2.2 GEMPLYDAE GEMP

2.2.1 Diagnostic Features of the Family Gempylidae

Synonyms: Acinaceidae, Lemnisomidae, Ruvettidae

FAO Names: En - Snake mackerels, Snoeks, Gemfishes, Sackfishes, Escolars, Oilfish, Domine; **Fr** - Escoliers, Rouvet; **Sp** - Escolars, Sierras, Dómine.

Field Characters: Strong teeth in jaws, those at front of upper jaw often fang-like. Two dorsal fins, base of the second (excluding finlets) shorter than the first. Pelvic fins usually small, often reduced to a single spine with only a few or no soft rays, or entirely absent in adults.

Diagnostic Features: Body elongate, compressed or semifusiform. Two nostrils on each side of snout; mouth large, not protractile; strong teeth, those at front of upper jaw often fang-like and sometimes also a pair of fangs at front of lower jaw. Two dorsal fins, followed by finlets in some species, second dorsal-fin base (excluding finlets) shorter than first dorsal-fin base; anal fin similar to second dorsal fin, with I to II free or comprised spines, in some species separate finlets present behind anal fin; pectoral-fin length shorter than head; pelvic fins small, rudimentary or absent in adults of some species; caudal fin forked, the rays attached only to distal edge of hypurals, except in ***Tongaichthys*** whose caudal-fin rays cover hypurals deeply but not completely. Lateral line single (sometimes further finely branched) or double. No caudal keels on caudal peduncle, except in ***Lepidocybium.***Scales small to minute, or variously modified in ***Lepidocybium*** and ***Ruvettus,*** or absent. Vertebrae generally total about 35, but more than 48 in ***Gempylus, Diplospinus*** and ***Paradiplospinus.***

Biology, Habitat and Distribution: Large, swift predators found in all oceans, usually in depths of 200 to 500 m, but some species migrate to the surface at night. Most species attain more than 1 m total length. There are 16 genera and 23 species known so far.

Interest to Fisheries: There appears to be no special fishery, except for ***Thyrsites atun,*** which is caught by hook-and-line and trawl in various waters of the Southern Hemisphere, and ***Rexea solandri,*** which is caught in trawls and by trolling off southeastern Australia and New Zealand. Some species are frequently taken as bycatch in the tuna longline fishery. The flesh is edible and tasty in ***Thyrsites*** and ***Rexea*** but oily with purgative properties in ***Lepidocybium*** and ***Ruvettus.***

2.2.2 Key to the Genera of Gempylidae:

1a. Dorsal-fin elements more than 60; distance from anus to anal-fin origin nearly equal to or greater than snout length (Fig. 30) ..... → ***2***

1b. Dorsal-fin elements less than 56; distance from anus to anal-fin origin about equal to eye diameter (Fig. 31)..... → ***3***

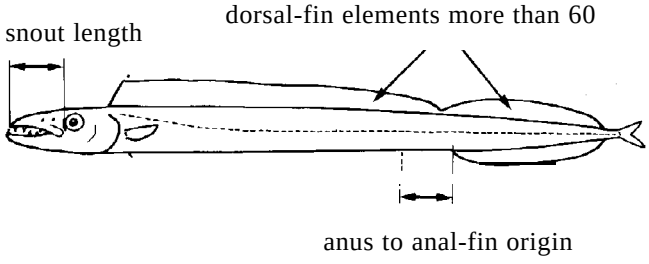

Fig. 30

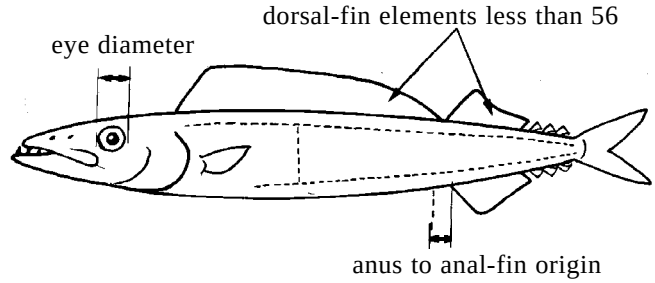

Fig. 31

2a. Anus situated midway between tip of snout and tip of caudal fin, in front of first anal-fin spine by distance equal to head length and much longer than snout length (Fig. 32); anterior part of anal fin with almost no fin membrane (Fig. 32)..... ***Diplospinus***

2b. Anus situated nearer tip of caudal fin than to tip of snout, in front of first anal-fin spine by distance much shorter than head length and nearly equal to snout length (Fig. 33); anterior part of anal fin with fin membrane (Fig. 33) ..... ***Paradiplospinus***

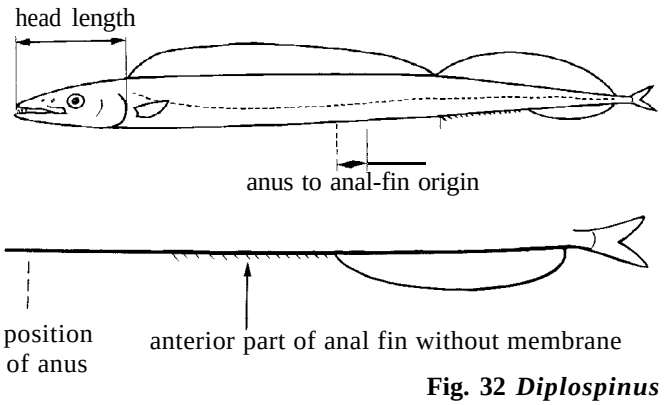

Fig. 32 ***Diplospinus***

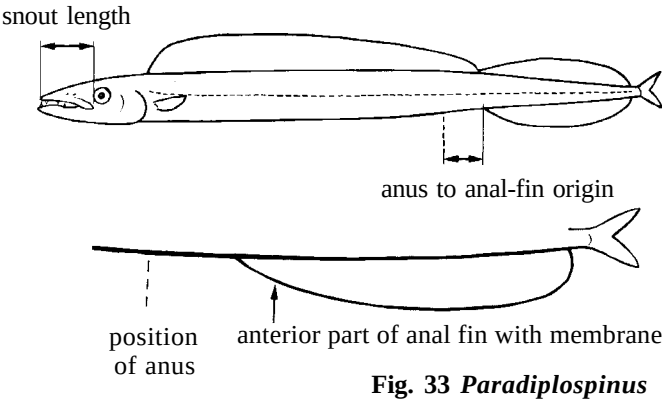

Fig. 33 ***Paradiplospinus***

3a. Caudal peduncle with a prominent keel and 2 small supplemental keels above and below (Fig. 34); dorsal-fin spines VIII or IX; lateral line single, extremely sinuous (Fig. 34)... ***Lepidocybium***

3b. Caudal peduncle without keels; dorsal-fin spines more than XII; lateral line single, or bifurcated, but not sinuous (Fig. 35) ..... → ***4***

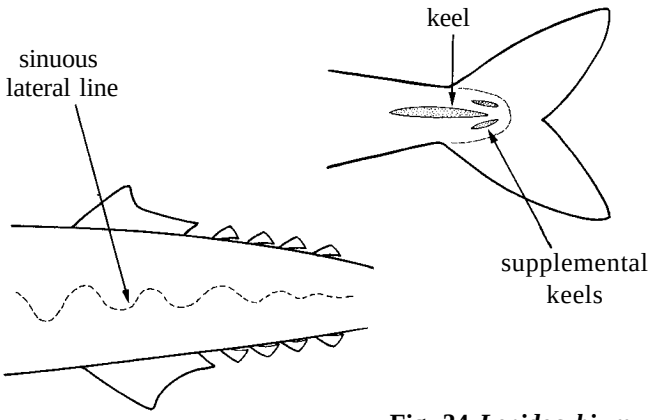

Fig. 34 ***Lepidocybium***

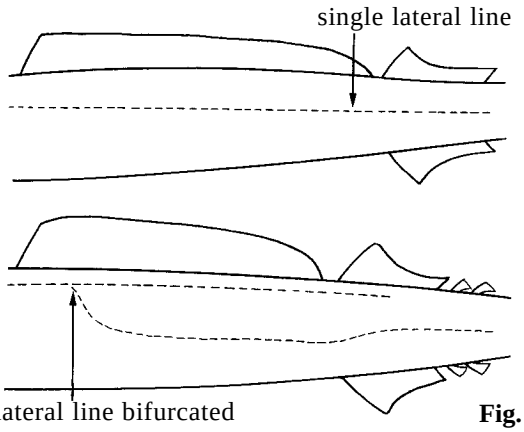

Fig. 35

4a. Skin very rough; scales medium-sized, interspersed with spinous bony tubercles (Fig. 36); mid-ventral (abdominal) keel on belly (Fig. 37); lateral line single, obscure ..... ***Ruvettus***

4b. Skin rather smooth, scales small, not interspersed with spinous bony tubercles; no mid-ventral (abdominal) keel on belly; lateral line single or double, always obvious ..... → ***5***

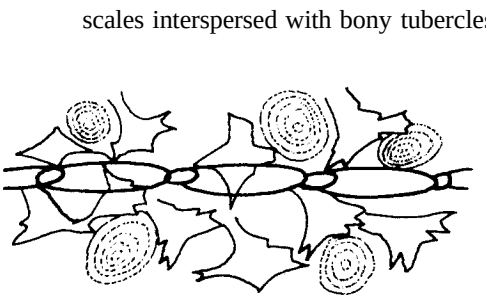

Fig. 36 Skin close up of ***Ruvettus***

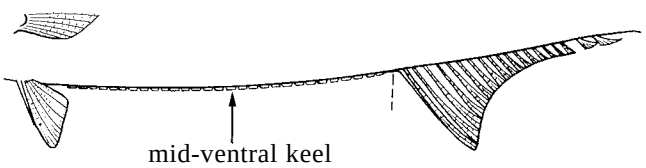

Fig. 37 Ventral part of ***Ruvettus***

5a. Pelvic fins rudimentary (with I spine and 0 to 4 rays) or absent ..... → ***6***

5b. Pelvic fins well developed (with I spine and 5 rays) ..... → ***10***

6a. Lateral line single ..... → ***7***

6b. Lateral line double ..... → ***8***

7a. Two free anal-fin spines behind anus, first of them large, dagger-shaped (Fig. 38); lateral line fairly strait (Fig. 38); dorsal-fin spines XX or XXI ***Nealotus***

7b. No free anal-fin spines behind anus; lateral line curved abruptly downward anteriorly (Fig. 39); dorsal-fin spines XVII or XVIII ***Promethichthys***

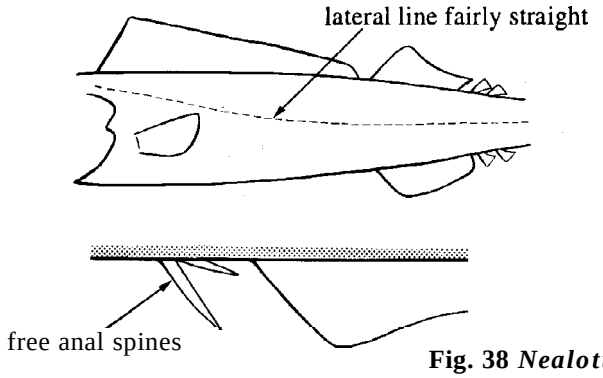

Fig. 38 ***Nealotus***

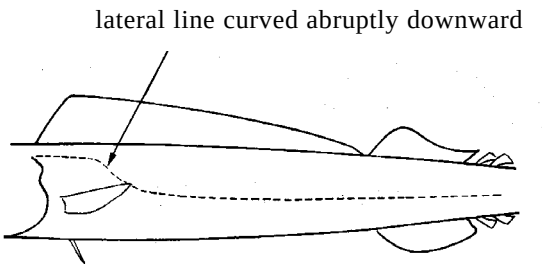

Fig. 39 ***Promethichthys***

8a. Body depth 14.5 to 19 times in standard length; head length 5.5 to 6 times in standard length; dorsal-fin spines XXVI to XXXII; dorsal and anal finlets 5 to 7; both lateral lines originating at one point at upper edge of opercle (Fig. 40) ..... ***Gempylus***

8b. Body depth 5 to 8 times in standard length; head length 2.7 to 3.9 times in standard. length; dorsal-fin spines XVII to XIX; dorsal and anal finlets 2 or 3; lower lateral line branching off below third to seventh dorsal-fin spines (Fig. 41) ..... → ***9***

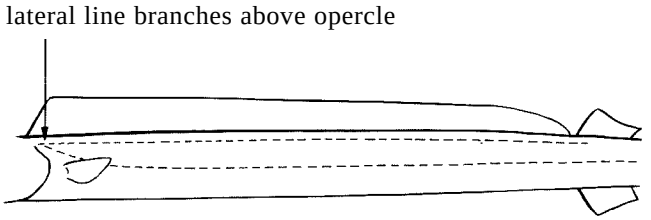

Fig. 40 ***Gempylus***

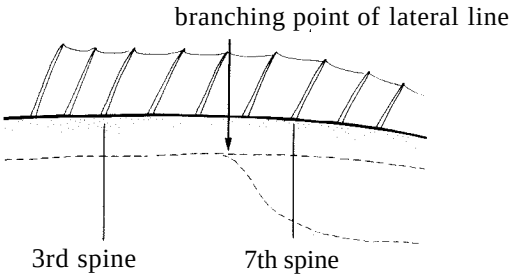

Fig. 41

9a. Lower lateral line very low, running along lower edge of body, anterior branch extends in front of oblique connecting lateral line (Fig. 42)..... ***Rexichthys***

9b. Lower lateral line not low, running nearly midbody, without anterior branch (Fig. 43) .... ***Rexea***

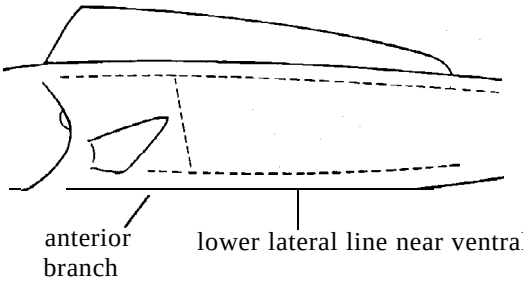

Fig. 42 ***Rexichthys***

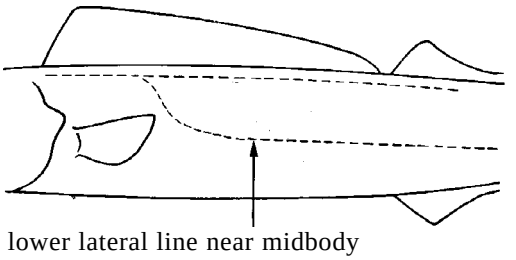

Fig. 43 ***Rexea***

10a. Lateral line double.....→ *11*

10b. Lateral line single .....→ *13*

11a. Dorsal-fin spines XVII to XIX; dermal processes on jaws (Fig. 44); lower lateral line running on midbody (Fig. 44)..... ***Thyrsitoides***

11b. Dorsal-fin spines less than XVI; no dermal processes on jaws; lower lateral line running near ventral contour **(Fig. 45)** .....→ *12*

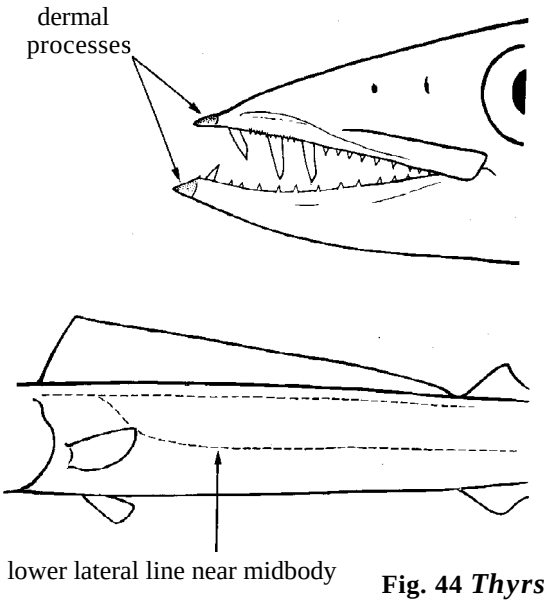

Fig. 44 ***Thyrsitoides***

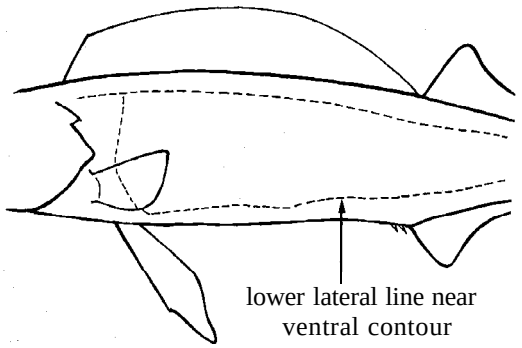

Fig. 45

12a. Lower lateral line branching off under fifth to sixth dorsal-fin spines; two small spines on lower angle of preopercle (Fig. 46).....***Epinnula***

12b. Both lateral lines originating at one point, at upper edge of opercle; no spines on preopercle (Fig. 47)..... ***Neoepinnula***

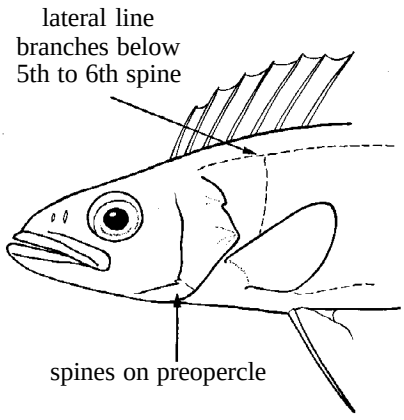

Fig. 46 ***Epinnula***

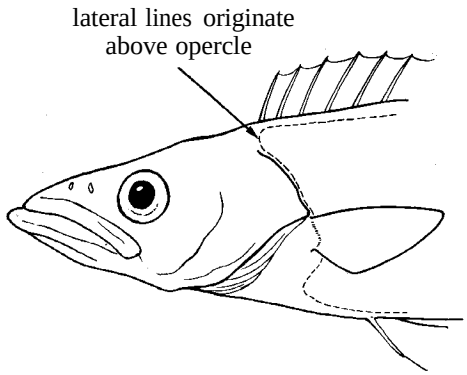

Fig. 47 ***Neoepinnula***

13a. Dorsal-fin spines XVI or XVII; body not elongate, its depth 4.2 to 6 times in standard length..... → *14*

13b. Dorsal-fin spines XVIII to XXI; body elongate, its depth 7.5 to 13 times in standard length ..... → *15*