Diagnosis and description: Body relatively short; head and body compressed; **skin thick; scales absent from head and absent or scattered on body**; anterior profile of head blunt; **anterior nostril non-tubular and placed high on snout**; **maxilla narrow posteriorly**; jaw teeth needle-like; palatine teeth present; tongue massive, no anterior prow-like extension; **gill rakers on first arch reduced to a few small fleshy flaps and protuberances; prominent pseudobranch present**; 2 lateral-line series on body; branchiostegal rays 7; prominent pores on head; ossification weak; a broad fleshy hood over the genital area in females (no information for males); **pelvic fins with 2 rays in each, the fins diverging from each other and covered with thick fleshy skin** (Fig. 92); pectoral fin short, fan-shaped, with 19 to 29 rays; anal fin originating on anterior half of body; caudal-fin rays 10; precaudal vertebrae 12, with pointed neural spines.

Revisions: Lee (1974).

Geographical distribution: Eastern Atlantic from 60°N to 5°S; western Atlantic off Georges Bank; eastern South Pacific off northern Chile.

Habitat and biology: Mesopelagic; in the Atlantic at least, it apparently lives in close association with the large scyphomedusan jellyfish ***Stygiomedusa* sp.** (Harbison et al, 1973).

Interest to fisheries: None.

Size: At least 260 mm.

Key to species

1a. Pectoral-fin rays 22 to 27; eye diameter in head length 3.1 to 4.0 . . . . . ***T. pelagica***

1b. Pectoral-fin rays 19 to 20; eye diameter in head length 2.8 to 3.0 . . . . . ***T. nelsoni***

List of species

Thalassobathia nelsoni Lee, 1974. Caught at 0 to 1 000 m in an open midwater trawl off the coast of northern Chile. Rare.

T. pelagica Cohen, 1963. Mesopelagic; in the eastern Atlantic from 60°N to the Gulf of Guinea; in the western Atlantic off Georges Bank. Balanov and Fedorov (1996) reported a 157 mm specimen from the Bering Sea; the specific identification is uncertain. Uncommon.

Remarks: ***Thalassobathia*** is the only known bythitid with 2 pelvic-fin rays in each fin (although there are many records in the literature for other bythitids with 2 pelvic rays, all of those that we have been able to check have only 1, with each of the ray halves counted as a ray; see Fig. 9). Its weak ossification and other adaptations to a pelagic life are also unique in the family, as are its apparent association with a jellyfish.

2.6.2 Subfamily Brosmophycinae

Subfamily name: Brosmophycinae Gill (1862).

Number of recognized genera: 19.

Diagnosis and description: Squamation on body and head variable, present and imbricate or non-imbricate or absent in a few; **caudal fin free in most** but sometimes partly joined to dorsal and anal fins or strongly exserted (***Dermatopsis, Dipulus*** and ***Lucifuga***).

Key to tribes

1a. Male intromittent organ without ossified parts . . . . . **Brosmophycini**

1b. Male intromittent organ with 1 or more pairs of ossified pseudoclaspers . **Dinematichthyini**

Remarks: Two genera, ***Beaglichthys*** and ***Melodichthys*** are known from female specimens only; hence a tribal assignment is impossible. Consequently 2 keys to the Brosmophycinae are presented. In the first, to males, each of the 2 genera is entered twice: once under Brosmophycini and once under Dermatichthyini. In a second key, which makes no assignment to tribe, each genus is entered only once.

Key to genera of Brosmophycinae including referral to tribe. Based on males

1a. Male intromittent organ without ossified pseudoclaspers . . . . . **(tribe Brosmophycini) 13**

1b. Male intromittent organ with ossified pseudoclaspers . . . . . **(tribe Dinematichthyini) 2**

2a. Developed gill rakers on anterior arch 11 to 15 . . . . . ***Melodichthys***

2b. Developed gill rakers on anterior arch 0 to 7 . . . . . → ***3***

3a. Gill membranes free from each other and from isthmus; branchiostegal rays 8 . . . . . → ***7***

3b. Gill membranes joined to each other and to isthmus anteriorly; branchiostegal rays fewer than 8 . . . . . → ***4***

4a. Opercle lacking spine . . . . . ***Dermatopsoides***

4b. Opercle with sharp-pointed spine, sometimes skin-covered . . . . . → ***5***

5a. Pelvic fins long, reaching anus . . . . . ***Diancistrus***

5b. Pelvic fins short, not reaching anus . . . . . → ***6***

6a. Branchiostegal rays 6; scales absent from body . . . . . ***Dipulus***

6b. Branchiostegal rays 7; non-imbricate scales present on body, sometimes imbedded . . . . . ***Dermatopsis***

7a. Anterior nostril rather high above upper lip (Fig. 111), about midway between lip and posterior nostril . . . . . ***Dinematichthys***

7b. Anterior nostril closer to upper lip . . . . . → ***8***

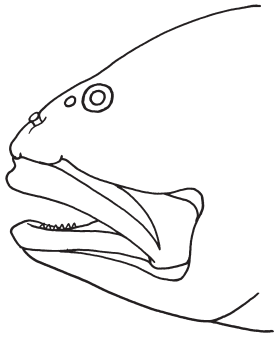

Fig. 111 ***Dinematichthys*** (from Cohen and Nielsen, 1978)

8a. Eye diameter greater than snout length . . . . . ***Beaglichthys***

8b. Eye diameter less than snout length . . . . . → ***9***

9a. Branchiostegal rays 8; scales on body barely imbricate . . . . . ***Gunterichthys***
9b. Branchiostegal rays fewer than 8 (rarely 8 on one side); scales imbricate . . . . . → ***10***

10a. Male intromittent organ with 1 pair of pseudoclaspers . . . . . → ***11***
10b. Male intromittent organ with 2 or more pairs of pseudoclaspers . . . . . → ***12***

11a. Head deep, greatest height about equal to length; teeth large, some fang-like . ***Fiordichthys***
11b. Head long and slender; teeth needle-like . . . . . ***Monothrix***

12a. Largest pseudoclasper a compressed lobe . . . . . ***Ogilbia***
12b. Largest pseudoclasper a rather rounded prong . . . . . ***Brotulina***

13a. Developed gill rakers on anterior arch 0 to 7 . . . . . → ***16***
13b. Developed gill rakers on anterior arch 11 to 18 . . . . . → ***14***

14a. Dorsal-fin origin far forward on head, anterior fin rays free . . . . . ***Brosmodorsalis***
14b. Dorsal-fin origin above posterior margin of opercle or farther back, no fin rays free . . . → ***15***

15a. Eye diameter about equal to or greater than snout . . . . . ***Melodichthys***
15b. Eye diameter less than snout . . . . . ***Bidenichthys***

16a. Eye diameter greater than snout . . . . . → ***17***
16b. Eye diameter less than snout . . . . . → ***18***

17a. Branchiostegal rays 7: head naked; anal-fin rays 54 to 62 . . . . . ***Brosmophyciops***
17b. Branchiostegal rays 8; head with patch of scales behind eye; anal-fin rays 83 . ***Beaglichthys***

18a Anal-fin origin well in advance of midpoint of body . . . . . ***Brosmolus***
18b. Anal-fin origin close to midpoint of fish or farther posteriorly . . . . . → ***19***

19a. Branchiostegal rays 6; precaudal vertebrae 10 . . . . . ***Parabrosmolus***
19b. Branchiostegal rays 7; precaudal vertebrae 11 to 17 . . . . . → ***20***

20a Caudal-fin rays 16; precaudal vertebrae 16 or 17 . . . . . ***Brosmophycis***
20b. Caudal-fin rays 8 to 11; precaudal vertebrae 11 to 16 . . . . . ***Lucifuga***

Key to genera of Brosmophycinae without referral to tribe. Based on males and females

1a. Anterior dorsal-fin rays free, origin of dorsal fin above opercle . . . . . ***Brosmodorsalis***
1b. Anterior dorsal-fin rays not free, origin of dorsal fin posterior to opercle . . . . . → ***2***

2a. Maximum body depth 25 to 30% standard length . . . . . ***Fiordichthys***
2b. Maximum body depth less than 25% standard length . . . . . → ***3***

3a. Preanal length 60 to 65% standard length . . . . . → ***4***
3b. Preanal length less than 60% standard length . . . . . → ***5***

4a. Eye diameter shorter than length of snout . . . . . ***Bidenichthys***
4b. Eye diameter longer or equal to length of snout . . . . . ***Melodichthys***

5a. Opercular spine absent or weak . . . . . → ***6***
5b. Opercular spine strong and usually distinct . . . . . → ***8***

6a. Opercular spine absent . . . . . ***Dermatopsoides***
6b. Opercular spine weak and usually hidden . . . . . → ***7***

7a. All or part of head canals inflated . . . . . ***Lucifuga***
7b. None of head canals inflated . . . . . ***Gunterichthys***

8a. Anterior nostril placed midway between posterior nostril and upper lip . . . ***Dinematichthys***
8b. Anterior nostril placed closer to upper lip . . . . . → ***9***

9a. Eye diameter longer than length of snout . . . . . → ***10***
9b. Eye diameter shorter than length of snout . . . . . → ***11***

10a. Head naked . . . . . ***Brosmophyciops***
10b. Patches of scales behind eye . . . . . ***Beaglichthys***

11a. Head and body naked; body depth at origin of anal fin 6 to 9% standard length . . ***Dipulus***
11b. Head naked or not, body scaled; body depth at origin of anal fin 9 to 22% standard length . . . . . → ***12***

12a. Head naked . . . . . → ***13***
12b. Head with scales . . . . . → ***14***

13a. Maxilla greatly expanded vertically at posterior end; body scales imbricate . . . ***Monothrix***
13b. Maxilla not greatly expanded vertically at posterior end; body scales non-imbricate . . . . . ***Dermatopsis***

14a. Preanal length 40 to 45% standard length . . . . . → ***15***
14b. Preanal length 50 to 55% standard length . . . . . → ***16***

15a. Body depth at origin of dorsal fin 13.5% standard length . . . . . ***Brosmolus***
15b. Body depth at origin of dorsal fin 21.5% standard length . . . . . ***Parabrosmolus***

16a. Pelvic fins reaching anus . . . . . ***Diancistrus***
16b. Pelvic fins not reaching anus . . . . . → ***17***

17a. Fin bases covered with thick skin, fin rays obscured; skin over head, especially anteriorly, thick . . . . . ***Brosmophycis***
17b. Fin bases and head covered with thin skin . . . . . ***Brotulina/Ogilbia***

List of nominal genera

Tribe BROSMOPHYCINI

?Beaglichthys Machida, 1993b
Bidenichthys Barnard, 1934
Brosmodorsalis Paulin and Roberts, 1989
Brosmolus Machida, 1993b
Brosmophyciops Schultz, 1960
Brosmophycis Gill, 1861b
Lucifuga Poey, 1858
?Melodichthys Nielsen and Cohen, 1986
Parabrosmolus Machida, 1996
Stygicola Gill, 1863a (junior synonym of ***Lucifuga***)

Tribe DINEMATICHTHYINI

?Beaglichthys Machida, 1993b
Brotulina Fowler, 1946
Caecogilbia Poll and Leleup, 1965 (junior synonym of ***Ogilbia***)
Calcarbrotula Fowler, 1946 (junior synonym of ***Brotulina***)
Dermatopsis Ogilby, 1896
Dermatopsoides Smith, 1947
Diancistrus Ogilby, 1898
Dinematichthys Bleeker, 1855
Dipulus Waite, 1905
Fiordichthys Paulin, 1995
Gunterichthys Dawson, 1966
Halias Ayres, 1860 (junior synonym of ***Brosmophycis***)
?Melodichthys Nielsen and Cohen, 1986
Monothrix Ogilby, 1897
Ogilbia Jordan and Evermann, 1898
Typhlias Hubbs, 1938 (preoccupied)
Typhliasina Whitley, 1951 (replacement name for ***Typhlias*** - unior synonym of ***Ogilbia***)