Bull. Fish. Sci. Hokkaido Univ.
52(1), 51-53, 2001.

# Larval Record of the Genus *Neosebastes* Collected from the Western Australia (Scorpaeniformes : Neosebastidae)

Hisashi IMAMURA[1] and Mamoru YABE[2]

**Abstract**

A larval *Neosebastes* species (8.0 mm SL, catalogued as HUMZ-L 6948), which can not be identified at species level, was described on the basis of a single specimen collected from the western Australia, the eastern Indian Ocean. This species postflexion larval stage can be characterized in having XII, 9 (XIII, 8 in the later transforming larval stage) dorsal, II, 6 (III, 5) anal, 20 pectoral and I, 5 pelvic fin rays ; melanophores scattering on first dorsal, anal and pelvic fins, posterior half of pectoral fin, anterior portion of pelvic girdle and posterior portion of body, and a higher body depth (53.0% of SL). This study represents the first record of the larval *Neosebastes*.

**Key words** : Larvae, Neosebastidae, Eastern Indian Ocean, Western Australia, *Neosebastes*

The scorpaenoid family Neosebastidae includes two valid genera, *Neosebastes* Guichenot, 1867 and *Maxillicosta* Whitley, 1935 (Ishida, 1994 ; Eschmeyer, 1998). Although *Neosebastes* contains seven species and *Maxillicosta* five species (Eschmeyer and Poss, 1976 ; Poss, 1993), their larval information have not been reported. Larval samples collected from midwaters along the western Australia, the eastern Indian Ocean by the bongo net survey of "Sho-yo Maru" under the auspices of Far Seas Fisheries Research Laboratory were examined, and we found a single specimen of *Neosebastes* among them. The larval stage of *Neosebastes* is described and illustrated in detail based on the specimen. The specimen was fixed and preserved in 5% formalin and deposited in HUMZ-L (larval collection of Laboratory of Marine Biodiversity (Ichthyology), Graduate School of Fisheries Sciences, Hokkaido University). Developmental terminology follows Richardson and Laroche (1979). Counts and measurements were made according to Hubbs and Lagler (1958) except for the body depth which was measured as vertical distance from dorsal and ventral body margin at origin of uppermost pectoral fin ray. Names of spines on the head follow Moser and Ahlstrom (1978).

## *Neosebastes* sp.

(Fig. 1)

### *Material examined*

HUMZ-L 6948, 1 postflexion larva, 8.0 mm SL, western Australia, eastern Indian Ocean (27°28.0′S, 112° 53.0′E), midwater (depth not given), 31 Dec. 1988.

### *Diagnosis of larval stage*

Postflexion larval stage, a species of *Neosebastes* characterized by having XII, 9 dorsal fin rays, II, 6 anal fin rays, 20 pectoral fin rays, I, 5 pelvic fin rays, first dorsal, anal and pelvic fins, posterior half of pectoral fin, base of pectoral girdle anteriorly and posterior portion of body with melanophores, and a higher body (53.0% of SL).

### *Description*

Counts : dorsal fin rays XII, 9, anal fin rays II, 6, pectoral fin rays 20, pelvic fin rays I, 5. Measurements (% of SL) : head length 48.9, body depth 53.0, eye diameter 11.0, snout length 13.8, upper jaw length 23.5, caudal peduncle depth 15.0, pectoral fin length 27.0, pelvic fin length 22.8.

Head and body compressed. Snout longer than eye diameter. Exposed bony surface of head with following spines : one strong postocular spine with serration, one long parietal spine with serration, one small nuchal spine, one pterotic spine with serration, one sharp nasal spine, lower with serration and upper posttemporal spines, one supracleithral spine and one cleithral spine. A small spine present on sphenotic. Second to fourth anterior preopercular spines and first to fifth posterior preopercular spines present. Edges of second to fourth posterior preopercular spines with serration. First and

[1] *The Hokkaido University Museum*
(北海道大学総合博物館)
[2] *Laboratory of Marine Biodiversity, Graduate School of Fisheries Sciences, Hokkaido University, 3-1-1 Minato-cho, Hakodate, Hokkaido 041-8611, Japan*
(北海道大学大学院水産科学研究科多様性生物学講座)

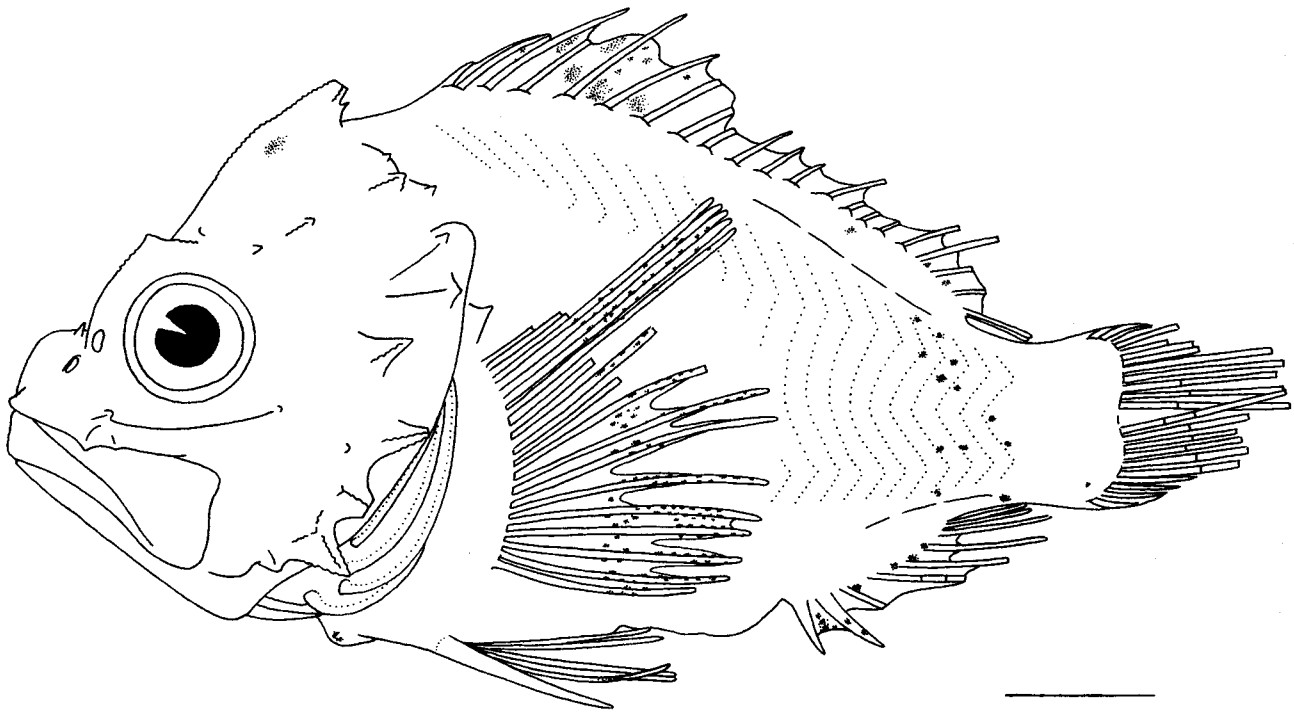

Fig. 1. Lateral view of postflexion larva of *Neosebastes* sp., HUMZ-L6948, 8.0 mm SL. Scale indicates 1.0 mm.

second lower and first and fourth upper infraorbital spines present. Opercle with upper and lower opercular spines. Mandible without longitudinal ridges. No body scales. Two nostrils without flaps present in front of eye. All fin rays not branched ; last dorsal and anal fin ray double. Pectoral fin rounded posteriorly. Melanophores present on top of head, first dorsal, anal and pelvic fin fins, posterior half of pectoral fin, anterior portion of pelvic girdle and posterior portion of body.

***Remarks***

Scorpaenoids having a combination of XII, 9 dorsal, II, 6 anal, 20 pectoral and I, 5 pelvic fin rays are not found at least around Australia (Gloerfelt-Tarp and Kailola, 1984 ; Sainsbury et al., 1985 ; Paxton et al., 1989 ; Randall et al., 1990 ; Kuiter, 1993). On the other hand, it has been known that the scorpaenoids with three anal spines usually have two anal spines in the postflexion larval stage, and the anteriormost soft ray of anal and dorsal fins change to the spiny ray during the transforming larval stage (e.g., Richardson and Laroche, 1979 ; Kojima, 1988 ; Nagasawa et al., 2000). Therefore, fin-ray counts described above are reasonable to consider XIII, 8 dorsal and III, 5 anal fin rays after the transformation. It fits the neosebastid *Neosebastes* (XII-XIII [usually XIII], 7-8 dorsal, III, 5 anal, 20-21 pectoral and I, 5 pelvic fin rays). Another neosebastid genus *Maxillicosta* also bears XIII dorsal spines. However, present specimen differs from three species of the genus (*M. lopholepis* Eschmeyer & Poss, 1976, *M. scabriceps* Whitley, 1935 and *M. whitleyi* Eschmeyer & Poss, 1976), distributed in the Australian water, in having 20 pectoral fin rays (vs. more than 20 in these *Maxillicosta* species) (Eschmeyer and Poss, 1976 ; Poss, 1994). Although the scorpaenid genus *Scorpaenodes* Bleeker, 1857 is also characterized by having XIII dorsal spines, the number of pectoral fin rays is less than 20 in the nine species known from Australia. Thus, we regard that present specimen is in the postflexion larval stage and belonging to a species of *Neosebastes*.

Seven species of *Neosebastes* are recognized from Australia : *N. entaxis* Jordan & Starks, 1904, *N. bougranvillii* Cuvier, 1829, *N. incispinnis* Ogilby, 1910, *N. nigropunctatus* McCulloch, 1915, *N. pandus* (Richardson, 1842), *N. scorpaenodes* Guichenot, 1867 and *N. thetidis* (Waite, 1899) (Paxton et al., 1989 ; Kuiter, 1993 ; Poss, 1994). Although four species of the genus (*N. entaxis*, *N. bougranvillii*, *N. pandus* and *N. thetidis*) have been reported from the western Australia (Paxton et al., 1989), there are no significant differences among their fin ray counts, and their larval information is not provided previously. Therefore, we could not identify the specimen at the species level in this study.

**Acknowledgments**

We express our sincere thanks to K. Nakaya (HUMZ) for providing critical support at various stages through-

out the study. We grateful to F. J. Schwartz (University of North Carolina) for reviewing the manuscript critically. We are deeply indebted to H. Nakano (Far Seas Fisheries Research Laboratory, Shimizu) and the crew of "Sho-yo Maru" for the supplying the material.

## References

Eschmeyer, W.N. (1998). Part IV. Genera in a classification. p. 2449-2499, Eschmeyer, W.N. (ed.). *Catalog of fishes. Vol. 3*. California Academy of Sciences, California.

Eschmeyer, W.N. and Poss, S.G. (1976). Review of the scorpionfish genus *Maxillicosta* (Pisces : Scorpaenidae), with a description of three new species from the Australian-New Zealand region. *Bull. Mar. Sci.,* **26**, 433-449.

Gloerfelt-Tarp, T. and Kailola, P.J. (1984). *Trawled fishes of southern Indonesia and northern Australia.* The Australian Development Assistance Bureau, the Directorate-General of fisheries, Indonesia and the German Agency for Technical Cooperation, Jakarta. 406 p.

Hubbs, C.L. and Lagler, K.F. (1958). Fishes of the Great Lakes region. *Bull. Cranbrook Inst. Sci.,* **26** : 1-213.

Ishida, M. (1994). Phylogeny of the suborder Scorpaenoidei (Pisces : Scorpaeniformes). *Bull. Nansei Nat. Fish. Res. Inst.,* **27**, 1-112.

Kojima, J. (1988). Scorpaenidae. p. 777-810, Okiyama, M. (ed.). *An atlas of the early stages fishes in Japan.* Tokai Univ. Press., Tokyo (in Japanese).

Kuiter, R.H. (1993). *Coastal fishes of south-eastern Australia.* Crawford House Press, Bathurst, Australia. xxxi+437 p.

Moser, H.G. and Ahlstrom, E.H. (1978). Larvae and pelagic juveniles of blackgill rockfish, *Sebastes melanostomus*, taken in midwater trawls off southern California. *J. Fish. Res. Board Can.,* **35**, 981-996.

Nagasawa, T., Yamashita, Y. and Yamada, H. (2000). Early life history of mebaru, *Sebastes inermus* (Scorpaenidae) in Sendai Bay, Japan. *Ichthyol. Res.,* **47**, 231-241.

Paxton, J.R., Hoese, D.F., Allen, G.R. and Hanley, J.E. (1989). *Zoological Catalogue of Australia. Vol. 7. Pisces. Petromyzonidae to Carangidae.* Australian Government Publishing Service, Canberra. 664 p.

Poss, S.G. (1993). Family Scorpaenidae. p. 477-494, Gomon, M.F., J. Glover, C.M. and Kuiter, R.H. (eds.). *The fishes of Australia's South Coast.* State Print, Adelaide, Australia.

Randall, J.E., Allen, G.R. and Steene, R.C. (1990). *Fishes of the Great Barrier Reef and Coral Sea.* Crawford House Press, Bathurst. 507 p.

Richardson, A.L. and Laroche, W.A. (1979). Development and occurrence of larvae and juveniles of the rockfishes *Sebastes crameri*, *Sebastes pinniger*, and *Sebastes helvomaculatus* (Family Scorpaenidae) off Oregon. *Fish. Bull.,* **77**, 1-41.

Sainsbury, K.J., Kailola, P.J. and Leyland, G.G. (1985). *Continental shelf fishes of Northern and North-Western Australia.* Clouston and Hall and Peter Pownall Fisheries Information Service, Canberra, viii+375 p.