Ministry of Fisheries
Te Tautiaki i nga tini a Tangaroa

New Zealand Fishes Volume 2

A field guide to less common species caught by bottom and midwater fishing

New Zealand Aquatic Environment and Biodiversity Report No. 78
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Cover photos:
Top – Naked snout rattail (*Haplomacrourus nudirostris*), Peter Marriott (NIWA)
Centre – Red pigfish (*Bodianus unimaculatus*), Malcolm Francis.
Bottom – Pink maomao (*Caprodon longimanus*), Malcolm Francis.

New Zealand fishes. Volume 2: A field guide to less common species caught by bottom and midwater fishing

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This series continues the
Marine Biodiversity Biosecurity Report series
which ended with MBBR No. 7 in February 2005.

CONTENTS

DISCLAIMER

This photographic field guide to New Zealand fishes has been developed from the most up-to-date information available to the Ministry of Fisheries at the time of publication and includes species caught by trawling, but also some that may be caught by other methods such as bottom longline. The taxonomic status and naming of species, the adoption of species into the Quota Management System (QMS) and the modification of species and reporting codes are ongoing processes that will continue to change after publication. This field guide is therefore not the sole definitive source for compliance or taxonomic purposes, and the guide does not affect the species names and codes provided in legislation. For further guidance on the identification of fish species or any other information contained in this guide, or if you find any information you believe may be inaccurate, please contact Ministry of Fisheries Chief Scientist *pamela.mace@fish.govt.nz*.

PURPOSE OF THE GUIDE

This guide to identification of some less common bottom and midwater New Zealand fishes is intended for field use by non-specialists — fishers, fisheries observers, and others. The first guide (Volume 1) covers common species caught by bottom and midwater fishing, and a third guide (Volume 3) deals with fishes commonly caught by surface fishing. Technical terms are kept to a minimum, and identification features are mostly those that can be readily observed on freshly caught specimens without dissection or microscopic examination. The guide covers 122 species from 74 families, including hagfishes, cartilaginous (chimaeras, sharks, skates and rays) and bony teleost fishes. For each species there is an annotated colour image or line drawing of the fish to illustrate distinguishing features, a New Zealand distribution map, and text covering distinguishing features, colour, size, distribution, depth, similar species, biology and ecology, and references. This is the first edition of this field guide. Further editions will be published as new information accumulates.

Ready identification in the field is important for reporting fish catches, the analysis of fish distribution, abundance and ecology, for fisheries management, and for assessment of biodiversity. Field guides are not however a substitute for more comprehensive taxonomic guides where identification remains uncertain. There are several additional identification guides to New Zealand fishes that can be consulted. The most comprehensive New Zealand fishes identification guide available (Paulin et al. 1989) covers 1008 species but is now outdated for some species and is in the process of republication by Museum of New Zealand Te Papa Tongarewa. Some other New Zealand species identification guides include: Paul (2000) covers about 265 marine fishes or groups of fishes with some colour images and small line drawings, Francis (2001) lists 171 coastal species including a colour image, Hirt-Chabbert (2006) covers 110 of the main commercial species including a colour image, and Banks et al. (2007) cover and illustrate about 80 of the main commercial species of cartilaginous and bony fishes.

ORGANISATION OF THE GUIDE

The guide has four main sections.

1. **External features of fishes**. Illustrations of some of the technical terms used to identify fishes are provided as an introduction to the main identification sections.

2. **Guide to families**. Recognising the family to which a species belongs is often the first step in identification. Distinguishing features for each of the families covered are given, plus a small image of an example species from each family.

3. **Guide to specie**s. This section makes up most of the guide, and consists of detailed species accounts.

4. **References, and indexes** for species common and scientific names, Ministry of Fisheries three-letter reporting and research codes, and family common and scientific names.

METHODS USED FOR THE FAMILY AND SPECIES GUIDES

(a) Guide to families

Families are arranged in taxonomic order following Nelson (2006) "Fishes of the World", so the first family listed is the hagfishes (Myxinidae), a group of primitive jaw-less fishes. Family scientific names and most of the family common names are also taken from Nelson (2006). Family names are numbered using the numbers in Nelson (2006) to aid locating the relevant part of the species guide. The text listing the distinguishing features for each family was adapted mainly from Carpenter & Niem (1998, 1999, 2001), Gomon et al. (2008), Gon & Heemstra (1990), and Nelson (2006). An 'example species' image for each family is provided as a quick visual guide to general body shape, although naturally there is considerable variation within a family. We follow Nelson (2006) and Eschmeyer (2010) and retain Cheilodactylidae (morwongs) and Latridae (trumpeters) as separate families, but note that Burridge & Smolenski (2004) recommended that cheilodactylids (except for two South African species) be placed in the Latridae. Nelson (2006) provisionally recognised the family Diplophidae for *Diplophos* and related fishes, formerly placed in Gonostomatidae.

(b) Guide to species

Species within each family are arranged alphabetically by scientific name, i.e., by genus name then by species name. Selection of species for this guide was mainly based on the number of captures of all fishes recorded in the research trawl (*trawl*) database. Most records from *trawl* were from bottom trawl, the remainder from midwater trawl and a total of about 370 species were recorded. Occurrences of species caught by midwater trawl were also compiled from the Ministry of Fisheries observer (*obs*) database and any additional species frequently caught were added to the master draft list. This list was also compared with the list of fishes covered in Anderson et al. (1998), and with the midwater trawl species listed in Bagley et al. (2000). The first guide (Volume 1) covers 252 species and the remainder are included here. We have included examples of some small fishes that may be commonly caught but which are often not recorded either because most pass through the meshes of the net, or because they require a microscope to identify in the field. For instance Hector's lanternfish (*Lampanyctodes hectoris*) is included as the representative of a family (lanternfishes, Myctophidae) which has over 100 New Zealand species.This guide does not cover all fishes caught in New Zealand waters. A more comprehensive reference such as Paulin et al. (1989) should be consulted if a species cannot be identified. Unusual or rare fishes should where possible be retained for Te Papa Tongarewa, Museum of New Zealand, Wellington.

The species guide contains the following fields.

1. **Species common name**. These were extracted from the Ministry of Fisheries database of research species codes. For some species there is no common name and the scientific name is used instead.
2. **Species scientific name**. These were extracted from the Ministry of Fisheries database of research species codes, and were then checked using Eschmeyer (2008) to determine if this was the most recent name, and as a check on spelling. The names of fishes in the list compiled by King at al. (2009) were also examined for any other changes. In some cases the individual researchers preparing the species accounts for this guide made decisions about the appropriate scientific name based on their own knowledge of the literature, and in some cases these names differ from those used by Eschmeyer (2008).

A number of species require further taxonomic study to establish their valid scientific name.

3. **Family scientific name**. Eschmeyer (2008) and Nelson (2006) were used as the source of most family names, but in a few cases individual researchers used their own knowledge of the recent literature to establish the family name. Family name numbers were largely those of Nelson (2006) supplemented by 'a' or 'b' where subfamilies listed by Nelson (2006) were elevated to family in the guide.
4. **Family common name**. Mostly from Nelson (2006).
5. **Maori names**. Anon (1995) and Strickland (1990). Many species may have more than one name depending on the region because iwi (tribes) may use different names, and there may also be names for some young stages. n.a. indicates that we were unable to locate a Maori name.
6. **Other names**. Other common names used in New Zealand and overseas. n.a. indicates that we were unable to locate another relevant common name.
7. **Ministry of Fisheries reporting code**. MFish supplied a list of three letter codes used in QMS reporting. In some cases the codes differ for different form types, e.g., sand flounder catch would be recorded as SFL on the effort part of the return and FLA on the landing part.
8. **Ministry of Fisheries research code**. Three letter codes used for research surveys. In some cases these differ from the QMS reporting codes; and in particular, they distinguish related species.
9. **Species image**. Where possible a new colour image of each species was taken and adjusted, sized and annotated with the principal distinguishing features and a size scale. Many of these images were taken specifically for this project during research surveys. Good specimens were selected from the catch, washed, fins and other structures pinned out on a polystyrene board, and painted with concentrated formalin. Images were captured using a digital SLR camera using photographic lights on a dove grey background. In some cases images had to be sourced from specimens that were purchased or caught locally, and from previous photographs sourced from inside and outside NIWA. In a few cases no suitable image could be obtained and a simple line drawing was prepared.
10. **Distinguishing features**. The main features that distinguish the species are provided.
11. **Colour**. The colours of live or freshly caught fish are described.
12. **Size**. The approximate maximum size was obtained from research length records and literature sources. FL fork length, TL total length, SL standard length, all in centimetres.
13. **Distribution – text**. Based on literature records of the species from New Zealand and overseas, with comments on the fisheries data records.
14. **Distribution – map**. Maps were prepared using position data from research survey and commercial fisheries records, and are therefore not verified with museum voucher specimens. Most species in this guide are caught by trawling and therefore the unique start position (latitude and longitude) of the tow where one or more specimens were taken was selected from the *trawl* database and plotted. Some maps are blank for a number of reasons: records on the *trawl* database were probably not valid because of previous incorrect identification, e.g., Kermadec rattail (*Coelorinchus kermadecus*); records are a mix of species so were not plotted, e.g., Bigscale blacksmelt (*Melanolagus bericoides*); there are no records on the database because although the species has been caught before it had no research code, e.g., variable spotted toadfish (*Neophrynichthys heterospilos*). Some of the species are also taken using surface fishing methods and for those the latitude and longitude where the species was captured or observed were

selected from the tuna longline (*l_line*), aerial sightings (*aer_sight*), and tagging (*tag*) databases and these records plus the *trawl* records were plotted on the map. For *l_line* the unique start position of the longline set where one or more specimens were taken was plotted. For *aer_sight* the position where the species was observed and identified from the air was plotted. For *tag*, the release site for species identified and tagged was plotted. These maps are therefore an indication of where the species has been reported as caught or sighted in the past, and they are not meant to be a definitive New Zealand distribution. Red dots show the capture location, and the EEZ boundary and 1000 m contour are also plotted. Similar maps were produced by Anderson et al. (1998) and Bagley et al. (2000).

15. **Depth**. The commonly encountered depth range (m) from fisheries and literature records is listed, rather than the extreme depth records.
16. **Similar species**. The distinguishing features of similar species are given to enable comparison with the species initially identified. Similar species include many that are not covered in this guide.
17. **Biology and ecology**. Data on mode of life such as spawning season, area, behaviour, feeding are given where these are known.
18. **References**. The literature used to compile the record is listed alphabetically by author (year). The full references (author, year, title, journal, book, etc) are listed at the end of the species guide.

DATA STORAGE AND RETRIEVAL

Text, distribution maps, and images for this guide are stored in a relational database (*Species*) created and maintained by NIWA. A web application built on top of the database allows the stored data to be retrieved in a specified format; the report that generates each species identification sheet was designed specifically for this project. Its advantages include easy editing of text or images and distribution maps, addition of new fields or tables, addition or deletion of species, and on-line access to the database.

Requests for access to Ministry of Fisheries databases can be made through RDM@fish.govt.nz. Note that all observer databases referred to in this document are now stored in the Centralised Observer Database (COD).

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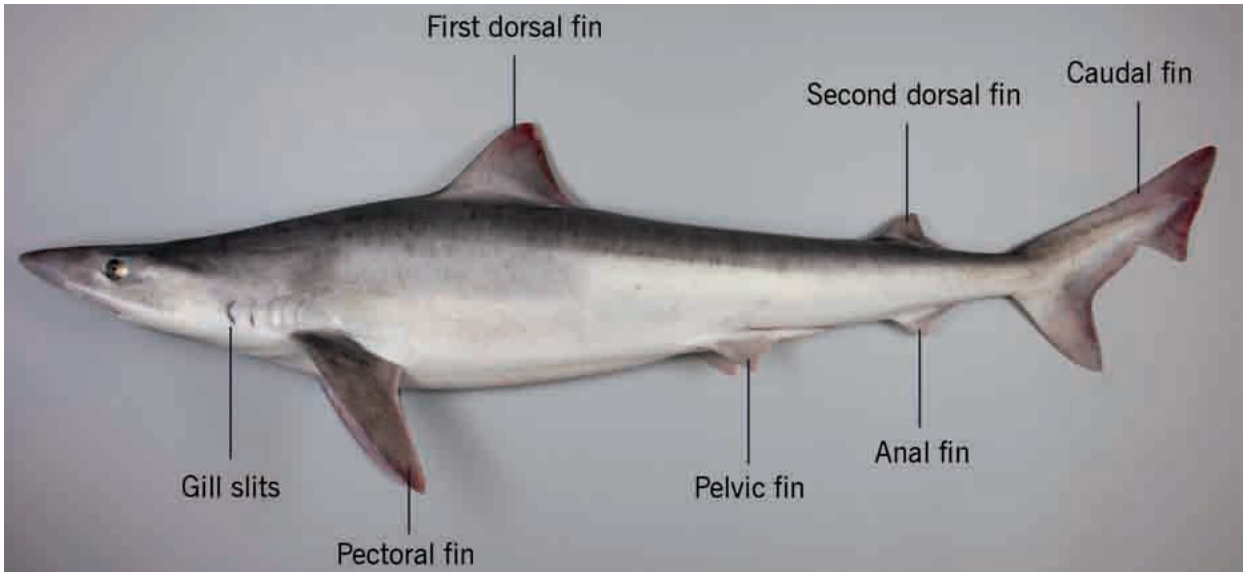
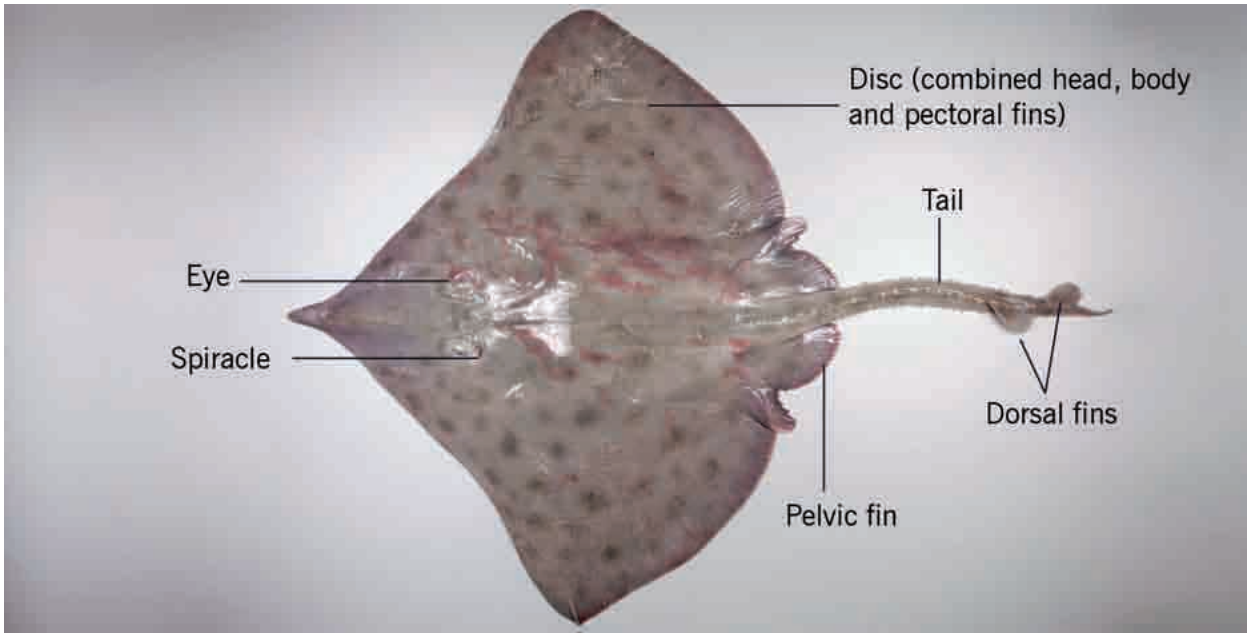
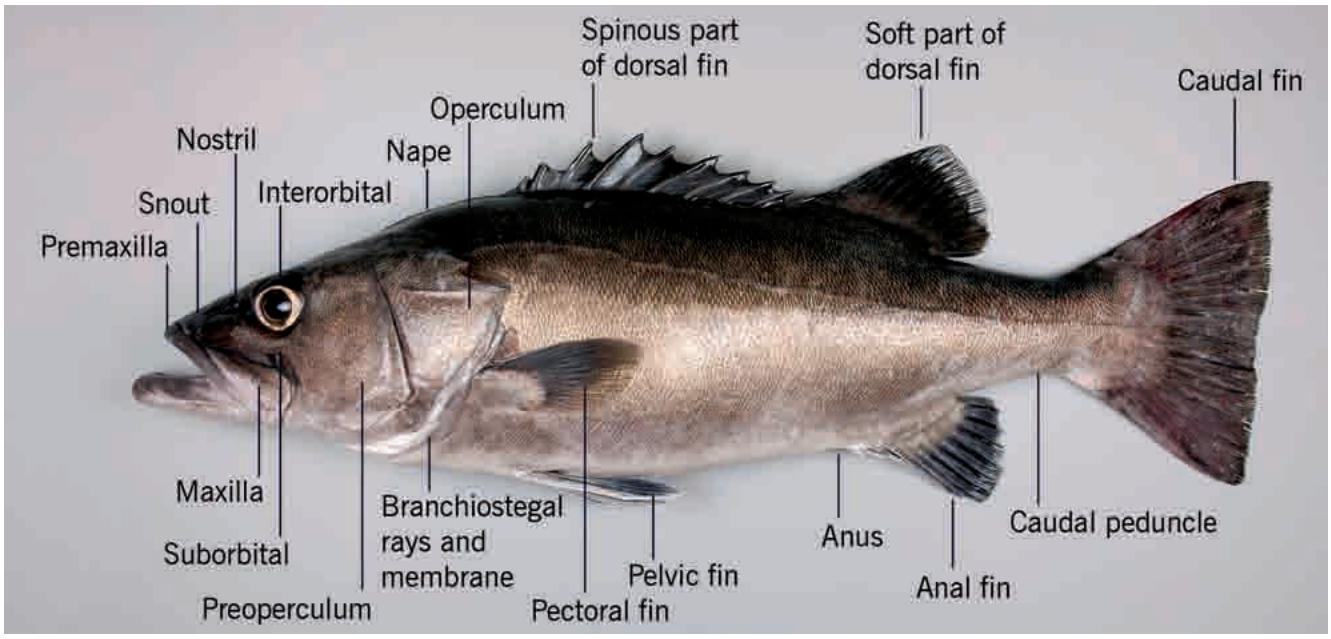
SECTION 1. EXTERNAL FEATURES OF FISHES

The three illustrations below are labelled to show the principal features of sharks, skates/rays, and bony fishes that are used in their identification.







GLOSSARY

Adapted from May & Maxwell (1986) and Paul (2000).

Abdomen. Belly region, containing stomach, intestines and reproductive organs (ovaries, testes).

Accessory lateral line. Another lateral line in addition to the main lateral line, usually above the main line, and usually only for part of its length.

Adipose eyelid. Soft, thick, transparent layer of tissue that partially covers the front and rear of the exposed part of the eye, streamlining the head contour.

Adipose fin. Small, soft fleshy fin lacking spines or rays, on the rear part of the body behind the soft dorsal and sometimes anal fins.

Anal fin. Median fin on the underside of the body usually between the anus and the caudal fin.

Anterior. Front or head end.

Anus. The rear opening of the intestine located on the underside of the body usually just in front of the anal fin in bony fishes.

Barbel. Fleshy filament lacking rays or spines, usually located on the head and often sensory. Mostly only one, but there may be several, e.g., hagfish.

Benthic. Found on the sea floor.

Branchiostegal. Rays and membrane inside and below the gill opening in bony fishes, located on the throat and lower head.

Canine tooth. Pointed cone-like tooth used for penetrating or holding prey.

Cartilage. Firm elastic tissue. In comparison, bone is hard and solid.

Caudal. Tail.

Caudal peduncle. The part of the body just in front of the caudal fin and behind the rear base of the anal fin. Often narrow and sometimes bearing lateral (sideways-projecting) keels.

Cephalic lobe. A flattened extension or appendage of the head.

Cheek. Area between the eye and the free edge of the preopercular bone.

Chimaera length. Also ghost shark length. The straight line distance from the tip of the snout to the posterior end of the fin on the dorsal surface of the tail, i.e., excludes the long tail filament possessed by many chimaeras and ghost sharks.

Coastal. Living only in the sea near land, usually over the continental shelf unless this is very wide. The term "inshore" is often applied to the inner part of the coastal zone.

Conical. Cone shaped.

Continental shelf. Seafloor adjacent to the coast, usually from 0 to about 200 m depth, and of variable width.

Continental slope. Seafloor starting at the deep end of the continental shelf at about 200 m and extending down to about 2000 m depth.

Ctenoid scale. A scale with fine spines or teeth on the rear surface and/or margin.

Cusp. The point or projection on a tooth. Some shark species have a central large cusp and smaller cusps on each side, i.e., total of three cusps per tooth.

Cycloid scale. A scale that is smooth and lacking fine spines or teeth on the rear surface and/or margin.

Deciduous scale. Scale that is easily removed or rubbed off.

Demersal. Living on or near the seafloor.

Denticle. Small tooth or tooth-like projection, usually on the body surface. Most sharks have skin covered with denticles giving a rough texture.

Disc. The flattened body of skates and rays consisting of the head, trunk, and enlarged pectoral fins.

Disc width. The straight-line distance between the widest points on the disc of skates and rays, measured from wingtip to wingtip.

Dorsal. Upper side or surface.

Dusky. Slightly dark or greyish in colour.

Esca. Lure or bait at the end (tip) on the rod-like head appendage (illicium) of some anglerfishes.

Finlet. A small fin-like structure behind the dorsal and sometimes the anal fins.

Fork length (FL). The straight-line distance from the tip of the snout to the fork ("V") of the tail, usually measured for fishes that have a forked tail fin, such as trevally (*Pseudocaranx georgianus*).

Gill raker. A bony tooth-like or brush-like projection on the gill arch, pointing into the throat cavity.

Head length (HL). The straight-line distance from the tip of the snout to the rear (most posterior part) of the bony operculum (gill cover).

Illicium. Slender and sometimes jointed appendage (fishing rod) on the head of anglerfishes.

Interorbital width. The shortest distance between the eyes.

Iris. Flat circular coloured membrane of eye with circular opening (pupil) in the centre.

Isthmus. Fleshy (often scaled) part of the body on underside of the head that separates the right and left side gill chambers.

Lateral line. A row of sensory pores or tubed (pored) scales in the skin, starting behind the head and running along the side of the body, often near the midline, usually finishing at or near the base of the tail.

Light organ. Structure that produces light by a chemical reaction (bioluminescence) either directly by special body cells or indirectly by luminescent bacteria cultured in body tissues.

Maxilla. A bone in the upper jaw located behind and above the other upper jaw bone – the premaxilla. Often flattened and broad at the rear end.

Median fins. Unpaired fins located in the middle of the upper and lower surface of the body, i.e., dorsal (one or more), caudal, and anal fins. In contrast to (see also) paired fins.

Midwater. Any part of the water column between the surface and the seafloor.
Nape. Upper part of the head behind the eyes.
Nictitating membrane. Transparent moveable inner eyelid, found in some sharks.
Nostril. Small external opening for the nasal organs (smell, taste) on the head or upper body. Usually paired but sometimes single.
Oceanic. Living in the open ocean. "Offshore" is often a comparable term, but can also refer to outer shelf waters as well as oceanic waters.
Operculum. Large flat bony plate on the side and rear of the head just behind the preoperculum; together they form the gill cover.
Origin. The most anterior point of the base of a fin, a spine, or a ray.
Paired fins. Fins that are paired and usually located on the sides of the body, i.e., pectoral and pelvic fins. In contrast to (see also) median fins.
Papilla. A small fleshy projection. Often found on the head, usually numerous and sensory.
Pectoral fin. Large paired fins on the side of the body just behind the gill opening(s). May be lost or reduced in some species.
Pelagic. Free swimming in the sea, and not usually associated with the seafloor. See also midwater.
Pelvic fin. Paired fins on the underside of the body and usually behind the pectoral fins. May be reduced and located on the throat in some species, e.g., ling (*Genypterus blacodes*). Alternatively called ventral fin.
Photophore. Small, oval light-producing organ embedded in the skin.
Pored scale. Also tubed scale. A lateral line scale that is associated with a sensory pore and has a hole or tube connecting the pore to the sea.
Posterior. Rear end.
Precaudal pit. Notch on the caudal peduncle just before caudal fin.
Predorsal. The upper body just in front of the first dorsal fin.
Premaxilla. A bone in the upper jaw located in front of and below the other upper jaw bone – the maxilla. Often toothed.
Preoperculum. The bone below and behind the eye and in front of the operculum (gill cover).
Pupil. Circular or oval opening in centre of eye regulating passage of light into the eye.
Proboscis. An elongated, flexible extension of the snout.
Pyloric caeca (singular is caecum). Small tubes or sacs located at the rear end of the stomach and opening into the gut. Probably provide additional surface area for the digestion of food.
Rostrum (rostral). An extended, or projecting, snout.
Scute. A scale that is enlarged and thickened, relative to other body or lateral line scales. Usually arranged in rows along the body. Can be armed with one or more spines, e.g., John dory (*Zeus faber*).
Serrate. Bearing serrations or saw-toothed.
Snout. The head in front of the eyes.
Spinule. Small spine on the surface of some scales. May have distinctive shapes, e.g., spear-like, cone-like, can be very numerous, and are often arranged in rows.
Spiracle. An opening behind the eye in skates, rays, and some sharks, used for maintaining a flow of oxygenated water over the gills when the mouth is closed, e.g., when the fish is resting or slightly buried on the seafloor. See also nostril.
Standard length (SL). The straight-line distance from the tip of the snout to the rear end of the caudal skeleton (vertebral column), usually measured for fishes that have a soft tail fin that is easily damaged, e.g., black slickhead (*Xenodermichthys copei*).
Striated. Covered in lines, ridges, or furrows.

Suborbital ridge. The ridge below the eye and running along the head, sometimes from the snout to near the rear of the lower head. May be armed with scutes or spines.

Terminal. Located at the end, e.g., terminal mouth is located at the front of the head as opposed to a sub-terminal mouth which is behind (and below) the tip of the snout.

Total length (TL). The straight-line distance from the tip of the snout to the tip of the tail, usually measured for fishes which have a robust tail fin lacking a deep fork, e.g., hapuku (*Polyprion oxygeneios*). Used for most sharks.

Trunk. The part of the body between the rear of the operculum (gill cover) and the vent or anus.

Tubed/tubular scale. Also pored scale. A lateral line scale that is associated with a sensory pore and has a hole or tube connecting the pore to the sea.

Tubercle. A projection on the surface of the skin, usually not sensory. See also papilla.

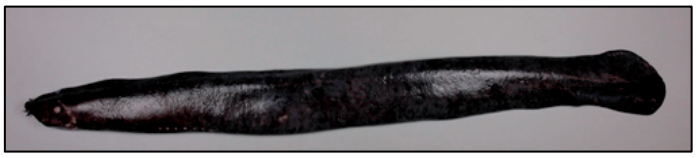
Ventral. Lower side or surface.

Vertebra (pl. vertebrae, adj, vertebral). One of a series of bony or cartilage discs making up the backbone, spine, or vertebral column.

Vomer. Bone on the midline of the roof of the mouth, detectable at the front of the mouth, which may bear teeth.

SECTION 2. GUIDE TO FAMILIES

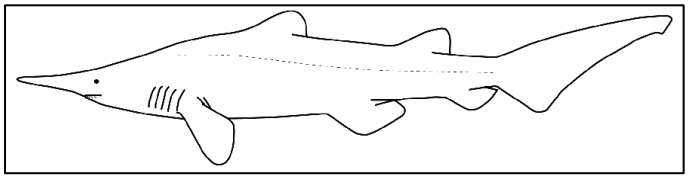
1. Myxinidae (hagfishes)
Eel-like body, 1–18 small gill slits on side of head, skeleton cartilaginous, jawless mouth, eyes obscured by skin, prominent barbels on snout, no paired fins, median fins without rays, no scales.



6. Rhinochimaeridae (longnose chimaeras)
Single gill opening, a large spine in front of the first of two dorsal fins, long pointed snout.

7. Chimaeridae (shortnose chimaeras, ratfishes)
Single gill opening, a large spine in front of the first of two dorsal fins, short fleshy rounded snout.

17. Mitsukurinidae (goblin sharks)
Snout with greatly elongated and flattened blade-like projection extending over and anterior to greatly protrusible jaws, teeth long and slender, eyes small, caudal fin with short ventral lobe and long upper lobe.

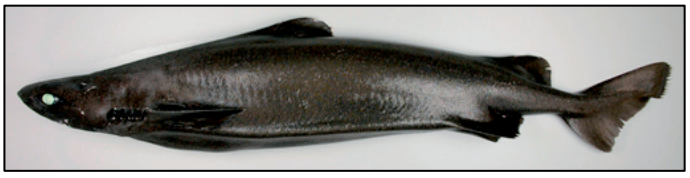


23. Scyliorhinidae (cat sharks)
Fifth gill slits over or behind pectoral fin origin, spiracle present, small multi-cuspid teeth with several series functional, anal fin present, caudal fin without keels or pits, caudal fin axis only slightly elevated.

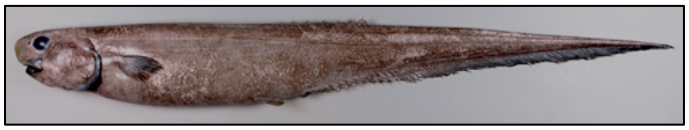
34. Squalidae (dogfish sharks)
Five gill slits all anterior to pectoral fins, spiracles always present, eyes without nictitating eyelids, two dorsal fins with spines, no anal fin.

36. Etmopteridae (lantern sharks)
Both dorsal fins with spines and both spines with lateral grooves, no anal fin, light organs seen as black blotches on underside of body, flanks, and tail.

37. Somniosidae (sleeper sharks)
Both dorsal fins with small spines or (usually) without spines, no anal fin, lateral ridge present on abdomen between pectoral and pelvic fins.



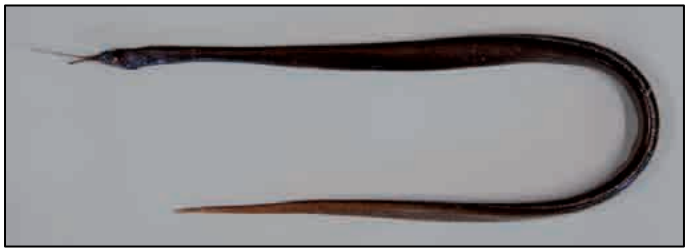
73. Notacanthidae (spiny eels)
Dorsal fin reduced to a series of short sharp spines and lateral line closer to dorsal than ventral profile of body.



80. Synaphobranchidae (cutthroat eels)
Gill openings low on body, below pectoral fins (when present), sometimes the gill openings are united forming a ventral slit.

81. Ophichthidae (snake eels and worm eels)
Slender elongated body and pointed snout, pectoral fin present, caudal fin usually absent and tip of tail hard and pointed, posterior nostril near or piercing the upper lip, teeth often sharp, mouth large, scales absent.

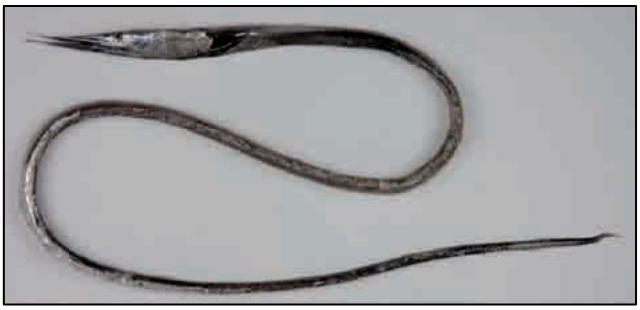
85. Nemichthyidae (snipe eels)
Elongated thread-like body, jaws lengthened into a delicate diverging beak covered with tiny teeth, mature males lose beak and have rounded head, pectoral fins present (small), gill openings small below base of pectoral fin, anus under or just behind pectoral fins, scales and pelvic fins absent.



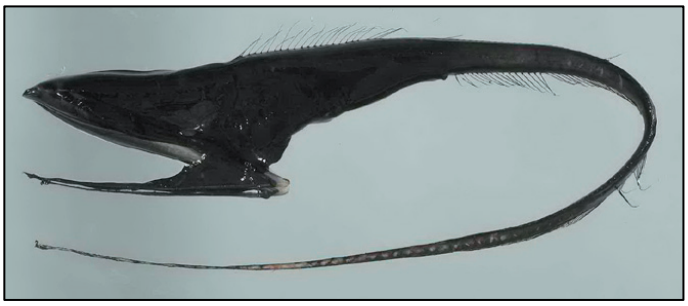
86. Congridae (conger eels)
Eye well developed, sometimes very large, dorsal fin begins over or slightly behind pectoral fins, always closer to pectoral fins than to anus, pectoral fins present, prominent lateral line, small teeth usually in bands in jaws and on roof of mouth.

87. Nettastomatidae (duckbill eels)
Very slender body and elongated snout, very small teeth in many rows, no pectoral or pelvic fins, posterior nostril above and behind the eye or down near the upper lip, scales absent.

88. Serrivomeridae (sawtooth eels)
Jaws elongate and slender, body silvery-black, row of saw-like teeth on roof of mouth, gill opening connected ventrally, pectoral fins present (small), scales and pelvic fins absent.



91. Eurypharyngidae (gulpers or pelican eels)
Greatly enlarged mouth, jaws with numerous tiny teeth, small eyes close to snout tip, pectoral fin reduced and just behind gill opening, scales absent.

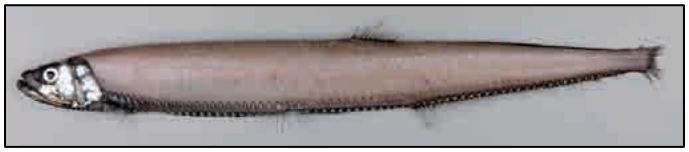


168. Microstomatidae (deepsea smelts, pencilsmelts)
Elongated, delicate, soft bodied, large eyes, small mouth with upper jaw reaching back to anterior edge of eye, tiny teeth on lower jaw and roof of mouth but not on upper jaw, short-based dorsal fin near mid-body, adipose fin usually present just anterior to tail, tail fin forked, large anal fin, scales weakly attached to body, small pectoral fins, pelvic fins below or just ahead of line through dorsal fin.

169. Platytroctidae (tubeshoulders)
Tube on shoulder near lateral line connected to a sac of luminous fluid, body scaled but head scaleless, light organs usually present.

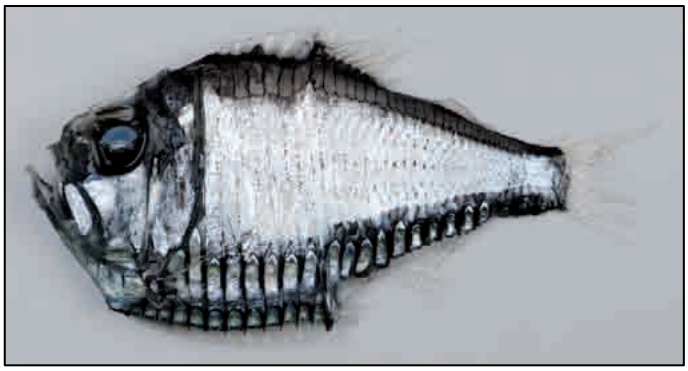
171. Alepocephalidae (slickheads)
Dorsal and anal fins usually on posterior third of body, adipose fin absent, pelvic fins abdominal, head usually scaleless.

178. Diplophidae (diplophids)
Double row of photophores running along the lower body, photophores on isthmus (throat), anal fin origin behind dorsal fin origin and below or behind posterior end of dorsal fin, 46–68 anal fin rays, no adipose fin, single dorsal fin about mid-body, small pectoral and pelvic fins.

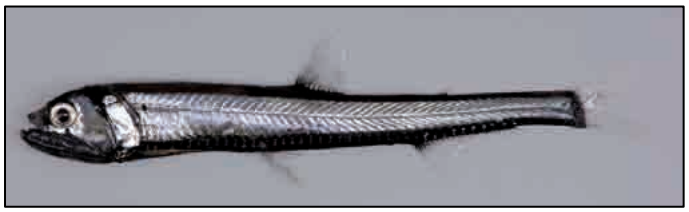


179. Gonostomatidae (bristlemouths)
Long thin body, rows of photophores on lower body, no photophores on isthmus (throat), anal fin origin below or near dorsal fin origin, anal fin with 16–31 rays.

180. Sternoptychidae (marine hatchetfishes)
Often deep-bodied with prominent row of photophores low on sides, many groups of photophores in cluster-like organs, eye diameter greater than snout length, dorsal fin small and about mid-body, long-based low adipose fin, scales thin and weakly attached.



181. Phosichthyidae (lightfishes)
Two rows of photophores on ventral body from head to about anal fin origin, then one row of photophores extends back to tail. Dorsal fin small and about midway along body.



182. Stomiidae (barbeled dragonfishes)
Dark elongated body, prominent slender teeth in large jaws, no fully formed gill rakers on first gill arch, long tentacle-like luring device (barbel) on underside of lower jaw, postorbital photophore present (posterior-ventral to eye), rows of inconspicuous photophores running along lower body, one row lateral, another ventral.

191. Notosudidae (waryfishes)
Eyes large and egg-shaped (not round), long snout, large jaws with one or two rows of small conical teeth, rounded body in cross-section, large body scales weakly attached, dorsal fin about mid-body, small adipose fin present.

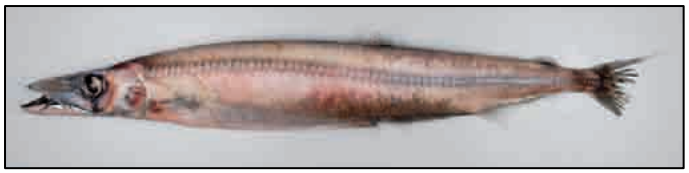
192. Ipnopidae (deepsea tripod fishes)
Eyes usually specialised, either minute and lateral or flat and dorsal, mouth large with upper jaw extending far behind eye, minute teeth, dorsal fin short-based and high near mid-body, pelvic fins on anterior half of body.

193. Scopelarchidae (pearleyes)
Large tubular eyes directed upwards, mouth large with upper jaw extending back to or beyond rear edge of eye, lower jaw teeth in two rows with inner ones long depressible canines, dorsal fin short-based and low near mid-body, lateral line present with large scales pierced by a large central pore.

194. Evermannellidae (sabretooth fishes)
Eyes normal or large, tubular, and directed upward, mouth very large with upper jaw extending back beyond eye, some lower teeth very large fangs, dorsal fin short-based and at or before mid-body, lateral line poorly developed in adults, no body scales.

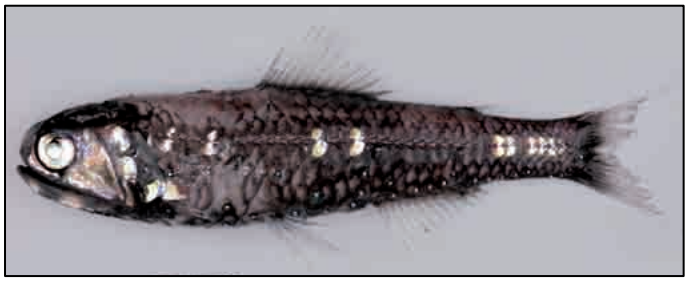
195. Alepisauridae (lancetfishes)
Long, slender, scaleless body, high sail-like dorsal fin extending along most of body, mouth large with prominent fang-like teeth on roof of mouth, small adipose fin near tail, pelvic fins midway between pectoral and anal fins, low short-based anal fin, large forked tail fin.

196. Paralepididae (barracudinas)
Long slender body with long head, large eyes, large mouth with fang-like teeth in lower jaw, two small dorsal fins, first with rays located near middle of body, adipose second fin near tail, small pectoral fins and small pelvic fins on abdomen.



199. Neoscopelidae (blackchins)
Eye diameter less than or equal to snout length, origin of anal fin far behind rear of dorsal fin, one dorsal adipose fin, photophores on body in horizontal rows and on tongue in *Neoscopelus*.

200. Myctophidae (lanternfishes)
Eye diameter greater than snout length, jaws extending to or far behind posterior margin of eye, origin of anal fin under middle of dorsal fin to slightly behind, one dorsal adipose fin, all species luminous with photophores arranged in groups on head and body.



206. Trachipteridae (ribbonfishes)
Anterior dorsal fin elements comprise 4–8 elongate flexible spines just above eye, anal fin absent, skin usually covered with bony raised tubercles, scales absent except for lateral line scales.

212. Muraenolepididae (eel cods)
Chin barbel present, caudal fin continuous with anal fin and second dorsal fin, two dorsal fins, first very short with one or two rays (second ray long), gill opening only extends up to level with pectoral fin base, no pyloric caeca.

215. Macrouridae (grenadiers, rattails)
Elongate tapering tail, chin barbel usually present, first dorsal fin with the front two rays spinous, second dorsal fin long with soft rays, exposed part of body scales usually covered with spinules.

216. Moridae (deepsea cods)
No spines in fins, two or three dorsal fins, first dorsal fin short, second (and third if present) long, caudal fin separate from dorsal and anal fins.

217. Melanonidae (pelagic cods)
No chin barbel, long body and short head, body scales small and not extending onto bases of anal and dorsal fins, single long-based dorsal fin raised at anterior end, long-based anal fin, very slender caudal peduncle, caudal fin slightly rounded.

221. Carapidae (pearlfishes)
Small, eel-like with translucent body lacking scales, anus near throat in front of anal fin origin. Dorsal, caudal, and anal fins continuous.

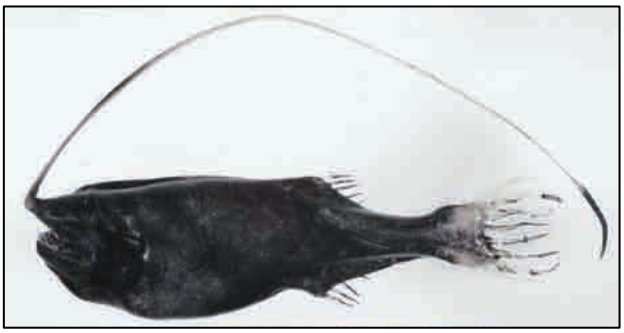
223. Bythitidae (viviparous brotulas)
Body moderately elongate, long dorsal and anal fins sometimes connected to caudal fin, anterior nostril immediately above upper lip, well developed spine on operculum, pelvic rays 0–2.

236. Melanocetidae (black seadevils)
Large globular females have huge mouth, many long fang-like teeth, lack dorsal head spines, smooth naked skin, long-based soft dorsal fin, very short anal fin with 3–5 rays. Males much smaller, elongate and free-living.

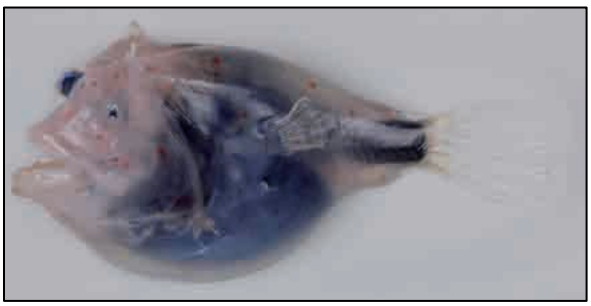
237. Himantolophidae (prickly anglerfishes, footballfishes)
Large females have large bony plates bearing an erect spine embedded in the skin, robust projecting lower jaw, large bioluminescent esca with tentacles at tip of illicium. Males much smaller and free-living.

242. Ceratiidae (seadevils)
Females with 2–3 club-shaped light organs (caruncles) on dorsal midline ahead of soft dorsal fin, no spines above and behind eyes, bony support for illicium emerging from head above the eyes, skin covered with small close-set denticles and sandpaper-like, soft dorsal and anal fins short-based and opposite each other. Males parasitic on females.

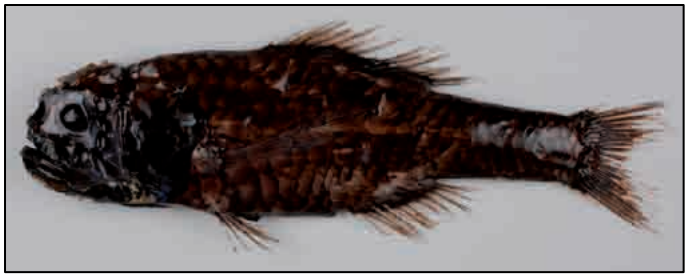
243. Gigantactinidae (whipnose anglers)
Females with elongated streamlined body, small head, long slender caudal peduncle, greatly prolonged ilicium length 1–4 times SL. Males free-living.



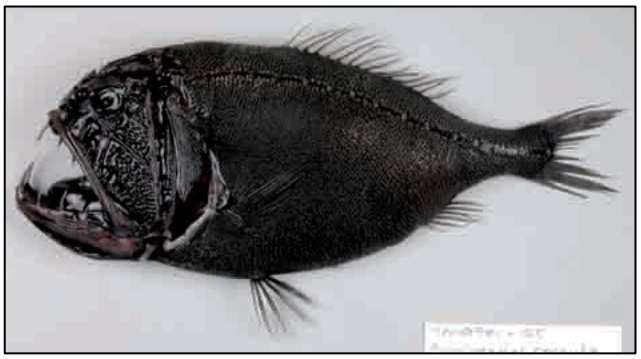
244. Linophrynidae (leftvents)
Females with soft dorsal and anal fins with 3 rays (rarely 2 or 4), illicium short less than head length with large terminal bioluminescent organ (esca). Adult males smaller, parasitic on females.



267. Melamphaidae (bigscale fishes)
Head large with prominent but soft bony ridges and deep mucous-filled cavities (skin cover damaged during capture), body covered with thin medium to large weakly attached scales, teeth very small, one dorsal fin centrally on back.



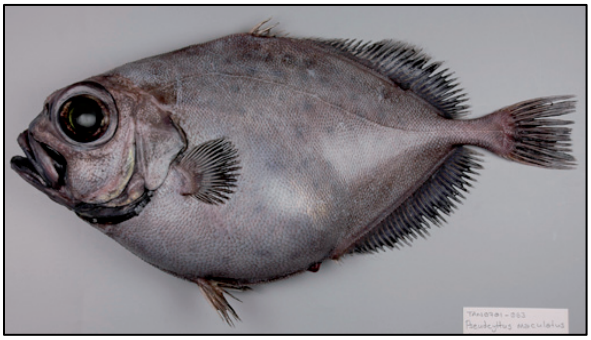
276. Anoplogastridae (fangtooths)
Blackish deep body with large mouth and very large fang-like teeth, single dorsal fin of uniform height opposite a short-based anal fin, small prickly scales embedded in skin, lateral line an open groove bridged at intervals by scales.



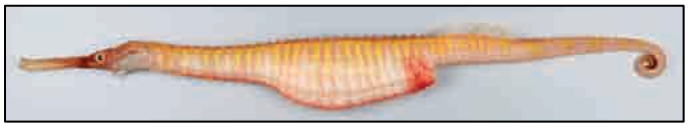
277. Diretmidae (spinyfins)
Eyes very large and much longer than snout length, jaws not extending back beyond eye, scales present on dorsal and anal fin rays, no lateral line, enlarged mid-ventral scutes present.

280. Trachichthyidae (roughies)
Head with mucus-filled cavities separated by spinous ridges and covered with membranous skin, one dorsal fin, enlarged scales along mid-ventral part of belly between pelvic and anal fins forming a row of scutes.

284. Oreosomatidae (oreos)
Body deep and laterally compressed, no large buckler scales present along bases of dorsal and anal fins or along ventral midline in adults, dorsal fin with 5–8 spines, body dull grey brown or black.



295. Syngnathidae (pipefishes and seahorses)
Tubular body encased in bony armour with segemented rings and lengthwise ridges, snout tube-like and tipped with a small mouth,



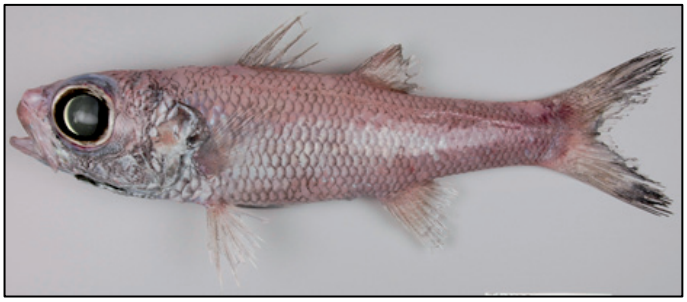
304. Scorpaenidae (scorpionfishes, rockfishes)
Most species with numerous head spines, dorsal fin with strong spinous part connected to soft rayed part, suborbital ridge extending backwards across the cheek and usually firmly bound to operculum.

325. Psychrolutidae (fathead sculpins)
Body tadpole shaped, skin smooth and loosely covering body plus the dorsal and anal fins.

338. Serranidae (sea basses)
Operculum with 2–3 (usually three) flat spines, lower rear margin of pre-operculum serrate, mouth large and terminal, maxilla exposed when mouth closed.

341. Callanthiidae (Splendid perches)
Lateral line arches sharply upward behind head and follows dorsal profile of body just below dorsal fin base and along upper caudal peduncle, dorsal and anal fins with spines and rays progressively increasing in length posteriorly.

353. Epigonidae (deepwater cardinalfishes)
Eyes large, mouth large and oblique, maxilla narrow and not reaching beyond level of middle of eye, two dorsal fins first with spines, second with one spine and 8–11 soft rays, lateral line complete and extending onto caudal fin.



367. Bramidae (pomfrets)
Oval, thin, deep body, often with high forehead and blunt snout. Single long-based dorsal fin and similar shorter anal fin. Deeply forked tail, very long pectoral fin, and large firmly attached scales.

368. Caristiidae (manefishes)
Body deep, dorsal fin high with long base, no anal fin spines, pelvic fins elongate with 1 spine and 5 soft rays and either in front of or behind vertical line through pectoral fin base. Skin extends onto bases of the dorsal and anal fins.

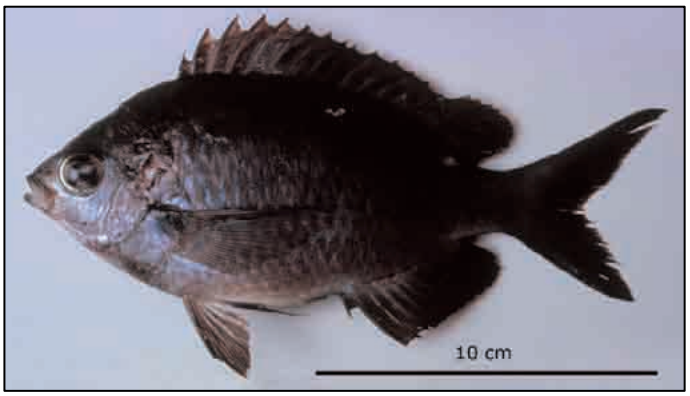
391a. Scorpididae (sweeps)
Continuous long-based dorsal and anal fins, base of soft part of dorsal fin much longer than spinous part, spines of dorsal fin shorter than first few soft rays, soft part of anal similar to and opposite soft dorsal fin, scales cover most of head and body extending onto bases of dorsal and anal fins, mouth small, large forked tail fin.

404. Aplodactylidae (marblefishes)
Long dorsal fin with a deep notch separating spinous and soft-rayed parts, short triangular anal fin, large rounded pectoral fins, scales small, embedded in skin, extending onto cheeks and gill plate, and forming sheath at base of spinous dorsal fin.

405. Cheilodactylidae (morwongs)
Lower 4–7 pectoral fin rays unbranched, thickened and elongated, mouth small, terminal to slightly inferior, with thick lips in adults, continuous dorsal fin.

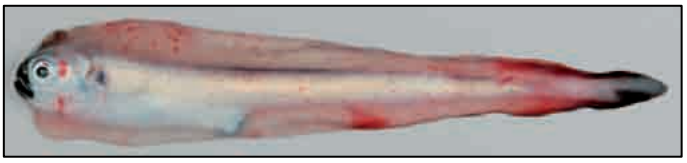
406. Latridae (trumpeters)
Lower pectoral fin rays normal, i.e., not thickened or elongated, small body scales, dorsal and anal fins with numerous spines and soft rays, caudal fin forked.

411. Pomacentridae (damselfishes)
Most are brightly coloured in life often with iridescent blue, orange, and bold markings, but juveniles and adults may have different markings, body deep and covered with large scales, smaller scales on most membranes of unpaired fins, lateral line stops below posterior dorsal fin, small mouth not reaching beyond front of eye, dorsal fin long-based with soft part taller than spinous part, caudal fin forked.



412. Labridae (wrasses)
Mouth terminal usually with prominent lips, mouth protrusible, teeth usually separate with canine-like front one or two pairs often enlarged and directed forward, single long-based dorsal fin, scales cycloid.

416. Zoarcidae (eelpouts)
Eel-shaped body, single dorsal and anal fins lacking spines and confluent with caudal fin, no spines on head or gill plate, pectoral fin variable in size, pelvic fins reduced or absent, single nostril, scales absent or minute and embedded in skin, skin gelatinous in unscaled species and firm in scaled species.



427. Nototheniidae (cod icefishes)
Body scaled, gill membranes forming a fold across the isthmus, spinous dorsal fin with 3–11 spines, 1–3 lateral lines.

432. Chiasmodontidae (swallowers)
Top of head (cranium) rough and pitted by sensory pores, mouth large with non-protractile jaws extending back past the rear of eye, 2 separate dorsal fins, spinous part short, soft part and anal fin long, gut highly distensible and able to hold large prey. No scales but juveniles have spines on the skin.

440. Leptoscopidae (southern sandfishes)
Long body and broad blunt head, small eyes on top of head, wide mouth, both jaws fringed by cirri, single long-based dorsal fin, slightly longer anal fin, large scales, single lateral line.

453. Callionymidae (dragonets)
Prominent barbed spine on cheek, small protrusible mouth directed forward and down, small gill opening, eyes dorsally placed on head, scales absent, 2 separate dorsal fins, first short, second with much longer base, anal fin similar to but opposite soft dorsal fin.

472. Sphyraenidae (barracudas)
Elongate body with a distinctly pointed head, prominent sabre-like teeth, pointed protruding lower jaw, 2 short-based widely separated dorsal fins.

473. Gempylidae (snake mackerels)
Two clearly separate dorsal fins with spinous first part longer than soft second part (excluding finlets), 2 nostrils on each side of head, pelvic fins usually small and often reduced to single spine with a few or no soft rays.

474. Trichiuridae (cutlassfishes)
Spinous and soft parts of dorsal fin continuous or separated by small gap, spinous part shorter than soft part, single nostril on each side of head, body very elongate and laterally compressed, caudal fin absent or small forked fin, pelvic fin reduced to a scale-like spine or completely absent.

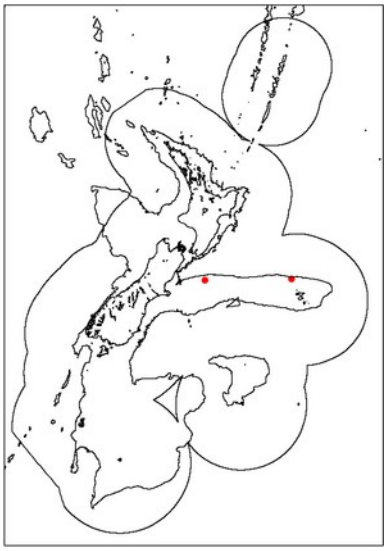
479. Centrolophidae (medusafishes)
Lower jaw often shorter than upper and tucking inside it when closed, very small teeth in jaws, in single series, no teeth on roof of mouth, dorsal fin long, scales lacking from head, head usually covered with small pores that may spread back onto trunk.

480. Nomeidae (driftfishes)
Two dorsal fins, the first high with long slender spines, folding into a groove along the back, scales thin and deciduous, numerous pores on the snout, head, and back.

498. Achiropsettidae (southern flounders)
Eyes on left side of head, pectoral fin tiny (juveniles) or absent (adults), lateral line on eyed side and straight.

SECTION 3. GUIDE TO SPECIES

Slender hagfish
Neomyxine biniplicata



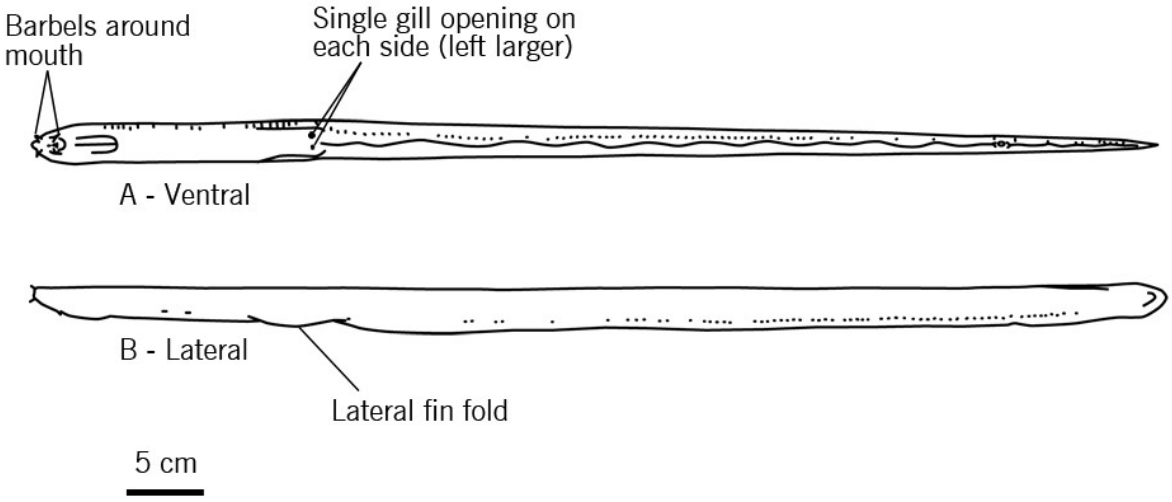
Family: 1. Myxinidae (hagfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: NBI



Distinguishing features: Single external gill opening on each side, on the ventral surface, left-hand opening slightly larger. Short lateral fin fold extending from ventral surface behind gill opening forward and up. No dorsal fin, no externally obvious eyes, barbels around mouth.

Colour: Fresh specimens are flesh-coloured, with faint olive-brown tonings, mucous gland pores are white.

Size: To about 45 cm TL.

Distribution: Known only from New Zealand.

Depth: 1 to 1100 m.

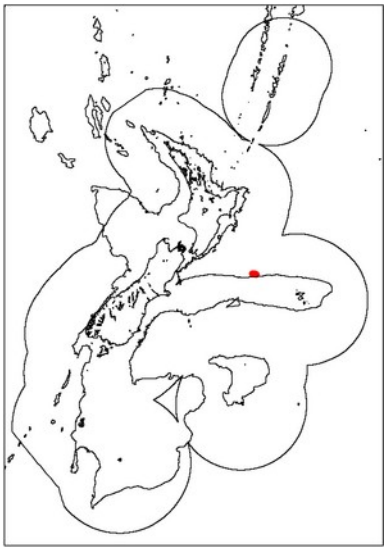
Similar species: Species of *Eptatretus* have 5 to 7 pairs of external gill openings. Bootlace hagfish *Nemamyxine elongata* has a single gill opening on each side, is very thin-bodied and long, reaching at least 79 cm TL, and is very rare, known only from 2 specimens.

Biology & ecology: Frequently captured by in-shore trawlers on soft seafloor. Probably benthic to demersal. Probably feeds on carrion. A 31.5 cm TL female had large ova up to 4.5 cm long.

References

Mincarone & Stewart (2006), Richardson (1953), Richardson & Jowett (1951), Stewart (1998a).

Smallspine spookfish
Harriotta haeckeli



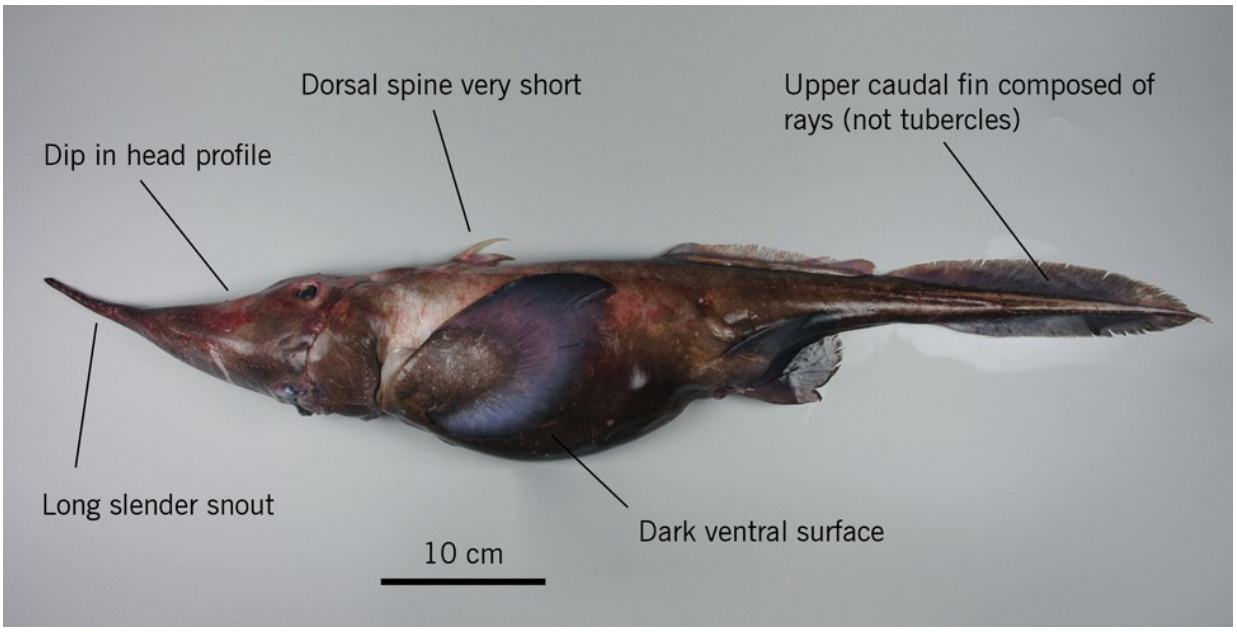
Family: 6. Rhinochimaeridae (longnose chimaeras)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: HHA



Distinguishing features: Long slender snout that is often upturned, head profile dips gently in front of eye, first dorsal fin spine very short, upper caudal fin not composed of fleshy tubercles (males), ventral surface (especially belly) darker than dorsal surface.

Colour: Pale brown above, darker brown below, particularly on belly. Some individuals dark brown above and blackish below.

Size: To at least 65 cm (excluding tail filament).

Distribution: Known from Pacific, Indian and Atlantic oceans but distribution not well known because of limited sampling of depths greater than 1500 m.

Depth: 1400 to 2600 m.

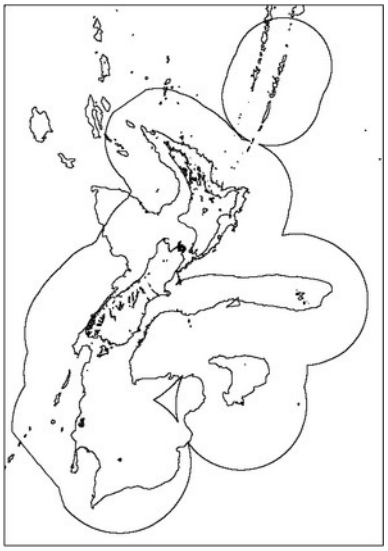
Similar species: Pacific spookfish (*Rhinochimaera pacifica*) has a much longer snout, flatter head profile, longer dorsal spine and has tubercles (males) instead of rays on the upper caudal fin lobe. Longnose spookfish (*Harriotta raleighana*) has a long first dorsal fin spine that reaches origin of second dorsal fin, and occurs shallower than about 1500 m.

Biology & ecology: Probably demersal on the lower continental slope.

References

Last & Stevens (2009).

Leopard chimaera
Chimaera panthera



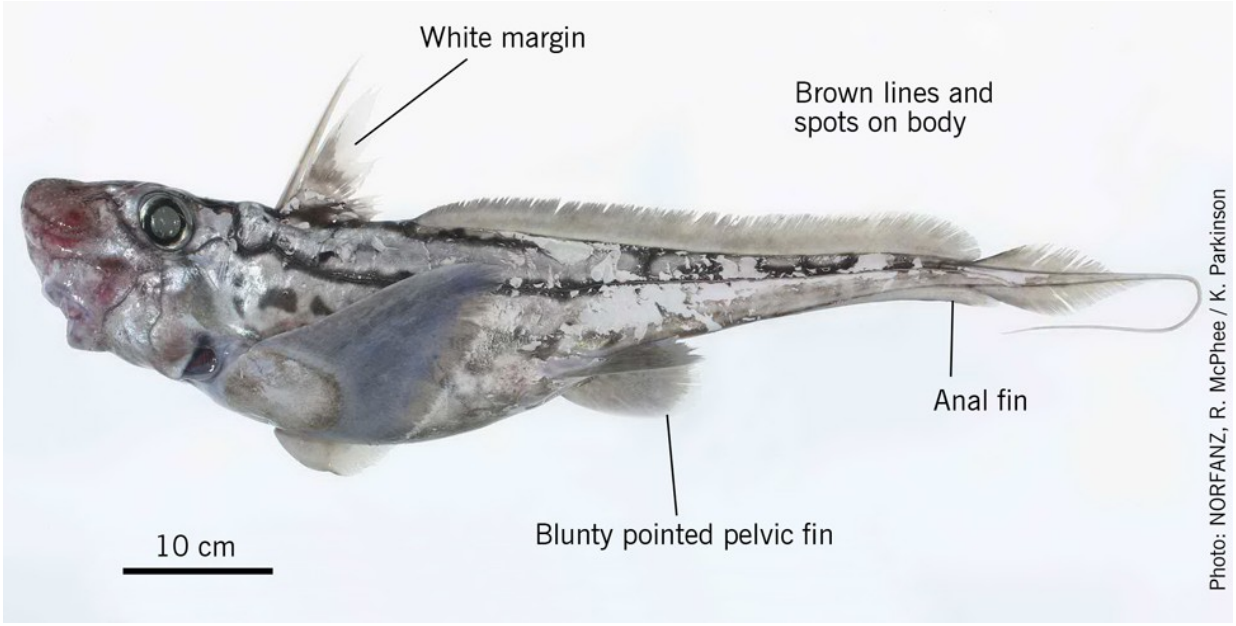
Family: 7. Chimaeridae (shortnose chimaeras or ratfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: CHI

MFish research code: CPN



Distinguishing features: Anal fin present, body and fins covered with chocolate brown reticulations and spots, white margin on first dorsal fin, pelvic fins bluntly pointed.

Colour: Grey with chocolate brown reticulations and spots covering body and fins (faint), white margin on first dorsal fin. The leopard pattern possibly appears and then strengthens as the chimaera grows, as specimens that may be juveniles of this species are uniformly black.

Size: To at least 129 cm TL (about 100 cm excluding tail filament).

Distribution: Submarine ridges north of New Zealand (Kermadec Ridge, Three Kings Ridge and Lord Howe Rise) south to Challenger Plateau and Hawke Bay. Probably widespread in the south-west Pacific Ocean.

Depth: 320 to at least 1100 m.

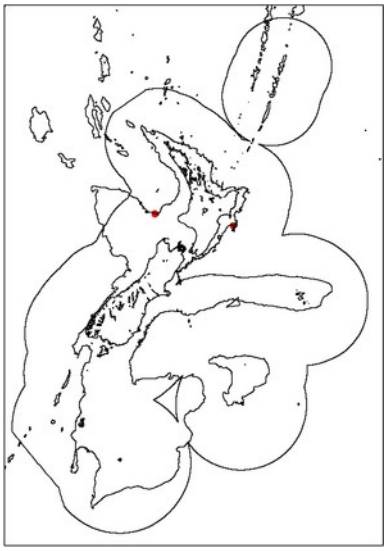
Similar species: *Hydrolagus* species lack an anal fin. Other *Chimaera* species lack the distinctive leopard colour pattern.

Biology & ecology: Demersal on the continental slope.

References

Didier (1998), Stewart (2003c).

Goblin shark
Mitsukurina owstoni



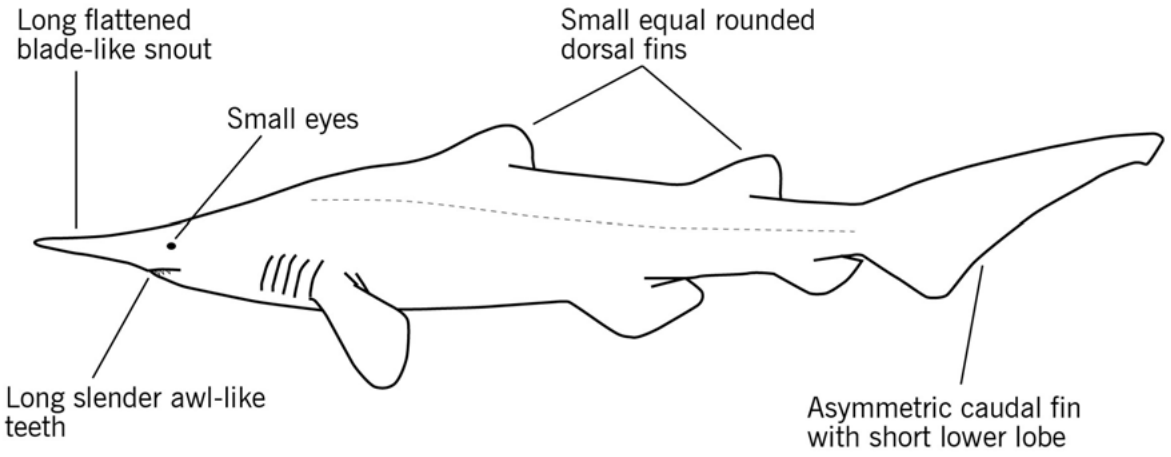
Family: 17. Mitsukurinidae (goblin sharks)

Maori names: n.a.

Other names: n.a.

MFish reporting code: OSD

MFish research code: GOB



Distinguishing features: Snout long, flattened and blade-like, jaws highly protrusible, teeth long, slender, and awl-like, eyes small, dorsal fins small, rounded and similar in size, tail asymmetric with long upper lobe and short lower lobe.

Colour: Usually pale grey, but may have a pinkish tinge owing to blood vessels being visible through the skin.

Size: 390 cm TL.

Distribution: Recorded from central New Zealand (Gisborne, Hawke Bay, Kaikoura, Challenger Plateau) but probably much more widespread. Worldwide.

Depth: 300 to 1300 m.

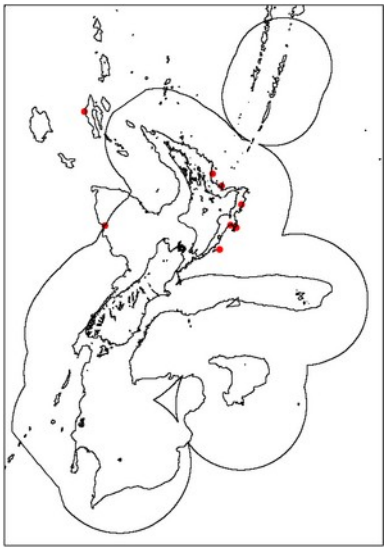
Similar species: Catcharks (*Apristurus* spp.) have very small, numerous teeth.

Biology & ecology: Habitat poorly known. Possibly lives in midwater. Rare.

References

Duffy (1997), Last & Stevens (2009), Stewart & Clark (1988).

McMillan's catshark
Parmaturus macmillani



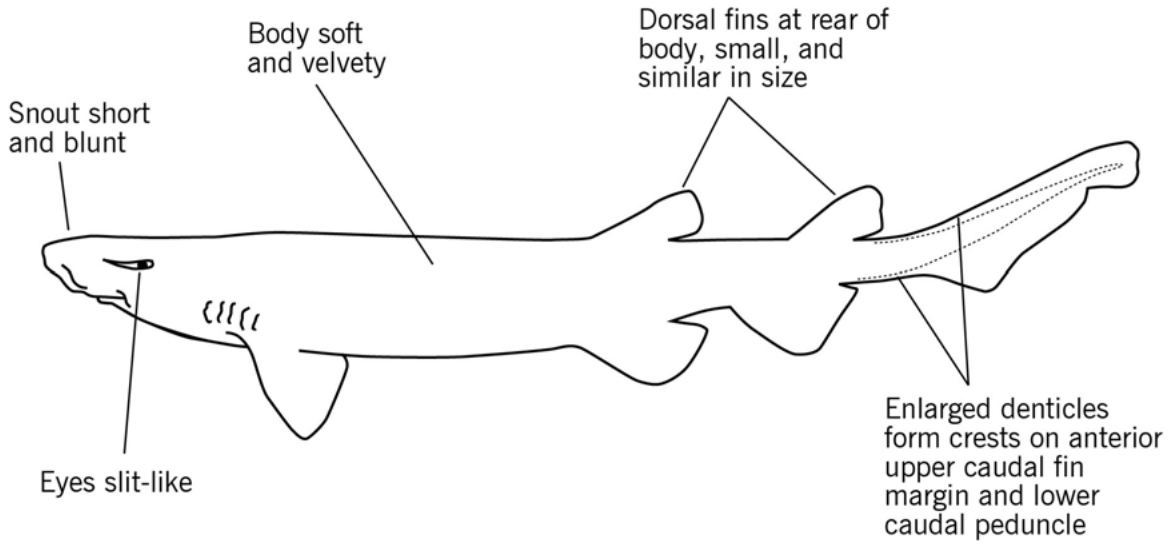
Family: 23. Scyliorhinidae (cat sharks)

Maori names: n.a.

Other names: n.a.

MFish reporting code: PCS

MFish research code: PCS



Distinguishing features: Eyes slit-like, dorsal fins small, equal and at rear of body, crests of enlarged denticles on anterior margin of upper caudal fin lobe and lower caudal peduncle, snout short and blunt, body soft and velvety.

Colour: Brown.

Size: To at least 53 cm TL.

Distribution: Three Kings and West Norfolk Ridges.

Depth: Specimens known from 950 to 1000 m but undoubtedly inhabit a wider range.

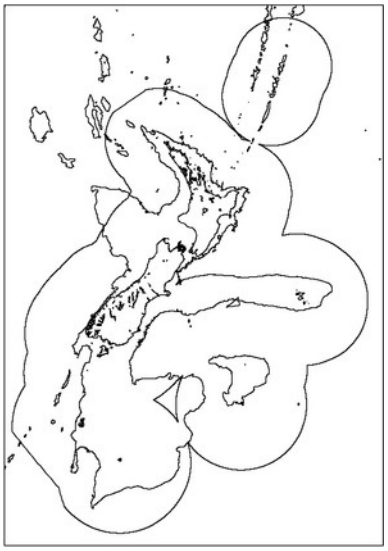
Similar species: Dawson's catshark (*Bythaelurus dawsoni*) has second dorsal fin larger than first, and white margins and dark sub-marginal blotches on fins. Carpet shark (*Cephaloscyllium isabellum*) has first dorsal fin larger than second and dark blotches and saddles on back.

Biology & ecology: Habitat poorly known. Probably demersal on mid to lower continental slope. Rare.

References

Compagno et al. (2005), Hardy (1985).

Southern mandarin dogfish
Cirrhigaleus australis



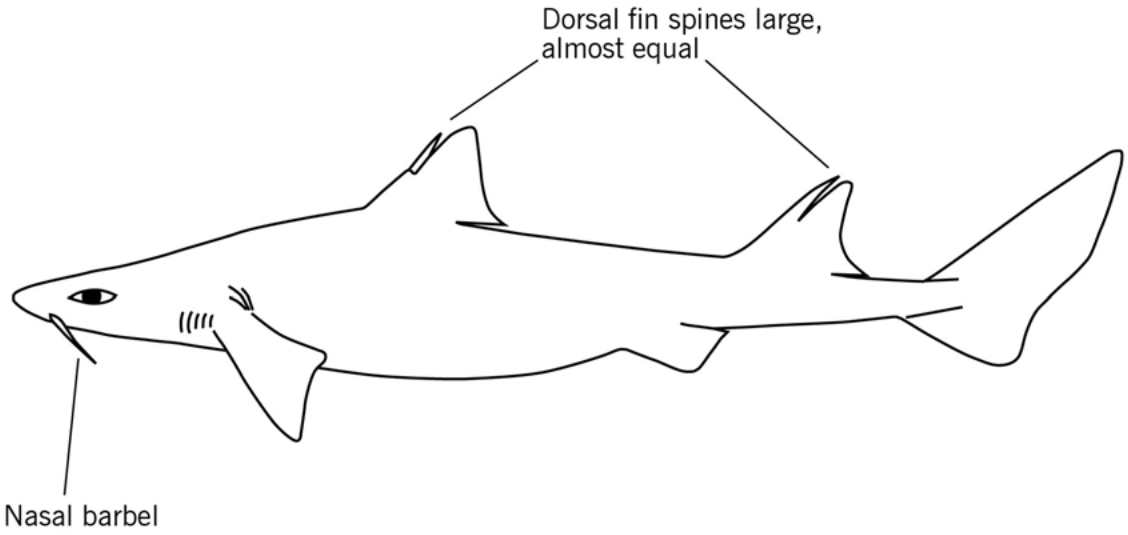
Family: 34. Squalidae (dogfish sharks)

Maori names: n.a.

Other names: Mandarin shark

MFish reporting code: OSD

MFish research code: MSH



Distinguishing features: Anal fin absent, anterior nasal flaps greatly elongated into barbels, long spine in front of each dorsal fin (second spine slightly longer than first).

Colour: Grey above, pale below. Barbels white.

Size: To at least 123 cm TL.

Distribution: The few specimens known from New Zealand were from the Bay of Plenty. Also occurs in south-eastern Australia.

Depth: Specimens known from 360 to 640 m in Australia and New Zealand, but undoubtedly inhabit a wider range.

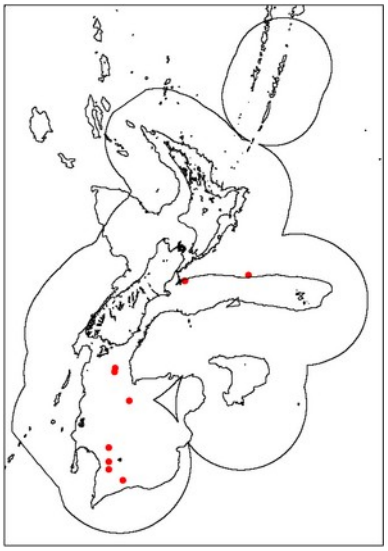
Similar species: None. No other New Zealand shark has long nasal barbels. Previously identified as *Cirrhigaleus barbifer* which occurs in Japan and Indonesia, but New Zealand specimens are more likely to be *C. australis* which has only recently been described from Australia.

Biology & ecology: Demersal on the upper continental slope.

References

Garrick & Paul (1971), Last & Stevens (2009), White et al. (2007).

Moller's lantern shark
Etmopterus molleri



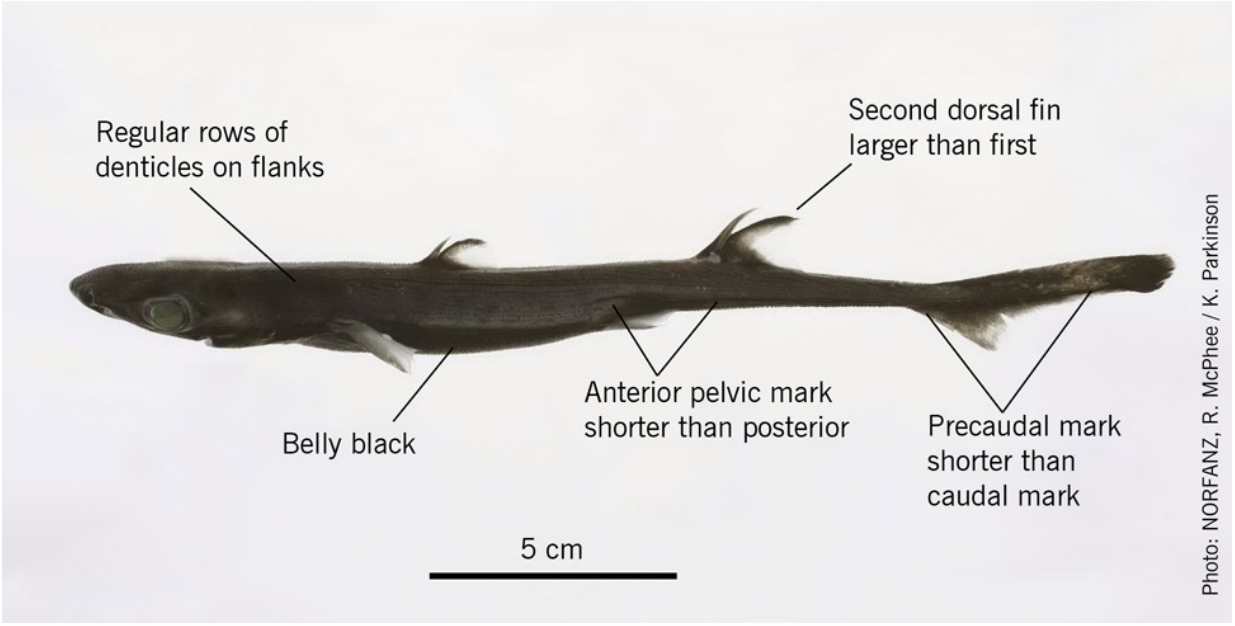
Family: 36. Etmopteridae (lantern sharks)

Maori names: n.a.

Other names: n.a.

MFish reporting code: EMO

MFish research code: EMO



Distinguishing features: Anal fin absent, second dorsal fin larger than first, anterior pelvic mark shorter than posterior pelvic mark, precaudal mark shorter than caudal mark, belly black.

Colour: Light brown above, dark brown flanks with a pale stripe between pectoral and pelvic fins, black belly. Conspicuous black pelvic and caudal markings (light organs).

Size: 46 cm TL.

Distribution: Uncertain distribution in New Zealand. Also eastern Australia, Japan and Taiwan, and possibly the western Indian Ocean.

Depth: 230 to 700 m.

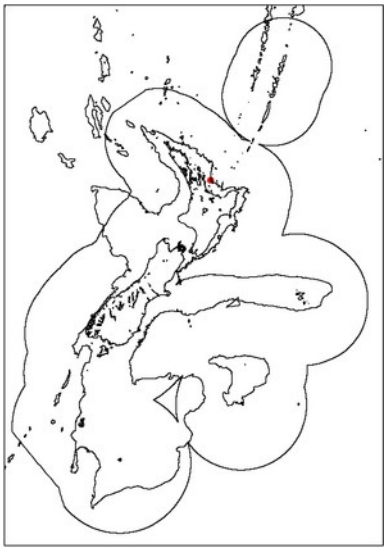
Similar species: Other lantern sharks differ in their combination of colour pattern, body shape, relative dorsal fin sizes, and relative sizes of the branches of the black pelvic and caudal markings.

Biology & ecology: Demersal on the upper continental slope.

References

Compagno et al. (2005), Last & Stevens (2009).

Southern sleeper shark
Somniosus antarcticus



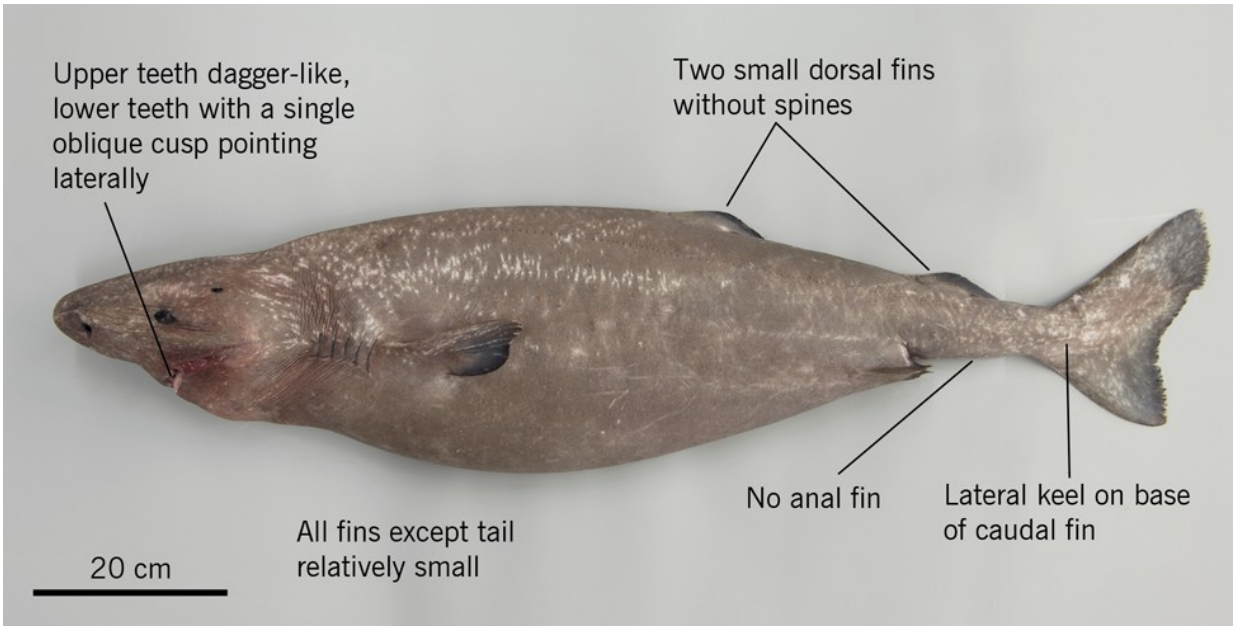
Family: 37. Somniosidae (sleeper sharks)

Maori names: n.a.

Other names: n.a.

MFish reporting code: OSD

MFish research code: SMI



Distinguishing features: Anal fin absent, all other fins small except tail, dorsal fin without spines, lateral keel on base of tail, upper teeth dagger-like, lower teeth with a single cusp angled laterally towards edge of jaw and in combination forming a straight cutting surface.

Colour: Light grey or pinkish grey with bluish-black fins, and often having many small white spots particularly on the upper surface. Usually covered with a dark brown mucus which makes the shark appear brown or black.

Size: Reaches at least 450 cm TL, but probably exceeds 600 cm.

Distribution: Throughout New Zealand waters, though more commonly seen in southern waters. Widespread in southern hemisphere.

Depth: 300 to 1440 m.

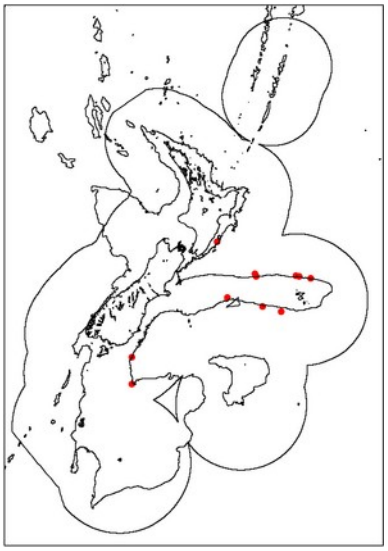
Similar species: Frog shark (*Somniosus longus*) does not exceed 150 cm TL, and has more erect cusps on the lower teeth, forming a saw-tooth rather than a straight cutting.

Biology & ecology: Demersal on the continental slope, possibly also swims in midwater.

References

Compagno et al. (2005), Francis et al. (1988), Last & Stevens (2009).

Giant spineback
Notacanthus chemnitzi



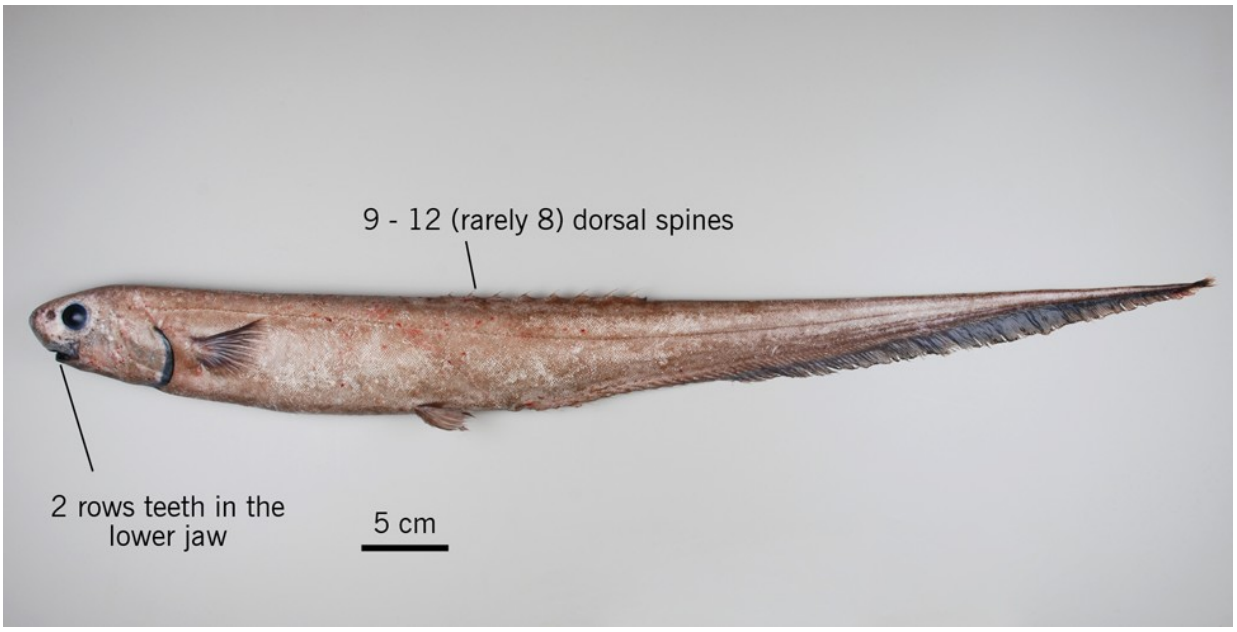
Family: 73. Notacanthidae (spiny eels)

Maori names: n.a.

Other names: n.a.

MFish reporting code: DWE

MFish research code: NOC



Distinguishing features: Dorsal fin with 9 to 12 (rarely 8) short stout spines. Two or more rows of teeth on lower jaw and on roof of the mouth (palatine).

Colour: Dark brown. Blackish rear two thirds of anal fin. Inside of mouth, lips, and gill cavity blackish.

Size: To about 110 cm TL.

Distribution: Worldwide in non-equatorial waters.

Depth: New Zealand fisheries records from 440 to 1700 but elsewhere 128 to 3200 m.

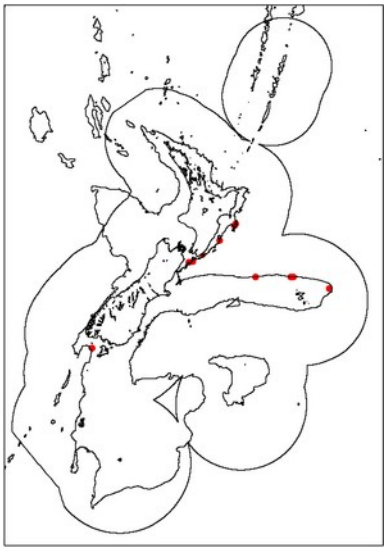
Similar species: Spineback (*Notacanthus sexspinis*) has 6 to 8, usually 7 dorsal spines, and a single row of teeth on the lower jaw.

Biology & ecology: Unknown. Presumed to be demersal.

References

Gomon et al. (2008).

Grey cutthroat eel
Synaphobranchus affinis



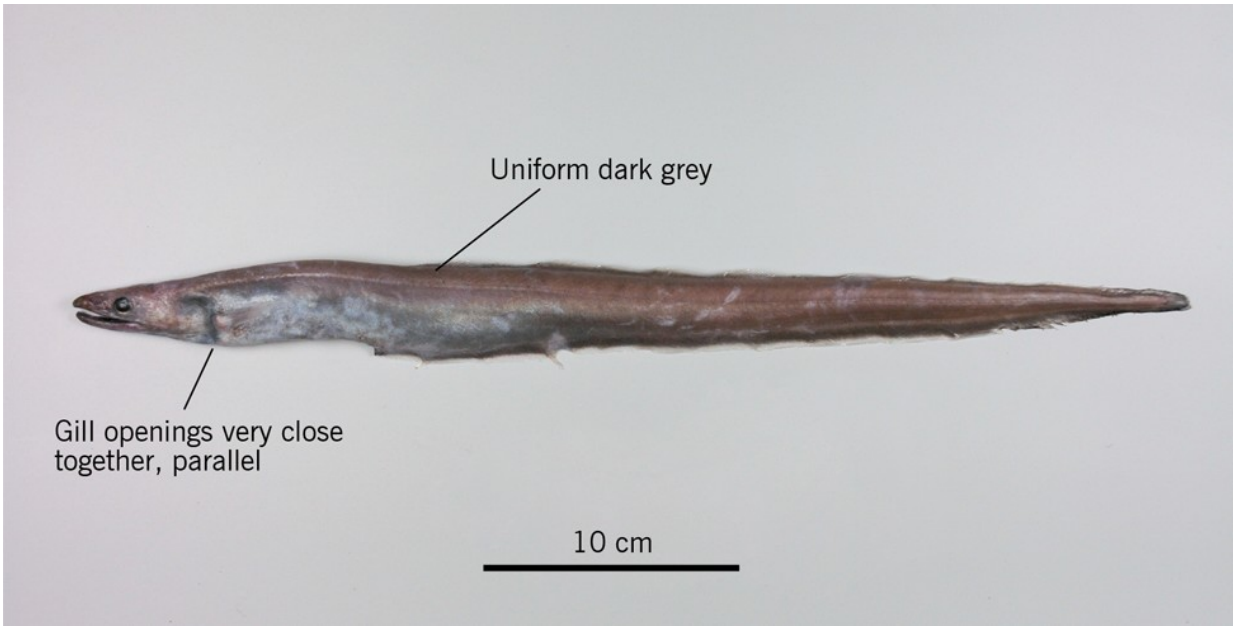
Family: 80. Synaphobranchidae (cutthroat eels)

Maori names: n.a.

Other names: n.a.

MFish reporting code: SYN

MFish research code: SAF



Distinguishing features: Gill openings very close together, almost parallel to each other, running along the ventral body below the pectoral fin bases. Pectoral fins about half of head length. Dorsal fin origin in front of anal fin origin. Body scales tiny, elongate-oval arranged at right angles to one another.

Colour: Uniformly dark grey.

Size: New Zealand specimens are mostly less than 100 cm. Elsewhere reported to 160 cm TL.

Distribution: Worldwide except southwest Atlantic and northeast Pacific Oceans.

Depth: 500 to 1500 m.

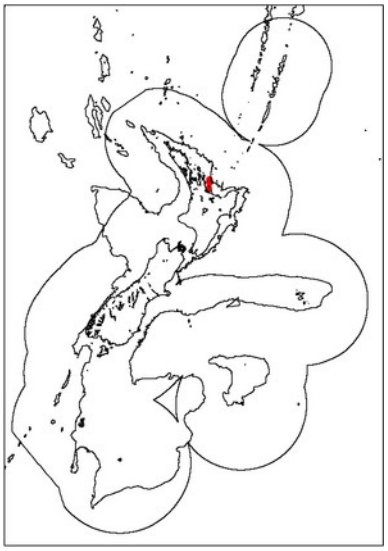
Similar species: Basketwork eel (*Diastobranchus capensis*) has gill openings running obliquely up and back, separated at the front by more than their length, black anal fin with origin in front of dorsal fin origin, wickerwork body marking, and pectoral fins that are about two-thirds of head length.

Biology & ecology: Unknown. Demersal.

References

Gomon et al. (2008), Paulin et al. (1989).

Snake eel
Ophisurus serpens



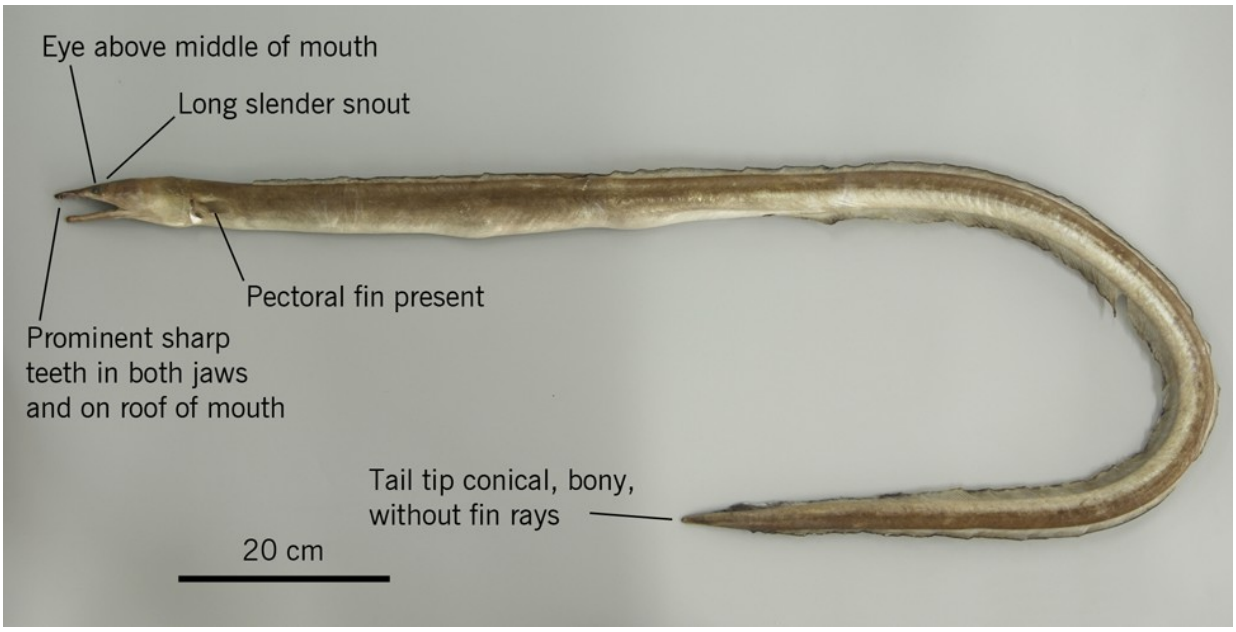
Family: 81. Ophichthidae (snake eels and worm eels)

Maori names: n.a.

Other names: n.a.

MFish reporting code: OSE

MFish research code: OSE



Distinguishing features: Bony, conical tail tip without fin rays, snout long and slender with eye centred above middle of large mouth, prominent sharp teeth in both jaws and on roof of mouth, pectoral fin present, head pores black.

Colour: Grey, olive green or brown above, silvery white below, head pores and fin margins black. Juveniles silver all over.

Size: To at least 200 cm TL and probably 250 cm TL.

Distribution: Northern North Island. Temperate and subtropical waters worldwide.

Depth: 0 to 50 m, possibly deeper.

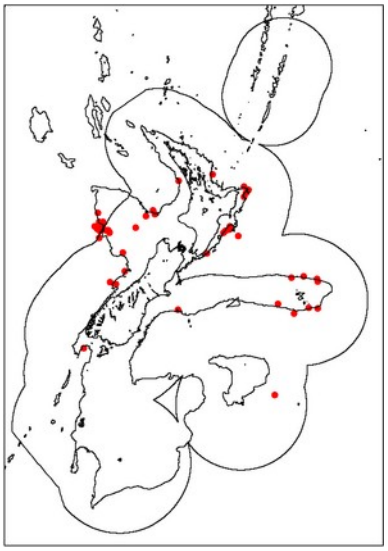
Similar species: Most other New Zealand eels lack a bony conical tail tip and have fin rays extending right around the tail. Other ophichthid eels with a bony conical tail tip lack pectoral fins and/or have a different colour pattern.

Biology & ecology: Demersal in estuaries and coastal waters. Lives in a burrow in mud or sand with only the head protruding.

References

Ayling & Cox (1982), Gomon et al. (2008), Kuiter (2000).

Black snipe eel
Avocettina spp.



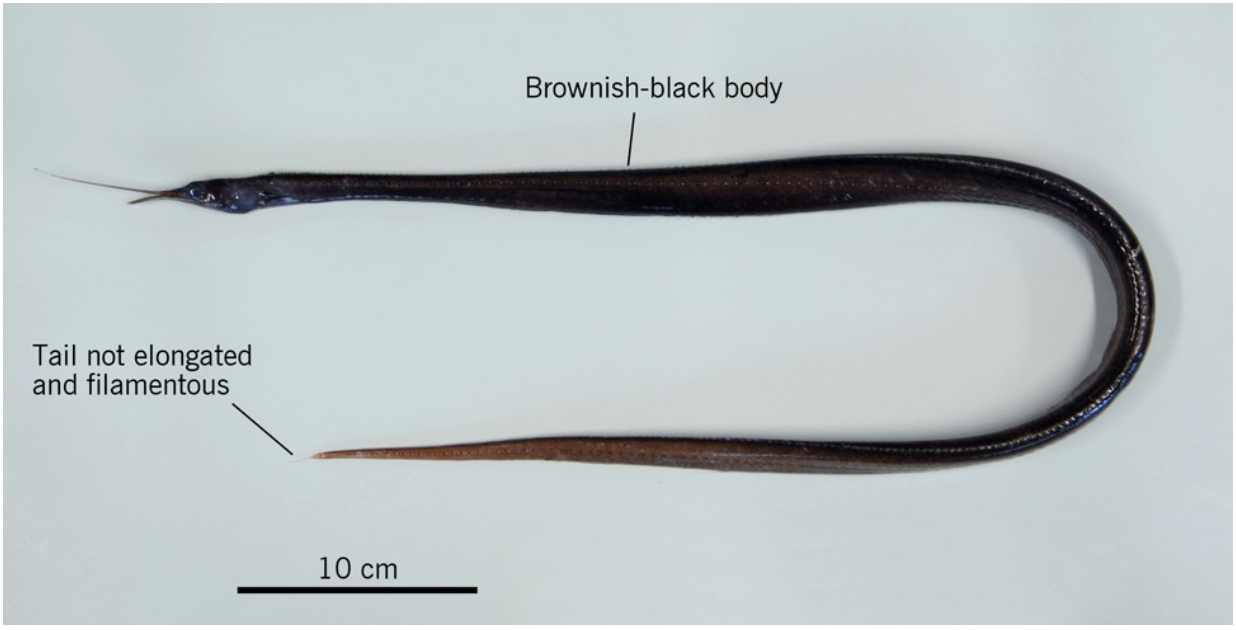
Family: 85. Nemichthyidae (snipe eels)

Maori names: n.a.

Other names: n.a.

MFish reporting code: DWE

MFish research code: AVO



Distinguishing features: Tail not extremely elongated and filamentous. Body flattened. Anus well behind pectoral fin. Lateral line pores in a single row.

Colour: Dark brownish-black.

Size: To about 80 cm TL.

Distribution: Southern hemisphere south of about 20 S.

Depth: Deep midwater.

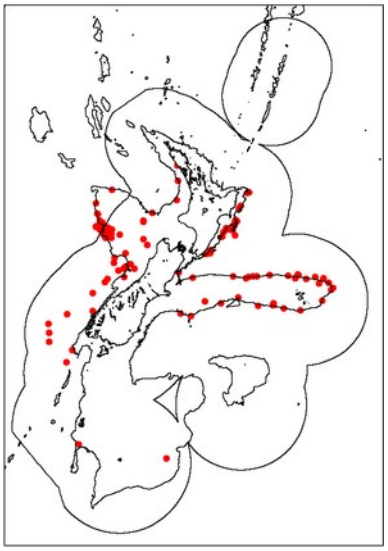
Similar species: The 3 species of black snipe eel (*Avocettina*) recorded from New Zealand can only be separated in the laboratory using lateral line pore and vertebral counts. *Labichthys yanoi* has the anus located below the rear of the pectoral fin. Snipe eel (*Nemichthys curvirostris*) has an elongated and filamentous tail and a pale body with internal (between vertebrae) dark vertical bars.

Biology & ecology: Live in midwater and probably caught as the net is shot or hauled to the surface. The function of the long curved jaws in females is unclear. Mature males have short jaws and a rounded head. Feed on crustaceans.

References

Gomon et al. (2008), Paulin et al. (1989), Smith (1999).

Snipe eel
Nemichthys curvirostris



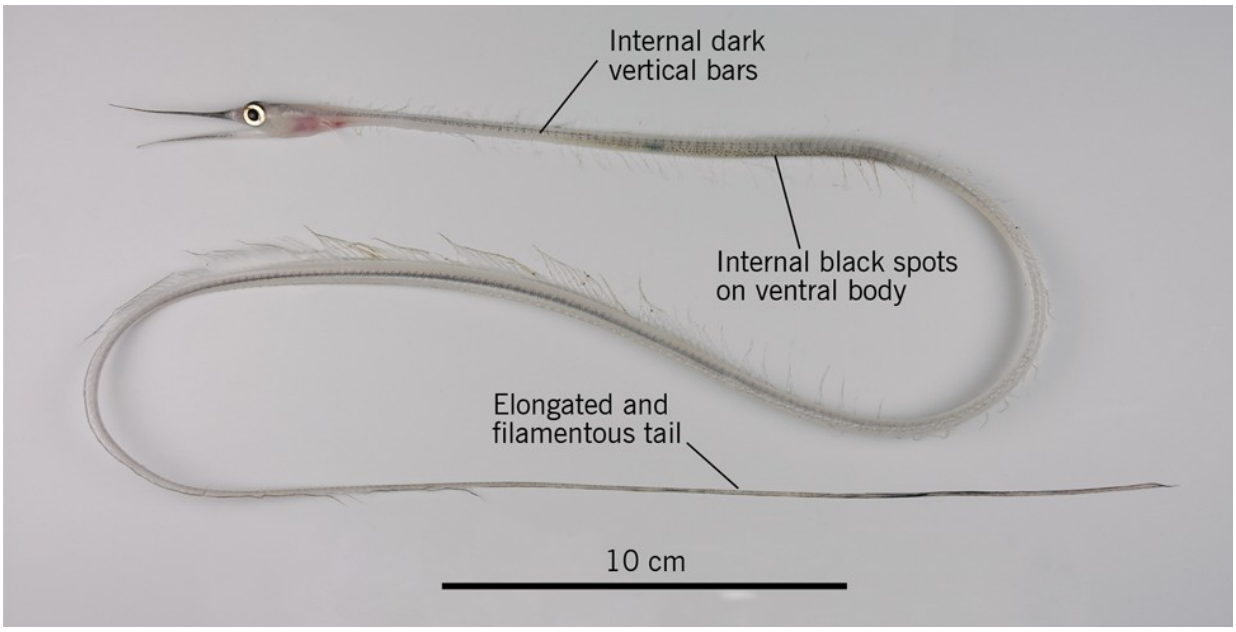
Family: 85. Nemichthyidae (snipe eels)

Maori names: n.a.

Other names: n.a.

MFish reporting code: DWE

MFish research code: NCU



Distinguishing features: Tail extremely elongated and filamentous. Anus below pectoral fin. Eye large. Lateral line pores numerous, in 3 rows. Body pale, with dark internal vertical bars (between vertebrae), and sometimes small blackish spots internally on ventral half of body.

Colour: Pale body with dark internal vertical bars, and sometimes small blackish spots internally on ventral half of body.

Size: To about 140 cm TL.

Distribution: South Pacific and Atlantic Oceans.

Depth: Deep midwater.

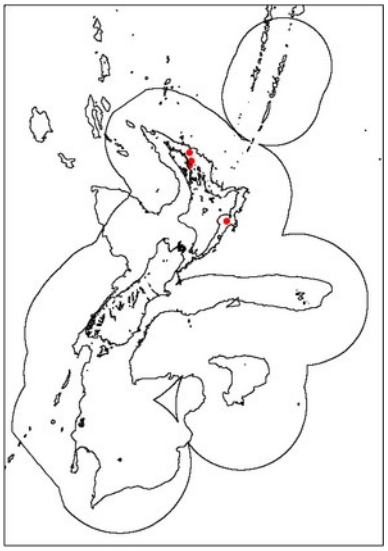
Similar species: Another snipe eel *Nemichthys scolopaceus* has a brownish body, darker below than above. Species of black snipe eel (*Avocettina*) have a shortened tail (not elongated and filamentous) and a brownish-black body.

Biology & ecology: Live in midwater and probably caught as the net is shot or hauled to the surface. The function of the long curved jaws in females is unclear. Mature males have short jaws and a rounded head. Seen from submersibles hanging motionless in vertical position possibly waiting for prey.

References

Gomon et al. (2008), Paulin et al. (1989), Smith (1999).

Umbrella conger
Gnathophis umbrellabius



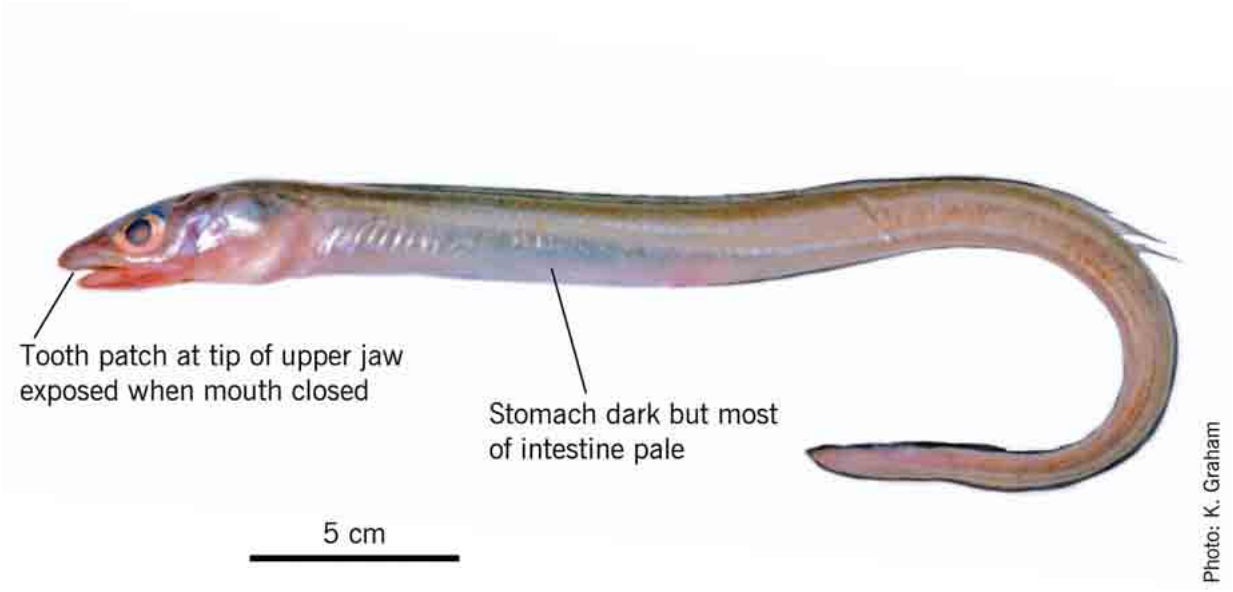
Family: 86. Congridae (conger eels)

Maori names: n.a.

Other names: n.a.

MFish reporting code: DWE

MFish research code: UEE



Distinguishing features: Tooth patch at tip of upper jaw (intermaxillary) exposed when the mouth is closed. Stomach black or dark brown but almost entire length of the intestine is pale. 34 to 38 lateral line pores from behind the head to the anus but only the second pore on the lateral line is very slightly elevated.

Colour: Olive greenish upper body, silvery sides and lower body. Dorsal and anal fins with a black margin. Stomach black or dark brown but almost entire length of the intestine is pale.

Size: To about 45 cm TL.

Distribution: New Zealand including Kermadec Islands and Australia.

Depth: 12 to 366 m.

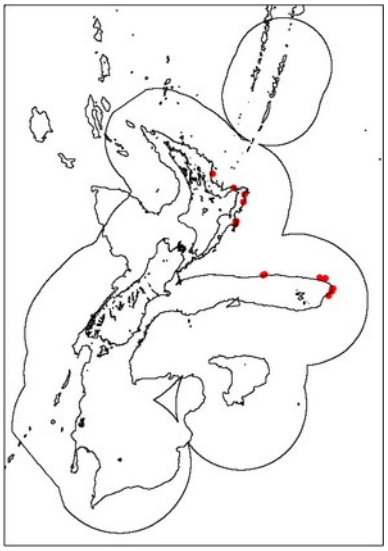
Similar species: Silver conger (*Gnathophis habenatus*) has tooth patch at the tip of the upper jaw (intermaxillary) hidden by the lower jaw when the mouth is closed, stomach and anterior half of the intestine dark brown or black, only the second pore on the lateral line is very slightly elevated, and 36 to 38 pores on the lateral line from behind the head to the anus. Species of *Bassanago* occur deeper than about 300 m, are pale greyish-brown (not silvery) and have the lateral line pores in front of pectoral fin base in a straight line with none raised.

Biology & ecology: On muddy or silty bottom and active mainly at night, feeding on small crustaceans and polychaete worms. Spawns offshore in early winter. Larvae are pelagic for about 10 months, dispersing widely along the coast.

References

Anderson et al. (1998), Gomon et al. (2008), Karmovskaya & Paxton (2000).

Duckbill eel
Nettastoma parviceps



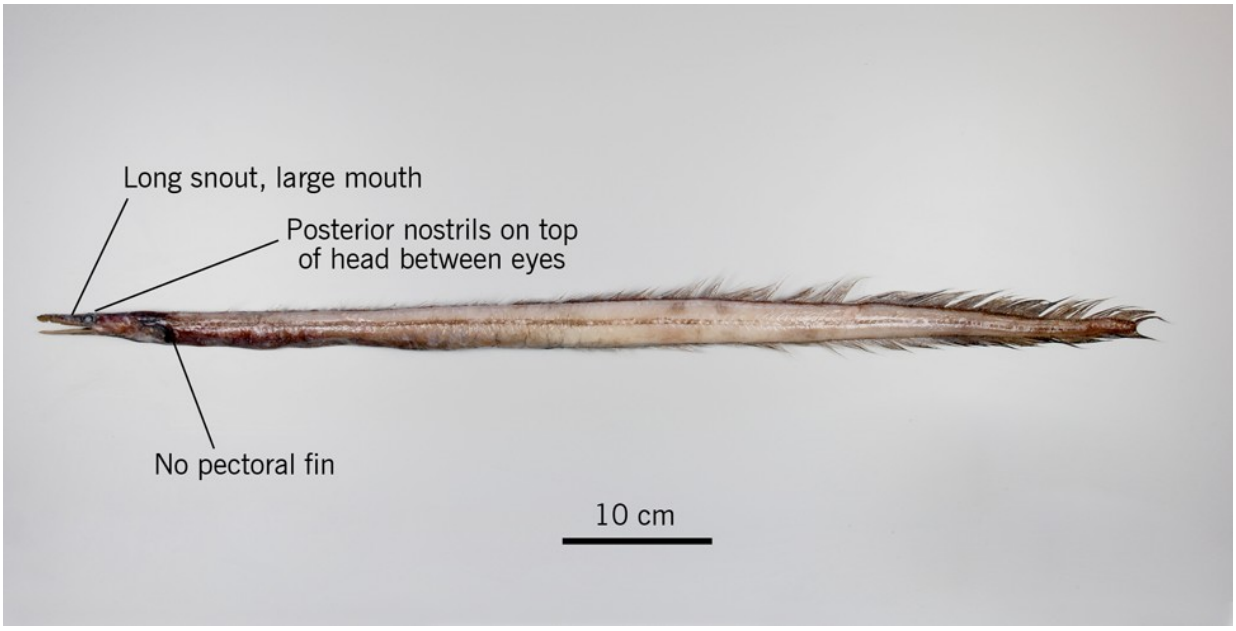
Family: 87. Nettastomatidae (duckbill eels)

Maori names: n.a.

Other names: n.a.

MFish reporting code: DWE

MFish research code: NET



Distinguishing features: Elongated snout and large mouth. No pectoral fin. Dorsal fin origin close behind gill opening. Elongated and slender body. Anterior nostril tubular, near tip of snout. Posterior nostril on top of head, between, and in front of rear edge of eye. (Specimen shown has a damaged tail).

Colour: Brownish body and fins. Pale body probably caused by the net rubbing off some of the skin.

Size: To at least 80 cm TL.

Distribution: South Africa east to southern Australia and New Zealand; Japan and Hawaiian Islands.

Depth: 550 to 940 m.

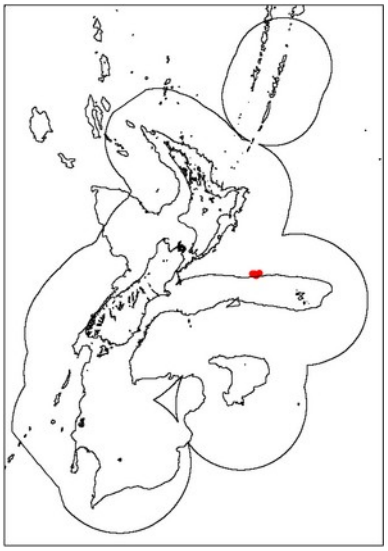
Similar species: Most other eels have a pectoral fin and lack an elongated head and snout. Periscope duckbill eel (*Venefica*) sp. has a long fleshy proboscis on the tip of the snout.

Biology & ecology: Unknown. Demersal.

References

Gomon et al. (2008), Smith (1999).

Periscope duckbill eel
Venefica sp.



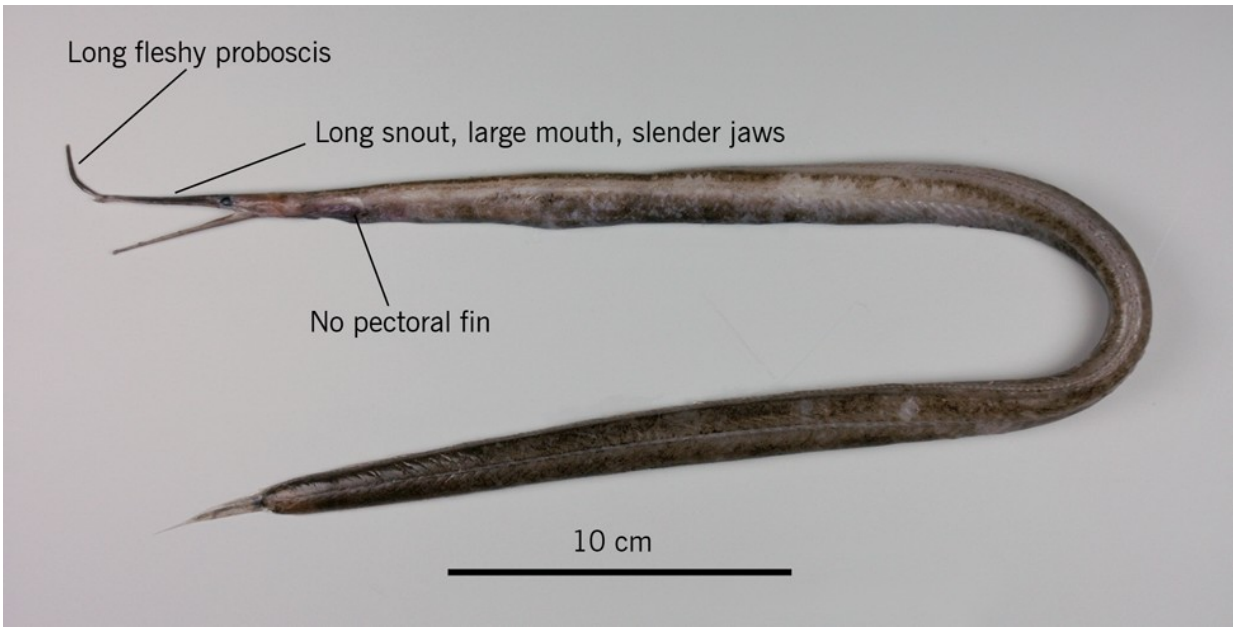
Family: 87. Nettastomatidae (duckbill eels)

Maori names: n.a.

Other names: n.a.

MFish reporting code: DWE

MFish research code: VEN



Distinguishing features: Tip of snout ending in a long fleshy proboscis. Elongated snout, large mouth, and slender jaws. No pectoral fin. Dorsal fin origin close behind gill opening. Elongated and slender body. (Specimen shown has a damaged tail).

Colour: Dark brownish-grey body, fins paler.

Size: To at least 70 cm TL.

Distribution: In New Zealand known from the north Chatham Rise. Elsewhere uncertain because taxonomy is not resolved.

Depth: 1240 to 1710 m.

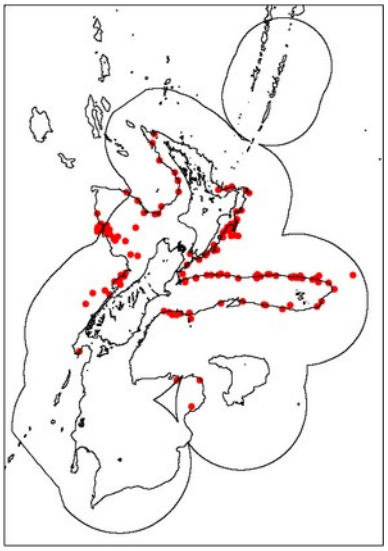
Similar species: Most other eels have a pectoral fin and lack an elongated head and snout. Duckbill eel (*Nettastoma parviceps*) lacks a long fleshy proboscis on the tip of the snout.

Biology & ecology: Unknown. Demersal.

References

Smith (1999), Smith & Heemstra (1986).

Sawtooth eel
Serrivomer spp.



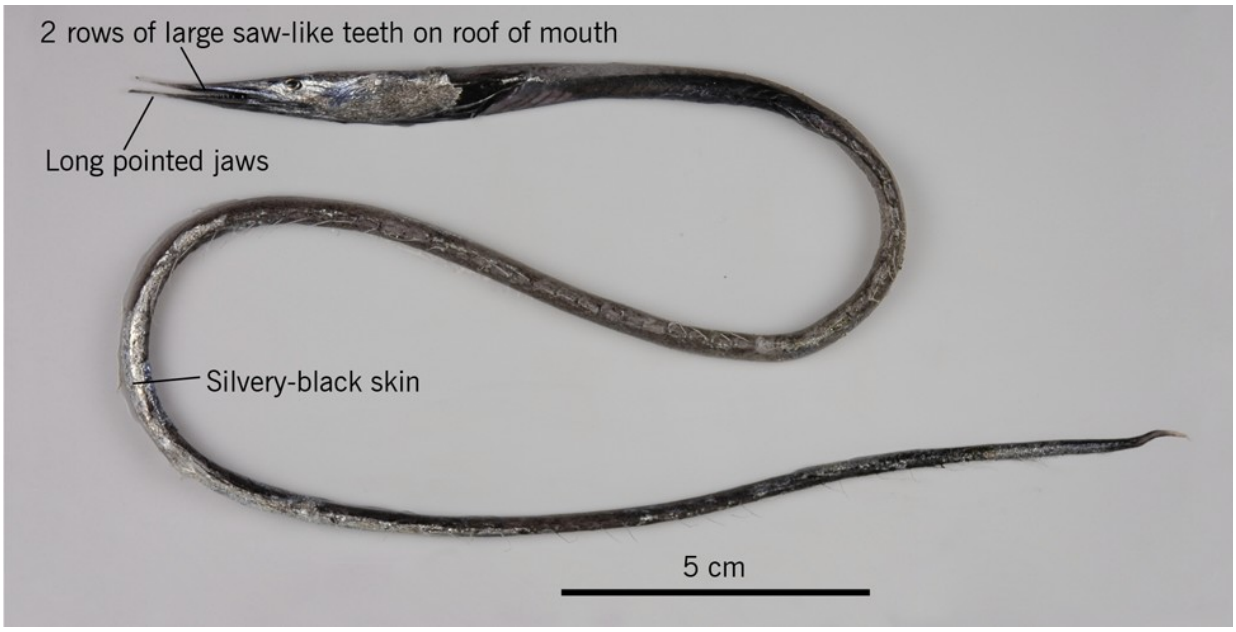
Family: 88. Serrivomeridae (sawtooth eels)

Maori names: n.a.

Other names: n.a.

MFish reporting code: DWE

MFish research code: SAW



Distinguishing features: Jaws and snout elongated and pointed. Large saw-like teeth on roof of mouth (vomer) in 2 close-set rows. Silvery-black, elongated, and slender body. Small pectoral fin. At least 2 species in New Zealand.

Colour: Silvery-black but skin soft and easily damaged.

Size: To about 60 cm TL.

Distribution: Probably worldwide.

Depth: Deep midwater.

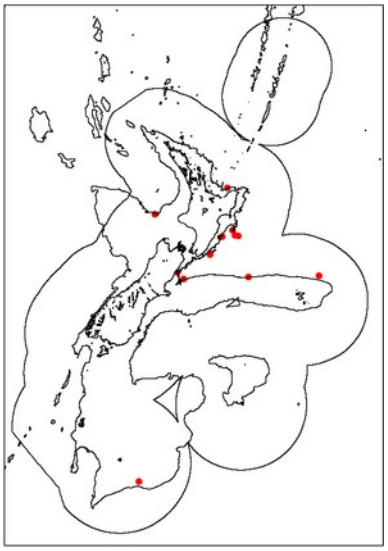
Similar species: Snipe eel (*Nemichthys curvirostris*) has curved non-closing jaws (females), an elongated and filamentous tail, and a pale body with internal dark vertical bars. Species of *Avocettina* have curved non-closing jaws (females), a shortened tail, and a brownish-black body.

Biology & ecology: Live in midwater and probably caught as the net is shot or hauled to the surface.

References

Gomon et al. (2008), Smith (1999).

Gulper eel
Eurypharynx pelecanoides



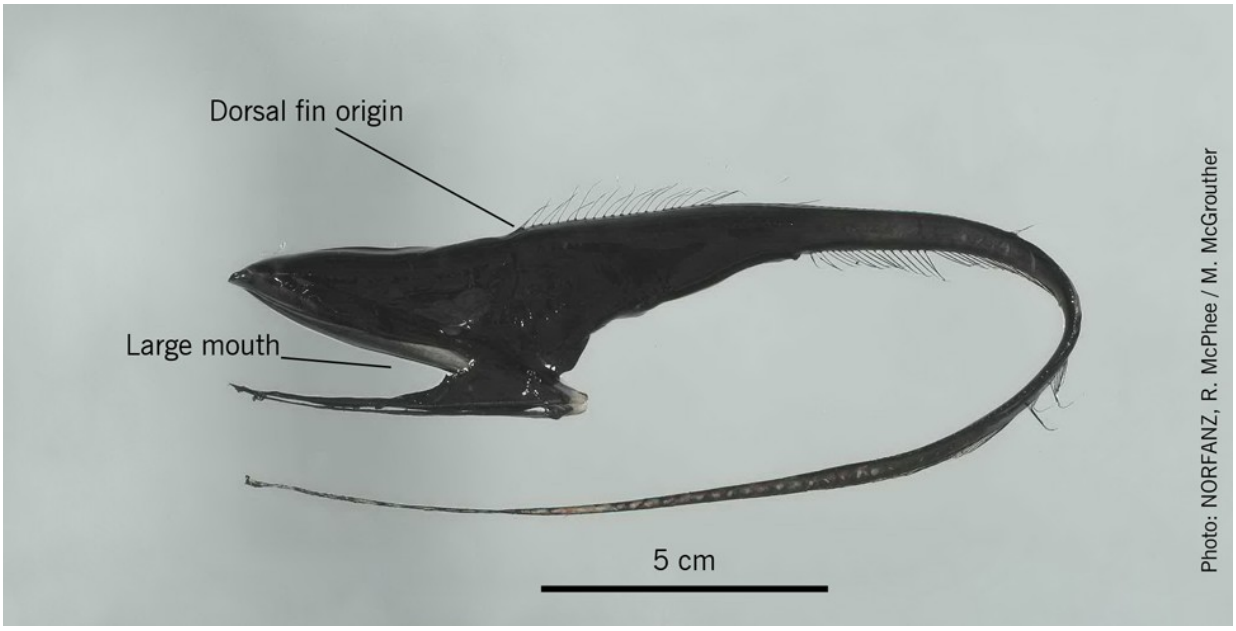
Family: 91. Eurypharyngidae (gulpers or pelican eels)

Maori names: n.a.

Other names: n.a.

MFish reporting code: GUL

MFish research code: GUL



Distinguishing features: Greatly enlarged mouth. Skin covering mouth and throat greatly expandable. Very fragile body covered in dark velvety skin. Dorsal fin begins about midway between snout tip and anus. Tail ending in small light organ.

Colour: Skin blackish. Pale streak (probably a light organ) on each side of the dorsal fin.

Size: To about 75 cm TL.

Distribution: Worldwide in tropical and temperate seas.

Depth: In midwater to 3000 m.

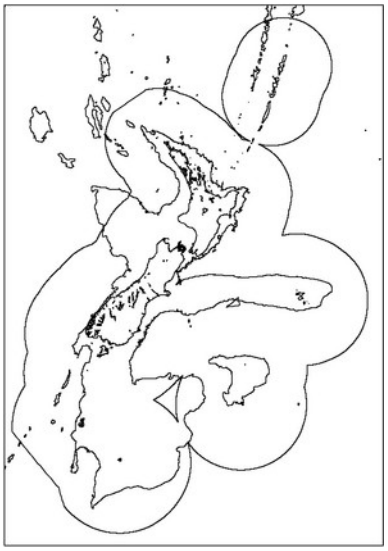
Similar species: Swallower eel (*Saccopharynx schmidti*) has a dorsal fin that begins over or slightly ahead of anus, smaller mouth, and a pale streak (probably a light organ) on each side of the dorsal fin.

Biology & ecology: Feed mainly on shrimp. Light organ on tip of tail may lure predators towards a less vulnerable part of the body.

References

Gomon et al. (2008), Smith (1999), Stewart (2005).

Bigscale blacksmelt
Melanolagus bericoides



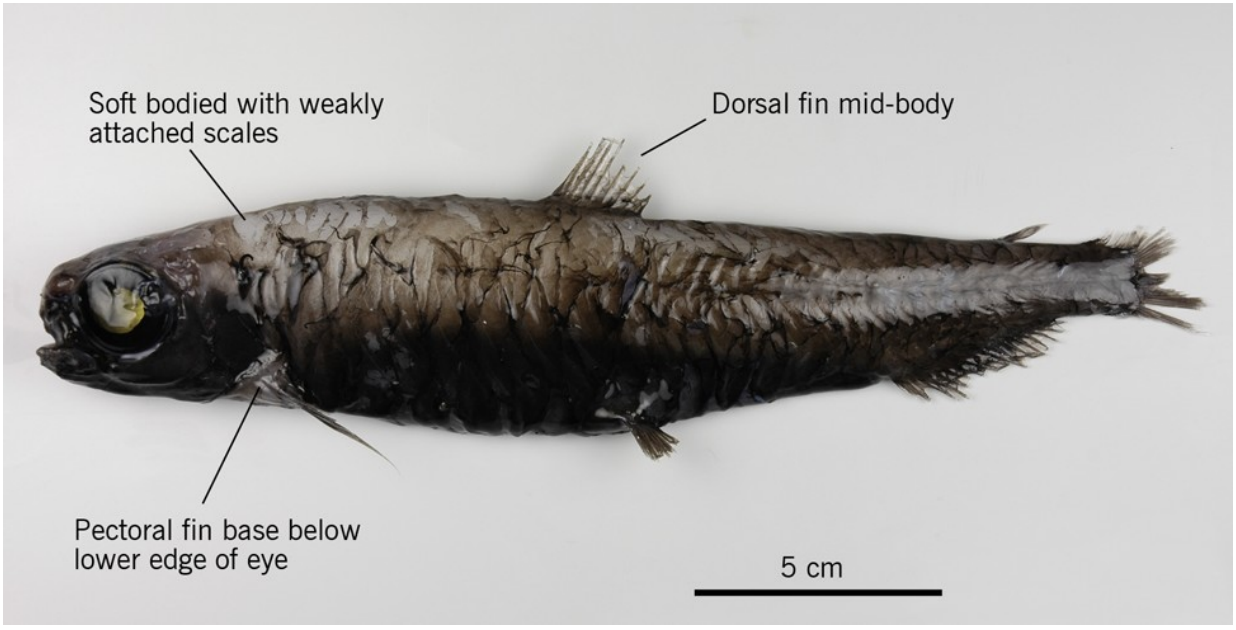
Family: 168. Microstomatidae (pencilsmelts)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: MEB



Distinguishing features: Soft-bodied. Large scales weakly attached. Dorsal fin base about half the length of anal fin base. Pectoral fin base on ventral half of body with upper edge of pectoral base about or lower than ventral edge of eye. No teeth on upper jaw. Dorsal fin mid-body.

Colour: Undamaged skin blackish.

Size: To about 23 cm SL.

Distribution: Worldwide in temperate to polar seas of both hemispheres.

Depth: 1000 to 1700 m.

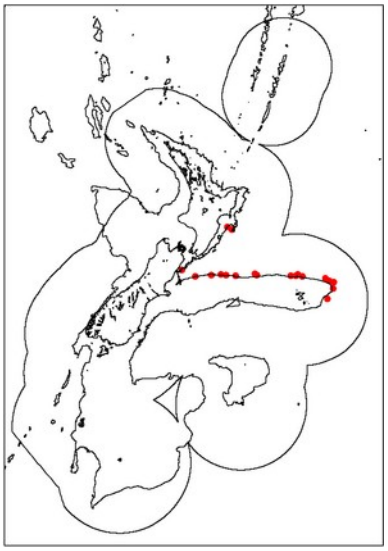
Similar species: Several pencilsmelts are recorded from New Zealand but they are difficult to identify and the taxonomy appears confused. Slickheads (Alepocephalidae) have the dorsal fin further back on the body, almost opposite the anal fin, small teeth on upper jaw, and lack an adipose fin.

Biology & ecology: Deep pelagic and may migrate vertically at times during the day. May be important food for predatory fishes.

References

Gomon et al. (2008), Paulin et al. (1989).

Tubeshoulder
Normichthys yahganorum



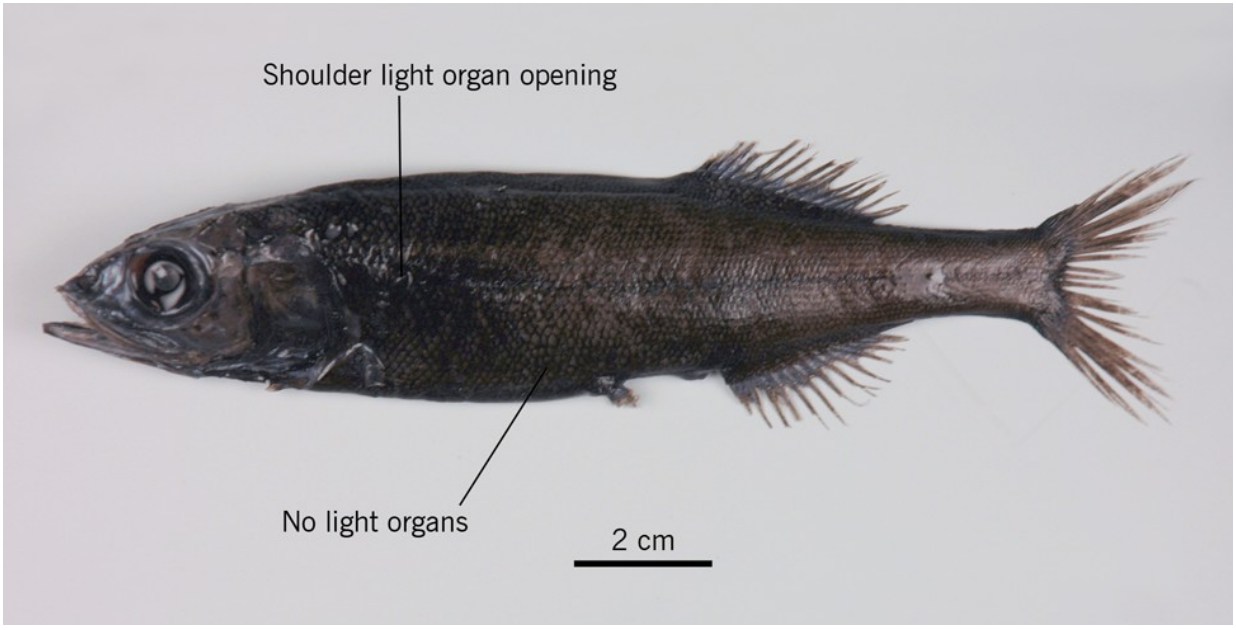
Family: 169. Platytroctidae (tubeshoulders)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: NOR



Distinguishing features: No obvious light organs on body. External opening of internal light organ a small modfied lateral line scale at shoulder. Dorsal and anal fin bases about the same length and set well back on the body.

Colour: Brownish-black.

Size: To about 16 cm SL.

Distribution: Widespread in the southern hemisphere between about 30 and 60 S.

Depth: 780 to 2000 m.

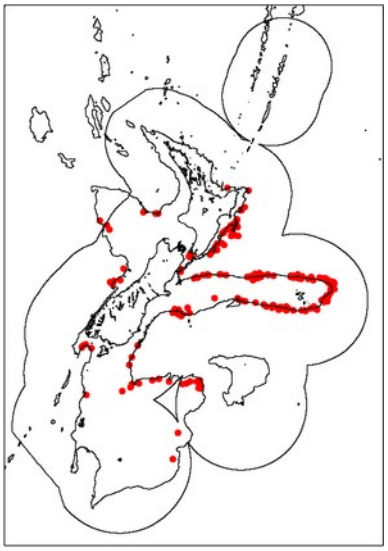
Similar species: Another tubeshoulder *Persparsia kopua* has obvious oval pinkish or reddish external light organs on the ventral body and another species *Holtbyrnia* sp. has long bars and oval whitish external light organs on the ventral body. Slickheads (Alepocephalidae) lack the small modfied lateral line scale at the shoulder that marks the external opening of a light organ.

Biology & ecology: Unknown. Demersal.

References

Heemstra (1990), King et al. (2009), Paulin et al. (1989).

Tubeshoulder
Persparsia kopua



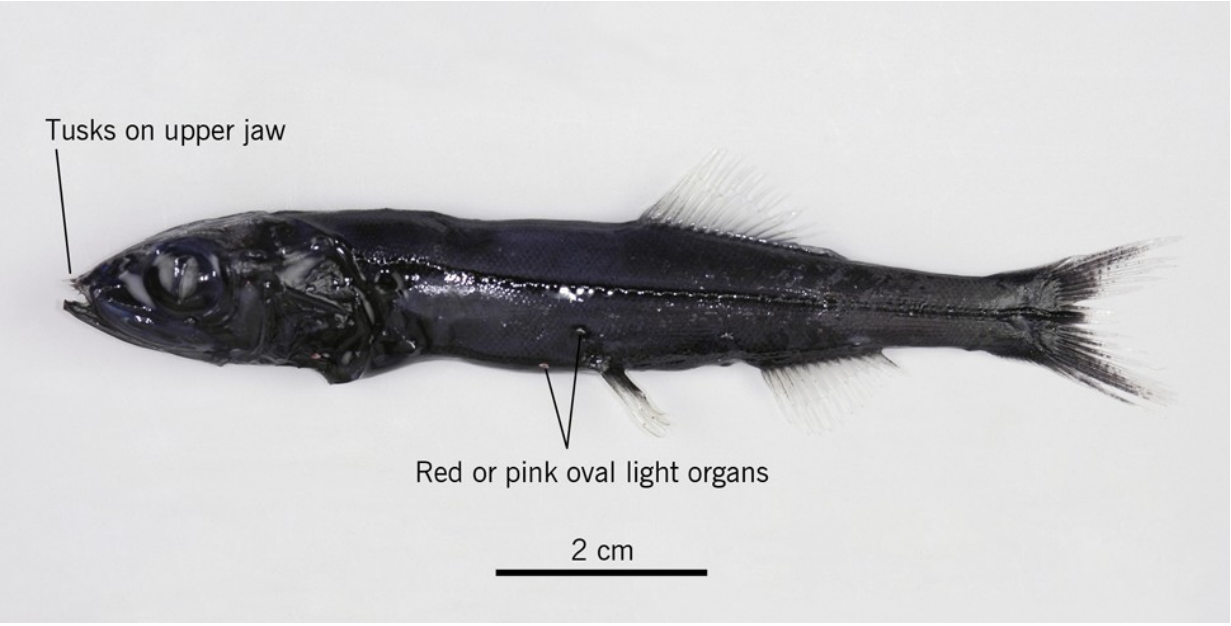
Family: 169. Platytroctidae (tubeshoulders)

Maori names: n.a.

Other names: n.a.

MFish reporting code: PER

MFish research code: PER



Distinguishing features: Oval pinkish or reddish external light organs on the ventral body. Forward projecting tusks on upper jaw (premaxilla). Dorsal fin origin well ahead of anal fin origin.

Colour: Body brownish-black. Light organs pinkish or reddish.

Size: To at least 14 cm SL.

Distribution: Widespread in the southern hemisphere between about 30 and 50 S but not recorded from South America.

Depth: 650 to 1500 m.

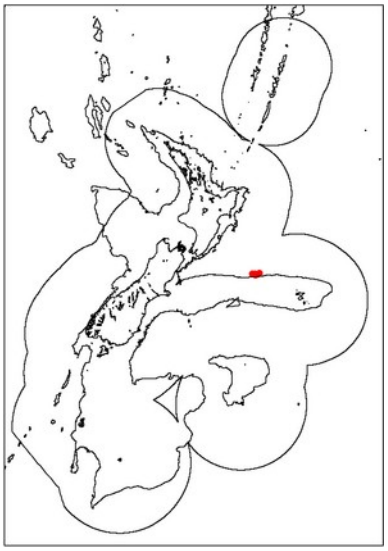
Similar species: Another tubeshoulder *Normichthys yahganorum* has no obvious light organs on the ventral body and another species *Holtbyrnia* sp. has long bars and oval whitish external light organs on the ventral body. Slickheads (Alepocephalidae) lack the small modfied lateral line scale at the shoulder that marks the external opening of a light organ.

Biology & ecology: Appears to be a midwater species and recorded to rise from bottom depths of 500 to 900 m during the day to 300 to 400 m at night.

References

Gomon et al. (2008), Paulin et al. (1989).

Slickhead
Rouleina guentheri



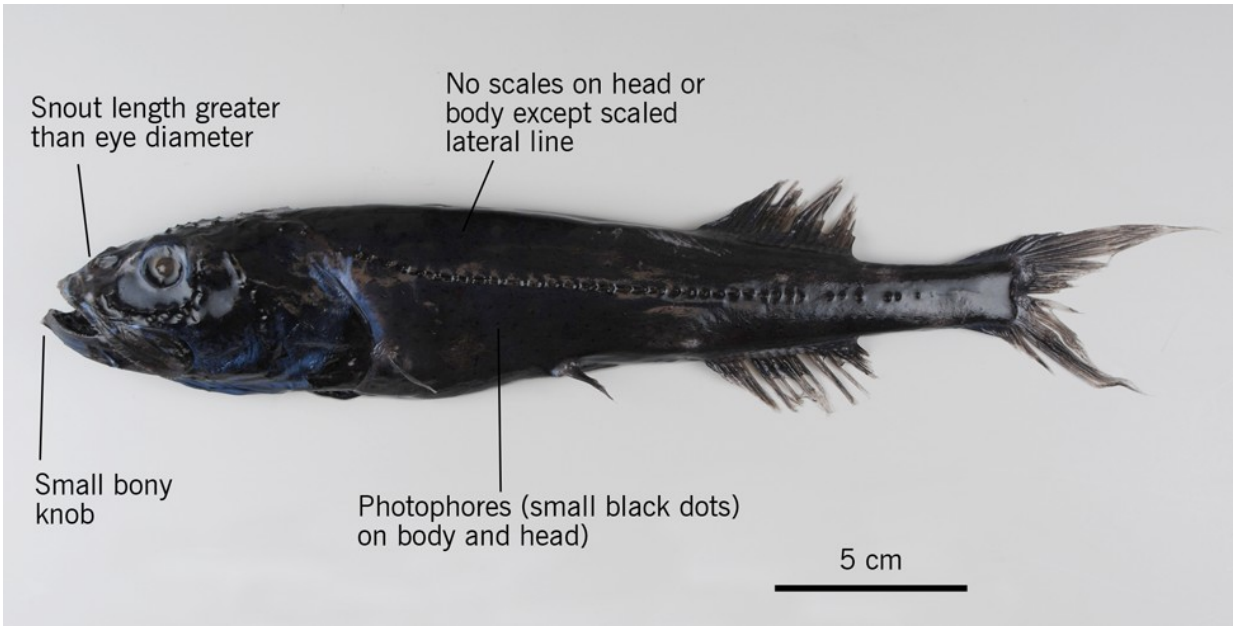
Family: 171. Alepocephalidae (slickheads)

Maori names: n.a.

Other names: n.a.

MFish reporting code: SLK

MFish research code: RGN



Distinguishing features: No scales on head or body except for lateral line scales. Dispersed, indistinct photophores (small black spots) on head and body. Snout longer than eye diameter. Head length less than about 30% SL. Lower jaw with small bony knob on lower tip.

Colour: Blue-black when skin undamaged but brownish body underneath skin.

Size: To about 30 cm SL.

Distribution: Indo-West Pacific Ocean including New Zealand and Australia, and adjacent underwater ridges.

Depth: 1200 to 1800 m.

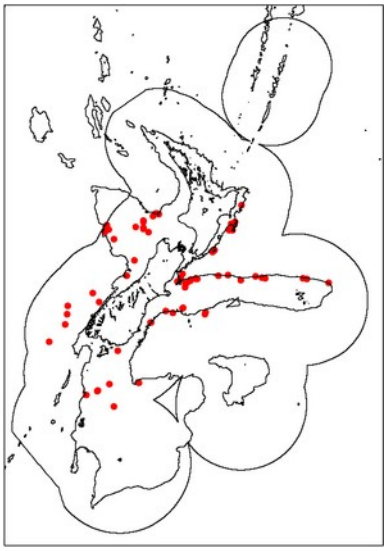
Similar species: The taxonomy of this and related species is not fully resolved. *Rouleina attrita* lacks photophores on head and body, and has a long head more than 30% of SL. *R. eucla* has large photophores, and snout is shorter than eye diameter.

Biology & ecology: Unknown. Demersal. Other slickheads have large, probably demersal eggs.

References

Gomon et al. (2008).

Twin light dragonfishes
Diplophos spp.



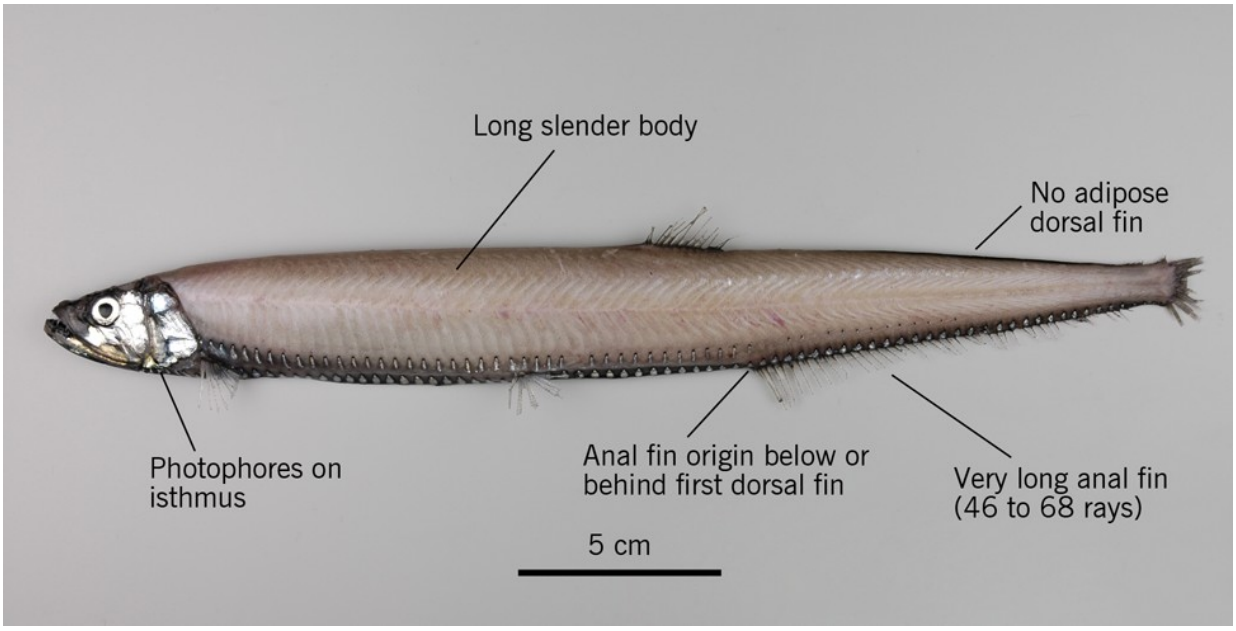
Family: 178. Diplophidae (diplophids)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: DIP



Distinguishing features: Anal fin origin below or behind posterior end of first dorsal fin. Anal fin very long with 46 to 68 rays. Long slender body and small head, head length 14 to 16 % SL. Photophores on isthmus. One small photophore on head below front of eye. No adipose dorsal fin.

Colour: Dull pale brownish upper body and sides, but probably silvery when skin is undamaged. Head and photophores silvery.

Size: To about 25 cm SL.

Distribution: Widespread in the southern hemisphere.

Depth: Midwater at 200 to 2000 m.

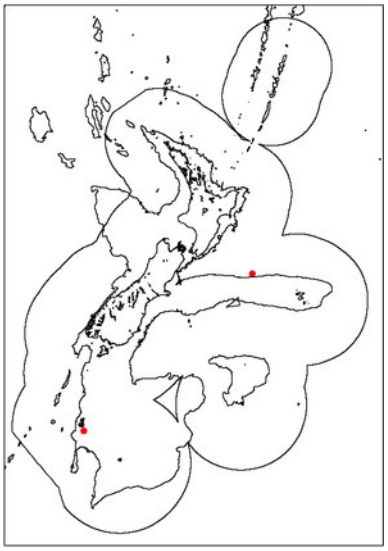
Similar species: Lighthouse fish (*Phosichthys argenteus*) has a larger head, large teeth in jaws, an adipose fin, shorter anal fin, and 2 small photophores on head. Viperfish (*Chauliodus sloani*) has large fang-like teeth, a short anal fin close to tail and hexagonal body pigment pattern.

Biology & ecology: Unknown.

References

Gomon et al. (2008), Harold (1999).

Deepsea lightfish
Gonostoma bathyphilum



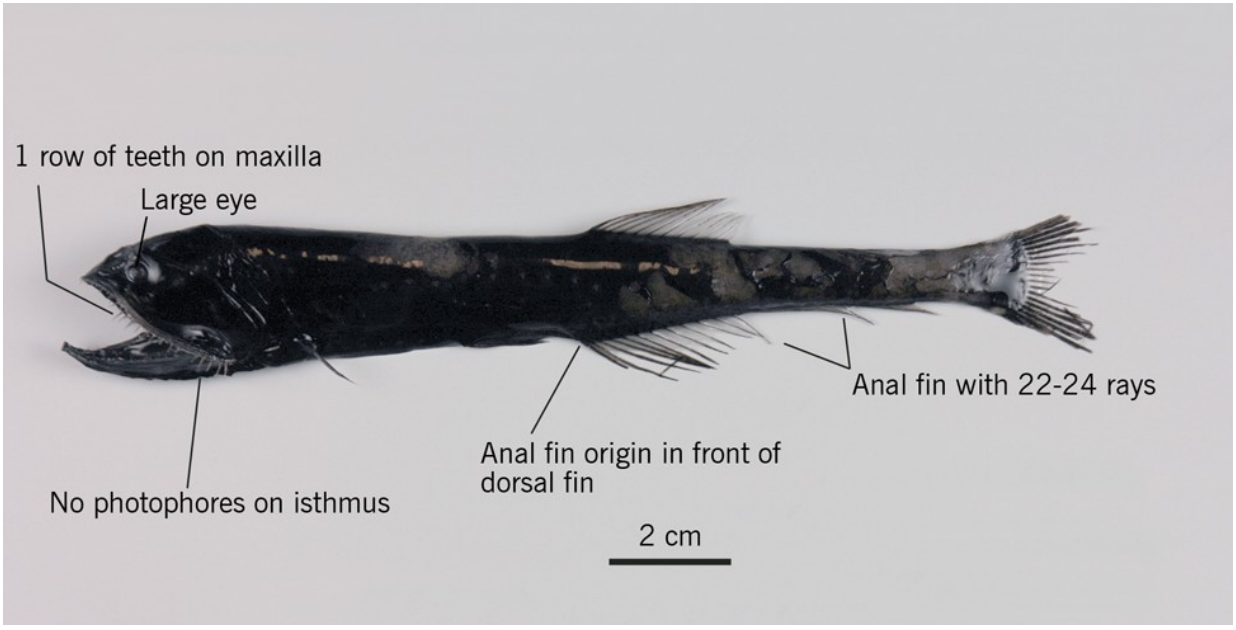
Family: 179. Gonostomatidae (bristlemouths)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: GBT



Distinguishing features: Anal fin origin just in front of dorsal fin origin. Anal fin rays 22 to 24. Large mouth with teeth on maxilla of upper jaw in 1 row with large teeth separated by small teeth. No photophores on isthmus. Large eye.

Colour: Blackish head and body.

Size: To about 17 cm SL.

Distribution: Worldwide in all oceans.

Depth: Deep midwater, probably mostly greater than 700 m.

Similar species: *Gonostoma ebelingi* and *G. elongatum* are recorded from New Zealand but identification requires a microscope. Species of *Cyclothone* have anal fin origin below or behind dorsal fin origin, a very small eye, and most are very small, often only a few centimetres SL. Twin light dragonfishes (*Diplophos* spp.) have photophores on isthmus, anal fin origin well behind dorsal fin origin, and a very long anal fin with 46 to 68 rays.

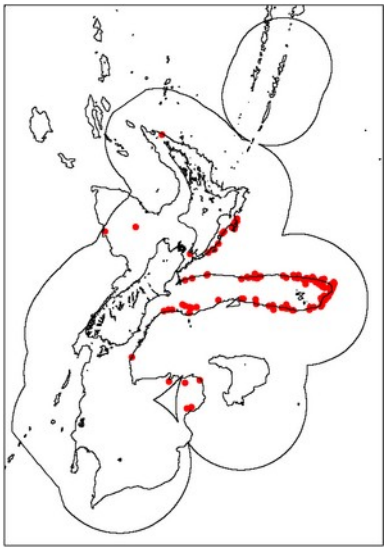
Biology & ecology: Unknown.

References

Gomon et al. (2008), Harold (1999).

Giant hatchetfish

Argyropelecus gigas



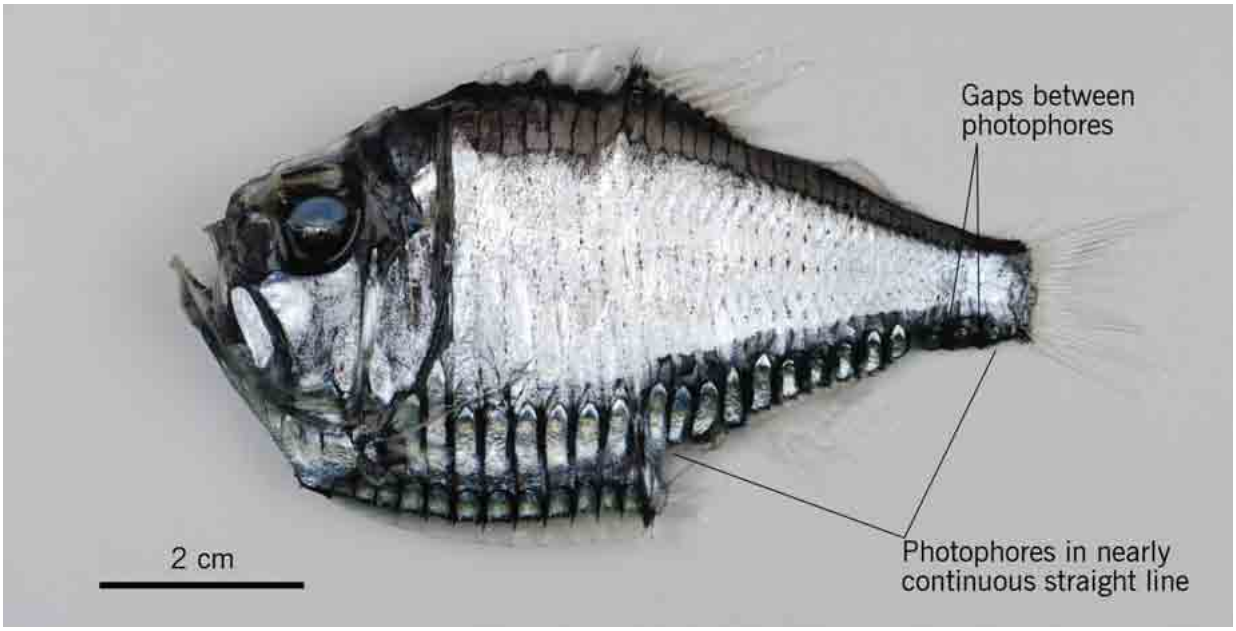
Family: 180. Sternoptychidae (marine hatchetfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: AGI



Distinguishing features: Thin-bodied, eyes large and directed upwards. Ventral photophores behind pelvic fin in a nearly continuous straight line. Ventral photophores behind anal fin separated by distinct gaps.

Colour: Black upper body, sides and photophores silvery, fins not pigmented.

Size: To about 10 cm SL.

Distribution: Worldwide in tropical and temperate seas.

Depth: Midwater, mostly 400 to 600 m.

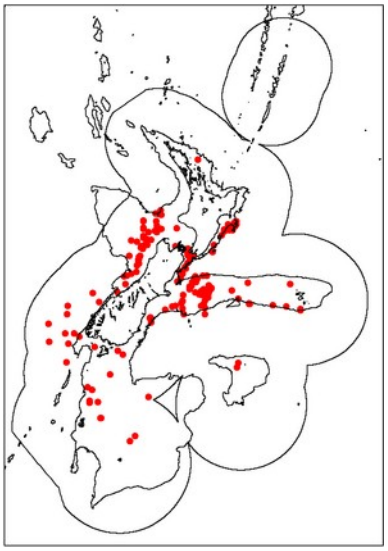
Similar species: Other hatchetfishes lack the combination of ventral photophores behind pelvic fin in a nearly continuous straight line and ventral photophores behind anal fin separated by distinct gaps. Identification of most hatchetfish species requires microscopic study.

Biology & ecology: The largest species in the genus. Does not appear to undergo vertical migration in the water column.

References

Gomon et al. (2008), Harold (1999).

Pearlside
Maurolicus australis



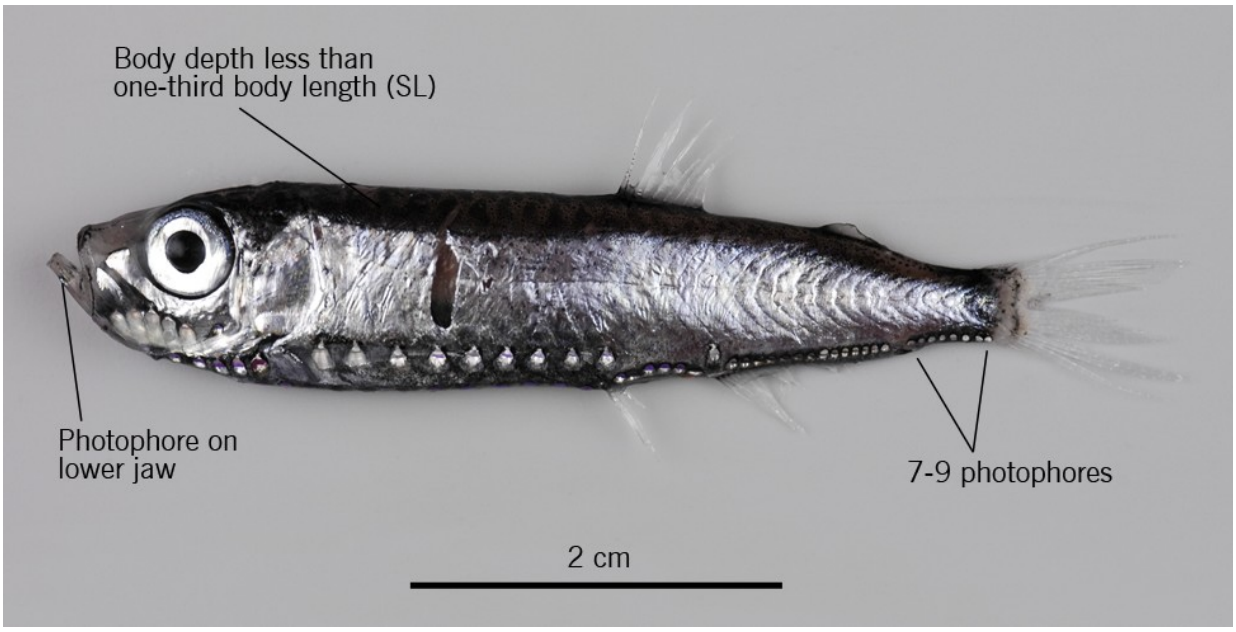
Family: 180. Sternoptychidae (marine hatchetfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: MMU



Distinguishing features: Body depth less that one-third of body length (SL). Photophore on lower jaw. 7 to 9 photophores in the ventral series behind the anal fin.

Colour: Black upper body, sides and photophores silvery, fins not pigmented.

Size: To about 5 cm SL.

Distribution: Southwest Pacific and southeast Indian Oceans around New Zealand and Australia.

Depth: Midwater, mostly 150 to 400 m.

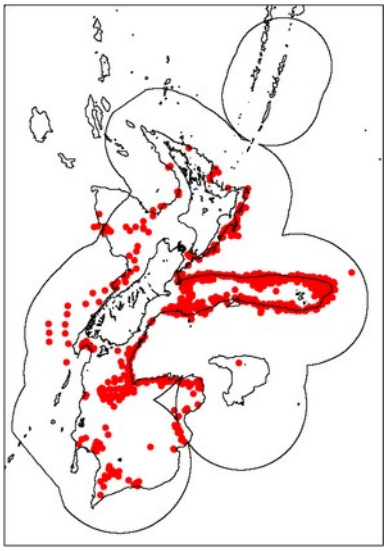
Similar species: Other hatchetfishes lack the combination of body depth less that one-third of body length (SL), photophore on lower jaw, 7 to 9 photophores in the ventral series behind the anal fin.

Biology & ecology: Can be very abundant and probably an important food for predatory fishes. Undergoes vertical migration in the water column and sometimes reaches surface waters at night. Feeds on copepods.

References

Gomon et al. (2008), Harold (1999).

Lighthouse fish
Phosichthys argenteus



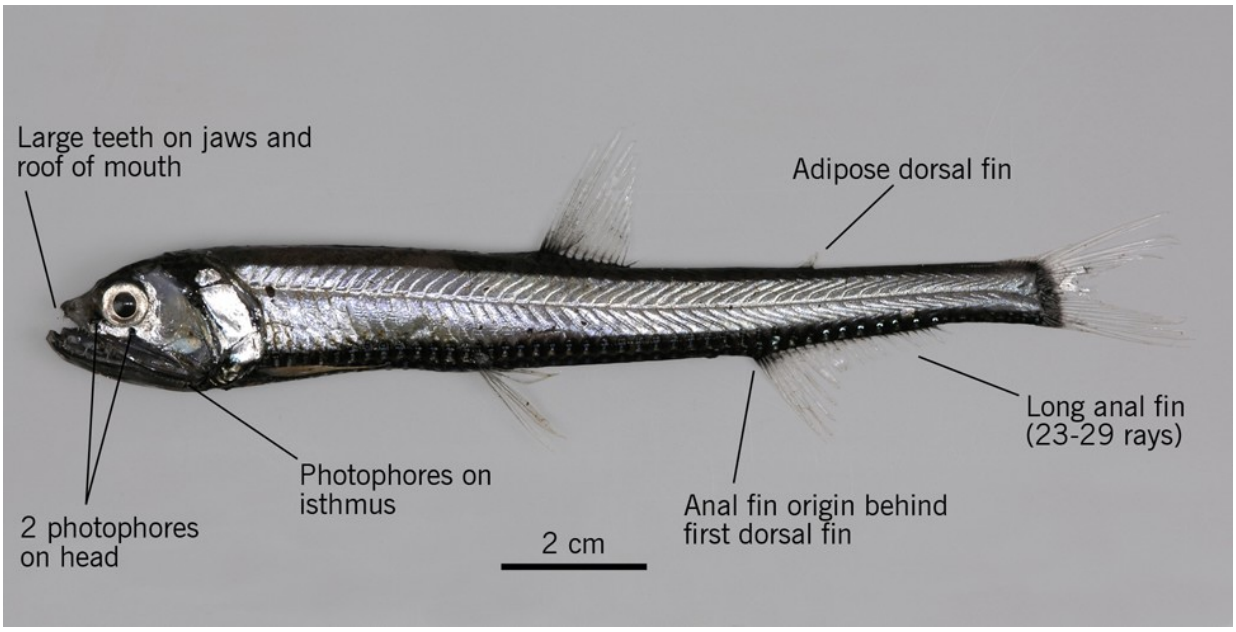
Family: 181. Phosichthyidae (lightfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: PHO

MFish research code: PHO



Distinguishing features: Two small photophores on head, one just in front of eye and one below eye. Large teeth on jaws and roof of mouth. Anal fin origin well behind trear of first dorsal fin, long with 23 to 29 rays. Adipose fin present. Photophores on isthmus.

Colour: Dull brownish upper body, silvery sides and photophores.

Size: To 30 cm SL.

Distribution: Widespread in southern hemisphere but not recorded from South America.

Depth: Midwater at 370 to 1000 m.

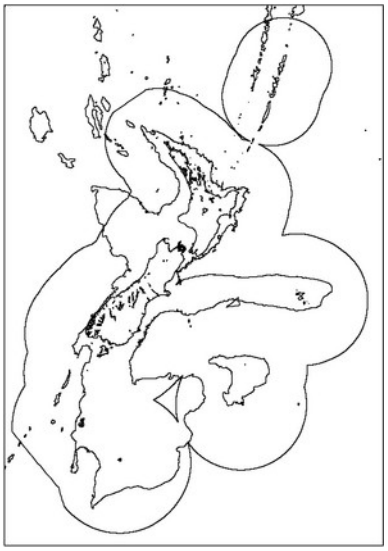
Similar species: A rarer lighthouse fish *Polymetme* sp. has one photophore on head near lower front of eye, and anal fin origin under rear of first dorsal fin. Twin light dragonfishes (*Diplophos* spp.) have a long slender body and small head (head length 14 to 16 % SL), very long anal fin with 46 to 68 rays, one small photophore on head below front of eye, and no adipose dorsal fin. Viperfish (*Chauliodus sloani*) has large fang-like teeth, a short anal fin close to tail and hexagonal body pigment pattern.

Biology & ecology: Probably an important prey of some deepsea fishes because of its large size and relatively high abundance.

References

Gomon et al. (2008), Harold (1999).

Snaggletooths
Astronesthes spp.



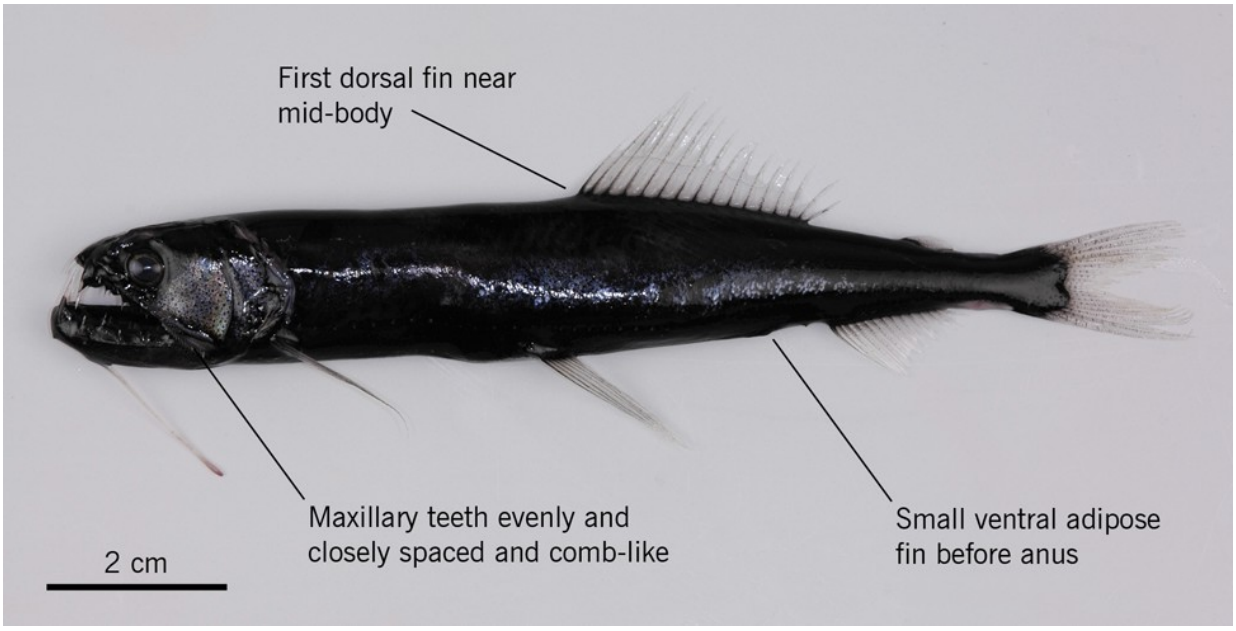
Family: 182. Stomiidae (barbeled dragonfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: ASE



Distinguishing features: Maxillary teeth evenly and closely spaced and comb-like, slanted rearward, their bases touching. Small ventral adipose fin present before anus. First dorsal fin located near middle of body. Barbel (luring device) on chin. Photophore on head behind eye smaller than eye.

Colour: Brownish or blackish depending on the species. Some species have purplish luminescent marking on the sides of the head and body.

Size: To about 30 cm SL.

Distribution: Depends on the species but some have a restricted distribution while others are more widely distributed.

Depth: Midwater, some live at great depths, e.g., to 5000 m, some migrate to surface layers at night.

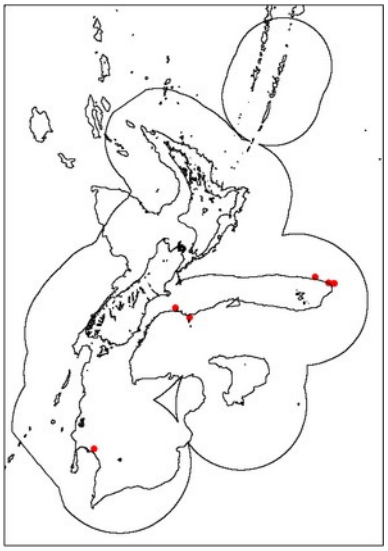
Similar species: There are 5 species of the snaggletooth genus *Astronesthes* recorded from New Zealand. Boulenger's snaggletooth (*A. boulengeri*) (above) has anal fin origin behind rear end of first dorsal fin, and luminescent tissue along dorsal and ventral caudal peduncle. Identification of other species requires microscopic study. Another snaggletooth *Borostomias antarcticus* has widely spaced maxillary teeth (not comb-like) and no ventral adipose fin.

Biology & ecology: Little known. Presumed to be predators.

References

Gomon et al. (2008), Harold (1999).

Snaggletooth
Borostomias antarcticus



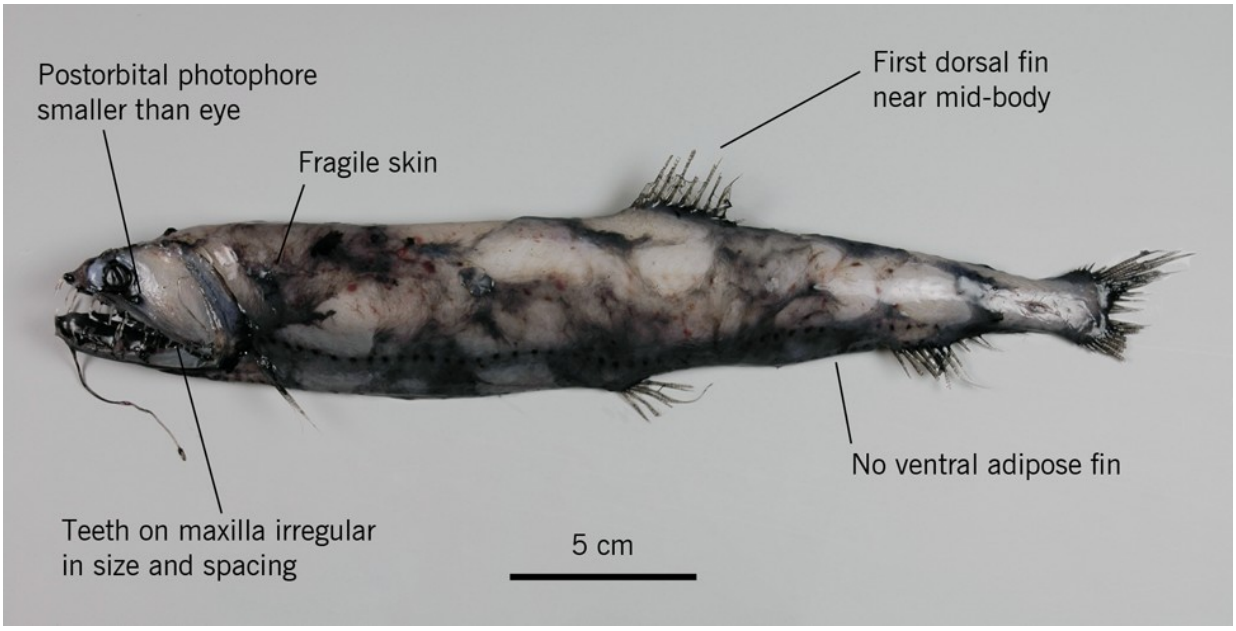
Family: 182. Stomiidae (barbeled dragonfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: BAN

MFish research code: BAN



Distinguishing features: Teeth on maxilla irregular in size and spacing (not comb-like). No ventral adipose fin. First dorsal fin located near middle of body. Barbel (luring device) on chin. Photophore on head behind eye smaller than eye.

Colour: Dark brownish-black.

Size: To 29 cm SL.

Distribution: In southern hemisphere south of about 40 S, Mediterranean Sea and North Atlantic north of about 40 N.

Depth: Midwater at 350 to 2500 m.

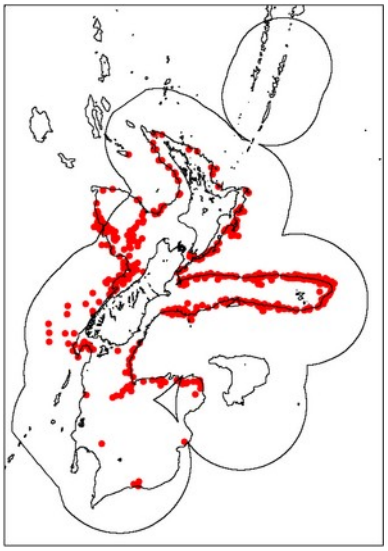
Similar species: *Astronesthes* spp. have closely spaced comb-like rear-slanted teeth on maxilla at rear of upper jaw, and a small ventral adipose fin. Scaleless black dragonfishes (*Melanostomias* spp.) have dorsal and anal fins of similar length close to tail. Giant black dragonfish (*Opostomias micripnus*) has dorsal and anal fins of similar length close to tail, and separate very long first pectoral fin ray.

Biology & ecology: Predator probably feeding on other fishes and crustaceans.

References

Gomon et al. (2008), Harold (1999).

Viperfish
Chauliodus sloani



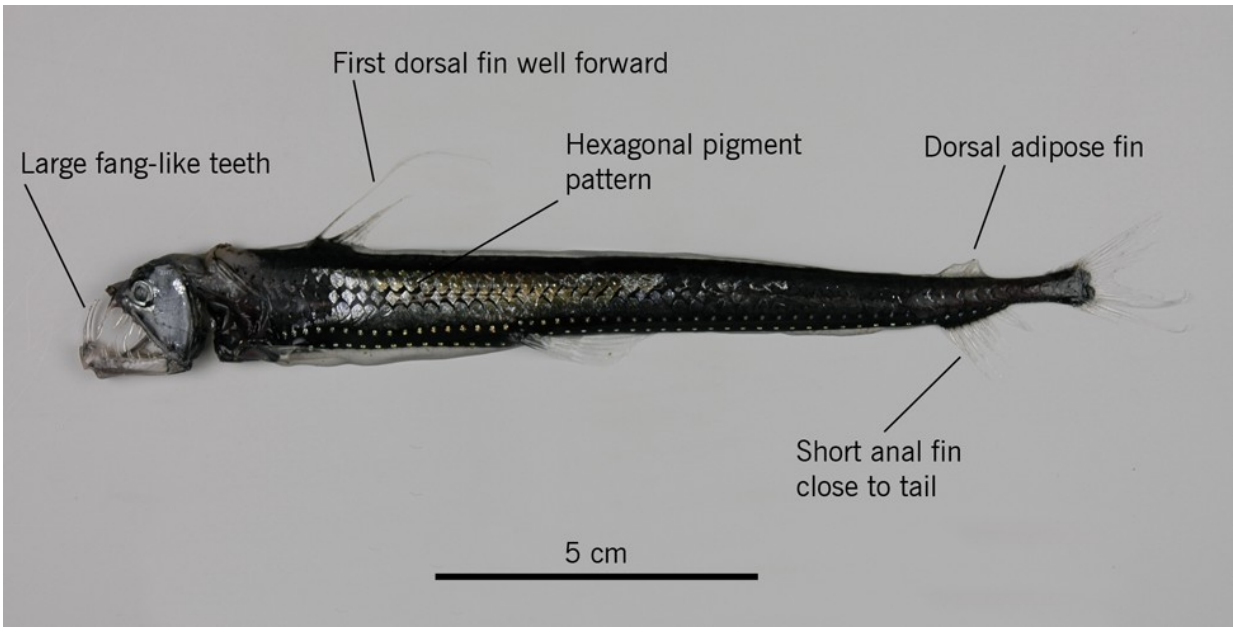
Family: 182. Stomiidae (barbeled dragonfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: CHA

MFish research code: CHA



Distinguishing features: Large fang-like teeth in upper and lower jaws. 5 rows of hexagonal pigment shapes running along sides of body, with 1 or more small photophores in each shape. Dorsal and ventral adipose fins present. First dorsal fin short-based and well forward on the body, with the first ray very long (undamaged). Short anal fin (10 to 13 rays) close to tail. Chin barbel reduced or absent (adults).

Colour: Body iridescent silver-blue with hexagonal pattern, fins pale.

Size: To 30 cm SL.

Distribution: Worldwide.

Depth: Midwater at 500 to 2500 m.

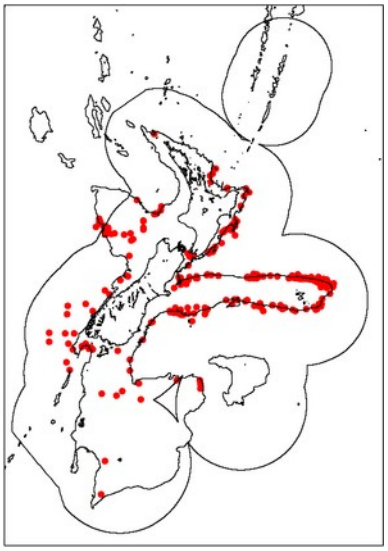
Similar species: Scaly dragonfishes (*Stomias* spp.) have a chin barbel, dorsal and anal fins close to tail and similar in length, and no dorsal adipose fin. Lighthouse fish (*Phosichthys argenteus*) lacks the hexagonal pigment pattern on the side of the body, has smaller teeth in jaws, longer anal fin, and first dorsal fin near mid-body.

Biology & ecology: Predator feeding on other fishes and crustaceans. The light organ on the tip of the long first dorsal fin ray may be used to lure prey.

References

Gomon et al. (2008), Harold (1999).

Black dragonfishes
Idiacanthus spp.



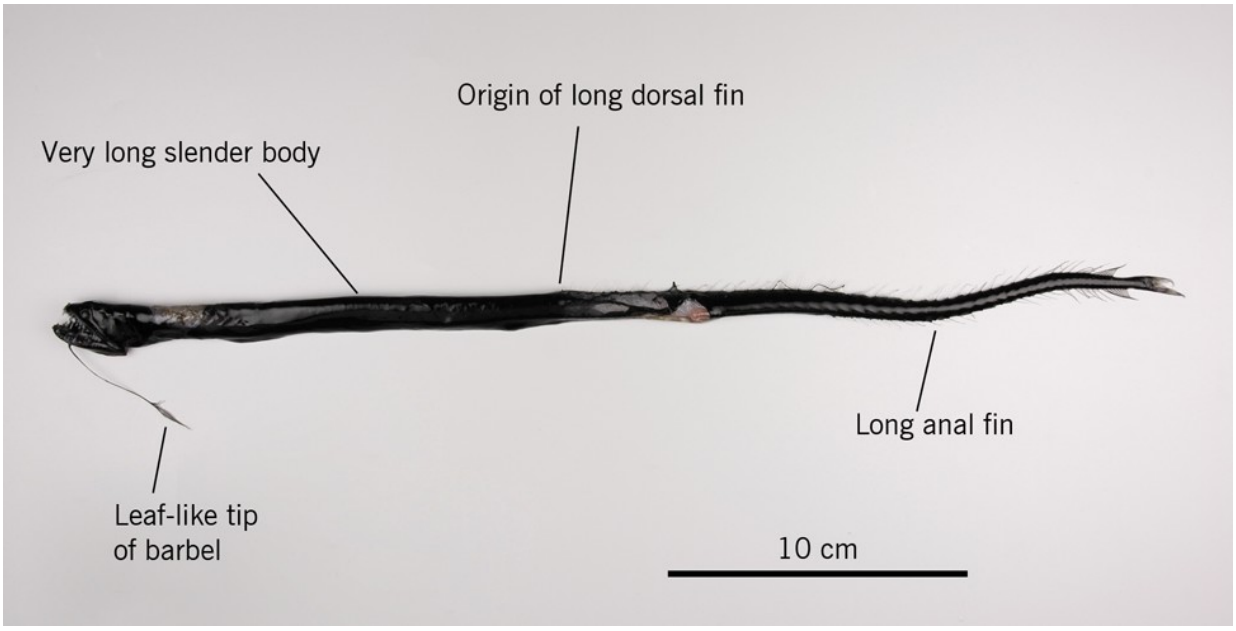
Family: 182. Stomiidae (barbeled dragonfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: IDI



Distinguishing features: Very long slender body, entirely black (females) or dark brown (males). Dorsal and anal fins very long, dorsal fin origin closer to head than to tail, anal fin about half the body length, both fins ending just before tail fin. Leaf-like barbel tip.

Colour: Female black, male dark brown.

Size: Female to 40 and male to 5 cm SL.

Distribution: Widespread in southern hemisphere south of about 30 S.

Depth: Midwater to about 1000 m.

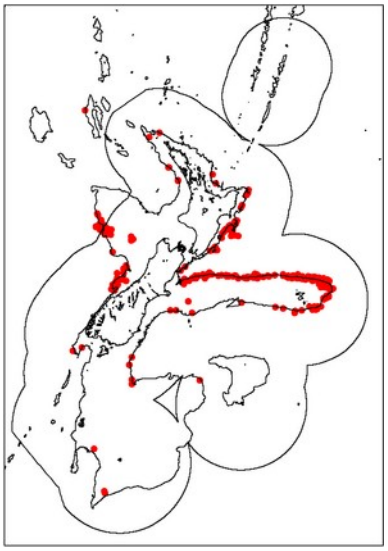
Similar species: Other dragonfishes (Stomiidae) have much shorter dorsal and anal fins, and a stouter body.

Biology & ecology: Males are much smaller than females and lack teeth, a chin barbel, functional gut, and pelvic fins, and probably only survive to reproduce.

References

Gomon et al. (2008), Harold (1999).

Southern loosejaw
Malacosteus australis



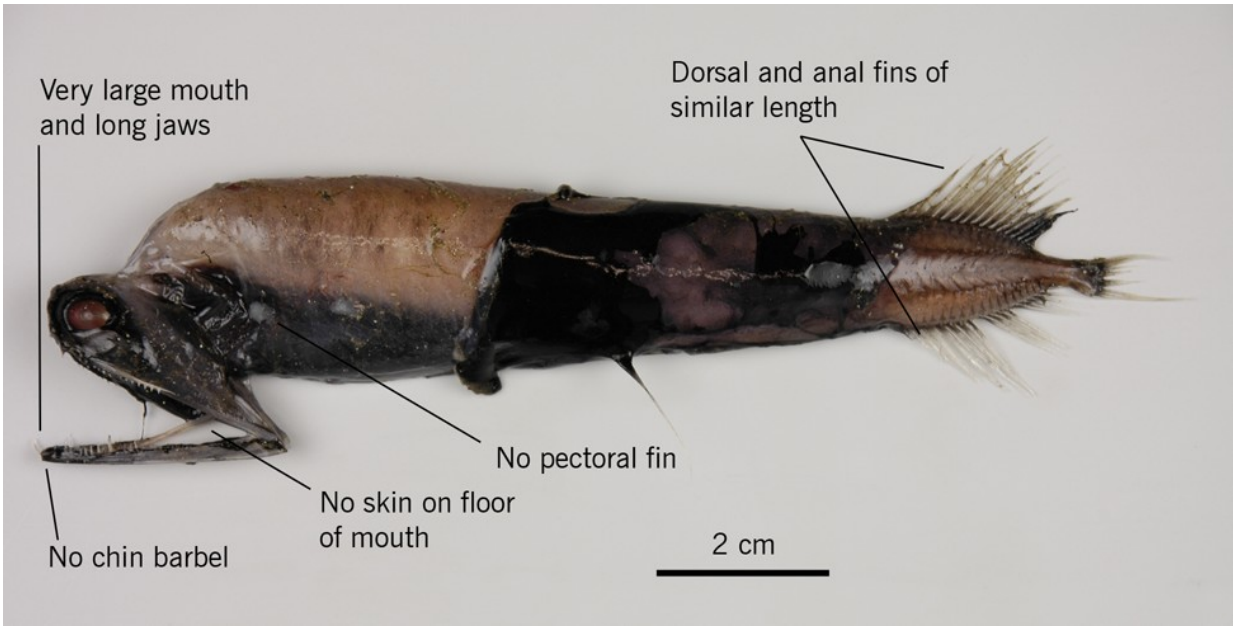
Family: 182. Stomiidae (barbeled dragonfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: MAU



Distinguishing features: Very large mouth and long jaws. No skin on floor of mouth between each side of the lower jaw. Dorsal and anal fins of similar length and close to tail. Adipose fins absent. No chin barbel. No pectoral fin.

Colour: Brownish-black body when skin intact. Muscle underneath may be pale to bright orange.

Size: To about 25 cm SL.

Distribution: Widespread in temperate and Subantarctic southern hemisphere between about 25 and 45 S.

Depth: Midwater at about 500 to 2000 m.

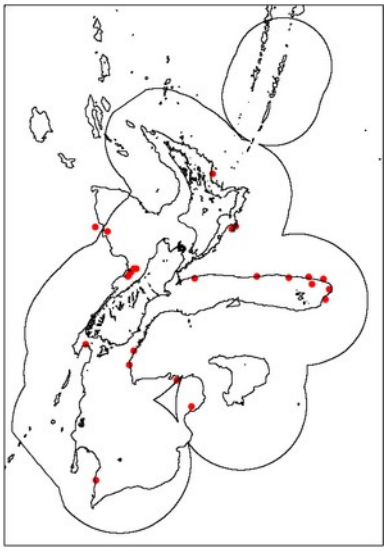
Similar species: Another loosejaw *Malacosteus niger* is also recorded from New Zealand but is tropical and subtropical in the southern hemisphere and reaches as far south as about 30 S so is unlikely to be found in most of the New Zealand area. Other barbeled dragonfishes (Stomiidae) lack the very large mouth and have skin across the floor of the mouth.

Biology & ecology: Males have a smaller postorbital photophore on head and smaller, more numerous teeth compared to females. Does not appear to undertake daily vertical migration.

References

Gomon et al. (2008), Harold (1999), Kenaley (2007).

Scaleless black dragonfishes
Melanostomias spp.



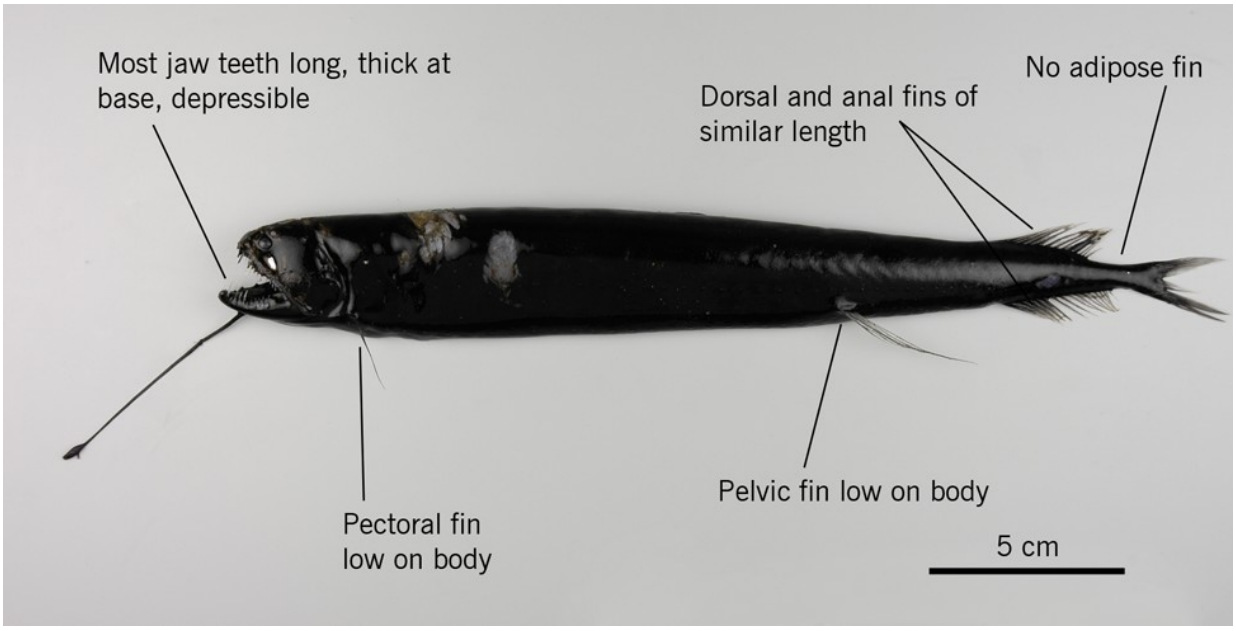
Family: 182. Stomiidae (barbeled dragonfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: MST

MFish research code: MEN



Distinguishing features: Most jaw teeth long, thick at base, and depressible. First ray of pectoral fin not longer than other rays. Chin barbel present. Dorsal and anal fins of similar length and close to the tail. Pectoral and pelvic fins on ventral body. No dorsal adipose fin. Photophore present behind and below eye (postorbital) but no large patch of luminescent tissue behind eye.

Colour: Blackish head and body. Barbel with black stem.

Size: To 25 cm SL.

Distribution: Widespread in the southern hemisphere between about 30 and 50 S.

Depth: Midwater down to about 2000 m.

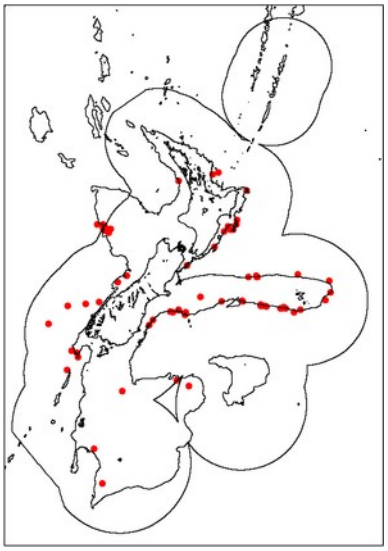
Similar species: Giant black dragonfish (*Opostomias micripnus*) has a separate very long first pectoral fin ray, and fixed fangs at the tip of the lower jaw that pierce the upper jaw. Snaggletooths e.g., *Borostomias antarcticus* have first dorsal fin near the mid-body, well in front of anal fin. Scaly dragonfishes (*Stomias* spp.) have hexagonal pigment shapes on the body.

Biology & ecology: Predator. Luminous tip of chin barbel may act as a lure.

References

Gomon et al. (2008), Harold (1999).

Giant black dragonfish
Opostomias micripnus



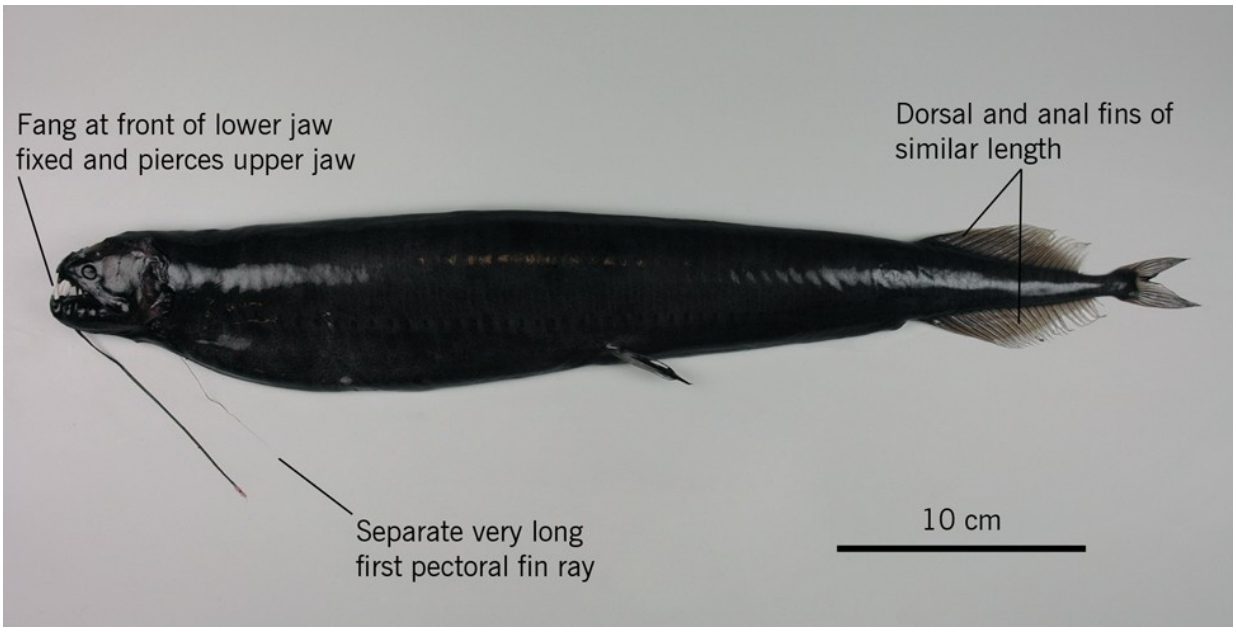
Family: 182. Stomiidae (barbeled dragonfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: MST

MFish research code: OMI



Distinguishing features: Large fang-like teeth in jaws, some fixed, front fangs in lower jaw pierce upper jaw. First ray of pectoral fin separated from other rays and very long. Dorsal and anal fins of similar length and close to the tail. Pectoral and pelvic fins on ventral body. No dorsal adipose fin. No large patch of luminescent tissue behind eye.

Colour: Blackish head and body. Barbel with black stem.

Size: To at least 55 cm SL.

Distribution: Widespread in southern hemisphere south of about 30 S.

Depth: Midwater to about 5000 m.

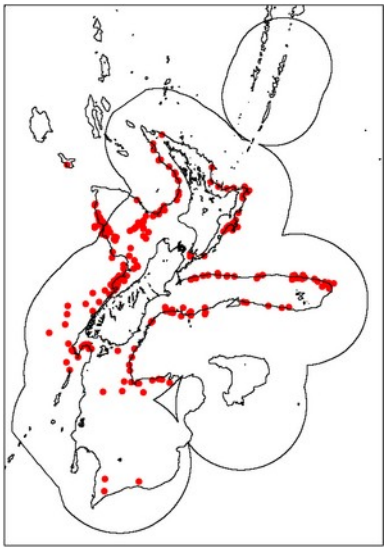
Similar species: Scaleless black dragonfishes (*Melanostomias* spp.) have most jaw teeth long, thick at base, and depressible, and first ray of pectoral fin not longer than other rays. Snaggletooth (*Borostomias antarcticus*) has first dorsal fin near the mid-body, well in front of anal fin.

Biology & ecology: Predator. Luminous tip of chin barbel may act as a lure.

References

Gomon et al. (2008), Harold (1999).

Scaly dragonfishes
Stomias spp.



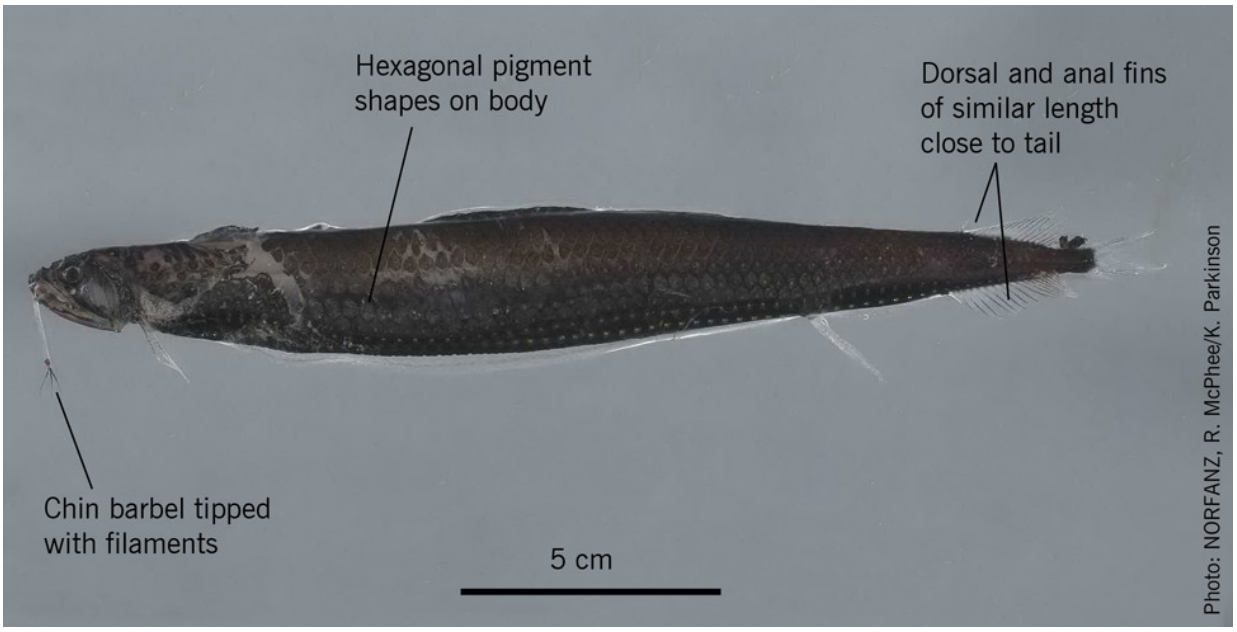
Family: 182. Stomiidae (barbeled dragonfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: STO



Distinguishing features: Body covered with hexagonal pigment shapes and photophores. Chin barbel tipped with several filaments. Dorsal and anal fins close to tail and similar in length. No dorsal adipose fin.

Colour: Body iridescent silver blackish-brown with hexagonal pattern, fins pale. Barbel stem pale, terminal bulb and filaments dark.

Size: To 30 cm SL.

Distribution: Widespread in southern hemisphere between about 20 and 45 S.

Depth: Midwater at 900 to 1500 m by day and 100 to 500 m at night.

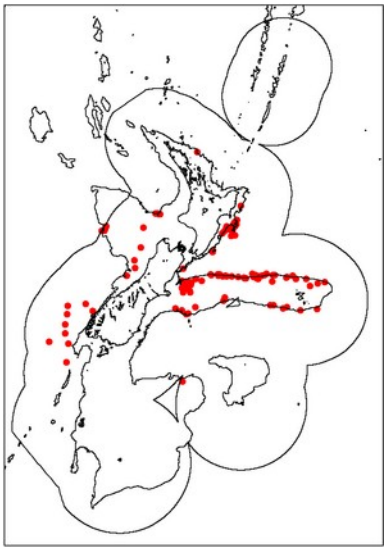
Similar species: Viperfish (*Chauliodus sloani*) has a high short-based first dorsal fin well forward on the body, dorsal and ventral adipose fins, and lacks a chin barbel in adults. Scaleless black dragonfishes (*Melanostomias* spp.) lack the hexagonal pigment shapes on the body.

Biology & ecology: Predator feeding on other fishes and crustaceans.

References

Gomon et al. (2008), Harold (1999).

Waryfishes
Scopelosaurus spp.



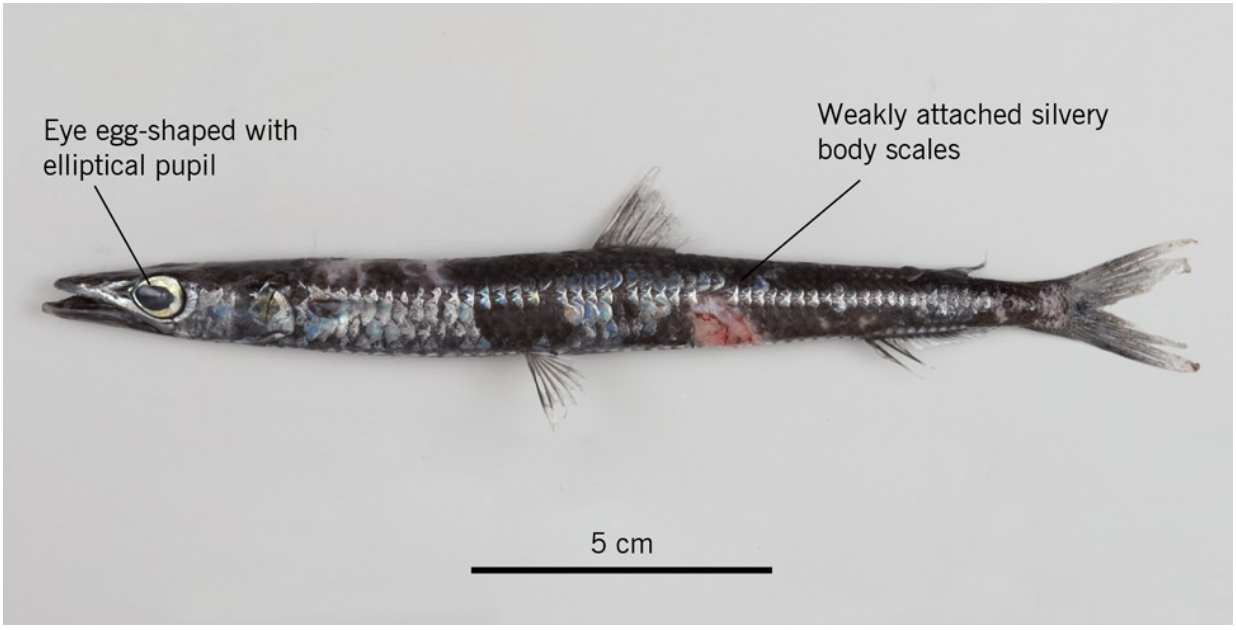
Family: 191. Notosudidae (waryfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: SPL

MFish research code: SPL



Distinguishing features: Egg-shaped eye with elliptical pupil. 1 to 2 narrow rows of small teeth in jaws. Moderate sized but weakly attached scales. Short-based first dorsal fin near mid-body, and small adipose fin near tail. Long thin gill rakers.

Colour: Head and body scales iridescent silver. Skin underneath scales brownish or blackish.

Size: To about 30 cm SL.

Distribution: Widespread in southern hemipshere between about 19 and 44 S.

Depth: Midwater to about 1400 m but larger individuals found closer to the bottom than smaller fish.

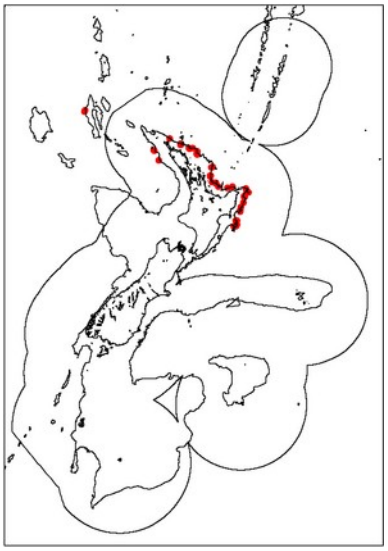
Similar species: Barracudinas (Paralepididae) have a circular eye and pupil, gill rakers reduced to teeth or spines, often fang-like teeth in lower jaw.

Biology & ecology: Predators feeding on zooplankton with copepods recorded in stomachs of juveniles and midwater fishes in stomachs of adults.

References

Gomon et al. (2008), Paxton & Niem (1999).

Feeler fish
Bathypterois spp.



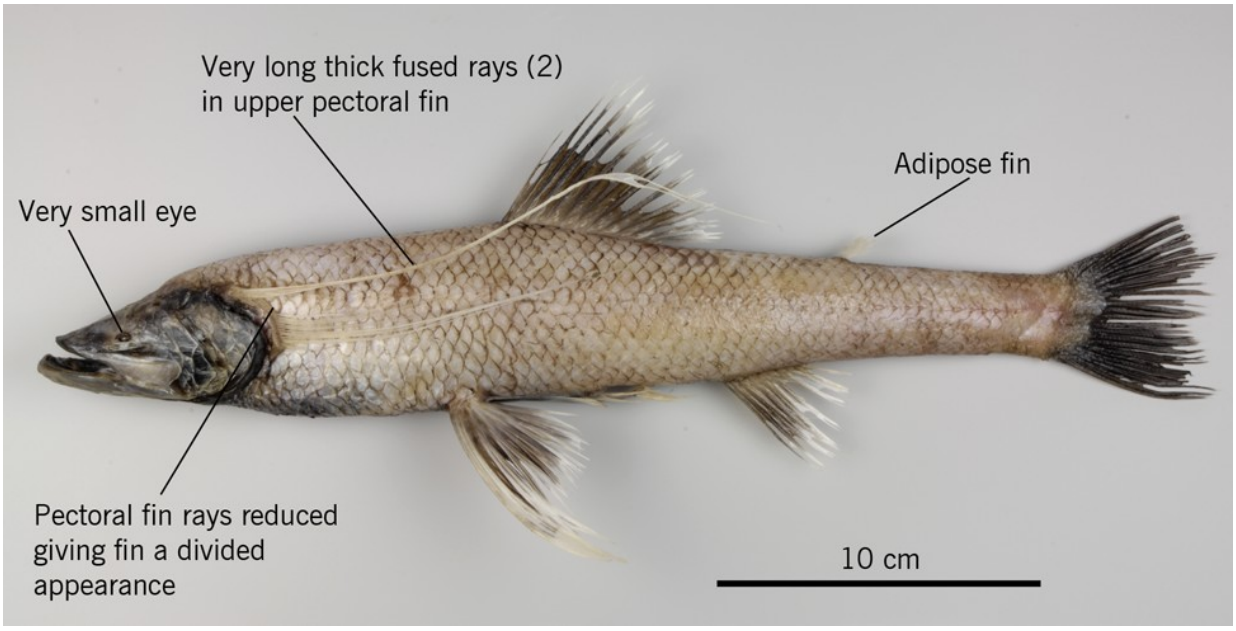
Family: 192. Ipnopidae (deepsea tripod fishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: TRI

MFish research code: TRI



Distinguishing features: Eye very small. Thick, stiff, and often very long upper rays (2 rays fused together along most of length) in pectoral fin, similarly outer 1 or 2 rays in pelvic fin and lower ray(s) in caudal fin. The pectoral fin has small or reduced rays present between the upper stiffened rays and lower longer rays giving the pectoral fin a divided appearance. Adipose fin present. Large mouth.

Colour: Head dull brownish-black. Body whitish with brown scale pocket margins. Pectoral fin whitish, pelvic, first dorsal and anal fins brownish with whitish tips. Caudal fin dark brownish-black.

Size: To about 35 cm SL.

Distribution: Depends on the species but some have a restricted distribution while others are more widely distributed.

Depth: About 800 to at least 4400 m depending on the species.

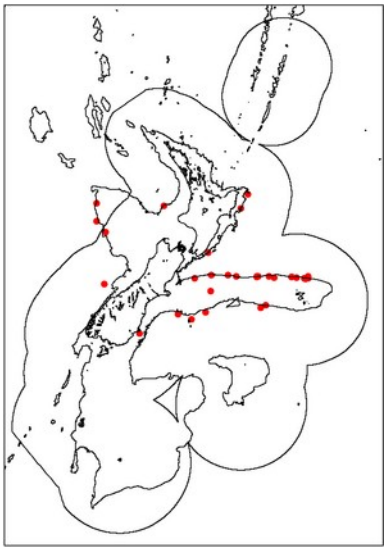
Similar species: 4 species (*Bathypterois filiferus, B. longicauda, B. longifilis, B. oddi*) are recorded from New Zealand but identification is difficult and the taxonomy is uncertain. The species illustrated may be *B. longifilis*, known from New Zealand and the east coast of Australia because it is the only species of the 4 listed that has a subcaudal notch - small notch on the ventral edge of the tail below the caudal peduncle.

Biology & ecology: Demersal predator probably feeding on planktonic animals near the seafloor. Photographs from submersibles show individuals propped up on the stiffened pelvic and caudal fins (hence the name tripod fishes) with head up and facing into the current. The long pectoral rays were spread and arched forward over the head suggesting they may be used to detect prey. Juveniles live near the surface amongst other planktonic organisms, are almost transparent, and have enlarged, sail-like dorsal, anal, pectoral and pelvic fins.

References

Paulin et al. (1989), Paxton & Niem (1999), Sulak (1977).

Krefft's pearleye
Scopelarchoides kreffti



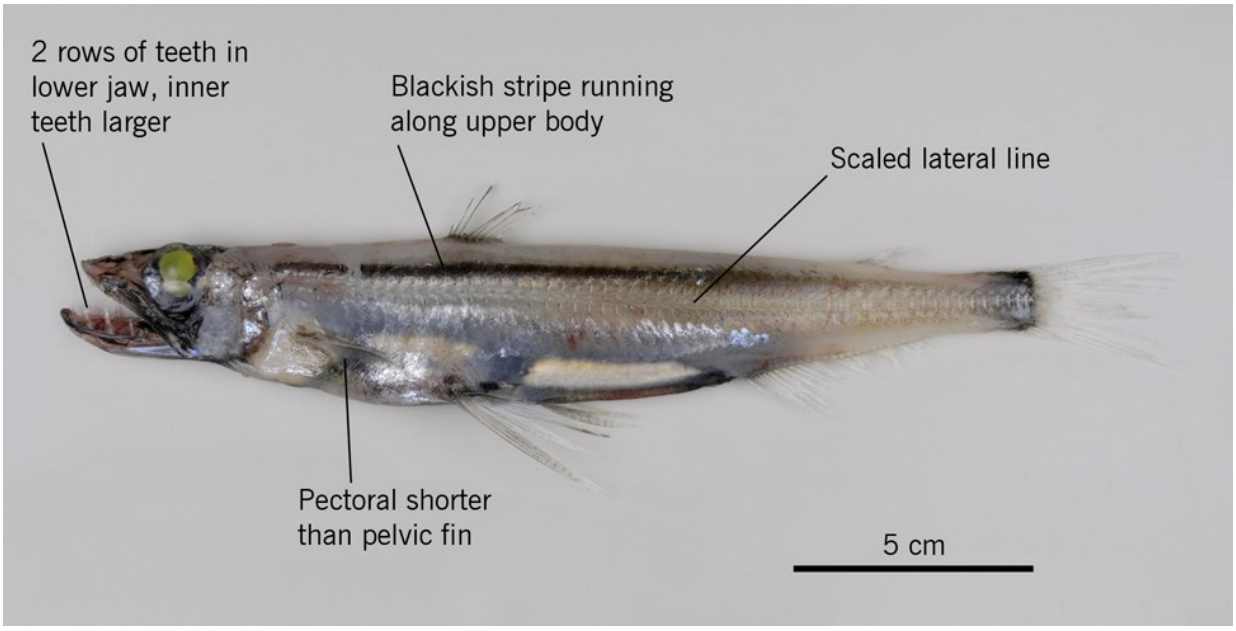
Family: 193. Scopelarchidae (pearleyes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: SKR



Distinguishing features: Large eyes directed upwards. Lower jaw teeth in 2 rows, depressible, those on inner row are longest teeth in the mouth. Row of large teeth on tongue hooked backwards. Gill rakers reduced and teeth-like. Lateral line with large scales. Pectoral shorter than pelvic fin. Pelvic fin origin in front or close to vertical line through origin of dorsal fin.

Colour: Blackish stripe extending along the body from behind head to close to tail just above the lateral line. Bases of first dorsal and tail fins blackish. Sides of head and body and parts of ventral body silvery (if undamaged).

Size: To about 20 cm SL.

Distribution: May be widespread in southern hemisphere south of about 30 S. Recorded from the South Atlantic Ocean and off Tasmania.

Depth: Midwater at 600 to 1000 m.

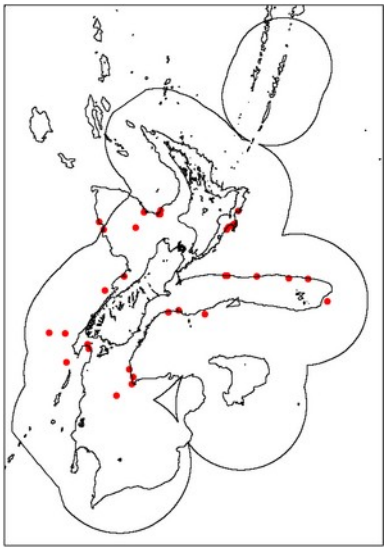
Similar species: Another species of pearleye *Benthalbella infans* has pectoral longer than the pelvic fin. Sabretooth fishes (Evermannellidae) lack lateral line scales and have a toothless tongue.

Biology & ecology: Predator looking upwards for prey.

References

Motomura et al. (2007), Paxton & Niem (1999).

Brown sabretooth
Evermannella balbo



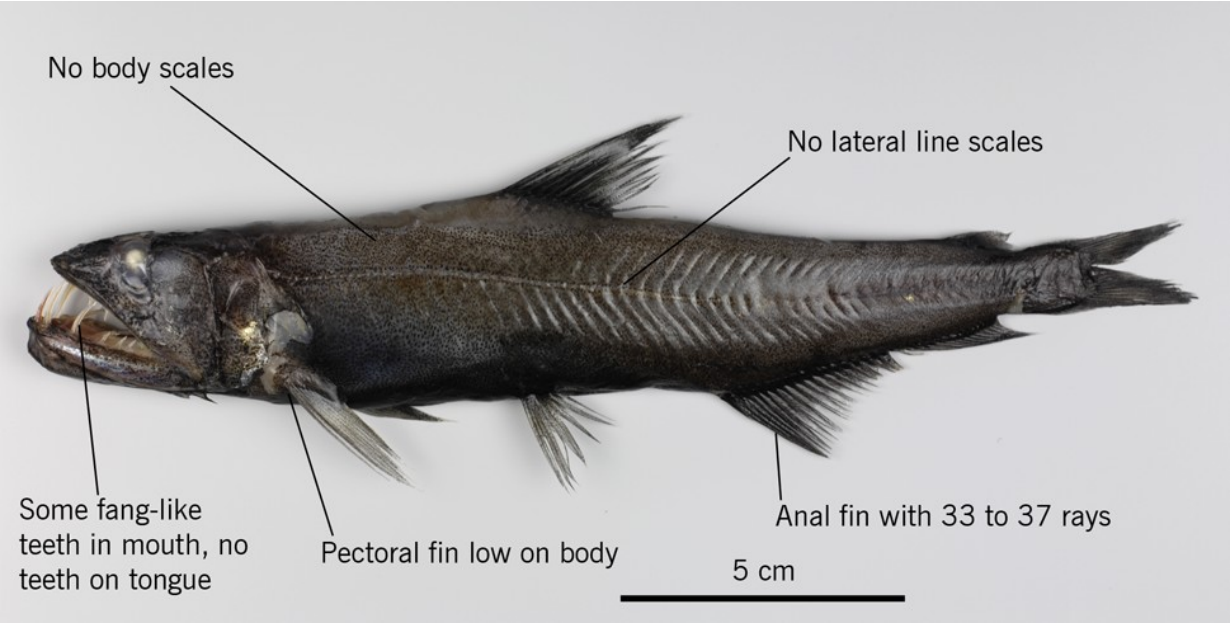
Family: 194. Evermannellidae (sabretooth fishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: EVB



Distinguishing features: Eye directed laterally and upward. Snout pointed with a gently curved anterior profile. Some large fang-like teeth in mouth. No teeth on tongue. No scales on lateral line or rest of body. Teeth-like gill rakers only on lower second arch. Pectoral fins low on body. Anal fin rays 33 to 37.

Colour: Head and body brownish with numerous variable size melanophores.

Size: To about 20 cm SL.

Distribution: Worldwide in temperate seas. Widespread in the southern hemisphere between about 25 and 50 S.

Depth: Midwater at about 300 to 1000 m.

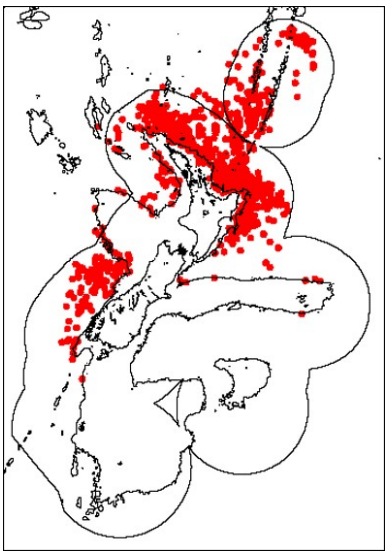
Similar species: Another species of sabretooth *Evermannella indica* has fewer anal fin rays (27 to 31), brassy iridescent side of head and body, and is more likely to be found in northern New Zealand. *Odontostomops normalops* has a normal (laterally directed) eye, *Coccorella* spp. have a blunt snout with a vertical anterior profile. Pearleyes (Scopelarchidae) have a scaled lateral line and large teeth on the tongue.

Biology & ecology: Predator, probably mostly of fishes. Not known to migrate vertically in the water column.

References

Johnson (1982), King et al. (2009), Paxton & Niem (1999), Stewart (2003b).

Longsnouted lancetfish
Alepisaurus ferox



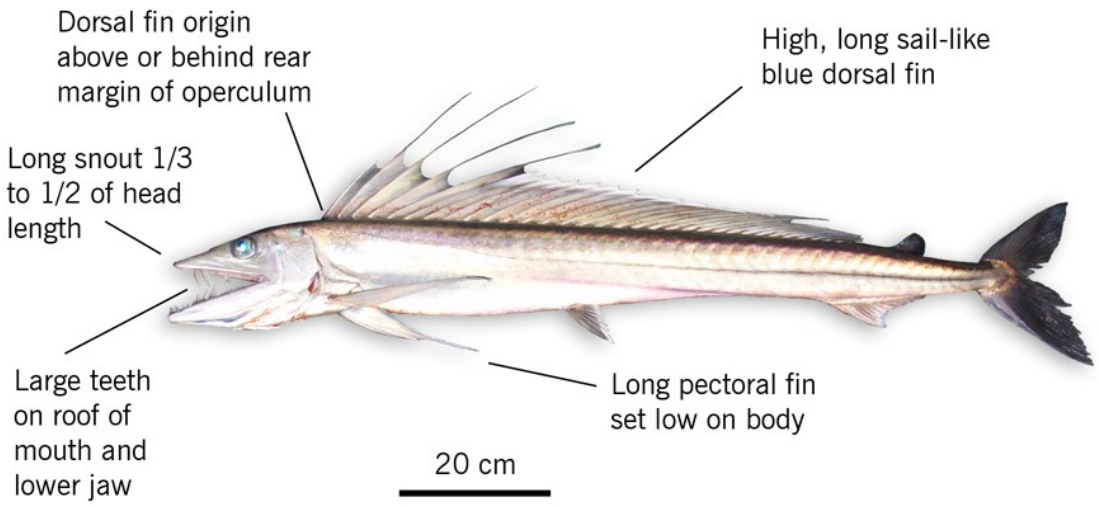
Family: 195. Alepisauridae (lancetfishes)

Maori names: n.a.

Other names: Longnose lancetfish

MFish reporting code: LAT

MFish research code: LAT



Distinguishing features: Elongate, slender, scaleless body with large fangs in jaws, high sail-like dorsal fin, and long pectoral fins. Dorsal fin origin behind the rear edge of the gill plate (operculum). Snout one-third to one-half of head length.

Colour: Body iridescent blue on dorsal surface with silvery-white below. Fins blue.

Size: To about 208 cm FL.

Distribution: Mostly recorded from the North Island north of about 40 S, with some fish recorded on the west coast of the South Island, but it is very likely that longline records include some shortsnouted lancetfish (*Alepisaurus brevirostris*). Widely distributed around the world's oceans.

Depth: 0 to 800 m, possibly deeper.

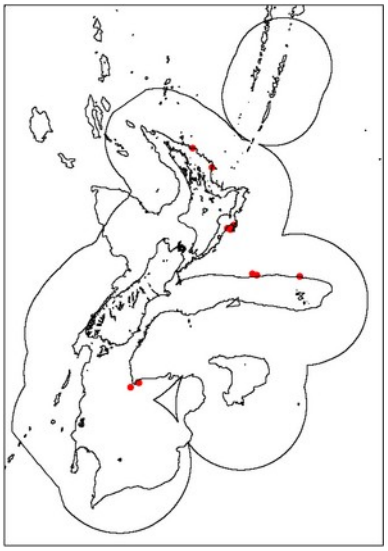
Similar species: Shortsnouted lancetfish (*Alepisaurus brevirostris*) specimens longer than about 50 cm FL have snout less than one-third head length, and the dorsal fin origin is in front of the rear margin of the gill plate.

Biology & ecology: Pelagic. Found beyond the 1000 m depth contour.

References

Bagley et al. (2000), Chapman et al. (2006), Francis (1981), Paulin et al. (1989), Stewart (2000b).

Hammerjaw
Omosudis lowei



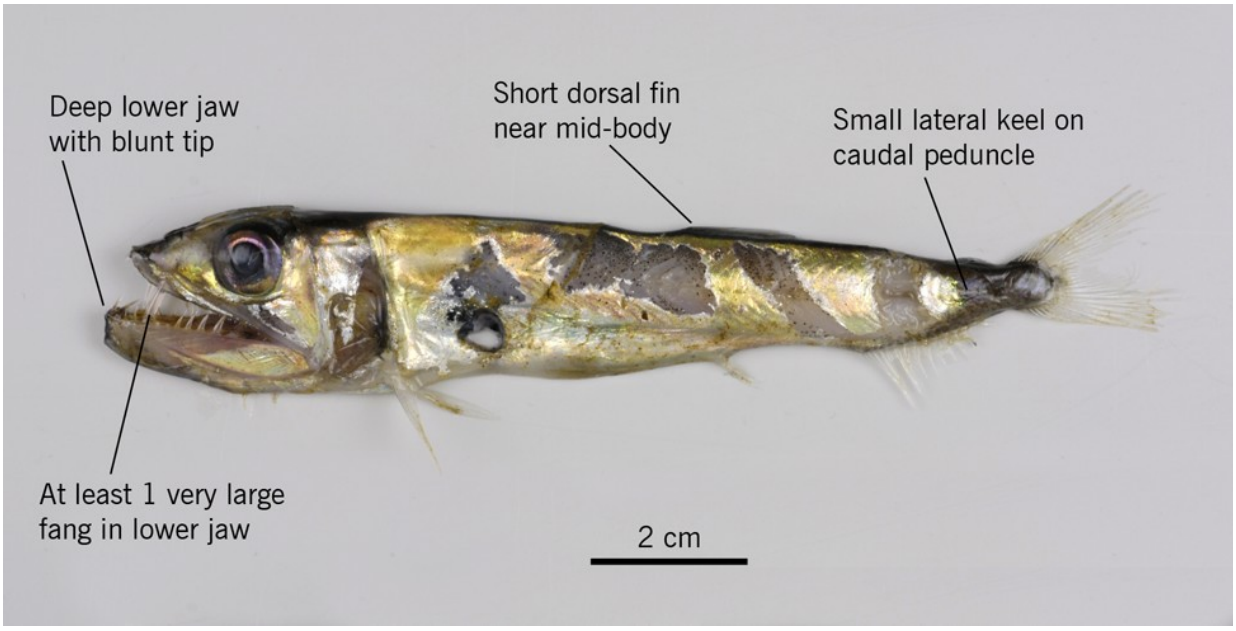
Family: 195. Alepisauridae (lancetfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: OMO



Distinguishing features: Lower jaw very deep and square at tip. Single short-based dorsal fin near middle of body. Small lateral keel on caudal peduncle above rear half of anal fin. Lower jaw with at least 1 very large fang and other variously sized but smaller fangs. 1 to 4 very large fangs on roof of mouth (palatine) in 1 row. No body or lateral line scales.

Colour: Iridescent brassy-silver on sides of head and body, dark upper body and caudal peduncle.

Size: To about 30 cm SL.

Distribution: Worldwide in tropical and temperate seas.

Depth: Midwater from near surface to about 1300 m.

Similar species: Shortsnouted and longsnouted lancetfishes (*Alepisaurus brevirostris* and *A. ferox*) have very long-based dorsal fin and lower jaw is slender with a pointed tip. Sabretooth fishes (Evermannellidae) have a more slender lower jaw, dorsal fin is in front of mid-body and lack a lateral keel on caudal peduncle.

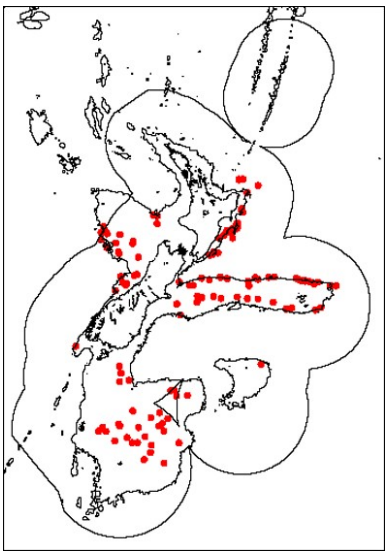
Biology & ecology: Predator of fishes and squids. Capable of ingesting large prey. Synchronous hermaphrodites, i.e., each adult has functional male and females gonads.

References

Gomon et al. (2008), Paxton & Niem (1999), Stewart (1997).

Giant barracudina

Magnisudis prionosa



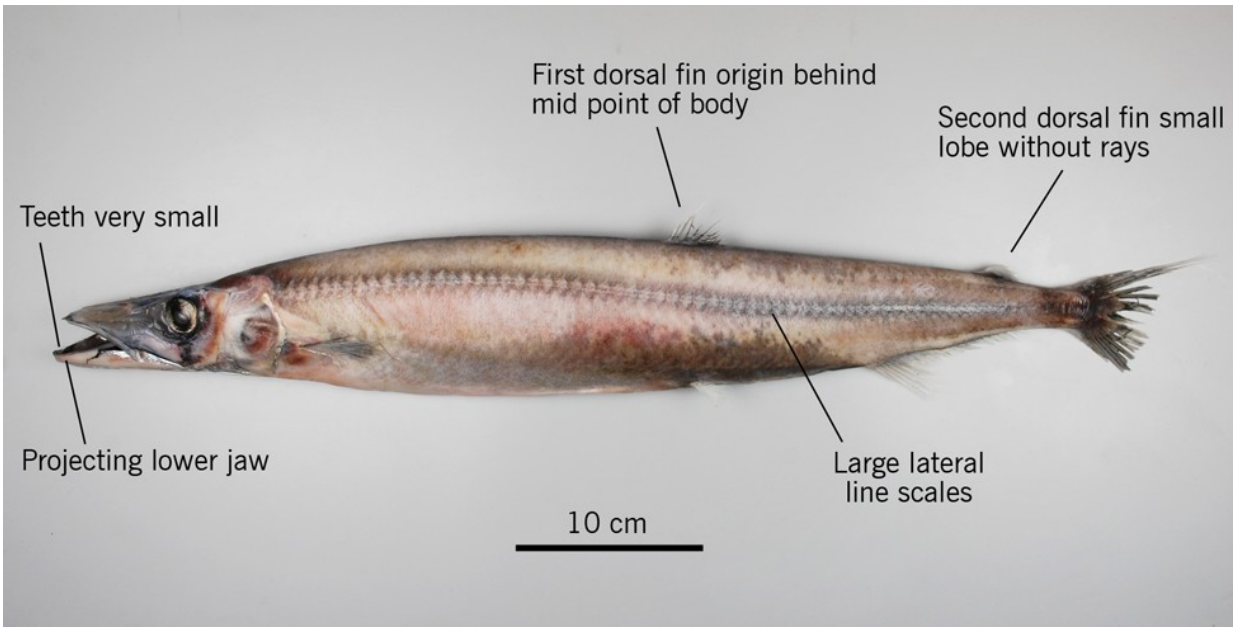
Family: 196. Paralepididae (barracudinas)

Maori names: n.a.

Other names: Southern barracudina

MFish reporting code: BCA

MFish research code: BCA



Distinguishing features: First dorsal fin origin behind mid-point of body. Second dorsal fin a small lobe-like fin without rays. Pelvic fin below first dorsal fin. Large lateral line scales. Teeth very small.

Colour: Body violet-grey (when fresh), with silvery patches on the head.

Size: To about 55 cm SL.

Distribution: Mainly central and southern New Zealand including the Chatham Rise and Campbell Plateau. Probably widespread in the southern hemisphere from about 20 S to Antarctica.

Depth: 500 to 1000 m.

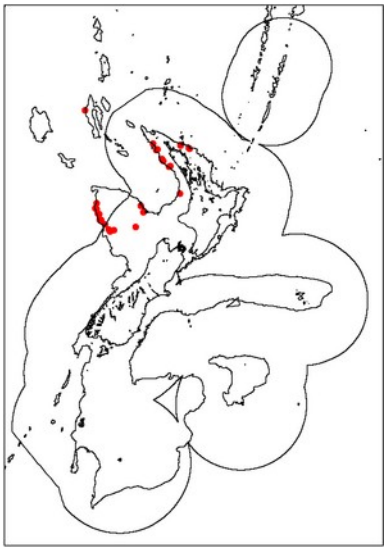
Similar species: Other barracudinas are much rarer and smaller, have fang-like teeth, and are very difficult to identify. Barracuda (*Sphyraena acutipinnis*) has 2 short-based widely separated dorsal fins, the first armed with spines, and the second with soft rays. Barracouta (*Thyrsites atun*) has a long spinous section of the dorsal fin followed by a shorter soft rayed section with separate finlets (5 to 7) at the rear.

Biology & ecology: Probably pelagic.

References

Bagley et al. (2000), Stewart (1999a).

Large scaled blackchin
Neoscopelus macrolepidotus



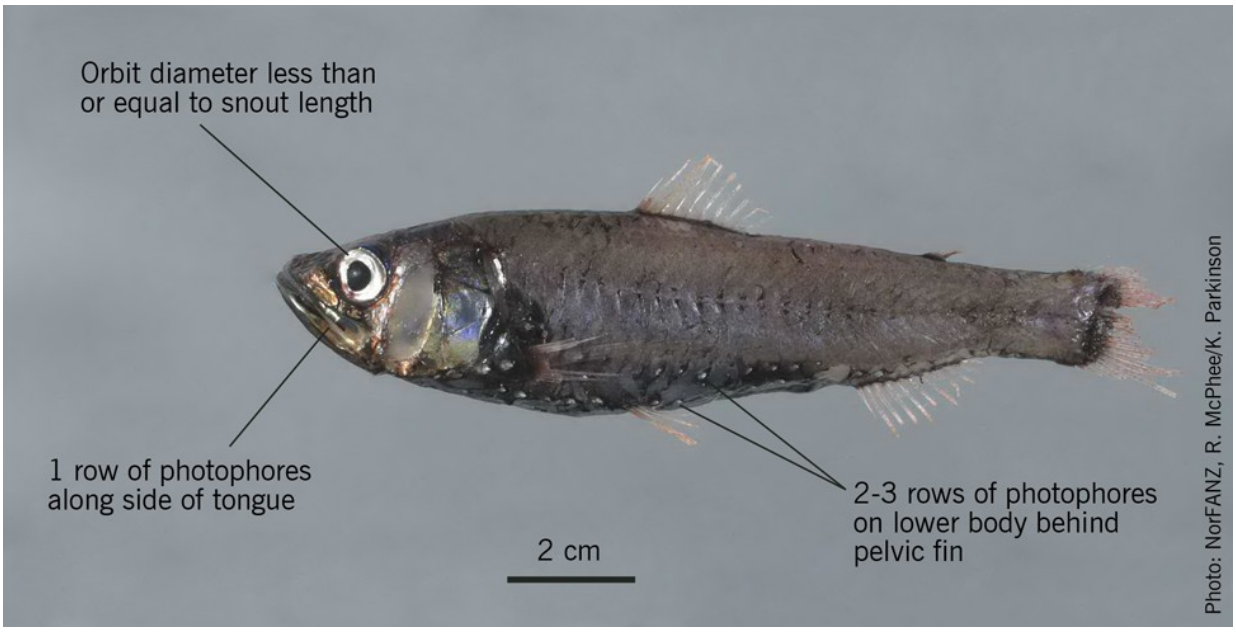
Family: 199. Neoscopelidae (blackchins)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: NML



Distinguishing features: Photophores around pectoral fin, in 2 to 3 rows behind pelvic fin along lower third of body, and 1 row inside mouth along the side of the tongue. Orbit diameter less than or equal to snout length. Outer jaw teeth small and fine, inner jaw teeth enlarged and depressible. Uppermost lateral row of photophores ends before origin of anal fin base.

Colour: Body pinkish with silvery iridescent sides, blackish throat and belly. Sides of head silvery. Lower lip and lining of mouth blackish. Fins pink or reddish.

Size: To 25 cm SL.

Distribution: Central and northern New Zealand. Atlantic, Indian, west and central Pacific Oceans.

Depth: 430 to 1020 m.

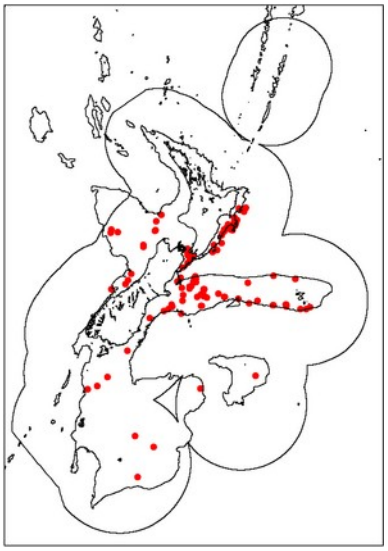
Similar species: Another blackchin *Neoscopelus microchir* is probably more northern, and the uppermost lateral row of photophores extends past the end of the anal fin base. Lanternfishes (Myctophidae) have orbit diameter greater than snout length, anal fin origin below dorsal fin.

Biology & ecology: Probably lives near the seafloor.

References

Gomon et al. (2008), Paxton & Hulley (1999).

Hector's lanternfish
Lampanyctodes hectoris



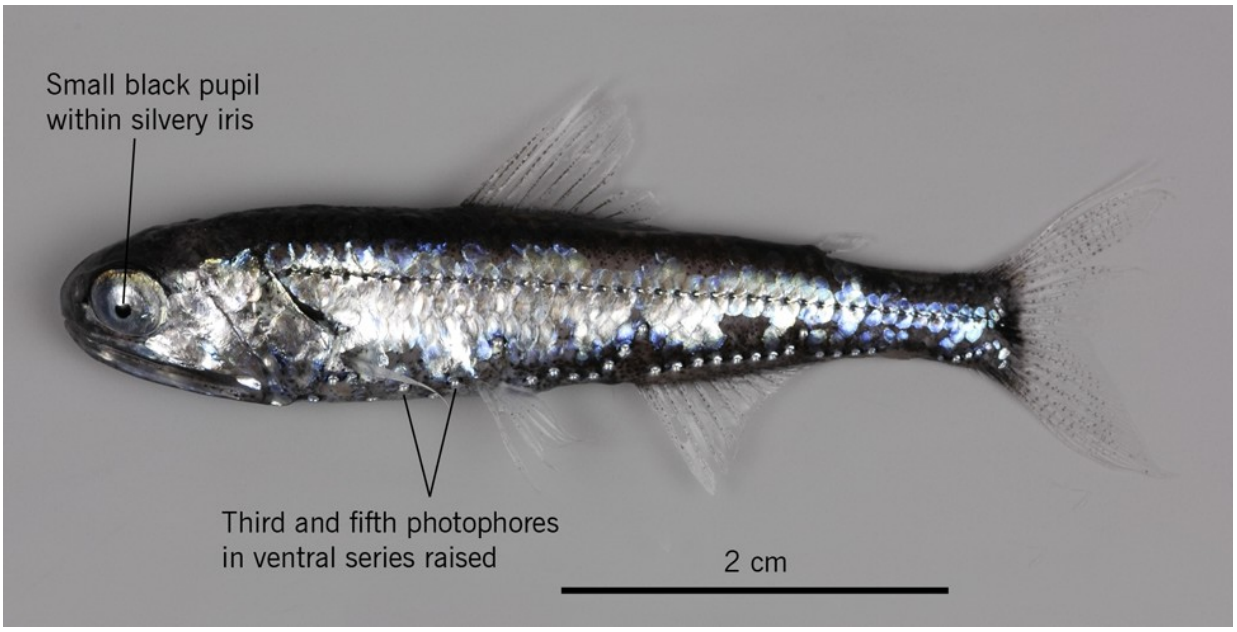
Family: 200. Myctophidae (lanternfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: LAN

MFish research code: LHE



Distinguishing features: Small central black pupil of eye surrounded by silvery iris. Third and fifth photophores in the ventral body series between isthmus and pelvic fin origin raised above the others i.e., 1st , 2nd, and 4th photophores are lower and in a straight line. Eye diameter greater than snout length. Anal fin origin under or slightly behind rear of dorsal fin.

Colour: Upper body dark. Silvery scales (often lost) on sides of head and body. Body under scales dull brownish with scattered small melanophores. Fins mostly colourless with sparse small melanophores.

Size: To 7 cm SL.

Distribution: Widespread in temperate and Subantarctic southern hemisphere.

Depth: Midwater, migrating from about 300 m during the day to near the surface at night above the outer continental shelf and upper slope.

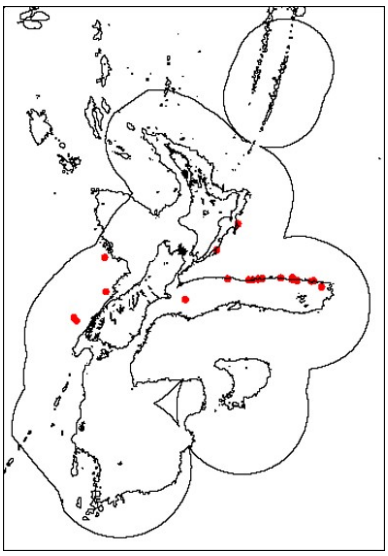
Similar species: There are 97 species of lanternfishes recorded from NZ, most are small, all have a specific photophore pattern, and require a microscope for identification. Blackchins (Neoscopelidae) have eye diameter equal to or much less than snout length, origin of anal fin well behind rear of dorsal fin, and photophores in rows along body. Twin light dragonfishes (Diplophidae) and lighthouse fish (Phosichthyidae) have photophores in rows along ventral body and not in groups, and enlarged teeth.

Biology & ecology: A predator of planktonic crustaceans. A schooling species and can form very large aggregations. Lanternfishes are an important food for a range of marine predators, including seals, dolphins, whales, seabirds (especially penguins), squids, and fishes that live or feed in midwater.

References

Gomon et al. (2008), Paulin (1997), Paxton & Hulley (1999).

Scalloped dealfish
Zu elongatus



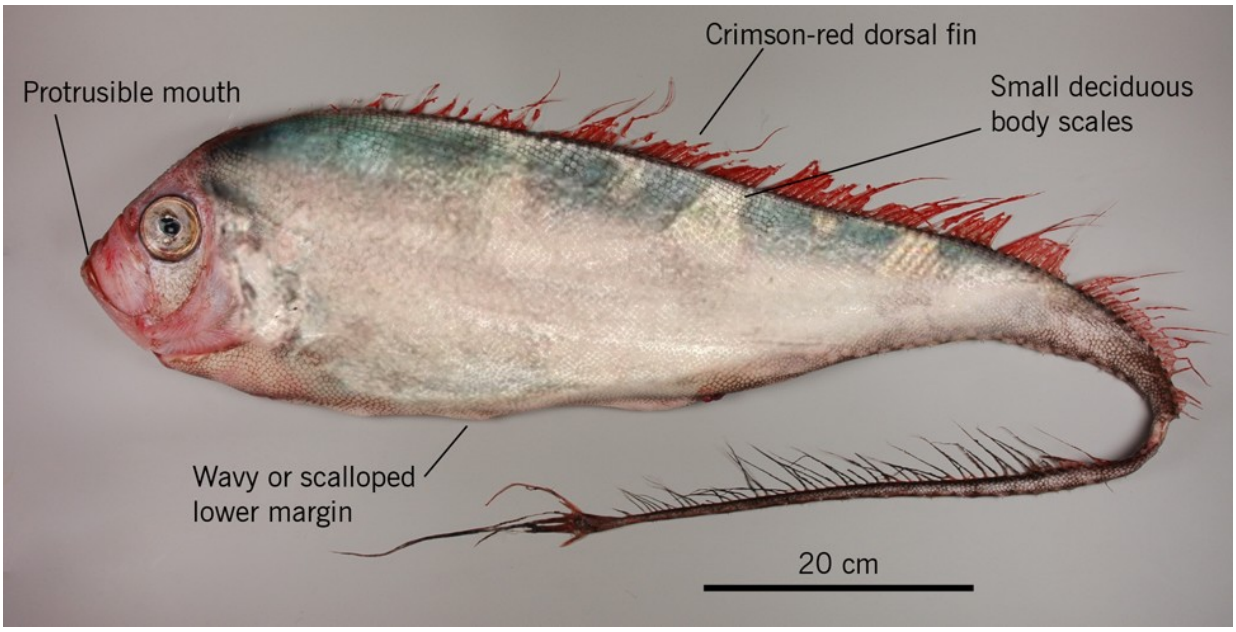
Family: 206. Trachipteridae (ribbonfishes)

Maori names: n.a.

Other names: Taper-tail ribbonfish

MFish reporting code: UNI

MFish research code: ZEL



Distinguishing features: Elongate, compressed, silvery body with scalloped (undulating) ventral surface between pelvic fin bases and beginning of tail. Protrusible mouth. Skin soft.

Colour: Body silvery, may be with faint dark broad vertical bands (undamaged skin), and red dorsal fin.

Size: To about 120 cm SL.

Distribution: A few specimens have been recorded around New Zealand. Elsewhere appears to be confined to the southern hemisphere.

Depth: Unknown.

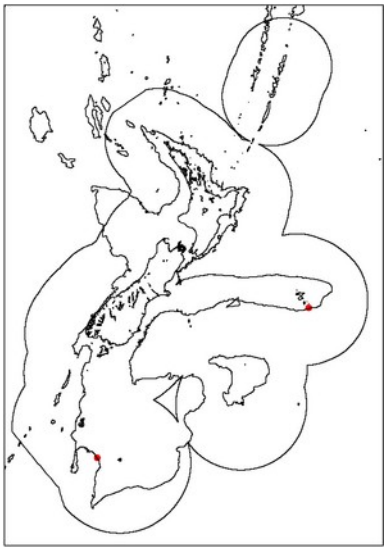
Similar species: Dealfish (*Trachipterus trachypterus*) do not have the scalloped ventral margin between the pelvic fin bases and beginning of the tail.

Biology & ecology: Uncommon in New Zealand waters. Midwater.

References

Paulin et al. (1989), Stewart (1995).

Eel cod
Muraenolepis orangiensis



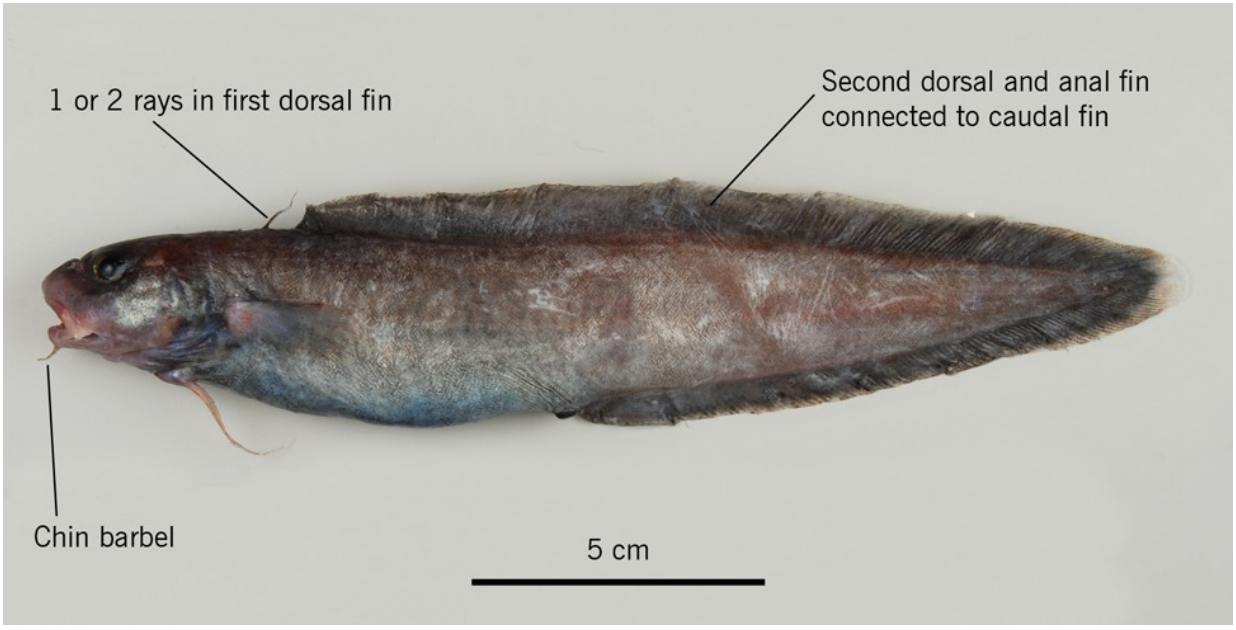
Family: 212. Muraenolepididae (eel cods)

Maori names: n.a.

Other names: n.a.

MFish reporting code: MRL

MFish research code: MWO



Distinguishing features: 1 or 2 rays in first dorsal fin. Chin barbel present. Long second dorsal and anal fins confluent with caudal fin. Lateral line composed of an irregular series of tubed scales or pores (20 to 22) ending well before middle of second dorsal fin. Small scales embedded in skin with a paving-stone pattern.

Colour: Dull reddish upper and greyish lower body.

Size: To about 30 cm TL.

Distribution: Widespread in the Subantarctic.

Depth: 140 to 600 m.

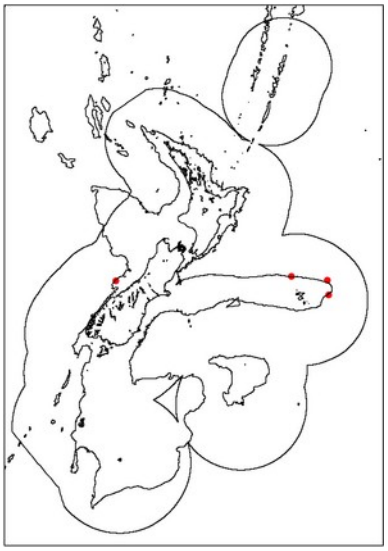
Similar species: The taxonomy of the family is uncertain. The Antarctic species *Muraenolepis evseenkoi* has a vey short lateral line with only 2 tubed scales (pores) just behind the head. Eelpouts (Zoarcidae) lack a chin barbel and have a single long dorsal fin. Snailfishes (Liparidae) also lack a chin barbel and have a small distinct tail fin.

Biology & ecology: Demersal predator.

References

Balushkin & Prirodina (2005, 2010), Cohen et al. (1990).

Dusky rattail
Coelorinchus infuscus



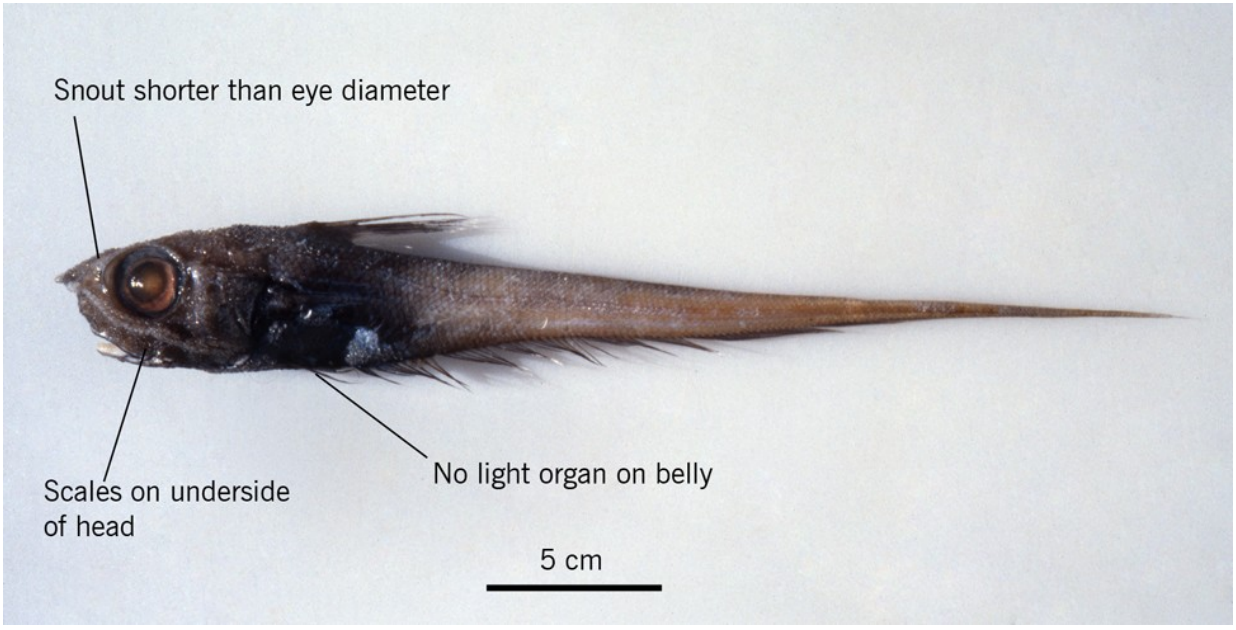
Family: 215. Macrouridae (grenadiers, rattails)

Maori names: n.a.

Other names: n.a.

MFish reporting code: RAT

MFish research code: CGX



Distinguishing features: Scales on underside of head. No obvious black light organ on belly in front of anus. Snout short, less than eye diameter. No prominent markings on head, body or fins.

Colour: Body pale to mid-brown. Dark bluish abdomen marking extending from dorsal to ventral body surface. Anal fin may be greyish. Upper two thirds of first dorsal fin dark brownish.

Size: To about 45 cm TL.

Distribution: Known only from New Zealand. Possibly confined to underwater hills in central and northern New Zealand.

Depth: Probably deeper than about 700 m.

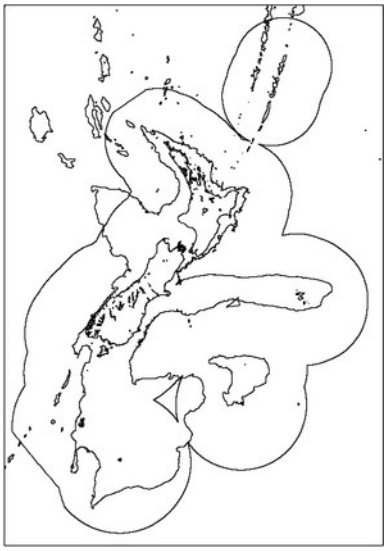
Similar species: Mahia rattail (*Coelorinchus matamua*) has black front half of the anal fin changing abruptly to pale on the rear half of the fin.

Biology & ecology: Demersal.

References

McMillan & Paulin (1993).

Kermadec rattail
Coelorinchus kermadecus



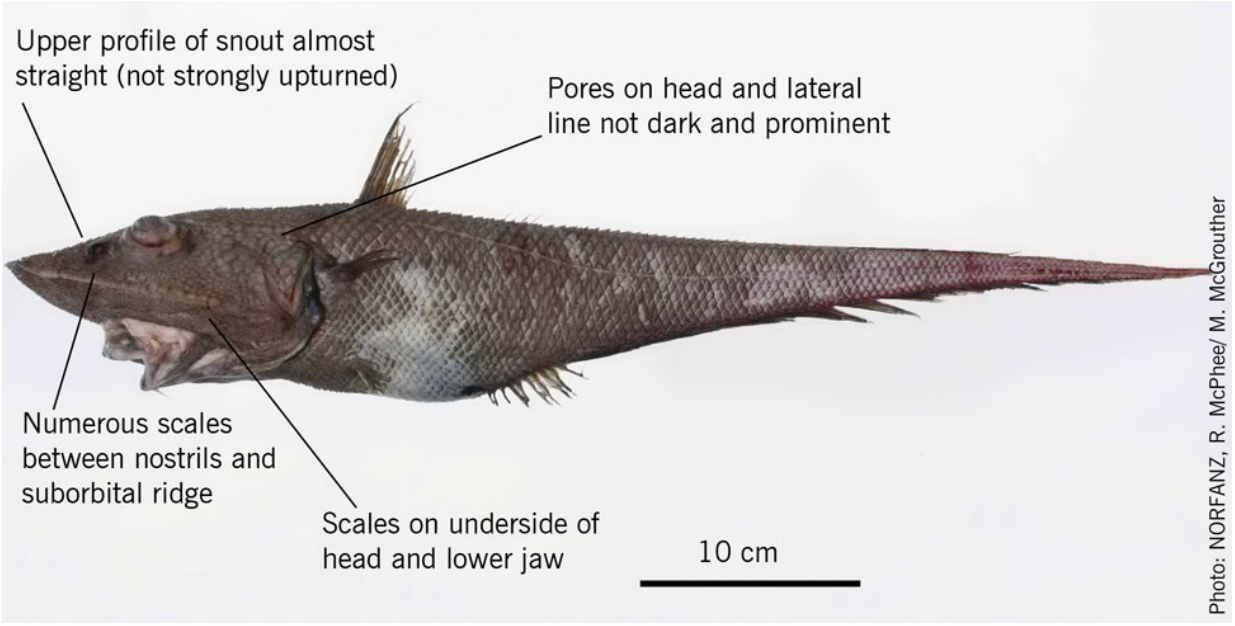
Family: 215. Macrouridae (grenadiers, rattails)

Maori names: n.a.

Other names: n.a.

MFish reporting code: RAT

MFish research code: CKE



Distinguishing features: Scales on underside of head and lower jaw. Upper profile of snout almost straight and not strongly upturned. Numerous scales between nostrils and suborbital ridge. Pores on head and lateral line not dark and prominent.

Colour: Body and head pale brownish.

Size: To about 62 cm TL.

Distribution: Northeast of North Island, Wanganella Bank west of the North Island, Kermadec Islands, south of New Caledonia, and Australia (NSW).

Depth: 800 to 1200 m.

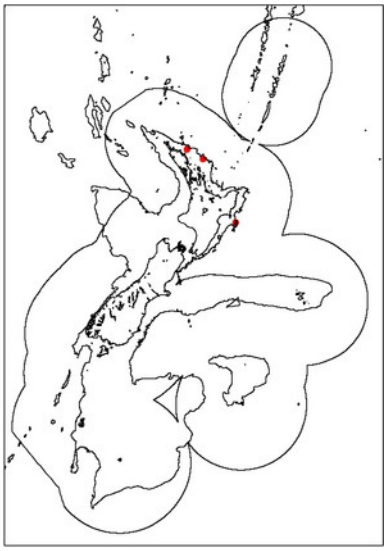
Similar species: Spotty faced rattail (*Coelorinchus acanthiger*) has no or few scales between the nostrils and suborbital ridge and is a smaller (to 50 cm TL) and more slender species. Roughhead rattail (*C. trachycarus*) has no scales between the nostrils and suborbital ridge and has long spines on ridges on top of the head.

Biology & ecology: Demersal.

References

Iwamoto & Merrett (1997), Iwamoto & Graham (2001), McMillan & Paulin (1993).

Patterned rattail
Coelorinchus mystax



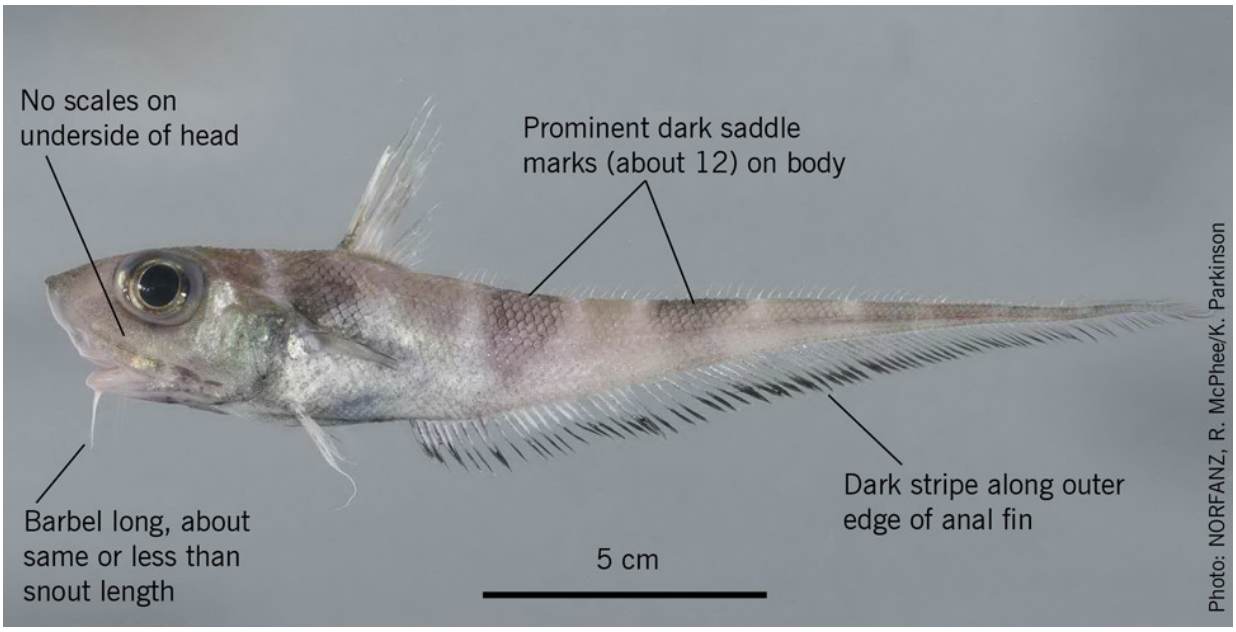
Family: 215. Macrouridae (grenadiers, rattails)

Maori names: n.a.

Other names: n.a.

MFish reporting code: RAT

MFish research code: CIX



Distinguishing features: No scales on underside of head. About 12 prominent dark saddle marks on body. Dark stripe running along the outer edge of the anal fin. Barbel long, almost the same or less than snout length. More than 100 (104 to 115) pyloric caeca.

Colour: About 12 prominent dark saddle marks on body. First, third, and fifth marks are darker than the others counting back from the first mark just in front of first dorsal fin. Dark stripe running along the outer edge of the anal fin. First dorsal fin with two pale stripes (may be faint) running from front to back, first about a third and the second about two-thirds up from base of fin.

Size: To about 55 cm TL.

Distribution: Known only from northern New Zealand.

Depth: 450 to 540 m.

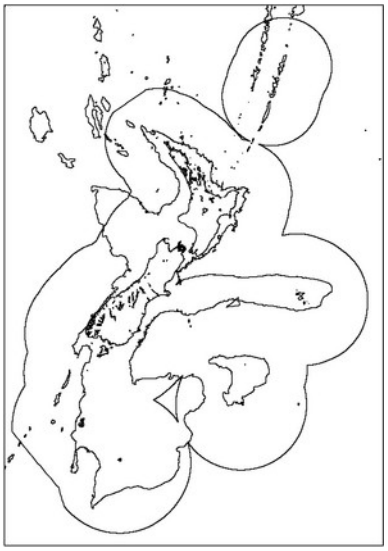
Similar species: Dark banded rattail (*Coelorinchus maurofasciatus*) has pale outer and blackish inner stripes running along the anal fin, dark upper two thirds of first dorsal fin and other differences, e.g., 22 to 32 pyloric caeca.

Biology & ecology: Demersal.

References

McMillan & Paulin (1993).

Spatulate rattail
Coelorinchus spathulatus



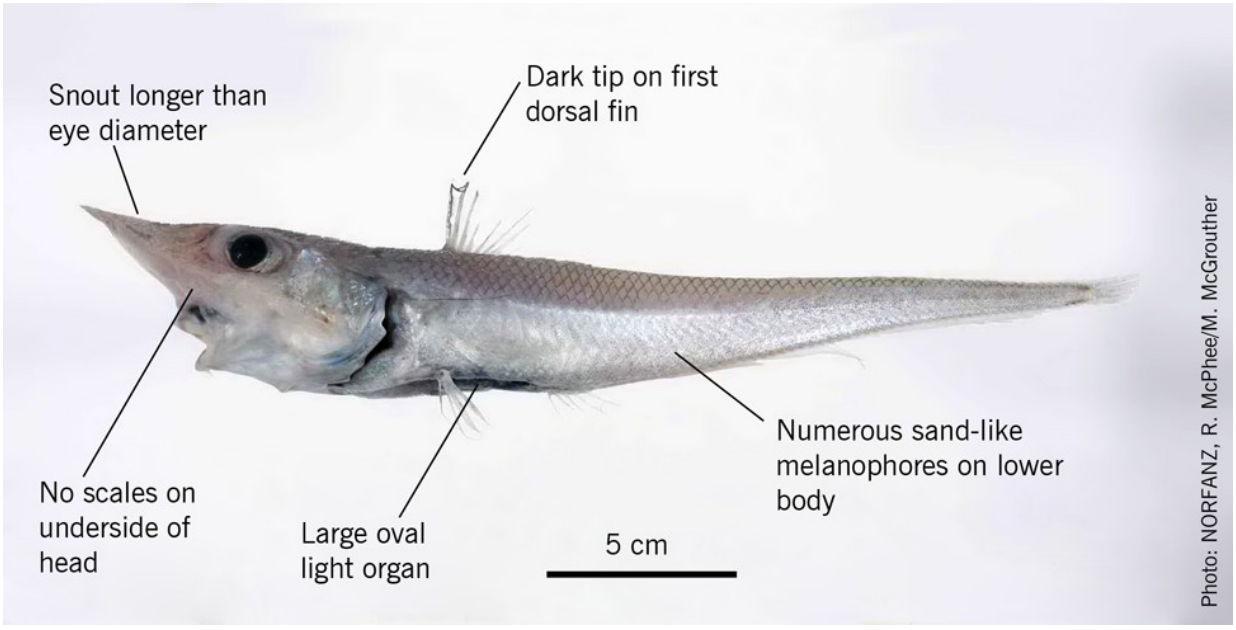
Family: 215. Macrouridae (grenadiers, rattails)

Maori names: n.a.

Other names: n.a.

MFish reporting code: RAT

MFish research code: CSP



Distinguishing features: No scales on underside of head. Snout longer than eye diameter. Large oval light organ on belly between pelvic fin base and anus. Numerous sand-like melanophores on lower body. Dark tip on first dorsal fin.

Colour: Body and head pale brownish. Numerous sand-like melanophores on lower body. Dark tip on first dorsal fin.

Size: To about 28 cm TL.

Distribution: Wanganella Bank west of the the North Island, New Caledonia, Chesterfield and Bellona Plateau, and Australia (QLD).

Depth: 550 to 825 m.

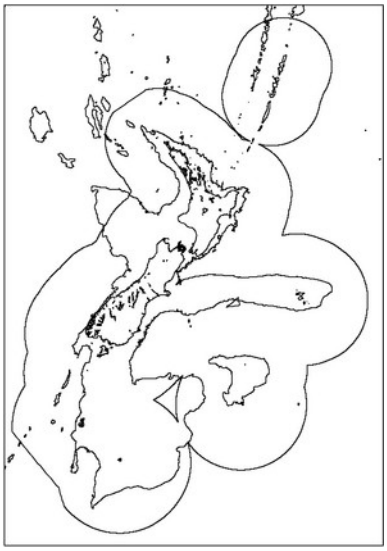
Similar species: Notable rattail (*Coelorinchus innotabilis*) has thin flat scales on underside of the head behind the mouth, no obvious light organ on the belly, no sand-like melanophores on lower body.

Biology & ecology: Demersal.

References

Iwamoto & Merrett (1997), McMillan & Paulin (1993).

Cosmopolitan rattail
Coryphaenoides armatus



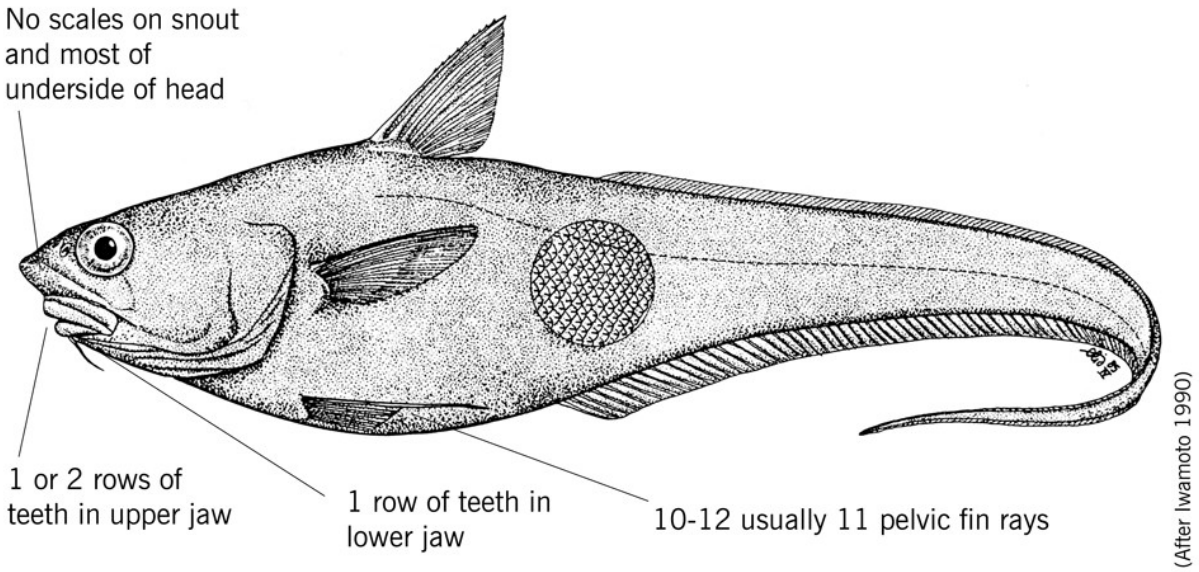
Family: 215. Macrouridae (grenadiers, rattails)

Maori names: n.a.

Other names: n.a.

MFish reporting code: COM

MFish research code: COM



Distinguishing features: No scales on most of underside of head including snout, below most of suborbital ridge, tip of lower jaw. 1 (large adults) or 2 rows of teeth in upper jaw (premaxilla) and 1 row in lower jaw. Pelvic fin with 10 to 12, usually 11 rays (Pacific specimens). Body scales thin and deciduous. Scales on head ridges (snout, eye, suborbital ridge) spiny and adherent. 11 to 14 pyloric caeca.

Colour: Dark brown to blackish overall. Fins blackish in large but paler in small specimens.

Size: To 102 cm TL.

Distribution: Worldwide.

Depth: 2000 to 4700 m.

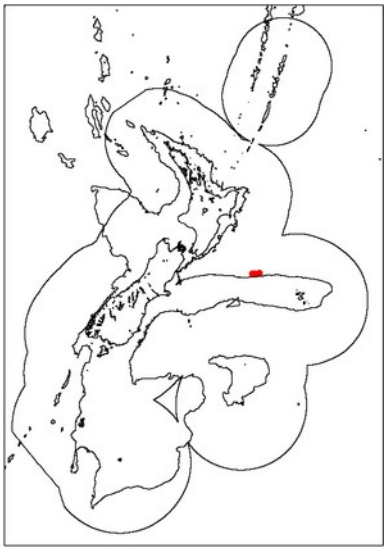
Similar species: Murray's rattail (*Coryphaenoides murrayi*) is pale silvery grey, upper jaw teeth are in a broad band with outer teeth slightly enlarged. Striate rattail (*C. striaturus*) has scales on most of underside of head, and upper jaw teeth are in a band with outer teeth enlarged. Bighead rattail (*Coryphaenoides rudis*) has scales on underside of head, outer teeth enlarged with an inner band of fine teeth on upper jaw, and lower jaw with about 3 rows of teeth near tip reducing to 1 at rear.

Biology & ecology: Deep slope and abyssal species, common in most oceans deeper than 2000 m. Young feed on benthic invertebrates, mostly crustaceans and holothuroids, switching to fishes, sea urchins and cephalopods as adults.

References

Iwamoto & Graham (2001), Iwamoto & Stein (1974), Iwamoto (1990a).

Small mouth rattail
Coryphaenoides microstomus



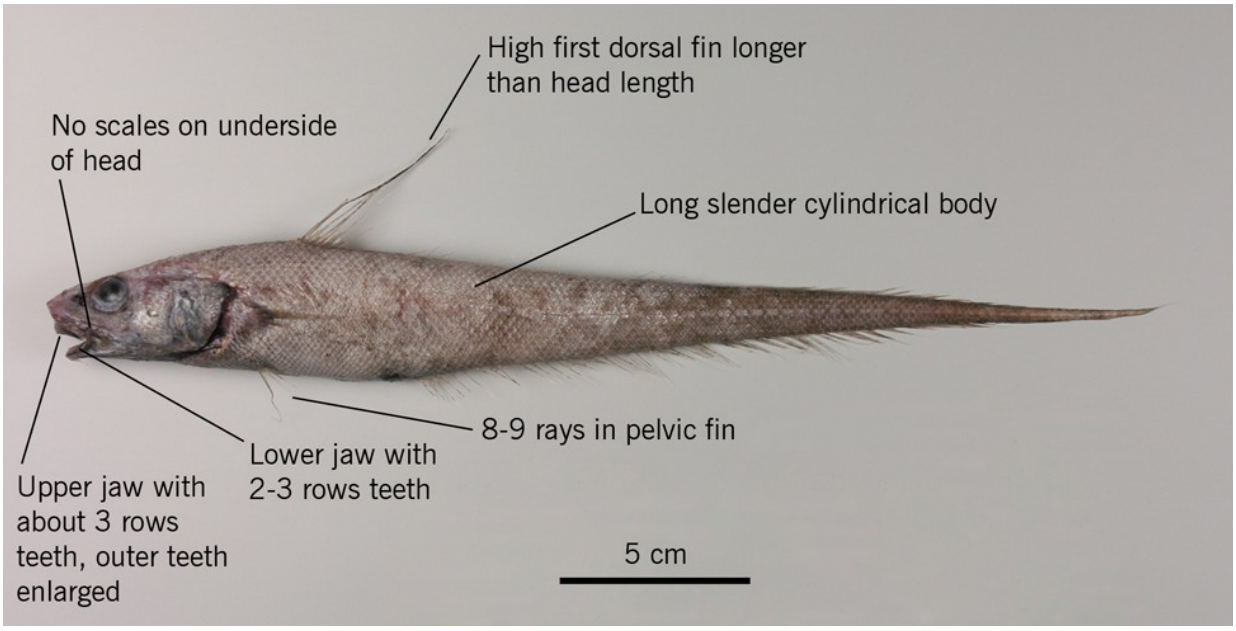
Family: 215. Macrouridae (grenadiers, rattails)

Maori names: n.a.

Other names: n.a.

MFish reporting code: RAT

MFish research code: CMI



Distinguishing features: No scales on most of underside of head including snout, below suborbital ridge, and lower jaw. A narrow band of about 3 rows of teeth in upper jaw with outer teeth slightly enlarged, and 2 to 3 rows of teeth in lower jaw. Pelvic fin with 8 to 9 rays. High first dorsal fin, greater than head length. Small head and long slender cylindrical body. Short barbel, about half eye diameter.

Colour: Dark greyish-brown.

Size: To about 27 cm TL.

Distribution: Known only from the north Chatham Rise slope in New Zealand but probably more widespread.

Depth: 1550 to 1840 m.

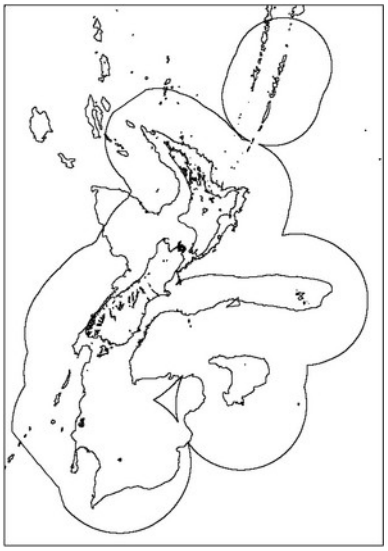
Similar species: Humpback rattail (*Coryphaenoides dossenus*) has scales on the underside of the head and barbel longer than eye diameter.

Biology & ecology: Demersal. Females captured during June 2010 had enlarged ovaries with hyaline eggs and appeared close to spawning.

References

McMillan (1999).

Bighead rattail
Coryphaenoides rudis



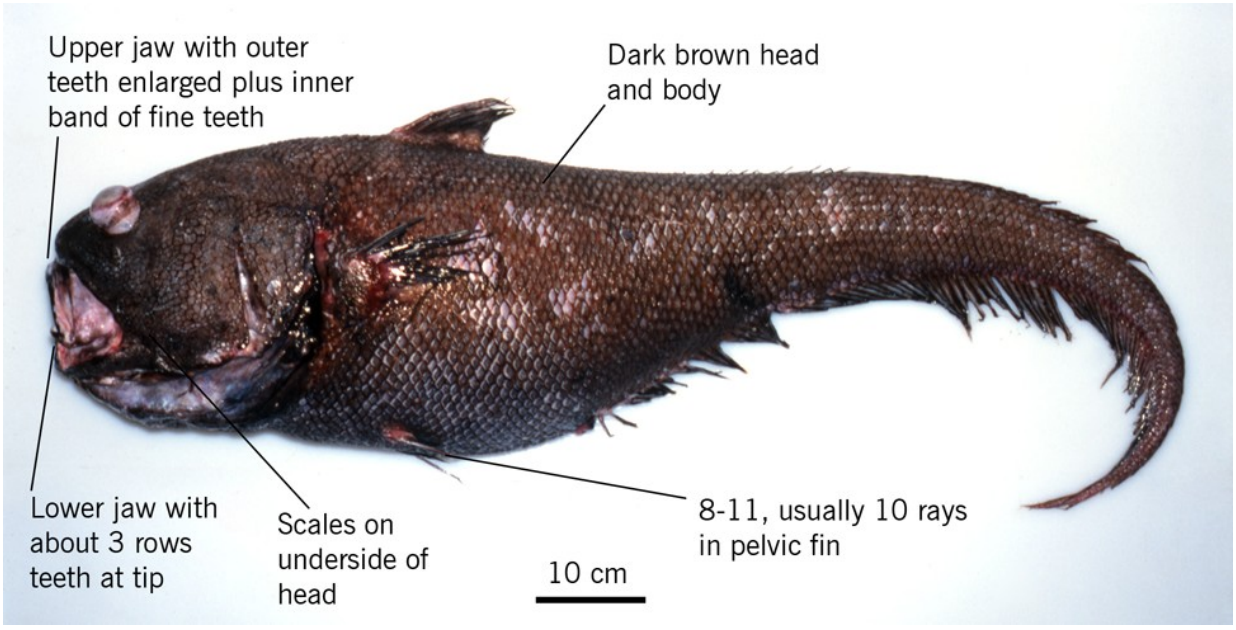
Family: 215. Macrouridae (grenadiers, rattails)

Maori names: n.a.

Other names: n.a.

MFish reporting code: RAT

MFish research code: CRD



Distinguishing features: Scales on underside of head and lower jaw. Upper jaw with outer teeth enlarged plus an inner band of fine teeth. Lower jaw with about 3 rows of teeth near tip reducing to 1 at the rear. Pelvic fin with 9 to 10 (usually 10, rarely 8 or 11) rays. Mouth large. No strong ridges on head.

Colour: Overall dark brown with scale pockets prominently outlined in brownish-black. Fins dark brown to blackish.

Size: To at least 120 cm TL.

Distribution: Worldwide. In New Zealand only known from northern waters.

Depth: 1000 to 3500 m.

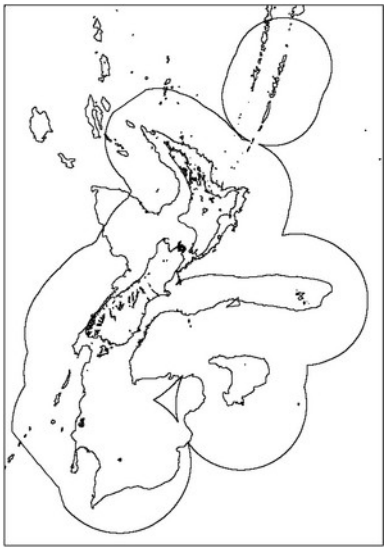
Similar species: Cosmopolitan rattail (*Coryphaenoides armatus*) has no scales on most of underside of head, 1 or 2 rows of teeth in upper jaw and 1 row in lower jaw.

Biology & ecology: Demersal. Larger fish feed on cephalopods.

References

Iwamoto (1990), Iwamoto & Sazonov (1988), Shcherbachev & Iwamoto (1995).

Dogtooth rattail
Cynomacrurus piriei



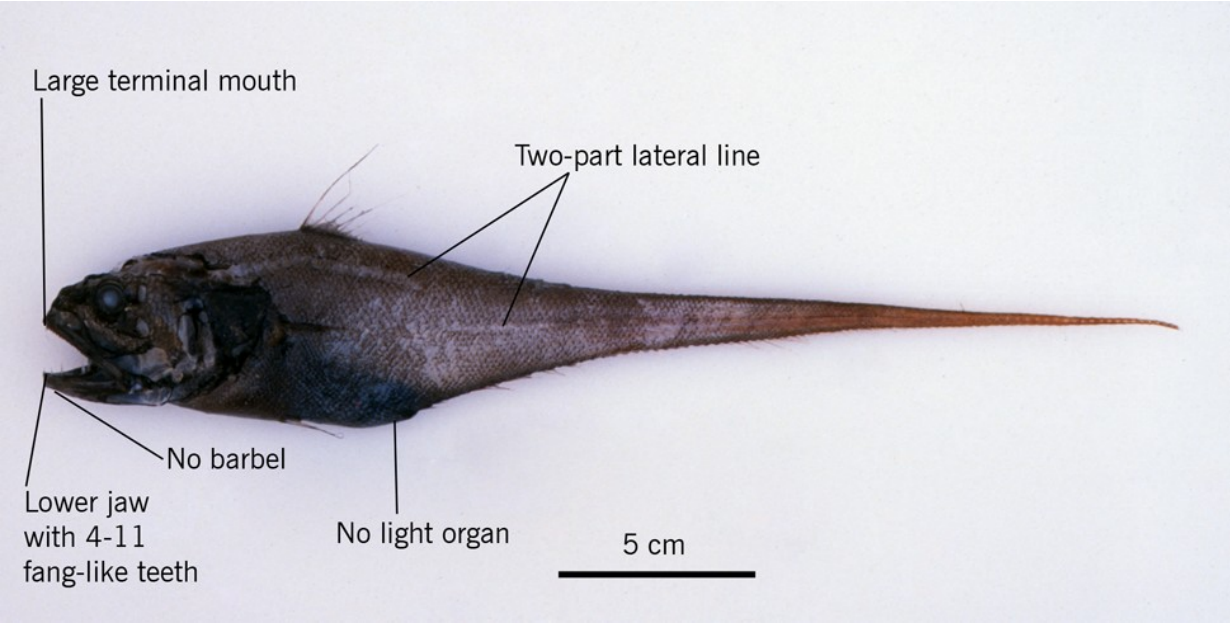
Family: 215. Macrouridae (grenadiers, rattails)

Maori names: n.a.

Other names: n.a.

MFish reporting code: RAT

MFish research code: CPI



Distinguishing features: Large terminal mouth. Lower jaw with one row of 4 to 11 fang-like teeth, upper jaw with small teeth in a narrow band plus one or more pairs of fang-like teeth near the front. No barbel or light organ. Anus close to anal fin origin. Two-part lateral line with short upper section behind the head and a second longer section on mid-body and tail.

Colour: Dark brown to brownish-black.

Size: To about 50 cm TL.

Distribution: Probably widespread in the southern hemisphere from cool temperate to Antarctic waters.

Depth: 1000 to 2000 m.

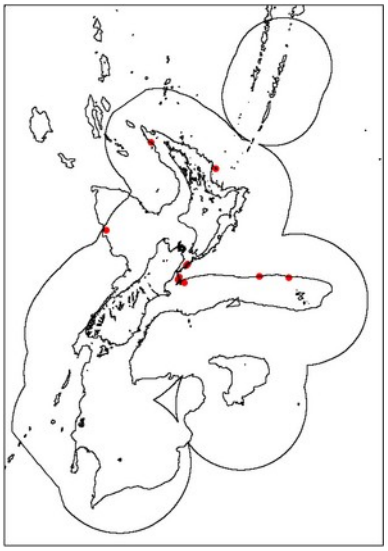
Similar species: *Odontomacrurus murrayi* has anus about midway between pelvic and anal fins, small light organ between the pelvic fin bases, and is black overall.

Biology & ecology: Deep midwater predator.

References

Iwamoto (1990), Iwamoto & Graham (2001).

Naked snout rattail
Haplomacrourus nudirostris



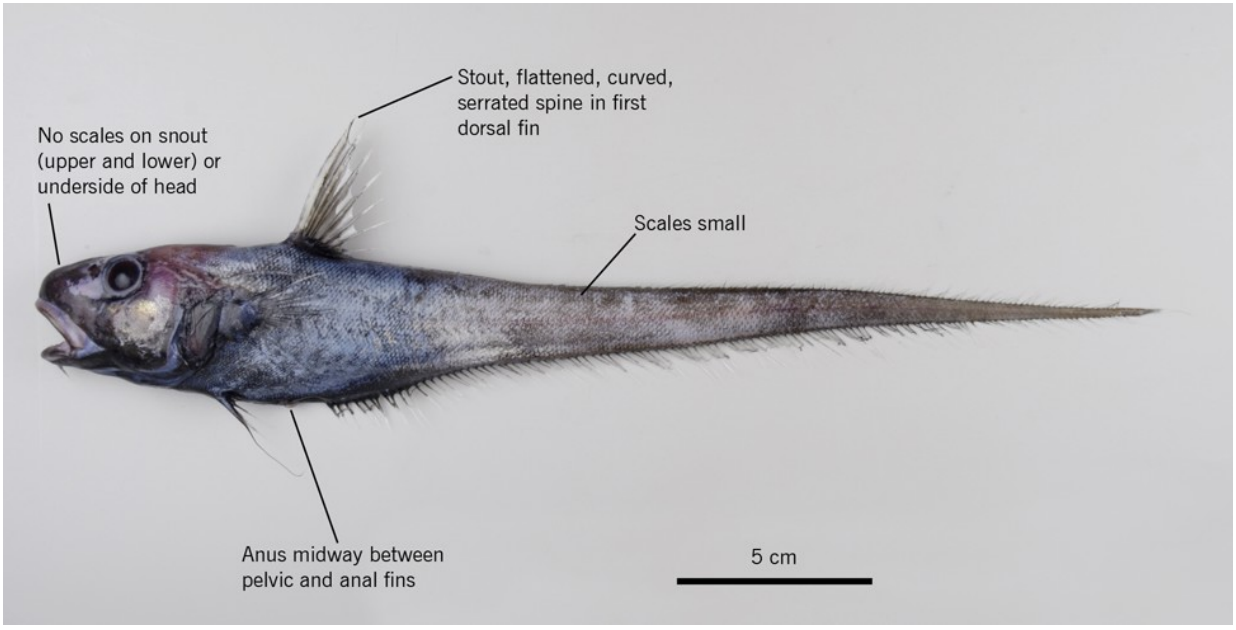
Family: 215. Macrouridae (grenadiers, rattails)

Maori names: n.a.

Other names: n.a.

MFish reporting code: RAT

MFish research code: HAN



Distinguishing features: No scales on top of snout or on underside of head including snout. Scales small, those on head and front of body lacking spinules. Anus about midway between anal and pelvic fins. Small light organ between pelvic fin bases. Spinous ray of first dorsal fin stout, flattened, curved and finely serrated.

Colour: Overall brownish black with bluish abdomen from behind head to about a third of body length.

Size: To about 60 cm TL.

Distribution: Southern hemisphere also including Australia (NSW), New Caledonia and southern Africa.

Depth: 790 to 1590 m.

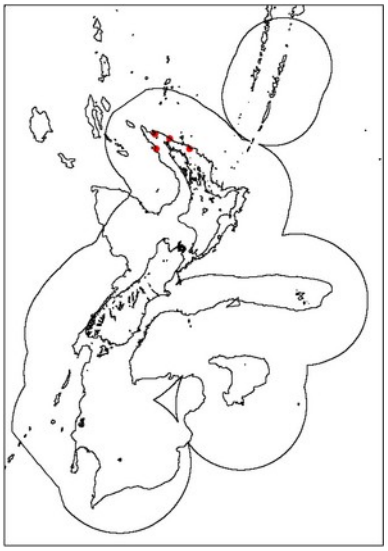
Similar species: Species of *Nezumia* have upper snout scaled with a strong scute at the tip, and prominent scaled suborbital ridge.

Biology & ecology: Demersal.

References

Iwamoto & Graham (2001), Iwamoto & Merrett (1997).

Glasshead rattails
Hymenocephalus spp.



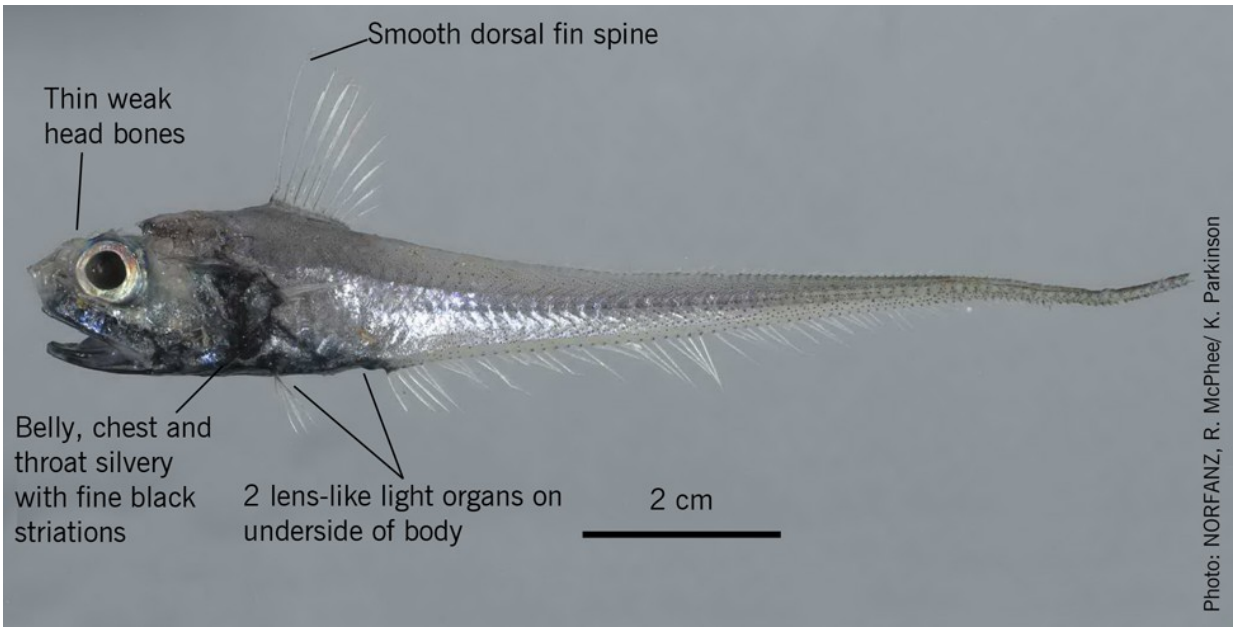
Family: 215. Macrouridae (grenadiers, rattails)

Maori names: n.a.

Other names: n.a.

MFish reporting code: RAT

MFish research code: HYM



Distinguishing features: Head bones thin, weak, sometimes high and wide. Membrane covering head transparent and easily damaged. Large spine in first dorsal fin smooth (not serrated). 2 small black lens-like light organs on underside, first just ahead of anus, second on chest near pelvic fin bases. Scales deciduous.

Colour: Some species with silvery sides, but others are almost entirely brownish or blackish.

Size: Small, to about 20 cm TL depending on species.

Distribution: Northern New Zealand. Some of the New Zealnd species are also known from Australia and New Caledonia.

Depth: 300 to 800 m depending on species.

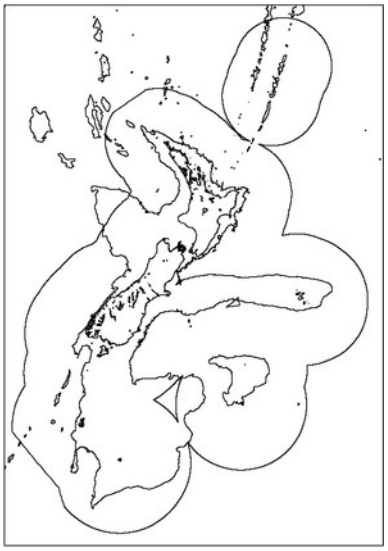
Similar species: Javelinfish (*Lepidorhynchus denticulatus*) has only one lens-like light organ on underside of the body just in front of the anus, and has large fang-like teeth in both jaws.

Biology & ecology: Demersal.

References

Iwamoto & Graham (2001), Iwamoto & Merrett (1997).

Cohen's rattail
Nezumia coheni



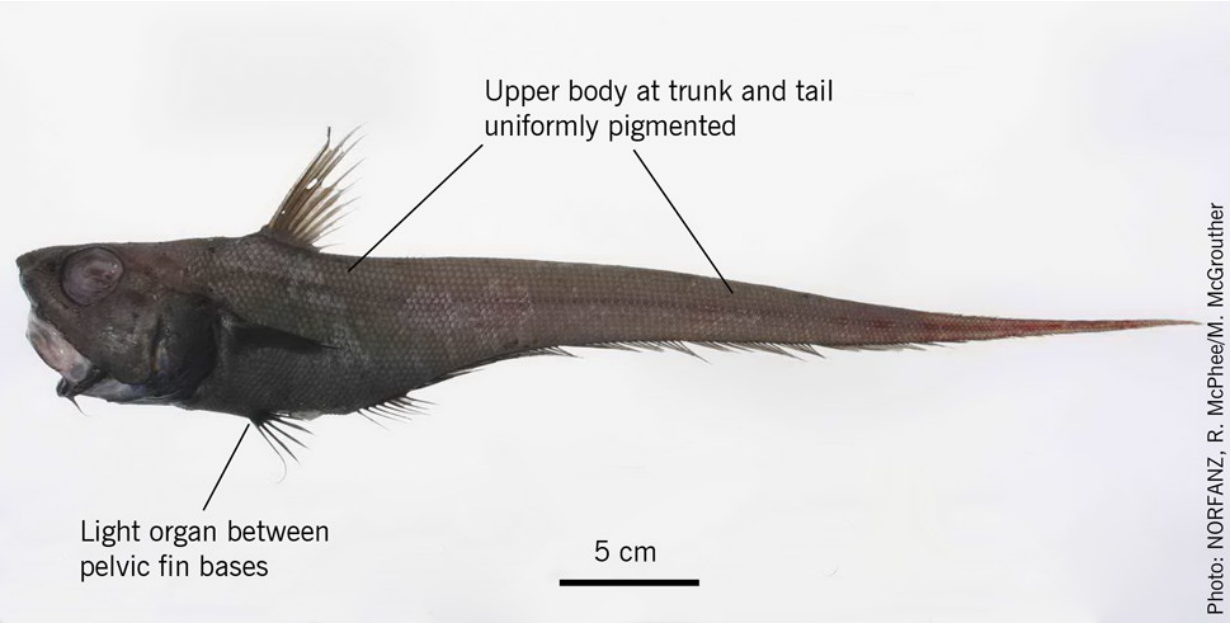
Family: 215. Macrouridae (grenadiers, rattails)

Maori names: n.a.

Other names: n.a.

MFish reporting code: RAT

MFish research code: NZC



Distinguishing features: Small lens-like light organ on underside of body about on a line between the pelvic fin bases. Upper body above lateral line at trunk and on tail uniformly pigmented. 10 to 12, usually 11 pelvic fin rays.

Colour: Overall grey-brown. Darker pigment of abdomen not extending up to reach dorsal surface of body.

Size: To at least 40 cm TL.

Distribution: Northern New Zealand, Australia (NSW, Vic, SA), New Caledonia.

Depth: 710 to 1030 m.

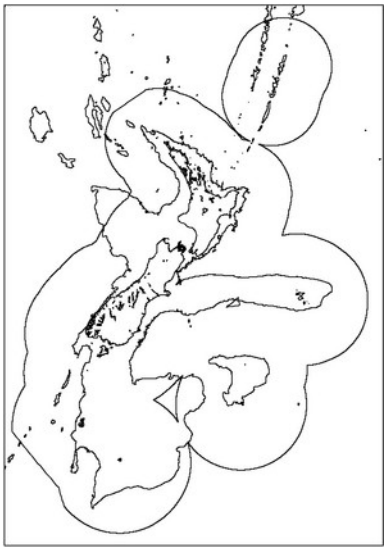
Similar species: Kapala rattail (*Nezumia kapala*) and *N. namatahi* have the small lens-like light organ on underside of body well behind a line between the pelvic fin bases, and both have a dark trunk which reaches to the dorsal surface of the body and is darker than the upper side of the tail.

Biology & ecology: Demersal.

References

Iwamoto & Graham (2001), Iwamoto & Merrett (1997).

Kapala rattail
Nezumia kapala



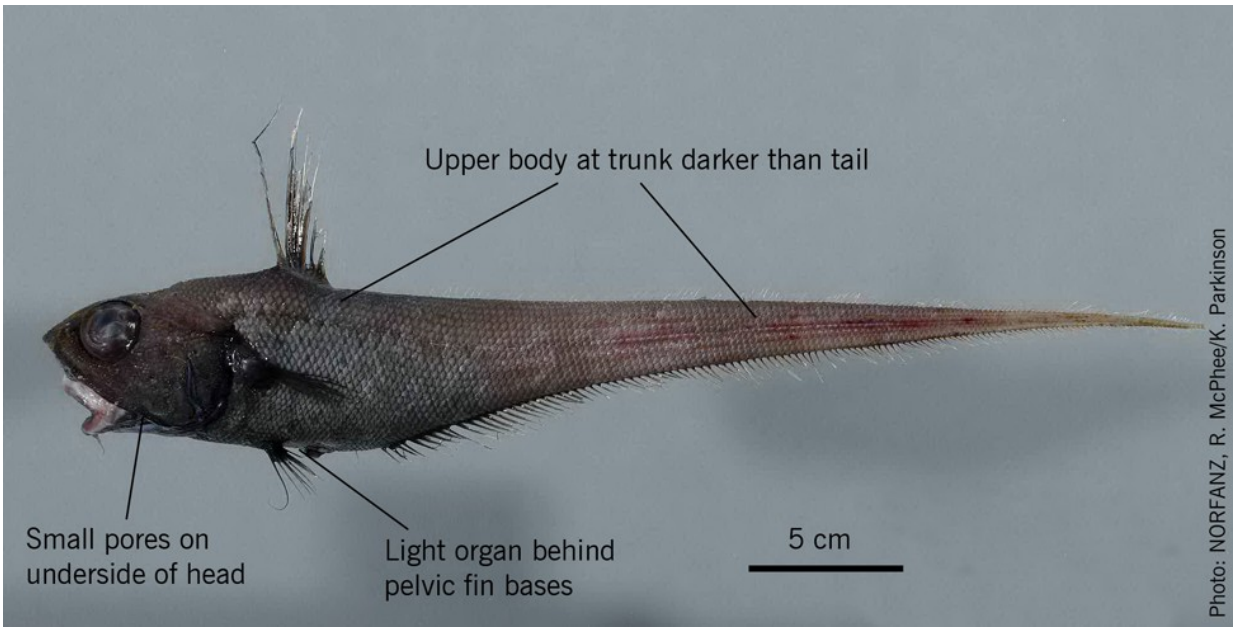
Family: 215. Macrouridae (grenadiers, rattails)

Maori names: n.a.

Other names: n.a.

MFish reporting code: RAT

MFish research code: NZK



Distinguishing features: Small lens-like light organ on underside of body well behind a line between the pelvic fin bases. Upper body above lateral line at trunk noticeably darker than upper body on tail. 11 to 12 pelvic fin rays.Sensory pores on underside of head small and inconspicuous.

Colour: Overall pale to dark brownish with abdomen/trunk noticeably darker and extending up to dorsal surface of body.

Size: To at least 40 cm TL.

Distribution: New Zealand north of about Cook Strait, Australia (NSW, Tas, WA).

Depth: 840 to 1240 m.

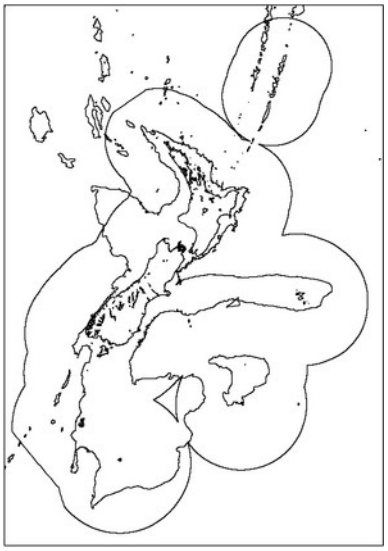
Similar species: Cohen's rattail (*Nezumia coheni*) has a small lens-like light organ on underside of body about on a line between the pelvic fin bases, and darker pigment of abdomen does not extend to dorsal surface of body and is not noticeably darker than upper tail. *N. namatahi* has 9 to 11, usually 10 pelvic fin rays, and the sensory pores on the underside of the head are large and prominent.

Biology & ecology: Demersal.

References

Iwamoto & Graham (2001), Iwamoto & Williams(1999).

Balloonhead rattail
Squalogadus modificatus



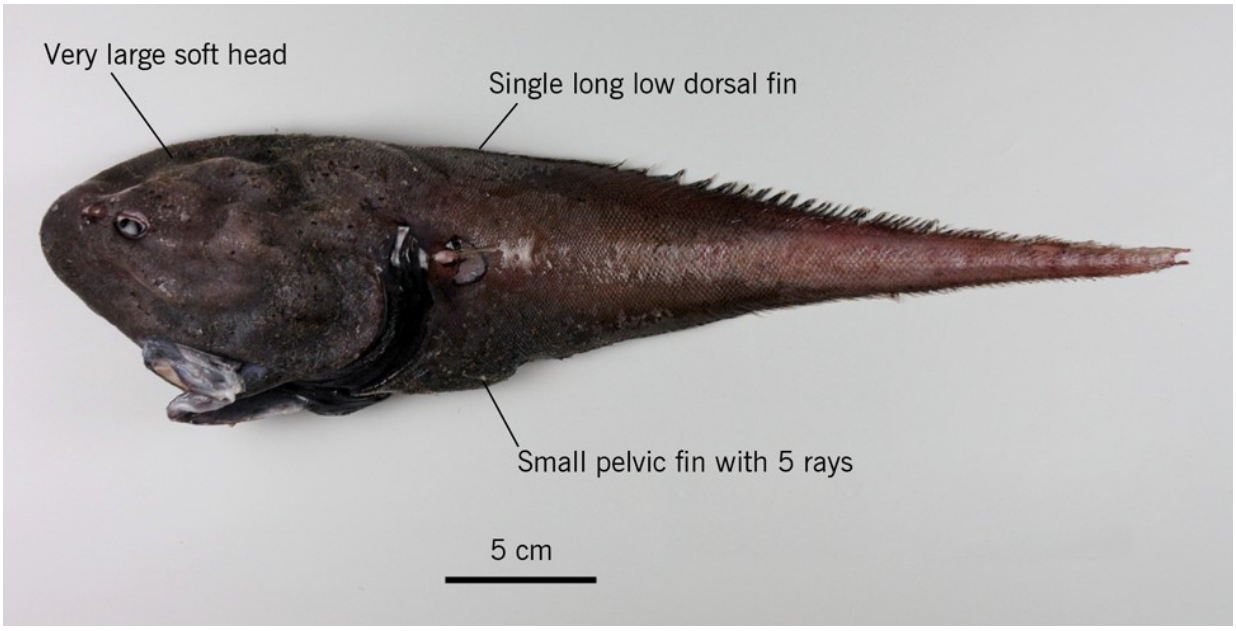
Family: 215. Macrouridae (grenadiers, rattails)

Maori names: n.a.

Other names: n.a.

MFish reporting code: RAT

MFish research code: SQM



Distinguishing features: Very large soft head with rounded contours. One continuous dorsal fin lacking a short high anterior section. Pelvic fins small with 5 rays.

Colour: Overall dark brownish-black.

Size: To at least 35 cm TL.

Distribution: North slope of Chatham Rise and northern New Zealand. Widespread in tropical and temperate oceans.

Depth: 800 to 2100 m.

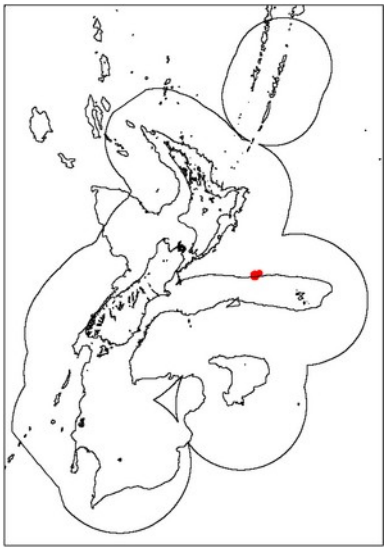
Similar species: *Macrouroides inflaticeps* lacks pelvic fins.

Biology & ecology: Demersal.

References

Iwamoto & Merrett (1997), Iwamoto & Williams(1999).

Codling
Guttigadus globiceps



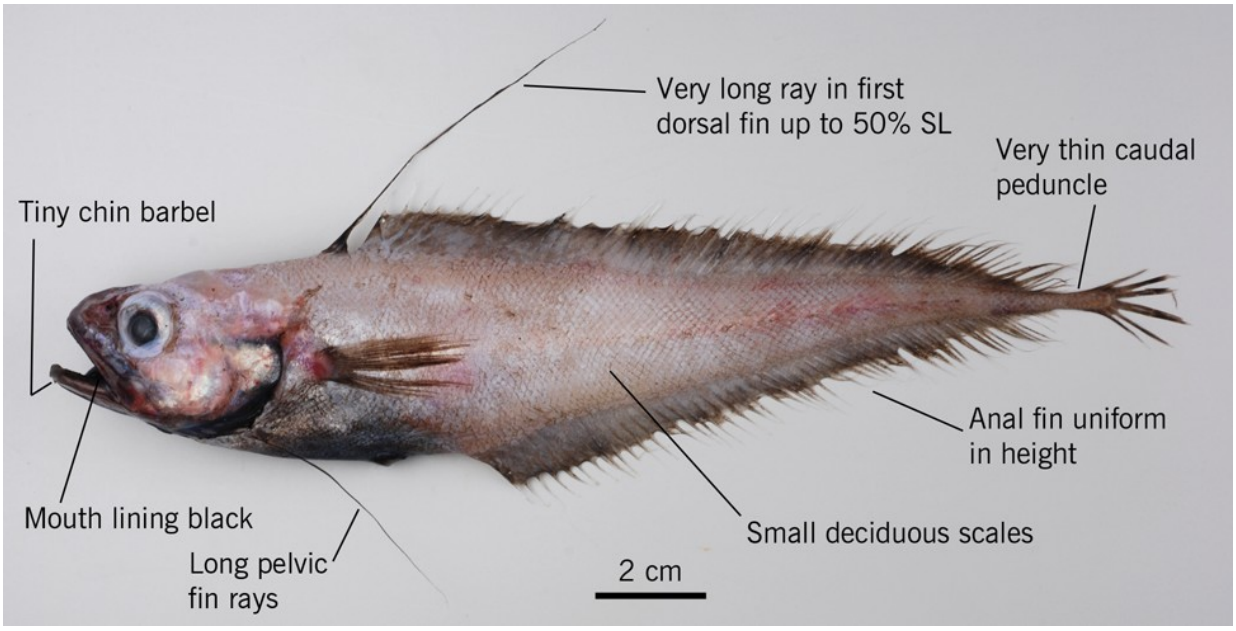
Family: 216. Moridae (deepsea cods)

Maori names: n.a.

Other names: Fathead cod

MFish reporting code: MOD

MFish research code: GGC



Distinguishing features: Very long second ray of first dorsal fin, up to about half body length (SL). Very thin caudal peduncle. Body scales small, deciduous. Anus separated (forward) from anal fin origin. Narrow band of small teeth in upper and lower jaws. Tiny chin barbel. Pelvic fin with 2 long rays plus 1 to 3 smaller rays (microscopic). Anal fin uniform in height (not indented).

Colour: Head and body pale brownish with silvery side of head and abdomen. Mouth and gill cavity black. Second dorsal and anal fins with pale base and brownish outer part.

Size: To about 20 cm SL.

Distribution: Widespread in southern hemisphere including New Zealand, Australia, South Africa, Chile.

Depth: 730 to 1360 m.

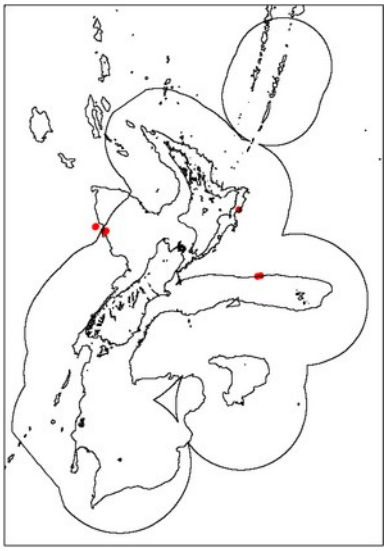
Similar species: *Guttigadus kongi* has a short second ray of first dorsal fin, about the same height as the second dorsal fin, and pale lips, floor of mouth, and gill chamber. *G. globosus* has a short second ray of first dorsal fin, about the same height as the second dorsal fin, and a large more rounded head.

Biology & ecology: Demersal.

References

Gomon et al. (2008), Melendez & Markle (1997).

Round tooth lepidion
Lepidion inosimae



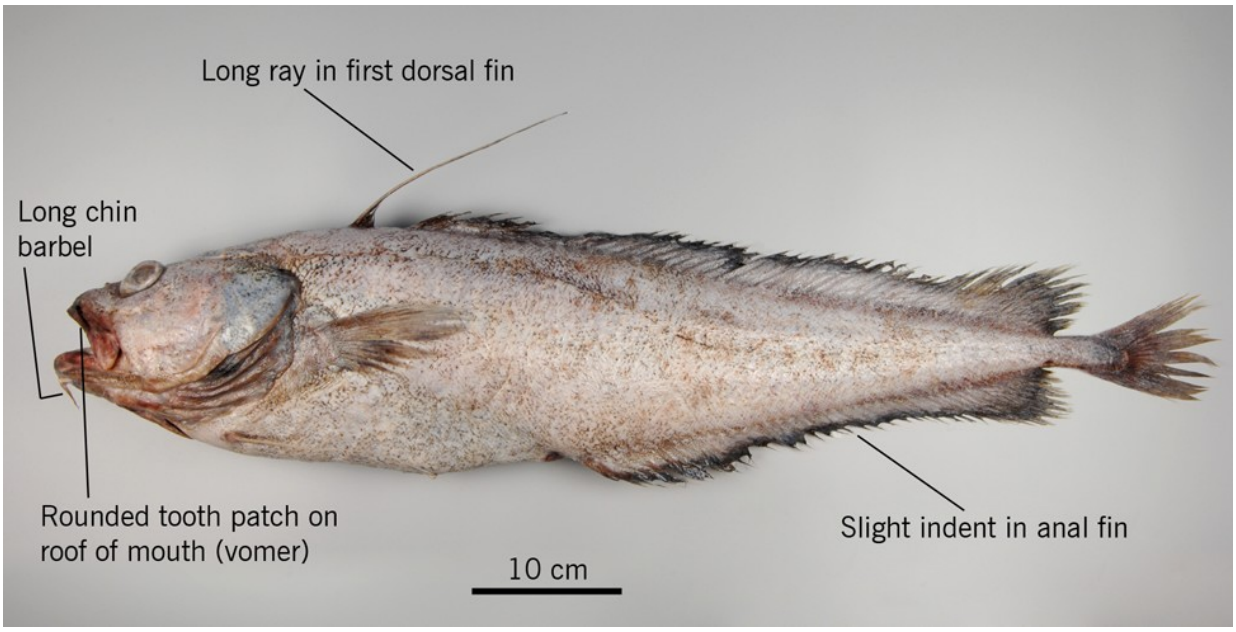
Family: 216. Moridae (deepsea cods)

Maori names: n.a.

Other names: n.a.

MFish reporting code: LEG

MFish research code: LPI



Distinguishing features: Long second (or first) ray of first dorsal fin. Tooth patch on roof of mouth (vomer) rounded. Anal fin with a slight indent about mid-length. First dorsal fin short based with 5 or 6 rays. Chin barbel long. Pelvic fin with about 7 rays.

Colour: Head and body pale brownish. Inner 2/3rd of second dorsal and anal fins pale brownish, outer edge dark brownish-black.

Size: To at least 80 cm TL.

Distribution: Northern New Zealand including Challenger Plateau and the North Island. Also northwest and central Pacific, and Australia.

Depth: 580 to 1120 m.

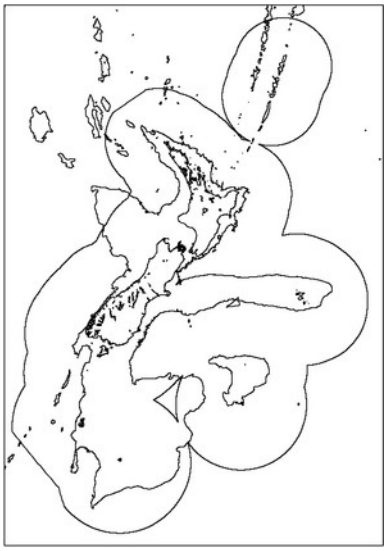
Similar species: Giant lepidion (*Lepidion schmidti*) has a triangular tooth patch on roof of the mouth (vomer). Small headed cod (*Lepidion microcephalus*) has a small head, an elongated ray of the first dorsal fin that is much greater than the head length, a deep notch in the anal fin, and is a much smaller species, reaching about 46 cm TL.

Biology & ecology: Demersal.

References

Gomon et al. (2008), Nakaya et al. (1980).

Luminous cod
Physiculus luminosa



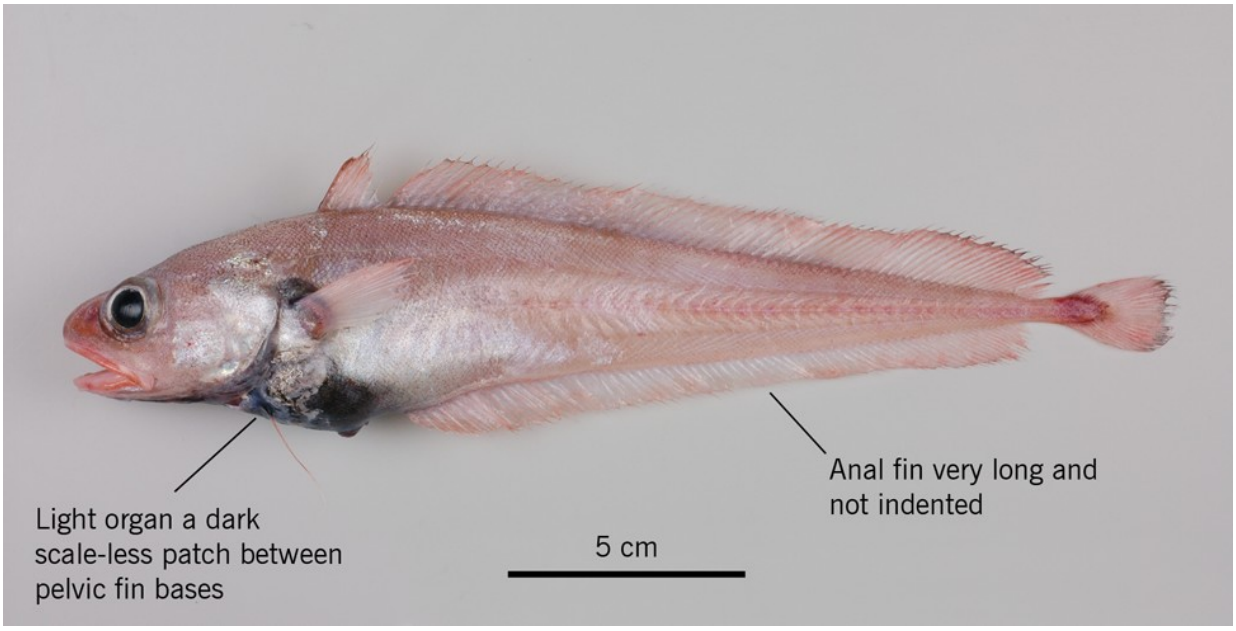
Family: 216. Moridae (deepsea cods)

Maori names: n.a.

Other names: n.a.

MFish reporting code: MOD

MFish research code: PLU



Distinguishing features: Circular black light organ on midline of belly between bases of pelvic fins. Small chin barbel present. First dorsal fin short based, second very long . Anal similar to second dorsal fin, and of uniform height (not indented). Pelvic fin origin below and ahead of pectoral fin origin.

Colour: Reddish or pinkish upper head and body with pale silvery side of head and belly. Dark ventral belly and throat. Black light organ between pelvic fin bases. Dorsal, caudal, and anal fins reddish or pinkish with dark outer margin.

Size: To about 30 cm SL.

Distribution: Northern New Zealand. Widespread in the South Pacific from Australia almost to South America.

Depth: 240 to 550 m.

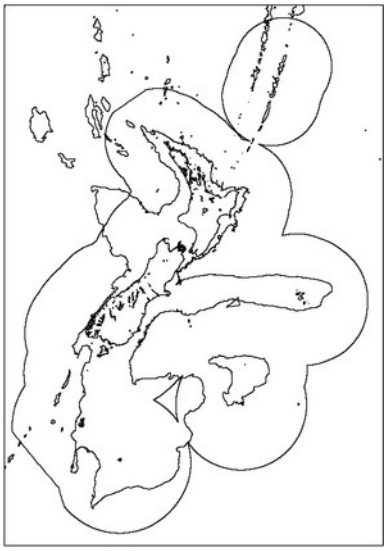
Similar species: Dwarf cod (*Notophycis marginata*) has a dark blotch at the tip of the first dorsal fin, a deeply indented anal fin, lacks a light organ on the belly, and has very large eyes separated by a gap much less than the eye diameter.

Biology & ecology: Demersal.

References

Cohen et al. (1990), Gomon et al. (2008).

Northern bastard cod
Pseudophycis breviuscula



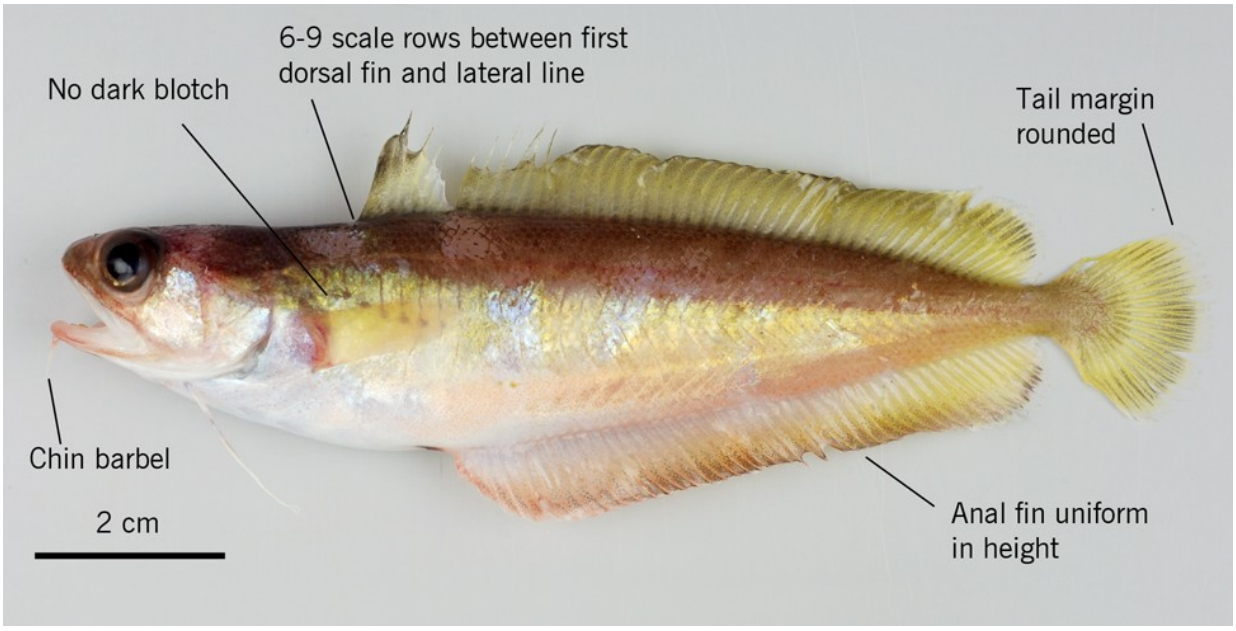
Family: 216. Moridae (deepsea cods)

Maori names: n.a.

Other names: n.a.

MFish reporting code: BRC

MFish research code: BRC



Distinguishing features: No dark blotch at base of pectoral fin, rounded tail margin, long second dorsal and anal fins which are uniform in height. Large scales with 6 to 9 rows between first dorsal fin and lateral line. Prominent chin barbel.

Colour: Reddish-brown above, silvery white below. Dorsal, anal and caudal fins with blackish margins.

Size: To 25 cm TL.

Distribution: Three Kings Islands to Cook Strait but reported to be more common north of East Cape. Also in southern Australia.

Depth: 0 to 200 m.

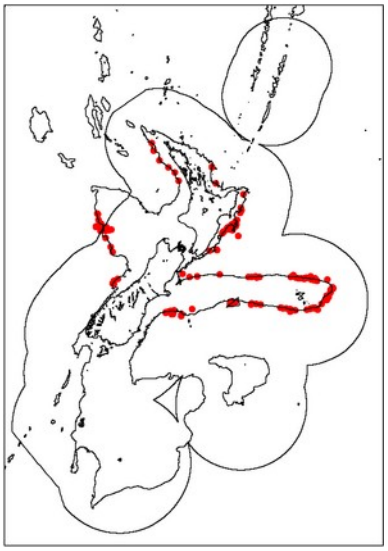
Similar species: Southern bastard cod (*Pseudophycis barbata*) grows larger (to 64 cm TL), and has smaller scales, 13 to 16 scale rows between first dorsal fin and lateral line. Red cod (*Pseudophycis bachus*) has a dark blotch at the base of the pectoral fin and a straight tail margin.

Biology & ecology: Demersal in coastal waters, from rock pools to the continental shelf edge.

References

Gomon et al. (2008), Kuiter (2000), Paulin & Roberts (1992).

Small toothed pelagic cod
Melanonus gracilis



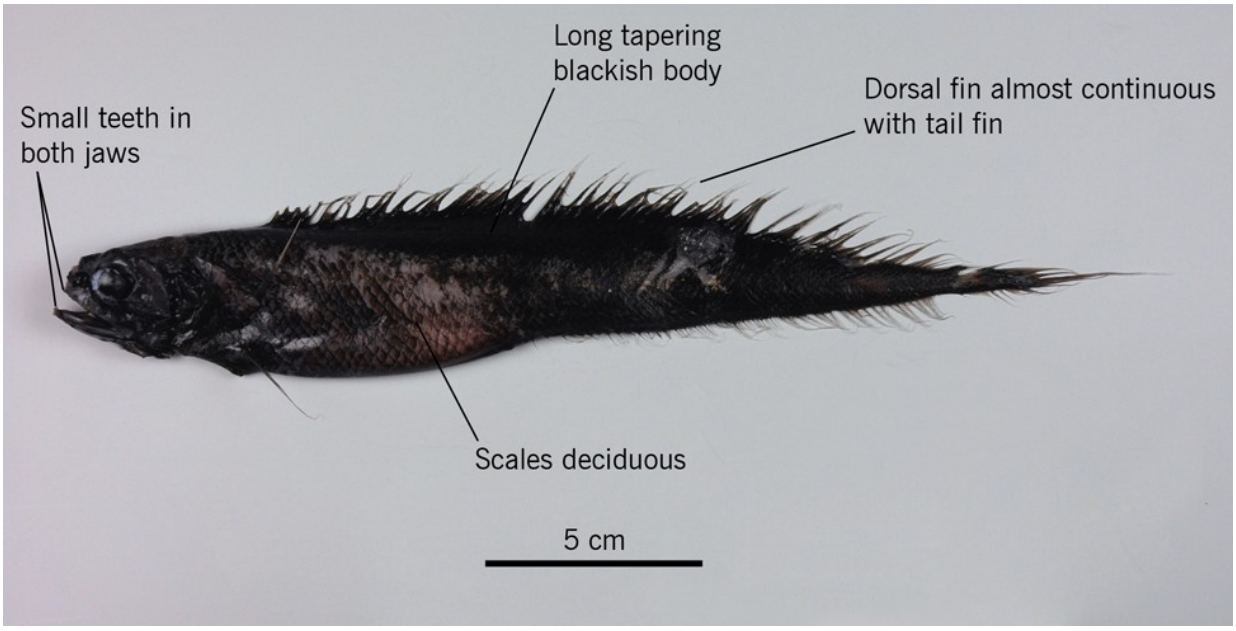
Family: 217. Melanonidae (pelagic cods)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: MEL



Distinguishing features: Band of uniformly small teeth in both jaws. Long tapering blackish body. No chin barbel. Head blunt. Anus close to anal fin origin. Small deciduous scales present on head and body. Dorsal fin long-based and almost continuous with the tail fin, with short high anterior section. Anal fin also long and of uniform height but lower than dorsal fin.

Colour: Blackish head, body, fins, and inside mouth.

Size: To about 25 cm TL.

Distribution: Widespread in temperate and Subantarctic southern hemisphere.

Depth: Midwater at about 800 to 3500 m.

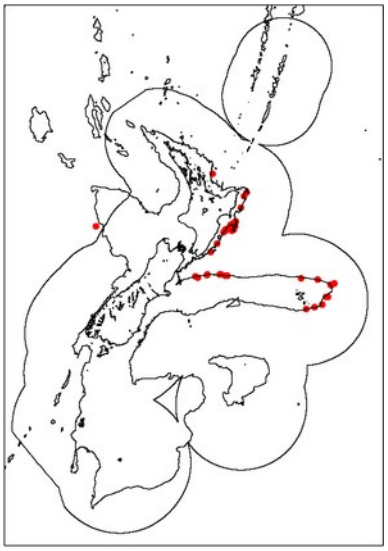
Similar species: Large toothed pelagic cod (*Melanonus zugmayeri*) has a row of large canine-like teeth in lower jaw plus a band of moderate sized teeth in both jaws.

Biology & ecology: Unknown.

References

Cohen et al. (1990), Gomon et al. (2008).

Large toothed pelagic cod
Melanonus zugmayeri



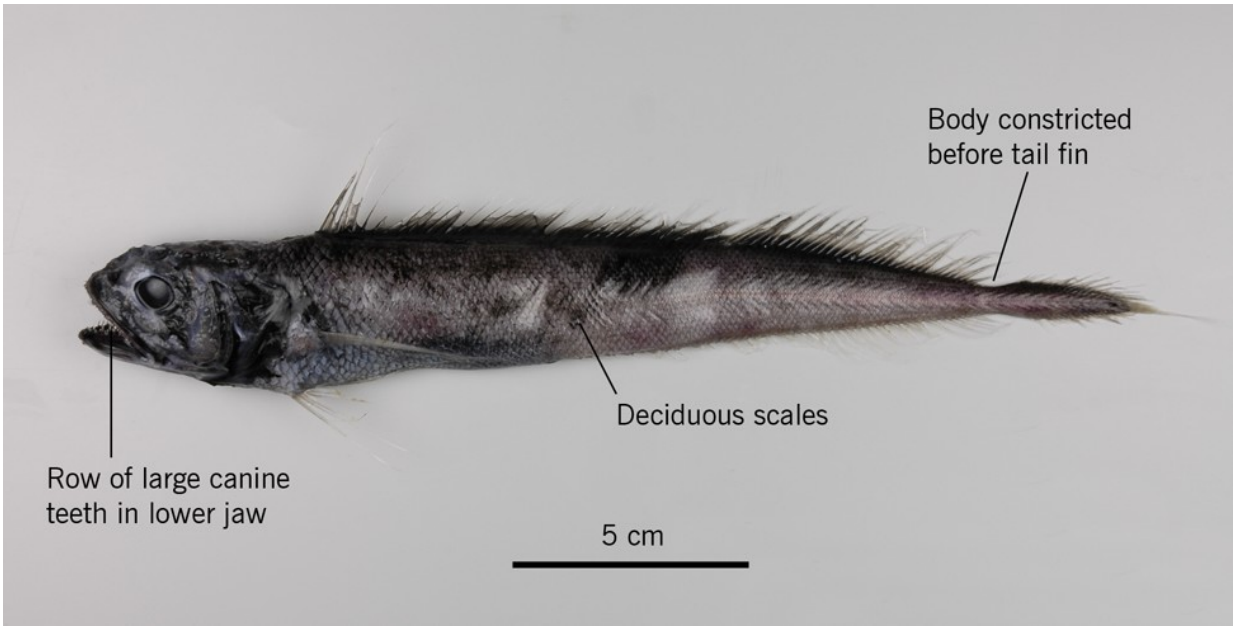
Family: 217. Melanonidae (pelagic cods)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: MEZ



Distinguishing features: Row of large canine-like teeth in lower jaw plus band of moderate sized teeth in both jaws. Long tapering body constricted before tail. No chin barbel. Head blunt. Anus close to anal fin origin. Small deciduous scales present on head and body. Dorsal fin long-based with short high anterior section. Anal fin long and of uniform height but lower than dorsal fin.

Colour: Blackish head, body, fins, and inside mouth.

Size: To at least 25 cm TL.

Distribution: Worldwide in tropical, subtropical, and temperate seas.

Depth: Midwater at about 800 to 3500 m.

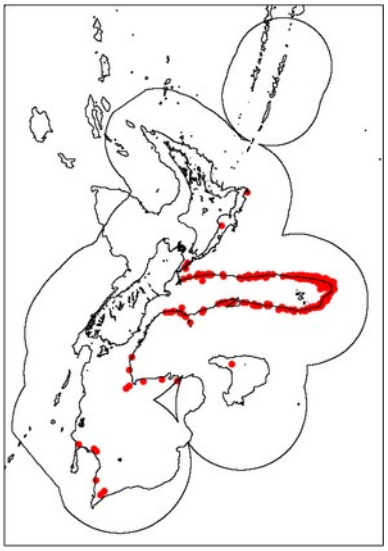
Similar species: Small toothed pelagic cod (*Melanonus gracilis*) has a band of uniformly small teeth in both jaws.

Biology & ecology: Unknown.

References

Cohen et al. (1990), Gomon et al. (2008).

Messmate fish
Echiodon cryomargarites



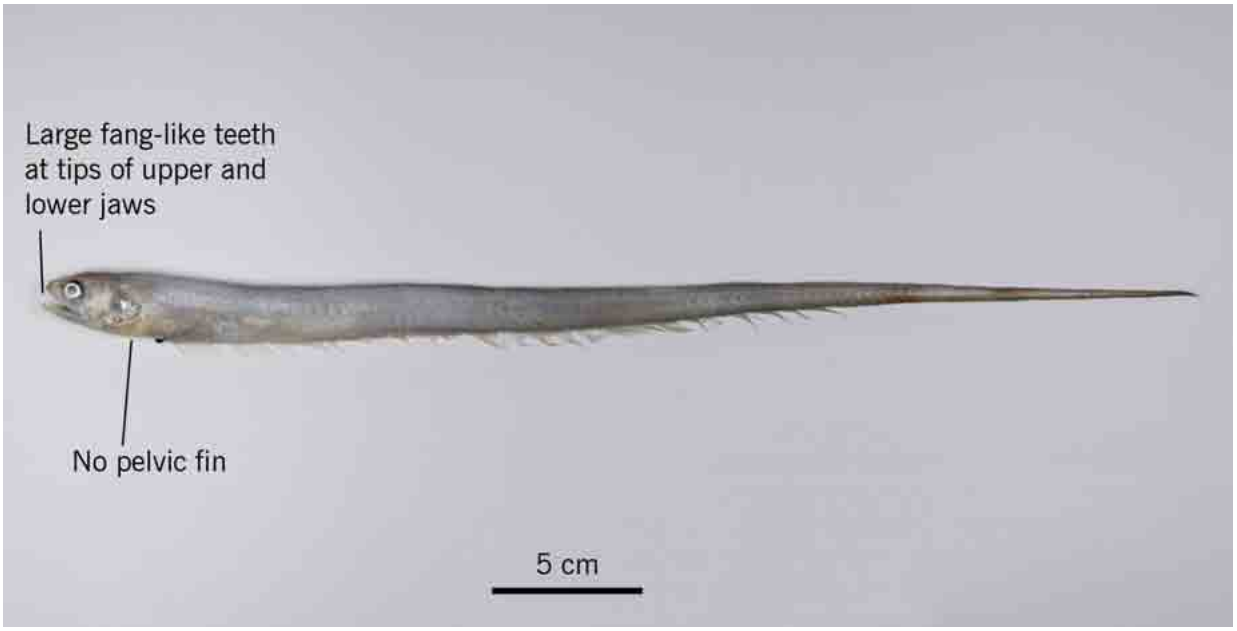
Family: 221. Carapidae (pearlfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: ECR



Distinguishing features: 1 or more fang-like teeth at tip of upper and lower jaws, followed by band of fine pointed teeth. Pelvic fin absent. Mouth large extending back behind rear of eye. 19 to 21 pectoral fin rays.

Colour: Greyish, partially translucent body with very fine melanophores marking muscle blocks (myotomes), and also dispersed on the upper and posterior body.

Size: To at least 41 cm TL.

Distribution: Widespread in the southern hemisphere.

Depth: About 800 to 1500 m.

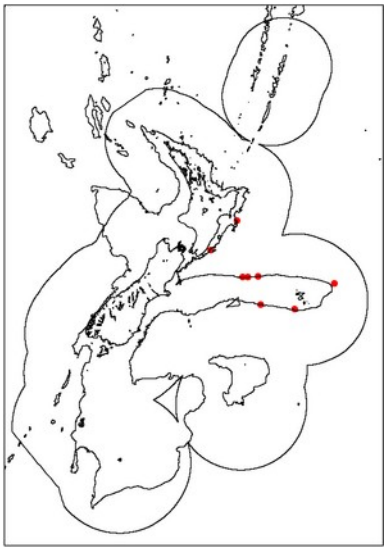
Similar species: There are 4 other species of *Echiodon* recorded from New Zealand and identification requires a microscope. Snipe eels (Nemichthyidae) have jaws lengthened into a delicate diverging beak covered with tiny teeth.

Biology & ecology: Adults are free living on the continental slope. Juveniles live in midwater and may have a very long spine in the first dorsal fin and a length of the intestine outside the body cavity.

References

Gomon et al. (2008), Markle & Olney (1990).

Brown brotula
Cataetyx niki



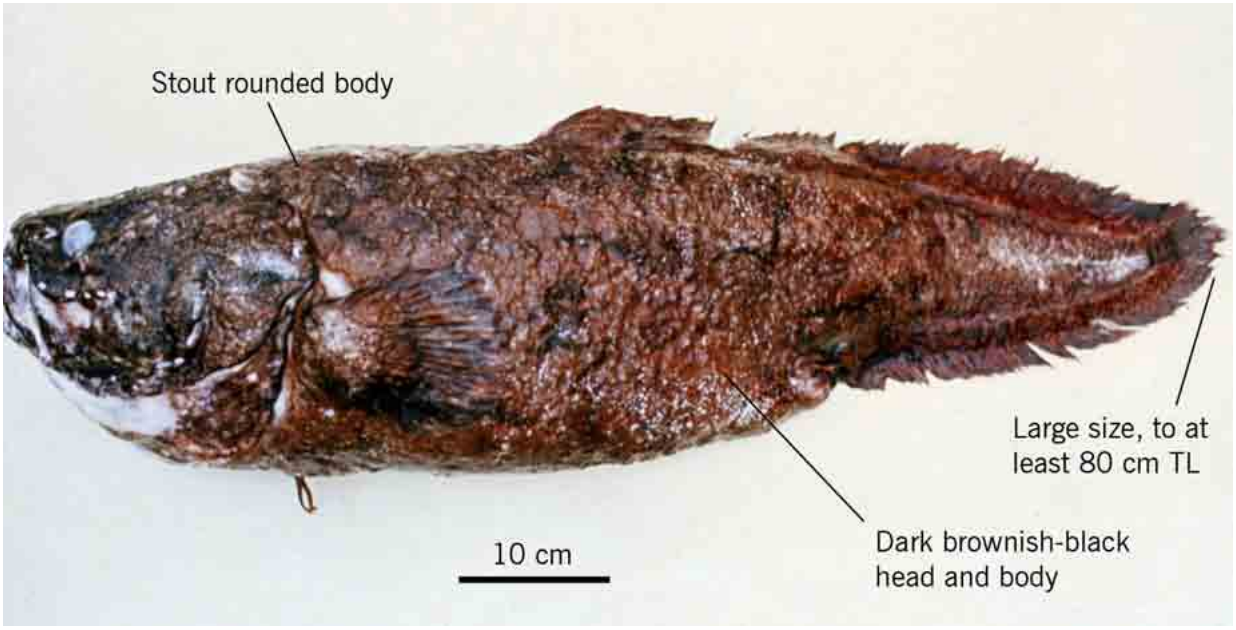
Family: 223. Bythitidae (viviparous brotulas)

Maori names: n.a.

Other names:

MFish reporting code: CAN

MFish research code: CAN



Distinguishing features: Stout rounded body with long dorsal and anal fins continuous around the tail. Operculum with stout spine. Small scales on head and body. Eyes below the upper profile of the head. Skin may have bubbly texture in freshly caught fish.

Colour: Mottled dark brownish-black on head and dark brownish on body and fins.

Size: To at least 80 cm TL.

Distribution: Also southeast Atlantic Ocean and Australia.

Depth: 900 to 1200 m.

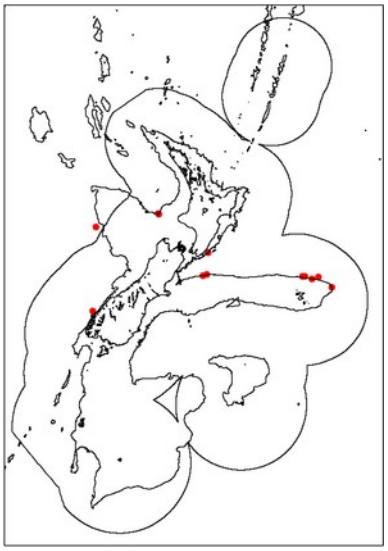
Similar species: White brotula (*Cataetyx* sp.) has a pale slender body with eyes close to the upper profile of the head and only reaches about 56 cm TL.

Biology & ecology: Demersal.

References

Gomon et al. (2008), Nielsen et al. (1999).

Humpback anglerfish
Melanocetus johnsonii



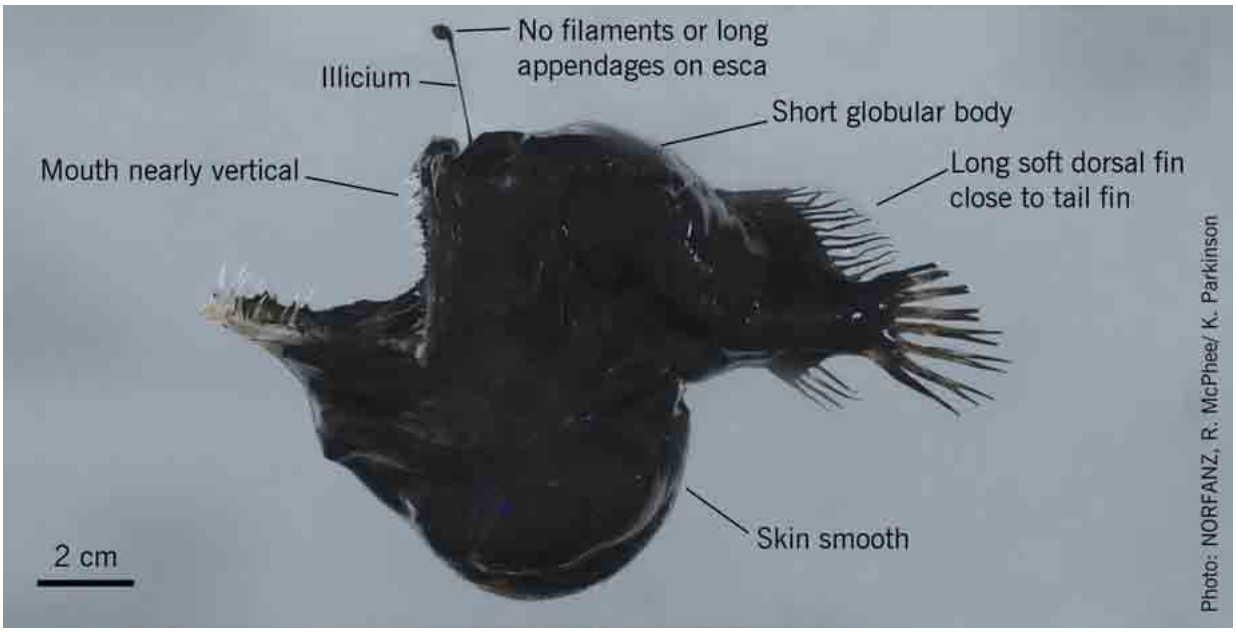
Family: 236. Melanocetidae (black seadevils)

Maori names: n.a.

Other names: n.a.

MFish reporting code: BAF

MFish research code: MEJ



Distinguishing features: Females with short globular body and skin smooth appearing naked. Illicium on snout tip, with bulbous esca lacking elongated appendages and filaments. Mouth oblique to nearly vertical. Long soft dorsal fin with 13 to 16 rays immediately before tail fin.

Colour: Dark brown to black.

Size: To about 14 cm SL.

Distribution: Worldwide in major oceans from 55 N to 45 S.

Depth: Midwater to about 2100 m.

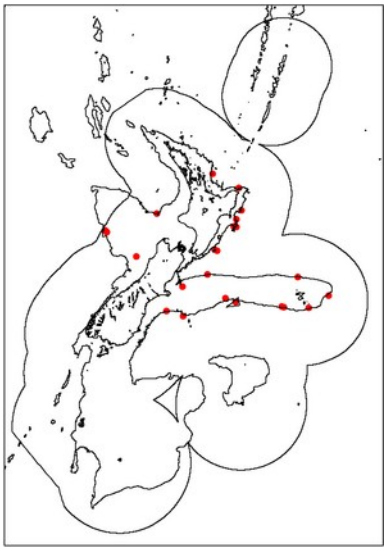
Similar species: Prickly anglerfish (*Himantolophus* spp.) has skin of head and body of females with widely spaced bony plates each bearing a median spine, and stout illicium with a large esca bearing stout filaments.

Biology & ecology: Females attract prey using luring device (illicium and bioluminescent esca) on snout. Males are tiny (to 2.8 cm SL) and attach themselves to females using specialised jaws but are not parasitic.

References

Gomon et al. (2008), Pietsch (1999), Stewart (1994), Stewart & Pietsch (1998).

Prickly anglerfishes
Himantolophus spp.



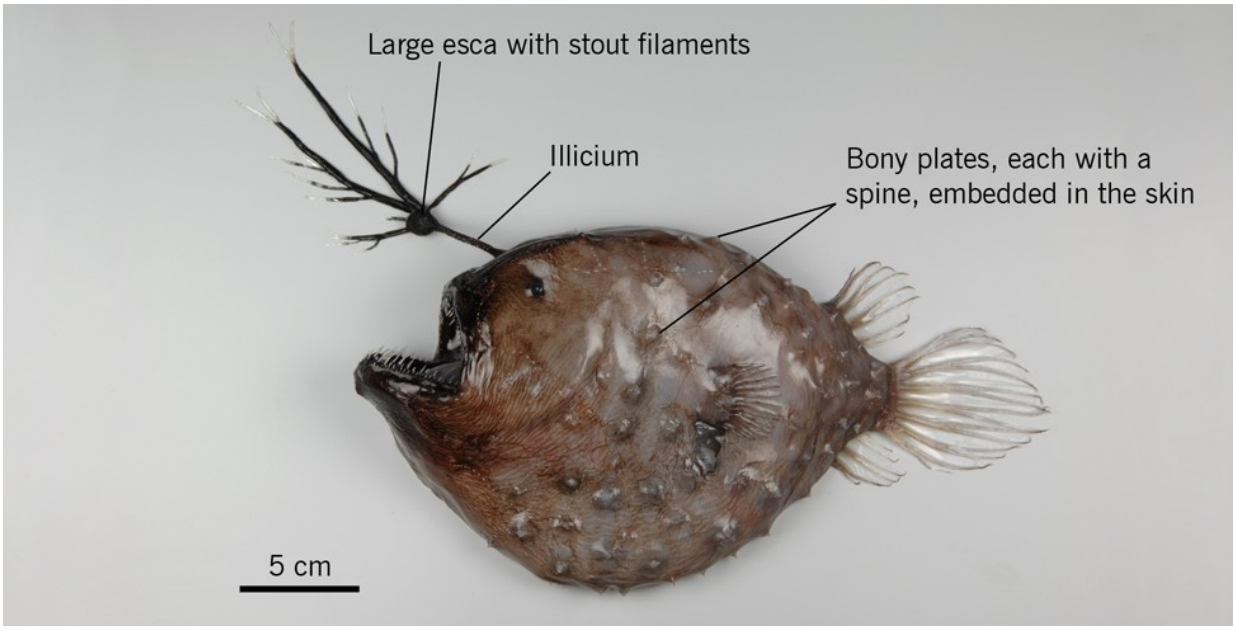
Family: 237. Himantolophidae (prickly anglerfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: BAF

MFish research code: HIM



Distinguishing features: Skin of head and body of females with widely spaced bony plates each bearing a median spine. Illicium stout with large esca bearing stout filaments. Lower jaw stout, projecting beyond upper jaw. Short soft dorsal fin with 5 or 6 rays.

Colour: Brownish or greyish.

Size: To about 40 cm SL.

Distribution: *Himantolophus appelii* is widespread in the southern hemisphere between about 25 and 45 S from the east coast of South America east to New Zealand including southern Australia. Distribution of other species is uncertain.

Depth: Midwater over bottom depths of 338 to 1300 m.

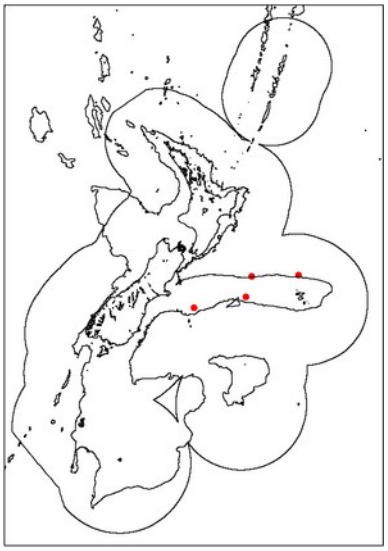
Similar species: *Himantolophus appelii* has a short illicium, less than head length, with short filaments on the esca. *H. pseudalbinares* has a long ilicium, about half SL. Species are the subject of taxonomic study.

Biology & ecology: Females attract prey using luring device (illicium and bioluminescent esca) on snout. Males are tiny (to 4 cm SL) and probably attach themselves to females using specialised jaws but are not parasitic.

References

Gomon et al. (2008), Pietsch (1999), Stewart (1994), Stewart & Pietsch (1998).

Seadevils
Ceratias spp.



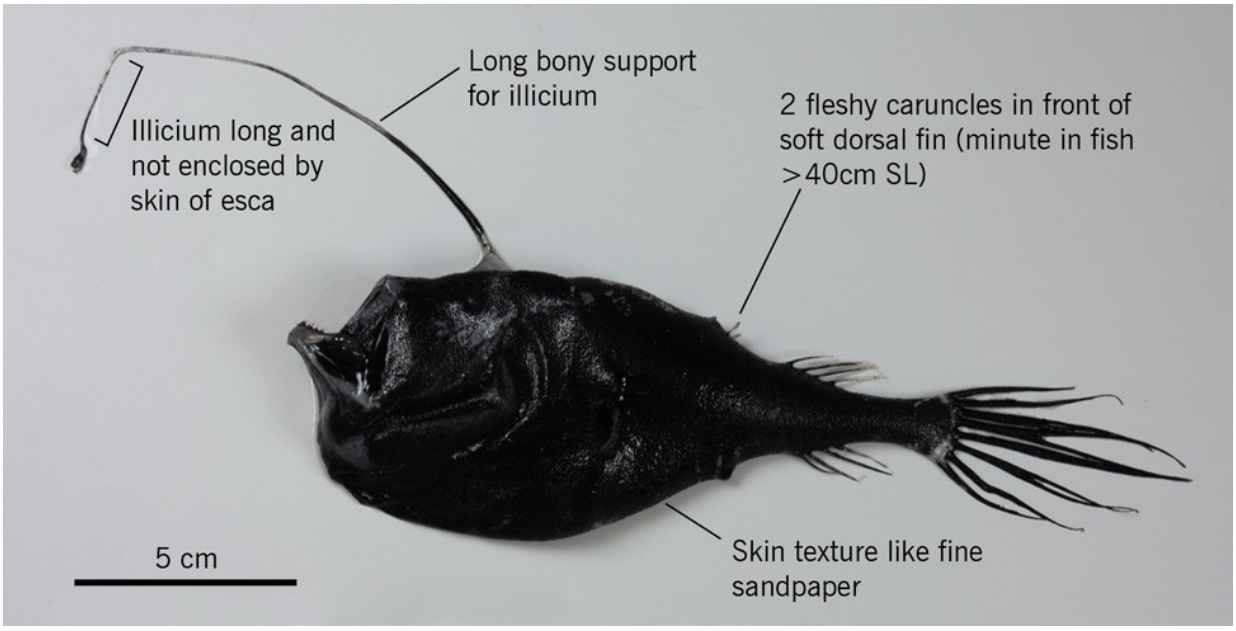
Family: 242. Ceratiidae (seadevils)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: CER



Distinguishing features: Females usually with 2 fleshy caruncles (modified dorsal fin rays, each with a bioluminescent gland) on dorsal midline just in front of soft dorsal fin origin, but these may be minute in specimens longer than 40 cm SL. Illicium long with a bioluminescent esca and not enveloped by skin of esca, on the end of very long bony support element. Skin with sandpaper-like texture, covered with numerous tiny spines. Small adult males may be attached to and parasitic on females.

Colour: Dark brownish or blackish.

Size: To over 100 cm SL.

Distribution: *Ceratias tentaculatus* is widespread in the southern hemisphere from 35 to 68 S including southern Australia and southern Africa. *C. holboelli* is worldwide in major oceans from 66 N to 43 S but may be more northern in New Zealand.

Depth: Midwater between 100 and 2900 m.

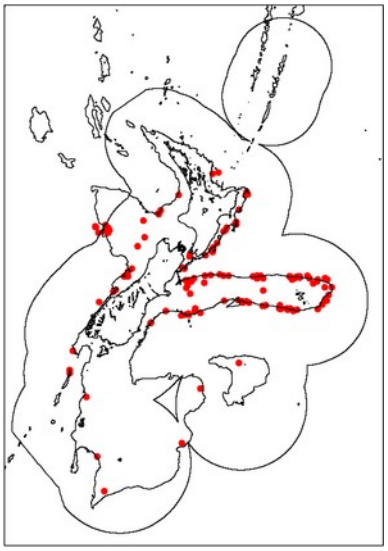
Similar species: Warty seadevil (*Cryptopsaras couesii*) has 3 fleshy caruncles, and very short illicium completely enveloped by skin of esca, on the end of very long bony support element.

Biology & ecology: Females attract prey using luring device (illicium and bioluminescent esca) on head. Males are tiny (to about 8 cm SL depending on the species) and probably attach themselves to females initially using specialised jaws and are then dependent (parasitic) on the female.

References

Gomon et al. (2008), Pietsch (1999), Stewart (1994), Stewart & Pietsch (1998).

Warty seadevil
Cryptopsaras couesii



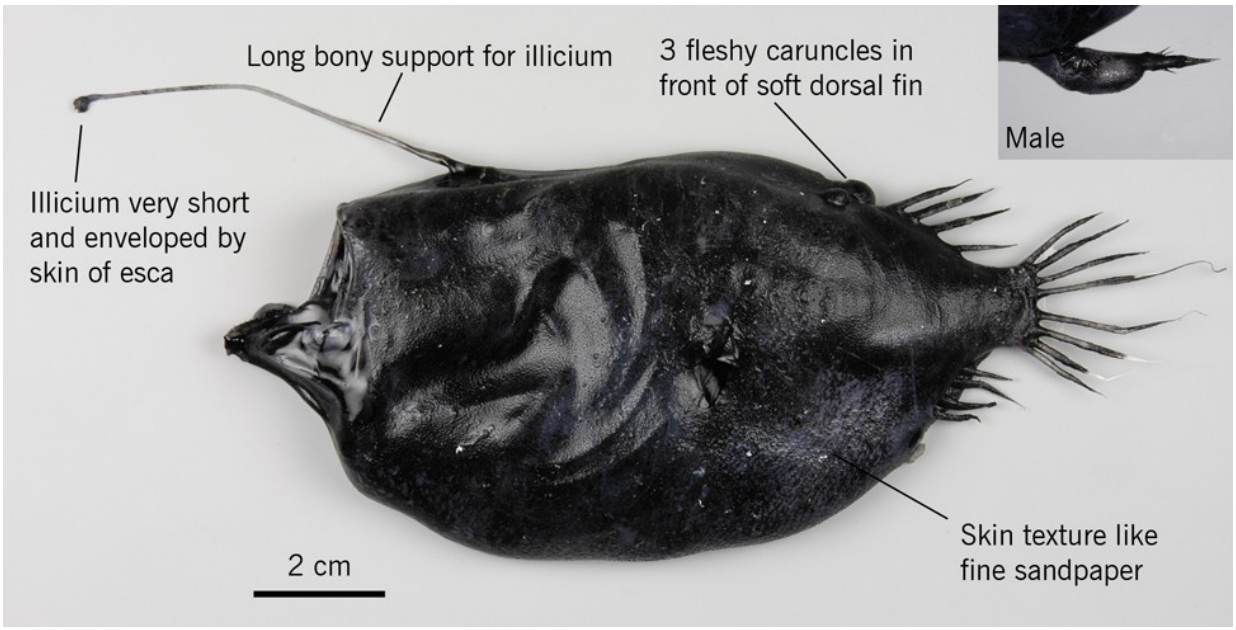
Family: 242. Ceratiidae (seadevils)

Maori names: n.a.

Other names: n.a.

MFish reporting code: SDE

MFish research code: SDE



Distinguishing features: Females with 3 fleshy caruncles (modified dorsal fin rays, each with a bioluminescent gland) on dorsal midline just in front of soft dorsal fin origin. Illicium very short with a bioluminescent esca and completely enveloped by skin of esca, on the end of very long bony support element. Skin with sandpaper-like texture, covered with numerous tiny spines. Adult males tiny (to about 1.6 cm SL), may be attached to and parasitic on females.

Colour: Dark brownish or blackish.

Size: To 36 cm SL.

Distribution: Worldwide in major oceans from 63 N to 54 S.

Depth: Midwater between 75 and 4000 m, but usually 500 to 1250 m.

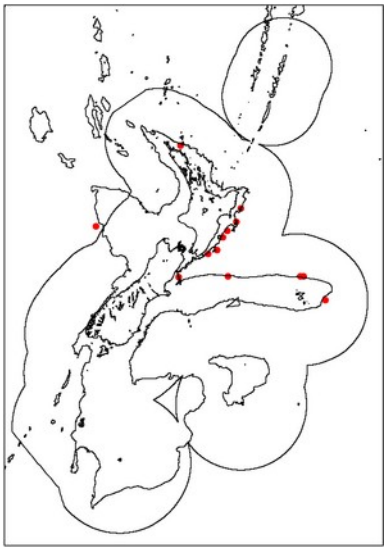
Similar species: *Ceratias* spp. have 2 fleshy caruncles (may be minute in specimens longer than 40 cm SL) and a long illicium not enveloped by skin of esca, on the end of very long bony support element.

Biology & ecology: Females attract prey using luring device (illicium and bioluminescent esca) on head. Males are tiny (to about 1.6 cm SL) and probably attach themselves to females initially using specialised jaws and are then dependent (parasitic) on the female.

References

Gomon et al. (2008), Pietsch (1999), Stewart (1994), Stewart & Pietsch (1998).

Whipnose anglers
Gigantactis spp.



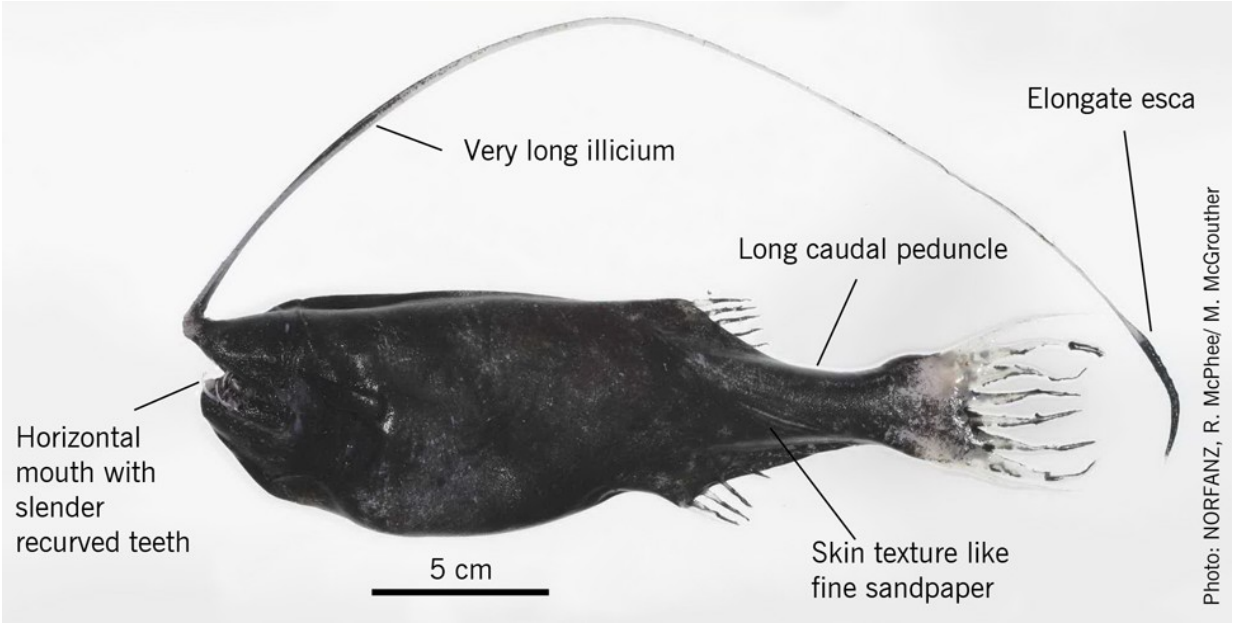
Family: 243. Gigantactinidae (whipnose anglers)

Maori names: n.a.

Other names: n.a.

MFish reporting code: BAF

MFish research code: GIG



Distinguishing features: Females with elongated streamlined body, small head, long slender caudal peduncle. Mouth large and almost horizontal, with slender recurved teeth. Long ilicium on tip of snout, with elongated esca. Skin with sandpaper-like texture, covered with numerous tiny spines.

Colour: Dark brownish or blackish.

Size: To about 40 cm SL.

Distribution: *Gigantactis paxtoni* is recorded from off New Zealand, Australia, New Guinea, and southwest Indian Ocean. *G. meadi* is widespread in the southern hemisphere in and near the subtropical convergence.

Depth: Midwater.

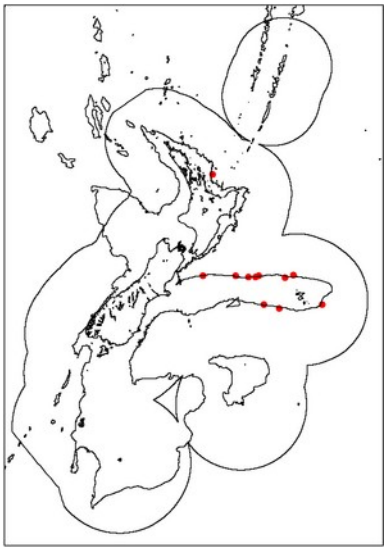
Similar species: *Gigantactis paxtoni* has a long tapering esca with no filaments at base. *G. meadi* has a slightly bulbous esca with a tapered tip and filaments at base. Warty seadevil (*Cryptopsaras couesii*) has 3 and *Ceratias* spp. have 2 fleshy caruncles on dorsal midline just in front of soft dorsal fin origin.

Biology & ecology: Females attract prey using luring device (illicium and bioluminescent esca) on snout. Males are tiny (to 2.2 cm SL) and probably attach themselves to females using specialised jaws but are not parasitic.

References

Gomon et al. (2008), Pietsch (1999), Stewart (1994), Stewart & Pietsch (1998).

Phantom angler
Haplophryne mollis



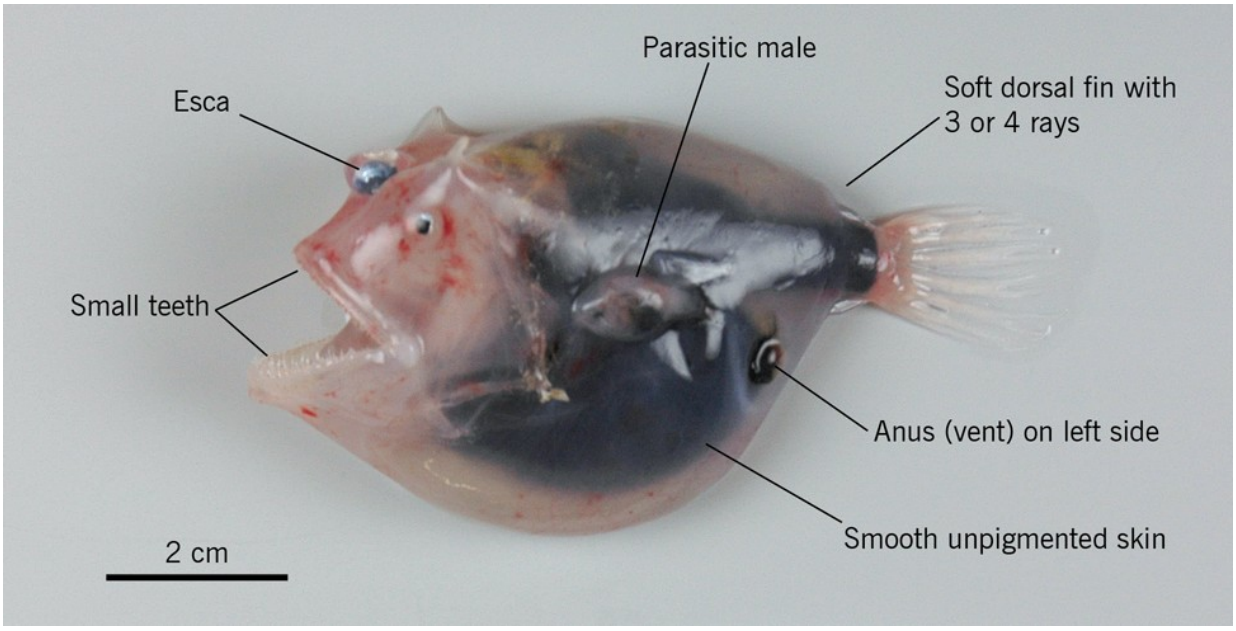
Family: 244. Linophrynidae (leftvents)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: LPH



Distinguishing features: Females with short globular body and skin smooth and unpigmented. Bulbous bioluminescent esca sessile on snout. Short soft dorsal fin with 3 or 4 rays and anal fin with 3 rays. Anus (vent) on left side. Small teeth. Adult males tiny (to about 1.5 cm SL), may be attached to and parasitic on females.

Colour: Unpigmented skin.

Size: To 16 cm SL.

Distribution: Widespread in warmer waters of all oceans. In New Zealand known from the south Chatham Rise northwards.

Depth: Midwater.

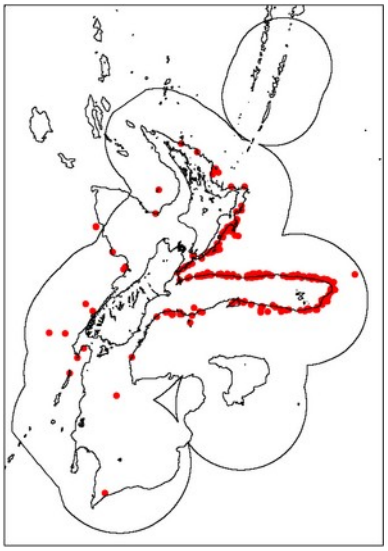
Similar species: Species of *Linophryne* have darkly pigmented skin and an elaborate barbel under the lower jaw. Humpback anglerfish (*Melanocetus johnsonii*) has a long soft dorsal fin with 13 to 16 rays, and darlky pigmented skin.

Biology & ecology: Females attract prey using luring device (illicium and bioluminescent esca) on head. Males are tiny (to about 1.5 cm SL) and probably attach themselves to females initially using specialised jaws and are then dependent (parasitic) on the female.

References

Pietsch (1999), Stewart (1994), Stewart & Pietsch (1998).

Bigscale fish
Poromitra sp.



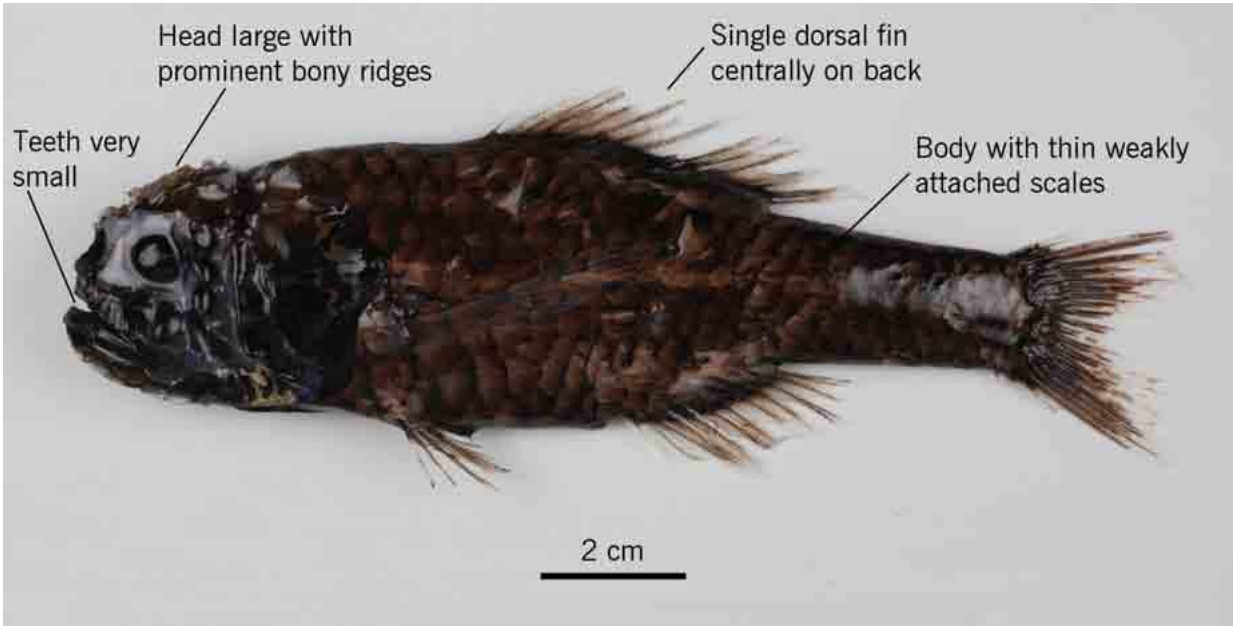
Family: 267. Melamphaidae (bigscale fishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: MPH



Distinguishing features: Head large with prominent but soft bony ridges and deep mucous-filled cavities (skin cover often damaged during capture). Body covered with thin, medium to large, weakly attached scales. Teeth very small. One dorsal fin centrally on back with 1 to 3 spines and 9 to 18 soft rays. Anal fin with 1 weak spine and up to about 11 soft rays. Pelvic fins with 1 spine and 6 to 8 soft rays.

Colour: Brownish or blackish.

Size: To about 16 cm TL.

Distribution: Some species widely distributed in the Indo-Pacific region.

Depth: Deep midwater.

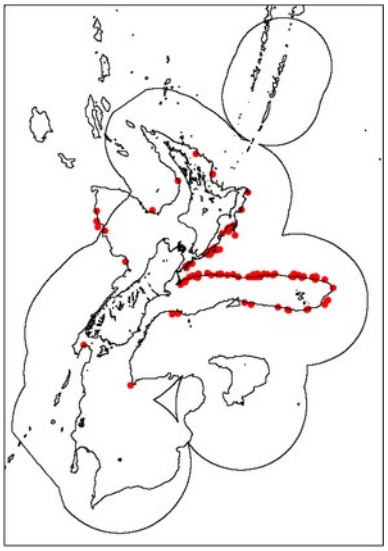
Similar species: There are about 10 species of bigscale fishes recorded from New Zealand but they are difficult to identify and require a microscope.

Biology & ecology: Feed on gelatinous organisms and small crustaceans.

References

Gomon et al. (2008), Moore & Paxton (1999).

Fangtooth
Anoplogaster cornuta



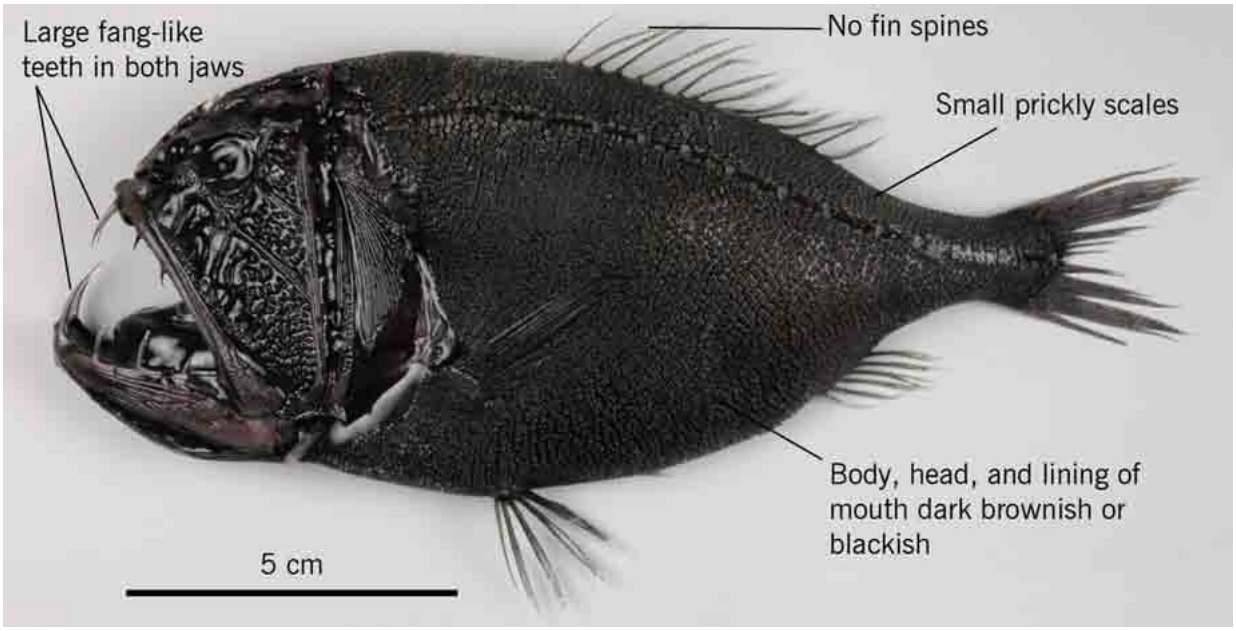
Family: 276. Anoplogastridae (fangtooths)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: ANO



Distinguishing features: Adults with large mouth and large fang-like teeth in upper and lower jaws. No spines in fins. Dorsal fin long and anal fin short based. Scales small, prickly, embedded in skin. Lateral line an open groove, bridged at intervals by scales.

Colour: Uniformly brownish or blackish including inside mouth.

Size: To 17 cm SL.

Distribution: Widespread in tropical and temperate latitudes of all oceans, from 64 N to 50 S.

Depth: Deep midwater to 5000 m, but adults mostly 500 to 2000 m.

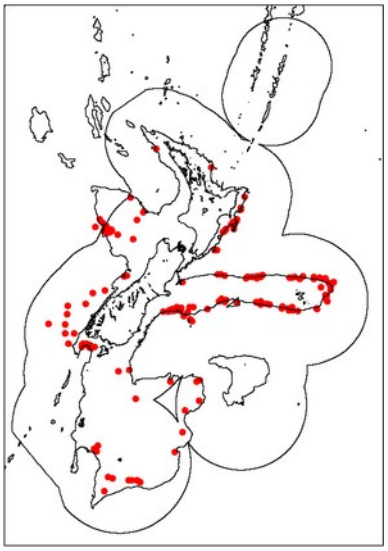
Similar species: Spinyfin (*Diretmichthys parini*), and roughies (Trachichthyidae) have bands of small teeth in both jaws and do not have large fang-like teeth.

Biology & ecology: Predators of crustaceans as juveniles and fishes as adults.

References

Gomon et al. (2008), Paxton (1999), Stewart (2003a).

Discfish
Diretmus argenteus



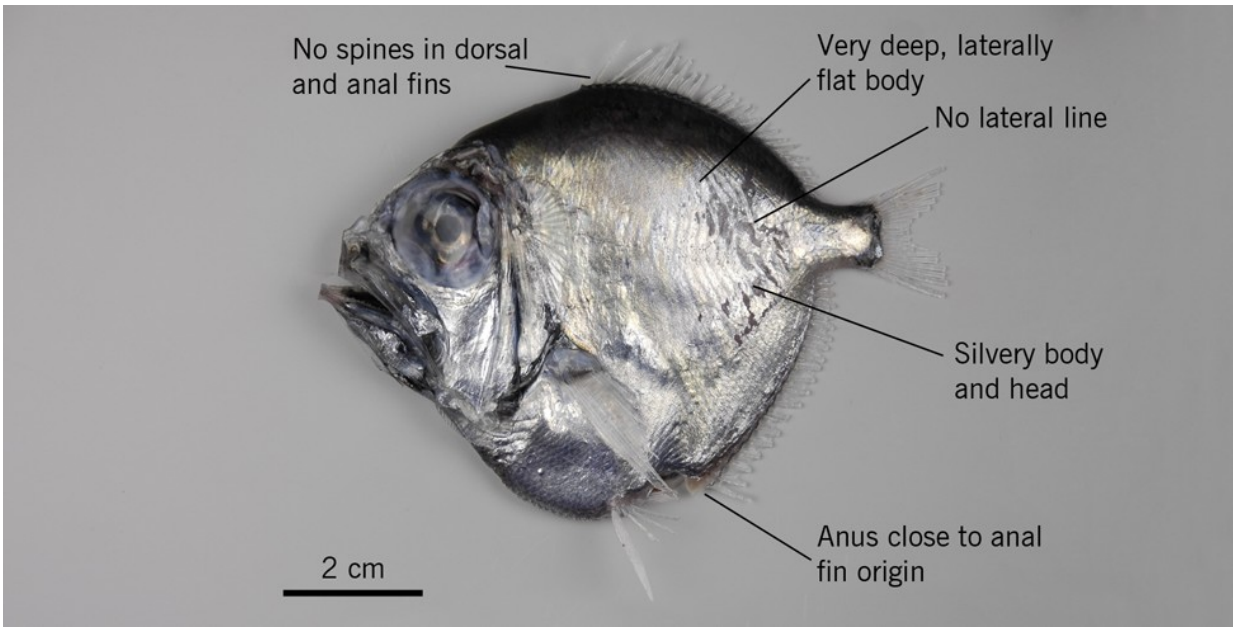
Family: 277. Diretmidae (spinyfins)

Maori names: n.a.

Other names: n.a.

MFish reporting code: DIS

MFish research code: DIS



Distinguishing features: Nearly circular body, almost as deep as long, and strongly laterally flattened. Very large eye, much greater than snout length. No spines in long based dorsal and anal fins. Bands of small teeth in both jaws. Small spiny scales. Enlarged scales (scutes) on belly. No lateral line. Anus immediately in front of anal fin origin.

Colour: Silvery side and underside of head and body, bluish-black upper body. Inside of mouth and gill cavity blackish.

Size: To 13 cm SL.

Distribution: Widespread in tropical and temperate latitudes of all oceans.

Depth: Midwater at 300 to 1000 m.

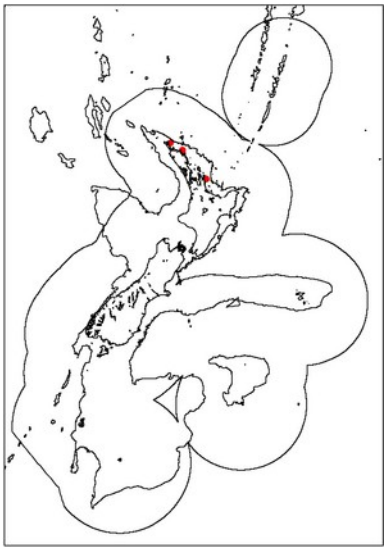
Similar species: Spinyfin (*Diretmichthys parini*) is uniformly blackish, body depth about half SL, anus about halfway between pelvic fin base and anal fin origin. Roughies (Trachichthyidae) have spines in anal and dorsal fins and have lateral line. Capro dory (*Capromimus abbreviatus*) has separate spiny and soft dorsal fins.

Biology & ecology: Probably feed on planktonic animals.

References

Gomon et al. (2008), Paxton (1999).

Slender roughy
Optivus elongatus



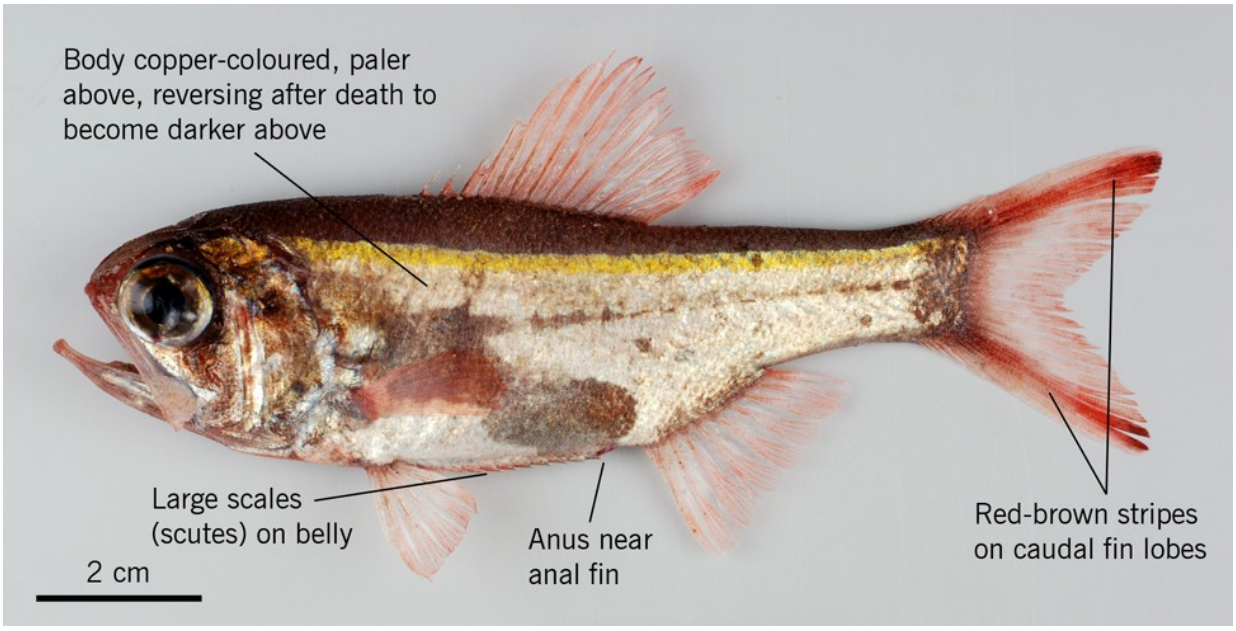
Family: 280. Trachichthyidae (roughies)

Maori names: n.a.

Other names: n.a.

MFish reporting code: SLR

MFish research code: SLR



Distinguishing features: Anus near anal fin, large scutes on belly anterior to anus, red-brown stripes on caudal fin lobes, lighter above than below but this reverses after death.

Colour: Copper-coloured, lighter on back than sides and belly, but this reverses after death so that back is darkest. Red-brown stripes on upper and lower caudal fin lobes.

Size: To 12 cm FL.

Distribution: Kermadec Islands, Three Kings Islands to Cook Strait, Chatham Islands. Known only from New Zealand.

Depth: 0 to 70 m.

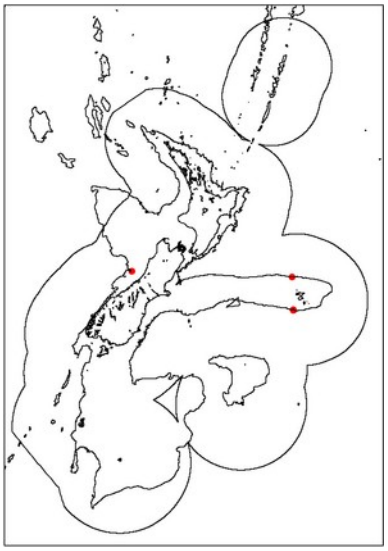
Similar species: Other roughies are all deeper-bodied and lack stripes on the tail.

Biology & ecology: In caves on rocky reefs by day, emerging at night to feed. May occur in deeper open water during the day.

References

Doak (1972), Francis (2001), Paulin & Roberts (1992).

Ox-eye oreo
Oreosoma atlanticum



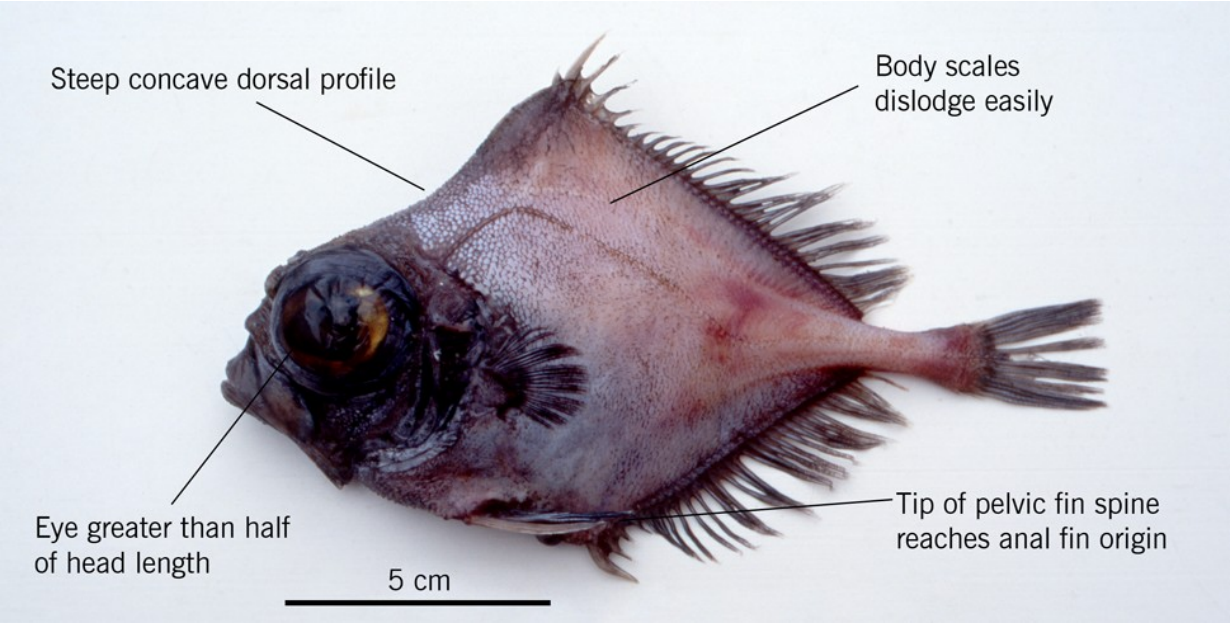
Family: 284. Oreosomatidae (oreos)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: OXO



Distinguishing features: Adults have steep, slightly concave dorsal profile from snout tip to dorsal fin origin. Very large eye, more than half head length. Pelvic fin spine extends back to anal fin origin. Body scales weakly attached. Prominent horizontal bony ridge on operculum. Stout spines on first dorsal, anal, and pelvic fins. Small adult size, to about 22 cm TL. Juveniles have prominent cones on the upper and lower body.

Colour: Greyish-brown

Size: To about 22 cm TL.

Distribution: Widespread in the southern hemisphere from about 33 to 42 S. In the New Zealand region adults are only known from the Lord Howe Rise, although juveniles have been captured as far south as Puysegur Bank.

Depth: Adults are demersal at 550 to 930 m. Juveniles appear to be midwater.

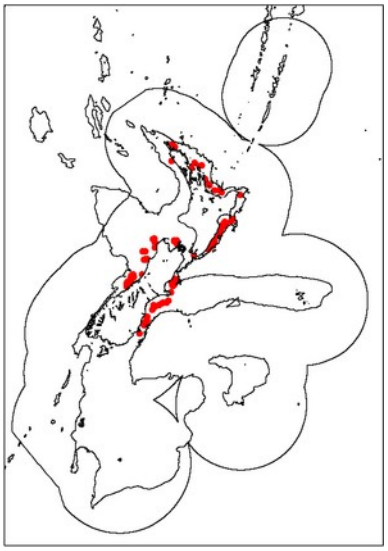
Similar species: Black oreo (*Allocyttus niger*) has scales that cannot be dislodged from the skin. Spiky oreo (*Neocyttus rhomboidalis*) and rough oreo (*Neocyttus psilorhynchus*) have a more concave predorsal profile, and small eye, less than half head length. Warty oreo (*Allocyttus verrucosus*) has pelvic spine not reaching the vent, and double row of flat bony plates (usually 8) on lower abdomen.

Biology & ecology: Juveniles are midwater, rarely caught, and are thought to feed on planktonic organisms such as copepods.They have stout cones on upper and lower body possibly to discourage predators such as tunas. Specimens have been recovered from the stomachs of albacore tuna caught near the surface by trolling. Adults are demersal and appear to aggregate to feed like other species of oreos.

References

Gomon et al. (2008), James et al. (1988), McMillan & Stewart (1996).

Spiny seadragon
Solegnathus spinosissimus



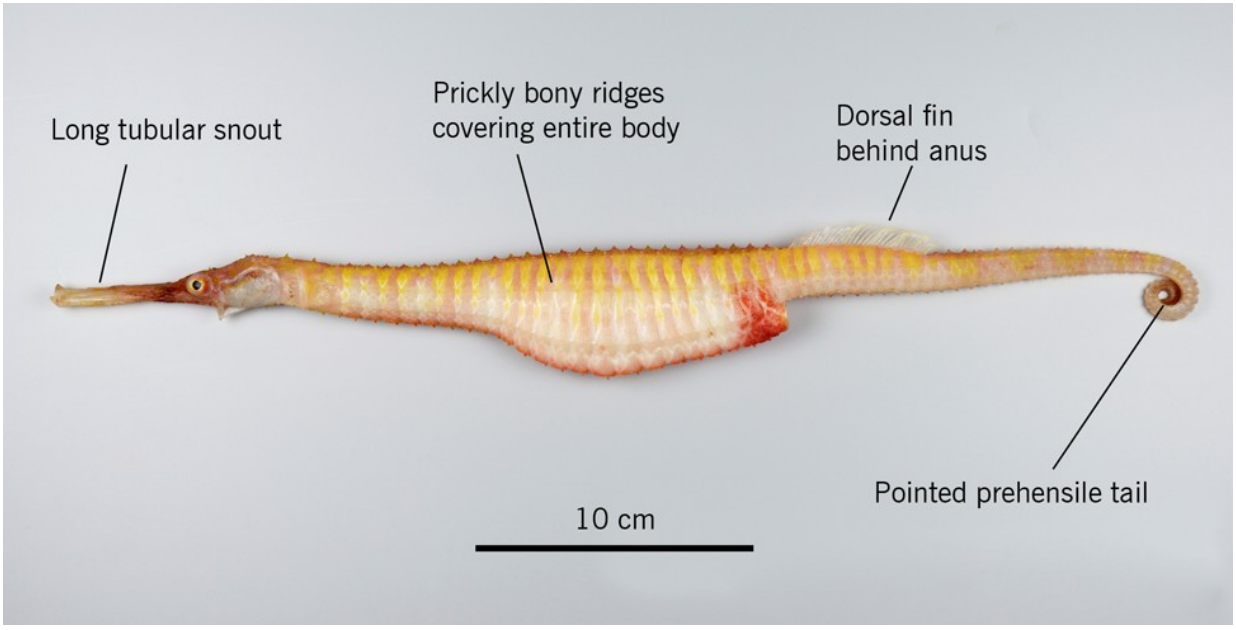
Family: 295. Syngnathidae (pipefishes and seahorses)

Maori names: n.a.

Other names: n.a.

MFish reporting code: SDR

MFish research code: SDR



Distinguishing features: Snout long and tubular, body ringed by many bony, prickly ridges, tail pointed and prehensile, dorsal fin behind anus, body with alternating red and yellow stripes.

Colour: Body with alternating reddish-pink and yellow stripes, head and snout reddish with short yellow lines and dots, area around anus dark red.

Size: To 50 cm TL.

Distribution: Cape Reinga to Stewart Island, and Chatham Islands. Also southeast Australia.

Depth: 50 to at least 250 m, shallower in Fiordland.

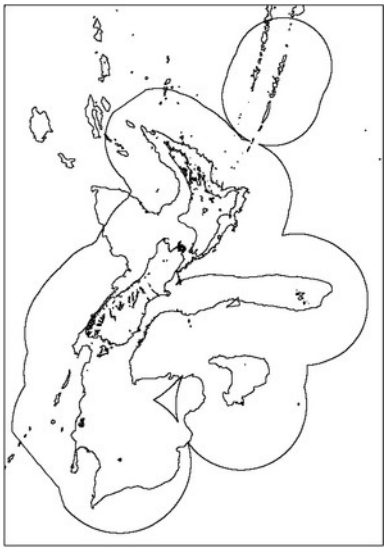
Similar species: Sea horse (*Hippocampus abdominalis*) is not prickly, has the dorsal fin anterior to the anus, and usually has head at right angles to body.

Biology & ecology: Demersal on the continental shelf.

References

Francis (2001), Gomon et al. (2008), Kuiter (2000).

Dwarf scorpion fish
Scorpaena papillosa



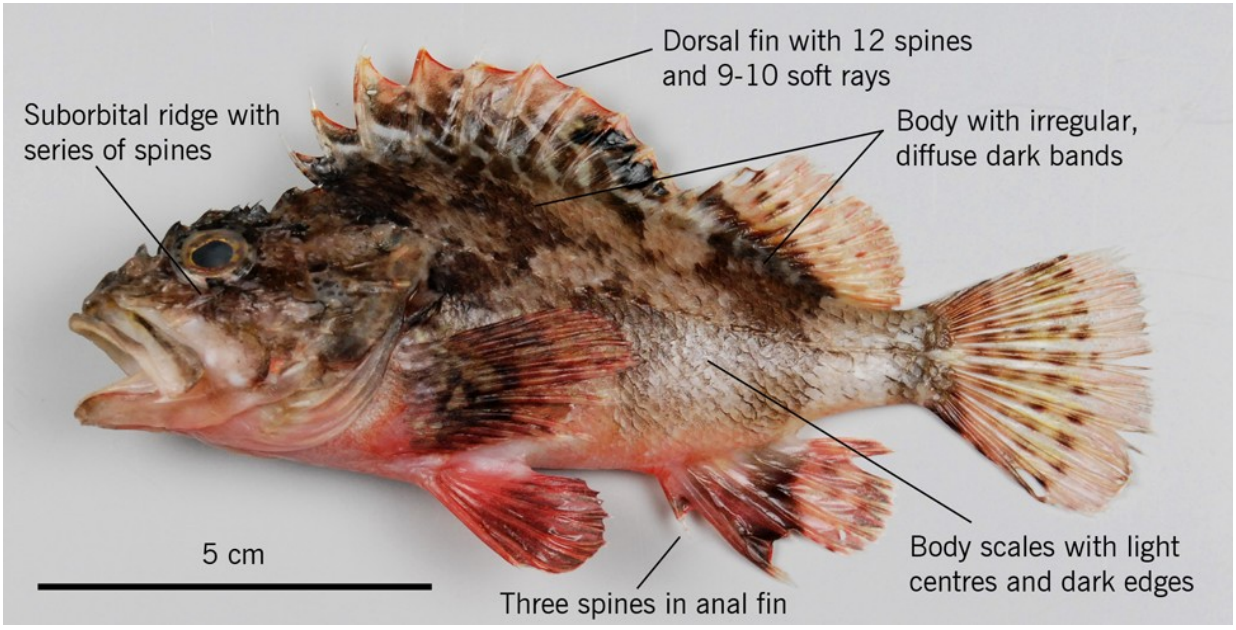
Family: 304. Scorpaenidae (scorpionfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: RSC

MFish research code: RSC



Distinguishing features: Head very spiny, suborbital ridge with series of spines, dorsal fin with 12 spines and 9 to 10 soft rays, anal fin with three spines, body with irregular diffuse dark bands, body scales with light centres and dark edges.

Colour: Variably coloured but often with red-brown bands on body and a pale band across the nape behind the eyes. Body scales with dark edges.

Size: 25 cm TL.

Distribution: Three Kings Islands to Snares Islands, Chatham Islands. Also southeast Australia.

Depth: 0 to 50 m, possibly deeper.

Similar species: Northern scorpionfish (*Scorpaena cardinalis*) is larger (to 60 cm TL), lacks dark scale edges and is not found south of East Cape. Other scorpionfishes distinguished by having more spines (13) in dorsal fin or lacking spines on suborbital ridge.

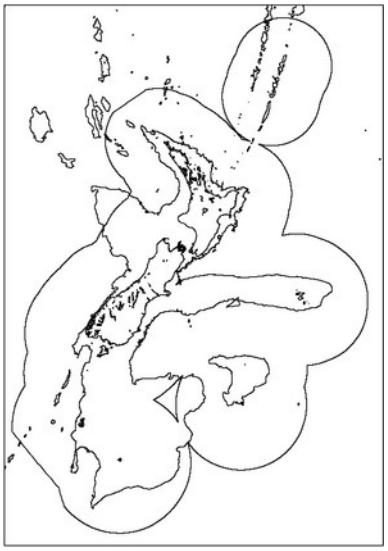
Biology & ecology: Demersal on rough ground and rocky reefs.

References

Francis (2001), Paulin (1982), Paulin & Roberts (1992).

Variable spotted toadfish

Neophrynichthys heterospilos



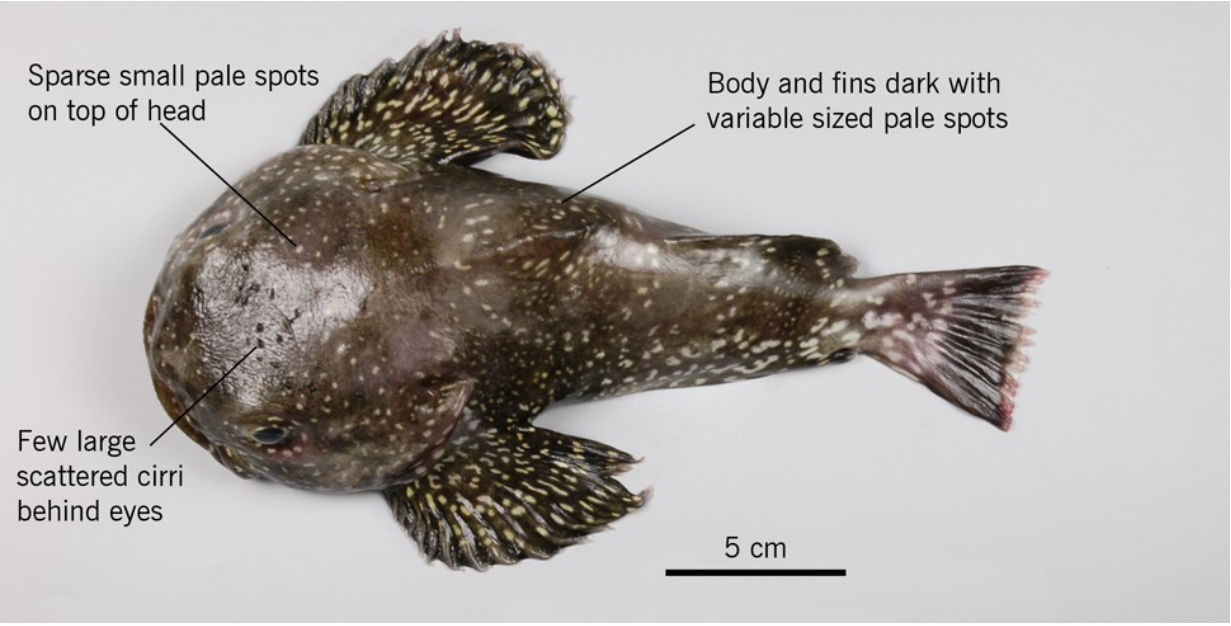
Family: 325. Psychrolutidae (fathead sculpins)

Maori names: n.a.

Other names: n.a.

MFish reporting code: TOA

MFish research code: VST



Distinguishing features: Sparse small pale spots on top of head and nape, covering less than 50% of area. Few (up to about 50) large, scattered cirri on top of the head behind eyes. 25 to 26 pectoral fin rays.

Colour: Most of body, head and fins dark olive-brownish with pale spots and blotches. Pale spots larger ventrally and posteriorly but belly pale. Sparse small pale spots on a top of head and nape, covering less than 50% of area.

Size: To at least 25 cm TL.

Distribution: Known only from New Zealand including Pukaki Rise, Campbell Rise, and the Auckland Islands shelf.

Depth: 120 to 370 m.

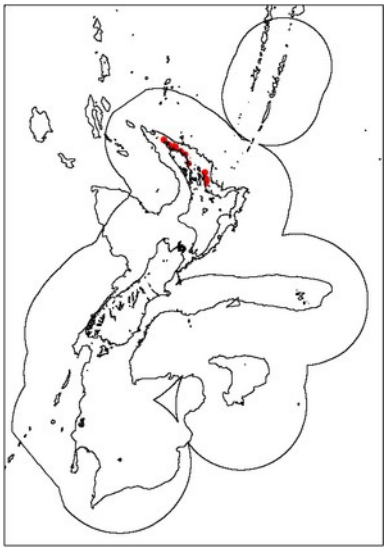
Similar species: Dark toadfish (*Neophrynichthys latus*) has pale spots on top of head and nape (more than 50%), many (over 100) small cirri on top of head behind eyes, and is coastal (less than 110 m). Pale toadfish (*Ambophthalmos angustus*) has pale body with variable dark spots, few large cirri on top of head, reaches 60 cm TL, and is widely distributed at depths of 250 to 900 m. Marbled toadfish (*Ambophthalmos eurystigmatephoros*) from Campbell Plateau (230 to 282 m) has two large grey-brown saddles on a light tan background.

Biology & ecology: Unknown.

References

Anderson et al. (1998), Jackson & Nelson (2000), Nelson (1977).

Pink maomao
Caprodon longimanus



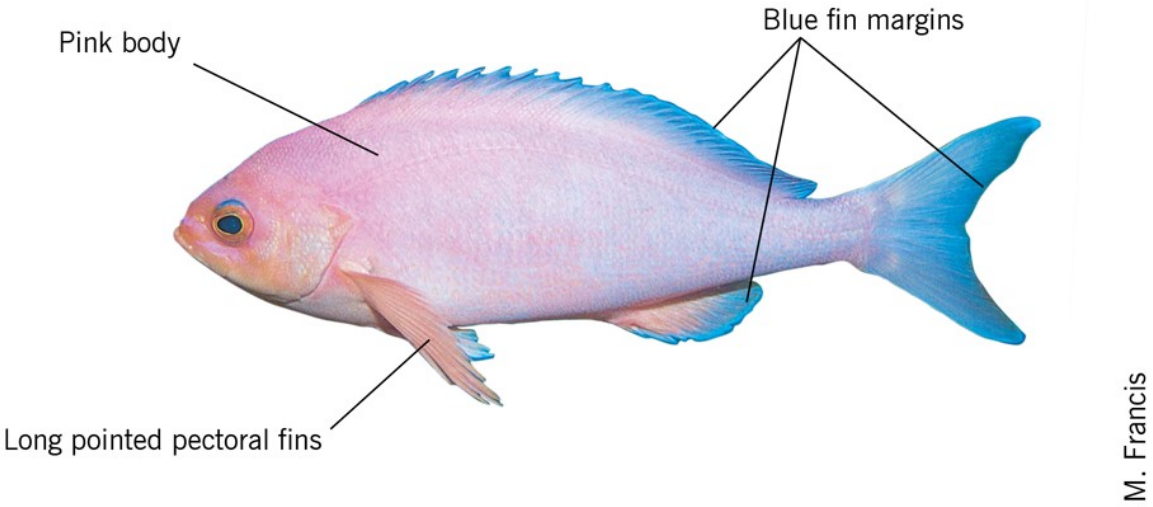
Family: 338. Serranidae (sea basses)

Maori names: Mata maataa, maataataa

Other names: n.a.

MFish reporting code: PMA

MFish research code: PMA



Distinguishing features: Pectoral fins long and pointed. Body and fins uniform pinkish-mauve (females), sometimes with blackish blotches on upper body and dorsal fin and yellowish dorsal, tail, anal, and pelvic fins (males).

Colour: Uniform pinkish-mauve body and fins (females), sometimes with blackish blotches on upper body and dorsal fin and yellowish fins (males).

Size: To 55 cm FL.

Distribution: One species around the northern North Island and West Norfolk Ridge, and the second at the Kermadec Islands.

Depth: 0 to 100 m, probably deeper.

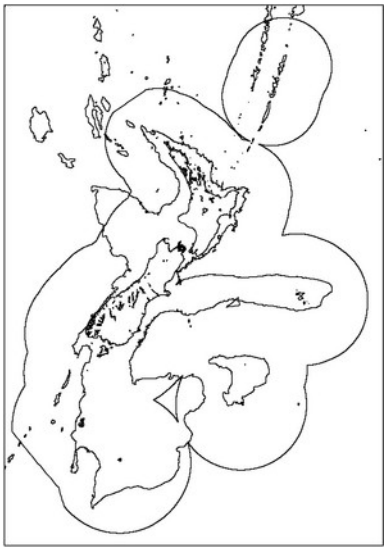
Similar species: Genetic evidence suggests that there are 2 species in New Zealand, the first from the northern North Island and West Norfolk Ridge, and the second from the Kermadec Islands. The taxonomy of the genus is under study. Butterfly perch (*Caesioperca lepidoptera*) has scattered small dark spots plus a large black blotch on the side of the body. Orange perch (*Lepidoperca aurantia*) has a large orange blotch on the side of the body.

Biology & ecology: Form large schools in midwater near islands, reefs and pinnacles, often in areas of current flow. Individuals start life as female and change sex to male at an age or size yet to be determined.

References

Doak (1972), Francis (2001), Roberts & Smith (2005).

Convict grouper
Epinephelus octofasciatus



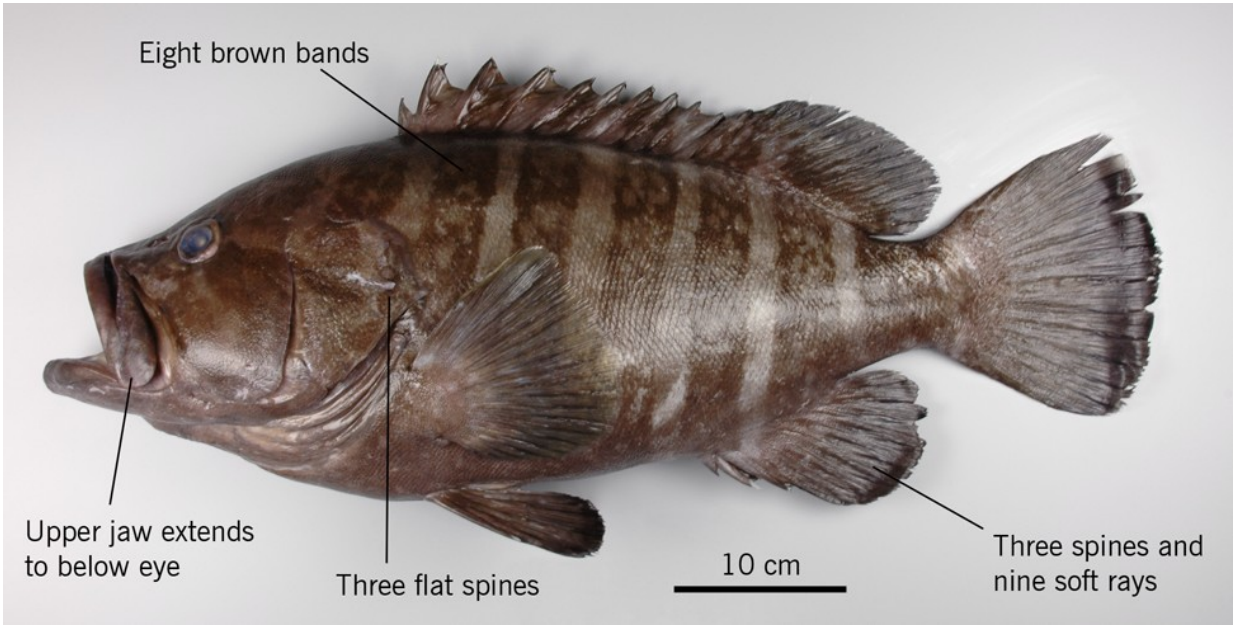
Family: 338. Serranidae (sea basses)

Maori names: n.a.

Other names: Eightbar grouper (FAO)

MFish reporting code: CGR

MFish research code: CGR



Distinguishing features: Three flat spines on rear of gill cover; 11 dorsal fin spines, 3 anal fin spines and 9 soft rays. 8 broad dark brown bands - first on nape, second at dorsal fin origin and covering first 2 dorsal fin spines. Upper jaw (maxilla) reaches to below eye.

Colour: 8 slightly oblique, dark brown bands on body (first on nape behind eye is diffuse and indistinct). Spaces between bands lighter brown.

Size: To about 130 cm TL.

Distribution: Northeast North Island, Kermadec Ridge and Kermadec Islands; Norfolk Island; widely distributed from eastern Africa to French Polynesia.

Depth: 30 to 300 m, mainly deeper than 150 m.

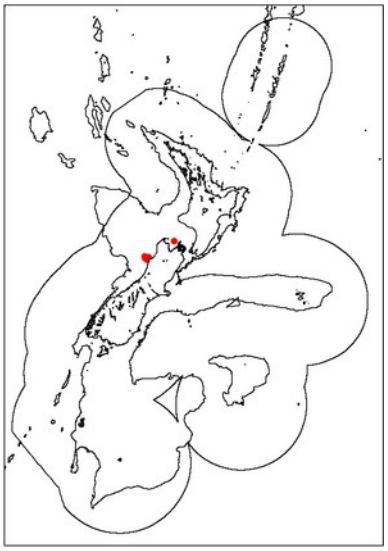
Similar species: Spotted black grouper (*E. daemelii*) has 5 oblique dark bands which split ventrally, black saddle on caudal peduncle, 8 anal fin soft rays, rear fins edged with white, and upper jaw extending beyond eye.

Biology & ecology: Demersal on the outer continental shelf and upper continental slope.

References

Heemstra & Randall (1993), Randall & Heemstra (1991).

Red banded perch
Hypoplectrodes huntii



Family: 338. Serranidae (sea basses)

Maori names: n.a.

Other names: n.a.

MFish reporting code: RBP

MFish research code: RBP

Distinguishing features: Operculum with 3 flat spines, body with 7 orange-brown bands which taper towards belly.

Colour: Body with 7 orange-brown bands which taper towards belly, head orange-brown often with greenish tinge on top, fins red or orange.

Size: 20 cm TL.

Distribution: Three Kings Islands to Snares Islands, Chatham Islands. Known only from New Zealand.

Depth: 5 to at least 30 m.

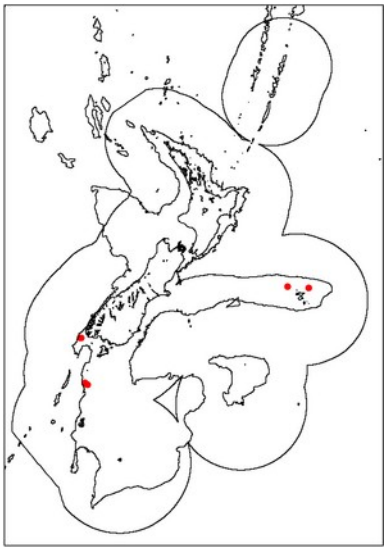
Similar species: Half-banded perch (*Hypoplectrodes* sp. B) has 6 reddish bands which usually do not reach ventral margin, red-brown band across nape which continues as a stripe through eye and on to snout, and yellowish fins. Eyebrow perch (*Hypoplectrodes* sp. A) has prominent bony ridges over the eyes. Sea perches (*Helicolenus* spp.) have 4 broad, irregular brown bands on the body and 1 on the nape.

Biology & ecology: Rocky reefs.

References

Francis (2001).

Red lined perch
Lepidoperca tasmanica



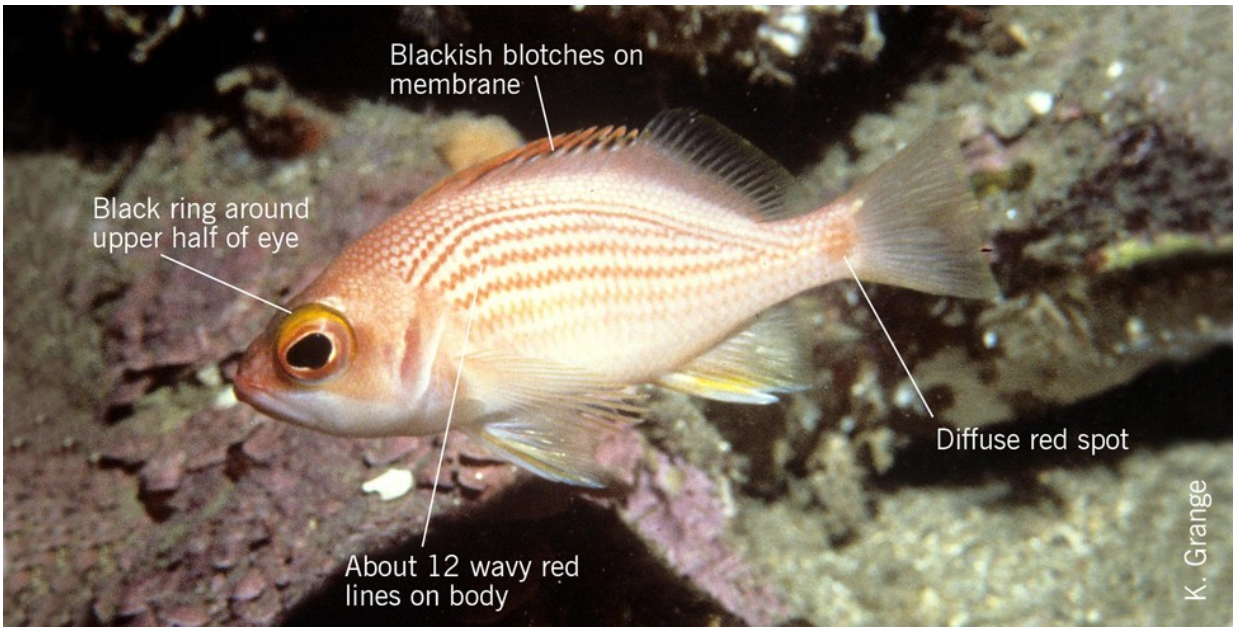
Family: 338. Serranidae (sea basses)

Maori names: n.a.

Other names: n.a.

MFish reporting code: WLP

MFish research code: WLP



Distinguishing features: Operculum with 3 flat spines (uppermost small and may be hidden), body with about 12 wavy red stripes.

Colour: White with about 12 wavy red stripes, blackish blotches on membranes of spiny dorsal fin, head pink-red above and whitish below, dark ring around upper half of eye, diffuse red spot on caudal peduncle.

Size: 20 cm TL.

Distribution: Fiordland and Otago to Snares Islands, Chatham Islands and Chatham Rise; possibly more widespread. Also found off Tasmania.

Depth: 140 to 370 m, but shallower (10 to 50 m) in Fiordland.

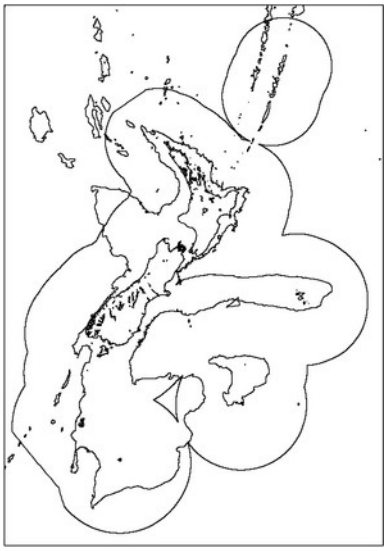
Similar species: None. Colour pattern is unique.

Biology & ecology: Steep rocky reefs.

References

Francis (2001), Roberts (1989).

Southern splendid perch
Callanthias allporti



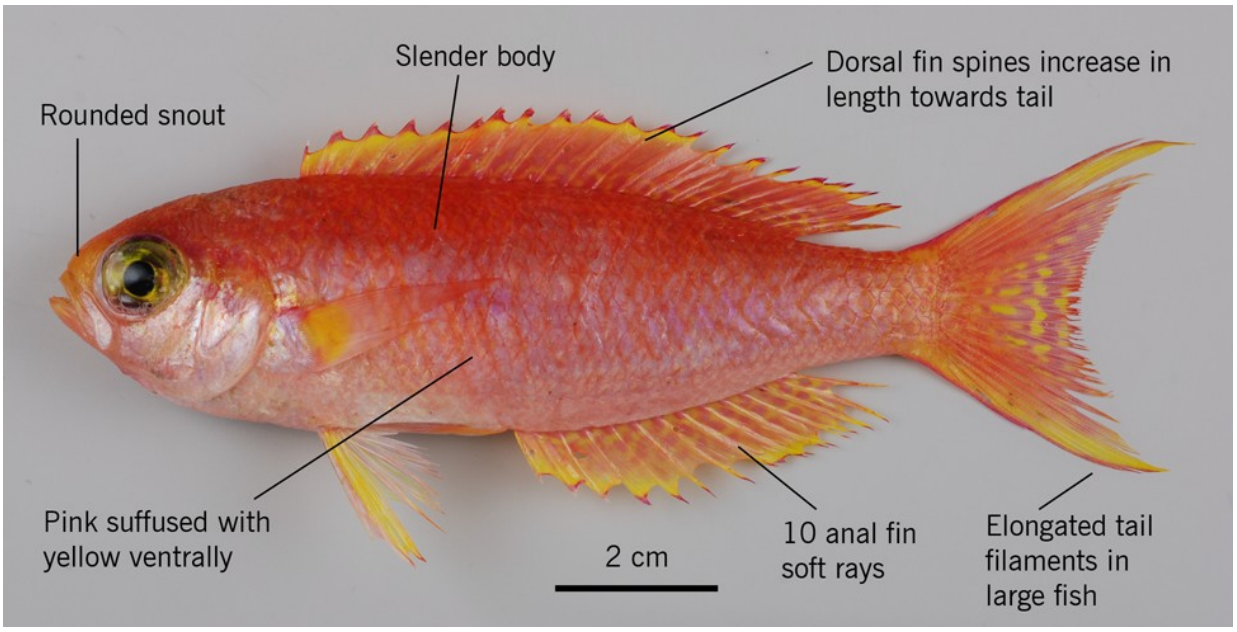
Family: 341. Callanthiidae (Splendid perches)

Maori names: n.a.

Other names: n.a.

MFish reporting code: SPP

MFish research code: SPP



Distinguishing features: Body slender, snout rounded, dorsal fin spines increase in length towards tail, tail filaments elongated in larger fish, colour mainly pink often suffused with yellow ventrally, pectoral fin base yellow.

Colour: Body pink, often with yellowish areas on head, chin, throat and fins. Fins increasingly yellow in large fish.

Size: 28 cm FL.

Distribution: Bay of Islands to Snares Islands and Chatham Islands. Also Louisville Seamount Chain and southeast Australia.

Depth: Usually deeper than 25 m (shallower in Fiordland). Deep limit unknown.

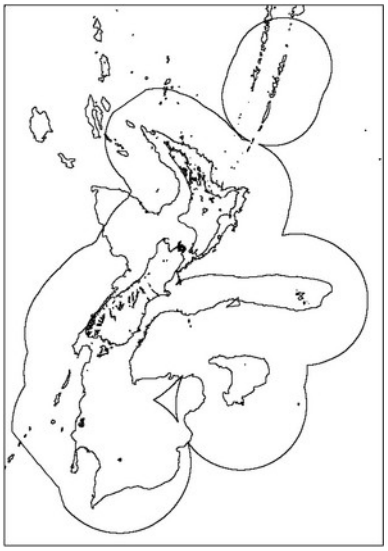
Similar species: Northern splendid perch (*Callanthias australis*) differs in colour pattern and dorsal fin spine height, and has no or short caudal filaments.

Biology & ecology: Rocky reefs, in small groups or schools.

References

Francis (2001).

Northern splendid perch
Callanthias australis



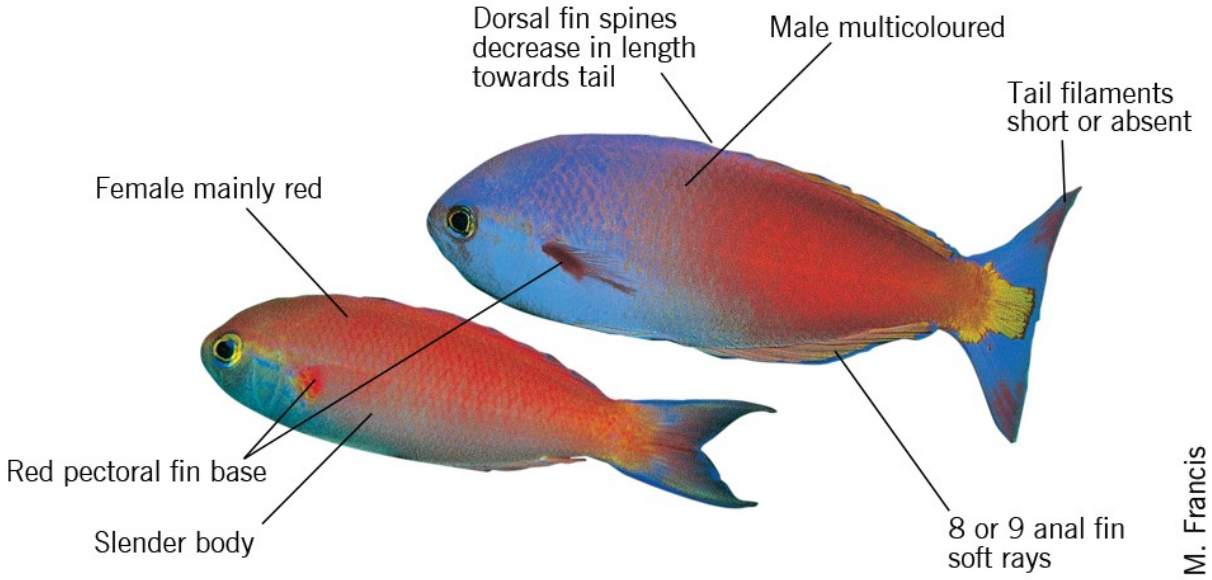
Family: 341. Callanthiidae (Splendid perches)

Maori names: n.a.

Other names: n.a.

MFish reporting code: NSP

MFish research code: NSP



Distinguishing features: Body slender, dorsal fin spines decrease in length towards tail, females mainly red, males multi-coloured, both sexes with bright red pectoral fin base. Short thin filaments on upper and lower tail lobes in large males.

Colour: Females light red to crimson, with silvery lower face and throat, and light fins. Males purplish-red anteriorly, changing to red on posterior half of body, dorsal and anal fins brown, tail bluish purple with yellow centre and red tips. Both sexes with a bright red pectoral fin base.

Size: 30 cm FL. Females change sex to males at about 20 cm FL.

Distribution: Kermadec Islands to Castlepoint and Westport. Also southern Australia.

Depth: 20 to 370 m.

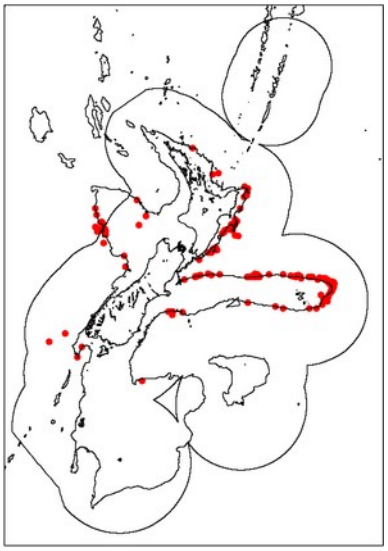
Similar species: Southern splendid perch (*Callanthias allporti*) differs in colour pattern and dorsal fin spine height and has longer caudal filaments.

Biology & ecology: Rocky reefs, in small groups or schools.

References

Doak (1972), Francis (2001), Gomon et al. (2008), Kuiter (2000).

Rotund cardinalfish
Rosenblattia robusta



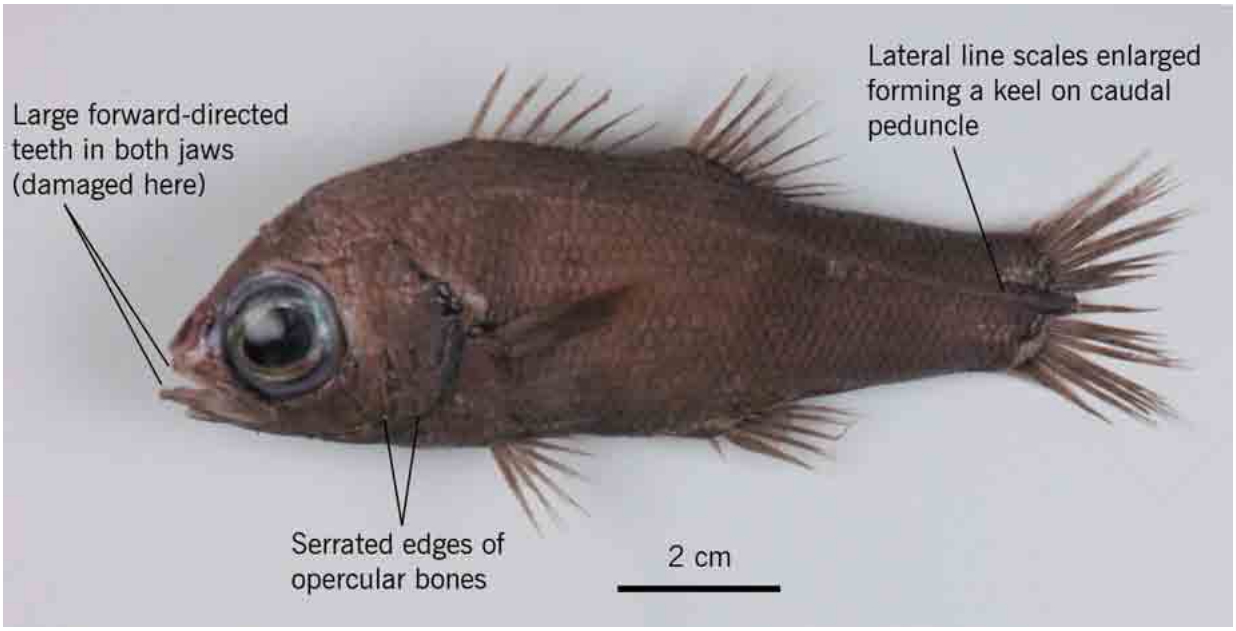
Family: 353. Epigonidae (deepwater cardinalfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: ROS



Distinguishing features: Lateral line scales on caudal peduncle enlarged forming a distinct keel. Large forward-directed teeth in both jaws, anterior teeth visible when mouth closed. Serrations on rear and lower edges of opercular bones.

Colour: Dark brownish head, body, and fins. Juveniles have dark body and pale caudal peduncle.

Size: To about 10 cm SL.

Distribution: Widespread in Subantarctic waters of southern hemisphere.

Depth: Midwater at 700 to 2000 m.

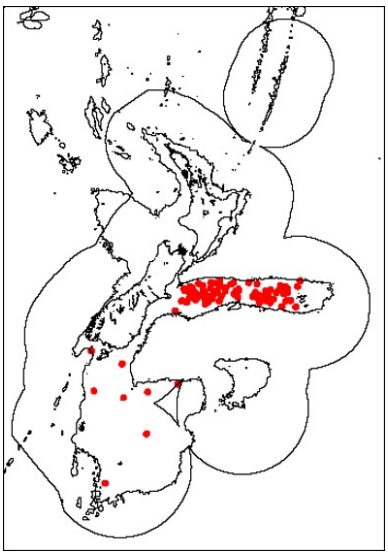
Similar species: Other deepwater cardinalfishes, *Epigonus* spp. lack a keel of enlarged lateral line scales on caudal peduncle, lack large teeth in jaws, and may have weakly serrated opercular bones.

Biology & ecology: Unknown. Midwater.

References

Gomon et al. (2008), Smith & Heemstra (1986).

Southern bream
Brama australis



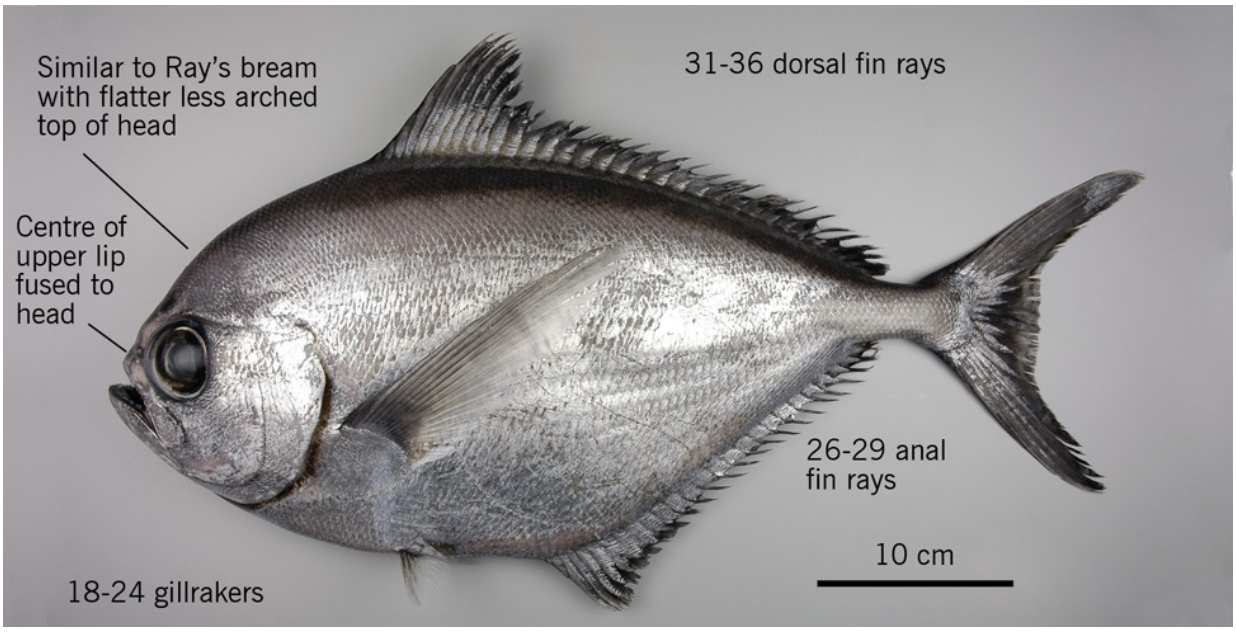
Family: 367. Bramidae (pomfrets)

Maori names: n.a.

Other names: Southern Ray's bream

MFish reporting code: UNI

MFish research code: SRB



Distinguishing features: Dorsal profile of head less arched (flatter) than Ray's bream and eye relatively close to upper head margin. Middle of upper lip fused to head. Dorsal fin elements (spines plus rays) 31 to 36 (often 34 to 35), anal fin elements 26 to 29 (often 27), and gill rakers on outer arch 18 to 24.

Colour: Body silver-grey (fading to greyish on death).

Size: To about 56 cm SL.

Distribution: Distribution in New Zealand waters is uncertain because of confusion with Ray's bream.

Depth: Uncertain due to confusion with Ray's bream.

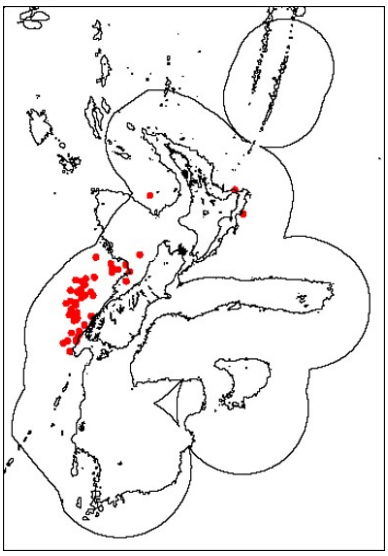
Similar species: Ray's bream (*Brama brama*) also has the middle of the upper lip fused to head but has a more strongly arched dorsal head profile, the eye is lower on the head, there are more dorsal fin elements (spines plus rays) 35 to 39 (often 37 to 38), more anal fin elements 29 to 32 (often 30), and fewer gill rakers on outer side of first arch (15 to 18). Bronze bream (*Xenobrama microlepis*) has the upper lip free and not joined to the head near the snout tip.

Biology & ecology: Pelagic.

References

Last & Baron (1994), Stewart (2001a).

Wingfish
Pteraclis velifera



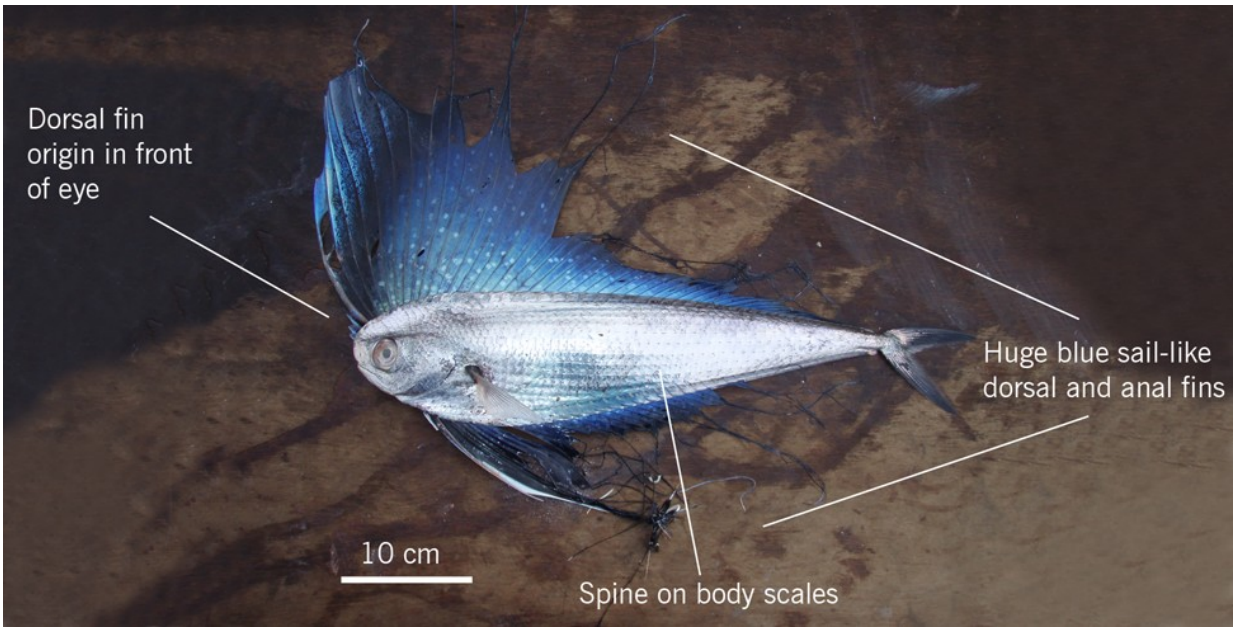
Family: 367. Bramidae (pomfrets)

Maori names: n.a.

Other names: Spotted fanfish

MFish reporting code: WIN

MFish research code: WIN



Distinguishing features: Huge sail-like dorsal and anal fins that fold away into sheaths of enlarged scales. The first few dorsal fin rays are much thicker than the rest. Dorsal fin origin well ahead of eye. Elongate body. Scales with sharp spine.

Colour: Body metallic silver. Dorsal and anal fins vivid blue with turquoise spots.

Size: To about 60 cm SL.

Distribution: Caught around North Island and the west coast of the South Island in New Zealand. Found in tropical and subtropical waters of the Pacific and Indian Oceans.

Depth: From near the surface to an unknown depth.

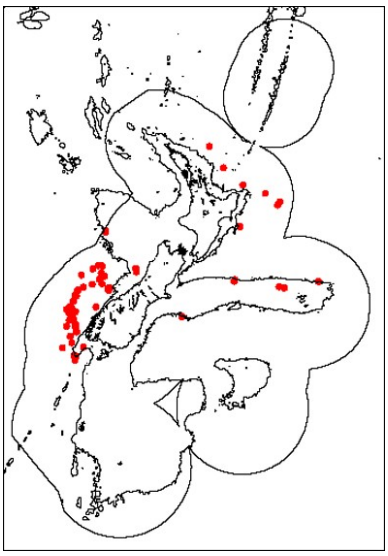
Similar species: Fanfish (*Pterycombus petersii*) has smaller (lower) dorsal and anal fins, all dorsal fin rays are of similar thickness, the dorsal fin origin is above or behind the eye, and the body is shorter and deeper.

Biology & ecology: Pelagic, usually in oceanic waters.

References

Last & Baron (1994), Paulin (1981), Stewart & Roberts (1996).

Fanfish
Pterycombus petersii



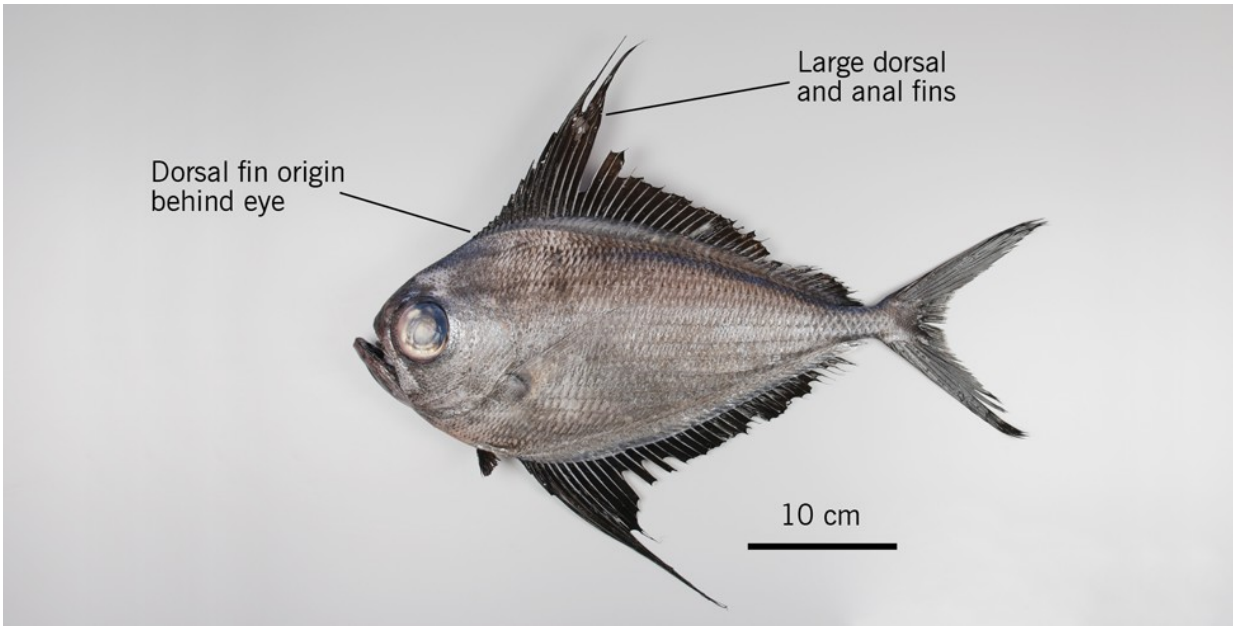
Family: 367. Bramidae (pomfrets)

Maori names: n.a.

Other names: Prickly pomfret, prickly fanfish

MFish reporting code: FAN

MFish research code: FAN



Distinguishing features: Large (high) dorsal and anal fins that fold away into sheaths of enlarged scales. All dorsal fin rays are of similar thickness. Dorsal fin origin above or behind the eye.

Colour: Body bronze to silvery-white. Membranes of the dorsal and anal fins black.

Size: To about 50 cm SL.

Distribution: Caught around North Island and the west coast of the South Island in New Zealand. Found in tropical and subtropical waters of the Pacific and Indian Oceans.

Depth: 0 to 340 m.

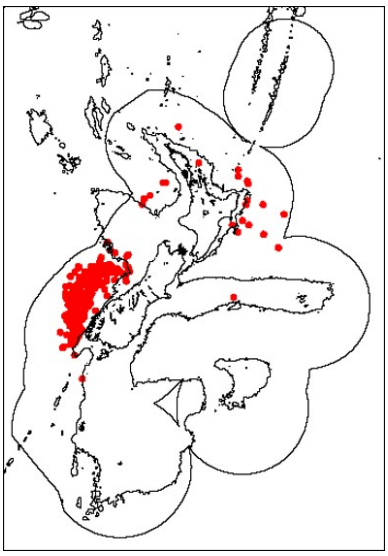
Similar species: Flathead pomfret (*Taractes asper*) has stiff, erect dorsal and anal fins and the dorsal fin origin is behind the head. Wingfish (*Pteraclis velifera*) has huge sail-like dorsal and anal fins, the dorsal fin origin is well ahead of the eye, and the body is longer and more slender. Southern bream (*Brama australis*), Ray's bream (*B. brama*), and Bronze bream (*Xenobrama microlepis*) have small (low) dorsal and anal fins and dorsal fin origin is behind the head.

Biology & ecology: Pelagic.

References

Last & Baron (1994), Paulin (1981), Stewart & Roberts (1996).

Flathead pomfret
Taractes asper



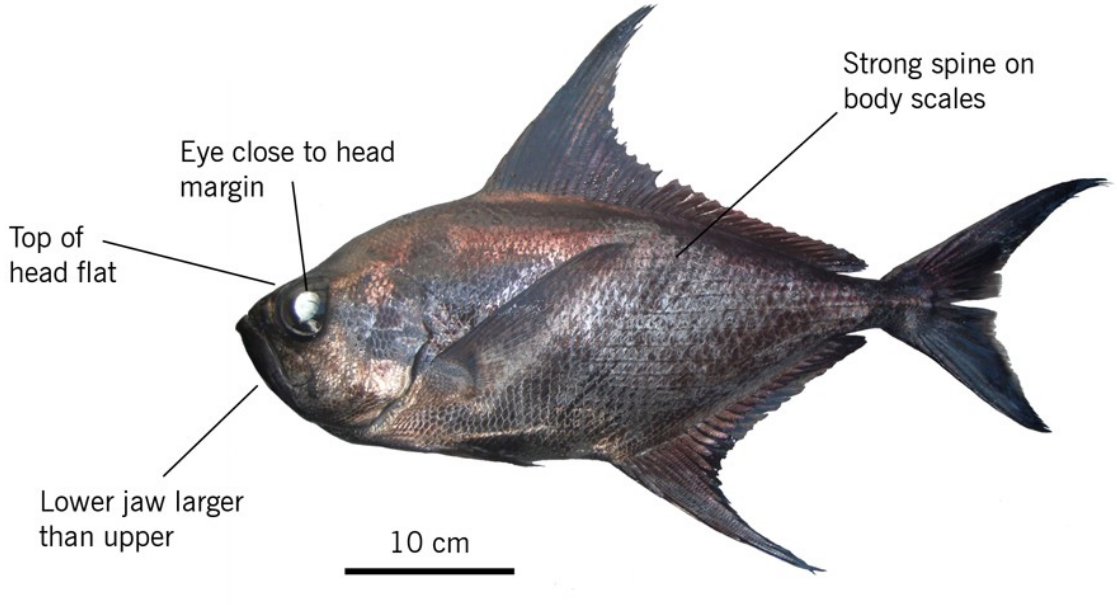
Family: 367. Bramidae (pomfrets)

Maori names: n.a.

Other names: Rough pomfret

MFish reporting code: TAS

MFish research code: TAS



Distinguishing features: Dorsal profile of head from the nostrils to behind the eyes straight or slightly arched and flattened. Upper lip joined to head at tip of snout. Eye close to upper head margin. Lower jaw longer than upper. Dorsal and anal fins stiff, erect and covered with scales. Dorsal fin origin is behind the head. Raised spines in the middle of each body scale, most noticeable in the scales before the tail fin.

Colour: Body silvery (fading to brown on death).

Size: To at least 52 cm FL in New Zealand.

Distribution: Caught around North Island and the west coast of the South Island in New Zealand. Occurs in tropical and temperate seas of the world.

Depth: 1 to 140 m.

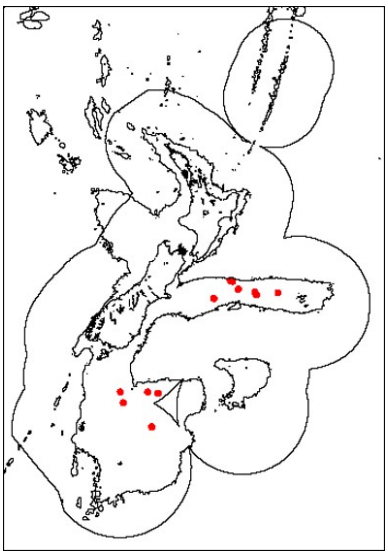
Similar species: Fanfish (*Pterycombus petersii*) has dorsal and anal fins that fold away into sheaths of enlarged scales, and dorsal fin origin is above or just behind the eye. Southern bream (*Brama australis*) and Ray's bream (*B. brama*) have arched head profiles and lack spines on body scales. Bronze bream (*Xenobrama microlepis*) lacks stiff dorsal and anal fins and lacks spines on body scales. Wingfish (*Pteraclis velifera*) has huge sail-like dorsal and anal fins, and dorsal fin origin is in front of eye.

Biology & ecology: Pelagic.

References

Last & Baron (1994), Paulin (1981), Stewart (2001b).

Bronze bream
Xenobrama microlepis



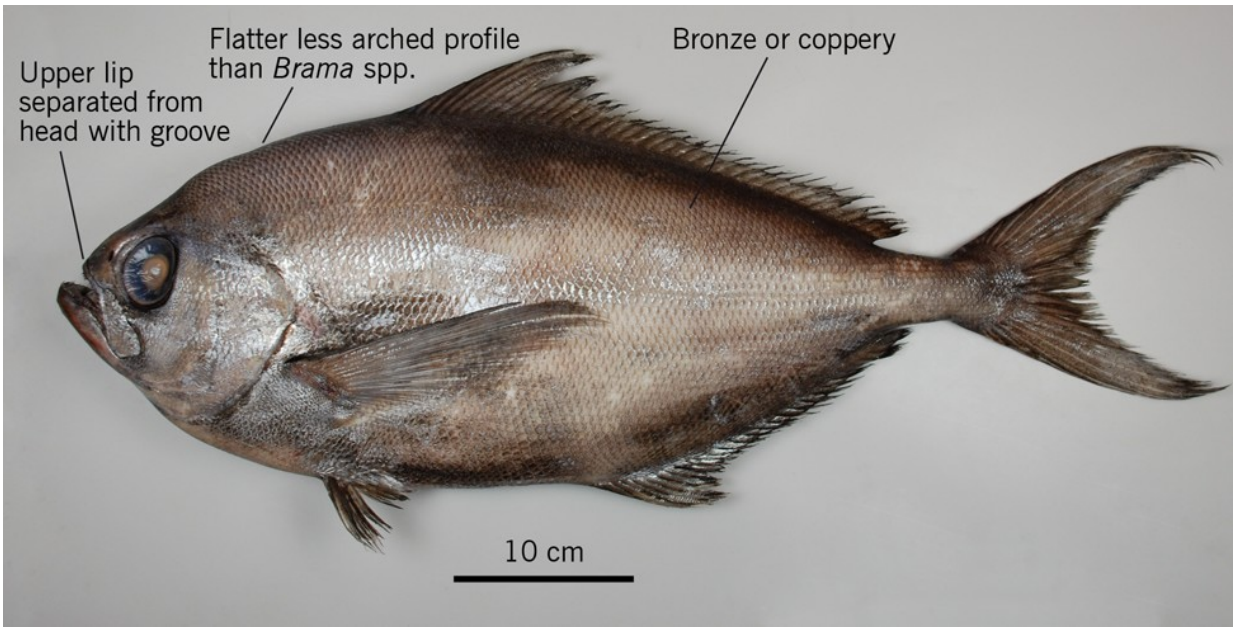
Family: 367. Bramidae (pomfrets)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: BBR



Distinguishing features: Distinct groove separating the upper lip from the top of the head near the snout tip. Dorsal profile of head less arched (flatter) than Ray's bream, and snout more pointed. Body metallic bronze to golden in colour. Dorsal fin elements (spines plus rays) 38 to 42 (often 40), anal fin elements 27 to 30 (often 29), and gill rakers on outer arch 10 to 12.

Colour: Body metallic bronze to coppery.

Size: To about 60 cm FL.

Distribution: Distribution in New Zealand waters is uncertain because of confusion with Ray's bream. Known from southern Australia to Chile between 38 and 55 S.

Depth: Uncertain due to confusion with Ray's bream.

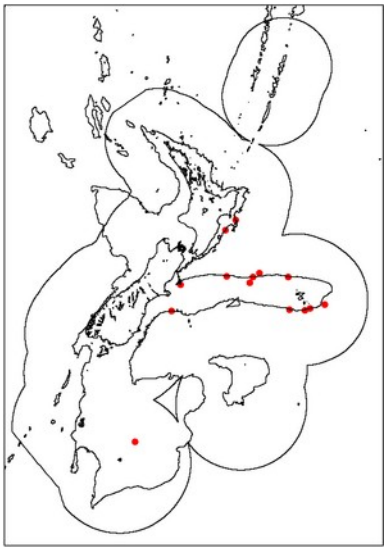
Similar species: Ray's bream (*Brama brama*) has upper lip joined to head near snout tip, strongly arched dorsal head profile, fewer dorsal fin elements (spines plus rays) 35 to 39 (often 37 to 38), fewer anal fin elements 29 to 32 (often 30), and more gill rakers on outer arch (15 to 18). Southern bream (*B. australis*) has upper lip joined to head near snout tip, less strongly arched dorsal head profile, fewer dorsal fin elements 31 to 36 (often 34 to 35), fewer anal fin elements 26 to 29 (often 27), and more gill rakers on outer arch (18 to 24).

Biology & ecology: Probably pelagic.

References

Last & Baron (1994), Stewart (2001a).

Largemouth manefish
Caristius sp.



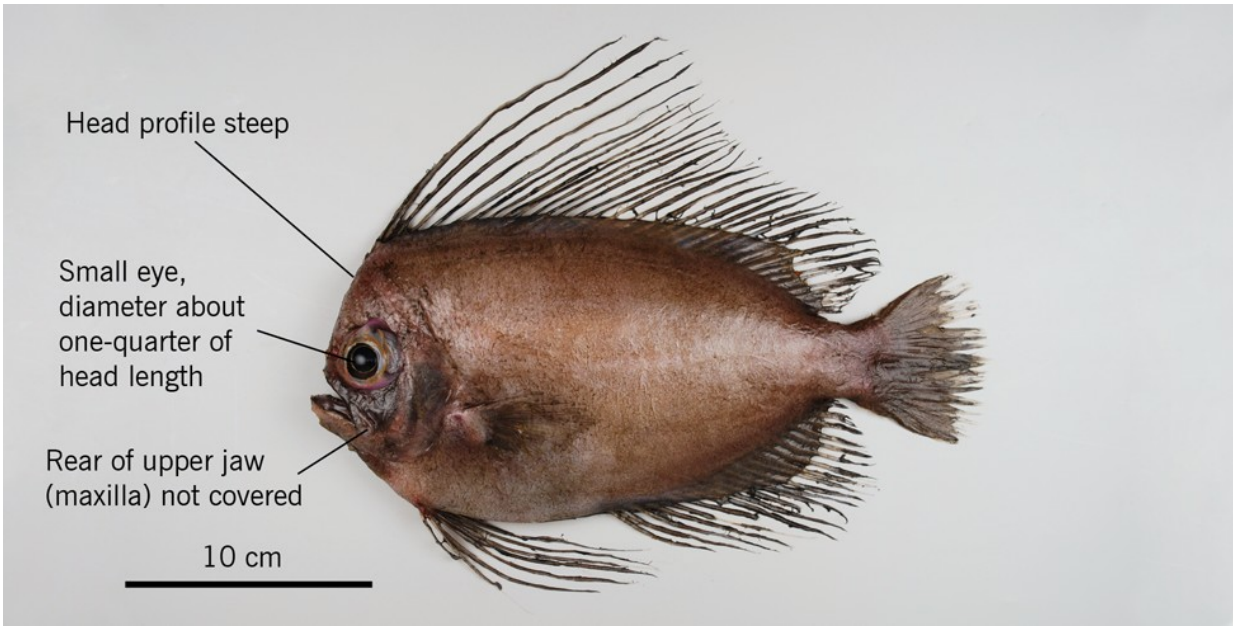
Family: 368. Caristiidae (manefishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: PLA



Distinguishing features: Head profile steeply angled. Small eye diameter, about one-quarter of head length. Rear of upper jaw (maxilla) not covered by fleshy extension of the suborbital. Origin of dorsal fin close to line through rear of eye. Lateral line rises steeply behind the head and runs close to dorsal fin base rearwards onto the tail fin base. Skin extends onto bases of the dorsal and anal fins. Scales deciduous. Fin rays fold into fleshy sheaths.

Colour: Head, body, and fins dark brownish or blackish.

Size: To about 35, possibly up to 60 cm SL.

Distribution: Widespread in New Zealand from Campbell Plateau north. Unknown distribution elsewhere because of uncertain taxonomy, but a similar species is recorded from South Africa.

Depth: Midwater at about 650 to 1240 m.

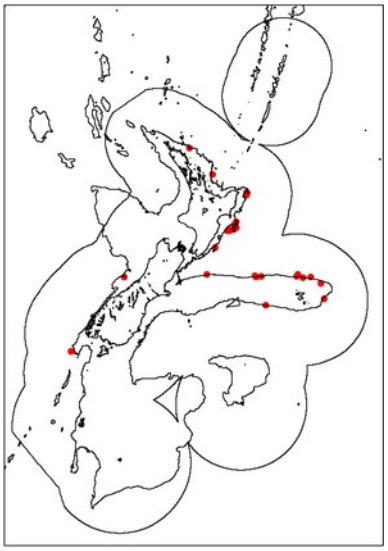
Similar species: Veilfin manefish (*Paracaristius* sp.) has a rounded lateral head profile, large eye diameter (about one-half of head length), and rear of upper jaw (maxilla) is covered by fleshy extension of the suborbital. Pomfrets (Bramidae) have prominent silvery adherent scales.

Biology & ecology: Juvenile observed eating gelatinous zooplanton. Stomach contents of that specimen also included midwater fishes and crustaceans.

References

Smith & Heemstra (1986), Stewart (1998c), Trunov et al. (2006).

Veilfin manefish
Paracaristius sp.



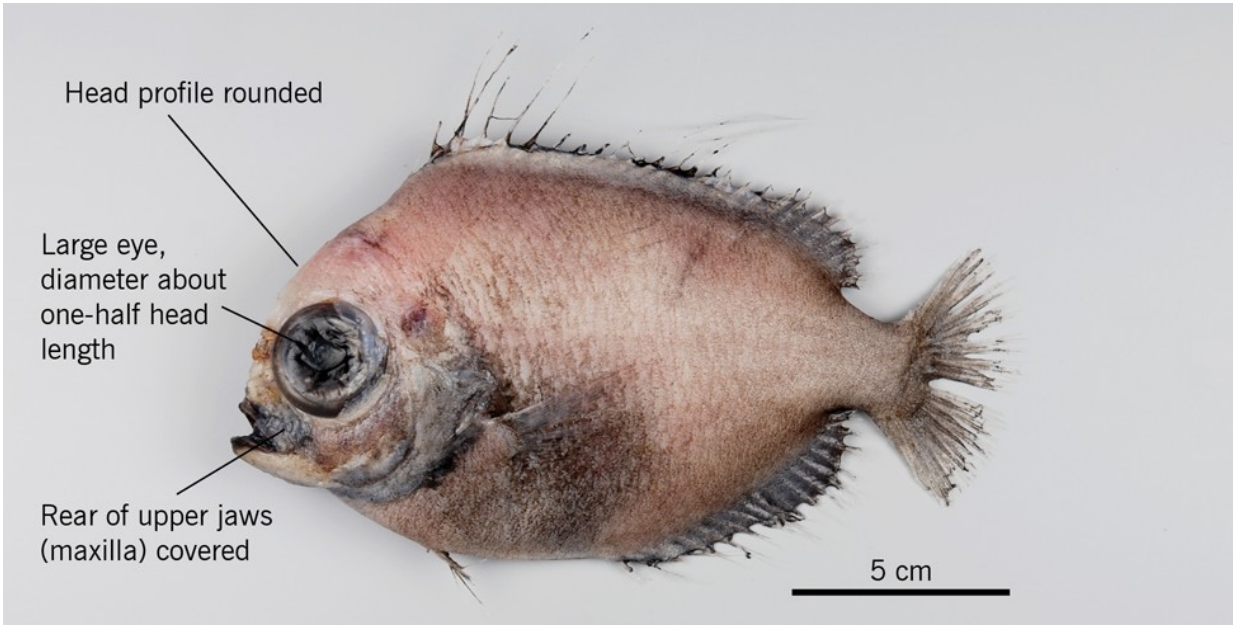
Family: 368. Caristiidae (manefishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: CST

MFish research code: CST



Distinguishing features: Head lateral profile rounded. Large eye diameter, about one-half of head length. Rear of upper jaw (maxilla) covered by fleshy extension of the suborbital. Origin of dorsal fin well behind a vertical line through rear of eye. Lateral line rises steeply behind the head and runs close to dorsal fin base back to about the rear of the first dorsal fin. Skin extends onto bases of the dorsal and anal fins. Scales deciduous. Dorsal and anal fin rays fold down into fleshy sheaths.

Colour: Head and body brownish. Dorsal and anal fins blackish. Tail, pelvic, and pectoral fins brownish.

Size: To about 23 cm SL.

Distribution: Central and northern New Zealand. Unknown distribution elsewhere because of uncertain taxonomy, but a similar species is recorded from South Africa.

Depth: Midwater at about 800 to 1400 m.

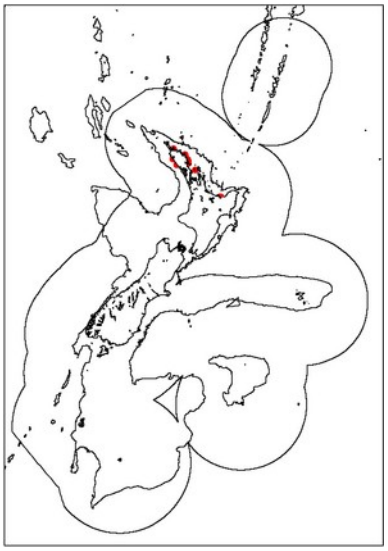
Similar species: Largemouth manefish (*Caristius* sp.) has steeply angled head profile, small eye diameter (about one-quarter of head length), and rear of upper jaw (maxilla) is not covered by fleshy extension of the suborbital. Pomfrets (Bramidae) have prominent silvery adherent scales.

Biology & ecology: Unknown. Midwater.

References

Smith & Heemstra (1986), Stewart (1998c), Trunov et al. (2006).

Sweep
Scorpis lineolatus



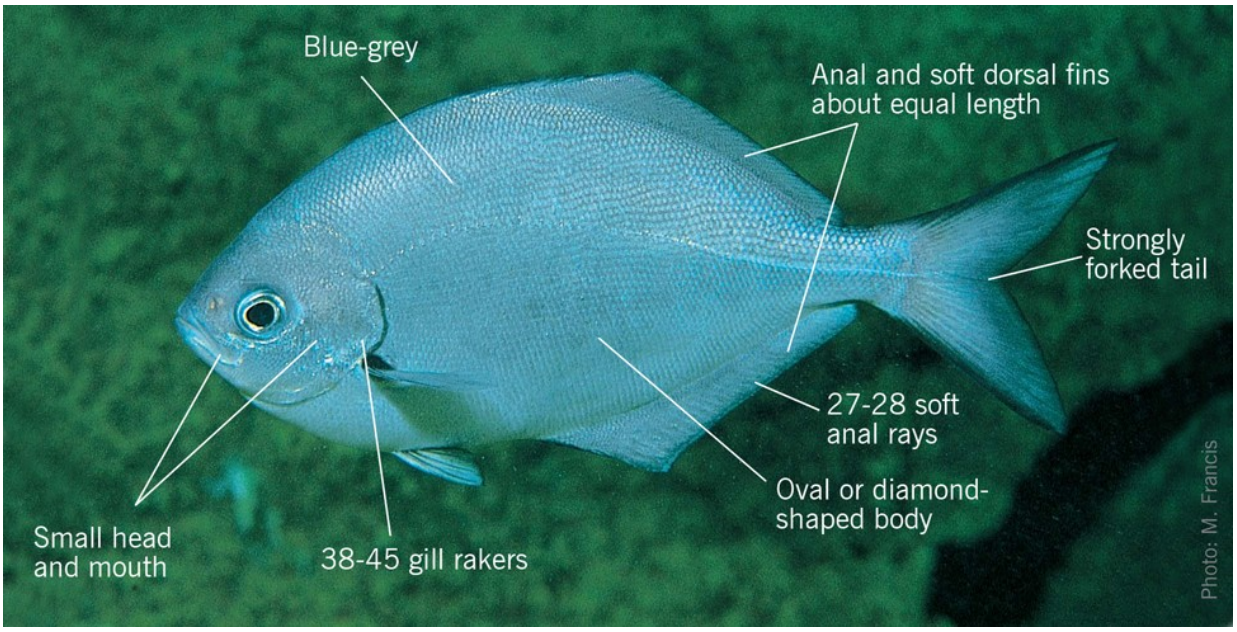
Family: 391a. Scorpididae (sweeps)

Maori names: Hui

Other names: n.a.

MFish reporting code: SWE

MFish research code: SWE



Distinguishing features: Body oval to diamond-shaped, tail strongly forked, blue-grey (fading after death), head and mouth small, anal and soft dorsal fins about equal in length, 27 to 28 soft anal rays, 38 to 45 gill rakers.

Colour: Blue-grey with a blackish opercular membrane and dusky fin rays on the upper and lower caudal lobes.

Size: 35 cm FL.

Distribution: Three Kings Islands to Fiordland, Chatham Islands. Also in southeast Australia.

Depth: 0 to about 30 m.

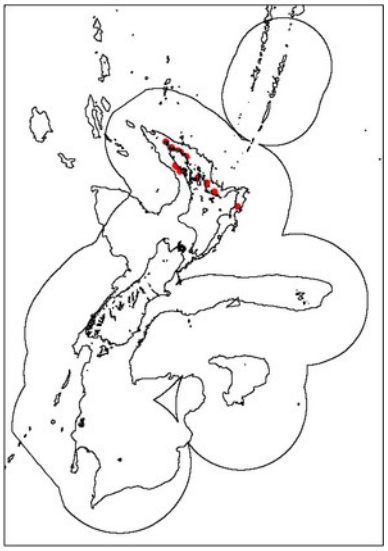
Similar species: Blue maomao (*Scorpis violaceus*) is iridescent blue (though fades to dusky grey after death), has fewer gill rakers, and large fish develop a humped forehead profile.

Biology & ecology: Schools around shallow rocky reefs.

References

Francis (2001), Gomon et al. (2008), Kuiter (2000).

Blue maomao
Scorpis violaceus



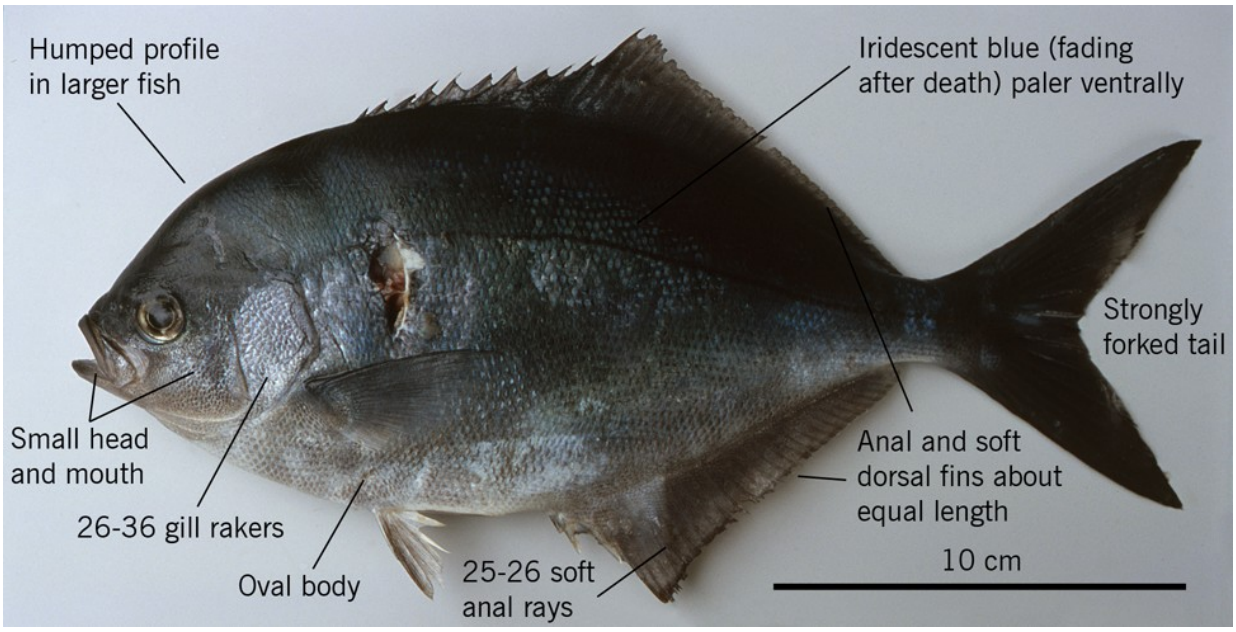
Family: 391a. Scorpididae (sweeps)

Maori names: Maomao

Other names: n.a.

MFish reporting code: BMA

MFish research code: BMA



Distinguishing features: Body oval, tail strongly forked, iridescent blue (fading after death), head and mouth small, anal and soft dorsal fins about equal in length, 25 to 26 soft anal rays, 26 to 36 gill rakers. Large fish become more elongated and develop a humped profile on the forehead.

Colour: Iridescent blue, paler ventrally (fades to dusky grey after death).

Size: 40 cm FL.

Distribution: Kermadec Islands to D'Urville Island and Kaikoura. Also eastern Australia, Lord Howe and Norfolk Islands.

Depth: 0 to about 30 m.

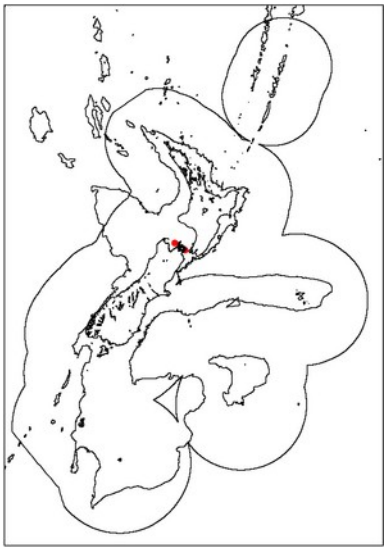
Similar species: Sweep (*Scorpis lineolatus*) is blue-grey and lacks iridescence, has more gill rakers, and large fish do not develop a humped forehead profile.

Biology & ecology: Schools around shallow rocky reefs.

References

Francis (2001), Kuiter (2000).

Marblefish
Aplodactylus arctidens



Family: 404. Aplodactylidae (marblefishes)

Maori names: Kawikawi, kehe, koeae

Other names: Granite trout

MFish reporting code: GTR

MFish research code: GTR

Distinguishing features: Olive green or brown with numerous small whitish irregular spots, blotches, and lines on head, body and fins. Lips fleshy, upper lip projecting. Mouth small with upper jaw (maxilla) not reaching a vertical at front margin of eye. Teeth of both jaws small, in 3 to 6 rows, outermost largest.

Colour: Olive green or brown with numerous small whitish irregular spots, blotches, and lines on head, body and fins.

Size: To about 70 cm TL.

Distribution: Widespread in New Zealand from Three Kings to Snares and also Chatham Islands. Southern Australia (Vic, Tas, SA).

Depth: 1 to about 15 m.

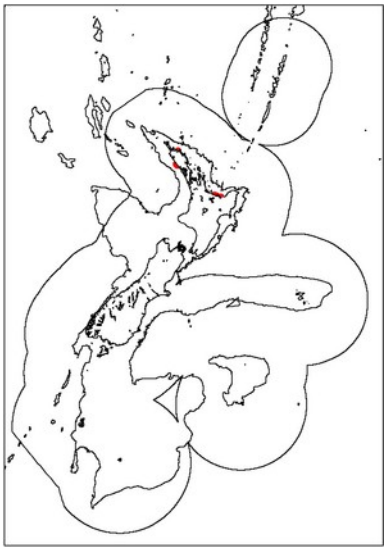
Similar species: Notch-head marblefish (*Aplodactylus etheridgii*) has a distinct dip in the lateral profile behind the head, is covered in small white spots, has 2 or 3 large white blotches on side of body, and is confined to northern New Zealand, Great Barrier Island and north. Hiwihiwi (*Chironemus marmoratus*) has a dip in the lateral profile behind the head, a mosaic of large light and dark patches on the body with tiny white spots on head, body, and fins.

Biology & ecology: Inhabit reefs, caves, and crevices. Solitary and occupy a territory. Feed on red and small brown seaweeds. Spawn in August-September.

References

Francis (2001), Gomon et al. (2008).

Red moki
Cheilodactylus spectabilis



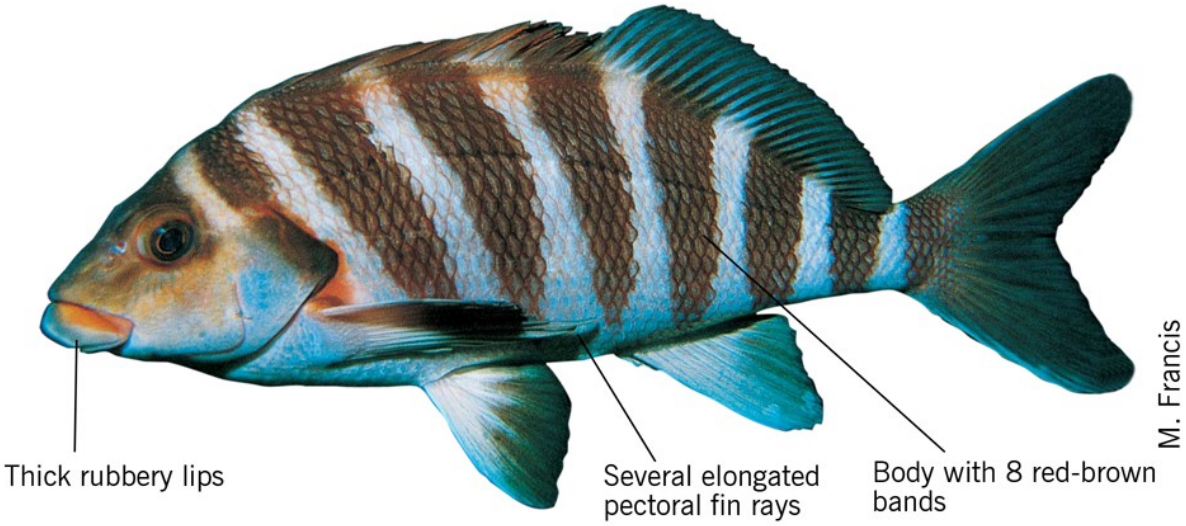
Family: 405. Cheilodactylidae (morwongs)

Maori names: Nanua, manua, maratea

Other names: n.a.

MFish reporting code: RMO

MFish research code: RMO



Distinguishing features: Lips thick and fleshy, pectoral fin with several elongated rays, body with 8 tapering red-brown bands (including tail band).

Colour: Body white with 8 tapering red-brown bands (including tail band). Rarely uniformly red-brown with bands indistinct or absent.

Size: 70 cm FL.

Distribution: Three Kings Islands to Foveaux Strait, but most common in the northern North Island.

Depth: 0 to 50 m.

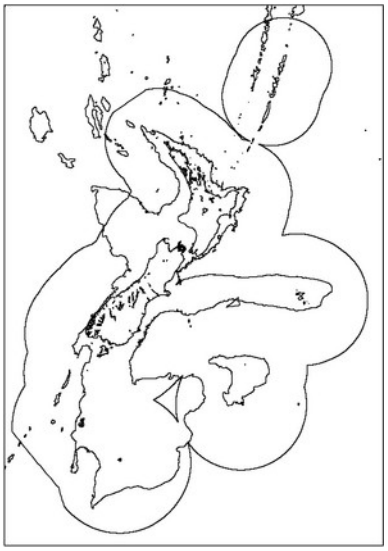
Similar species: Blue moki (*Latridopsis ciliaris*) is blue-grey and lacks prominent bands. Copper moki (*Latridopsis forsteri*) has a black margin on the tail fin and several thin coppery stripes along the back. Tarakihi (*Nemadactylus macropterus*), king tarakihi (*Nemadactylus* sp.), and porae (*Nemadactylus douglasii*) have a single extremely elongated pectoral fin ray, and differ in colour pattern.

Biology & ecology: Rocky reefs.

References

Doak (1972), Francis (2001), Paulin & Roberts (1992).

King tarakihi
Nemadactylus sp.



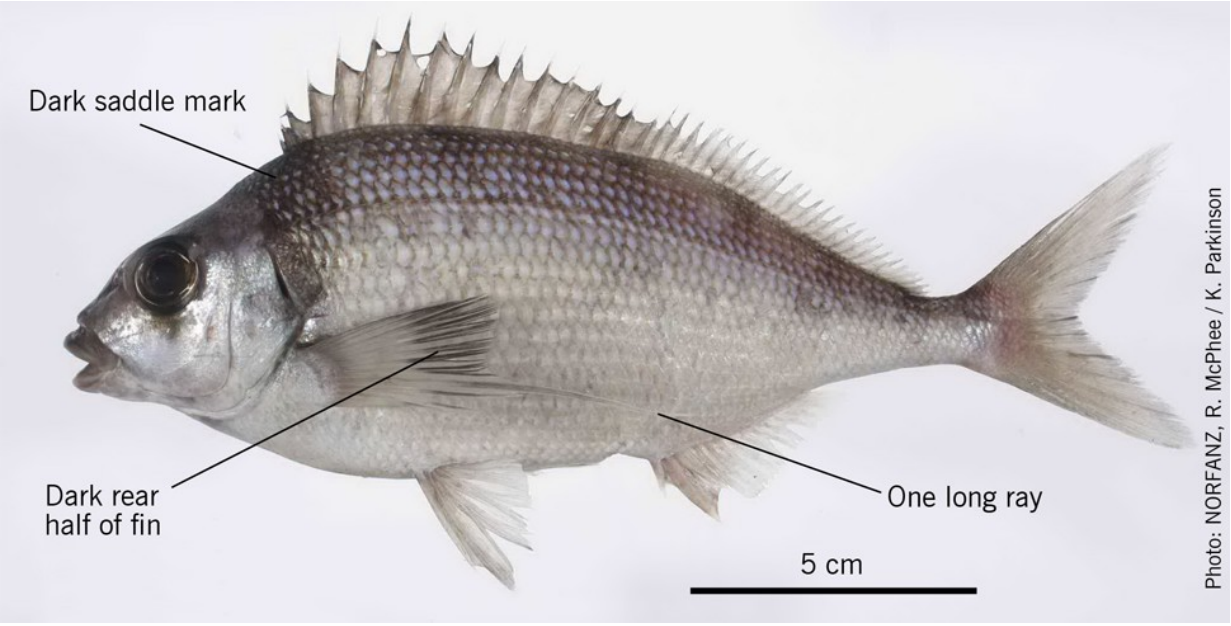
Family: 405. Cheilodactylidae (morwongs)

Maori names: n.a.

Other names: n.a.

MFish reporting code: TAR

MFish research code: KTA



Distinguishing features: One ray in the lower pectoral fin much longer than adjacent rays. Dark saddle mark on the nape of the neck. Small mouth with thick rubbery lips. Anal fin with 3 spines and 12 soft rays.

Colour: Silvery-grey with a black band on the nape of the neck extending down to near the pectoral fin base, rear margin of upper pectoral fin blackish.

Size: To at least 60 cm FL, but probably much larger.

Distribution: Kermadec Islands, Three Kings Islands and northern North Island. Also at Norfolk Island and Lord Howe Island. Possibly more widespread.

Depth: Unknown.

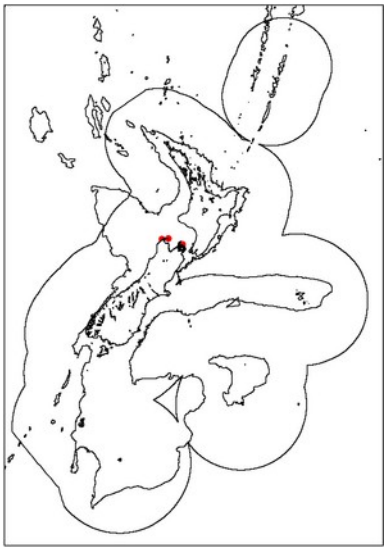
Similar species: Tarakihi (*Nemadactylus macropterus*) has a narrower black saddle on the nape of the neck, lacks the dark upper posterior half of the pectoral fin, and has 14 to 15 soft anal fin rays. Porae (*Nemadactylus douglasii*) lacks a black saddle on the nape of the neck.

Biology & ecology: Demersal on the continental shelf and possibly upper continental slope.

References

Smith et al. (1996).

Copper moki
Latridopsis forsteri



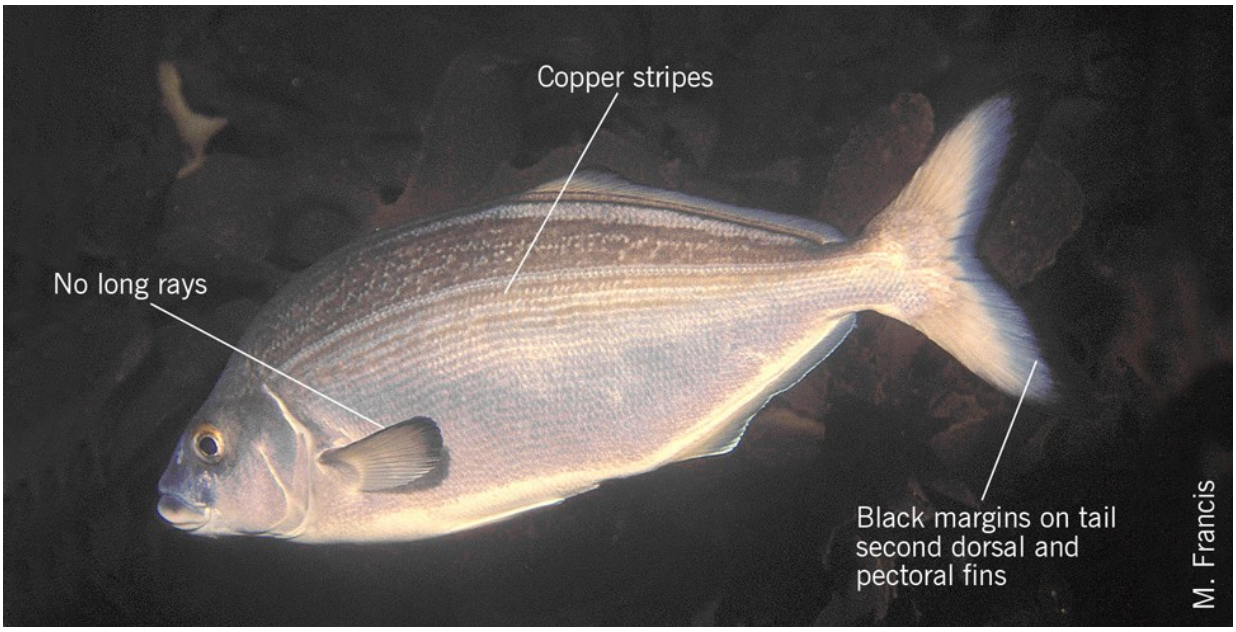
Family: 406. Latridae (trumpeters)

Maori names: n.a.

Other names: n.a.

MFish reporting code: CMO

MFish research code: CMO



Distinguishing features: Lips thick and fleshy, no elongated rays in pectoral fin, several coppery stripes along back, margins of pectoral, soft dorsal, and tail fins black.

Colour: Silvery-white with several coppery stripes along back, margins of pectoral, soft dorsal, and tail fins black

Size: 65 cm FL.

Distribution: Three Kings Islands to Stewart Island, Chatham Islands. Also southeast Australia.

Depth: Probably similar to blue moki, 0 to 230 m.

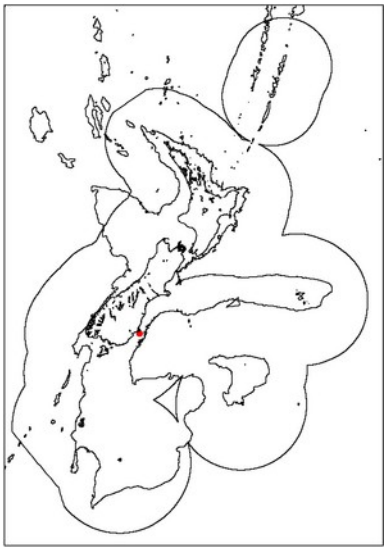
Similar species: Blue moki (*Latridopsis ciliaris*) and red moki (*Cheilodactylus spectabilis*) differ in colour pattern. Tarakihi (*Nemadactylus macropterus*), king tarakihi (*Nemadactylus* sp.), and porae (*Nemadactylus douglasii*) have a single extremely elongated pectoral fin ray, and differ in colour pattern.

Biology & ecology: Demersal on the continental shelf, usually over soft bottom.

References

Francis (2001), Gomon et al. (2008).

Telescope fish
Mendosoma lineatum



Family: 406. Latridae (trumpeters)

Maori names: Koihi

Other names: n.a.

MFish reporting code: TEL

MFish research code: TEL

Distinguishing features: Head pointed with highly protrusible mouth, body green with many gold-brown stripes.

Colour: Green above with many gold-brown stripes, silver below.

Size: 40 cm FL.

Distribution: Kapiti Island and Castlepoint to Snares Islands, Chatham Islands and Auckland Islands. Cosmopolitan in cool temperate waters of the southern hemisphere.

Depth: 0 to 30 m.

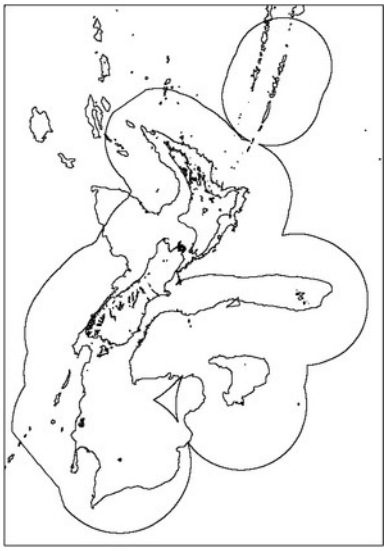
Similar species: None in New Zealand.

Biology & ecology: Schools near reefs in coastal waters.

References

Francis (2001).

Twospot demoiselle
Chromis dispilus



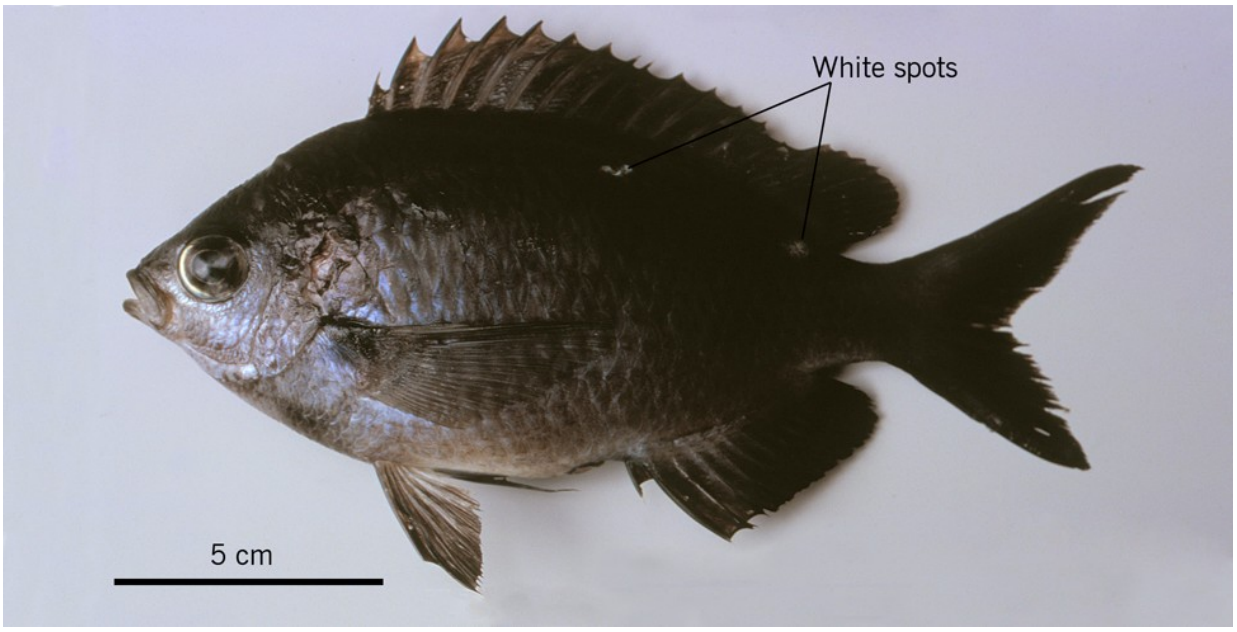
Family: 411. Pomacentridae (damselfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: TSD



Distinguishing features: Body blue-grey with 2 prominent white spots on back.

Colour: Body blue-grey with 2 prominent white spots on back. Base of inner pectoral fin black. Small juveniles olive green with 2 white spots.

Size: 18 cm FL.

Distribution: Kermadec Islands, Three Kings Islands to Castlepoint and Cape Egmont. Known only from New Zealand.

Depth: 0 to 60 m, possibly deeper.

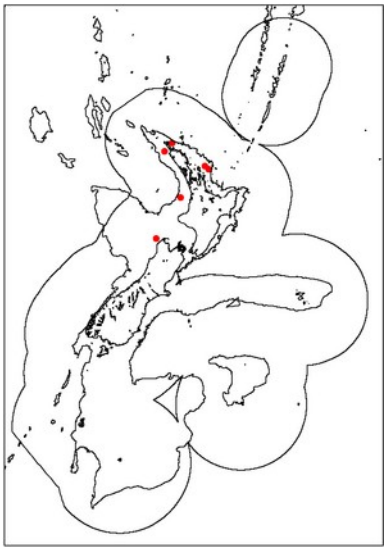
Similar species: Single-spot demoiselle (*Chromis hypsilepis*) has a one white spot at the rear of the dorsal fin, and is yellowish-green.

Biology & ecology: Schools near reefs in coastal waters.

References

Doak (1972), Francis (2001).

Foxfish
Bodianus flavipinnis



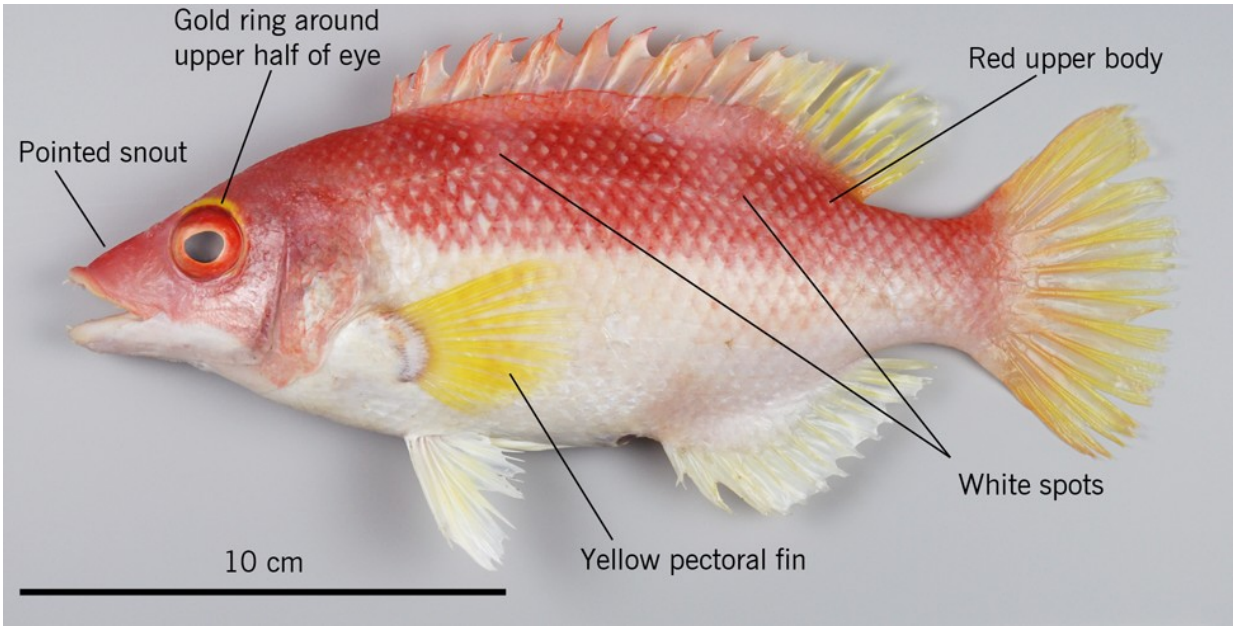
Family: 412. Labridae (wrasses)

Maori names: Kotakota

Other names: n.a.

MFish reporting code: FOX

MFish research code: FOX



Distinguishing features: Snout pointed, red body with yellow pectoral fins.

Colour: Bright red with white lower jaw and belly, 2 white spots on back (may be faint), pectoral fin bright yellow, tail and rear of dorsal fin yellowish, gold ring around upper half of eye.

Size: 40 cm TL.

Distribution: Cape Reinga to Hawke Bay and Farewell Spit. Also Australia (Qld to Tas).

Depth: 30 to 250 m, probably deeper.

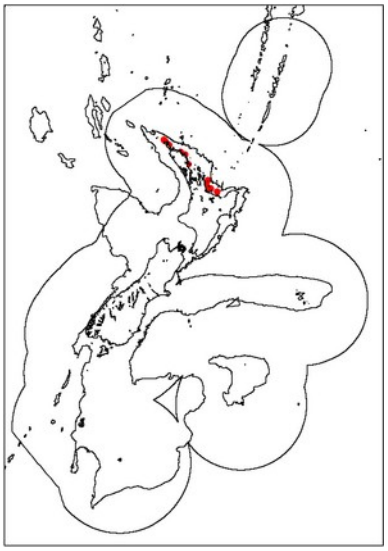
Similar species: Red pigfish (*Bodianus unimaculatus*) female has 3 horizontal rows of dark red dashes on the body, male has red head and body with large pale blotch on back (fresh) and both lack yellow pectoral fins. Gold-stripe wrasse (*B. flavifrons*) has 2 broad gold stripes across the snout between the eyes.

Biology & ecology: Demersal on rocky reefs. Possibly occurs in more open habitats in deeper water as it is frequently trawled in Australia.

References

Francis (2001), Gomon (2001), Roberts & Stewart (2002).

Red pigfish
Bodianus unimaculatus



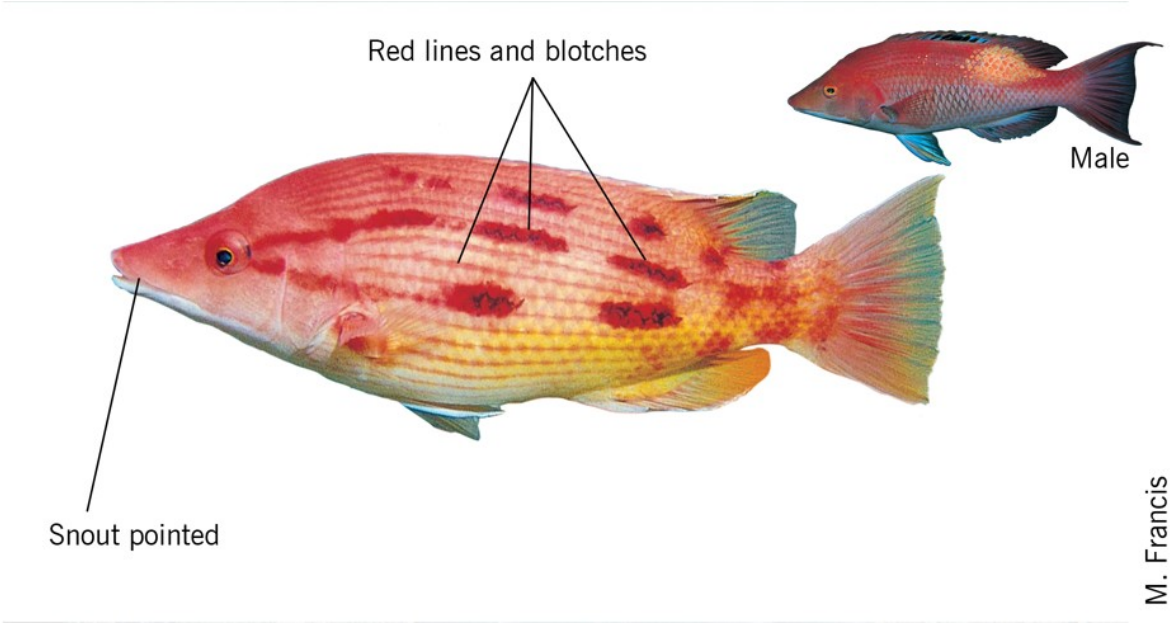
Family: 412. Labridae (wrasses)

Maori names: Paakurakura

Other names: n.a.

MFish reporting code: RPI

MFish research code: RPI



Distinguishing features: Snout pointed, colour patterns of males and females distinctive.

Colour: Females cream-white with pink upper back and snout, 3 horizontal rows of blood-red dashes, 2 originating from eye, interspersed with thin red dotted lines. Males have red head and body, large cream patch on back, and large blue-rimmed black blotch on first dorsal fin.

Size: Males to 50 cm TL. Females change sex and colour pattern at 25 to 30 cm.

Distribution: Kermadec Islands to East Cape. Also South Pacific from eastern Australia to Easter Island.

Depth: 0 to 60 m or more.

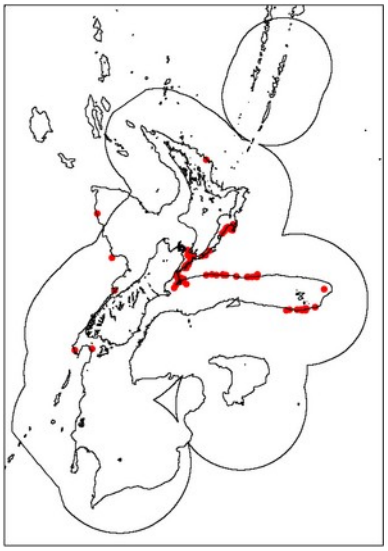
Similar species: Foxfish (*Bodianus flavipinnis*) has red upper body with a yellow pectoral fin. Gold-stripe wrasse (*B. flavifrons*) has 2 broad gold stripes across the snout between the eyes.

Biology & ecology: Demersal on rocky reefs.

References

Francis (2001), Gomon et al. (2008), Kuiter (2000).

Limp eelpout
Melanostigma gelatinosum



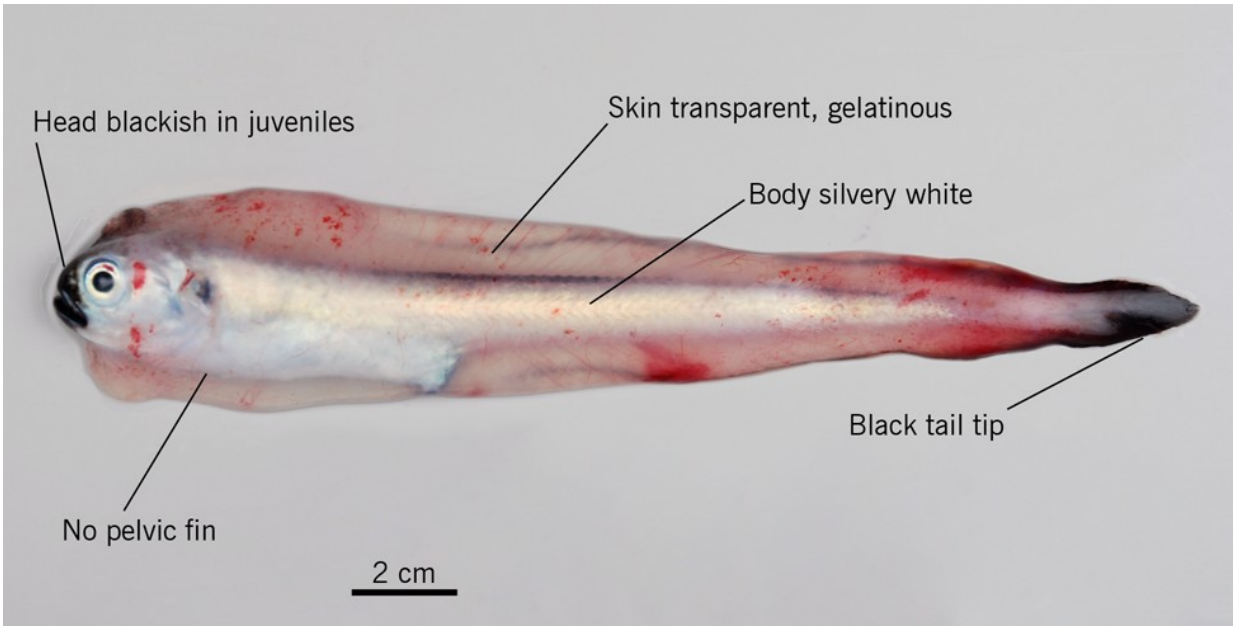
Family: 416. Zoarcidae (eelpouts)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: EPO



Distinguishing features: Skin thin, transparent, and gelatinous. No pelvic fin or scales. Anterior and top of head blackish in juveniles and dusky in adults. Tip of tail and posterior parts of the dorsal and anal fins blackish.

Colour: Anterior and top of head blackish in juveniles and dusky in adults. Tip of tail and posterior parts of the dorsal and anal fins blackish. Most of skin colourless. Most of head and body silvery white or yellowish.

Size: To about 29 cm TL.

Distribution: Widespread in temperate to polar southern hemisphere.

Depth: Midwater at about 40 to 2560 m.

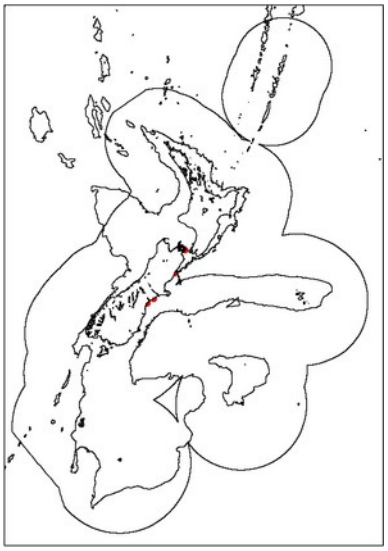
Similar species: *Melanostigma vitiazi* lacks a black tipped tail and adults (to 17 cm TL) have chocolate brown body with black snout, lips, and chin.

Biology & ecology: Poorly known. Numerous juveniles were captured during midwater trawling at depths less than about 500 m in Cook Strait.

References

Anderson (1990), Smith & Heemstra (1986).

Maori chief
Notothenia angustata



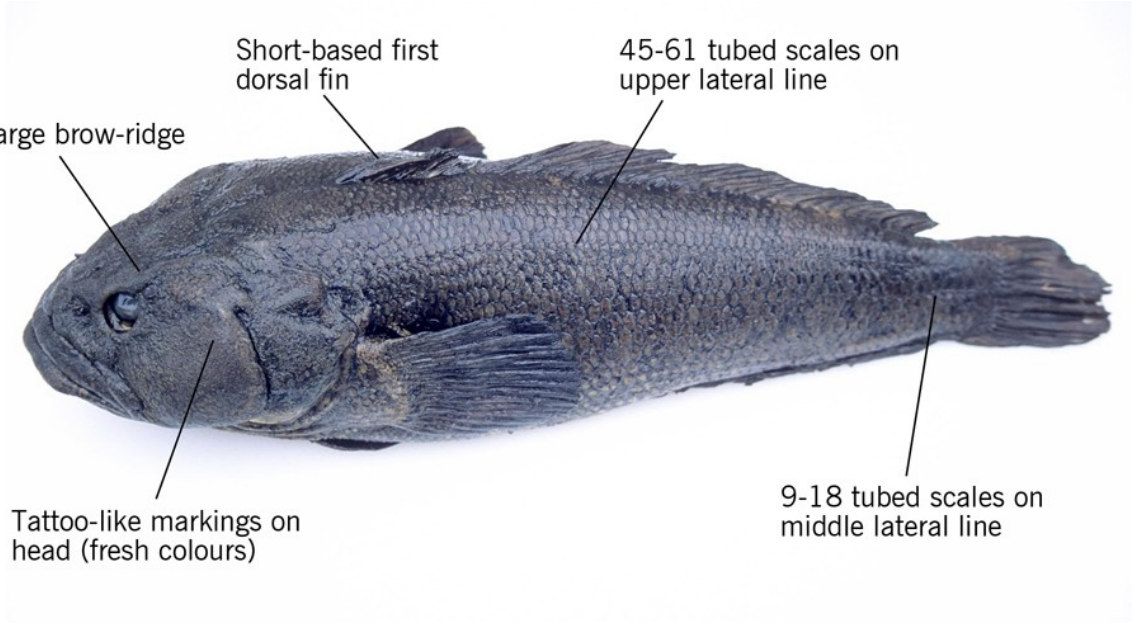
Family: 427. Nototheniidae (cod icefishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: NOT

MFish research code: MCH



Distinguishing features: Large fish have heavy ridges above eyes. Scales large with 49 to 60 in a longitudinal series from the upper end of gill opening to the caudal fin. Long upper lateral line with 45 to 61 tubed scales. Short middle lateral line with 9 to 18 tubed scales running forward from caudal peduncle. Small teeth in jaws. Two dorsal fins, first short-based.

Colour: Dark olive green to black, covered with pale marbling giving a tattoed appearance, base of pectoral fins yellow, belly cream or yellow.

Size: 60 cm TL.

Distribution: Cook Strait to Campbell Islands, Chatham Islands. Most common in south. Also South America.

Depth: 0 to 100 m.

Similar species: Black cod (*Paranotothenia magellanica*) lacks eyebrow ridges and has 47 to 64 scales from the upper end of gill opening to caudal fin, upper lateral line 36 to 46, and middle lateral line 5 to 14 tubed scales. Smallscaled cod (*Notothenia microlepidota*) has smaller scales, 84 to 98 from the upper end of gill opening to caudal fin, upper lateral line 61 to 75, and middle lateral line 24 to 37 tubed scales. Patagonian toothfish (*Dissostichus eleginoides*) has 64 to 77 tubed scales in the middle lateral line and prominent canine-like teeth on roof of mouth.

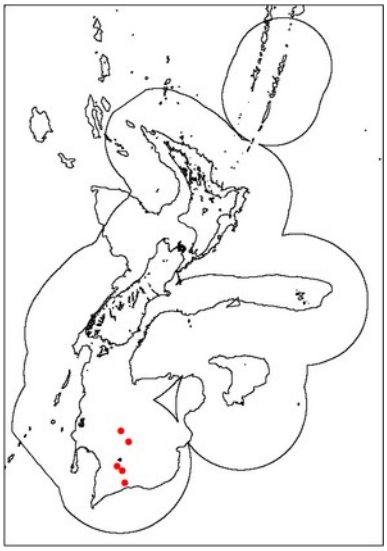
Biology & ecology: Demersal on reefs.

References

DeWitt (1970), Francis (2001), Paulin & Roberts (1992), Stewart (2002).

Black cod

Paranotothenia magellanica



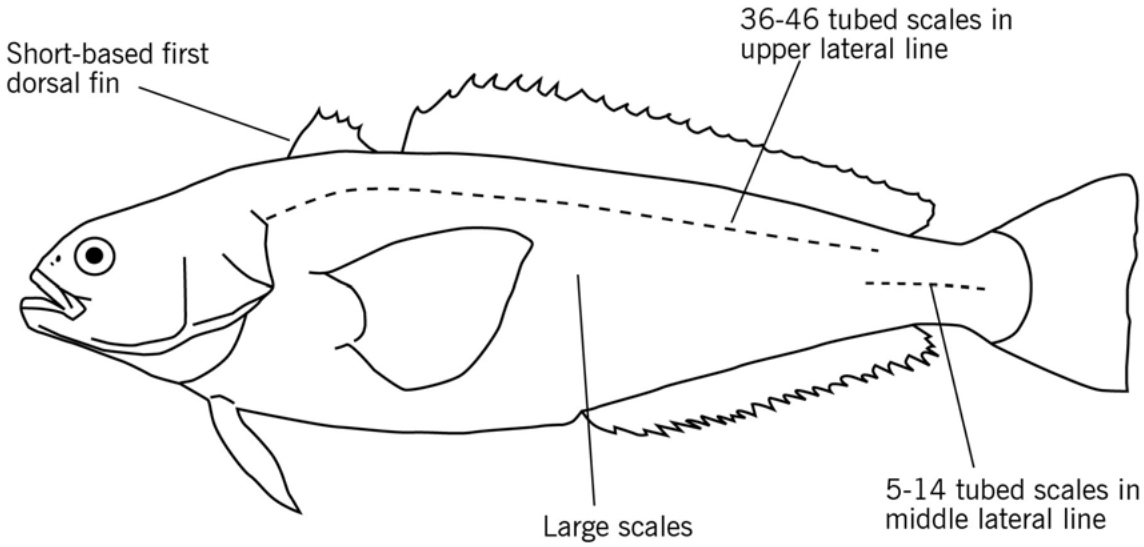
Family: 427. Nototheniidae (cod icefishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: BCD

MFish research code: BCD



Distinguishing features: Scales large with 47 to 64 tubed scales running from upper end of gill opening to near rear end of dorsal fin. Upper lateral line 36 to 46 and middle lateral line 5 to 14 tubed scales. Two dorsal fins, first short-based.

Colour: Back dark blue, grey-green, brown or black, belly cream, gold-yellow or reddish, gill membrane orange or red.

Size: 45 cm TL.

Distribution: Kaikoura to Subantarctic islands. Circumpolar in the Subantarctic, with rare records from the Ross Sea.

Depth: 0 to 250 m.

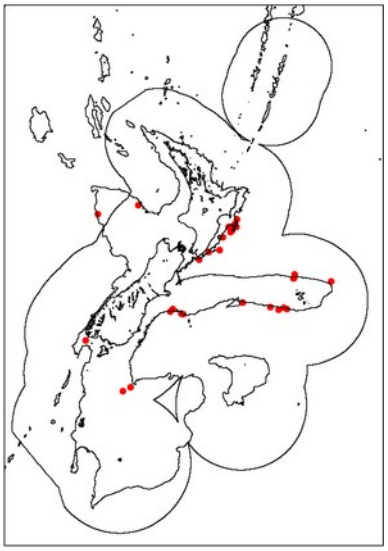
Similar species: Smallscaled cod (*Notothenia microlepidota*) has smaller scales, 84 to 98 from the upper end of gill opening to caudal fin. Upper 61 to 75 and middle lateral line 24 to 37 tubed scales. Maori chief (*Notothenia angustata*) has large eyebrow ridges and 49 to 60 scales from upper end of gill opening to caudal fin. Upper 45 to 61, and middle lateral line 9 to 18 tubed scales. Patagonian toothfish (*Dissostichus eleginoides*) has 64 to 77 tubed scales in the middle lateral line and prominent canine-like teeth on roof of mouth.

Biology & ecology: Demersal on reefs. Juveniles pelagic and may be found in open waters a long distance from land.

References

DeWitt et al. (1990), Stewart (2002).

Black swallower
Chiasmodon microcephalus



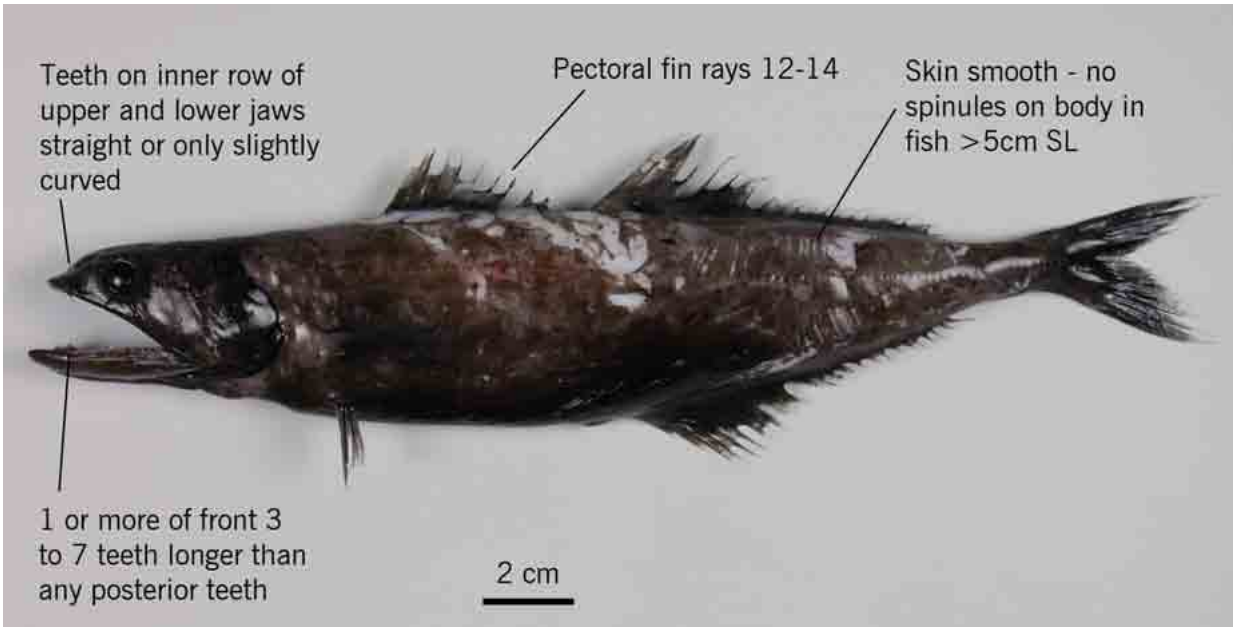
Family: 432. Chiasmodontidae (swallowers)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: CML



Distinguishing features: 2 rows of teeth in upper and lower jaws, outer row of smaller teeth, and inner row of larger teeth. One or more of front 3 to 7 teeth on inner row of lower jaw much longer than any of posterior teeth. Teeth on inner row of upper and lower jaws straight or only slightly curved. 12 to 14 pectoral fin rays. No spinules on body (skin smooth) in fish greater than about 5 cm SL.

Colour: Head, body, and fins dark brownish or blackish.

Size: To about 23 cm SL.

Distribution: Widespread in southern hemisphere between 32 and 54 S.

Depth: Midwater at 150 to 2500 m.

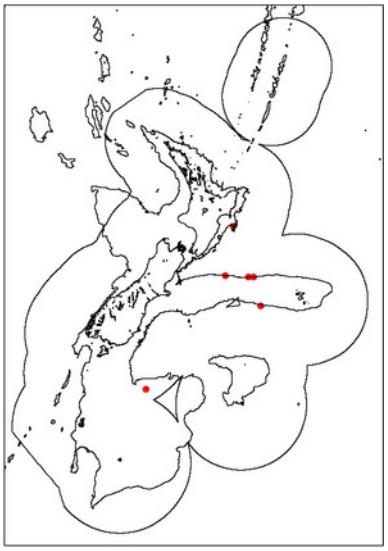
Similar species: Another rarer swallower, *Chiasmodon pluriradiatus* , from northern New Zealand (25 to 38 S) has 15 to 16 pectoral fin rays and fish larger than 5 cm have tiny spinules on skin (not smooth). Species of snake-toothed swallower, *Kali*, have very long, back-curved teeth in both jaws and curved jaws that cannot be closed. Species of *Pseudoscopelus* have 4 or more rows of teeth in upper jaw, inner row has longest teeth. Species of *Dysalotus* have a single row of small slender spines on each side of the lateral line on posterior body and are very rare.

Biology & ecology: Probably ambush predators of fishes. Stretchable stomach and body wall and able to ingest prey larger than themselves.

References

Melo (2009), Prokofiev & Kukuev (2009), Stewart (2000a).

Snake-toothed swallower
Kali indica



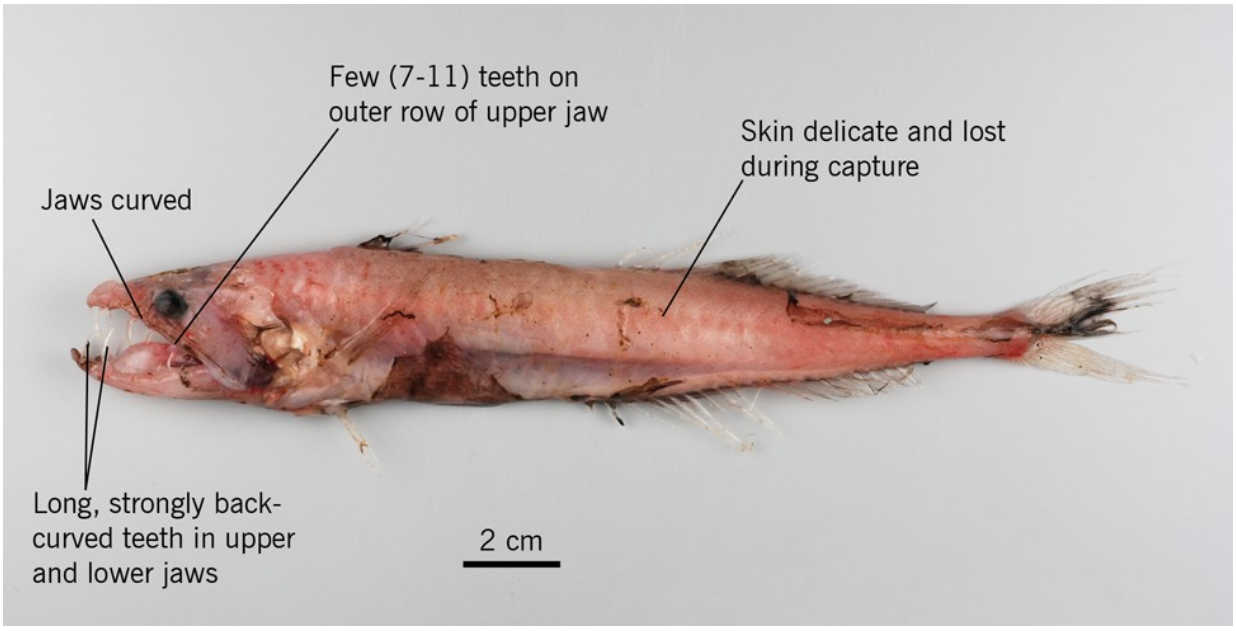
Family: 432. Chiasmodontidae (swallowers)

Maori names: n.a.

Other names: n.a.

MFish reporting code: KAI

MFish research code: KAI



Distinguishing features: 2 rows of teeth in upper and lower jaws, outer row of smaller teeth, and inner row of larger teeth. 3 to 4 strongly back-curved, long teeth in each jaw. 7 to 11 slightly curved teeth in outer row of upper jaw. Curved jaws that cannot be closed. Skin very delicate and often lost during capture.

Colour: Head, body, and fins probably brownish or blackish, but skin often lost.

Size: To about 26 cm SL.

Distribution: Worldwide including the Pacific Ocean from 31 N to 43 S and the southern hemisphere between 50 and 60 S.

Depth: Midwater at about 1400 to 2500 m.

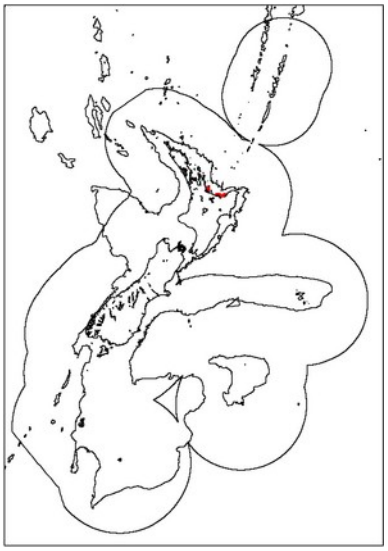
Similar species: *Kali macrodon* has many (10 to 33) close needle-like teeth on outer row of upper jaw. *K. caribbaea* has 13 to 22 close teeth on outer row of upper jaw and small teeth on inner row. Species of swallower, *Chiasmodon* , have teeth on inner row of both jaws straight or only slightly curved. Species of *Pseudoscopelus* have 4 or more rows of teeth in upper jaw, inner teeth longest. Species of *Dysalotus* have rows of small spines near lateral line on posterior body and are rare.

Biology & ecology: Probably ambush predators of fishes.

References

Melo (2008), Prokofiev (2008), Stewart (2000a).

Slender stargazer
Crapatalus angusticeps



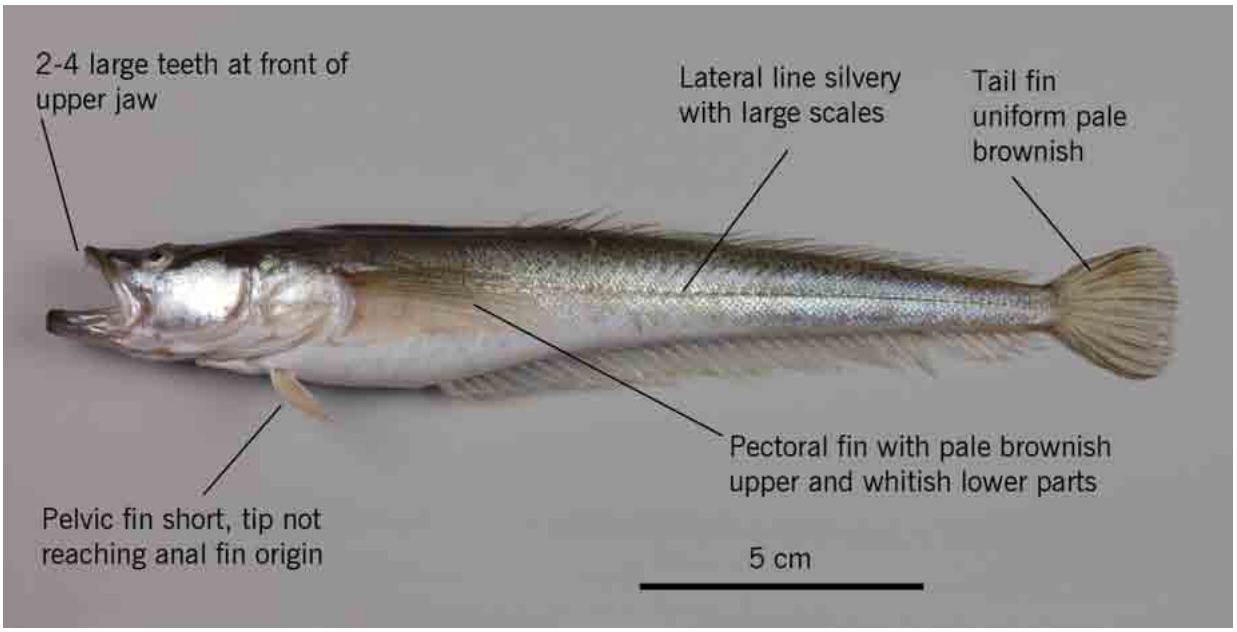
Family: 440. Leptoscopidae (southern sandfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: SLZ



Distinguishing features: Pelvic fin short with tip not reaching back to the anal fin origin. 2 to 4 large teeth near the front of the upper jaw. Tail fin uniformly pigmented, pale brownish and semi-translucent. Pectoral fin with pale brownish upper and whitish lower parts. Sides of the body including lateral line silvery. Obvious scales on side of head and body including lateral line.

Colour: Upper body and head olive-greyish with many small dark spots closely spaced on head, underside whitish. Side of body and head silvery. Tail fin uniformly pale brownish. Pectoral fin with pale brownish upper and whitish lower parts. Dorsal fin pale brownish, pelvic fin whitish, anal fin colourless.

Size: To about 33 cm TL.

Distribution: Known only from New Zealand.

Depth: About 1 to 50 m.

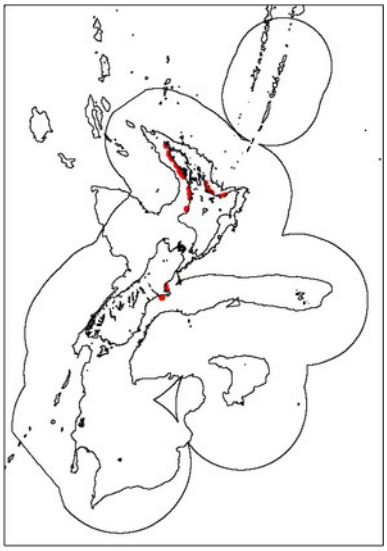
Similar species: Sand stargazer (*Crapatalus novaezelandiae*) has a long pelvic fin with tip reaching past origin of anal fin, and uniformly sized teeth in upper jaw. Estuary stargazer (*Leptoscopus macropygus*) has tail fin with dark upper and lower lobes and a central pale area, pectoral fin with dark upper and pale lower parts, and bold dark band along the lateral line.Other stargazers (Uranoscopidae) have very large spines behind the head above the pectoral fin base, anal fin origin behind dorsal fin origin.

Biology & ecology: Poorly known. Probably confined to shallow coastal water. Benthic.

References

Paulin et al. (1989).

Estuary stargazer
Leptoscopus macropygus



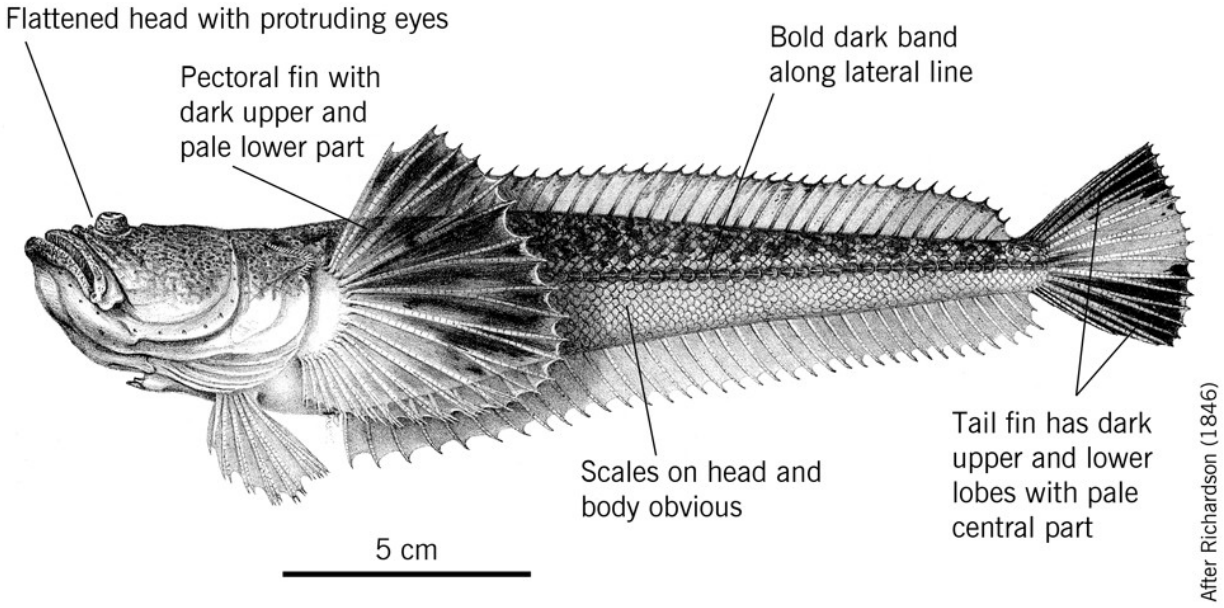
Family: 440. Leptoscopidae (southern sandfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: ESZ

MFish research code: ESZ



Distinguishing features: Flattened upper head with protruding eyes. Oblique mouth opening upwards and fringed with fine papillae. Tail fin has dark upper and lower lobes with a central pale area. Pectoral fin with dark upper and pale lower parts. Bold dark band along the lateral line. Obvious scales on side of head and body including lateral line.

Colour: Dark olive-grey spots on upper head and irregular blotches and lines on upper body extending about two-thirds of the way down to the lateral line. Bold dark band along the lateral line. Sides and lower body creamish to greyish white. Tail fin has dark upper and lower lobes with a central pale area. Pectoral fin with dark upper and pale lower parts.

Size: To about 50 cm TL.

Distribution: Known only from New Zealand. Widespread.

Depth: 1 to about 40 m.

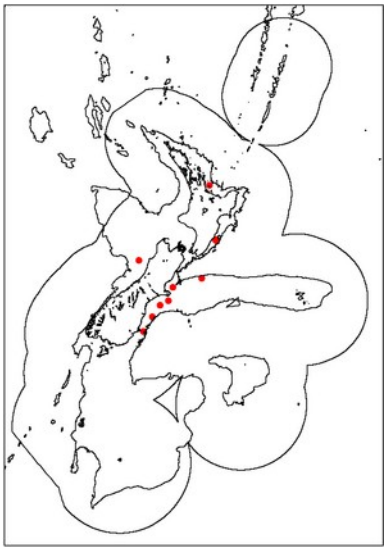
Similar species: Slender stargazer (*Crapatalus angusticeps*) and sand stargazer (*C. novaezelandiae*) have tail and pectoral fins uniformly pigmented pale brownish, and lateral line is silvery. Other stargazers (Uranoscopidae) have very large spines behind the head above the pectoral fin base, anal fin origin behind dorsal fin origin, and most lack obvious scales, except scaly stargazer (*Pleuroscopus*).

Biology & ecology: Inhabits coastal seas, river estuaries, and lowland reaches of gently flowing rivers. The freshwater phase may be only temporary or short-lived, involving juveniles and subadults. Bottom-living and habitually buried in the sediment so that only the head (mouth and eyes) are visible. Predator of small fishes, crabs, marine worms.

References

Graham (1974), McDowall (1990), Richardson (1846).

Dragonets
Foetorepus sp.



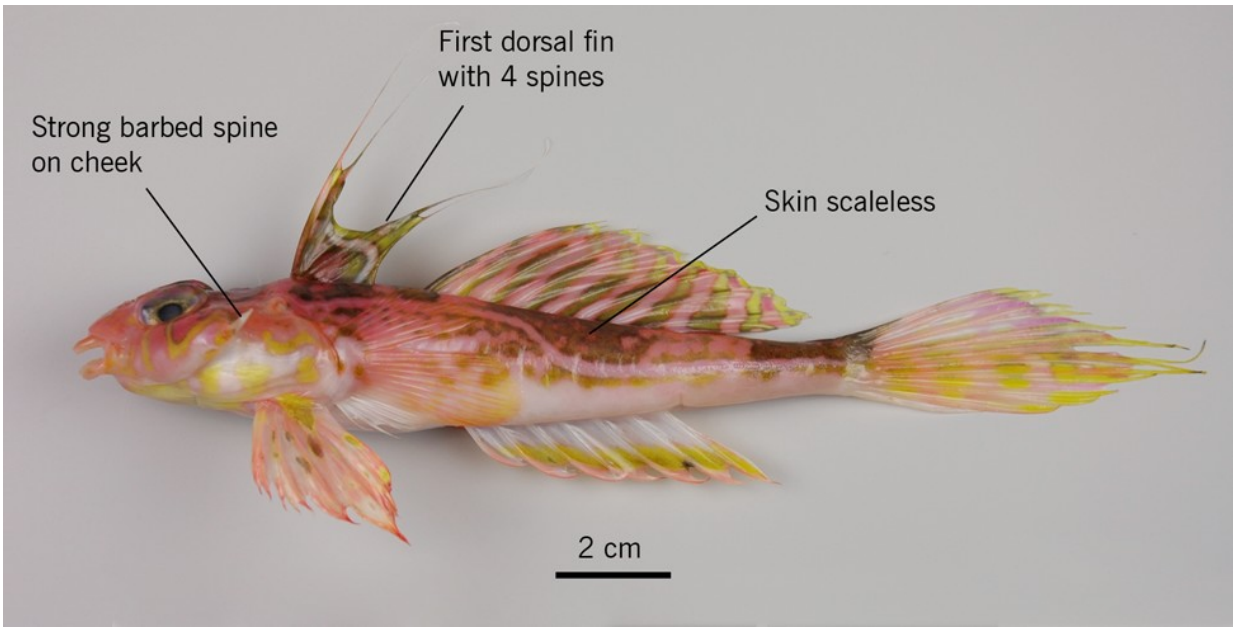
Family: 453. Callionymidae (dragonets)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: DGT



Distinguishing features: Gill opening restricted to a small pore. Strong barbed spine (preopercular) on cheek. Skin lacking scales. First dorsal fin with about 4 (3 to 5) flexible spines. Second dorsal fin long based. Anal fin similar and opposite to second dorsal fin. Small protrusible mouth opening forward and down. Eyes on top of head.

Colour: Depends on the species but can range from sand coloured to conspicuously marked with colourful stripes and spots. Males and females have different colouring and mature males are usually more brightly coloured.

Size: To about 35 cm TL.

Distribution: More likely to be captured in northern New Zealand but at least one species occurs around the South Island.

Depth: About 5 to over 500 m.

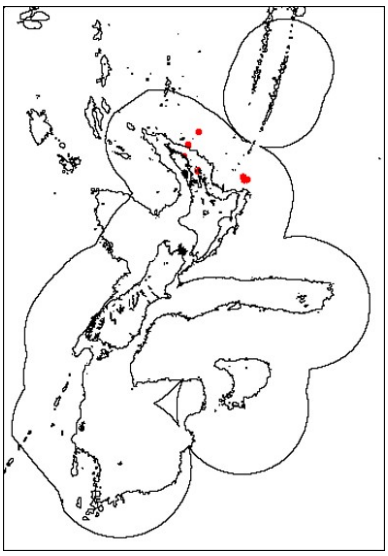
Similar species: There are probably 3 species of dragonet in New Zealand. Orange dragonet (*Foetorepus* sp.) has 3 hooks on preopercular spine. Stinkfish (*F. calauropomus*) has 2 hooks on preopercular spine. Yellow dragonet (*Callionymus japonicus*), known from the Kermadec Ridge, has a serrated upper margin on preopercular spine. No other fishes have the combination of scaleless skin, strong spine on cheek, 3 to 5 flexible spines in first dorsal fin.

Biology & ecology: Benthic and found on sandy or muddy substrates.

References

Fricke (2001), Gomon et al. (2008), Stewart (1998b).

Barracuda
Sphyraena acutipinnis



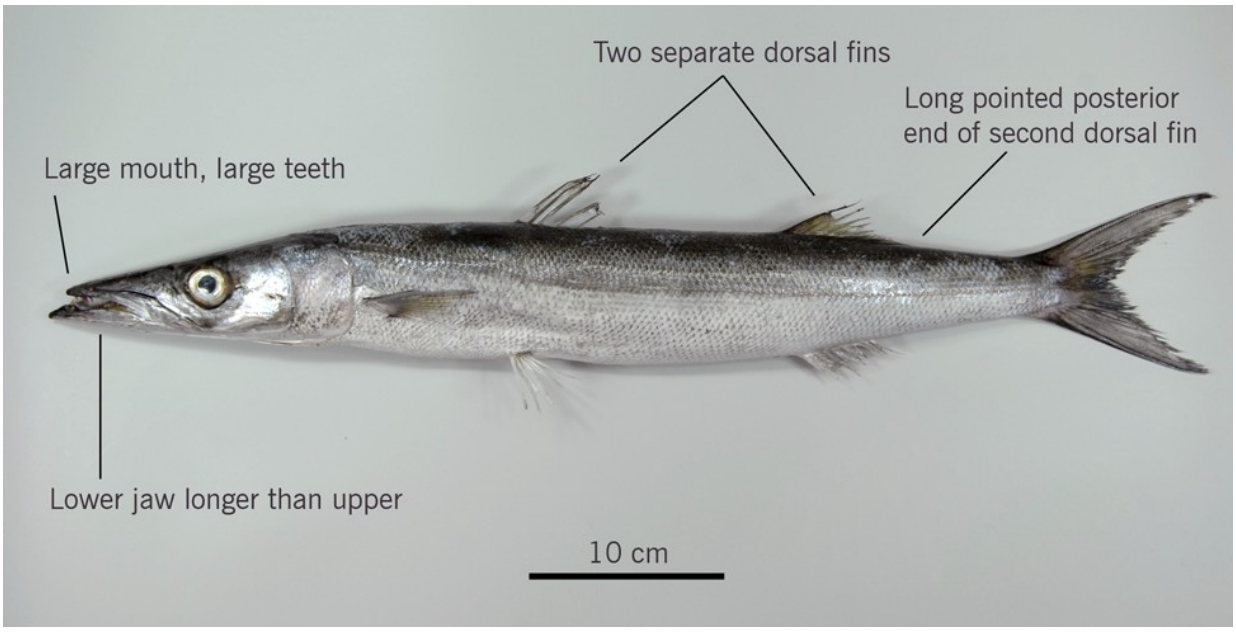
Family: 472. Sphyraenidae (barracudas)

Maori names: n.a.

Other names: Sharpfin barracuda

MFish reporting code: BDA

MFish research code: BDA



Distinguishing features: Two short-based widely separated dorsal fins, the first armed with spines, and the second with soft rays. Long pointed rear tips of second dorsal and anal fins, and a single gill raker at the corner of first gill arch.

Colour: Body silvery, dark dorsally, with two faint yellowish lines running along the body below the lateral line.

Size: To about 80 cm SL.

Distribution: Rare in New Zealand. Recorded from east Northland to the Bay of Plenty. Found in tropical and temperate seas of the Indo-Pacific from Hawaii to South Africa.

Depth: Unknown.

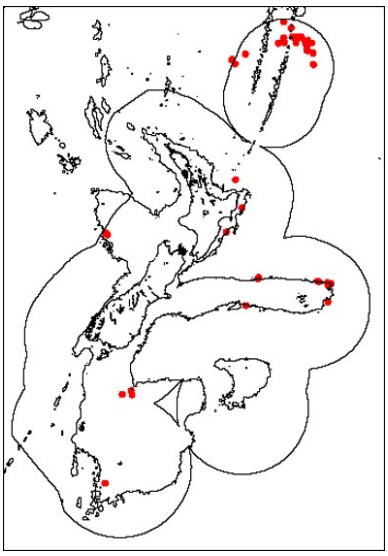
Similar species: No other barracuda species have been confirmed from New Zealand. Barracouta (*Thyrsites atun*) has a long spinous then a shorter soft rayed section of the dorsal fin with separate finlets (five to seven) at the rear. Barracudinas have first dorsal fin origin behind mid-point of body, second dorsal a small lobe-like fin without rays.

Biology & ecology: Pelagic, but probably associated with reefs.

References

King et al. (2009), Stewart (1999a, 1999b).

False frostfish
Paradiplospinus gracilis



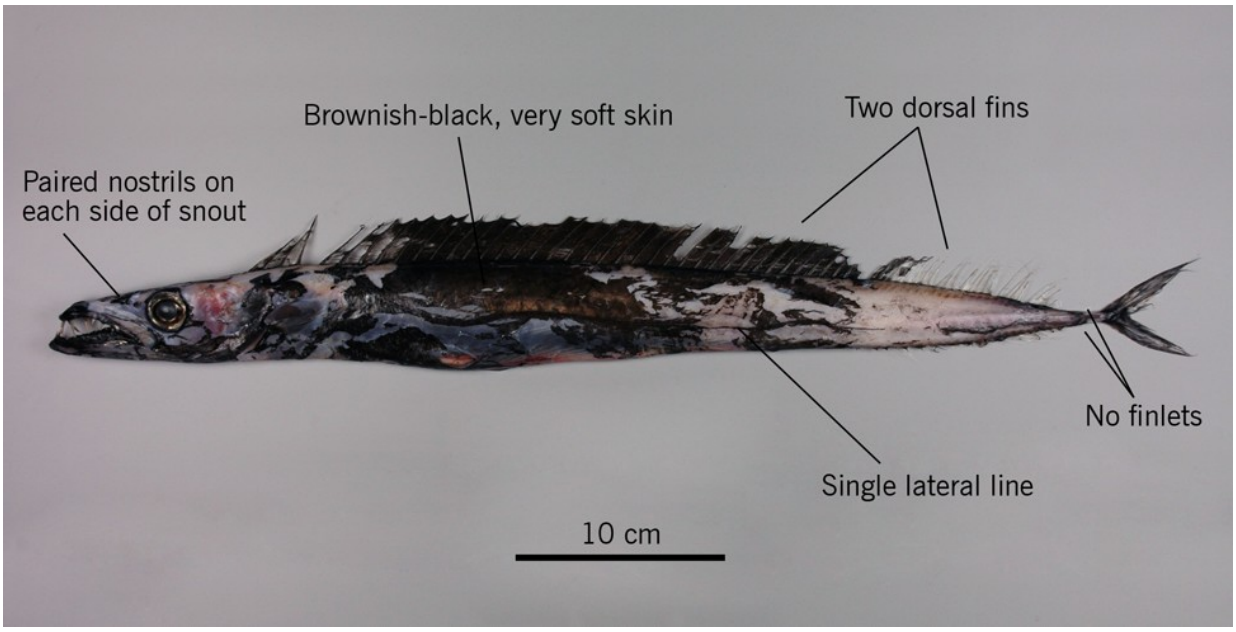
Family: 473. Gempylidae (snake mackerels)

Maori names: n.a.

Other names: Slender escolar

MFish reporting code: PDS

MFish research code: PDS



Distinguishing features: Elongate body with long-based first dorsal fin and short-based second dorsal fin. No finlets behind the second dorsal and anal fins. Single lateral line. Very soft, dark brownish-black skin which may be lost. Paired nostrils on each side of snout.

Colour: Body of adults brownish-black over a silvery layer, juveniles silvery.

Size: To at least 43 cm SL.

Distribution: Fisheries records of this species from New Zealand are uncertain and may include other snake mackerels and cutlassfishes (Trichiuridae).

Depth: About 300 to 600 m.

Similar species: Scabbardfish (*Benthodesmus* spp.) have a short-based first dorsal fin, longer second dorsal fin (twice length of first dorsal fin), and single nostril. Frostfish (*Lepidopus caudatus*) has a single nostril on each side of snout, and a strongly arched profile of the head near origin of the dorsal fin. Black barracouta (*Nesiarchus nasutus*) and snake mackerel (*Gempylus serpens*) have finlets behind the second dorsal and anal fins.

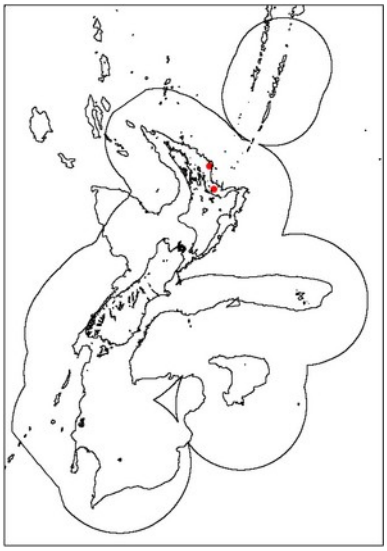
Biology & ecology: Pelagic and midwater over the upper continental slope. Juveniles pelagic.

References

Nakamura & Parin (1993), Stewart (1996), Stewart (1991).

Longfinned gemfish (escolar)

Rexea antefurcata



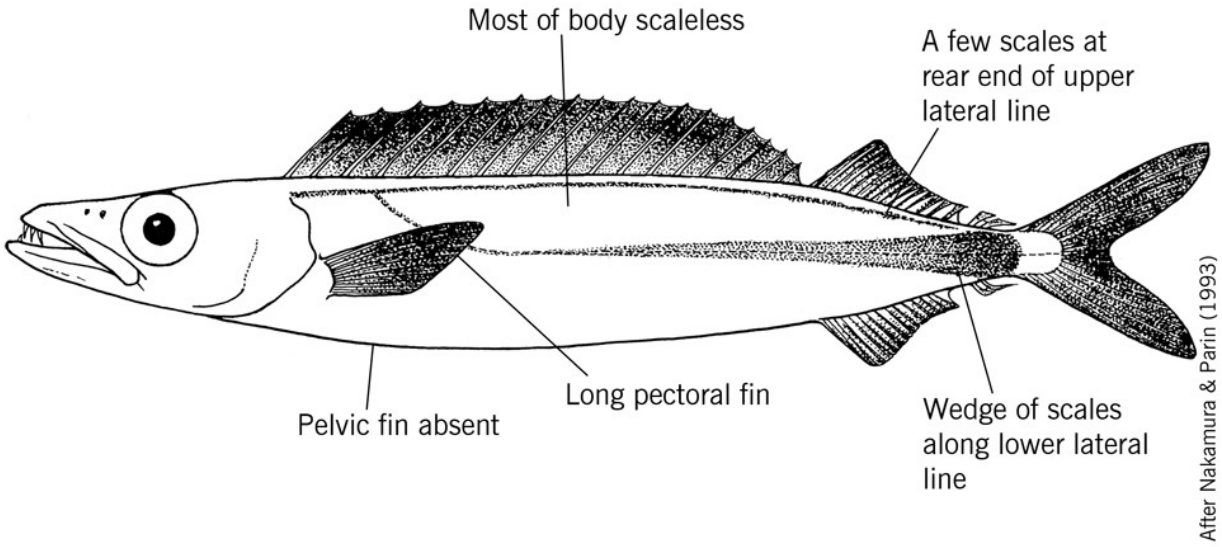
Family: 473. Gempylidae (snake mackerels)

Maori names: n.a.

Other names: n.a.

MFish reporting code: SKI

MFish research code: LFG



Distinguishing features: Pelvic fin absent (small knob below the skin) for fish greater than 25 cm FL, 1 spine for smaller fish. Body scaleless except for wedge from caudal peduncle (wide) forward along lower lateral line (narrow), a few scales on posterior end of upper lateral line. Base of first dorsal fin about 3 times length of second dorsal fin (including finlets at rear). Lower lateral line starts below 3rd to 5th spine of first dorsal fin. Long pectoral fin with tip extending back past curved lower limb of lateral line.

Colour: Body greyish or brownish with metallic tint. First 3 membranes of first dorsal fin jet-black, rest of fin blackish. Pectoral fins greyish posteriorly.

Size: To 73 cm SL.

Distribution: Northern New Zealand north of about 37 S. Also east coast of Australia, southern Fiji, Easter Island and southeast Pacific from 23 to 37 S.

Depth: 126 to 770 m

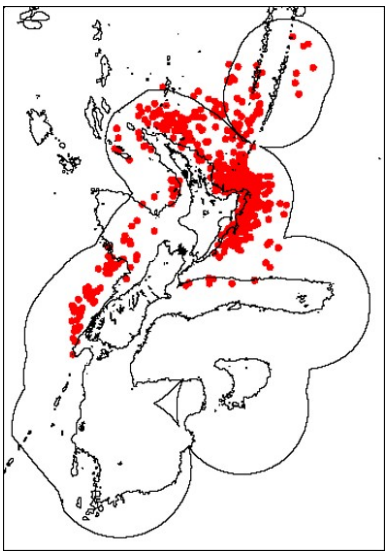
Similar species: Gemfish (*Rexea solandri*) has a shorter pectoral fin with tip that does not reach back to lower limb of lateral line, pelvic fin with 1 spine and 2 to 3 tiny rays, and body entirely covered with minute scales (fish more than 20 cm SL).

Biology & ecology: Demersal. Predator of fishes, prawns, squids. Matures at about 25 cm SL.

References

Nakamura & Parin (1993, 2001).

Oilfish
Ruvettus pretiosus



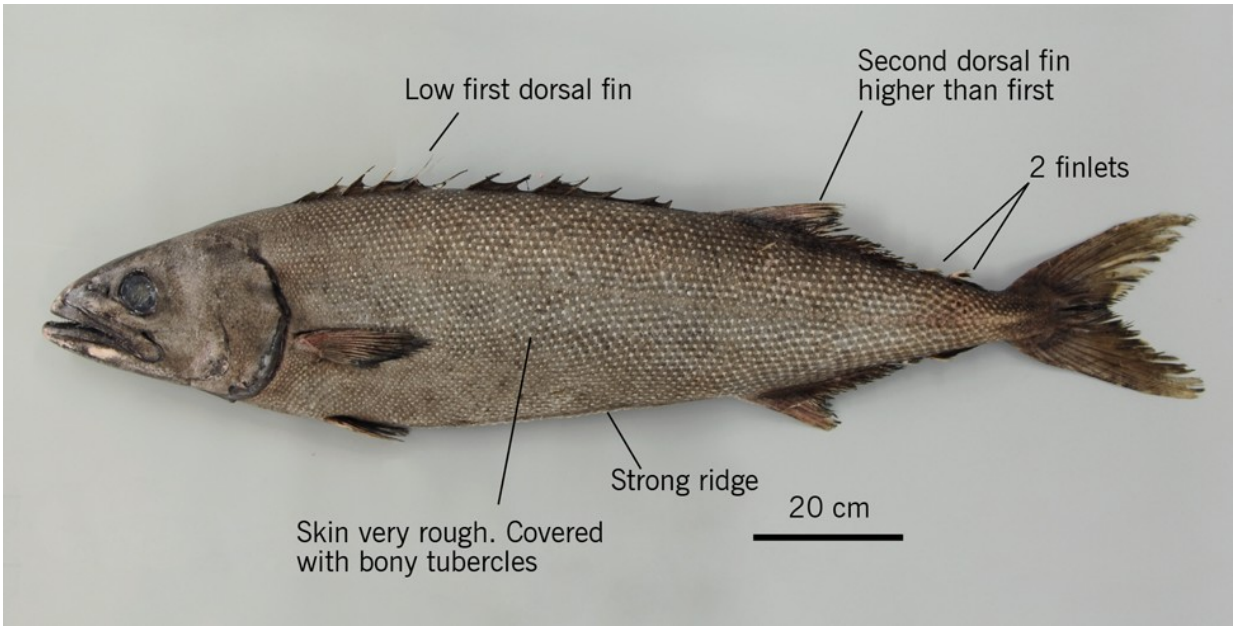
Family: 473. Gempylidae (snake mackerels)

Maori names: n.a.

Other names: n.a.

MFish reporting code: OFH

MFish research code: OFH



Distinguishing features: Skin covered with spinous bony tubercles and very rough to the touch. First dorsal fin low, with higher second dorsal fin followed by two finlets. Strong ridge on mid-line of belly.

Colour: Body uniformly brown to dark brown. Tips of the pectoral and pelvic fins black. Margins of the second dorsal and anal fins white in young specimens.

Size: To about 300 cm TL.

Distribution: Central and northern New Zealand. Widely distributed in tropical and temperate seas of the world.

Depth: 0 to 300 m.

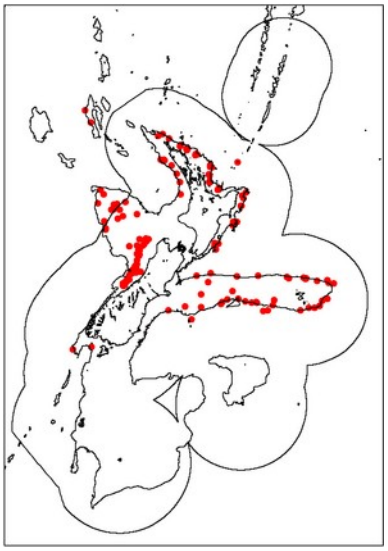
Similar species: Escolar (*Lepidocybium flavobrunneum*) has smooth skin and 3 keels on the caudal peduncle.

Biology & ecology: Oceanic, pelagic on the continental slope and seafloor rises.

References

Bagley et al. (2000), Chapman et al. (2006), Nakamura & Parin (1993), Stewart (1999c), Stewart & Roberts (1999)

Scabbardfish
Benthodesmus spp.



Family: 474. Trichiuridae (cutlassfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: BEN

MFish research code: BEN

Distinguishing features: Spinous first part of dorsal fin about half length of soft second part. Notch between spinous and soft parts of dorsal fin. Small forked tail fin. Single nostril on each side of head. Pelvic fin tiny.

Colour: Silvery greyish head and body.

Size: To 88 cm SL.

Distribution: Widespread in subtropical and temperate southern hemisphere.

Depth: Midwater at 380 to 950 m.

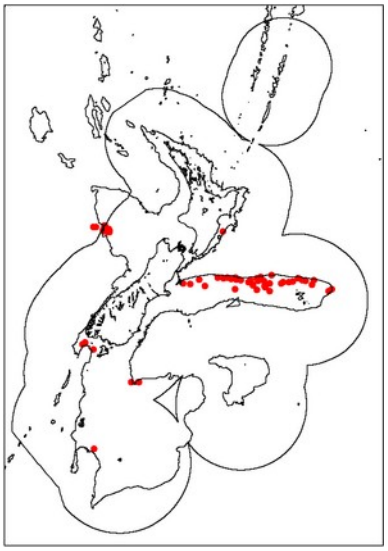
Similar species: Three species of *Benthodesmus* are recorded from New Zealand but identification to species requires microscopic study. Frostfish (*Lepidopus caudatus*) has a strongly arched head profile near dorsal fin origin, and continuous dorsal fin without a notch between short spinous and long soft parts. False frostfish (*Paradiplospinus gracilis*) has a long-based first dorsal fin and short-based second dorsal fin and paired nostrils on each side of snout.

Biology & ecology: Predator of crustaceans, small fishes, and squids.

References

Nakamura & Parin (1993, 2001).

Slender ragfish
Schedophilus huttoni



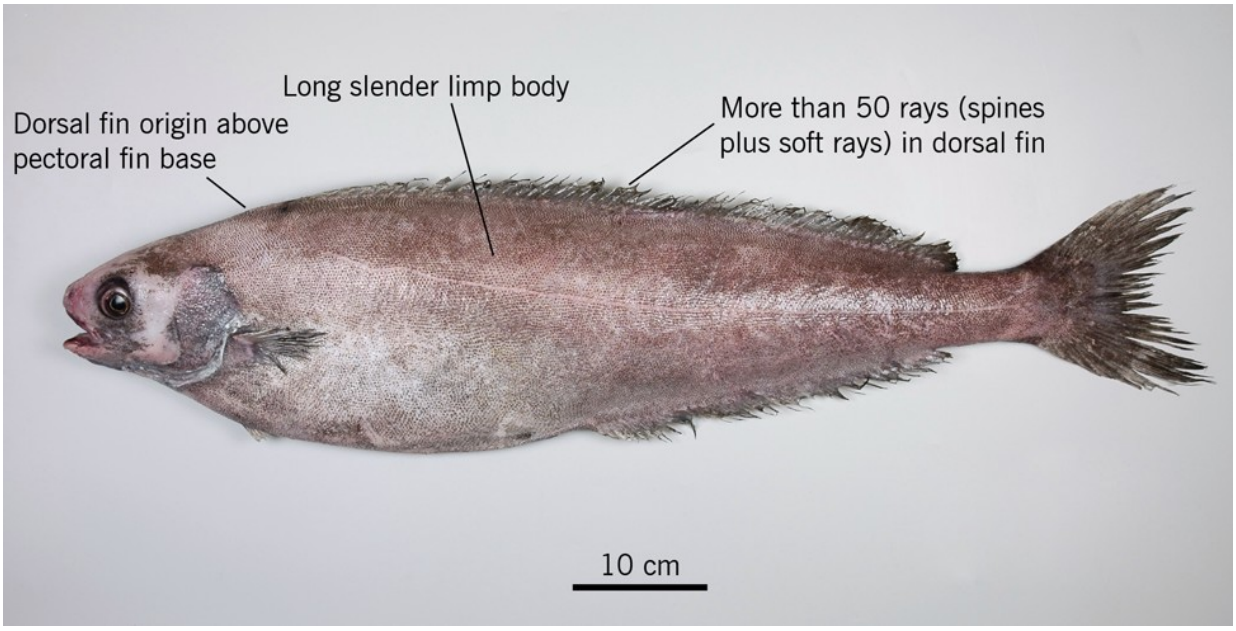
Family: 479. Centrolophidae (medusafishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: CPD

MFish research code: SUH



Distinguishing features: Body elongate, laterally compressed, limp. Dorsal fin long more than 50 (57 to 62) spines plus soft rays, origin above pectoral fin base, anterior spines short and soft. 35 to 41 rays in anal fin.

Colour: Adults have dark brownish body, top of head and fins. Sides of head iridescent greyish. Belly greyish or blackish. Juveniles have dark pigment bars on the dorsal fin which extend onto the trunk.

Size: To about 80 cm FL.

Distribution: Widespread in the southern hemisphere.

Depth: 125 to 1060 m.

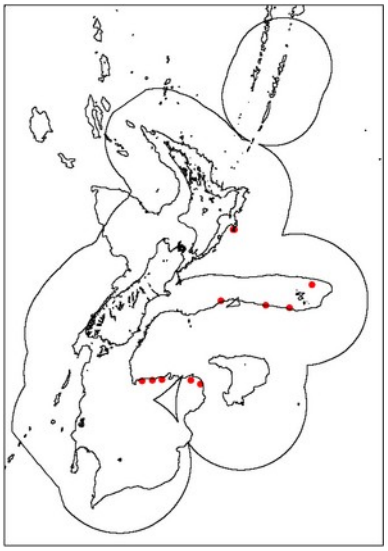
Similar species: Rudderfish (*Centrolophus niger*) has stout thick body, origin of first dorsal fin behind pectoral fin base, short dorsal fin with 37 to 42 rays (spines plus soft rays). Ragfish (*Pseudoicichthys australis*) has large wart-like pores on top of head, dorsal fin origin behind pectoral fin base. Tasmanian ruffe (*Tubbia tasmanica*) has oblique row of small pores at base of each dorsal fin ray, i.e., parallel to fin ray, 47 to 51 dorsal fin rays.

Biology & ecology: Poorly known. Adults appear to be demersal but juveniles are probably midwater.

References

Gomon et al. (2008), McDowall (1982), Paulin et al. (1989).

Pelagic butterfish
Schedophilus maculatus



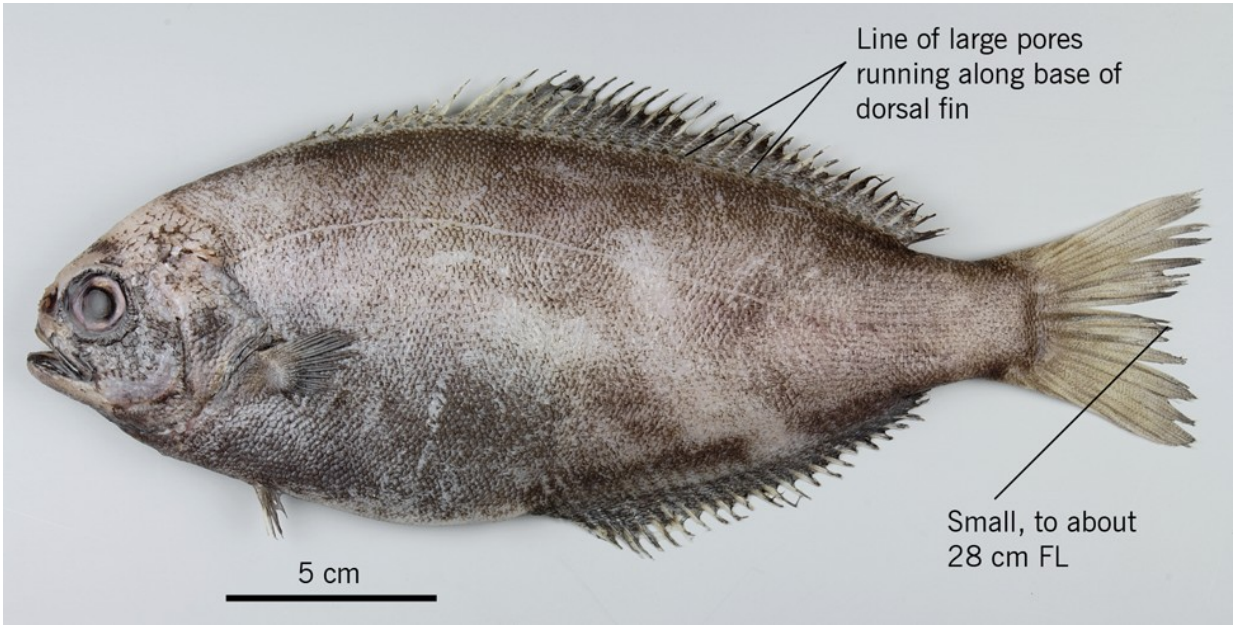
Family: 479. Centrolophidae (medusafishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: SUM

MFish research code: SUM



Distinguishing features: A single line of pores running along the base of the dorsal fin. Dorsal fin short with 35 to 37 rays (spines plus soft rays), and anal fin short with 26 to 27 rays.

Colour: Adults have dark brownish body, darker fins. Juveniles have large dark blotches on head, body and fins.

Size: To about 28 cm FL.

Distribution: Probably widespread in the southern hemisphere. Possibly restricted to northern New Zealand waters.

Depth: Uncertain. Possibly midwater at times.

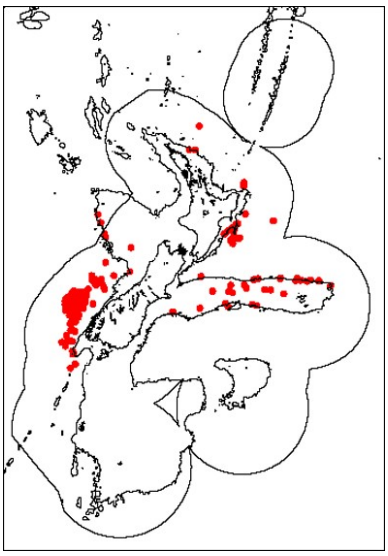
Similar species: Tasmanian ruffe (*Tubbia tasmanica*) has oblique row of small pores at base of each dorsal fin ray, i.e., parallel to fin ray, 47 to 51 dorsal fin rays. Ragfish (*Pseudoicichthys australis*) has large wart-like pores on top of head, dorsal fin origin behind pectoral fin base. Slender ragfish (*Schedophilus huttoni*) has long body, long dorsal (57 to 62 spines plus soft rays) and anal fins (35 to 41 rays).

Biology & ecology: Poorly known. Few adults are known. Juveniles are from midwater.

References

McDowall (1982), Paulin et al. (1989).

Cubehead
Cubiceps spp.



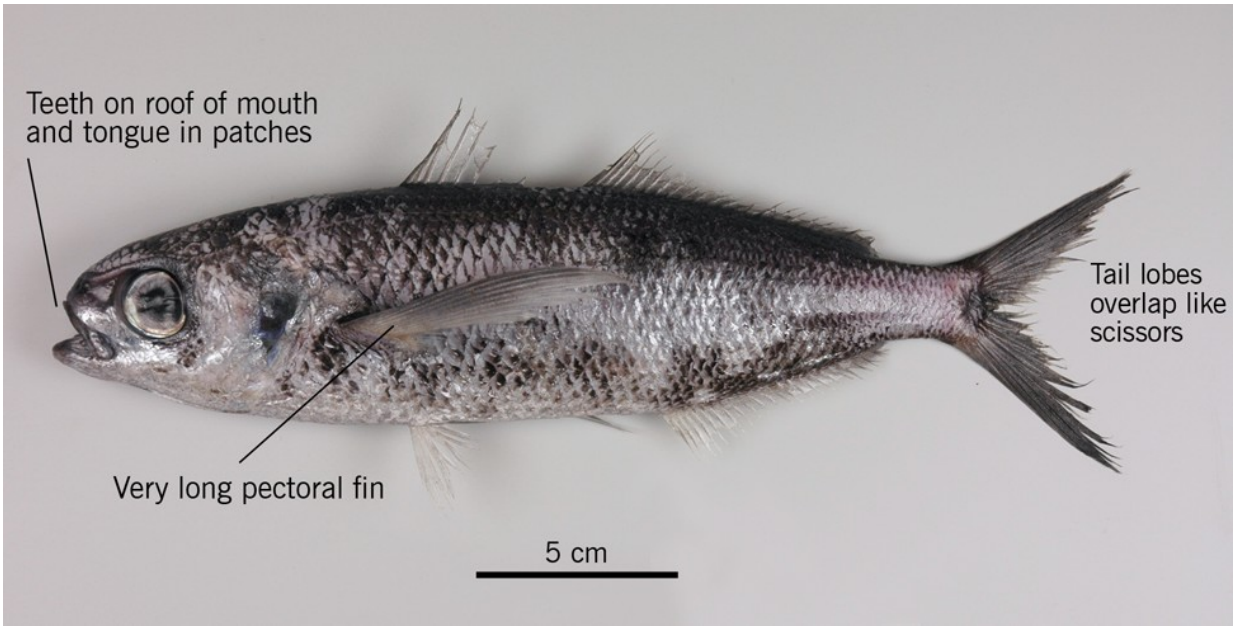
Family: 480. Nomeidae (driftfishes)

Maori names: n.a.

Other names: Scissortail

MFish reporting code: CUB

MFish research code: CUB



Distinguishing features: Elongate cylindrical body with large and rounded head (about 30% of length). Large eye, and long pectoral fins. Two distinctly separate dorsal fins. Teeth on roof of mouth and tongue. Lobes of the tail overlap like scissors at the midline.

Colour: Body pale to dark blue-grey for blue cubehead and dark brown to black for black cubehead, but colours fade on death.

Size: Black cubehead attains about 80 cm and blue cubehead about 30 cm FL.

Distribution: Caught around the North Island and the west coast of the South Island. Found worldwide in warm to cool temperate waters.

Depth: 1 to 100 m.

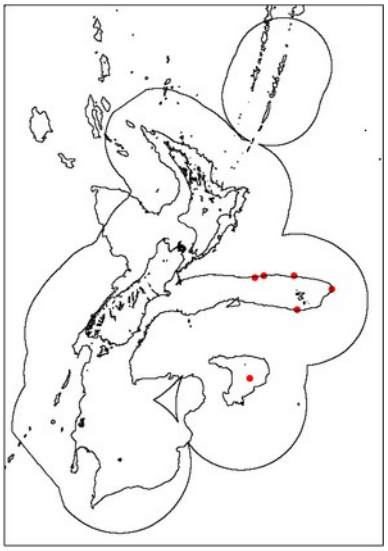
Similar species: Blue cubehead (*C. caeruleus*) has an oval patch of teeth on the tongue. Black cubehead (*Cubiceps baxteri*) has teeth on the roof of the mouth and tongue in a straight line.

Biology & ecology: Pelagic, form schools in the open sea.

References

Stewart & Roberts (2002).

Prickly flounder
Achiropsetta tricholepis



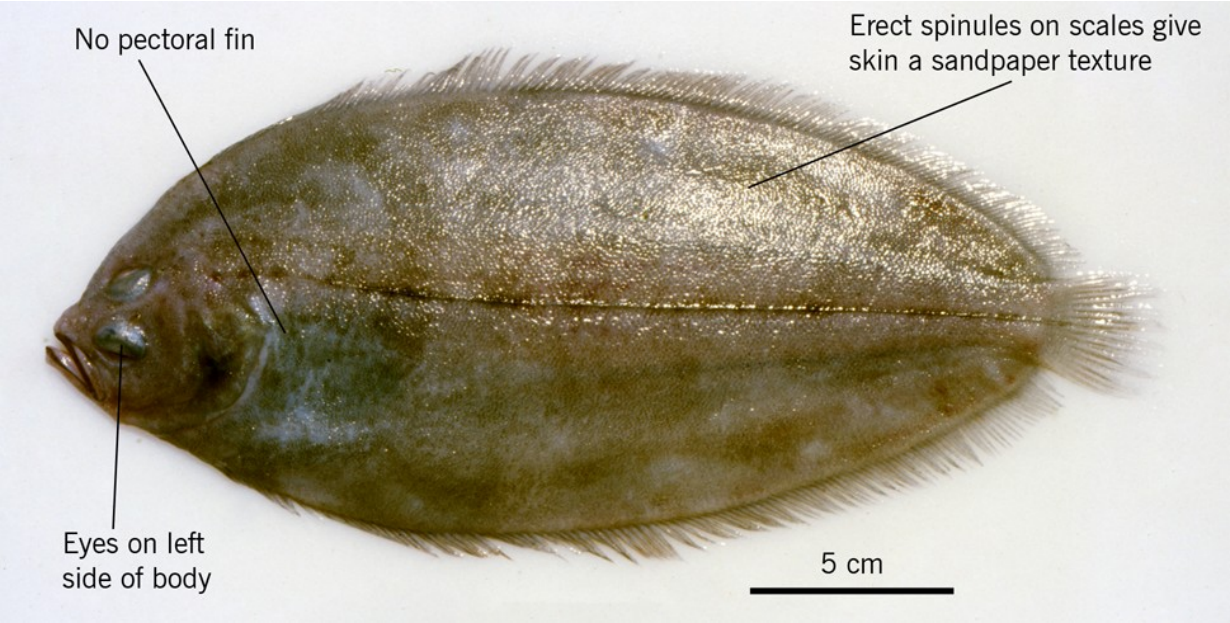
Family: 498. Achiropsettidae (southern flounders)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: ACT



Distinguishing features: No pectoral fin. Eyes on left side of body. Body scales have erect spinules giving skin a sandpaper-like texture (moving from head to tail).

Colour: Body brownish or greyish sometimes with darker mottling.

Size: To at least 39 cm TL.

Distribution: New Zealand distribution uncertain but recorded from Chatham Rise and Bounty Plateau. Widespread in the Subantarctic.

Depth: 100 to 1000 m.

Similar species: Finless flounder (*Mancopsetta milfordi*) has body scales that lack erect spinules giving skin a smooth texture (moving from head to tail). The taxonomy of *Achiropsetta* and *Mancopsetta* is uncertain.

Biology & ecology: Demersal.

References

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Neoscopelidae	Blackchins	199	22, 74
Nettastomatidae	Duckbill eels	87	18, 46
Nomeidae	Driftfishes	480	30, 152
Notacanthidae	Spiny eels	73	17, 40
Notosudidae	Waryfishes	191	20, 67
Nototheniidae	Cod icefishes	427	28, 138
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Pomfrets	Bramidae	367	27, 120
Prickly anglerfishes	Himantolophidae	237	24, 100
Ribbonfishes	Trachipteridae	206	22, 76
Roughies	Trachichthyidae	280	25, 108
Sabertooth fishes	Evermannellidae	194	21, 70
Sawtooth eels	Serrivomeridae	88	18, 48
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Sleeper sharks	Somniosidae	37	17, 39
Slickheads	Alepocephalidae	171	19, 53
Snake eels and worm eels	Ophichthidae	81	17, 42
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Snipe eels	Nemichthyidae	85	17, 43
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Spinyfins	Diretmidae	277	25, 107
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Trumpeters	Latridae	406	28, 132
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Alepisaurus ferox	Longsnouted lancetfish	LAT	LAT	71
Anoplogaster cornuta	Fangtooth	UNI	ANO	106
Aplodactylus arctidens	Marblefish	GTR	GTR	129
Argyropelecus gigas	Giant hatchetfish	UNI	AGI	56
Astronesthes spp.	Snaggletooths	UNI	ASE	59
Avocettina spp.	Black snipe eel	DWE	AVO	43
Bathypterois spp.	Feeler fish	TRI	TRI	68
Benthodesmus spp.	Scabbardfish	BEN	BEN	149
Bodianus flavipinnis	Foxfish	FOX	FOX	135
Bodianus unimaculatus	Red pigfish	RPI	RPI	136
Borostomias antarcticus	Antarctic snaggletooth	BAN	BAN	60
Brama australis	Southern bream	UNI	SRB	120
Callanthias allporti	Southern splendid perch	SPP	SPP	117
Callanthias australis	Northern splendid perch	NSP	NSP	118
Caprodon longimanus	Pink maomao	PMA	PMA	113
Caristius sp.	Largemouth manefish	UNI	PLA	125
Cataetyx niki	Brown brotula	CAN	CAN	98
Ceratias spp.	Seadevils	UNI	CER	101
Chauliodus sloani	Viperfish	CHA	CHA	61
Cheilodactylus spectabilis	Red moki	RMO	RMO	130
Chiasmodon microcephalus	Black swallower	UNI	CML	140
Chimaera panthera	Leopard chimaera	CHI	CPN	34
Chromis dispilus	Twospot demoiselle	UNI	TSD	134
Cirrhigaleus australis	Southern mandarin dogfish	OSD	MSH	37
Coelorinchus infuscus	Dusky rattail	RAT	CGX	78
Coelorinchus kermadecus	Kermadec rattail	RAT	CKE	79
Coelorinchus mystax	Patterned rattail	RAT	CIX	80
Coelorinchus spathulatus	Spatulate rattail	RAT	CSP	81
Coryphaenoides armatus	Cosmopolitan rattail	COM	COM	82
Coryphaenoides microstomus	Small mouth rattail	RAT	CMI	83
Coryphaenoides rudis	Bighead rattail	RAT	CRD	84
Crapatalus angusticeps	Slender stargazer	UNI	SLZ	142
Cryptopsaras couesii	Warty seadevil	SDE	SDE	102
Cubiceps spp.	Cubehead	CUB	CUB	152
Cynomacrurus piriei	Dogtooth rattail	RAT	CPI	85
Diplophos spp.	Twin light dragonfishes	UNI	DIP	54
Diretmus argenteus	Discfish	DIS	DIS	107
Echiodon cryomargarites	Messmate fish	UNI	ECR	97
Epinephelus octofasciatus	Convict grouper	CGR	CGR	114
Etmopterus molleri	Moller's lantern shark	EMO	EMO	38
Eurypharynx pelecanoides	Gulper eel	GUL	GUL	49
Evermannella balbo	Brown sabretooth	UNI	EVB	70
Foetorepus sp.	Dragonets	UNI	DGT	144
Gigantactis spp.	Whipnose anglers	BAF	GIG	103
Gnathophis umbrellabius	Umbrella conger	DWE	UEE	45
Gonostoma bathyphilum	Deepsea lightfish	UNI	GBT	55
Guttigadus globiceps	Codling	MOD	GGC	91
Haplomacrourus nudirostris	Naked snout rattail	RAT	HAN	86

Haplophryne mollis	Phantom angler	UNI	LPH	104
Harriotta haeckeli	Smallspine spookfish	UNI	HHA	33
Himantolophus spp.	Prickly anglerfish	BAF	HIM	100
Hymenocephalus spp.	Glasshead rattail	RAT	HYM	87
Hypoplectrodes huntii	Red banded perch	RBP	RBP	115
Idiacanthus spp.	Black dragonfishes	UNI	IDI	62
Kali indica	Snake-toothed swallower	UNI	KAI	141
Lampanyctodes hectoris	Hector's lanternfish	LAN	LHE	75
Latridopsis forsteri	Copper moki	CMO	CMO	132
Lepidion inosimae	Round tooth lepidion	LEG	LPI	92
Lepidoperca tasmanica	Red lined perch	WLP	WLP	116
Leptoscopus macropygus	Estuary stargazer	ESZ	ESZ	143
Magnisudis prionosa	Giant barracudina	BCA	BCA	73
Malacosteus australis	Southern loosejaw	UNI	MAU	63
Maurolicus australis	Pearlside	UNI	MMU	57
Melanocetus johnsonii	Humpback anglerfish	BAF	MEJ	99
Melanolagus bericoides	Bigscale blacksmelt	UNI	MEB	50
Melanonus gracilis	Small toothed pelagic cod	UNI	MEL	95
Melanonus zugmayeri	Large toothed pelagic cod	UNI	MEZ	96
Melanostigma gelatinosum	Limp eelpout	UNI	EPO	137
Melanostomias spp.	Scaleless black dragonfishes	MST	MEN	64
Mendosoma lineatum	Telescope fish	TEL	TEL	133
Mitsukurina owstoni	Goblin shark	OSD	GOB	35
Muraenolepis orangiensis	Eel cod	MRL	MWO	77
Nemadactylus sp.	King tarakihi	TAR	KTA	131
Nemichthys curvirostris	Snipe eel	DWE	NCU	44
Neomyxine biniplicata	Slender hagfish	UNI	NBI	32
Neophrynichthys heterospilos	Variable spotted toadfish	TOA	VST	112
Neoscopelus macrolepidotus	Large scaled blackchin	UNI	NML	74
Nettastoma parviceps	Duckbill eel	DWE	NET	46
Nezumia coheni	Cohen's rattail	RAT	NZC	88
Nezumia kapala	Kapala rattail	RAT	NZK	89
Normichthys yahganorum	Tubeshoulder	UNI	NOR	51
Notacanthus chemnitzi	Giant spineback	DWE	NOC	40
Notothenia angustata	Maori chief	NOT	MCH	138
Omosudis lowei	Hammerjaw	UNI	OMO	72
Ophisurus serpens	Snake eel	OSE	OSE	42
Opostomias micripnus	Giant black dragonfish	MST	OMI	65
Optivus elongatus	Slender roughy	SLR	SLR	108
Oreosoma atlanticum	Ox-eye oreo	UNI	OXO	109
Paracaristius sp.	Veilfin manefish	CST	CST	126
Paradiplospinus gracilis	False frostfish	PDS	PDS	146
Paranotothenia magellanica	Black cod	BCD	BCD	139
Parmaturus macmillani	McMillan's catshark	PCS	PCS	36
Persparsia kopua	Tubeshoulder	PER	PER	52
Phosichthys argenteus	Lighthouse fish	PHO	PHO	58
Physiculus luminosa	Luminous cod	MOD	PLU	93
Poromitra sp.	Bigscale fish	UNI	MPH	105
Pseudophycis breviuscula	Northern bastard cod	BRC	BRC	94
Pteraclis velifera	Wingfish	WIN	WIN	121
Pterycombus petersii	Fanfish	FAN	FAN	122
Rexea antefurcata	Longfinned gemfish (escolar)	SKI	LFG	147
Rosenblattia robusta	Rotund cardinalfish	UNI	ROS	119
Rouleina guentheri	Slickhead	SLK	RGN	53

Ruvettus pretiosus	Oilfish	OFH	OFH	148
Schedophilus huttoni	Slender ragfish	CPD	SUH	150
Schedophilus maculatus	Pelagic butterfish	SUM	SUM	151
Scopelarchoides kreffti	Krefft's pearleye	UNI	SKR	69
Scopelosaurus spp.	Waryfishes	SPL	SPL	67
Scorpaena papillosa	Dwarf scorpion fish	RSC	RSC	111
Scorpis lineolatus	Sweep	SWE	SWE	127
Scorpis violaceus	Blue maomao	BMA	BMA	128
Serrivomer spp.	Sawtooth eel	DWE	SAW	48
Solegnathus spinosissimus	Spiny seadragon	SDR	SDR	110
Somniosus antarcticus	Southern sleeper shark	OSD	SMI	39
Sphyraena acutipinnis	Barracuda	BDA	BDA	145
Squalogadus modificatus	Balloonhead rattail	RAT	SQM	90
Stomias spp.	Scaly dragonfishes	UNI	STO	66
Synaphobranchus affinis	Grey cutthroat eel	SYN	SAF	41
Taractes asper	Flathead pomfret	TAS	TAS	123
Venefica sp.	Periscope duckbill eel	DWE	VEN	47
Xenobrama microlepis	Bronze bream	UNI	BBR	124

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Common name	Scientific name	MFish reporting code	MFish research code	Page
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Balloonhead rattail	*Squalogadus modificatus*	RAT	SQM	90
Barracuda	*Sphyraena acutipinnis*	BDA	BDA	145
Bighead rattail	*Coryphaenoides rudis*	RAT	CRD	84
Bigscale blacksmelt	*Melanolagus bericoides*	UNI	MEB	50
Bigscale fish	*Poromitra* sp.	UNI	MPH	105
Black cod	*Paranotothenia magellanica*	BCD	BCD	139
Black dragonfishes	*Idiacanthus* spp.	UNI	IDI	62
Black snipe eel	*Avocettina* spp.	DWE	AVO	43
Black swallower	*Chiasmodon microcephalus*	UNI	CML	140
Blue maomao	*Scorpis violaceus*	BMA	BMA	128
Bronze bream	*Xenobrama microlepis*	UNI	BBR	124
Brown brotula	*Cataetyx niki*	CAN	CAN	98
Brown sabretooth	*Evermannella balbo*	UNI	EVB	70
Codling	*Guttigadus globiceps*	MOD	GGC	91
Cohen's rattail	*Nezumia coheni*	RAT	NZC	88
Convict grouper	*Epinephelus octofasciatus*	CGR	CGR	114
Copper moki	*Latridopsis forsteri*	CMO	CMO	132
Cosmopolitan rattail	*Coryphaenoides armatus*	COM	COM	82
Cubehead	*Cubiceps* spp.	CUB	CUB	152
Deepsea lightfish	*Gonostoma bathyphilum*	UNI	GBT	55
Discfish	*Diretmus argenteus*	DIS	DIS	107
Dogtooth rattail	*Cynomacrurus piriei*	RAT	CPI	85
Dragonets	*Foetorepus* sp.	UNI	DGT	144
Duckbill eel	*Nettastoma parviceps*	DWE	NET	46
Dusky rattail	*Coelorinchus infuscus*	RAT	CGX	78
Dwarf scorpion fish	*Scorpaena papillosa*	RSC	RSC	111
Eel cod	*Muraenolepis orangiensis*	MRL	MWO	77
Estuary stargazer	*Leptoscopus macropygus*	ESZ	ESZ	143
False frostfish	*Paradiplospinus gracilis*	PDS	PDS	146
Fanfish	*Pterycombus petersii*	FAN	FAN	122
Fangtooth	*Anoplogaster cornuta*	UNI	ANO	106
Feeler fish	*Bathypterois* spp.	TRI	TRI	68
Flathead pomfret	*Taractes asper*	TAS	TAS	123
Foxfish	*Bodianus flavipinnis*	FOX	FOX	135
Giant barracudina	*Magnisudis prionosa*	BCA	BCA	73
Giant black dragonfish	*Opostomias micripnus*	MST	OMI	65
Giant hatchetfish	*Argyropelecus gigas*	UNI	AGI	56
Giant spineback	*Notacanthus chemnitzi*	DWE	NOC	40
Glasshead rattail	*Hymenocephalus* spp.	RAT	HYM	87
Goblin shark	*Mitsukurina owstoni*	OSD	GOB	35
Grey cutthroat eel	*Synaphobranchus affinis*	SYN	SAF	41
Gulper eel	*Eurypharynx pelecanoides*	GUL	GUL	49
Hammerjaw	*Omosudis lowei*	UNI	OMO	72
Hector's lanternfish	*Lampanyctodes hectoris*	LAN	LHE	75
Humpback anglerfish	*Melanocetus johnsonii*	BAF	MEJ	99
Kapala rattail	*Nezumia kapala*	RAT	NZK	89
Kermadec rattail	*Coelorinchus kermadecus*	RAT	CKE	79
King tarakihi	*Nemadactylus* sp.	TAR	KTA	131

Common name	Scientific name	MFish reporting code	MFish research code	Page
Krefft's pearleye	*Scopelarchoides kreffti*	UNI	SKR	69
Large scaled blackchin	*Neoscopelus macrolepidotus*	UNI	NML	74
Large toothed pelagic cod	*Melanonus zugmayeri*	UNI	MEZ	96
Largemouth manefish	*Caristius* sp.	UNI	PLA	125
Leopard chimaera	*Chimaera panthera*	CHI	CPN	34
Lighthouse fish	*Phosichthys argenteus*	PHO	PHO	58
Limp eelpout	*Melanostigma gelatinosum*	UNI	EPO	137
Longfinned gemfish (escolar)	*Rexea antefurcata*	SKI	LFG	147
Longsnouted lancetfish	*Alepisaurus ferox*	LAT	LAT	71
Luminous cod	*Physiculus luminosa*	MOD	PLU	93
Maori chief	*Notothenia angustata*	NOT	MCH	138
Marblefish	*Aplodactylus arctidens*	GTR	GTR	129
McMillan's catshark	*Parmaturus macmillani*	PCS	PCS	36
Messmate fish	*Echiodon cryomargarites*	UNI	ECR	97
Moller's lantern shark	*Etmopterus molleri*	EMO	EMO	38
Naked snout rattail	*Haplomacrourus nudirostris*	RAT	HAN	86
Northern bastard cod	*Pseudophycis breviuscula*	BRC	BRC	94
Northern splendid perch	*Callanthias australis*	NSP	NSP	118
Oilfish	*Ruvettus pretiosus*	OFH	OFH	148
Ox-eye oreo	*Oreosoma atlanticum*	UNI	OXO	109
Patterned rattail	*Coelorinchus mystax*	RAT	CIX	80
Pearlside	*Maurolicus australis*	UNI	MMU	57
Pelagic butterfish	*Schedophilus maculatus*	SUM	SUM	151
Periscope duckbill eel	*Venefica* sp.	DWE	VEN	47
Phantom angler	*Haplophryne mollis*	UNI	LPH	104
Pink maomao	*Caprodon longimanus*	PMA	PMA	113
Prickly anglerfish	*Himantolophus* spp.	BAF	HIM	100
Prickly flounder	*Achiropsetta tricholepis*	UNI	ACT	153
Red banded perch	*Hypoplectrodes huntii*	RBP	RBP	115
Red lined perch	*Lepidoperca tasmanica*	WLP	WLP	116
Red moki	*Cheilodactylus spectabilis*	RMO	RMO	130
Red pigfish	*Bodianus unimaculatus*	RPI	RPI	136
Rotund cardinalfish	*Rosenblattia robusta*	UNI	ROS	119
Round tooth lepidion	*Lepidion inosimae*	LEG	LPI	92
Sawtooth eel	*Serrivomer* spp.	DWE	SAW	48
Scabbardfish	*Benthodesmus* spp.	BEN	BEN	149
Scaleless black dragonfishes	*Melanostomias* spp.	MST	MEN	64
Scalloped dealfish	*Zu elongatus*	UNI	ZEL	76
Scaly dragonfishes	*Stomias* spp.	UNI	STO	66
Seadevils	*Ceratias* spp.	UNI	CER	101
Slender hagfish	*Neomyxine biniplicata*	UNI	NBI	32
Slender ragfish	*Schedophilus huttoni*	CPD	SUH	150
Slender roughy	*Optivus elongatus*	SLR	SLR	108
Slender stargazer	*Crapatalus angusticeps*	UNI	SLZ	142
Slickhead	*Rouleina guentheri*	SLK	RGN	53
Small mouth rattail	*Coryphaenoides microstomus*	RAT	CMI	83
Small toothed pelagic cod	*Melanonus gracilis*	UNI	MEL	95
Smallspine spookfish	*Harriotta haeckeli*	UNI	HHA	33
Snaggletooths	*Astronesthes* spp.	UNI	ASE	59
Snake eel	*Ophisurus serpens*	OSE	OSE	42
Snake-toothed swallower	*Kali indica*	UNI	KAI	141
Snipe eel	*Nemichthys curvirostris*	DWE	NCU	44

Common name	Scientific name	MFish reporting code	MFish research code	Page
Southern bream	*Brama australis*	UNI	SRB	120
Southern loosejaw	*Malacosteus australis*	UNI	MAU	63
Southern mandarin dogfish	*Cirrhigaleus australis*	OSD	MSH	37
Southern sleeper shark	*Somniosus antarcticus*	OSD	SMI	39
Southern splendid perch	*Callanthias allporti*	SPP	SPP	117
Spatulate rattail	*Coelorinchus spathulatus*	RAT	CSP	81
Spiny seadragon	*Solegnathus spinosissimus*	SDR	SDR	110
Sweep	*Scorpis lineolatus*	SWE	SWE	127
Telescope fish	*Mendosoma lineatum*	TEL	TEL	133
Tubeshoulder	*Normichthys yahganorum*	UNI	NOR	51
Tubeshoulder	*Persparsia kopua*	PER	PER	52
Twin light dragonfishes	*Diplophos* spp.	UNI	DIP	54
Twospot demoiselle	*Chromis dispilus*	UNI	TSD	134
Umbrella conger	*Gnathophis umbrellabius*	DWE	UEE	45
Variable spotted toadfish	*Neophrynichthys heterospilos*	TOA	VST	112
Veilfin manefish	*Paracaristius* sp.	CST	CST	126
Viperfish	*Chauliodus sloani*	CHA	CHA	61
Warty seadevil	*Cryptopsaras couesii*	SDE	SDE	102
Waryfishes	*Scopelosaurus* spp.	SPL	SPL	67
Whipnose anglers	*Gigantactis* spp.	BAF	GIG	103

Index 5 – Alphabetical list of species MFish research codes

MFish research code	MFish reporting code	Scientific name	Common name	Page
ACT	UNI	*Achiropsetta tricholepis*	Prickly flounder	153
AGI	UNI	*Argyropelecus gigas*	Giant hatchetfish	56
ANO	UNI	*Anoplogaster cornuta*	Fangtooth	106
ASE	UNI	*Astronesthes* spp.	Snaggletooths	59
AVO	DWE	*Avocettina* spp.	Black snipe eel	43
BAN	BAN	*Borostomias antarcticus*	Antarctic snaggletooth	60
BBR	UNI	*Xenobrama microlepis*	Bronze bream	124
BCA	BCA	*Magnisudis prionosa*	Giant barracudina	73
BCD	BCD	*Paranotothenia magellanica*	Black cod	139
BDA	BDA	*Sphyraena acutipinnis*	Barracuda	145
BEN	BEN	*Benthodesmus* spp.	Scabbardfish	149
BMA	BMA	*Scorpis violaceus*	Blue maomao	128
BRC	BRC	*Pseudophycis breviuscula*	Northern bastard cod	94
CAN	CAN	*Cataetyx niki*	Brown brotula	98
CER	UNI	*Ceratias* spp.	Seadevils	101
CGR	CGR	*Epinephelus octofasciatus*	Convict grouper	114
CGX	RAT	*Coelorinchus infuscus*	Dusky rattail	78
CHA	CHA	*Chauliodus sloani*	Viperfish	61
CIX	RAT	*Coelorinchus mystax*	Patterned rattail	80
CKE	RAT	*Coelorinchus kermadecus*	Kermadec rattail	79
CMI	RAT	*Coryphaenoides microstomus*	Small mouth rattail	83
CML	UNI	*Chiasmodon microcephalus*	Black swallower	140
CMO	CMO	*Latridopsis forsteri*	Copper moki	132
COM	COM	*Coryphaenoides armatus*	Cosmopolitan rattail	82
CPI	RAT	*Cynomacrurus piriei*	Dogtooth rattail	85
CPN	CHI	*Chimaera panthera*	Leopard chimaera	34
CRD	RAT	*Coryphaenoides rudis*	Bighead rattail	84
CSP	RAT	*Coelorinchus spathulatus*	Spatulate rattail	81
CST	CST	*Paracaristius* sp.	Veilfin manefish	126
CUB	CUB	*Cubiceps* spp.	Cubehead	152
DGT	UNI	*Foetorepus* sp.	Dragonets	144
DIP	UNI	*Diplophos* spp.	Twin light dragonfishes	54
DIS	DIS	*Diretmus argenteus*	Discfish	107
ECR	UNI	*Echiodon cryomargarites*	Messmate fish	97
EMO	EMO	*Etmopterus molleri*	Moller's lantern shark	38
EPO	UNI	*Melanostigma gelatinosum*	Limp eelpout	137
ESZ	ESZ	*Leptoscopus macropygus*	Estuary stargazer	143
EVB	UNI	*Evermannella balbo*	Brown sabretooth	70
FAN	FAN	*Pterycombus petersii*	Fanfish	122
FOX	FOX	*Bodianus flavipinnis*	Foxfish	135
GBT	UNI	*Gonostoma bathyphilum*	Deepsea lightfish	55
GGC	MOD	*Guttigadus globiceps*	Codling	91
GIG	BAF	*Gigantactis* spp.	Whipnose anglers	103
GOB	OSD	*Mitsukurina owstoni*	Goblin shark	35
GTR	GTR	*Aplodactylus arctidens*	Marblefish	129
GUL	GUL	*Eurypharynx pelecanoides*	Gulper eel	49
HAN	RAT	*Haplomacrourus nudirostris*	Naked snout rattail	86
HHA	UNI	*Harriotta haeckeli*	Smallspine spookfish	33
HIM	BAF	*Himantolophus* spp.	Prickly anglerfish	100
HYM	RAT	*Hymenocephalus* spp.	Glasshead rattail	87

MFish research code	MFish reporting code	Scientific name	Common name	Page
IDI	UNI	*Idiacanthus* spp.	Black dragonfishes	62
KAI	UNI	*Kali indica*	Snake-toothed swallower	141
KTA	TAR	*Nemadactylus* sp.	King tarakihi	131
LAT	LAT	*Alepisaurus ferox*	Longsnouted lancetfish	71
LFG	SKI	*Rexea antefurcata*	Longfinned gemfish (escolar)	147
LHE	LAN	*Lampanyctodes hectoris*	Hector's lanternfish	75
LPH	UNI	*Haplophryne mollis*	Phantom angler	104
LPI	LEG	*Lepidion inosimae*	Round tooth lepidion	92
MAU	UNI	*Malacosteus australis*	Southern loosejaw	63
MCH	NOT	*Notothenia angustata*	Maori chief	138
MEB	UNI	*Melanolagus bericoides*	Bigscale blacksmelt	50
MEJ	BAF	*Melanocetus johnsonii*	Humpback anglerfish	99
MEL	UNI	*Melanonus gracilis*	Small toothed pelagic cod	95
MEN	MST	*Melanostomias* spp.	Scaleless black dragonfishes	64
MEZ	UNI	*Melanonus zugmayeri*	Large toothed pelagic cod	96
MMU	UNI	*Maurolicus australis*	Pearlside	57
MPH	UNI	*Poromitra* sp.	Bigscale fish	105
MSH	OSD	*Cirrhigaleus australis*	Southern mandarin dogfish	37
MWO	MRL	*Muraenolepis orangiensis*	Eel cod	77
NBI	UNI	*Neomyxine biniplicata*	Slender hagfish	32
NCU	DWE	*Nemichthys curvirostris*	Snipe eel	44
NET	DWE	*Nettastoma parviceps*	Duckbill eel	46
NML	UNI	*Neoscopelus macrolepidotus*	Large scaled blackchin	74
NOC	DWE	*Notacanthus chemnitzi*	Giant spineback	40
NOR	UNI	*Normichthys yahganorum*	Tubeshoulder	51
NSP	NSP	*Callanthias australis*	Northern splendid perch	118
NZC	RAT	*Nezumia coheni*	Cohen's rattail	88
NZK	RAT	*Nezumia kapala*	Kapala rattail	89
OFH	OFH	*Ruvettus pretiosus*	Oilfish	148
OMI	MST	*Opostomias micripnus*	Giant black dragonfish	65
OMO	UNI	*Omosudis lowei*	Hammerjaw	72
OSE	OSE	*Ophisurus serpens*	Snake eel	42
OXO	UNI	*Oreosoma atlanticum*	Ox-eye oreo	109
PCS	PCS	*Parmaturus macmillani*	McMillan's catshark	36
PDS	PDS	*Paradiplospinus gracilis*	False frostfish	146
PER	PER	*Persparsia kopua*	Tubeshoulder	52
PHO	PHO	*Phosichthys argenteus*	Lighthouse fish	58
PLA	UNI	*Caristius* sp.	Largemouth manefish	125
PLU	MOD	*Physiculus luminosa*	Luminous cod	93
PMA	PMA	*Caprodon longimanus*	Pink maomao	113
RBP	RBP	*Hypoplectrodes huntii*	Red banded perch	115
RGN	SLK	*Rouleina guentheri*	Slickhead	53
RMO	RMO	*Cheilodactylus spectabilis*	Red moki	130
ROS	UNI	*Rosenblattia robusta*	Rotund cardinalfish	119
RPI	RPI	*Bodianus unimaculatus*	Red pigfish	136
RSC	RSC	*Scorpaena papillosa*	Dwarf scorpion fish	111
SAF	SYN	*Synaphobranchus affinis*	Grey cutthroat eel	41
SAW	DWE	*Serrivomer* spp.	Sawtooth eel	48
SDE	SDE	*Cryptopsaras couesii*	Warty seadevil	102
SDR	SDR	*Solegnathus spinosissimus*	Spiny seadragon	110
SKR	UNI	*Scopelarchoides kreffti*	Krefft's pearleye	69
SLR	SLR	*Optivus elongatus*	Slender roughy	108

MFish research code	MFish reporting code	Scientific name	Common name	Page
SLZ	UNI	*Crapatalus angusticeps*	Slender stargazer	142
SMI	OSD	*Somniosus antarcticus*	Southern sleeper shark	39
SPL	SPL	*Scopelosaurus* spp.	Waryfishes	67
SPP	SPP	*Callanthias allporti*	Southern splendid perch	117
SQM	RAT	*Squalogadus modificatus*	Balloonhead rattail	90
SRB	UNI	*Brama australis*	Southern bream	120
STO	UNI	*Stomias* spp.	Scaly dragonfishes	66
SUH	CPD	*Schedophilus huttoni*	Slender ragfish	150
SUM	SUM	*Schedophilus maculatus*	Pelagic butterfish	151
SWE	SWE	*Scorpis lineolatus*	Sweep	127
TAS	TAS	*Taractes asper*	Flathead pomfret	123
TEL	TEL	*Mendosoma lineatum*	Telescope fish	133
TRI	TRI	*Bathypterois* spp.	Feeler fish	68
TSD	UNI	*Chromis dispilus*	Twospot demoiselle	134
UEE	DWE	*Gnathophis umbrellabius*	Umbrella conger	45
VEN	DWE	*Venefica* sp.	Periscope duckbill eel	47
VST	TOA	*Neophrynichthys heterospilos*	Variable spotted toadfish	112
WIN	WIN	*Pteraclis velifera*	Wingfish	121
WLP	WLP	*Lepidoperca tasmanica*	Red lined perch	116

Index 6 – Alphabetical list of species MFish reporting codes

MFish reporting code	MFish research code	Scientific name	Common name	Page
PCS	PCS	*Parmaturus macmillani*	McMillan's catshark	36
PDS	PDS	*Paradiplospinus gracilis*	False frostfish	146
PER	PER	*Persparsia kopua*	Tubeshoulder	52
PHO	PHO	*Phosichthys argenteus*	Lighthouse fish	58
PMA	PMA	*Caprodon longimanus*	Pink maomao	113
RAT	CGX	*Coelorinchus infuscus*	Dusky rattail	78
RAT	CIX	*Coelorinchus mystax*	Patterned rattail	80
RAT	CKE	*Coelorinchus kermadecus*	Kermadec rattail	79
RAT	CMI	*Coryphaenoides microstomus*	Small mouth rattail	83
RAT	CPI	*Cynomacrurus piriei*	Dogtooth rattail	85
RAT	CRD	*Coryphaenoides rudis*	Bighead rattail	84
RAT	CSP	*Coelorinchus spathulatus*	Spatulate rattail	81
RAT	HAN	*Haplomacrourus nudirostris*	Naked snout rattail	86
RAT	HYM	*Hymenocephalus* spp.	Glasshead rattail	87
RAT	NZC	*Nezumia coheni*	Cohen's rattail	88
RAT	NZK	*Nezumia kapala*	Kapala rattail	89
RAT	SQM	*Squalogadus modificatus*	Balloonhead rattail	90
RBP	RBP	*Hypoplectrodes huntii*	Red banded perch	115
RMO	RMO	*Cheilodactylus spectabilis*	Red moki	130
RPI	RPI	*Bodianus unimaculatus*	Red pigfish	136
RSC	RSC	*Scorpaena papillosa*	Dwarf scorpion fish	111
SDE	SDE	*Cryptopsaras couesii*	Warty seadevil	102
SDR	SDR	*Solegnathus spinosissimus*	Spiny seadragon	110
SKI	LFG	*Rexea antefurcata*	Longfinned gemfish (escolar)	147
SLK	RGN	*Rouleina guentheri*	Slickhead	53
SLR	SLR	*Optivus elongatus*	Slender roughy	108
SPL	SPL	*Scopelosaurus* spp.	Waryfishes	67
SPP	SPP	*Callanthias allporti*	Southern splendid perch	117
SUM	SUM	*Schedophilus maculatus*	Pelagic butterfish	151
SWE	SWE	*Scorpis lineolatus*	Sweep	127
SYN	SAF	*Synaphobranchus affinis*	Grey cutthroat eel	41
TAR	KTA	*Nemadactylus* sp.	King tarakihi	131
TAS	TAS	*Taractes asper*	Flathead pomfret	123
TEL	TEL	*Mendosoma lineatum*	Telescope fish	133
TOA	VST	*Neophrynichthys heterospilos*	Variable spotted toadfish	112
TRI	TRI	*Bathypterois* spp.	Feeler fish	68
UNI	ACT	*Achiropsetta tricholepis*	Prickly flounder	153
UNI	AGI	*Argyropelecus gigas*	Giant hatchetfish	56
UNI	ANO	*Anoplogaster cornuta*	Fangtooth	106
UNI	ASE	*Astronesthes* spp.	Snaggletooths	59
UNI	BBR	*Xenobrama microlepis*	Bronze bream	124
UNI	CER	*Ceratias* spp.	Seadevils	101
UNI	CML	*Chiasmodon microcephalus*	Black swallower	140
UNI	DGT	*Foetorepus* sp.	Dragonets	144
UNI	DIP	*Diplophos* spp.	Twin light dragonfishes	54
UNI	ECR	*Echiodon cryomargarites*	Messmate fish	97
UNI	EPO	*Melanostigma gelatinosum*	Limp eelpout	137
UNI	EVB	*Evermannella balbo*	Brown sabretooth	70
UNI	GBT	*Gonostoma bathyphilum*	Deepsea lightfish	55
UNI	HHA	*Harriotta haeckeli*	Smallspine spookfish	33
UNI	IDI	*Idiacanthus* spp.	Black dragonfishes	62
UNI	KAI	*Kali indica*	Snake-toothed swallower	141

MFish reporting code	MFish research code	Scientific name	Common name	Page
UNI	LPH	*Haplophryne mollis*	Phantom angler	104
UNI	MAU	*Malacosteus australis*	Southern loosejaw	63
UNI	MEB	*Melanolagus bericoides*	Bigscale blacksmelt	50
UNI	MEL	*Melanonus gracilis*	Small toothed pelagic cod	95
UNI	MEZ	*Melanonus zugmayeri*	Large toothed pelagic cod	96
UNI	MMU	*Maurolicus australis*	Pearlside	57
UNI	MPH	*Poromitra* sp.	Bigscale fish	105
UNI	NBI	*Neomyxine biniplicata*	Slender hagfish	32
UNI	NML	*Neoscopelus macrolepidotus*	Large scaled blackchin	74
UNI	NOR	*Normichthys yahganorum*	Tubeshoulder	51
UNI	OMO	*Omosudis lowei*	Hammerjaw	72
UNI	OXO	*Oreosoma atlanticum*	Ox-eye oreo	109
UNI	PLA	*Caristius* sp.	Largemouth manefish	125
UNI	ROS	*Rosenblattia robusta*	Rotund cardinalfish	119
UNI	SKR	*Scopelarchoides kreffti*	Krefft's pearleye	69
UNI	SLZ	*Crapatalus angusticeps*	Slender stargazer	142
UNI	SRB	*Brama australis*	Southern bream	120
UNI	STO	*Stomias* spp.	Scaly dragonfishes	66
UNI	TSD	*Chromis dispilus*	Twospot demoiselle	134
UNI	ZEL	*Zu elongatus*	Scalloped dealfish	76
WIN	WIN	*Pteraclis velifera*	Wingfish	121

APPENDIX 1

Instructions for photography and collecting specimens at sea: observers, researchers

Background
NIWA has been photographing fishes for identification guides using a standard procedure (see procedure below), but we are missing or have only poor quality images of many species, particularly some of the bigger fishes (sharks, tunas), and less common species. This is a request for either images or specimens. Obviously it is impractical to return bigger, (e.g., sharks) or economically valuable fishes (e.g., tunas, billfishes), but images would be appreciated. Contact Peter McMillan or Peter Marriott, NIWA, Private Bag 14901 Wellington 6241, email p.mcmillan@niwa.co.nz or p.marriott@niwa.co.nz for a list of the species required.

Method

Either

1. Collect one good specimen of the fish species caught if this is practical, i.e., a small specimen, and freeze it in a plastic bag filled with some water to reduce damage during transport. Please include a capture location data label. Please freight to: Peter McMillan or Peter Marriott, NIWA, 295-301 Evans Bay Parade, Wellington.

Or

2. Prepare and photograph the fish in a standard way (if possible/practical).

Procedure for fish photography

1. Select the best specimen from the catch. Wash off mud, blood, etc. An undamaged left hand side is preferred as the specimen is always oriented **head to the left for fish photography and illustration**. But we can flip the image later so this is not critical.
2. Take photos on a flat, even background. Ideally grey or a pale uniform colour is best but not critical. Please remove lines, hoses, etc from the fish and from the background of the image. Include a label listing capture location, photographer, identification (if known). Many fish lie at an angle, because of an enlarged belly; put a support under the dorsal margin if necessary to ensure a directly side-on view. Blot off water on fish and on the background. Please ensure that all parts of the fish, i.e., tip of snout to end of tail are in the frame. Sometimes it takes a bit of trial and error with exposures and focus to get a good quality image.
3. Retain the specimen if it is small and rare, with the location label. Freeze in seawater if possible/practical to prevent damage to fin rays once frozen. Please freight to: Peter McMillan or Peter Marriott, NIWA, 295-301 Evans Bay Parade, Wellington.