

**Geographical Distribution :** Southern and southwestern Africa, from Baie Farte (12.5° S), over the Agulhas Bank in the south, to Natal (28° S). Also found on the Valdivia Bank (26° 18' S, 6° 20' E) (Fig. 732).

**Habitat and Biology :** Lives close to the bottom on the continental shelf and upper slope (550 m). Females grow faster than males, with sexual maturity attained at 45 to 60 cm in the Cape region. Spawning appears to be mainly from October to December (mid-spring to early summer). This hake migrates seasonally southward in the southern spring, and northward in autumn. The young (to about 64 cm) feed mainly on small crustaceans and small deep-sea fishes such as lantern fishes, whereas larger individuals feed chiefly on small hakes and jack mackerel.

**Size :** Maximum length 120 cm; commonly 40 to 60 cm.

**Interest to Fisheries :** An important foodfish. Catch statistics reported to FAO combined this species with *M. paradoxus*. The catch reported for 1987 totalled 444 348 metric tons (mainly: Spain: 149 701 t; South Africa: 138 387 t; USSR: 82 897). Until 1978, this species, together with *M. paradoxus* yielded the largest hake catches in the world (i.e. 1 111 000 t in 1972). The potential catch of Cape hake stocks off Namibia and South Africa is estimated to be around 620 000 t. Caught mainly with bottom trawls (otter trawls) at 550 m depth and processed into fish blocks.

**Local Names :** ANGOLA, PORTUGAL: Marmota, Pescada, Pescada-branca-do-Cabo, Pescada do reino; SOUTH AFRICA: Shallow-water hake, Viakwater stokvis.

**Literature :** Jones & van Eck (1967); Newman (1977); Inada (1981a).

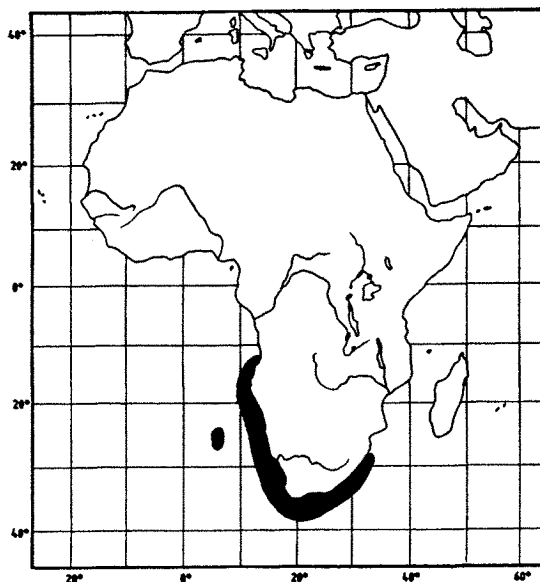


Fig. 732

**Merluccius gayi** (Guichenot, 1848)

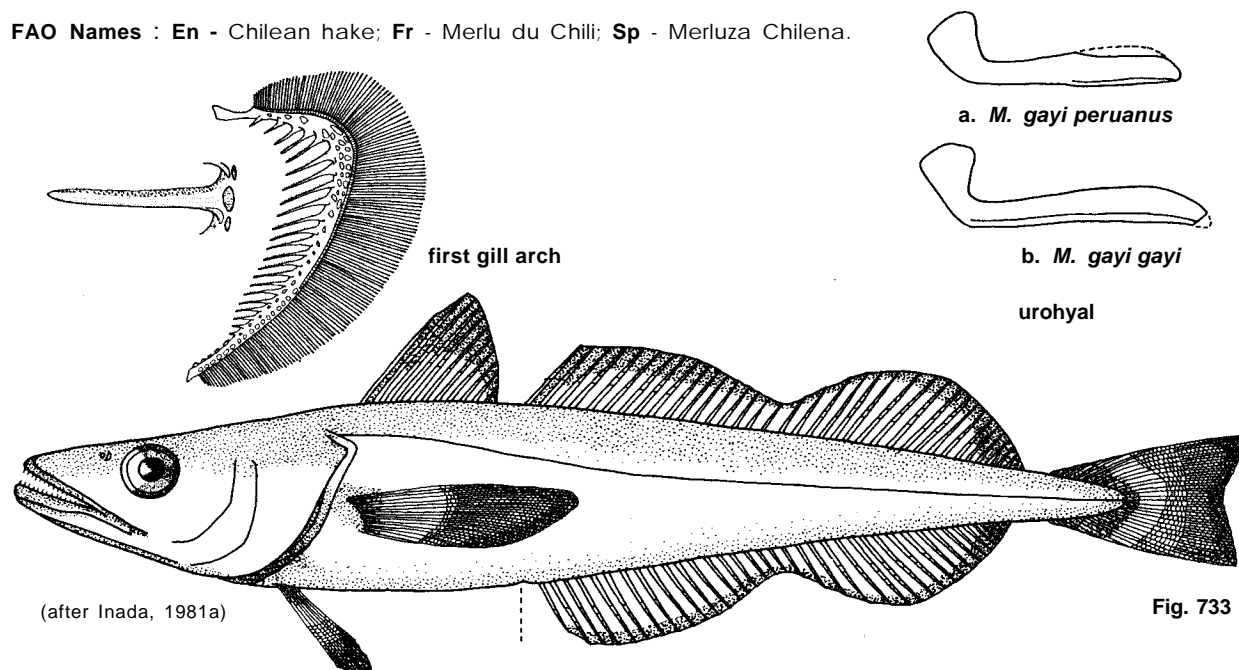
Fig. 733

**MERLU Merlu 9**

**Scientific Name with Reference :** *Merlus gayi* Guichenot, 1848, in Gay, *Hist. fisica polit. Chile, Zool.*, 2:328 (off the coast of Chile).

**Synonyms :** *Epicopus gayi* : Günther, 1860.

**FAO Names :** En - Chilean hake; Fr - Merlu du Chili; Sp - Merluza Chilena.



(after Inada, 1981a)

Fig. 733

**Diagnostic Features** : Head length 26.0 to 32.4% of standard length. Measurements in relation to head length: upper jaw 43.7 to 50.2%, snout length 29.3 to 34.1% and eye diameter 14.9 to 18.9%; gill rakers long and slender with pointed tips, total number on first arch 18 to 25 (mostly 19 to 23). First dorsal fin with 1 spine and 9 to 12 rays; second dorsal with 36 to 42 rays; anal fin with 36 to 42 rays; tips of pectoral fins always reaching to or extending beyond level of anal fin origin; caudal fin margin usually concave. Scales rather large, 106 to 130 along lateral line. Total number of vertebrae 48 to 53. **Colour**: silvery on back, silvery whitish on belly.

**Geographical Distribution** : Two subspecies are recognized. The Peruvian population (*M. gayi peruanus*) is distributed off the coast of Peru from Paita (5° S) southward to Huarney (around 14° S), while the Chilean subspecies (*M. gayi gayi*) occurs off the coast of Chile from Arica (19° S) to the Chiloe Island (around 44° S) (Fig. 734).

**Habitat and Biology** : Occurs from shallow continental shelf waters (around 50 m depth) to the upper continental slope down to around 500 m. Sometimes found off the bottom or in mid-waters. Females grow faster than males and attain a much greater size. The main spawning period extends from August to March, with a peak in the southern spring (Peruvian subspecies), and from August to November (Chilean subspecies). The boundaries of the spawning ground of the Peruvian subspecies are estimated between 4° S and 8° S while those of the Chilean subspecies are found in deep waters off Chile. The Chilean subspecies are found in deep waters off Chile. The Chilean subspecies feeds on fishes, crustaceans and squids.

**Size** : Estimated maximum length: Peruvian subspecies 68 cm (males) and 115 cm (females); Chilean subspecies 87 cm; common to 50 cm for both subspecies.

**Interest to Fisheries** : The Peruvian population has recently become an important target fish for distant-water fisheries (from the sixties onwards). On the other hand, the Chilean subspecies has been an important food for the Chilean population since the forties. The combined catch for both populations reported to FAO in 1987 totalled 64 286 metric tons, of which 32 026 t were taken by Peru and 30 905 t by Chile. The yield of the fishery has decreased very considerably. Caught with artisanal purse-seines and trawls. Marketed fresh and frozen and also used for fishmeal.

**Local Names** : CHILE : Merluza; PERU : Huaycuya, Merlango, Merluza, Peje palo, Pescada, Pescadilla.

**Literature** : Ginsburg (1954); Poulsen (1957); Boerema (1977); Inada (1981a)

**Remarks** : The two subspecies differ by the total number of vertebrae, total number of gill rakers and relative length of head (Inada, 1981a).

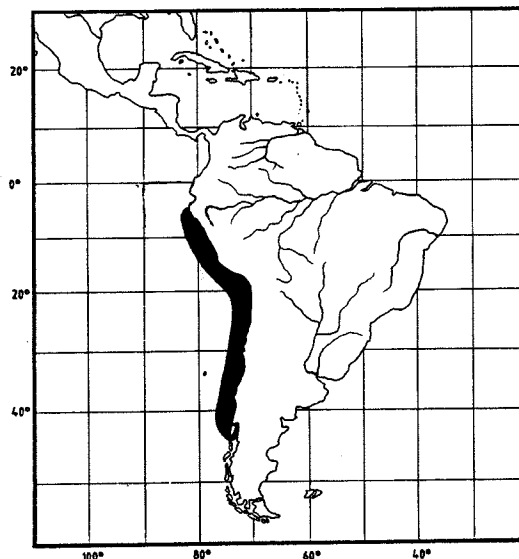


Fig. 734

**Merluccius hubbsi** Marini, 1933

Fig. 735

MERLU Merlu 10

**Scientific Name with Reference** : *Merluccius hubbsi* Marini 1933, Rev.Physis, 11:322 (off the Provinces of Buenos Aires and Patagonia).

**Synonyms** : *Merluccius gayi* (nec Guichenot, 1848):Cunningham, 1871; *Merluccius bilinearis* (nec Mitchell, 1814): Ribeiro, 1915; *Merluccius gayi hubbsi*: Mann, 1954; *Merluccius merluccius hubbsi*: Angelescu et al., 1958.

**FAO Names** : **En** - Argentine hake; **Fr** - Merlu d'Argentine; **Sp** - Merluza Argentina.

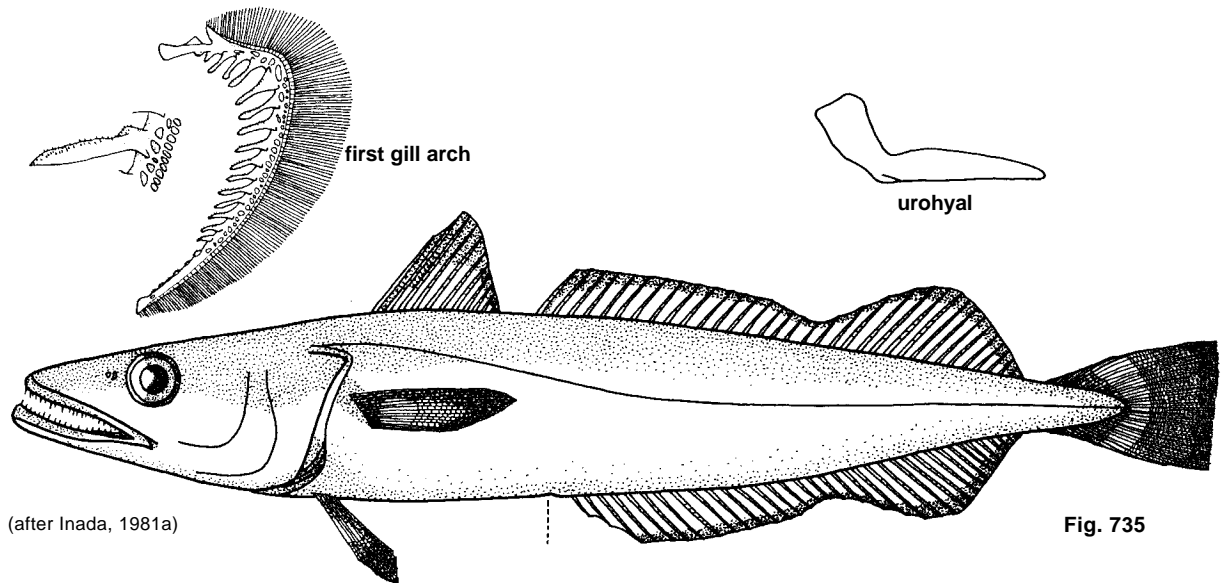


Fig. 735

**Diagnostic Features** : Head short, 24.4 to 28.0% of standard length. Measurements in relation to head length: upper jaw 47.3 to 52.2%; snout 31.0 to 35.1%; eye diameter 15.5 to 20.7%; gill rakers short and thick with blunt tips, total number on first arch 12 to 16 (usually 13 to 16). Urohyal bone of hyoid arch thickened. First dorsal fin with 1 spine and 9 to 12 rays; second dorsal fin with 34 to 40 rays; anal fin with 36 to 41 rays; pectoral fins rather short, their tips not reaching origin of anal fin; caudal fin margin usually truncate in adults, but sometimes convex in smaller fish. Scales rather large, 120 to 142 along lateral line. Total number of vertebrae 50 to 53. **Colour**: Silvery with golden luster on back, silvery white on belly.

**Geographical Distribution** : East coast of southern South America, from about 28° to 30° S off southern Brazil, to around 54° S near the Falkland-Malvinas Islands (Fig. 736).

**Habitat and Biology** : Inhabits continental shelf depths between 50 and 500 m (mainly 100 to 200 m), at temperatures between 3.8 and 6.5° C (mainly around 5.5° C). Females grow faster than males from 3 years of age onwards; spawning occurs in early summer (late October to February) in inshore areas: off the Patagonian shelf, from December to January north of 47° S; and from October to November south of this latitude; while north of 39° S, it occurs later, in autumn. Spawning grounds are located mainly in coastal waters shallower than 100 m, between 42 and 45° S, mainly off of Rio de la Plata. In the southern summer, the species concentrates in shallow waters between 50 and 150 m in the area south of 40° S; in winter the population moves northward to concentrate in the area between 35° S and 40° S at depths between 70 and 500 m. Seasonal onshore-offshore migrations are undertaken, i.e., inshore during spring and summer, and offshore into deep water wintering areas after spawning, as well as diel vertical migrations, probably related to feeding. First maturity is reached around 36 cm (total length) for males and 40 cm for females. Fishes larger than 60 cm are mainly composed of females. Large hake feed on fish (anchovies, hake, nototheniids, myctophids and Southern blue whiting), squids and macrozooplankton (euphausiids and amphipods); smaller individuals feed on mysids and amphipods.

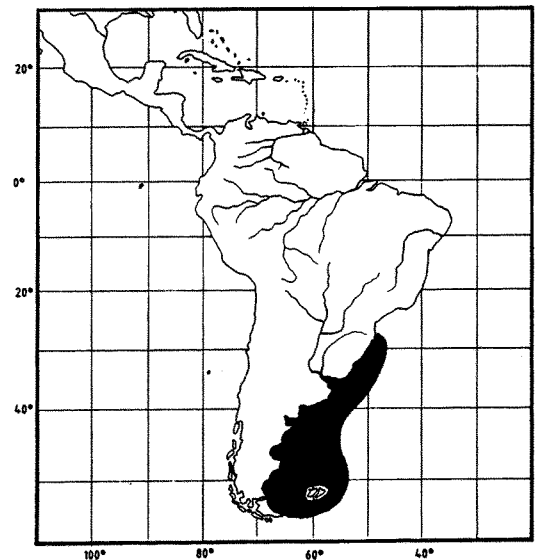


Fig. 736

**Size** : Maximum 95 cm total length; males common to 50 cm, females to 60 cm.

**Interest to Fisheries** : Argentine hake has been an important constituent of the coastal fisheries of Argentina and Uruguay. Recently foreign vessels have started to catch this hake in considerable quantities. The catch reported to FAO for 1987 totalled 434 472 metric tons (Argentina: 314 220 t; Uruguay: 83 693 t and Japan: 14 144 t), representing a decrease compared with catches of earlier years (i.e. 598 000 t in 1967). Nevertheless, this constitutes the largest catch recorded at present for a single hake species. Standing stock estimates range between 2.7 and 6.9 million t per year, offering an alternative to shortages of the Atlantic cod. Marketed fresh (Argentina, Uruguay) and frozen by foreign distant-water trawlers; also exported for filets and fish blocks to USA.

**Local Names :** ARGENTINA: Merluza; CHILE : Merluza austral, Pescada de la Patagonia; URUGUAY: Merluza

**Literature :** Hart(1946); Zinkevich & Sauskan (1968); Boerema (1977); Inada (1981a); FAO (1983)

***Merluccius merluccius* (Linnaeus, 1758)**

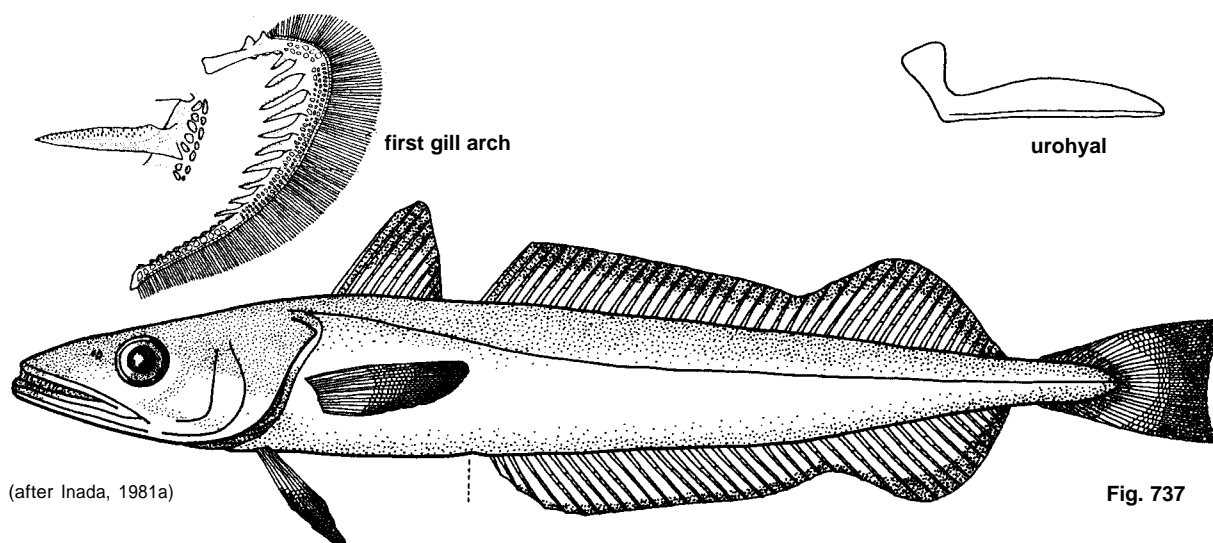
**Fig. 737**

**MERLU Merlu 1**

**Scientific Name with Reference :** *Gadus merluccius* Linnaeus, 1758, Systema Naturae, ed. X:254 (locality 'Habitat in Oceano').

**Synonyms :** *Gadus ruber* Lacepède, 1803; *Merluccius smiridus* Rafinesque, 1810; *Onus riali* Rafinesque, 1810; *Merluccius esculentus* Risso, 1826; *Merluccius vulgaris* Fleming, 1828; *Hidronus marluccius* Minding, 1832; *Merluccius sinuatus* Swainson, 1838; *Merluccius ambiguus* Lowe, 1840; *Merluccius lanatus* Gronow, 1854; *Merluccius argentatus* Günther, 1862; *Merluccius linnei* Malm, 1877; *Onus guttatus* Collett, 1890; *Trachinoides maroccanus* Borodin, 1934.

**FAO Names :** En - European hake; Fr - Merlu européen; Sp - Merluza europea



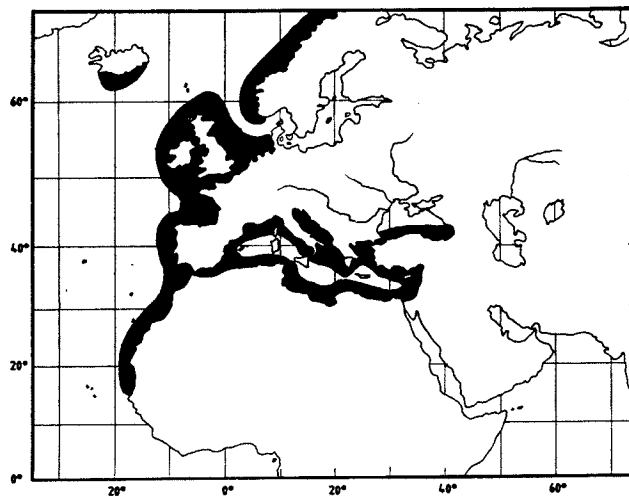
(after Inada, 1981a)

**Fig. 737**

**Diagnostic Features :** Body long and rather slender compared with other hake species. Head large, 25.1 to 30.5% of standard length. Measurements in relation to head length: upper jaw 47.8 to 53.5%; snout 30.2 to 34.5%; interorbital space 21.5 to 28.4%; gill rakers short and thick, with blunt tips; total number of gill rakers on first arch 8 to 11 (mostly 9 to 11). First dorsal fin with 1 spine and 7 to 10 rays; second dorsal with 36 to 40 rays; anal fin with 36 to 40 rays; tips of pectoral fins reaching to level of anal origin in young fish (below 20 cm standard length) but not in adults; caudal fin margin usually truncate, but becoming progressively forked with growth. Scales small, 127 to 156 along lateral line. Number of vertebrae 23 to 25 (precaudal)+ 25 to 29(caudal) = 49 to 54 (total). **Colour:** Steel grey on back, lighter on sides and silvery white on belly.

**Geographical Distribution :** Atlantic coast of Europe and western North Africa; northward to Norway and Iceland, southward to Mauritania. Also found in the Mediterranean Sea and along the southern coast of the Black Sea (see Remarks) (Fig. 738).

**Habitat and Biology :** The European hake is usually found between 70 and 370 m depth, but may also occur within a wider depth range, from inshore waters (30 m) to 1 000 m. It lives close to the bottom during day-time, but moves off-bottom at night. The spawning period is very long and varies with populations, (latest in the northern part of the range): December-June in the Mediterranean, February-May in the Bay of Biscay, April-July off W. Iceland, and May- August off W. Scotland. In the Mediterranean, spawning occurs between 100 and 300 m depth, in the Celtic Sea, above 150 m. Up to age 3,



**Fig. 738**

juveniles live on muddy bottoms, moving toward the coast at age 3. First maturity is reached during the seventh year for most females (57 cm) and during the fifth year for males (40 cm) for the Atlantic population; in the Mediterranean, males mature at 26-27 cm, females at 36-40 cm. Females grow faster than males. At the end of 2 years, the fish reach 24-25 cm; at 20 years: 79 cm for males and 100.5 cm for females. The Mediterranean stock grows slower. The fecundity is reported as 2 to 7 million eggs per female. Adults feed mainly on fish (small hakes, anchovies, sardines and gadoid species) and squids. The young feed on crustaceans (especially euphausiids and amphipods).

**Size** : Maximum length: 140 cm and 15 kg weight; commonly from 30 to 60 cm.

**Interest to Fisheries** : European hake has been an important food for the population of western Europe throughout historic times. It is primarily caught by bottom and pelagic trawls but also with longlines, bottom-set gill-nets lines and Danish seines. The main fishing grounds are the areas north and west of Scotland, west and south of Ireland, the Bay of Biscay, the Portuguese coast and the coast of western North Africa. The catch reported to FAO for 1987 totalled 116 987 metric tons, of which 72 455 t were taken in the eastern North Atlantic (mainly by Spain: 33 370 t; France: 18 145 t and Portugal: 6 892 t), 34 585 t in the Mediterranean (mainly Italy: 25 093 t, Spain: 4 758 t and Greece: 3 025 t), 9 947 t in the eastern Central Atlantic (mainly Morocco: 3 990 t, Spain: 3 023 t, and Italy 1 502 t). The potential yield of this hake in the eastern North Atlantic is estimated at around 150 000 t. Regularly marketed, mainly fresh, but also frozen (especially on distant fishing grounds), dried, salted and canned.

**Local Names** : ALGERIA: Merluzzo; DENMARK: Kulmule; EGYPT: Nazelli; FINLAND: Kummeli; FRANCE: Brochet de mer, Merlu, Merluce, Merluchón (small); GERMANY (FR): Hechtdorsch, Seehecht; GREECE: Bakaliáros; ICELAND: Lysingur; ISRAEL: Saai, Saqqaya; ITALY: Merluzzo, Nasello; MALTA: Marloz; NETHERLANDS: Stokvisch heek; NORWAY: Lysing; POLAND: Morszczuk; PORTUGAL: Marmota, Pescada, Pescadinha; SPAIN: Carioca (breeding), Merluza, Pescadilla (young); SWEDEN: Kummel; TUNISIA: Nasalli; TURKEY: Berlam; UK: Hake, Herring hake; USSR: Merluzovye, Merluzy; YUGOSLAVIA: Oslic.

**Literature** : Svetovidov (1948, 1973); Inada (1981a and b).

**Remarks** : This species is separated in two distinct subspecies: *Merluccius merluccius smiridus* Rafinesque, 1810 for the Mediterranean population and *M. merluccius merluccius* (Linnaeus, 1758) for the Atlantic population.

***Merluccius paradoxus* Franca, 1960**

Fig. 739

**MERLU Merlu 11**

**Scientific Name with Reference** : *Merluccius capensis paradoxus* Franca, 1960, Mem. Junta Inv. Ultram 2(18):4 (southwest Africa).

**Synonyms** : *Merluccius merluccius paradoxus* Franca, 1962.

**FAO Names: En** -Deepwater Cape hake.

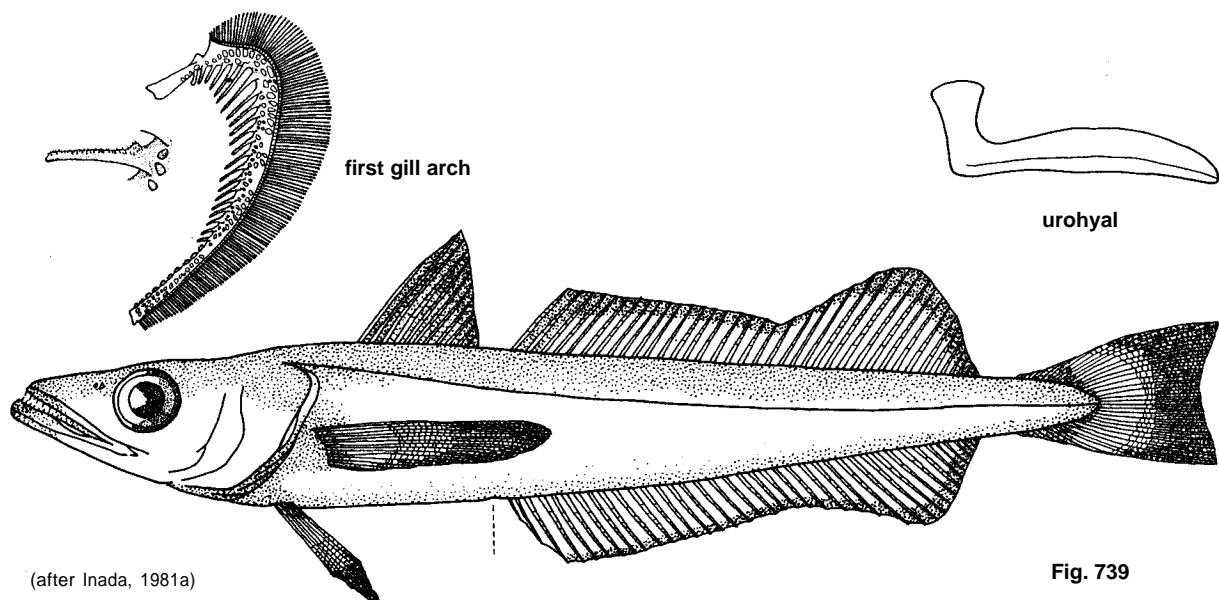


Fig. 739

**Diagnostic Features** : Head large, its length 26.0 to 28.6% of standard length. Measurements in relation to head length: upper jaw 46.0 to 51.6%; snout length 30.6 to 35.3%; interorbital width 22.5 to 28.0%; gill rakers long, slender, numerous, with pointed tips; total number on first arch 18 to 23. First dorsal fin with 1 spine and 9 to 11 rays; second dorsal fin with 38 to 42 rays; anal fin with 38 to 41 rays; pectoral fins rather long, and reaching to or beyond origin of anal fin Scales small, 121 to 143 along lateral line. Number of vertebrae 26 to 28 (precaudal) + 28 to 30 (caudal) = 54 to 58 (total). **Colour**: dark brownish on back, silvery whitish on belly.

**Geographical Distribution** : Southern and southwestern Africa, from Cape Frio (18° S) south to the Agulhas Bank, and east to East London; also found on the Madagascar Ridge (33° S 44° E)(Fig. 740).

**Habitat and Biology** : The deep-water Cape hake lives close to the bottom at continental slope depths from 200 m to at least 850 m, occurring generally deeper in the north (450 m or more) than in the south (300 to 350 m). Females grow faster than males. Spawning probably occurs from September to November. Feeds on fishes, mysids, euphausiids and squids; the young feed mainly on euphausiids, but the diet becomes polyphagous with growth.

**Size** : Estimated maximum length: 82 cm (females), 53 cm (males); commonly 40 to 60 cm.

**Interest to Fisheries** : Catch statistics for this hake are not separated from those of the shallow-water Cape hake (*M. capensis*) because of the similar appearance of these two species. The species has probably been a significant component in the distant-water catches of fleets since 1962.

**Local Names** : ANGOLA, PORTUGAL: Marmota, Pescada; SOUTH AFRICA: Deepwater hake, Deepwater stockvis.

**Literature** : Botha (1973); Quero (1973); Inada (1981a).

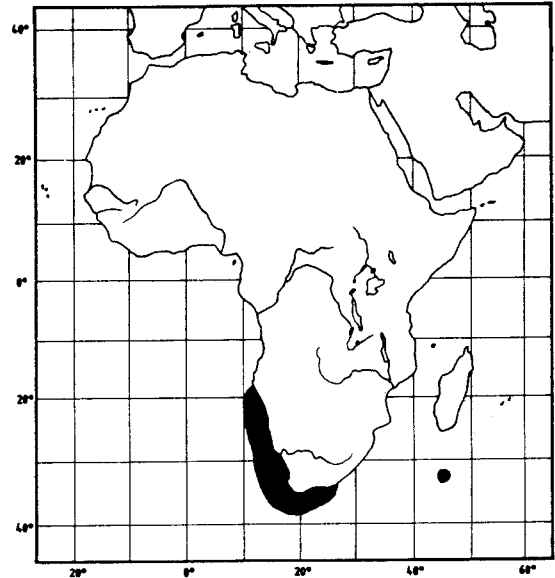


Fig. 740

**Merluccius polli** Cadenat, 1950

Fig. 741

MERLU Merlu 4

**Scientific Name with Reference** : *Merluccius polli* Cadenat, 1950, Cong.pêche.pêcher.Un.franc. d'outre Mer:129 (Congo).

**Synonyms** : *Merluccius cadenati* Doutre, 1960; *Merluccius merluccius polli*: Franca, 1962; *Merluccius merluccius cadenati*: Franca, 1962.

**FAO Names** : En - Benguela hake;Fr - Merlu d'Afrique tropicale; Sp - Merluza de Benguela.

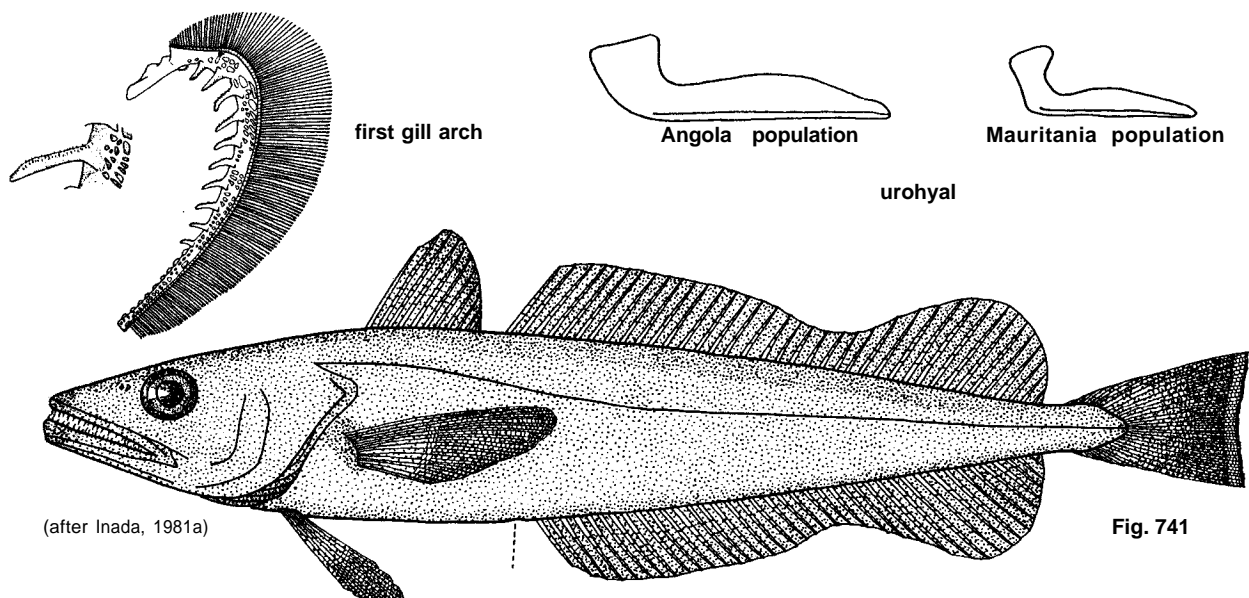


Fig. 741

**Diagnostic Features** : Head large and little depressed, 24.8 to 28.9% of standard length. Measurements in relation to head length: upper jaw length 45.3 to 51.3%; snout 30.2 to 35.9%; interorbital width 24.1 to 28.0%; gill rakers short and thick with blunt tips; total number of gill rakers on first arch 8 to 12. First dorsal fin with 1 spine and 8 to 11 rays; second dorsal with 37 to 41 rays; anal fin with 36 to 42 rays; tips of pectoral fins usually reaching origin of anal fin, but not in large individuals; caudal fin margin truncate, but sometimes concave. Scales easily shed, 102 to 127 along lateral line. Number of vertebrae 23 to 28 (precaudal) + 27 to 31 (caudal) = 53 to 57 (total). **Colour**: usually blackish on back, steel grey to blackish on belly; caudal fin white-edged.

**Geographical Distribution** : Atlantic coast of tropical West Africa, from Mauritania (20° N) to Angola (18.5° S) (Fig. 742).

**Habitat and Biology** : The Benguela hake lives close to the bottom on the continental shelf and slope, from 50 m to 550 m depth. It feeds mainly on small fishes and partly on squids and shrimps.

**Size** : Maximum length: 80 cm; common to 38 cm.

**Interest to Fisheries** : This hake is taken on offshore grounds on the deeper parts of the shelf and on the slope, mainly with bottom (otter) trawls. Catch statistics are available only for the southern part of the distribution (77 t in 1987). Further north, it is caught together with *M. senegalensis* and catch data of these two species are combined. Marketed mostly fresh and frozen, also used for fishmeal and oil. This hake has not been exploited commercially until recently. The stock size has not been estimated, but this species is probably of little economic potential because of its low catch rates, deep habitat and relatively small size.

**Local Names** : ANGOLA, PORTUGAL: Marmota, Pescada-de-Angola; SENEGAL: Merlu.

**Literature** : Williams(1968); Inada (1981a and b).

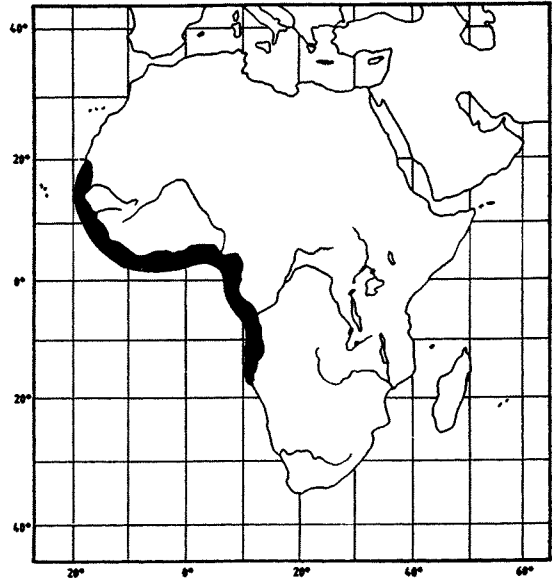


Fig. 742

**Merluccius productus** (Ayres, 1855)

Fig. 743

MERLU Merlu 12

**Scientific Name with Reference** : *Merlangus productus* Ayres, 1855, *Proc. Cal. Acad. Nat. Sci.*, 1:64 (San Francisco) .

**Synonyms** : *Homalopomus trowbridgii* Girard, 1856.

**FAO Names** : **En** - North Pacific hake; **Fr** - Merlu du Pacifique nord; **Sp** - Merluza del Pacifico Norte.

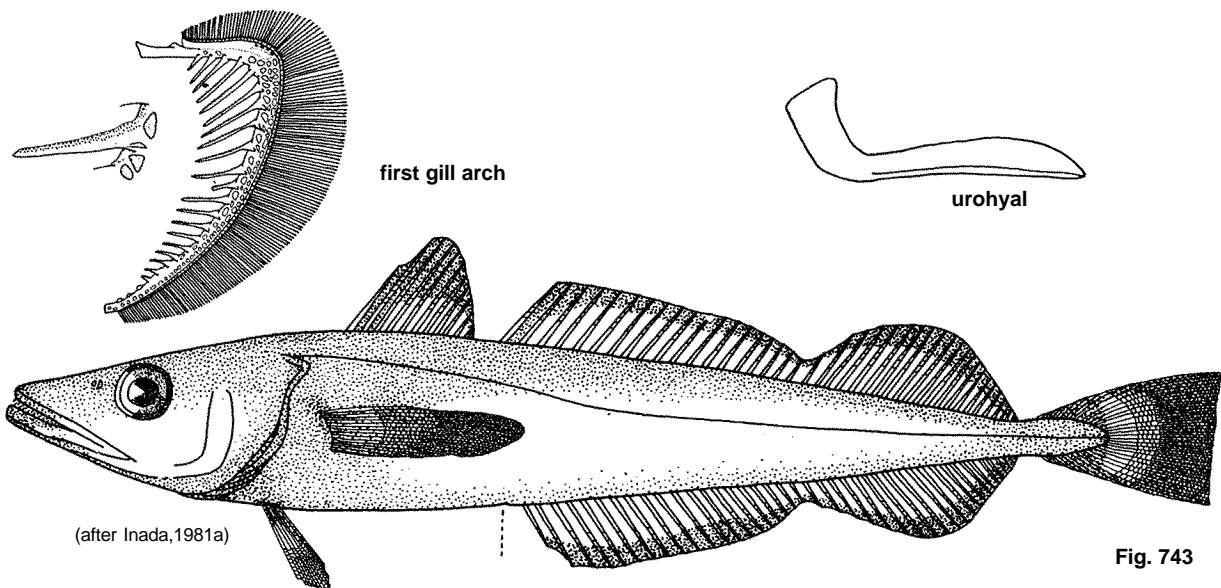


Fig. 743

**Diagnostic Features** : Head rather short, 24.7 to 28.9% of standard length. Measurements in relation to head length: upper jaw 45.8 to 50.9%, snout 31.1 to 35.4%; eye diameter 12.7 to 20.0%; gill rakers long and slender with pointed tips, total number on first arch 18 to 23. First dorsal fin with 1 spine and 9 to 12 rays; second dorsal with 39 to 44 rays; anal fin with 39 to 44 rays; tips of pectoral fins usually reaching to or extending beyond origin of anal fin; caudal fin margin always concave. Scales along lateral line 125 to 144. Total number of vertebrae 53 to 54. **Colour**: silvery on back, whitish on belly.

**Geographical Distribution** : West coast of North America from the northern part of Vancouver Island to the northern part of the Gulf of California, mainly ranging between 23° N and 48° N. A record from the Gulf of Alaska is doubtful (Fig. 744).

**Habitat and Biology** : Occurs from shallow shelf (or surface and estuarine) waters to depths of 900 to 1 000 m, but is mainly concentrated on the continental shelf. Commercial concentrations are found between 45 and 500 m depth. Although often classified as a demersal species, its distribution and behaviour suggest a largely pelagic existence. Lives in both, oceanic and coastal areas. Adults live in large schools in waters overlying the continental shelf and slope except during the spawning season when they are found several hundred miles seaward. Growth is relatively fast, especially during the first 4 years; lives up to 15 years. Begins to mature at 3 years of age and most individuals are mature at 4 years and about 35 to 42 cm length. A pelagic spawner, females laying, depending on their size, 80 000 to 500 000 eggs.

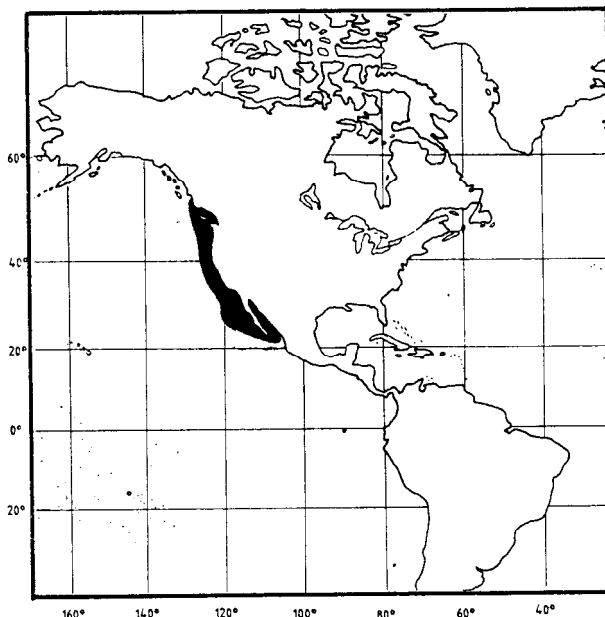


Fig. 744

Spawning occurs mainly in deep waters off southern California and Baja California in winter and spring (from January to April or June). This hake migrates northward to southern Oregon in summer and autumn (from July to September), and begins to return by December. The northward migration is accompanied by movement toward shore and into shallower water, while the southward migration is accompanied by movement into deeper water and seaward. Feeds on a large variety of fishes and invertebrates, and in turn is preyed upon by larger fishes.

**Size** : Maximum recorded length 91 cm; common to 60 cm.

**Interest to Fisheries** : Since the inception of the USSR hake fishery in 1966 (150 000 t 1966), this species has been an important constituent of distant-water fisheries. Most of the US catch was used for fish meal and pet food while the Soviet catch was frozen for human consumption, as soon as they were caught (this hake tends to become soft and less palatable from 2 to 4 hours after being caught). The catch reported to FAO in 1987 totalled 297 976 metric tons (almost exclusively from the Northeastern Pacific) of which 229 586 t were taken by USA, and 57 989 t by Poland. There has been a substantial decrease in the catches during the past decade (i.e. 238 000 t in 1976; 99 297 t in 1985) and since 1986, catches are increasing. An estimate of population size is about 1.2 million t, the estimated maximum sustainable yield ranges from 120 000 to 270 000 t (Dark *et al.* 1979). Caught with bottom and midwater trawls from the surface to 800 m. Marketed fresh and frozen fillets. Used also for fishmeal.

**Local Names** : MEXICO : Merluza; USA: Pacific hake, Whiting.

**Literature** : Grinols & Tillman (1970); Nelson & Larkins (1970); Frey (1971); Inada (1981a).

***Merluccius senegalensis*** Cadenat, 1950

Fig. 745

**MERLU Merlu 3**

**Scientific Name with Reference** : *Merluccius senegalensis* Cadenat, 1950, Cong.pêche. pêcheur.Un.franc. d'outre Mer: 129 (Dakar).

**Synonyms** : *Merluccius merluccius senegalensis*: Franca, 1962

**FAO Names** : **En** Senegalese hake; **Fr** - Merlu du Senegal; **Sp** Merluza senegalesa



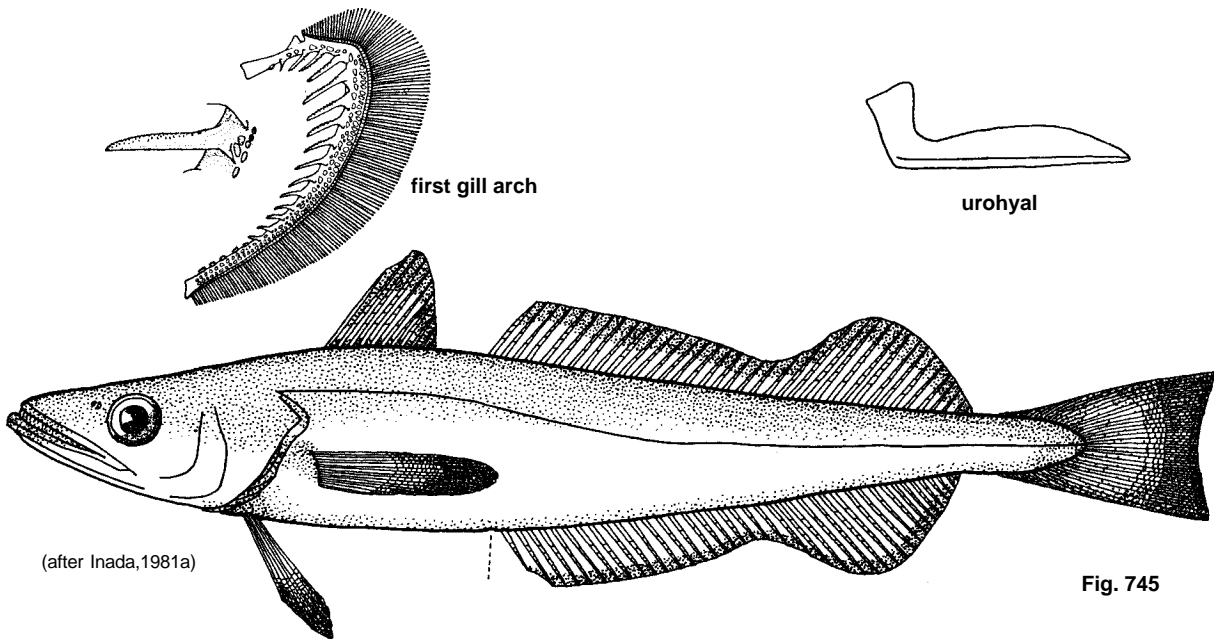


Fig. 745

**Diagnostic Features** : Head rather long, 24.9 to 27.7% of standard length. Measurements in relation to head length: upper jaw 47.1 to 50.6%; snout 30.2 to 34.1%; interorbital width 27.0 to 31.0%; total number of gill rakers on first arch 13 to 18 (usually 13 to 16). First dorsal fin with 1 spine and 9 to 10 rays; second dorsal fin with 38 to 41 rays; anal fin with 37 to 40 rays; tips of pectoral fins usually reaching origin of anal fin; caudal fin margin usually truncated, but becoming progressively concave with growth. Scales small, 124 to 155 along lateral line. Number of vertebrae 25 to 28 precaudal + 25 to 29 caudal = 51 to 56 total. **Colour**: steel grey to blackish on back, silvery white on sides and belly.

**Geographical Distribution** : Atlantic coast of western North Africa, from Cape Cantin (33° N) to Cape Roxo (10° N). Senegalese hake overlaps the distribution of *M. merluccius* in the north and that of *M. polli* in the south (Fig. 746).

**Habitat and Biology** : The Senegalese hake lives close to the bottom in shallow depths from about 18 to 500 m. Spawning probably occurs from January to March in about 300 m at temperatures of about 12°C. Feeds mainly on small fishes, and to a lesser extent on crustaceans and cephalopods.

**Size** : Maximum length: 81 cm; common to 42 cm.

**Interest to Fisheries** : Taken by bottom trawls in off-shore grounds off Mauritania and Senegal together with two other hakes (*M. merluccius* and *M. polli*). The catch reported to FAO in 1987 totalled 7 469 metric tons (compared with 102 000 t in 1970, but which included the catch of *M. polli*) of which 4 613 t were taken by USSR and 2 729 t by Spain. The stock size is not known, but the maximum sustainable yield is estimated to be rather low. Marketed fresh and frozen and also used for fishmeal and oil.

**Local Names** : SENEGAL: Merlu.

**Literature** : Doutre (1960); Inada (1981a and b);

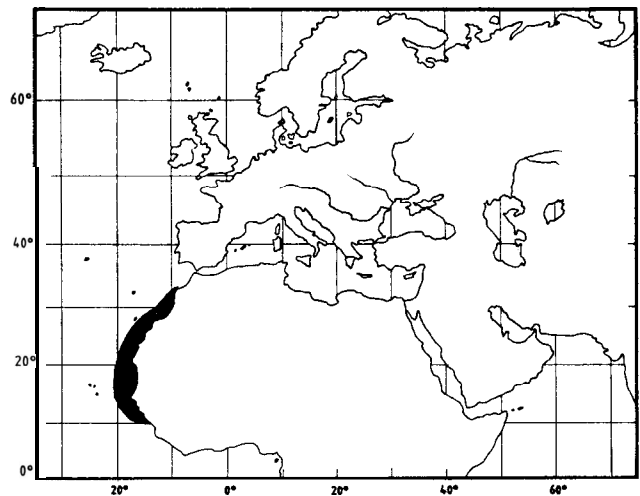


Fig. 746

***Steindachneria*** Goode & Bean, 1888

**MERLU Stein**

**Genus with Reference :** *Steindachneria* Goode & Bean, in Agassiz, 1888:26. Type-species: *Steindachneria argentea* Goode & Bean, 1896, by the proposal of distinct genus.

**Diagnostic Features :** See species diagnosis.

**Literature :** Goode & Bean (1896)

**Remarks :** The subfamily Steindachneriinae and hence, its single genus *Steindachneria*, are characterized by the presence of a light organ, a unique character in this family. The genus includes a single species: *Steindachneria argentea*.

***Steindachneria argentea*** Goode & Bean, 1896

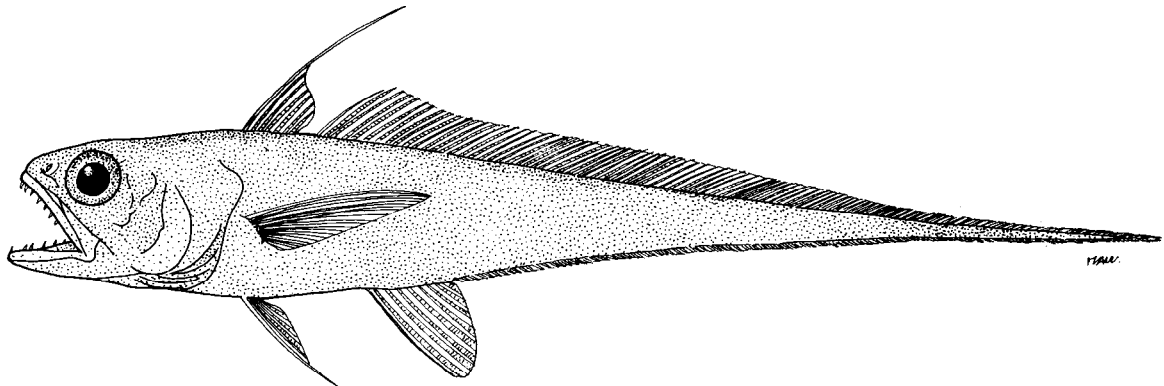
Fig. 747

**MERLU Stein 1**

**Scientific Name with Reference :** *Steindachneria argentea* Goode & Bean, 1896, Oceanic Ichthy.:419.

**Synonyms :** None

**FAO Names :** En - Luminous hake



(after Goode & Bean, 1896)

**Fig. 747**

**Diagnostic Features :** Body long, compressed, tail tapering to a very fine point; body deep at first dorsal-fin origin, contained 6.7 to 7.5 times in total length. Anus situated between pelvic fins widely separated from urogenital opening (which is anterior to anal-fin origin); the two openings are connected by a faint brownish stripe. A striated light organ present on ventral half of body and on sides of head. Head compressed, contained 5.2 to 5.5 times in total length; mouth large. Measurements in relation to head length: upper jaw slightly more than half, snout length 4.2 to 4.6 times, eye diameter 3.6 to 3.8 times, interorbital width 3.9 to 4.5 times. Nostrils placed nearer to eye than to tip of snout, the anterior nearly circular, the posterior much longer and crescent-shaped; postorbital space of head nearly twice as long as eye diameter. Teeth of outer series on upper jaw enlarged and wide-spaced, teeth of inner series smaller; teeth in lower jaw similar to those on outer series of upper jaw; vomerine teeth arranged in a single U-shaped row. Gill rakers slender, 5 on upper limb and 13 to 15 on lower limb; longest gill rakers nearly half as long as diameter. No pyloric caeca. First dorsal fin with one spine and 7 to 9 rays, the spine elongated and filiform, reaching to 14th ray of second dorsal when depressed; second dorsal with 123 or more rays, the longest (second) ray about 2/5 of head length; anal fin with 123 to more than 125 rays, its origin located under about the 6th ray of second dorsal, not far behind anus, its anterior, elevated portion consisting of 10 to 12 rays; longest (second) ray of anal fin twice the eye diameter; pectoral fins with 14 to 17 rays, their tips extending to below the 15th second dorsal ray; first pelvic finray filamentous, reaching to anus when depressed. **Colour :** body silvery; upper part slight brownish, belly purplish; inside of mouth darker.