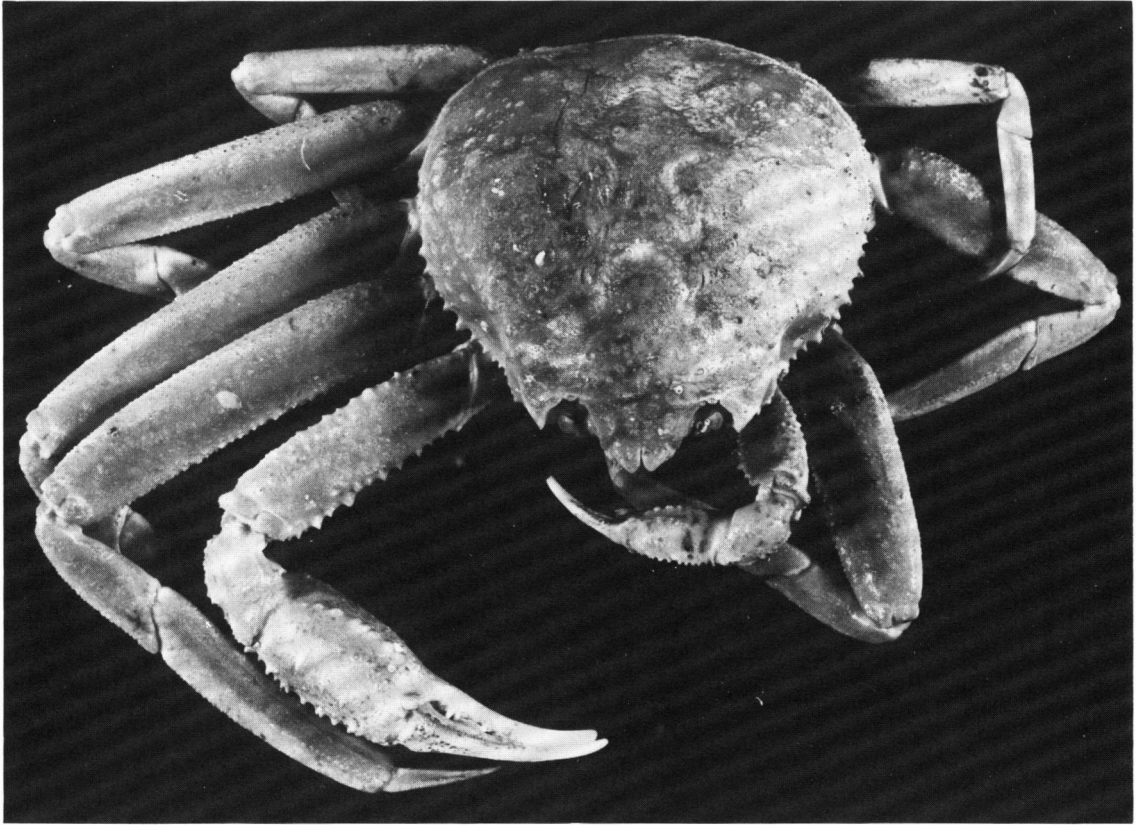


Fig. 1. *Chionoecetes opilio* (O. Fabr.). Dorsal view of the gynandromorph; male to right, female to left.

ual anomalies in decapod Crustacea. However, to the author's knowledge there are very few other examples of true bilateral gynandromorphism in decapods. Farmer (1972) reports one case out of a total of 40,000 specimens of *Nephrops norvegicus* (L., 1758). In the Brachyura, three examples of bilateral gynandromorphism have been described. Otto (1979) and Cargo (1980) each described examples of this phenomenon in the blue crab, *Callinectes sapidus* Rathbun, 1896, while Manning & Holthuis (1981) describe a specimen of *Ebalia tuberculata* Miers, 1881, exhibiting the same anomaly. Although Manning & Holthuis did not examine their specimen internally, Cargo (1980) and Johnson & Otto (1981) performed detailed dissections and gonad histology preparations which indicated that although spermatogenesis had occurred, the ovary was typical of that found in immature females. Johnson & Otto (1981) speculate that this was probably due to the fact that only one androgenic gland was present.



Fig. 2. *Chionoecetes opilio* (O. Fabr.). Ventral view of the gynandromorph; male to left, female to right.

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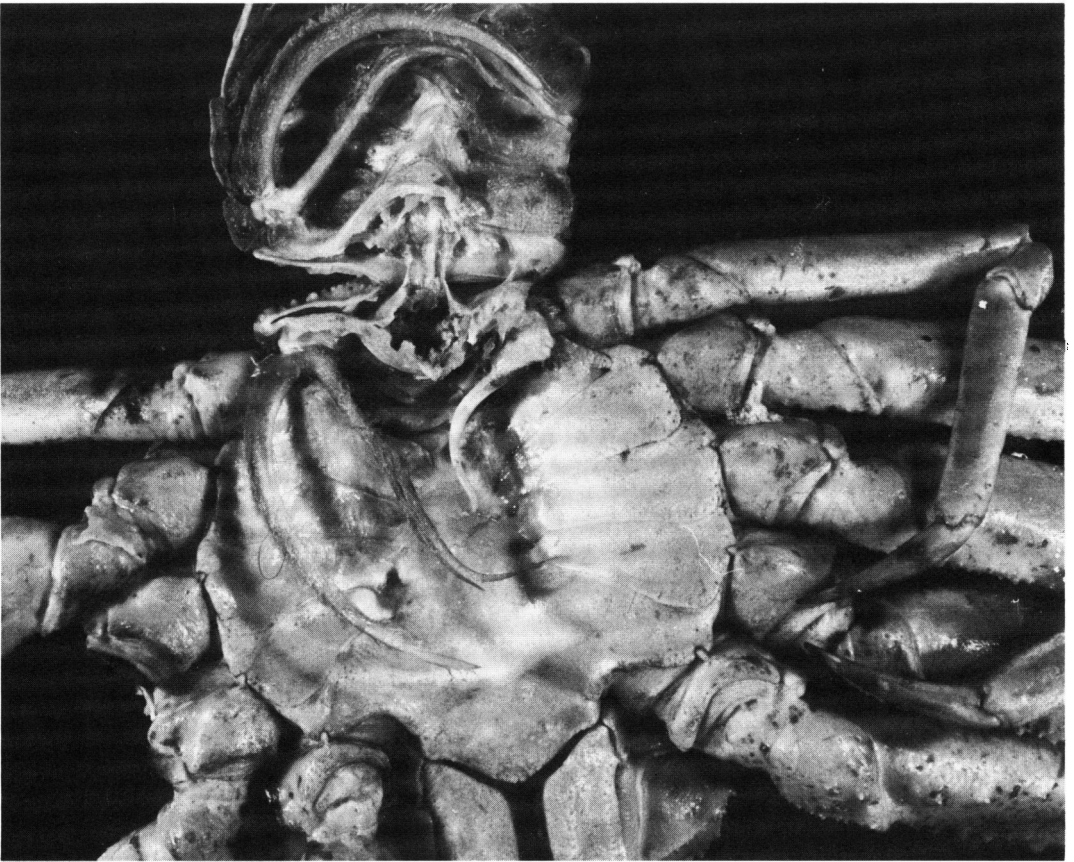


Fig. 3. *Chionoecetes opilio* (O. Fabr.). Ventral view of the gynandromorph with pleopods exposed; male to left, female to right.

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