



Ministry of
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Te Tautiaki i nga tini a Tangaroa



New Zealand Fishes Volume 3

A field guide to common species
caught by surface fishing

New Zealand Aquatic
Environment and Biodiversity
Report No. 69
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Cover photos:

Top – Kingfish (*Seriola lalandi*), Malcolm Francis.

Centre – Jack mackerel (*Trachurus* sp.), Malcolm Francis.

Bottom – Catch of skipjack tuna (*Katsuwonus pelamis*), Ministry of Fisheries.

**New Zealand fishes. Volume 3: A field guide to common
species caught by surface fishing**

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This series continues the
Marine Biodiversity Biosecurity Report series
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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 commonly caught by surface fishing methods. 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 fishes commonly caught by surface fishing methods (surface longline, trolling, purse seine, lampara net) in New Zealand waters is intended for field use by non-specialists – fishers, fisheries observers, and others. Two separate guides deal with fishes commonly, and also those less commonly caught by bottom and midwater 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. It covers 98 species from 45 families, including cartilaginous (chimaeras, sharks, skates, and rays) and bony teleost fishes. It includes species that are commonly caught and sold, i.e., “commercial”, as well as those that are not sold, i.e., “non-commercial”. 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. Other New Zealand species identification guides do not cover all the species commonly caught using surface fishing methods: 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. Chapman et al. (2006) compiled an identification manual for “horizontal longline fishermen” who operate in tropical and subtropical waters of the Pacific Ocean; it covers about 85 species of fishes of which about 44 occur in New Zealand.

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. The family guide provides distinguishing features for each of the families covered here, plus a small image of an example species from each family.
3. **Guide to species.** 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*. Family scientific names and most of the family common names are also taken from Nelson (2006) and families 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), 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 have followed other researchers who have elevated subfamilies to family level in one case. We use Mobulidae as a family and have numbered it 58b compared with Nelson (2006) who listed it as a subfamily of 58 Myliobatidae.

(b) Guide to species

Species within each family are arranged alphabetically by scientific name, i.e., by genus name then by species name. Species were selected for this guide based on lists of species given by Griggs et al. (2008), and Bagley et al. (2000). Ministry of Fisheries observer data for these publications were extracted from the tuna longline database (*l_line*) and also from the aerial sightings database (*aer_sight*). A draft species list was then compared with the list of QMS species in the 2006 plenary report (Ministry of Fisheries 2006). The final list includes the more commonly encountered species caught by surface fishing methods and is not a complete set of all species caught or likely to be caught. All protected species likely to be caught by surface fishing methods are included in this guide.

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 et 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 in 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.
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 fisheries data records and were therefore not verified with museum voucher specimens. Latitude and longitude data where the species was captured or observed were extracted from the tuna longline (l_line), aerial sightings (aer_sight), tagging (tag) and research trawl (trawl) databases. 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. For trawl the unique start position of the tow where one or more specimens were taken was plotted. Some of the species taken by surface fishing methods are also taken by trawling so the maps will reflect the distribution of fishing effort of the main methods of capture. These maps are an indication of where the species has been caught in the past and are not meant to be a definitive New Zealand distribution. Red dots show the capture location, and the EEZ boundary and the 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 approximate depths (m) from fisheries and literature records rather than the extreme depth records are provided. This can be difficult to determine for fishes that live near the surface of the sea.
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, and feeding are given where these are known. The species caught by surface fishing methods include a surprising number of species normally described as demersal. Clearly our understanding of the ecology of some of these species continues to expand.
18. **References.** 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.

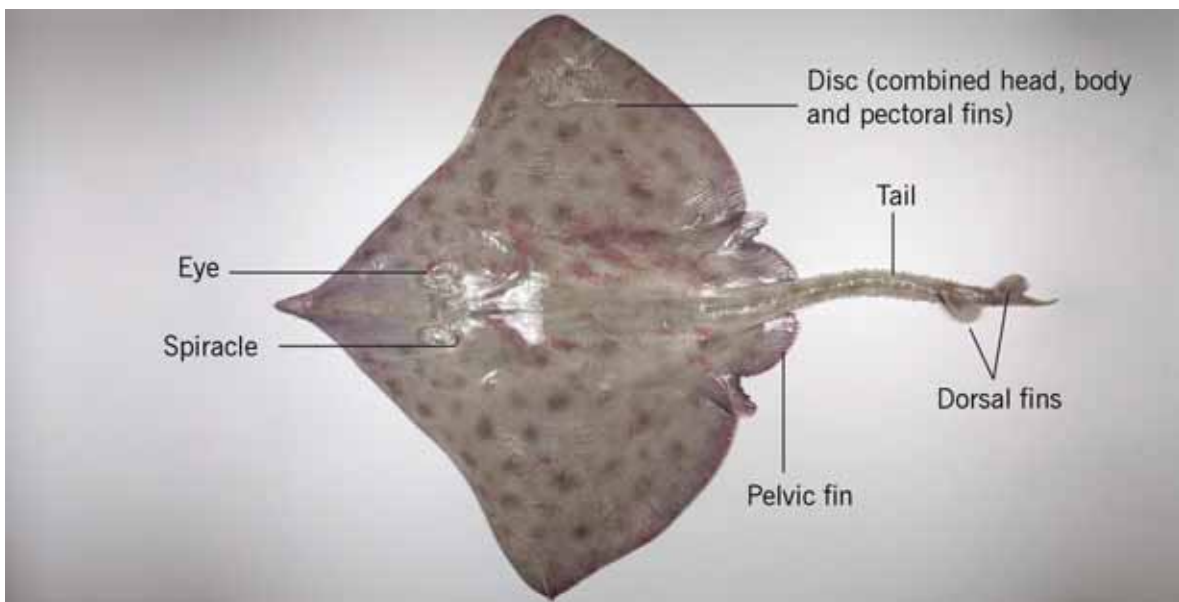
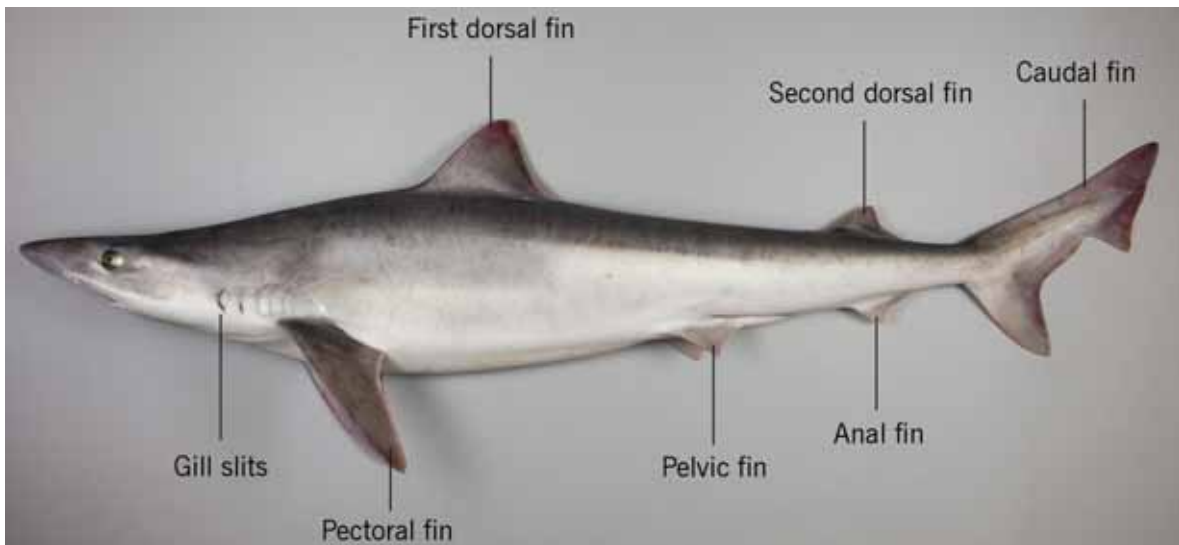
Requests for access to Ministry of Fisheries databases can be made through RDM@fish.govt.nz. Note that all observer databases referred to in this document are now stored in the Centralised Observer Database (COD).

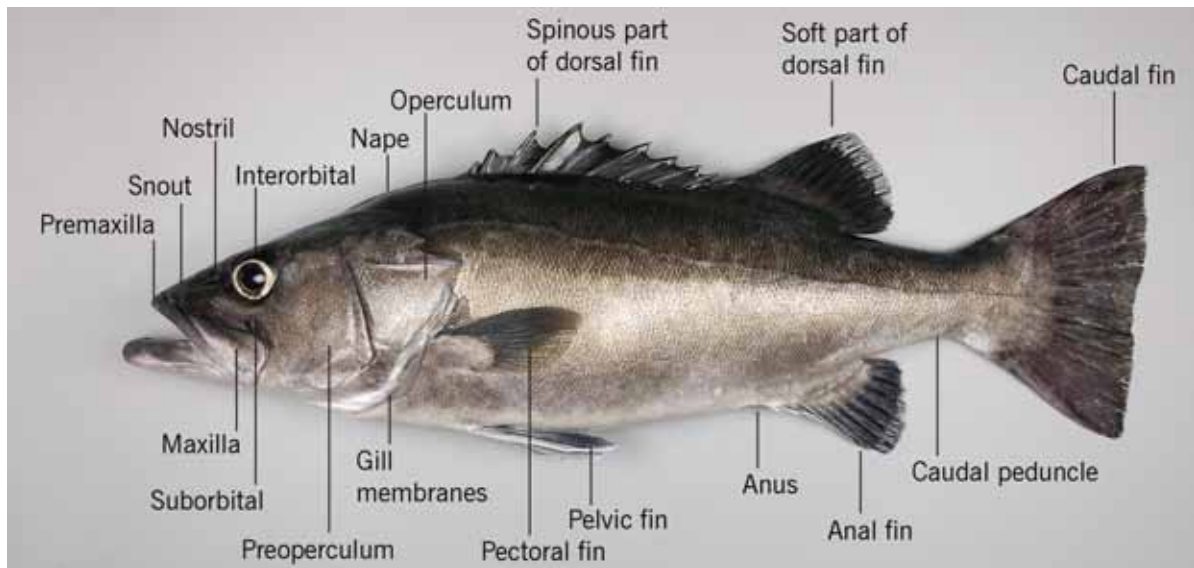
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SECTION 1. EXTERNAL FEATURES OF FISHES

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 at the bottom of the sea.

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.

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 found in 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.

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).

Interorbital width. The shortest distance between the eyes.

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 caudal fin.

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

Median fins. Unpaired fins located in the middle of the upper or 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.

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. Light-producing organ, usually seen as a small dark spot or spots (sometimes numerous) on the sides or underside of the body.

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.

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. A flat bony plate on the side of the head in front of the operculum.

Proboscis. An elongated process on the head.

Pyloric caeca (singular 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. Enlarged, thickened scale 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*).

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 (vertebra), 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). is 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.

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.

Vomerine teeth. Vomer is a bone on the midline of the roof of the mouth, often near the front, which may bear teeth.

SECTION 2. GUIDE TO FAMILIES

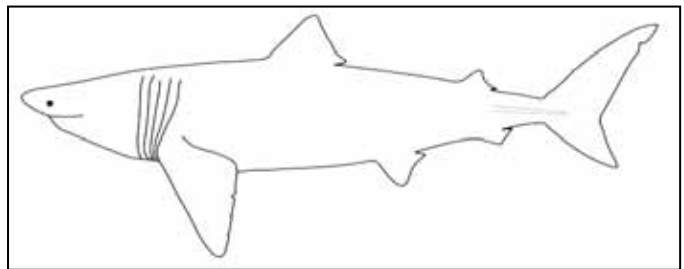
15. Rhincodontidae (whale sharks)
Broad terminal mouth, very long gill openings, eyes lateral, several raised ridges running along the body, white or yellow spots and vertical stripes over the body.



20. Alopiidae (thresher sharks)
Upper lobe of caudal fin enormously enlarged and may exceed length of body excluding tail, very small second dorsal fin.



21. Cetorhinidae (basking sharks)
Very large gill openings extending onto dorsal and ventral surfaces of head, hair-like gill rakers on internal gill slits, over 200 rows of very small teeth, small second dorsal fin, eyes small, caudal fin nearly symmetrical, lateral keel on caudal peduncle.



22. Lamnidae (mackerel sharks, makos, white sharks, porbeagles)
Fifth gill slit in front of and extending below pectoral fin origin, minute second dorsal fin, eyes lack nictitating membrane, lateral keel on caudal peduncle.



27. Triakidae (hound sharks, smoothhounds, topes)
Fifth gill slit over or behind pectoral fin origin, two dorsal fins lacking spines, anal fin present, rear of first dorsal fin anterior to pelvic fin origin, second dorsal fin smaller than first, no keel on side of caudal fin or precaudal pit.



29. Carcharhinidae (requiem sharks)
Fifth gill slit over or behind pectoral fin origin, two dorsal fins lacking spines, anal fin present, nictitating membrane present on eye, teeth blade-like (small to large), caudal fin strongly asymmetrical with short lower lobe, precaudal pit present.



30. Sphyrnidae (hammerhead and bonnethead sharks)

Anterior of head much flattened and widely expanded to form a hammer shape with eyes and nostrils at the outer edges.



32. Hexanchidae (cow sharks, sixgill, and sevengill sharks)

Six or seven pairs of long gill slits, the first pair not connected across throat, single dorsal fin, teeth of upper and lower jaws unlike at sides of mouth, lower jaw teeth very large broad compressed and saw-like.



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.



35. Centrophoridae (gulper sharks)

Both dorsal fins with spines and both spines grooved, no anal fin, teeth on lower jaw larger than those on upper jaw, precaudal pits and lateral keels absent on caudal peduncle.



36. Etmopteridae (lantern sharks)

Both dorsal fins with spines and both spines grooved, no anal fin, caudal fin with sub-terminal notch.



37. Somniosidae (sleeper sharks)

Dorsal fins usually without spines, no anal fin, lateral ridge present on abdomen between pectoral and pelvic fins.

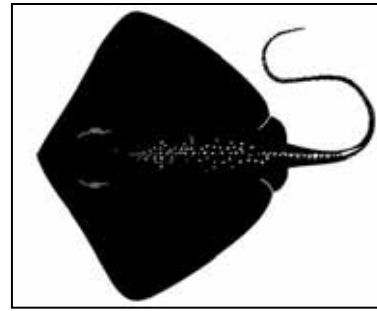


39. Dalatiidae (kitefin sharks)

Dorsal fins without spines, no anal fin. Luminous organs present appearing as black dots mainly on ventral surface.



55. Dasyatidae (whiptail stingrays)
 Large oval, circular or rhomboidal disc with tail usually longer than disc, 1–4 prominent barbed stings on dorsal tail, no dorsal or caudal fins.



58b. Mobulidae (devil rays)
 Pectoral fins form large rhomboidal wing-like disc, slender whip-like tail, one small barbed sting on dorsal tail in some species, head with anteriorly extended horn on each side, single dorsal fin on tail base, caudal fin absent.



95. Engraulidae (anchovies)
 Prominent snout projecting beyond tip of lower jaw, lower jaw long slender and underslung, single dorsal fin short and near midpoint of body, no adipose fin.



97. Clupeidae (herrings)
 Terminal mouth, series of scutes along the abdomen (belly), single dorsal fin, scales cycloid, no lateral line.



195. Alepisauridae (lancetfishes)
 Long, slender, scaleless body, high sail-like dorsal fin extending along most of body, mouth large with prominent dagger-like teeth on roof of mouth, small adipose fin near tail, pelvic fins abdominal, 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.



202. Lampridae (opahs)

Body oval or elliptical, body brightly coloured, pink, blue, or purple sometimes with white spots, jaws and fins bright red.



204. Lophotidae (crestfishes)

Elongate laterally flattened body with front of head rising steeply vertically or obliquely forward, single dorsal fin has high short-based crest at front of head, then extends back at uniform height to tail fin, anal fin small or minute, body with small cycloid scales.



206. Trachipteridae (ribbonfishes)

Anterior dorsal fin elements consisting of 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.



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.



218. Merlucciidae (merluccid hakes)

Two dorsal fins, no chin barbel, large terminal mouth with long teeth.



253. Exocoetidae (flyingfishes)

Wing-like pectoral fins, enlarged pelvic fins in some species, elongate silvery body with flattened sides, small mouth, lateral line runs along lower body, short-based dorsal and anal fins posteriorly on body, lower lobe of caudal fin longer than upper.



256. Scomberesocidae (sauries)
Elongate cigar-shaped body, single short-based dorsal and anal fins posteriorly on body, each followed by a series of detached finlets, adults of local species have elongated bill-like upper and lower jaws.



337. Polyprionidae (wreckfishes)
Operculum with a horizontal ridge on upper rear ending in a short spine, dorsal fin with 11–12 strong spines and 11–12 soft rays.



361. Coryphaenidae (dolphinfishes)
Single dorsal fin originating on top of head and extending nearly full length of body, anal fin extends about half length of body, no spines in dorsal and anal fins, caudal fin deeply forked, blunt steep forehead in adult males, brilliant, iridescent and variable body colours.



363. Echeneidae (remoras, sharksuckers)
Sucking disc on top of head and nape (transformed spinous first dorsal fin), body elongate, head flattened, and lower jaw projecting past upper jaw, scales small, dorsal and anal fins lacking spines.



364. Carangidae (jacks, pompanos)
Two dorsal fins first with spines, second with one spine and numerous soft rays, scales small and sometimes difficult to see, lateral line arched above pectoral fins and straight posteriorly, scutes present on lateral line in some.



367. Bramidae (pomfrets)
Angle of jaw steep (not horizontal), single dorsal fin, caudal fin of adults strongly forked, maxilla scaled, snout lower jaw opercular and pre-opercular margins lack scales.



389. Arripidae (Australasian salmon, kahawai)

Head conical, maxilla reaching back to below centre of eye, dorsal fin usually with nine spines, noticeably higher than soft rayed portion with 15–18 rays.



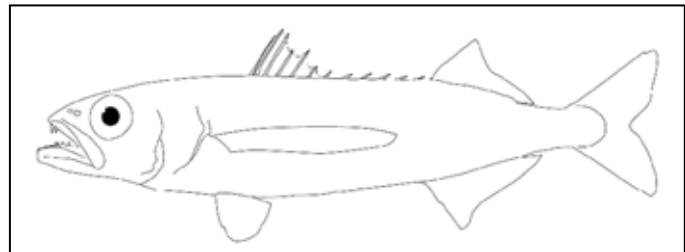
443. Uranoscopidae (stargazers)

Head flattened above encased in sculptured bones, eyes on or near top of head, almost vertical mouth, first gill arch with teeth rather than gill rakers, pelvic fins close together.



471. Scombrolabracidae (longfin escolars)

Two or three fang-like teeth at front of upper jaw, two nostrils on each side of snout, base of first dorsal fin about twice as long as base of second dorsal fin, single lateral line running along upper body close to dorsal contour, scales irregular in shape and deciduous.



472. Sphyraenidae (barracudas)

Elongate body with a distinctly pointed head, prominent sabre-like teeth, pointed protruding lower jaw, two 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)

Two continuous dorsal fins or separated by shallow notch, spinous first part shorter than soft second 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.



475. Scombridae (mackerels, tunas)

Finlets present behind dorsal and anal fins, caudal fin deeply forked, at least two small keels on each side of caudal peduncle plus a larger keel in-between in many species.



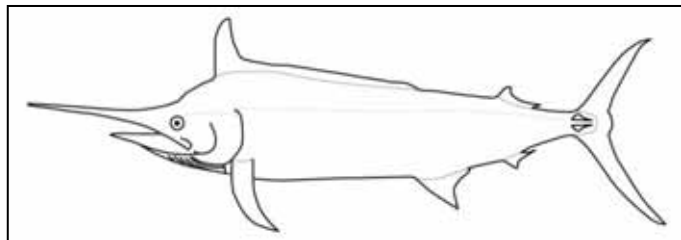
476. Xiphiidae (swordfishes)

Snout extended as a long flattened blade-like bill, first dorsal fin short-based, second dorsal fin small near tail, single keel on each side of caudal peduncle, large and deep notch on upper and lower caudal peduncle, no pelvic fins scales or teeth in adults.



477. Istiophoridae (billfishes)

Snout extended as a long bill rounded in cross section, first dorsal fin very long-based, second dorsal fin short-based, two keels on each side of caudal peduncle in adults, pelvic fins elongate, jaws with small teeth, lateral line retained throughout life.



479. Centrolophidae (medusafishes)

Lower jaw often shorter than upper and tucking inside it when closed, teeth in jaws fine 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.



482. Tetragonuridae (squaretails)

Almost rounded body, caudal peduncle long, with two prominent scaly lateral keels on each side, teeth in lower jaw large, flattened with curved tips, lower jaw recessed within upper.



510. Diodontidae (porcupinefishes)

Body inflatable and covered with massive spines which may be long, strong beak-like teeth fused and without a median suture dividing upper and lower jaws into left and right halves.



511. Molidae (molias)

No caudal peduncle and caudal fin lost, posterior end of body reduced to a leathery flap or pseudo-caudal (clavus), single short-based high dorsal fin located on rear of body and opposite a similar shaped anal fin, two fused teeth in both jaws, single gill opening in front of pectoral fin.



SECTION 3. GUIDE TO SPECIES

Whale shark

Rhincodon typus

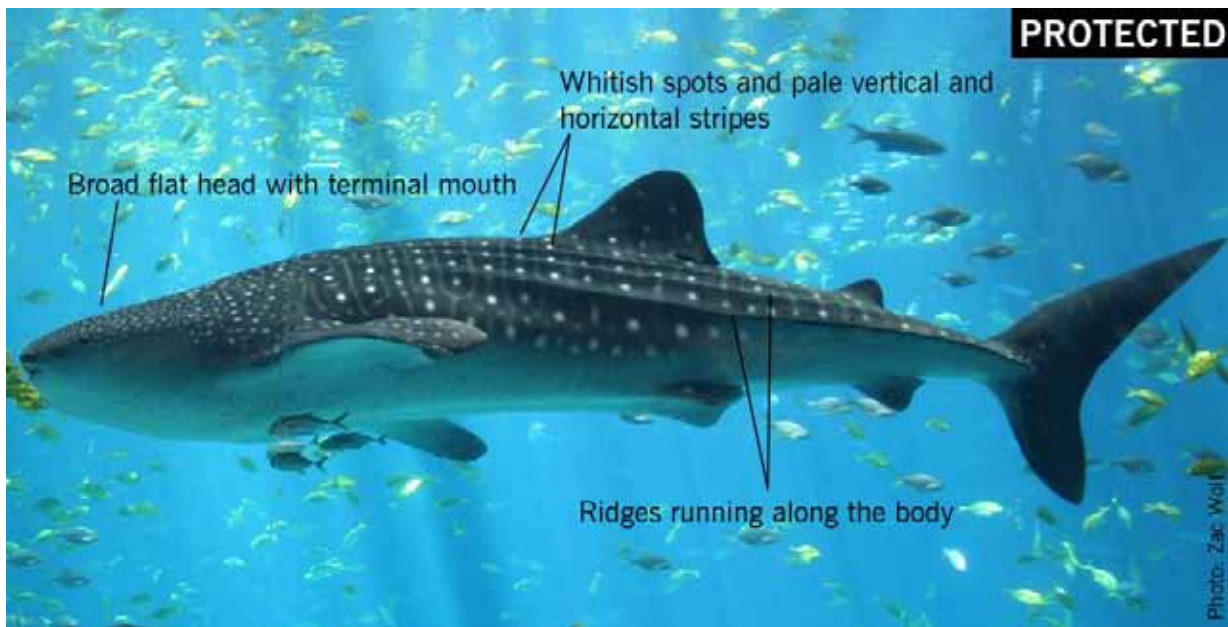
Family: 15. Rhincodontidae (whale sharks)

Maori names: n.a.

Other names: n.a.

MFish reporting code: WSH

MFish research code: WSH



Distinguishing features: Broad flat head, large terminal mouth, body with checkerboard pattern of light spots and stripes on a dark background. Prominent ridges running along the body.

Colour: Body greyish, bluish, or brownish above, white below. Upper body with checkerboard pattern of whitish spots between pale vertical and horizontal stripes.

Size: To at least 1200 cm TL.

Distribution: Widespread in tropical and warm temperate seas including northern New Zealand.

Depth: 0 to 1000 m.

Similar species: Basking shark (*Cetorhinus maximus*) has a dark grey-brown upper body without whitish spots, and lacks ridges running along the body.

Biology & ecology: Live in surface waters near the coast and in the open ocean. Suction filter feeder of plankton. Undergoes migrations thought to be related to local productivity events and known to regularly dive to about 1000 m. Probably long-lived.

References

Compagno (2001), Gomon et al. (2008), Last & Stevens (2009).

Bigeye thresher

Alopias superciliosus

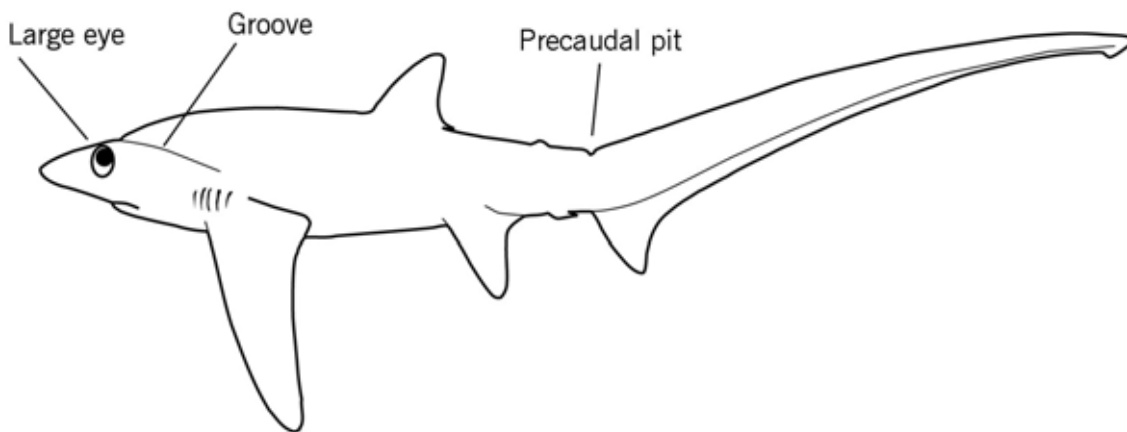
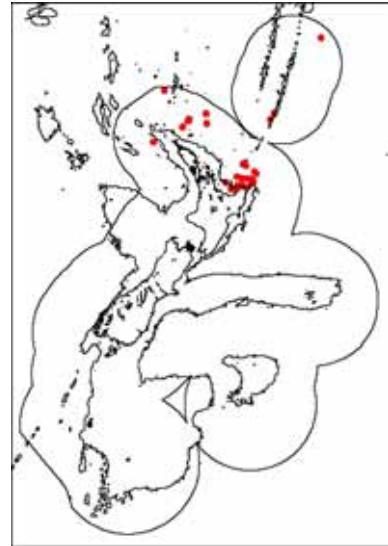
Family: 20. Alopiidae (thresher sharks)

Maori names: n.a.

Other names: n.a.

MFish reporting code: BET

MFish research code: BET



Distinguishing features: Tail extremely long, about half total length. Eyes huge, extending on to top of head. V-shaped groove running from behind eyes to above gills. Pale ventral marking does not extend above the pectoral fin base. Second dorsal and anal fins tiny. Precaudal pit present.

Colour: Purplish grey above with a metallic sheen extending down the body to below the pectoral fin base. Creamy white below.

Size: To 485 cm TL.

Distribution: Kermadec Islands and northeast coast of North Island to East Cape. Worldwide in tropical to warm temperate waters.

Depth: 0 to 730 m, probably deeper.

Similar species: Thresher shark (*Alopias vulpinus*) has smaller eyes not extending on to top of head, pale ventral marking extending up to above pectoral fin base, and lacks a V-shaped groove on head in smaller specimens.

Biology & ecology: Pelagic in the open ocean and over the continental shelf, sometimes occurs close inshore. Inhabits deep water during the day and migrates to near the surface at night.

References

Chapman et al. (2006), Compagno (1984a), Compagno et al. (2005), Last & Stevens (2009).

Thresher shark

Alopias vulpinus

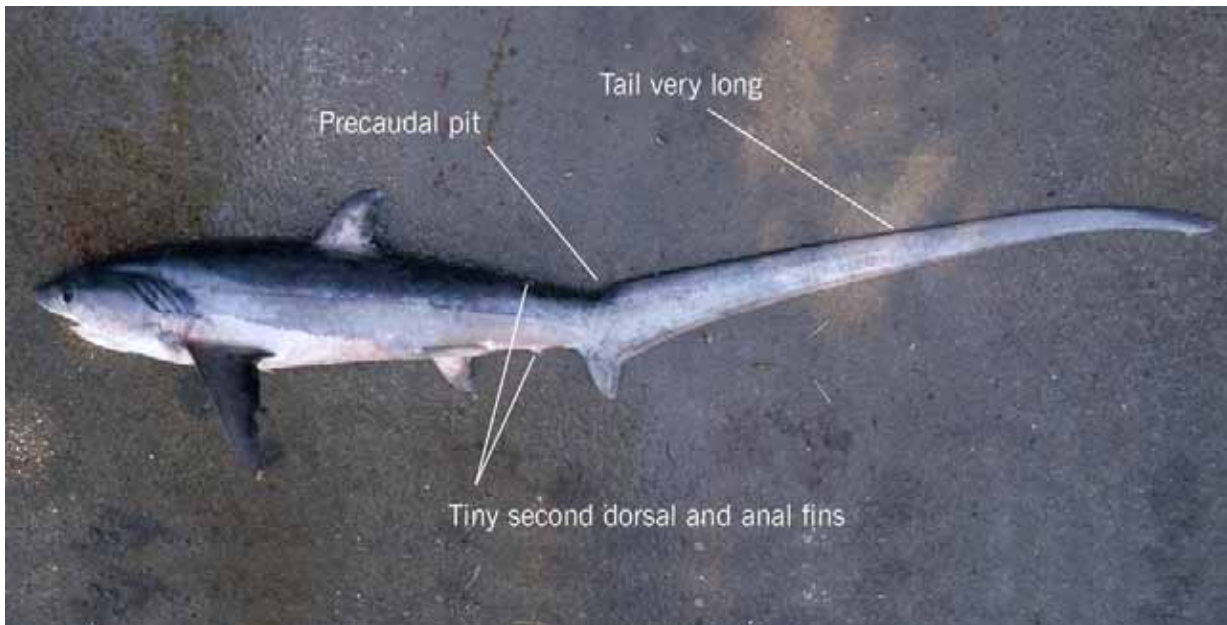
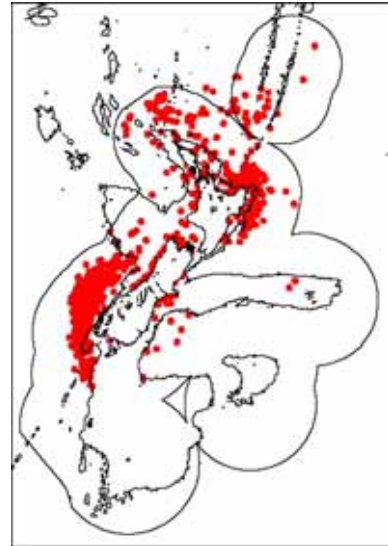
Family: 20. Alopiidae (thresher sharks)

Maori names: Mango-ripi

Other names: n.a.

MFish reporting code: THR

MFish research code: THR



Distinguishing features: Tail extremely long, about half of total length. Eyes large but not extending on to top of head. Pale ventral colour extending above the pectoral fin base. Second dorsal and anal fins tiny. Precaudal pit present.

Colour: Blue-grey above, with metallic purple sheen when alive; white below.

Size: To about 550 cm TL, possibly longer.

Distribution: Kermadec Islands to the Snares Shelf, and possibly to the Auckland Islands. Worldwide in tropical and temperate seas.

Depth: 0 to 200 m over depths of a few metres to thousands of metres.

Similar species: Big-eye thresher (*Alopias superciliosus*) occasionally occurs in northern NZ. It has huge eyes that extend on to the top of head, a deep V-shaped groove running from between the eyes back above the gill slits, and the pale ventral colour does not extend above pectoral fin base.

Biology & ecology: Pelagic over the continental shelf and in the open ocean.

References

Chapman et al. (2006), Compagno (2001), Compagno et al. (2005), Last & Stevens (2009), Paul (2000), Paulin et al. (1989).

Basking shark

Cetorhinus maximus

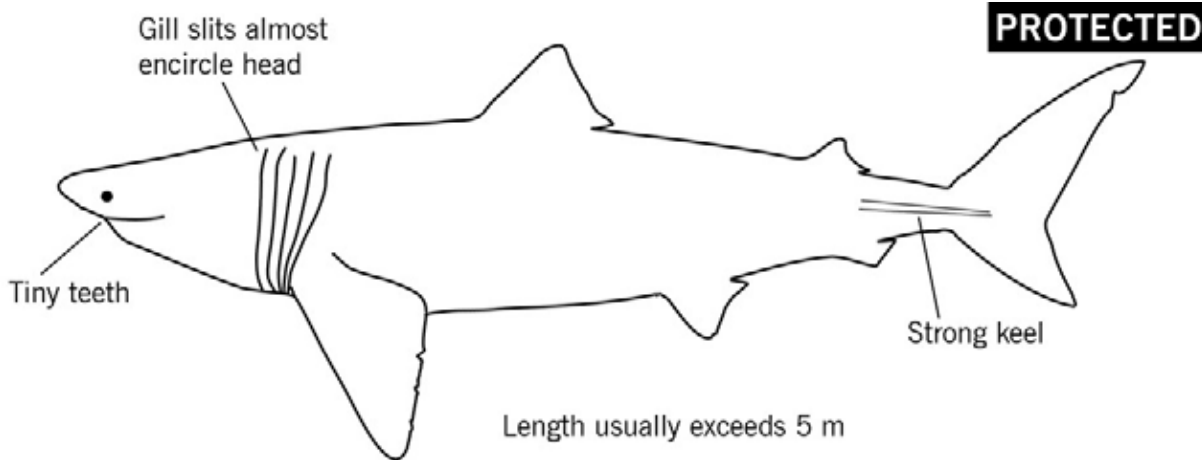
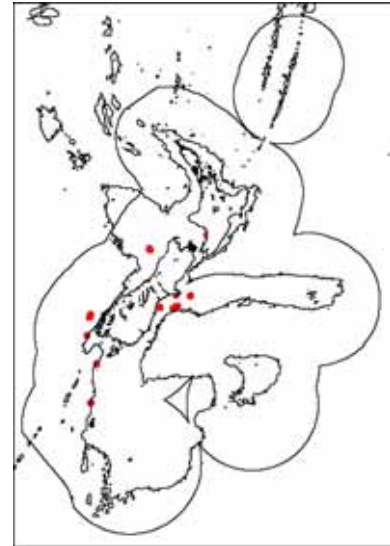
Family: 21. Cetorhinidae (basking sharks)

Maori names: Reremai

Other names: n.a.

MFish reporting code: BSK

MFish research code: BSK



Distinguishing features: Very large (usually longer than 5 m) with long gill slits that almost encircle the head, tiny teeth, strong lateral keel on caudal peduncle. Juvenile with pointed snout that becomes less prominent with increased size of individual.

Colour: Dark grey-brown above, sometimes with lighter patches, fading to paler brown below.

Size: To at least 1000 cm TL.

Distribution: Throughout New Zealand, but most common around South Island and Snares-Auckland Islands. Worldwide in temperate waters over the continental shelf and slope, but some records from the open ocean.

Depth: 0 to 900 m.

Similar species: Whale shark (*Rhincodon typus*) has a broad flat head, large terminal mouth, ridges running along the body, and a checkerboard pattern of light spots and stripes on a dark background.

Biology & ecology: Pelagic.

References

Chapman et al. (2006), Compagno (2001), Compagno et al. (2005), Last & Stevens (2009), Paul (2000), Paulin et al. (1989).

White pointer shark (great white)

Carcharodon carcharias

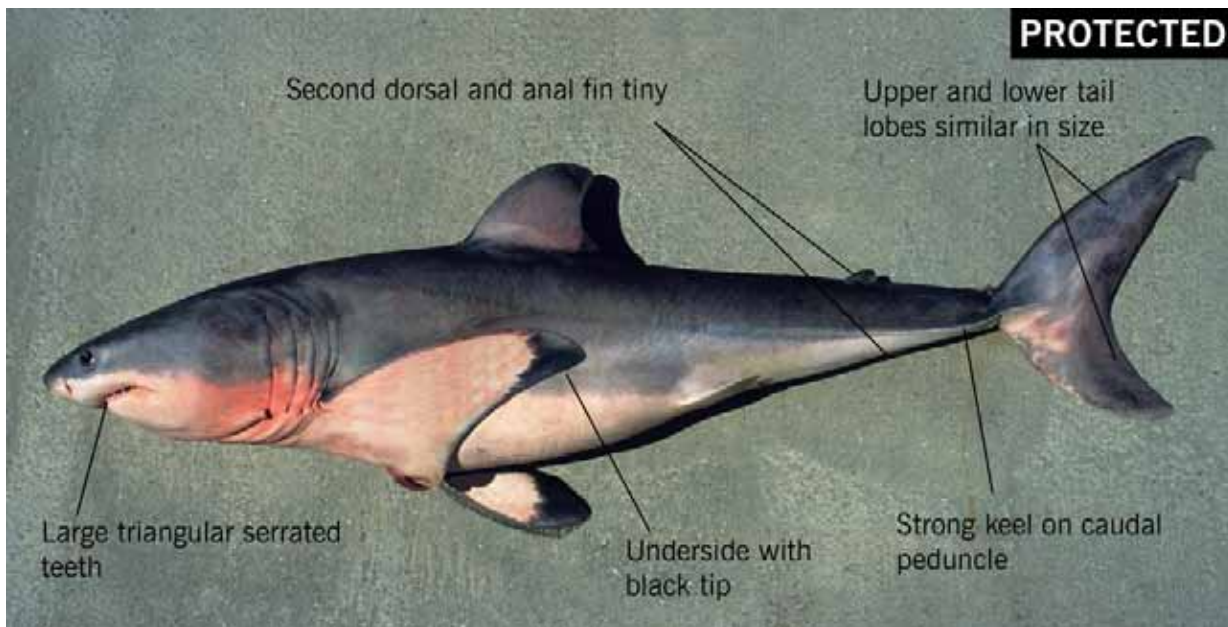
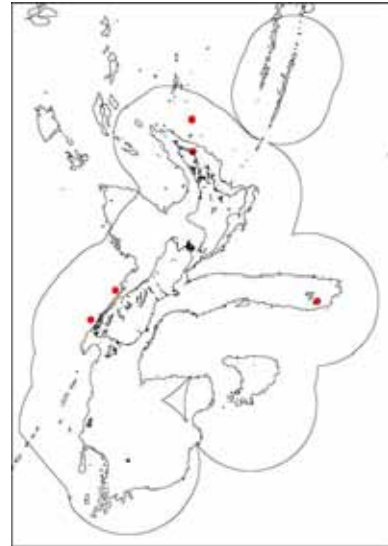
Family: 22. Lamnidae (mackerel sharks)

Maori names: n.a.

Other names: n.a.

MFish reporting code: WPS

MFish research code: WPS



Distinguishing features: Large triangular serrated teeth, strong keel on the caudal peduncle, similar-sized upper and lower tail lobes, underside of pectoral fins with black tips, tiny second dorsal and anal fins.

Colour: Grey, coppery-brown or black above, abrupt change to white below.

Size: To at least 600 cm TL.

Distribution: Throughout New Zealand, worldwide mainly in temperate waters, but also frequently found in tropical and subantarctic waters.

Depth: 0 to 1000 m over depths of a few metres to thousands of metres.

Similar species: Mako shark (*Isurus oxyrinchus*) has a blue back, long slender dagger-like teeth, and white underside of pectoral fins. Porbeagle shark (*Lamna nasus*) has a white patch at rear base of first dorsal fin, and teeth have a small lateral cusp on each side.

Biology & ecology: Mainly found inshore over the inner continental shelf, but it is also pelagic as it migrates thousands of kilometres through open ocean and makes deep dives to at least 1000 m.

References

Chapman et al. (2006), Compagno (2001), Compagno et al. (2005), Last & Stevens (2009), Paul (2000), Paulin et al. (1989).

Mako shark

Isurus oxyrinchus

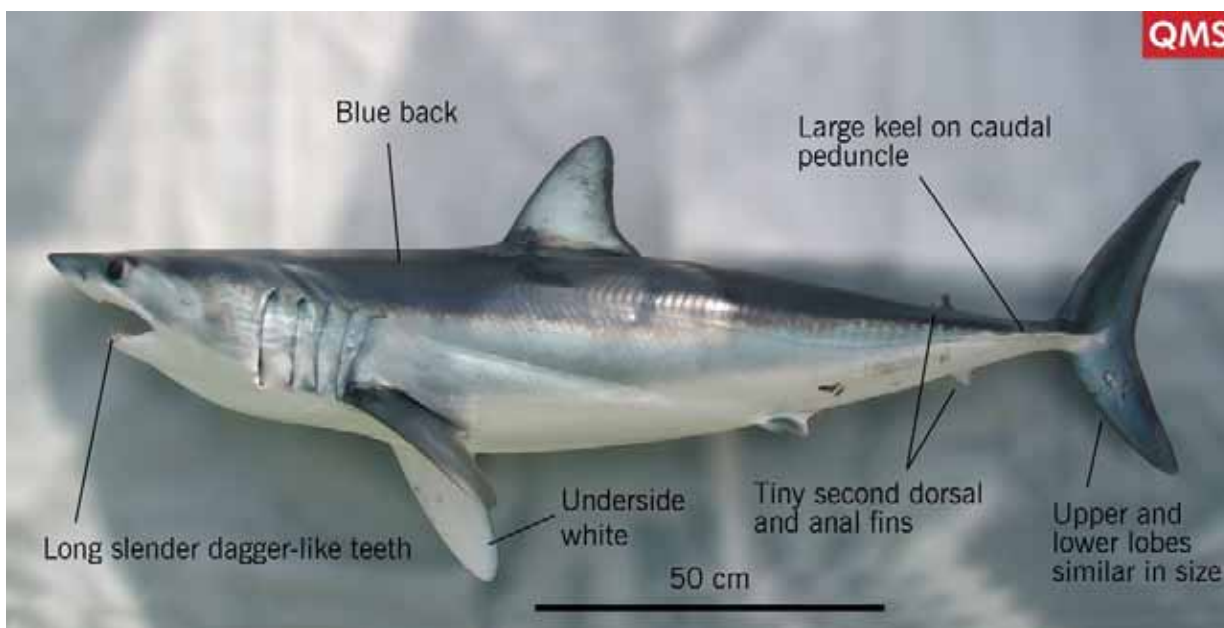
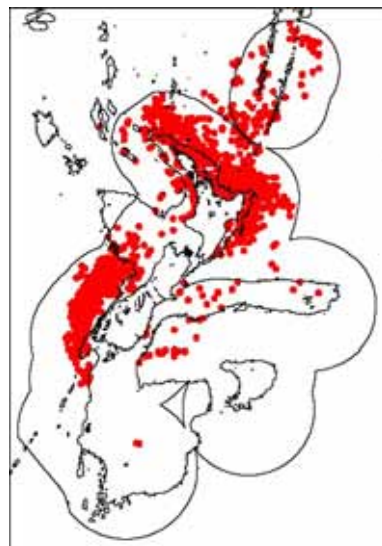
Family: 22. Lamnidae (mackerel sharks)

Maori names: Mako

Other names: Shortfin mako shark

MFish reporting code: MAK

MFish research code: MAK



Distinguishing features: Strong keel on the caudal peduncle, long slender dagger-like teeth, similar-sized upper and lower tail lobes, blue back, white undersides of pectoral fins, tiny second dorsal and anal fins.

Colour: Back indigo-blue, belly white.

Size: More than 400 cm TL.

Distribution: Kermadec Islands to the Snares Shelf, and possibly to the Auckland Islands. Worldwide in tropical and temperate seas.

Depth: 0 to 500 m over depths of a few metres to thousands of metres.

Similar species: Porbeagle shark (*Lamna nasus*) has a white patch on the free rear base of first dorsal fin, a secondary caudal keel, and lateral tooth cusps. White pointer shark (*Carcharodon carcharias*) has large triangular serrated teeth, and underside of pectoral fins are white with black tips.

Biology & ecology: Pelagic over the continental shelf and in the open ocean. Migrates between New Zealand and tropical South Pacific islands.

References

Chapman et al. (2006), Compagno (2001), Compagno et al. (2005), Last & Stevens (2009), Paul (2000), Paulin et al. (1989).

Porbeagle shark

Lamna nasus

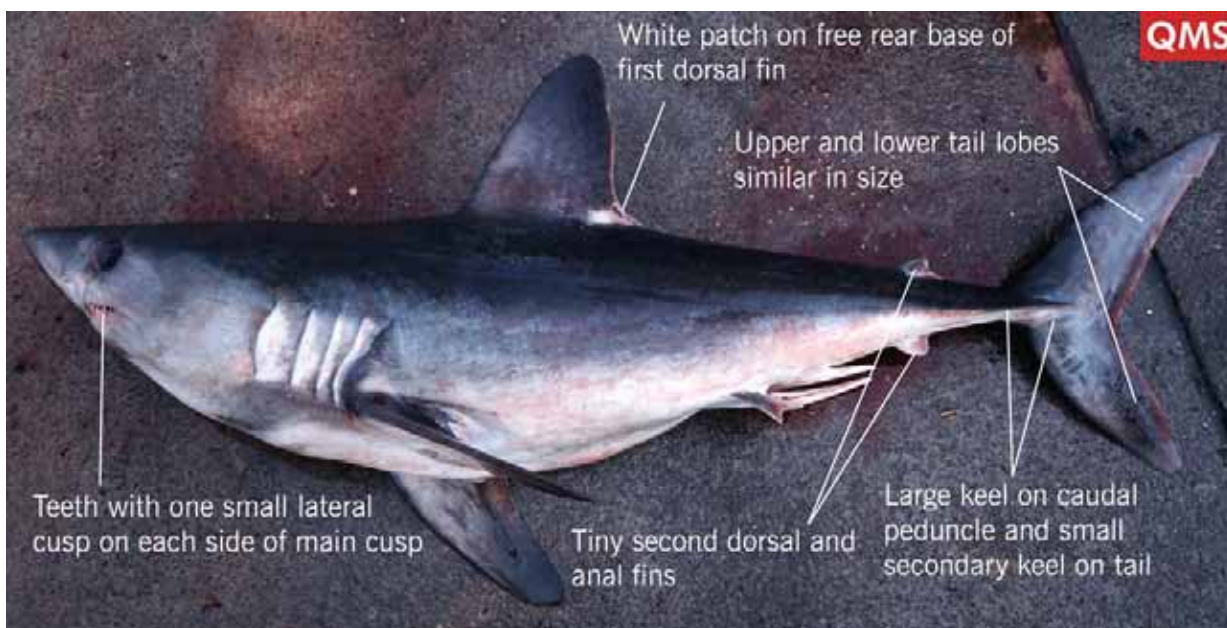
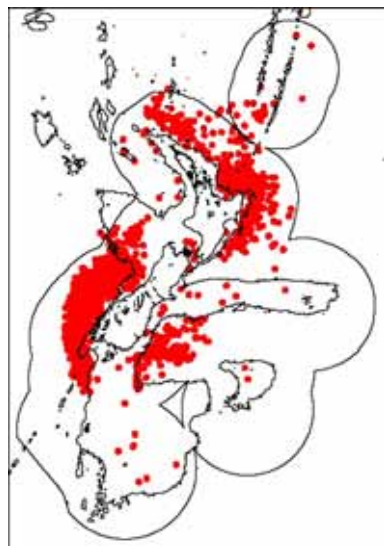
Family: 22. Lamnidae (mackerel sharks)

Maori names: n.a.

Other names: n.a.

MFish reporting code: POS

MFish research code: POS



Distinguishing features: White patch on free rear base of first dorsal fin, strong keel on the caudal peduncle and a small secondary keel on the tail below, small lateral cusp on either side of the main tooth cusp, similar-sized upper and lower tail lobes, tiny second dorsal and anal fins.

Colour: Blue-grey above, white below. Distinctive white patch on free rear base of first dorsal fin.

Size: To at least 300 cm TL.

Distribution: Kermadec Islands to about 60° S. Circumglobal in temperate and subantarctic waters of the southern hemisphere, and also in the North Atlantic.

Depth: 0 to 370 m over depths of a few metres to thousands of metres.

Similar species: Mako shark (*Isurus oxyrinchus*) lacks the white patch on the free rear base of the first dorsal fin, the secondary caudal keel, and the lateral tooth cusps. White pointer shark (*Carcharodon carcharias*) lacks the white patch on the free rear base of the first dorsal fin, and has large triangular serrated teeth.

Biology & ecology: Pelagic in the open ocean, and over the continental shelf. The most abundant oceanic shark in cool temperate and subantarctic waters.

References

Compagno (2001), Compagno et al. (2005), Last & Stevens (2009), Paul (2000), Paulin et al. (1989).

School shark

Galeorhinus galeus

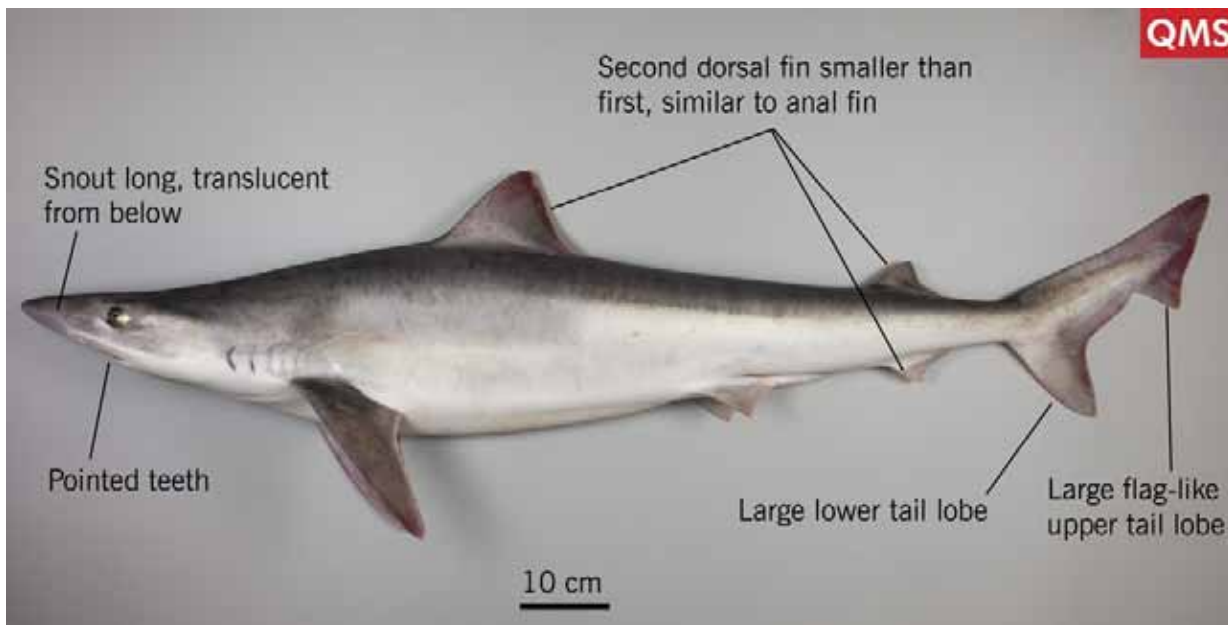
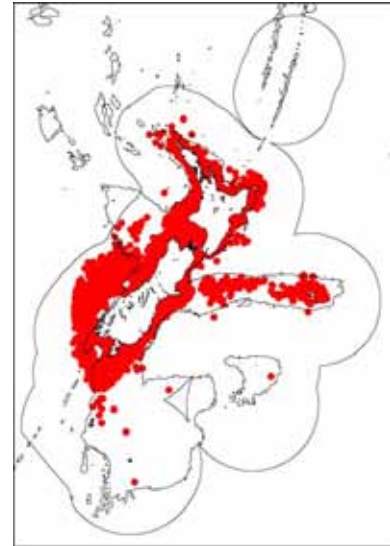
Family: 27. Triakidae (hound sharks)

Maori names: Kapeta, mangoo, manga

Other names: Grey boy, tope

MFish reporting code: SCH

MFish research code: SCH



Distinguishing features: Large flag-like tip on upper tail lobe, large lower tail lobe, second dorsal fin much smaller than first and about same size as anal fin, snout long and translucent when viewed from below, and pointed erect teeth.

Colour: Grey above, white below.

Size: To 175 cm TL in New Zealand (larger elsewhere).

Distribution: Three Kings Islands to Campbell Island and the Chatham Islands, and oceanic waters of the EEZ. Widespread but patchy distribution in temperate waters worldwide.

Depth: 0 to 800 m over depths of a few metres to thousands of metres.

Similar species: Bronze whaler shark (*Carcharhinus brachyurus*) is stouter, has longer pectoral fins, and a long upper tail lobe with a small flag-like tip. Rig (*Mustelus lenticulatus*) has small white spots on the upper body and flat teeth.

Biology & ecology: Demersal, and pelagic. Makes large scale movements around New Zealand and between New Zealand and southern Australia.

References

Compagno (1984b), Compagno et al. (2005), Paul (2000), Paulin et al. (1989).

Bronze whaler shark

Carcharhinus brachyurus

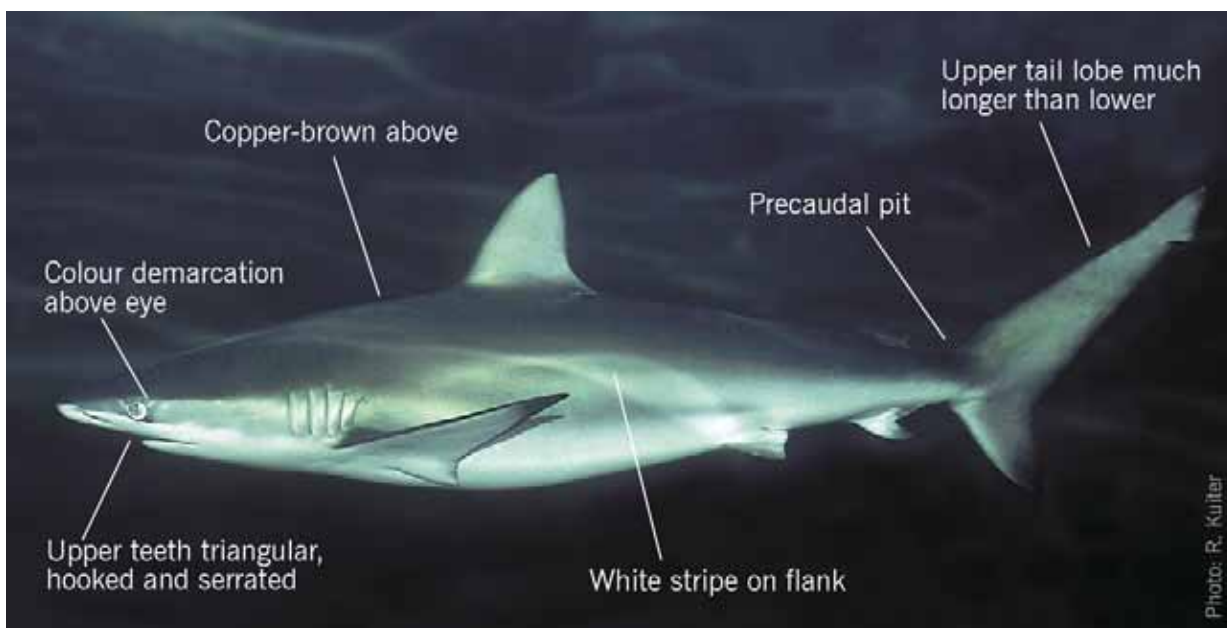
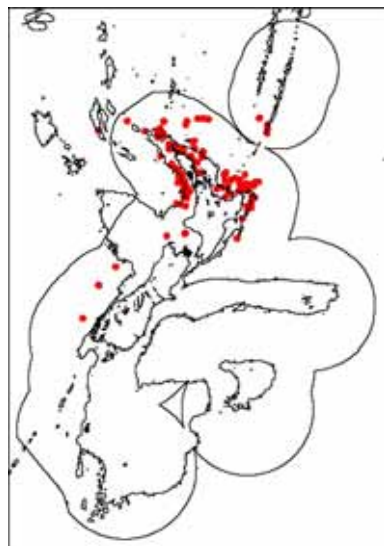
Family: 29. Carcharhinidae (requiem sharks)

Maori names: Toiki, matawhaa, mau ngengero, tuatini

Other names: n.a.

MFish reporting code: BWH

MFish research code: BWH



Distinguishing features: Upper tail lobe much longer than lower lobe, upper teeth triangular and hook-shaped with fine serrations, body coppery-brown above with a strong colour demarcation above eye, oblique white stripe on side, precaudal pit.

Colour: Body coppery-brown above with a strong colour demarcation above eye, oblique white stripe on side, creamy yellow belly.

Size: To at least 295 cm TL.

Distribution: Three Kings Islands to Tasman Bay and the Marlborough Sounds, possibly also straggles to the rest of the South Island. Occurs worldwide in warm temperate waters, and some tropical areas.

Depth: 0 to 100 m.

Similar species: Blue shark (*Prionace glauca*) has blue back and sides, lacks white stripe on flank, and has a more slender body. School shark (*Galeorhinus galeus*) has smaller upper tail lobe with large flag-like tip, and longer more slender body. Difficult to distinguish from several closely related whaler sharks occasionally seen around northern North Island and Kermadec Islands.

Biology & ecology: Pelagic. Most common around the northern North Island where it enters very shallow inshore waters in summer and autumn.

References

Chapman et al. (2006), Compagno (1984b), Compagno et al. (2005), Francis (2001), Last & Stevens (2009), Paul (2000), Paulin et al. (1989).

Oceanic whitetip shark

Carcharhinus longimanus

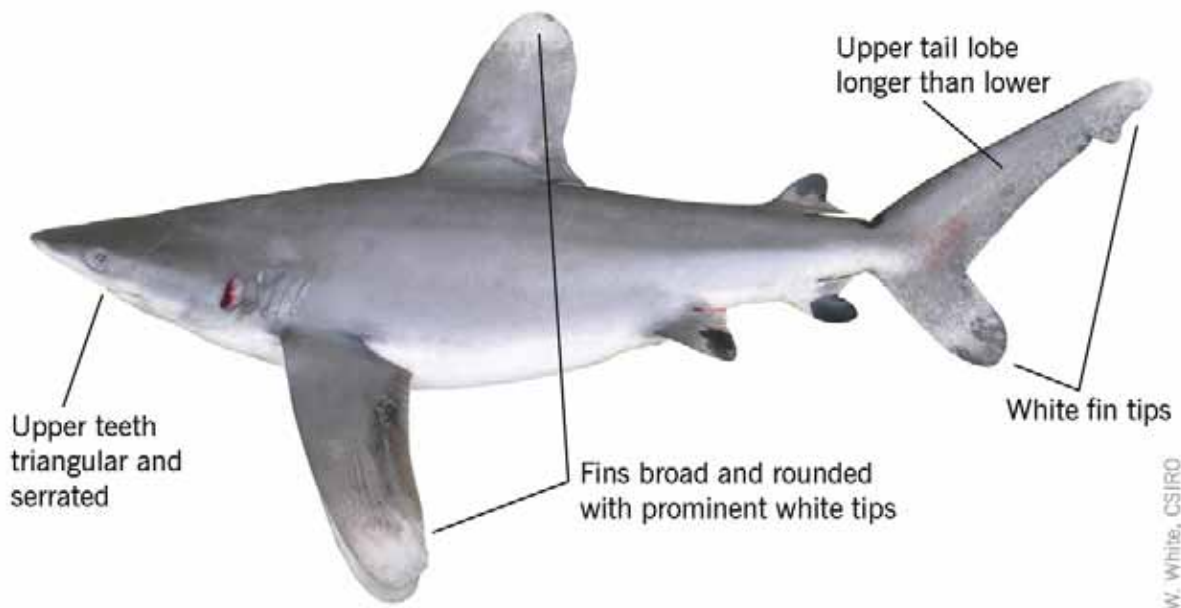
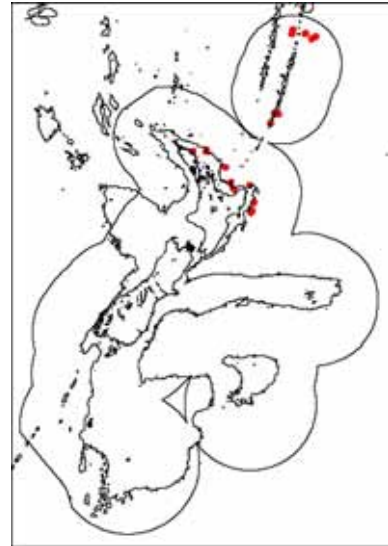
Family: 29. Carcharhinidae (requiem sharks)

Maori names: n.a.

Other names: n.a.

MFish reporting code: OSD

MFish research code: OWS



Distinguishing features: First dorsal, pectoral, and caudal fins broad and rounded. First dorsal, pectoral, pelvic and caudal fins with prominent white tips (absent in sharks smaller than about 130 cm TL). Upper tail lobe much longer than lower lobe, and precaudal pit present. Upper teeth triangular and serrated.

Colour: Bronze-grey above, pale below, with white tips to most fins. Specimens shorter than about 130 cm TL lack white fin tips and instead have black fin tips and black dorsal saddles.

Size: To at least 300 cm TL.

Distribution: Kermadec Islands and northeast coast of North Island to Mahia Peninsula. Worldwide in tropical to warm temperate waters.

Depth: 0 to 150 m, and probably deeper.

Similar species: Bronze whaler shark (*Carcharhinus brachyurus*) has pointed dorsal and pectoral fins, lacks white fin tips, and upper teeth are lower.

Biology & ecology: Pelagic in the open ocean, rarely over the continental shelf.

References

Chapman et al. (2006), Compagno (1984b), Compagno et al. (2005), Last & Stevens (2009).

Blue shark

Prionace glauca

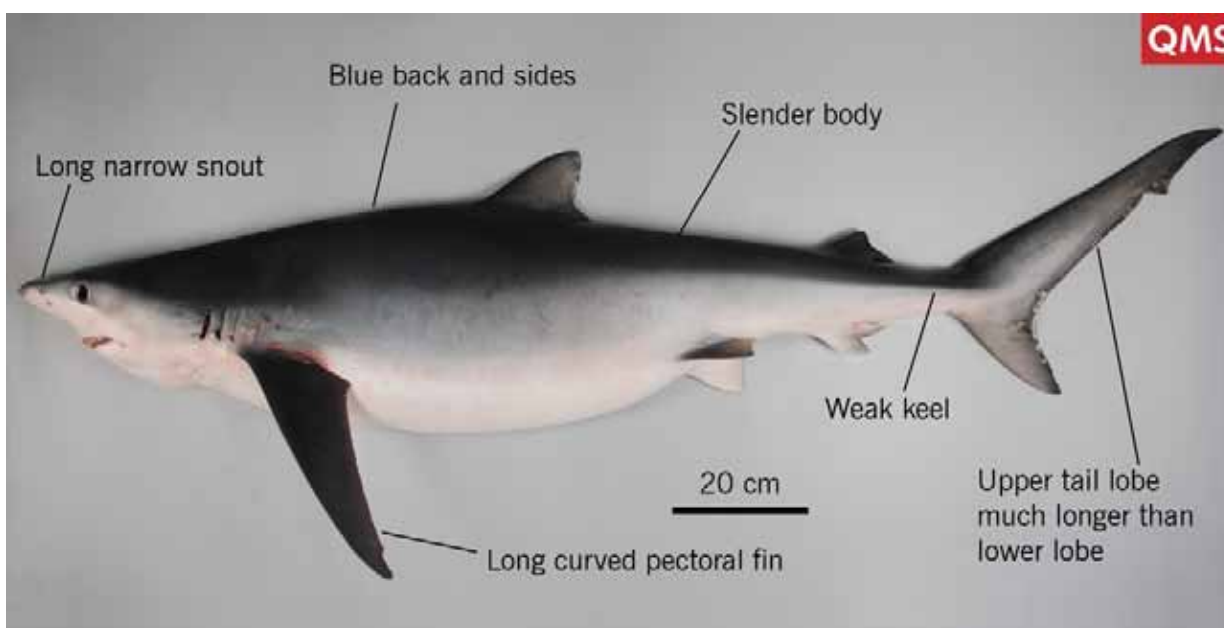
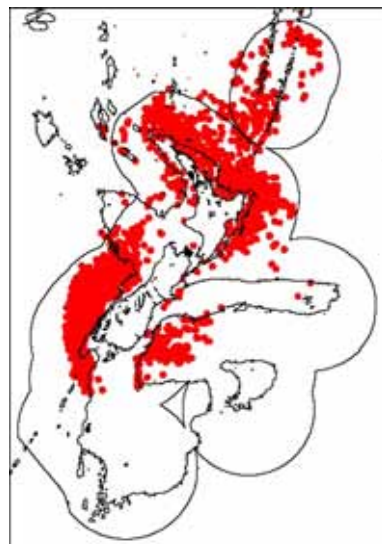
Family: 29. Carcharhinidae (requiem sharks)

Maori names: Mango-pounamu, poutini

Other names: n.a.

MFish reporting code: BWS

MFish research code: BWS



Distinguishing features: Slender body, long narrow snout, long curved pectoral fins, blue back and sides, upper tail lobe much longer than lower lobe, and weak lateral keel on tail.

Colour: Back dark blue, grading to bright blue on the sides; belly white.

Size: To at least 380 cm TL.

Distribution: Kermadec Islands to the Snares Shelf, and possibly to the Auckland Islands. Worldwide in tropical and temperate seas.

Depth: 0 to 1000 m over depths of a few metres to thousands of metres.

Similar species: Mako shark (*Isurus oxyrinchus*) and porbeagle shark (*Lamna nasus*) have much stouter bodies, shorter conical snouts, and upper and lower lobes of the tail are almost equal in size. Bronze whaler shark (*Carcharhinus brachyurus*) has coppery-brown body with strong colour demarcation above the eye, white stripe on flank, and lacks lateral keel on tail.

Biology & ecology: Pelagic over the continental shelf and in the open ocean. The most abundant and migratory of the oceanic sharks.

References

Chapman et al. (2006), Compagno (1984b), Compagno et al. (2005), Last & Stevens (2009), Paul (2000), Paulin et al. (1989).

Hammerhead shark

Sphyrna zygaena

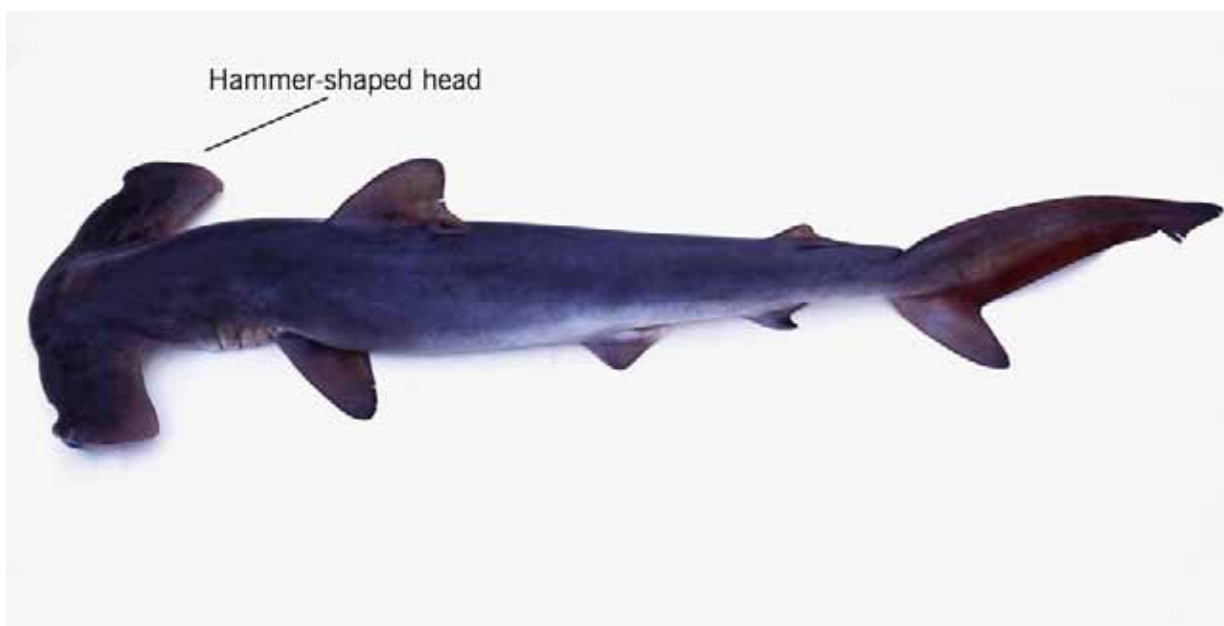
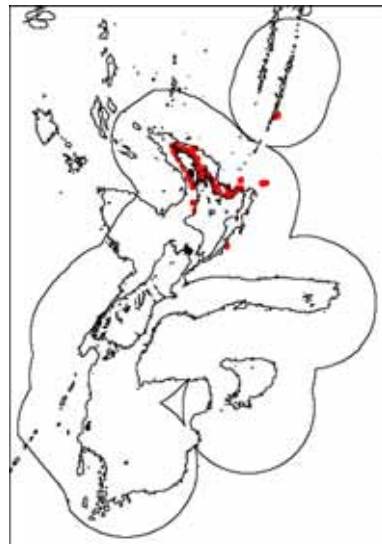
Family: 30. Sphyrnidae (hammerhead sharks)

Maori names: Mango-pare

Other names: Smooth hammerhead shark

MFish reporting code: HHS

MFish research code: HHS



Distinguishing features: Hammer-shaped head. Lacks a median notch on the front (leading) edge of the head.

Colour: Dark brownish-grey above, white below.

Size: To at least 370 cm TL, possibly as large as 400 cm.

Distribution: Kermadec Islands to northern South Island (possibly further south). Uncommon south of about Hawke Bay on the east and Cape Egmont on the west coast. Worldwide in temperate and tropical waters.

Depth: 0 to 200 m, possibly deeper.

Similar species: No other species of hammerhead shark are confirmed from New Zealand, but may occasionally appear in the north.

Biology & ecology: Demersal and pelagic on the inner continental shelf. Juveniles use large muddy harbours and bays as nursery grounds. Adults are generally solitary, but juveniles may form loose schools.

References

Chapman et al. (2006), Compagno (1984a), Compagno et al. (2005), Paul (2000), Paulin et al. (1989).

Broadnose sevengill shark

Notorynchus cepedianus

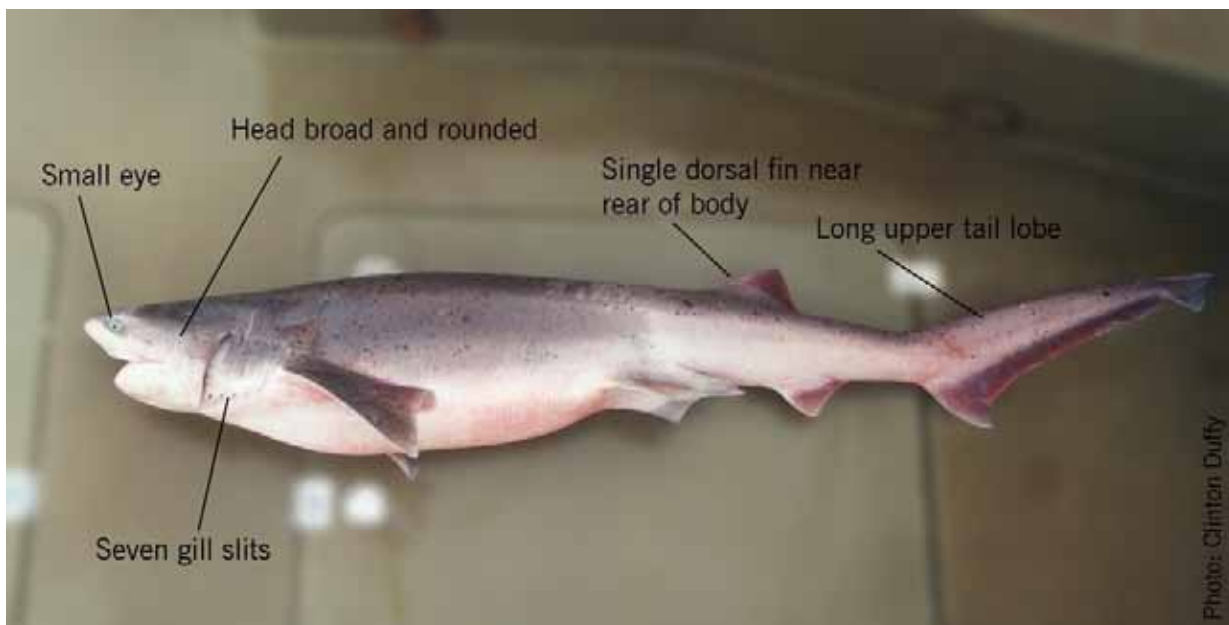
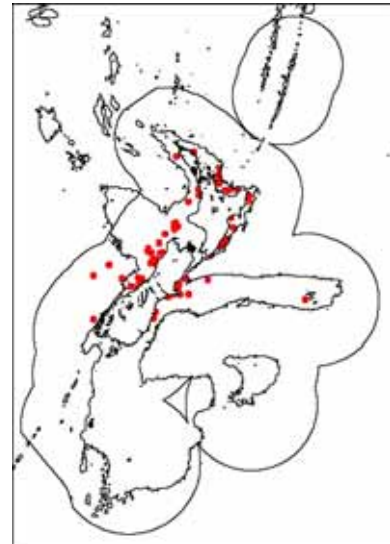
Family: 32. Hexanchidae (cow sharks)

Maori names: n.a.

Other names: n.a.

MFish reporting code: SEV

MFish research code: SEV



Distinguishing features: Seven gill slits, single dorsal fin set well back on body, upper tail lobe much longer than lower lobe, eye small, head broad and rounded.

Colour: Grey or brown above, speckled with small black and white spots, white below.

Size: To about 300 cm TL, possibly larger.

Distribution: Throughout mainland New Zealand. Worldwide in temperate waters except the North Atlantic.

Depth: 0 to 200 m.

Similar species: Sharpnose sevengill shark (*Heptranchias perlo*) has a large eye, narrow pointed snout, and no spots.

Biology & ecology: Demersal and midwater.

References

Compagno (1984a), Compagno et al. (2005), Last & Stevens (2009), Paulin et al. (1989).

Spiny dogfish

Squalus acanthias

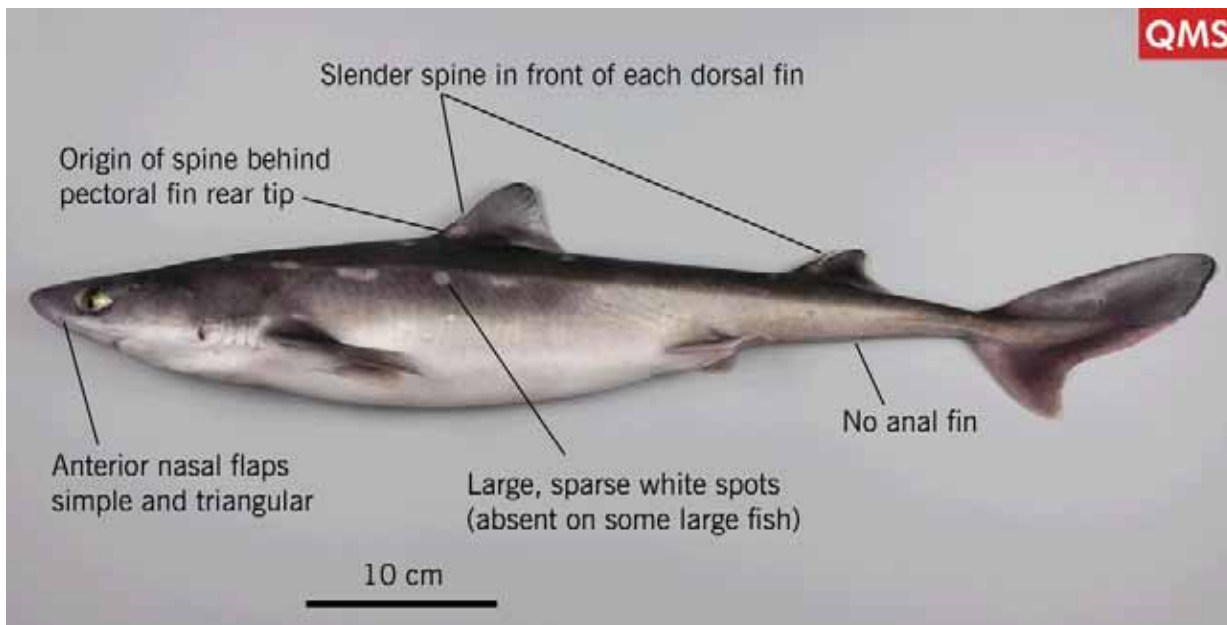
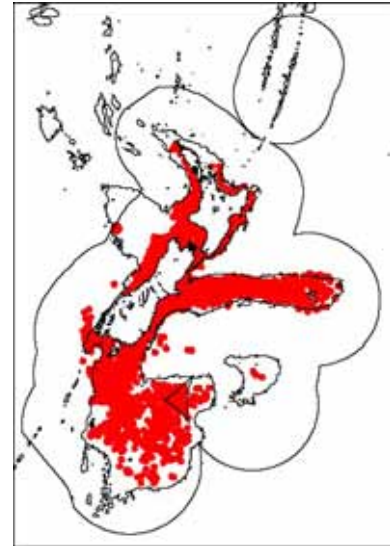
Family: 34. Squalidae (dogfish sharks)

Maori names: Kaaraerae, koinga, mangohapu

Other names: n.a.

MFish reporting code: SPD

MFish research code: SPD



Distinguishing features: Anal fin absent. Slender spine in front of each dorsal fin; anterior spine much shorter than both the first dorsal fin and the second dorsal spine; origin of first dorsal fin spine well behind free rear tip of pectoral fin. Large and sparse white spots usually present (may be absent in large individuals). Anterior nasal flaps simple and triangular.

Colour: Brownish-grey above with large, sparse white spots on anterior upper body (sometimes absent in large fish), white below.

Size: To about 110 cm TL in New Zealand (much larger elsewhere).

Distribution: North Cape to the Campbell Plateau and Chatham Rise, most abundant around South Island and on Chatham Rise. Worldwide in cool temperate waters.

Depth: 0 to 700 m.

Similar species: Northern spiny dogfish (*Squalus griffini*) has the first dorsal fin further forward, a secondary lobe on the nasal flap, stouter dorsal fin spines, a large green eye, and lacks white spots.

Biology & ecology: Demersal and midwater.

References

Compagno (1984a), Compagno et al. (2005), Paul (2000), Paulin et al. (1989).

Leafscale gulper shark

Centrophorus squamosus

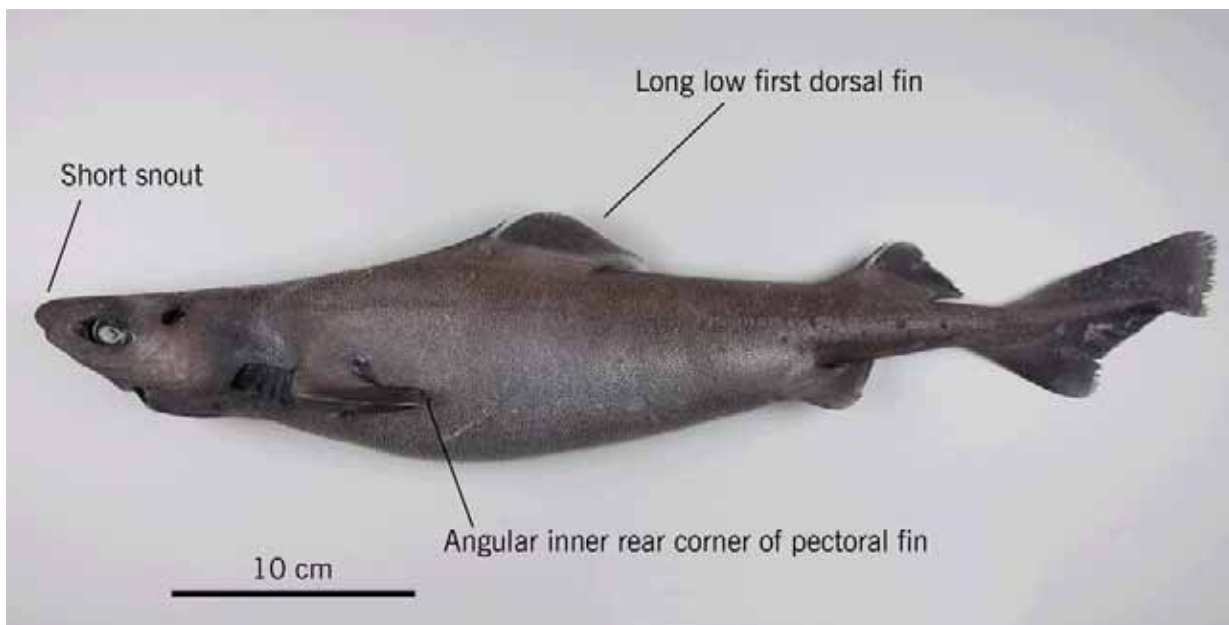
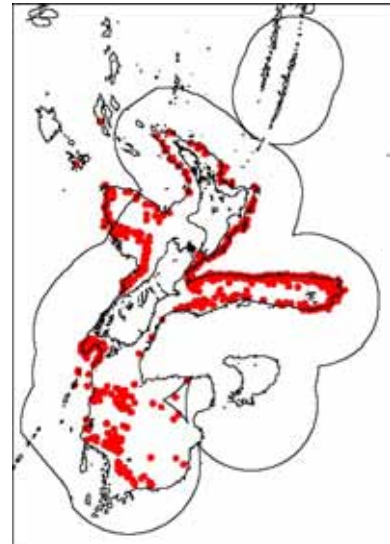
Family: 35. Centrophoridae (gulper sharks)

Maori names: n.a.

Other names: n.a.

MFish reporting code: CSQ

MFish research code: CSQ



Distinguishing features: Moderate sized, with a short snout, long low first dorsal fin and triangular second dorsal, strong fin spines, rough skin with leaf-shaped denticles, and inner rear corner of pectoral fin angular or pointed (not rounded) but not elongated.

Colour: Uniformly greyish-brown.

Size: To about 160 cm TL.

Distribution: Widespread around New Zealand, also present off southeast Australia, in parts of the Indo-Pacific, the eastern Atlantic Ocean, and around southern Africa.

Depth: 500 to 1500 m off New Zealand, deeper elsewhere.

Similar species: Plunket's shark (*Proscymnodon plunketi*) has a rounded inner rear corner of the pectoral fin, and is much darker, blackish-brown. Other dark-coloured deepwater sharks lack the pointed inner rear corner of the pectoral fin.

Biology & ecology: Demersal and midwater.

References

Amaoka et al. (1990), Blackwell & Stevenson (2003), Clarke et al. (2002a), Compagno (1984a), Compagno et al. (2005), Cox & Francis (1997), Duffy (2007), Garrick (1959a), Kyne & Simpfendorfer (2007), Last & Stevens (2009), Paulin et al. (1989).

Shovelnose dogfish

Deania calcea

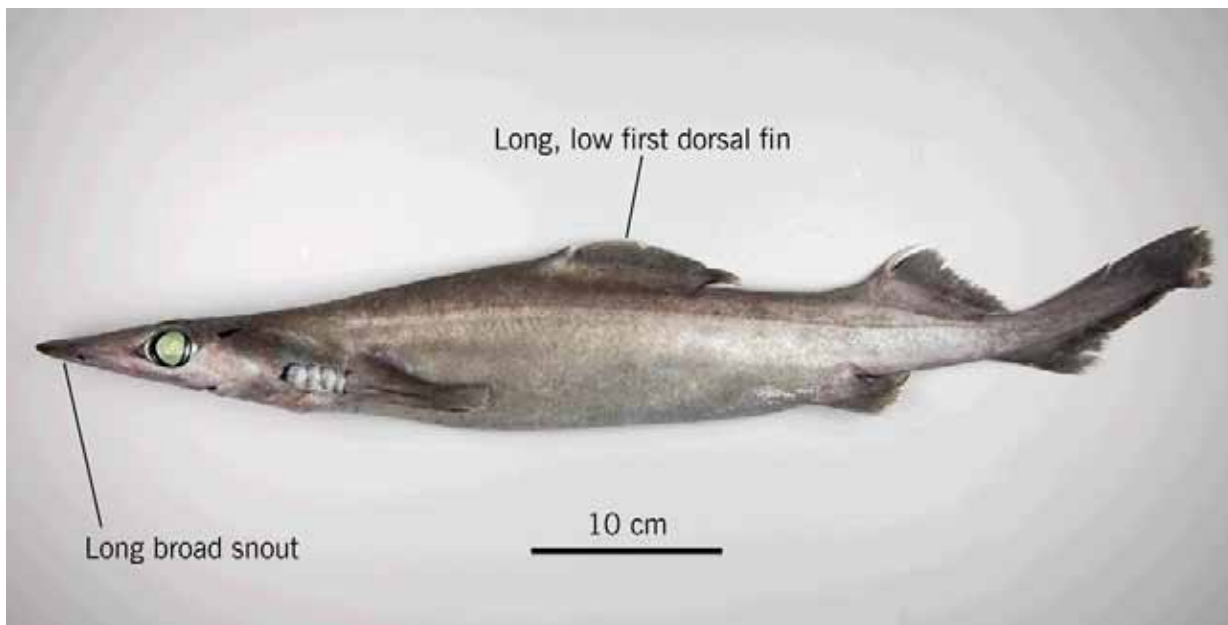
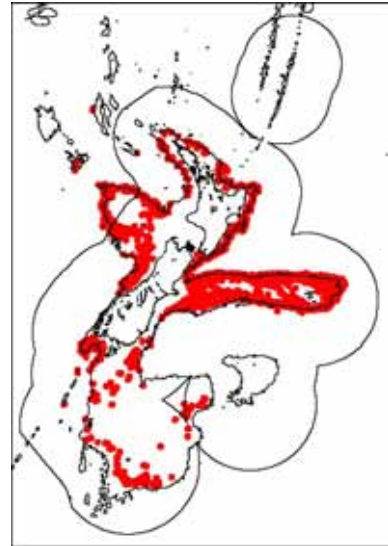
Family: 35. Centrophoridae (gulper sharks)

Maori names: n.a.

Other names: Brier shark (Aus.)

MFish reporting code: SND

MFish research code: SND



Distinguishing features: Slender bodied with an elongated, flattened snout. The first dorsal fin is longer and lower than the second dorsal fin. The skin is soft, and patches are often lost on trawl-caught fish.

Colour: Usually uniform mid grey-brown, but may be darker or lighter. Slightly darker fins.

Size: To about 120 cm TL.

Distribution: Widespread around New Zealand. Also occurs around southern Australia, Japan, off Chile, and in the eastern Atlantic (Iceland to northwest Africa, South Africa).

Depth: 400 to 1400 m.

Similar species: The much less common longsnout dogfish (*D. quadrispinosum*) has a first dorsal fin very similar in size to the second dorsal, and much longer inter-dorsal length. Longnose velvet dogfish (*Centroscymnus crepidater*) has a similar flattened snout but is dark brown or black.

Biology & ecology: Demersal, but also feeds in midwater.

References

Amaoka et al. (1990), Blackwell & Stevenson (2003), Clark & King (1989). Clarke et al. (2002b), Compagno (1984a), Compagno et al. (2005), Cox & Francis (1997), Garrick (1960), Kyne & Simpfendorfer (2007), Last & Stevens (2009), Paulin et al. (1989), Wetherbee (2000).

Baxter's dogfish

Etmopterus baxteri

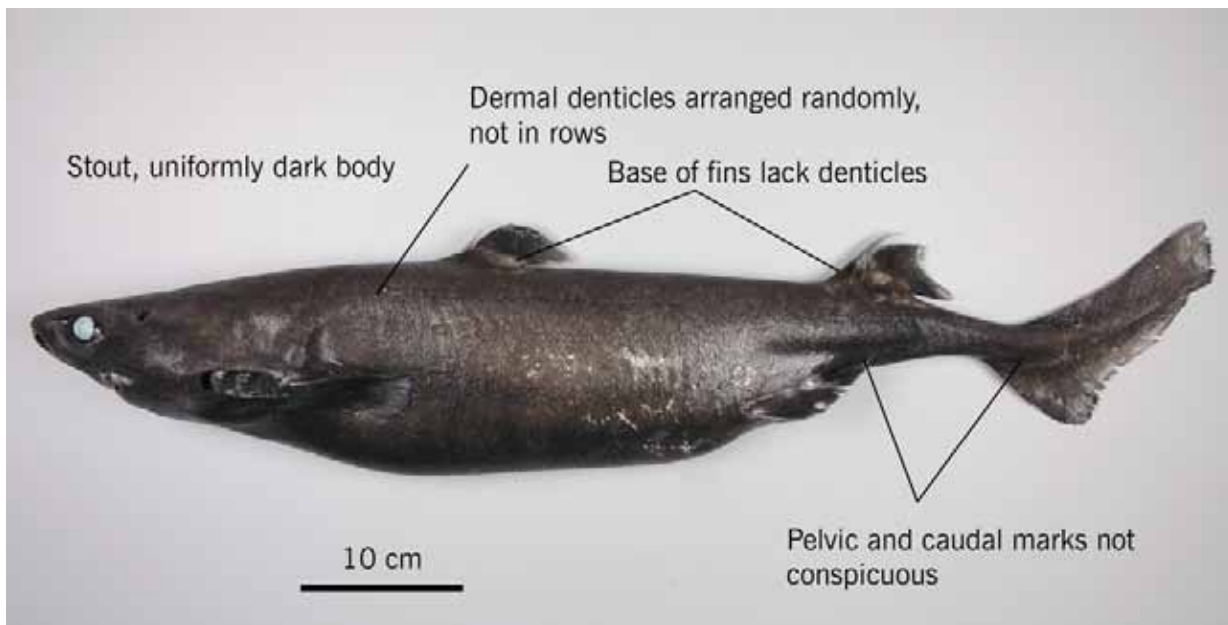
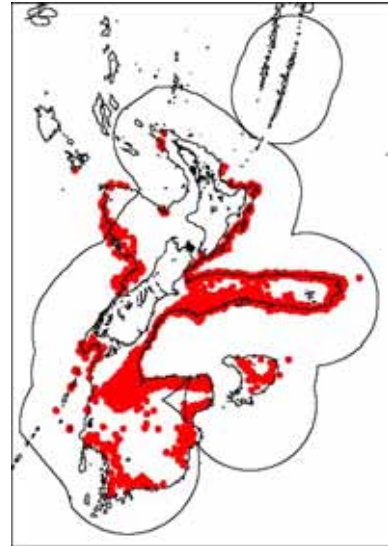
Family: 36. Etmopteridae (lantern sharks)

Maori names: n.a.

Other names: Giant lanternshark, New Zealand lanternshark

MFish reporting code: ETB

MFish research code: ETB



Distinguishing features: Stout-bodied, uniformly dark and with randomly spaced dermal denticles giving a slightly roughened skin. Bases of first and second dorsal fins naked (no denticles).

Colour: Dark brown to blackish, belly darker. Darker but inconspicuous pelvic and caudal fin marks.

Size: To about 85 cm TL.

Distribution: Widespread around New Zealand. May occur widely around southern hemisphere continents (especially southern Australia and South Africa) and oceanic islands, but there are identification problems.

Depth: 500 to 1500 m

Similar species: Lucifer dogfish (*E. lucifer*) is paler above with a linear arrangement of denticles. The uncommon smooth lanternshark (*E. pusillus*) is uniformly mid to dark brown and has a smooth skin. There is some uncertainty over the relationship between *E. baxteri* and the more widespread *E. granulosus*, and also the poorly known *E. tasmaniensis*.

Biology & ecology: Demersal, but probably feeds in midwater at times.

References

Blackwell & Stevenson (2003), Compagno (1984a), Compagno et al. (2005), Cox & Francis (1997), Garrick (1957a, 1960), Irvine et al. (2006b), Last & Stevens (2009), Paulin et al. (1989), Wetherbee (1996, 2000).

Lucifer dogfish

Etmopterus lucifer

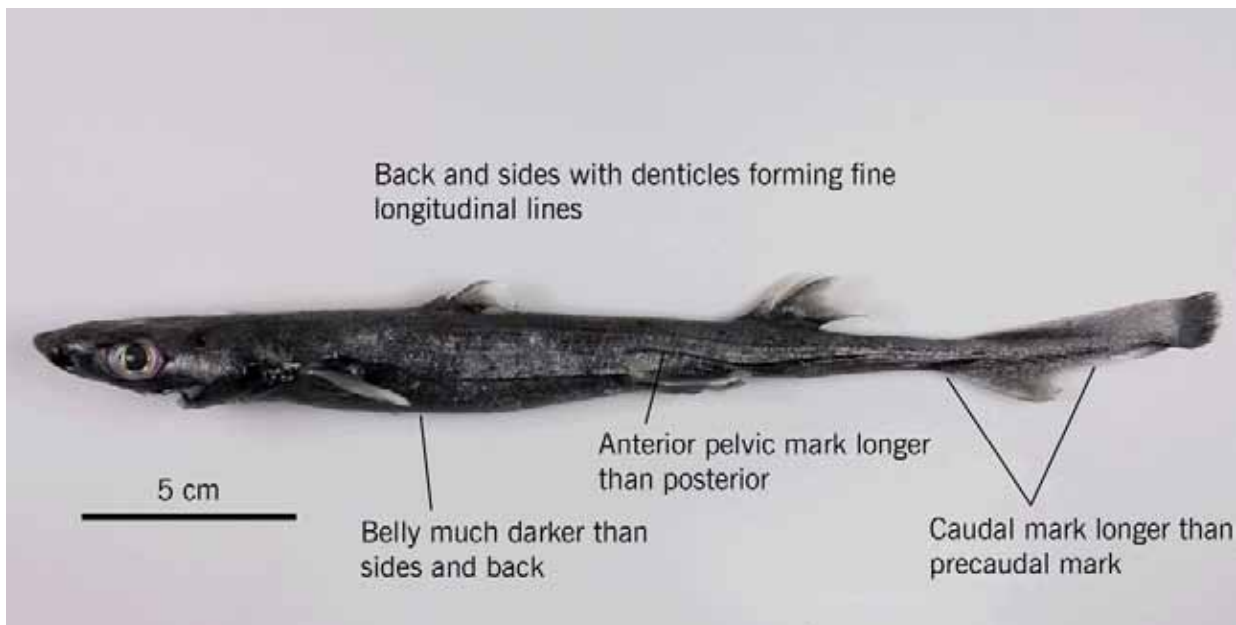
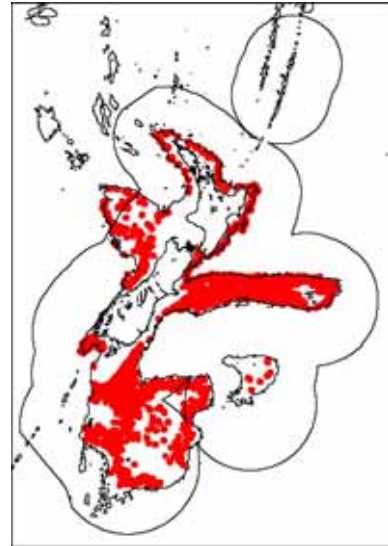
Family: 36. Etmopteridae (lantern sharks)

Maori names: n.a.

Other names: Blackbelly lanternshark

MFish reporting code: ETL

MFish research code: ETL



Distinguishing features: Small and slender, pale above with fine dark longitudinal lines, black below. The anterior branch of the pelvic flank mark is longer than the posterior branch.

Colour: Silvery-grey to pale brown above, black below, with a black mark and line above the pelvic fins, and short black lines on the lower tail base and near the tail tip. Dermal denticles on flank and back arranged in regular rows from snout to tail, giving a fine-striped appearance.

Size: To about 45 cm TL.

Distribution: Widespread around New Zealand. Present around most southern continents and in the Indo-Pacific, but there is some uncertainty because of confusion with similar species.

Depth: 400 to 900 m.

Similar species: Baxter's dogfish (*E. baxteri*) is uniform dark brown to blackish and has a random arrangement of rough dermal denticles. *E. pusillus* is uniform mid to dark brown and has smooth, randomly arranged denticles. In the much less common *E. molleri* the posterior branch of the pelvic flank mark is longer than the anterior branch.

Biology & ecology: Demersal, sometimes in midwater.

References

Amaoka et al. (1990), Compagno (1984a), Compagno et al. (2005), Cox & Francis (1997), Garrick (1960), Last & Stevens (2009), Paulin et al. (1989), Yamakawa et al. (1986).

Portuguese dogfish

Centroscymnus coelolepis

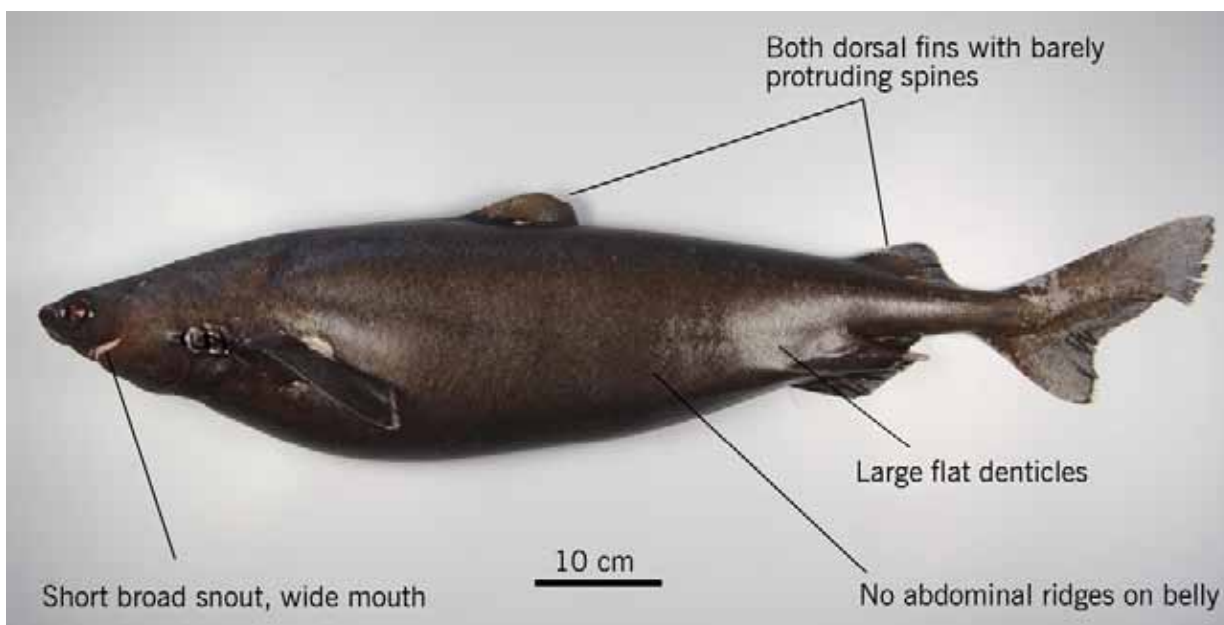
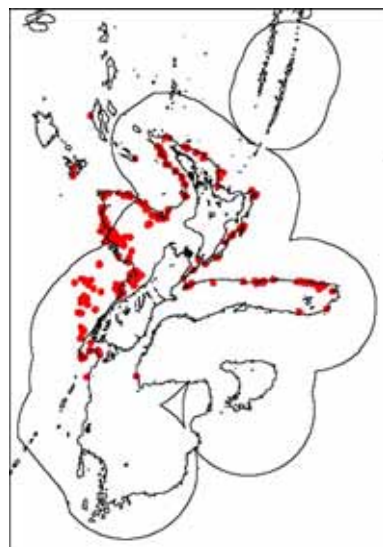
Family: 37. Somniosidae (sleeper sharks)

Maori names: n.a.

Other names: n.a.

MFish reporting code: CYL

MFish research code: CYL



Distinguishing features: Moderate-sized with a short broad snout and wide mouth, two dorsal fins equal in size and shape, each with a barely protruding spine, and large flat and smooth dermal denticles, overlapping in medium to large fish. No strong abdominal ridges.

Colour: Uniformly dark golden-brown, smaller fish being darker, more blackish.

Size: To about 120 cm TL.

Distribution: Widespread mostly around northern New Zealand. Occurs widely in the Pacific, Atlantic, and Indian Oceans.

Depth: From depths of 500 m and greater off New Zealand, to depths of 3700 m elsewhere.

Similar species: Seal shark (*Dalatias licha*) is blacker, has a very short snout, and lacks dorsal fin spines. Owston's dogfish (*Centroscymnus owstoni*) has distinct abdominal ridges. Longnose velvet dogfish (*Centroscymnus crepidater*) has a very elongated snout. Plunket's shark (*Proscymnodon plunketi*) has a body which tapers much more rapidly from behind the pectoral fin, small roughened dermal denticles, and a first dorsal fin which extends forward as a ridge to above the rear edge of the pectoral fin. Sleeper shark (*Somniosus*) lacks fin spines.

Biology & ecology: Demersal and midwater.

References

Compagno (1984a), Compagno et al. (2005), Cox & Francis (1997), Kyne & Simpfendorfer (2007), Last & Stevens (2009), Paulin et al. (1989).

Longnose velvet dogfish

Centroscymnus crepidater

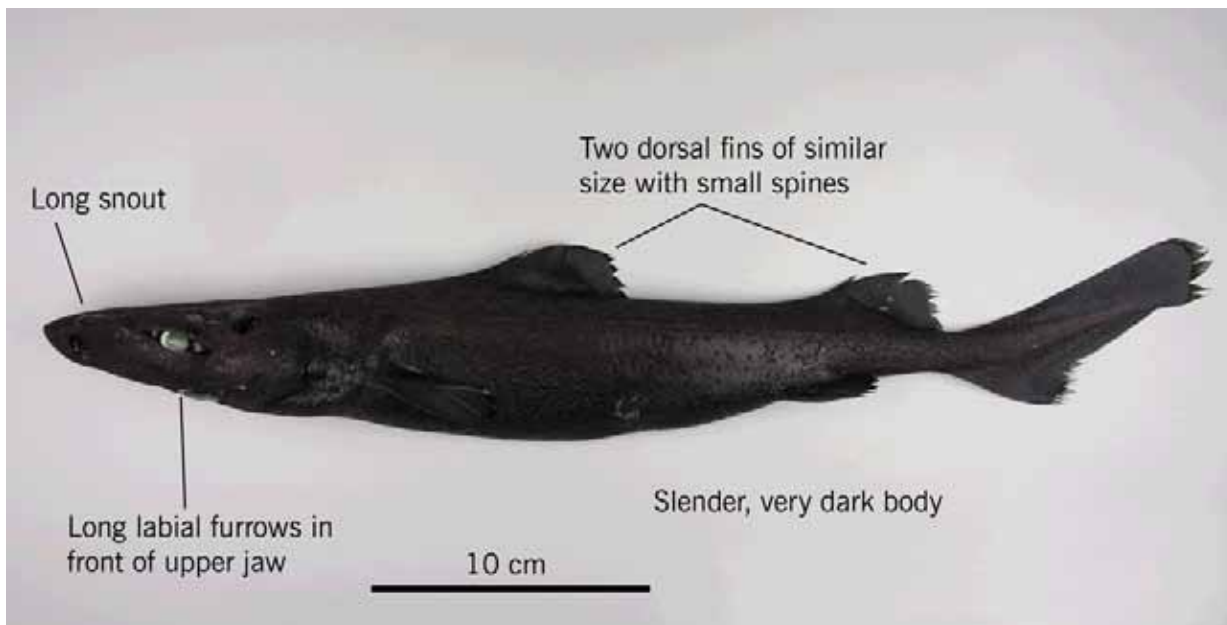
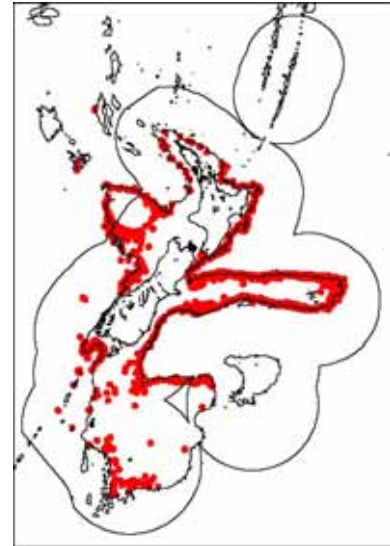
Family: 37. Somniosidae (sleeper sharks)

Maori names: n.a.

Other names: Golden dogfish (Aus.)

MFish reporting code: CYP

MFish research code: CYP



Distinguishing features: Very dark brown to black, small to moderate sized and slender with an elongate, flattened snout, dorsal fins about equal in size, small dorsal fin spines, and long upper labial furrows (grooves in front of upper jaw) that almost encircle the mouth.

Colour: Uniformly very dark brown to black.

Size: To about 105 cm TL.

Distribution: Widespread around New Zealand, also present off southeast Australia, Japan, and in the eastern Atlantic Ocean.

Depth: 500 to 1500 m off New Zealand, deeper elsewhere.

Similar species: Shovelnose dogfish (*Deania calcea*) has a long low first dorsal fin, shorter and lower than the second dorsal fin, and is much paler in colour, usually mid grey-brown.

Biology & ecology: Demersal but may also move into midwater.

References

Blackwell & Stevenson (2003), Compagno (1984a), Compagno et al. (2005). Cox & Francis (1997), Daley et al. (2002), Irvine et al. (2006a), Kyne & Simpfendorfer (2007), Last & Stevens (2009), Paulin et al. (1989), Wetherbee (2000).

Owston's dogfish

Centroscymnus owstoni

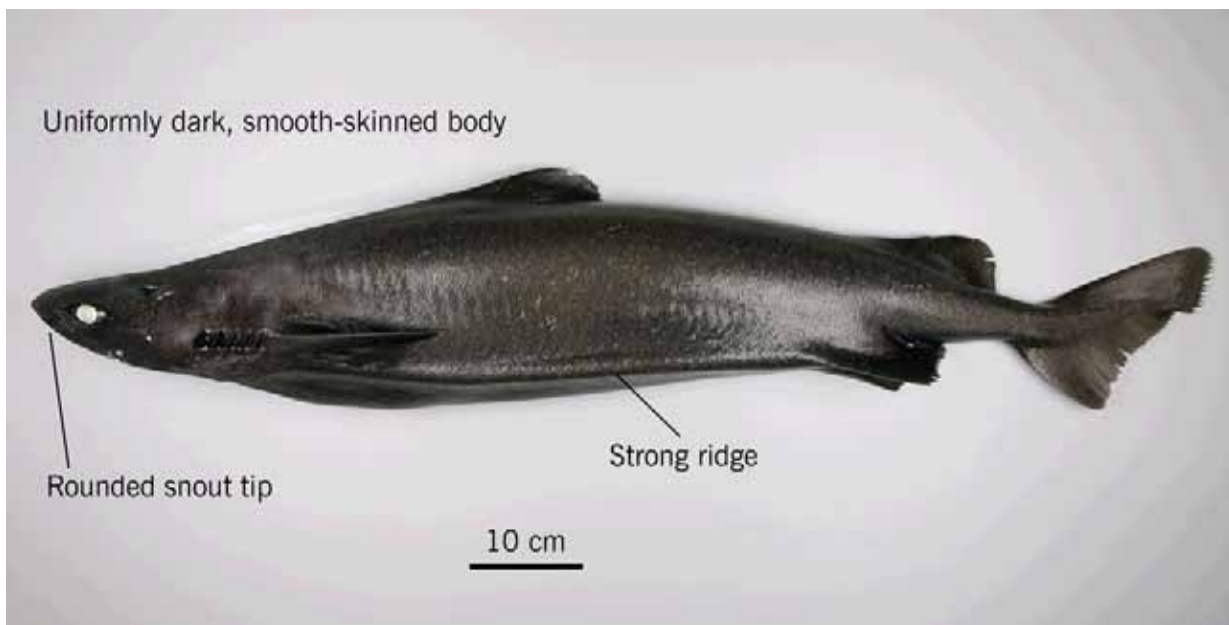
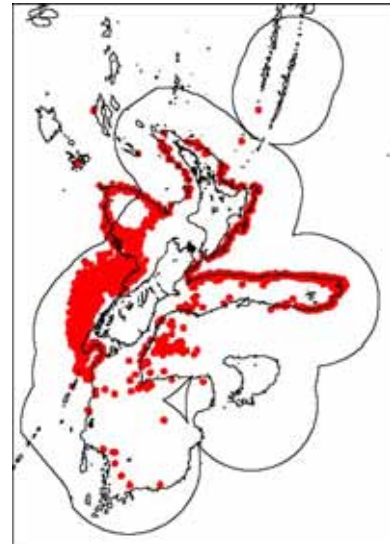
Family: 37. Somniosidae (sleeper sharks)

Maori names: n.a.

Other names: n.a.

MFish reporting code: CYO

MFish research code: CYO



Distinguishing features: Moderate-sized with a stocky body. Strong abdominal ridges between pectoral and pelvic fin bases. Snout length about equal to mouth width, rounded to slightly pointed. Teeth near centre of lower jaw distinctly oblique. Second dorsal fin base longer than space between it and upper caudal fin origin. Smooth dermal denticles.

Colour: Uniformly dark brown to black.

Size: To about 120 cm TL.

Distribution: Widespread in New Zealand, but relatively more common from Chatham Rise northwards. Elsewhere, present off southern Australia and in several regions of the Pacific and Atlantic Oceans.

Depth: 500 to 1500 m.

Similar species: Portuguese dogfish (*Centroscymnus coelolepis*) has weak abdominal ridges, and has larger flat denticles. Velvet dogfish (*Zameus squamulosus*) has weak abdominal ridges, a more pointed snout longer than the mouth width, erect or slightly oblique teeth near centre of lower jaw, and a second dorsal fin base shorter than the space between it and the upper caudal fin origin.

Biology & ecology: Demersal and midwater.

References

Blackwell & Stevenson (2003), Compagno (1984a), Compagno et al. (2005), Cox & Francis (1997), Daley et al. (2002), Kyne & Simpfendorfer (2007), Last & Stevens (2009), Paulin et al. (1989), Wetherbee (2000).

Plunket's shark

Proscymnodon plunketi

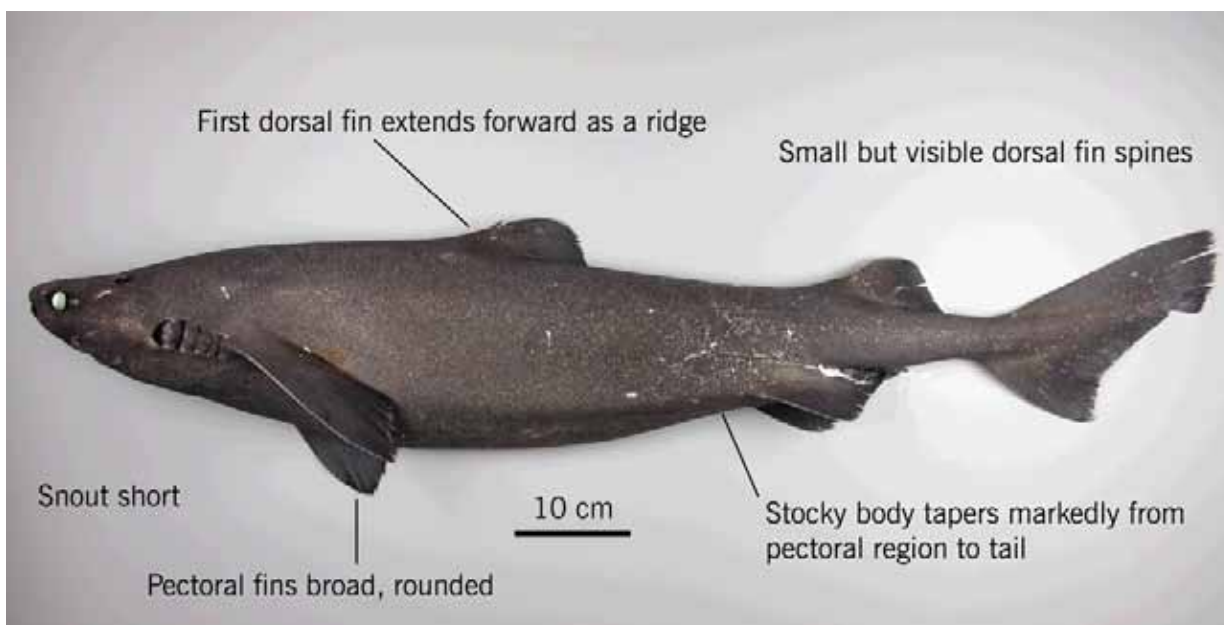
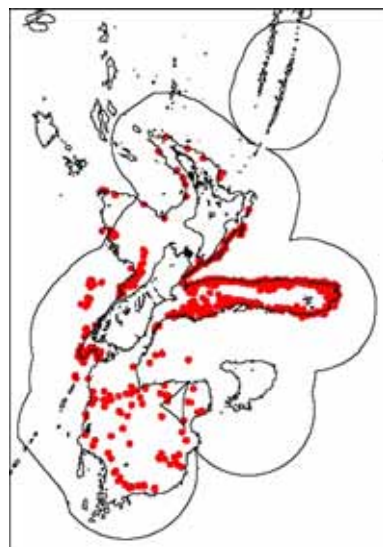
Family: 37. Somniosidae (sleeper sharks)

Maori names: n.a.

Other names: Plunket's dogfish

MFish reporting code: PLS

MFish research code: PLS



Distinguishing features: Moderate-sized, stocky anterior to the pectoral region, tapering rapidly from behind the pectoral fins to the tail. Short broad head and snout. First dorsal fin extends forwards as a ridge. Dorsal fin spines small, but do protrude. Pectoral fins broad and rounded. Dermal denticles only moderate in size, ridged.

Colour: Uniformly brownish-black, smaller specimens paler.

Size: Males to 130 cm, females to 170 cm TL.

Distribution: Widespread around New Zealand, also occurs off southeast Australia and in the southern Indian Ocean.

Depth: 500 to 1200 m.

Similar species: Leafscale gulper shark (*Centrophorus squamosus*) has a pointed inner rear corner of the pectoral fin and is generally paler, greyish-brown. Seal shark (*Dalatias licha*) lacks dorsal fin spines. Owston's dogfish (*Centroscymnus owstoni*) has strong abdominal ridges. Portuguese dogfish (*Centroscymnus coelolepis*) has large flat smooth dermal denticles.

Biology & ecology: Demersal and midwater.

References

Amaoka et al. (1990), Compagno (1984a), Compagno et al. (2005), Cox & Francis (1997), Garrick (1959b), Kyne & Simpfendorfer (2007), Last & Stevens (2009), Paulin et al. (1989).

Velvet dogfish

Zameus squamulosus

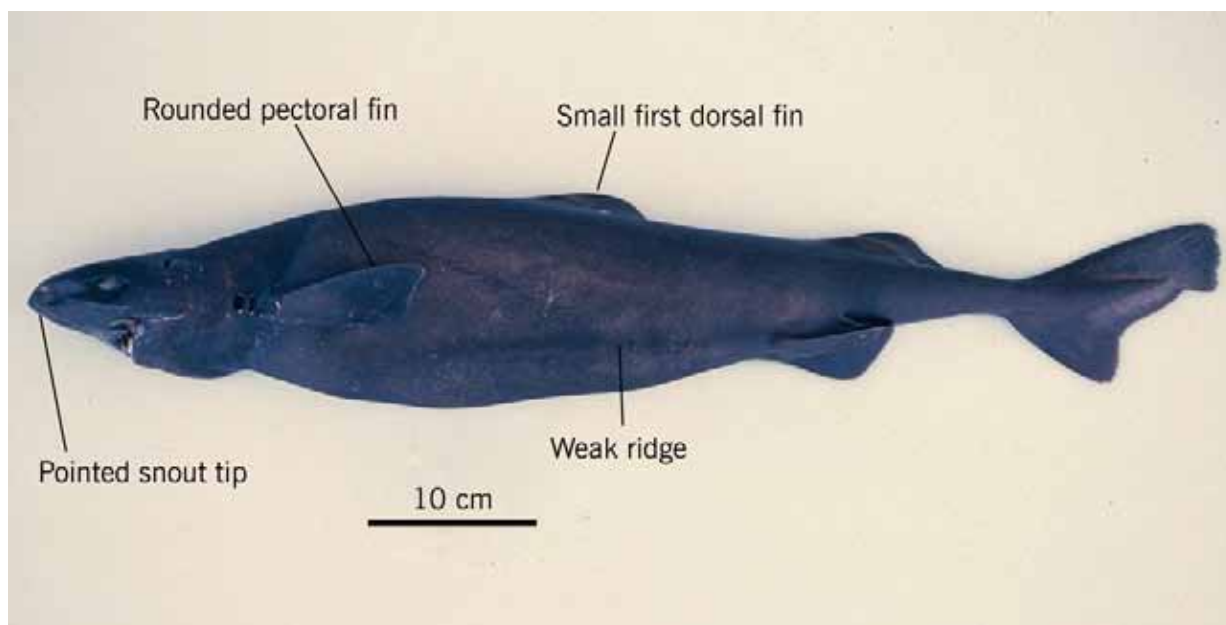
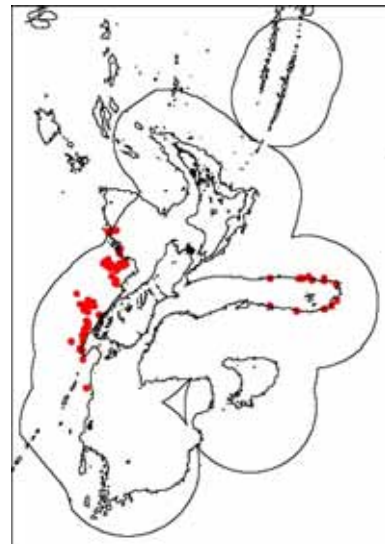
Family: 37. Somniosidae (sleeper sharks)

Maori names: n.a.

Other names: n.a.

MFish reporting code: OSD

MFish research code: ZAS



Distinguishing features: Small, slender and black bodied with weak abdominal ridges between pectoral and pelvic fins. Snout narrow and pointed, longer than mouth width. Teeth near centre of lower jaw erect or only slightly oblique. Small (low) first dorsal fin. Rounded pectoral fins. Second dorsal fin base shorter than distance between it and upper caudal fin origin.

Colour: Uniformly very dark brown to black.

Size: To about 85 cm TL.

Distribution: In New Zealand reported mainly from the eastern Chatham Rise. Probably worldwide, but not recorded from the eastern Pacific Ocean.

Depth: 550 to at least 1500 m, and has been taken at or near the surface over deep water.

Similar species: Owston's dogfish (*Centroscymnus owstoni*) has strong abdominal ridges, a more rounded snout shorter than the mouth width, oblique teeth in the centre of the lower jaw, and a second dorsal fin base longer than the distance between it and the upper caudal fin origin.

Biology & ecology: Demersal and midwater. Little studied.

References

Compagno (1984a), Compagno et al. (2005), Cox & Francis (1997), Last & Stevens (2009), Paulin et al. (1989), Taniuchi & Garrick (1986).

Seal shark

Dalatias licha

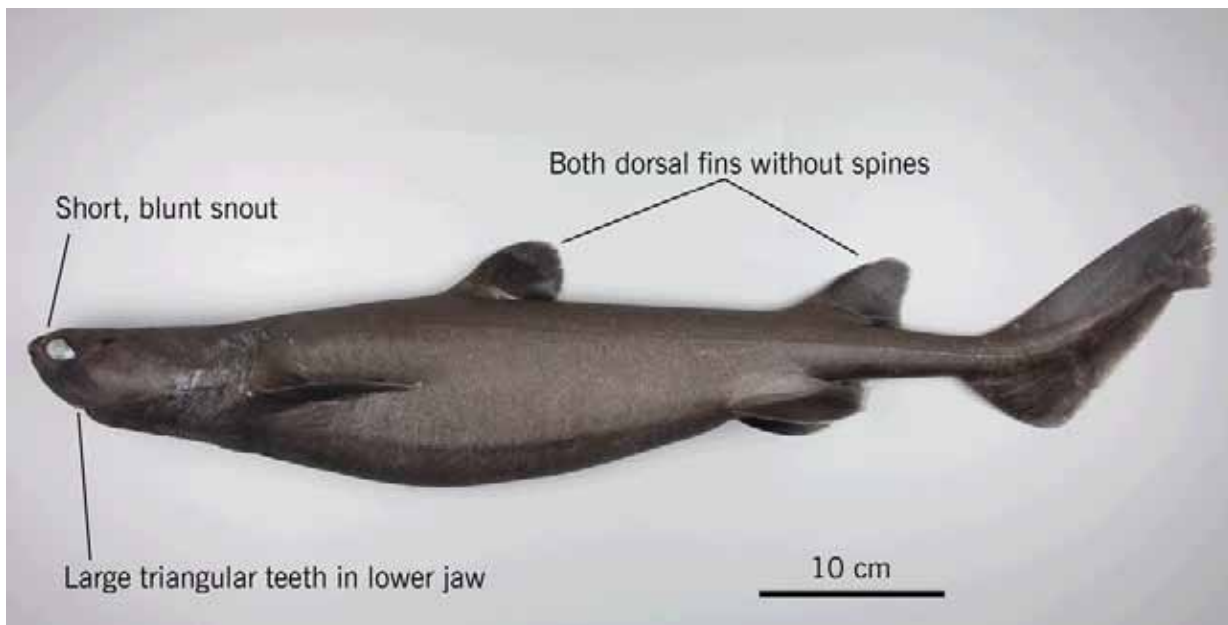
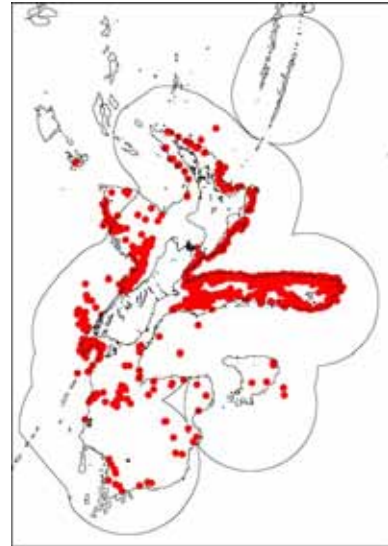
Family: 39. Dalatiidae (kitefin sharks)

Maori names: n.a.

Other names: Black shark

MFish reporting code: BSH

MFish research code: BSH



Distinguishing features: Moderate sized with a short blunt snout giving the head a “seal-like” appearance. First dorsal fin rounded, second more pointed, slightly larger; both without fin spines. Thick lips. Teeth in lower jaw large, triangular, serrated.

Colour: Uniformly dark grey-brown to black, occasionally lighter.

Size: To about 160 cm TL.

Distribution: Widespread around New Zealand, and widely distributed in the Pacific, Indian, and Atlantic Oceans.

Depth: 400 to 1000 m.

Similar species: Portuguese dogfish (*Centroscymnus coelolepis*) and Owston's dogfish (*C. owstoni*) have slightly longer snouts, and small dorsal fin spines.

Biology & ecology: Demersal, sometimes feeding in midwater.

References

Amaoka et al. (1990), Blackwell & Stevenson (2003), Compagno (1984a), Compagno et al. (2005), Cox & Francis (1997), Garrick (1960), Kyne & Simpfendorfer (2007), Last & Stevens (2009), Paulin et al. (1989).

Cookie-cutter shark

Isistius brasiliensis

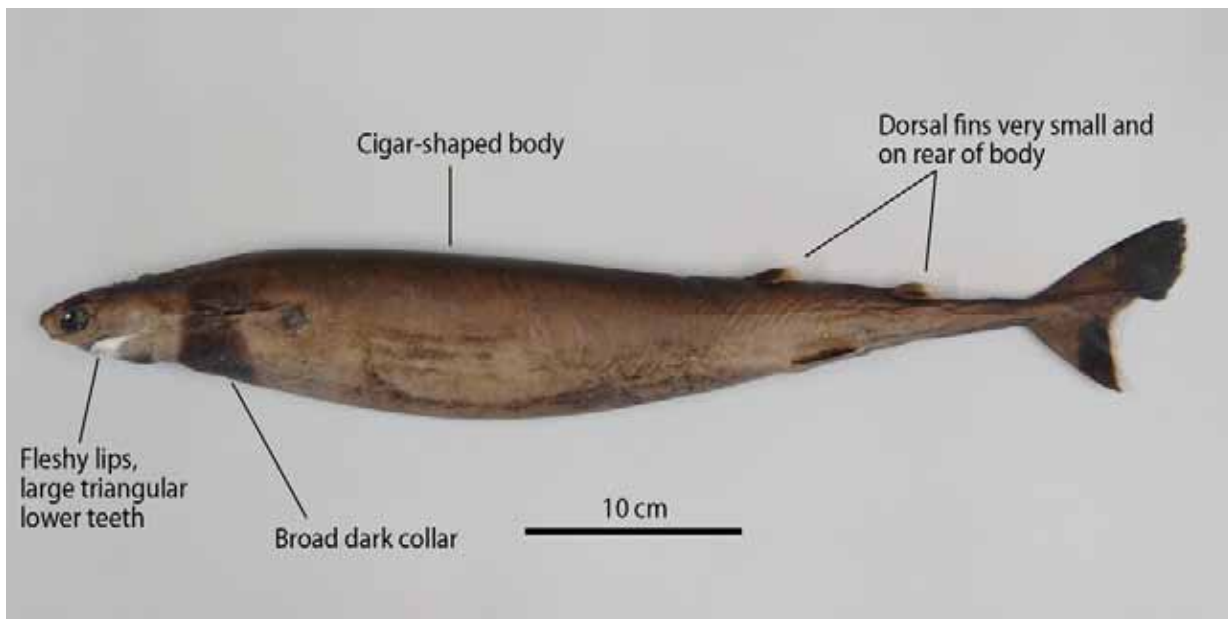
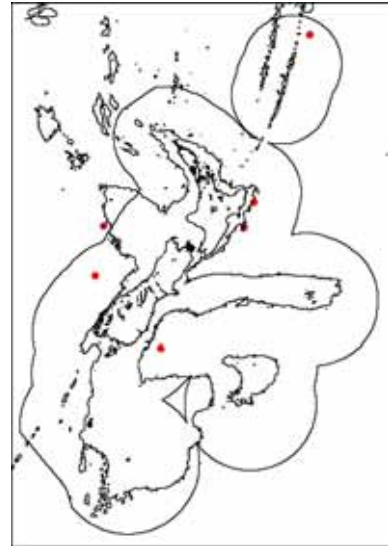
Family: 39. Dalatiidae (kitefin sharks)

Maori names: n.a.

Other names: n.a.

MFish reporting code: OSD

MFish research code: IBR



Distinguishing features: Two very small dorsal fins placed well back on cigar-shaped body. Broad dark collar on throat. Fleshy lips and large triangular lower teeth with erect cusps.

Colour: Dark brown above, paler below, with a dark band encircling the head at the level of the gills (more prominent ventrally).

Size: To 50 cm TL.

Distribution: Only a few records from the Kermadec Islands to southern South Island. Worldwide in tropical to temperate oceans.

Depth: 0 to 1000 m, possibly deeper.

Similar species: Pygmy shark (*Euprotomicrus bispinatus*) is smaller (maximum 27 cm TL), darker (mostly black without a dark collar), and has oblique cusps on the lower jaw teeth.

Biology & ecology: Pelagic in the open ocean. Inhabits deep water during the day and migrates to near the surface at night.

References

Chapman et al. (2006), Compagno (1984a), Compagno et al. (2005), Last & Stevens (2009).

Pelagic stingray

Pteroplatytrygon violacea

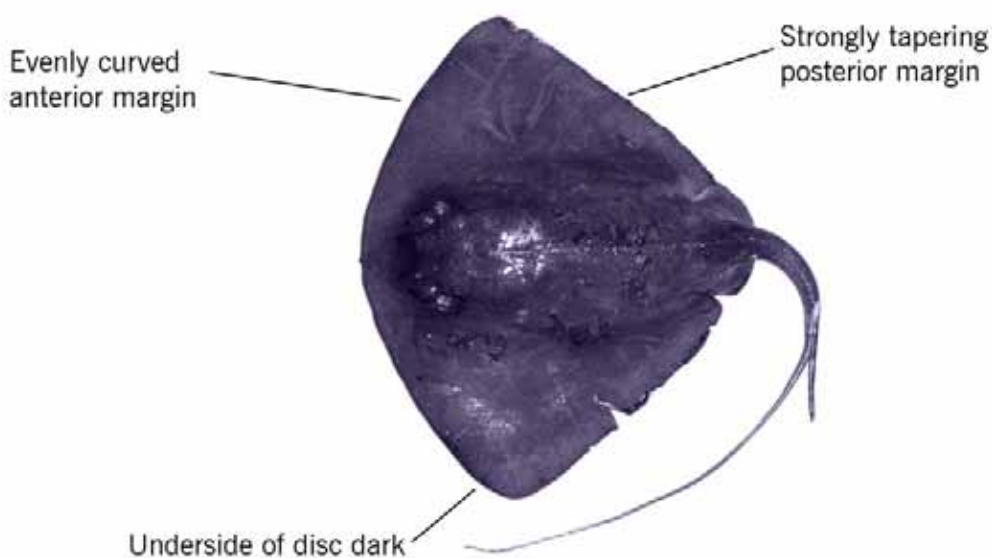
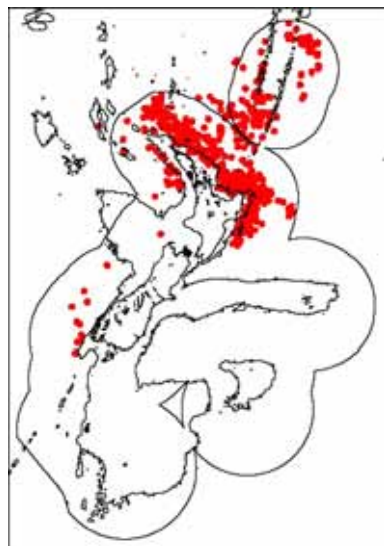
Family: 55. Dasyatidae (whiptail stingrays)

Maori names: n.a.

Other names: Violet stingray

MFish reporting code: DAS

MFish research code: DAS



Distinguishing features: Disc with an evenly curved anterior margin and strongly tapering posterior margin. Underside dark.

Colour: Both surfaces very dark, ranging from black to purplish-brown.

Size: To 80 cm disc width.

Distribution: Kermadec Islands to Cook Strait, straggles down the west coast South Island as far as Puysegur Point in warm summers. Most common off northeast North Island. Worldwide in tropical and subtropical waters.

Depth: From surface to unknown depth, probably at least 200 m.

Similar species: Short-tailed stingray (*Dasyatis brevicaudata*) has a disc with a curved rear margin, and is white below with a broad grey margin. Long-tailed stingray (*D. thetidis*) disc has a curved rear margin, and is white below.

Biology & ecology: Pelagic in the open ocean.

References

Chapman et al. (2006), Last & Stevens (2009).

Manta ray

Manta birostris

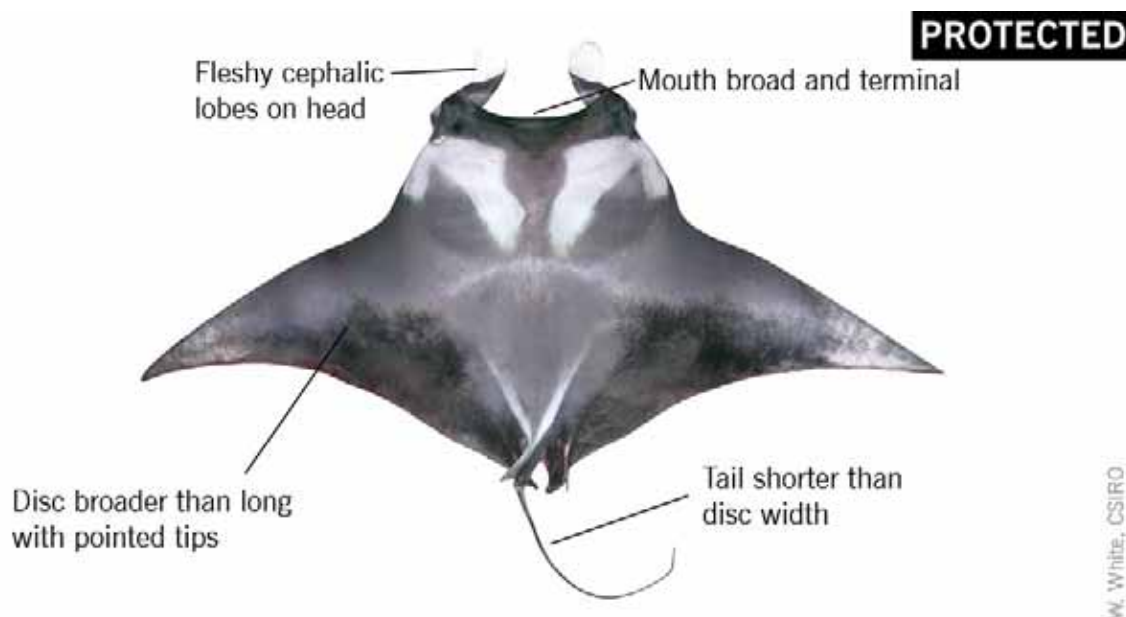
Family: 58b. Mobulidae (devil rays)

Maori names: n.a.

Other names: n.a.

MFish reporting code: RMB

MFish research code: RMB



Distinguishing features: Disc broad (wider than long) with pointed tips, head with prominent fleshy extensions of pectoral fins (cephalic lobes). Mouth broad and terminal (at front of head). Tail thin, shorter than disc width, usually with a stinging spine.

Colour: Greyish-blue to greenish-brown above, with irregular paler shoulder patches. White below, sometimes with grey or black patches behind the gills.

Size: To at least 670 cm disc width.

Distribution: Northeast coast of North Island. Worldwide in tropical and subtropical waters.

Depth: Unknown. Usually seen near the surface, but probably extends to at least 200 m.

Similar species: Spinetail devil ray (*Mobula japanica*) has mouth on underside of head, dorsal fin with white tip, tail equal to or longer than disc width.

Biology & ecology: Pelagic over the continental shelf and in the open ocean.

References

Chapman et al. (2006), Duffy & Abbott (2003), Last & Stevens (2009).

Spinetail devil ray

Mobula japonica

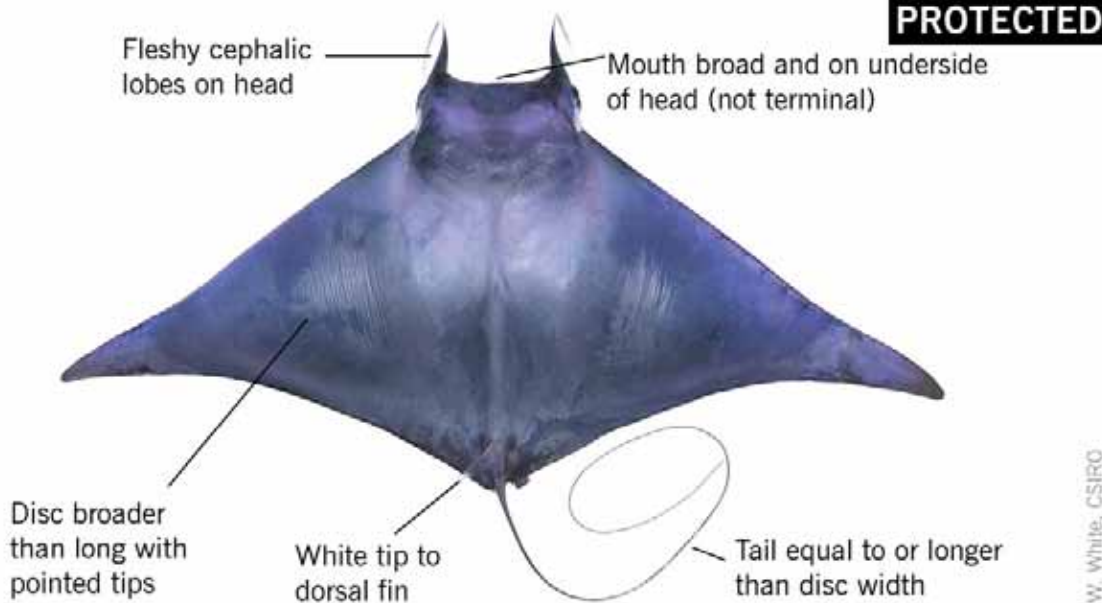
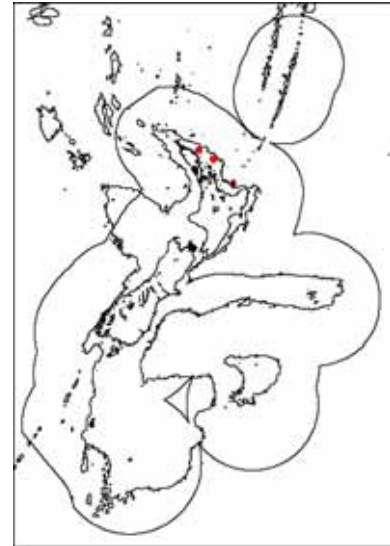
Family: 58b. Mobulidae (devil rays)

Maori names: n.a.

Other names: Japanese devil ray

MFish reporting code: MJA

MFish research code: MJA



Distinguishing features: Disc broad (wider than long) with pointed tips, head with prominent fleshy extensions of pectoral fins (cephalic lobes). Mouth broad and on underside of head. Dorsal fin with white tip. Tail thin, equal to or longer than disc width, usually with a stinging spine.

Colour: Bluish or purplish-black above, iridescent when alive, white below with dark patches in adults. Juveniles with two white crescents on 'shoulders'.

Size: To at least 310 cm disc width.

Distribution: Kermadec Islands and northeast coast of North Island to south of East Cape. Rare off the northern west coast of North Island. Probably worldwide in tropical to warm temperate waters.

Depth: Unknown. Usually seen near the surface, but probably extends to at least 200 m.

Similar species: Manta ray (*Manta birostris*) has a terminal mouth (at front of head), and tail is shorter than disc width. Sicklefin devil ray (*Mobula tarapacana*) occurs in tropical waters north of NZ and might occur here. It has more concave rear disc margins, no stinging spine, and no white tip on the dorsal fin.

Biology & ecology: Pelagic over the continental shelf and in the open ocean. Usually at or beyond the shelf edge in New Zealand.

References

Duffy & Abbott (2003), Last & Stevens (2009), Paulin et al. (1982).

Anchovy

Engraulis australis

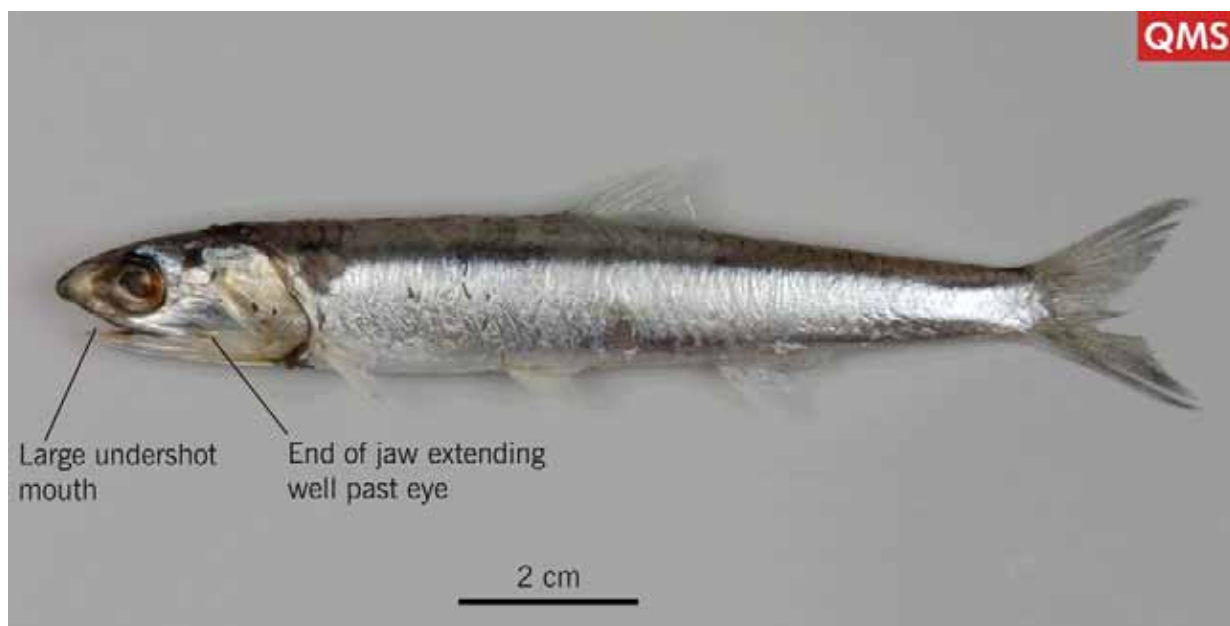
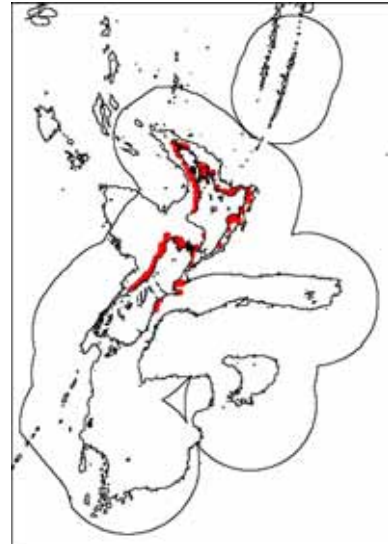
Family: 95. Engraulidae (anchovies)

Maori names: Kokowhaawhaa, korowhaawhaa

Other names: n.a.

MFish reporting code: ANC

MFish research code: ANC



Distinguishing features: Small pelagic schooling fish with large undershot mouth and single dorsal fin.

Colour: Body blue-green above, silvery on sides and belly.

Size: To about 15 cm FL.

Distribution: Common around northern and central New Zealand. Also southern Australia.

Depth: 0 to 100 m.

Similar species: Only one species of anchovy occurs in New Zealand waters. Other small pelagic species lack the combination of large undershot mouth, upper jaw reaching back to well past eye, single dorsal fin, and no scutes along belly.

Biology & ecology: Pelagic, usually in schools, inshore.

References

Hirt-Chabbert (2006), May & Maxwell (1986), Paul (2000), Paulin et al. (1989).

Pilchard

Sardinops sagax

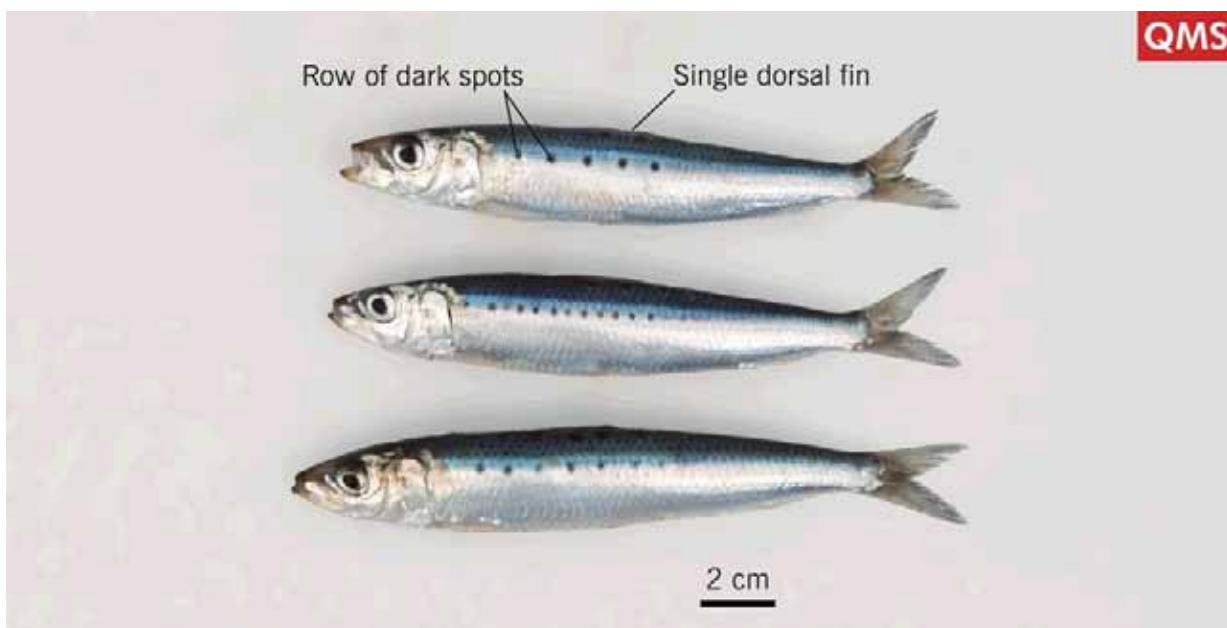
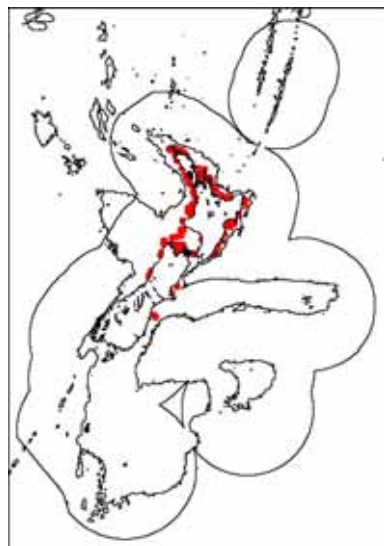
Family: 97. Clupeidae (herrings)

Maori names: Mohimohi

Other names: Sardine

MFish reporting code: PIL

MFish research code: PIL



Distinguishing features: Small inshore pelagic schooling fish with single dorsal fin. Body blue-green above, silvery on sides with a longitudinal row of several dark spots.

Colour: Body blue-green above, silvery on sides with several distinctive black spots along each side.

Size: To about 25 cm FL.

Distribution: Around northern and central New Zealand. Also southern Australia.

Depth: 0 to 200 m.

Similar species: Slender and stout sprats (*Sprattus antipodum* and *S. muelleri*) have a bluish upper body and silvery sides without dark spots, a laterally flattened body, a row of serrated scutes along the ventral body. Anchovy (*Engraulis australis*) has a silvery body without dark spots and an underslung lower jaw.

Biology & ecology: Pelagic on continental shelf, particularly in large embayments such as the Hauraki Gulf, Marlborough Sounds, and Tasman Bay.

References

Chapman et al. (2006), Hirt-Chabbert (2006), May & Maxwell (1986), Paul (2000), Paulin et al. (1989).

Slender sprat

Sprattus antipodum

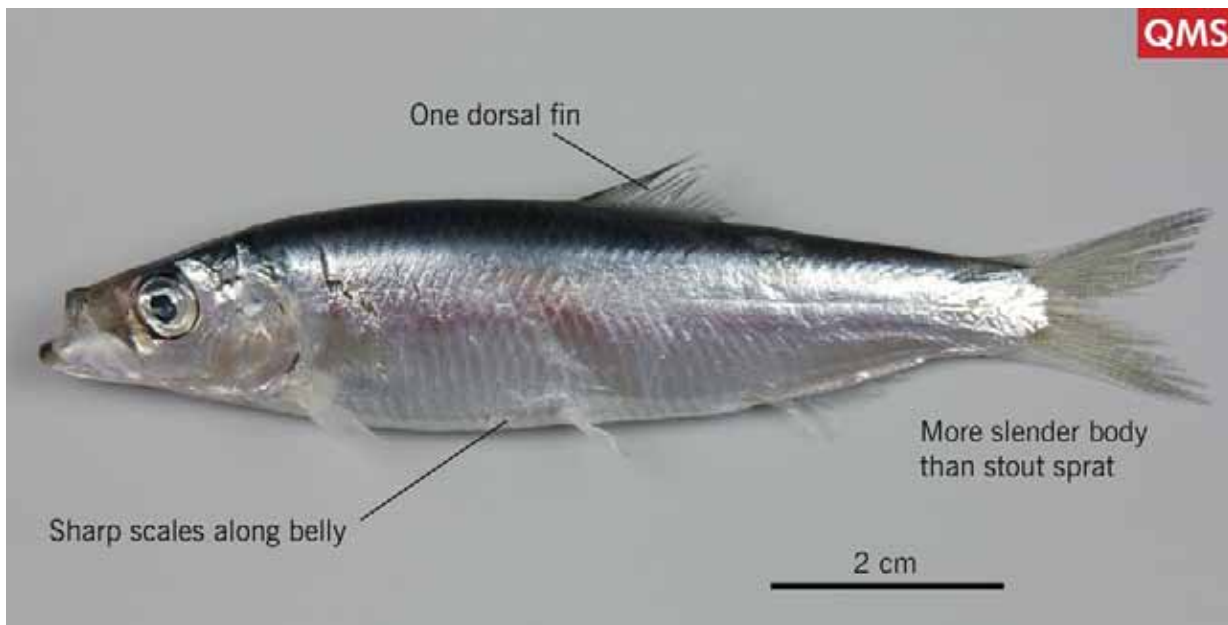
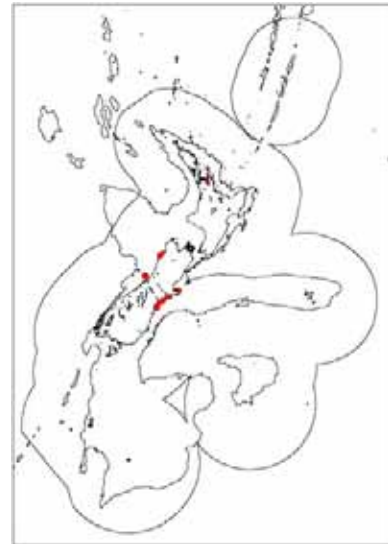
Family: 97. Clupeidae (herrings)

Maori names: Kuupae

Other names: New Zealand blueback sprat, sardine

MFish reporting code: SPR

MFish research code: SPA



Distinguishing features: The single dorsal fin, laterally compressed body, and row of serrated scales along the belly midline distinguish sprats from other pelagic fishes. Body depth less than or about same as head length.

Colour: Dark blue above with greenish sheen, silvery sides and belly.

Size: To about 15 cm FL.

Distribution: Known only from New Zealand.

Depth: 0 to 110 m.

Similar species: Stout sprat (*Sprattus muelleri*) has a deeper body, a narrow tooth pad on the tongue, and no fine ridges on the posterior margin of the scales. Pilchard (*Sardinops sagax*) has a body that is blue-green above, with silvery sides and a longitudinal row of several dark spots. Anchovy (*Engraulis australis*) has a silvery body without dark spots and an underslung lower jaw.

Biology & ecology: Pelagic on the continental shelf, and apparently more common off the South Island.

References

Froese & Pauly (2007), Hirt-Chabbert (2006), Paul (2000), Paulin et al. (1989), Whitehead et al. (1985).

Stout sprat

Sprattus muelleri

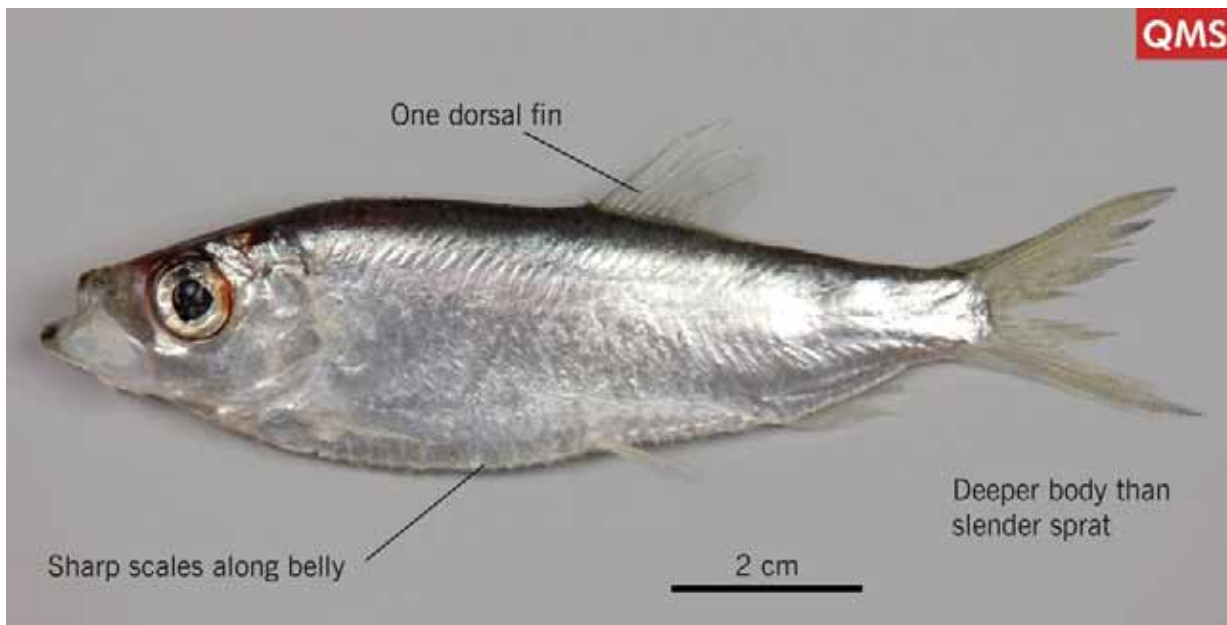
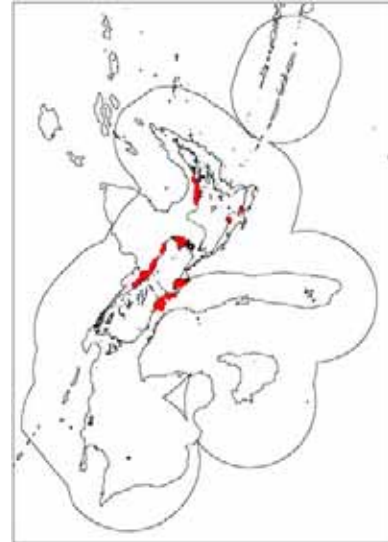
Family: 97. Clupeidae (herrings)

Maori names: Kuupae

Other names: New Zealand sprat, sardine

MFish reporting code: SPR

MFish research code: SPM



Distinguishing features: The single dorsal fin, laterally compressed body, and row of serrated scales along the belly midline distinguish sprats from other pelagic fishes. Body depth greater than or about the same as head length.

Colour: Dark blue above with greenish sheen, silvery sides and belly.

Size: To about 15 cm FL.

Distribution: Known only from New Zealand.

Depth: 0 to 110 m.

Similar species: Slender sprat (*Sprattus antipodum*) has a more slender body, a broad tooth pad on the tongue, and fine ridges on the posterior margin of the scales. Pilchard (*Sardinops sagax*) has a body that is blue-green above, with silvery sides and a longitudinal row of several dark spots. Anchovy (*Engraulis australis*) has a silvery body without dark spots and an underslung lower jaw.

Biology & ecology: Pelagic on the continental shelf, usually in schools. Apparently most common along the east coast of the South Island.

References

Froese & Pauly (2007), Hirt-Chabbert (2006), Paul (2000), Paulin et al. (1989), Whitehead et al. (1985).

Shortsnouted lancetfish

Alepisaurus brevirostris

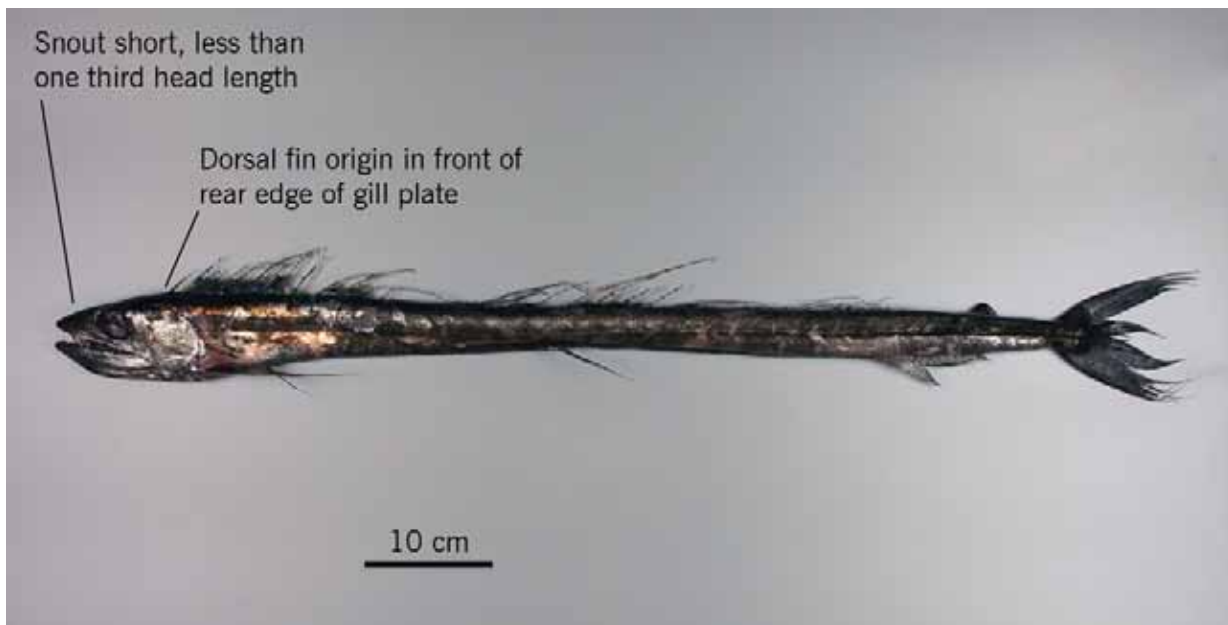
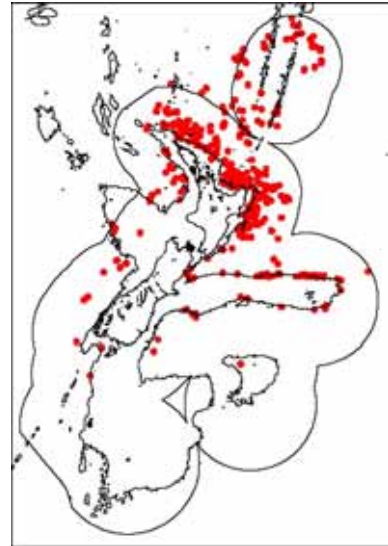
Family: 195. Alepisauridae (lancetfishes)

Maori names: n.a.

Other names: Shortnose lancetfish

MFish reporting code: ABR

MFish research code: ABR



Distinguishing features: Elongate slender body with large fangs in jaws, high sail-like dorsal fin, and long pectoral fins. Dorsal fin origin in front of the rear edge of the gill plate. Snout less than one-third of head length.

Colour: Body dark blue on dorsal surface, silvery-white below. Fins blue.

Size: To about 143 cm FL.

Distribution: Mostly recorded from north and east of the North Island north of about 40 S. Widespread in world's oceans but not known from the North Pacific Ocean.

Depth: 0 to 800 m, possibly deeper.

Similar species: Longsnouted lancetfish (*Alepisaurus ferox*) specimens longer than about 50 cm FL have a relatively longer head and snout, and the dorsal fin origin is above or behind 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 (2000).

Longsnouted lancetfish

Alepisaurus ferox

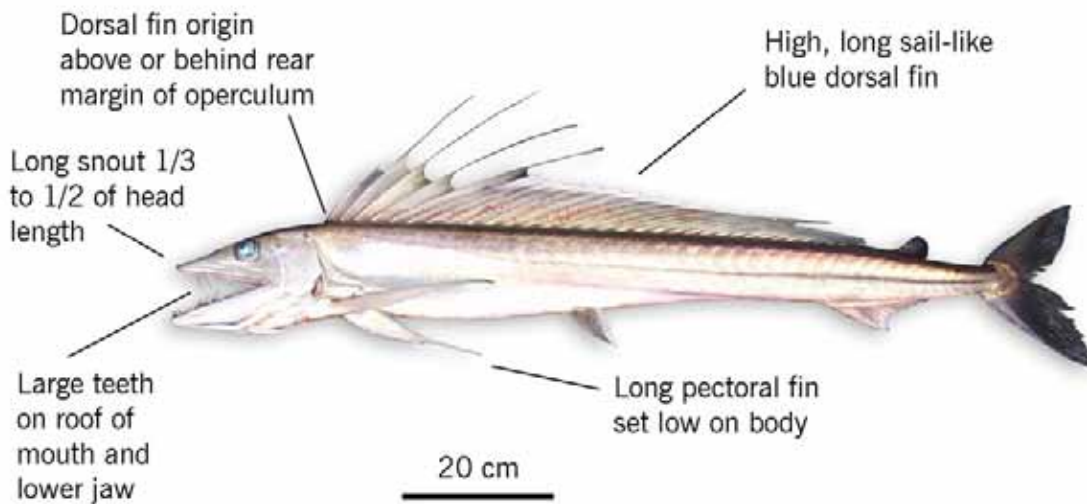
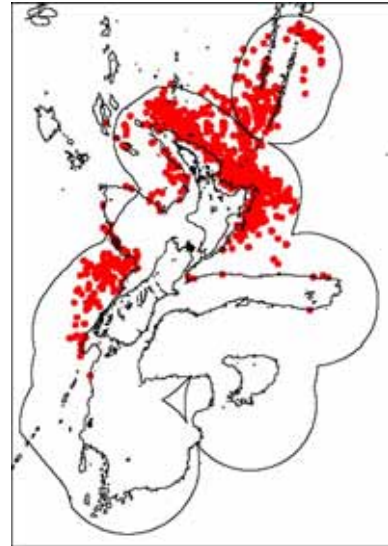
Family: 195. Alepisauridae (lancetfishes)

Maori names: n.a.

Other names: Longnose lancetfish

MFish reporting code: LAT

MFish research code: LAT



Distinguishing features: Elongate slender 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 a relatively shorter head and snout, 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).

Barracudina

Magnisudis prionosa

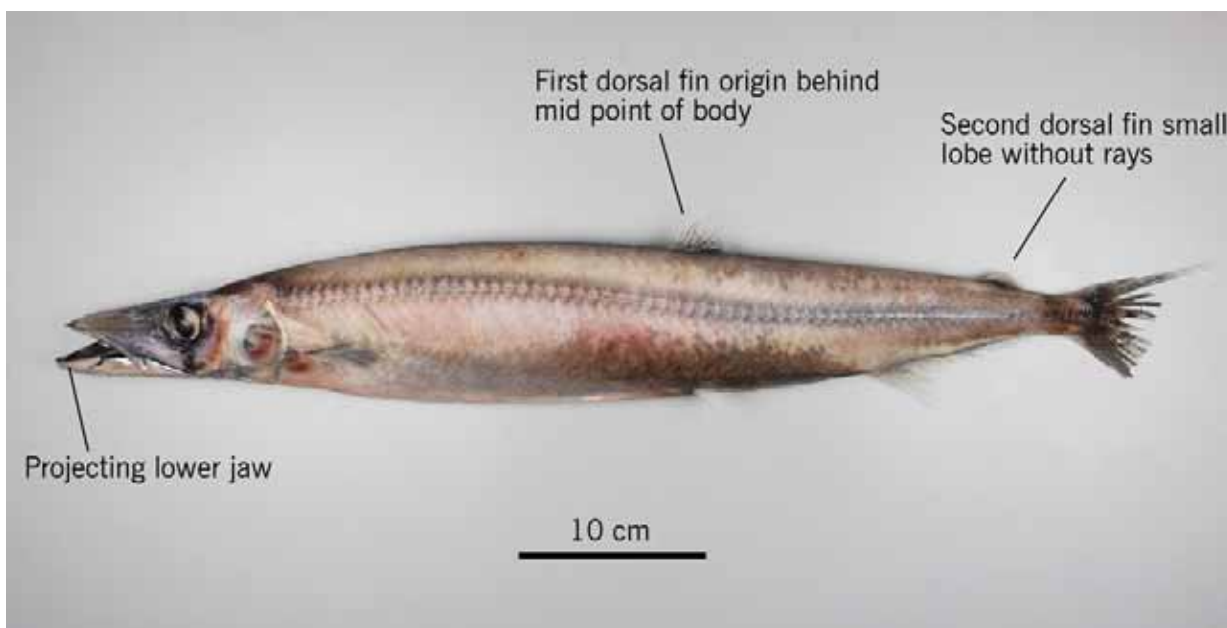
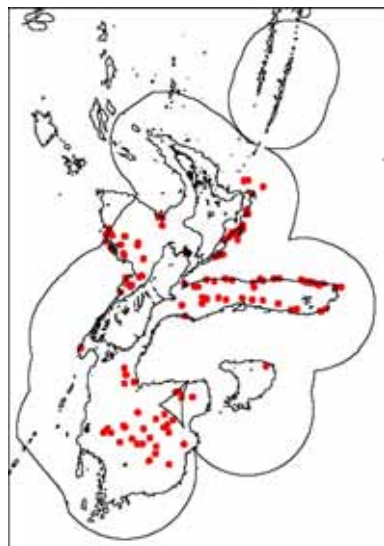
Family: 196. Paralepididae (barracudinas)

Maori names: n.a.

Other names: Giant barracudina, 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.

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 Ocean from about 20° S to Antarctica.

Depth: 500 to 1000 m.

Similar species: Other barracudinas appear to be much rarer and smaller, but 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 (*Thyrstites 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).

Moonfish

Lampris guttatus

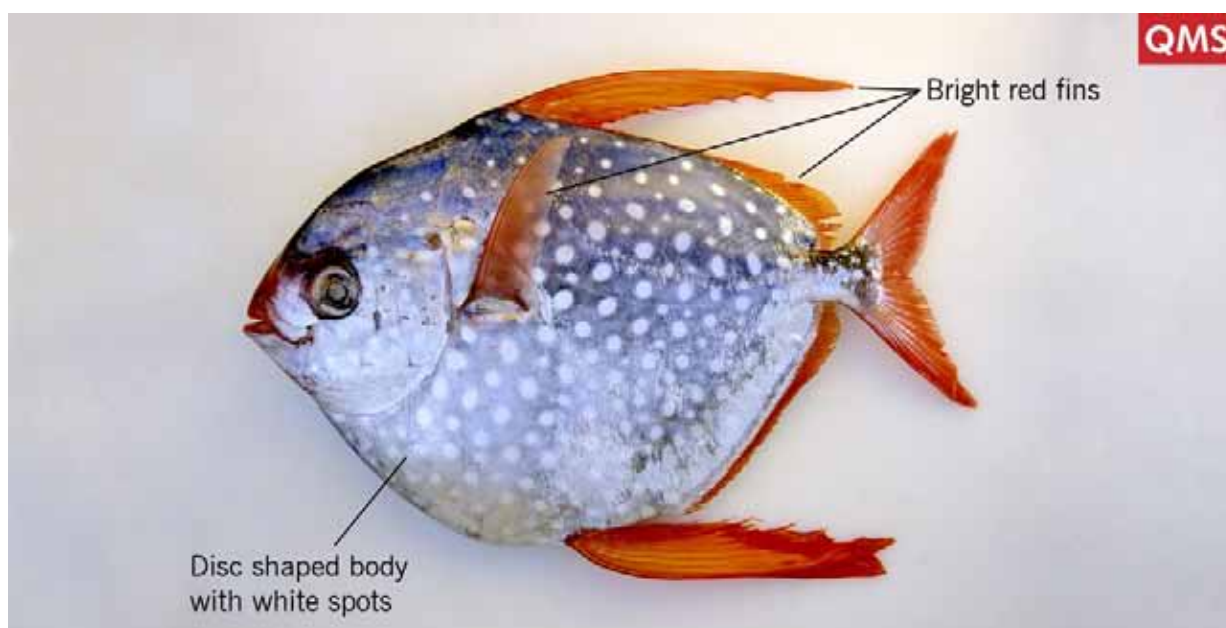
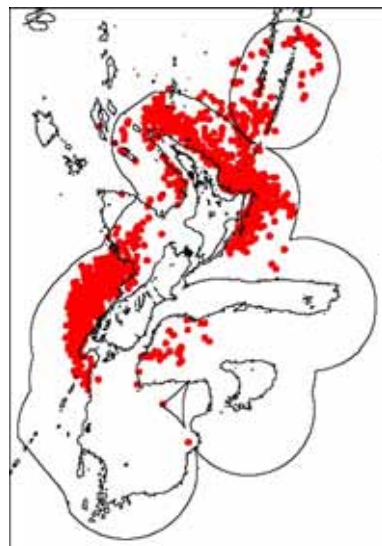
Family: 202. Lampridae (opahs)

Maori names: n.a.

Other names: Opah

MFish reporting code: MOO

MFish research code: MOO



Distinguishing features: Disc-shaped fish with bright red fins and pink, blue, or purple body covered in white spots.

Colour: Bright red fins. Pink, blue, or purple body covered in white spots.

Size: To about 150 cm FL in New Zealand, reaches 180 cm.

Distribution: Widely distributed around New Zealand, including the Kermadec region, Chatham Rise and the Subantarctic region. Occurs in tropical and temperate waters of all of the major oceans.

Depth: To about 500 m.

Similar species: Opah (*Lampris immaculatus*) is more elongate and lacks spots. Fisheries records indicate that moonfish is sometimes incorrectly recorded as opah.

Biology & ecology: Pelagic.

References

Bagley et al. (2000), Chapman et al. (2006), Francis et al. (1999), Parin & Kukuyev (1983), Paul (2000), Roberts & Stewart (1998).

Opah

Lampris immaculatus

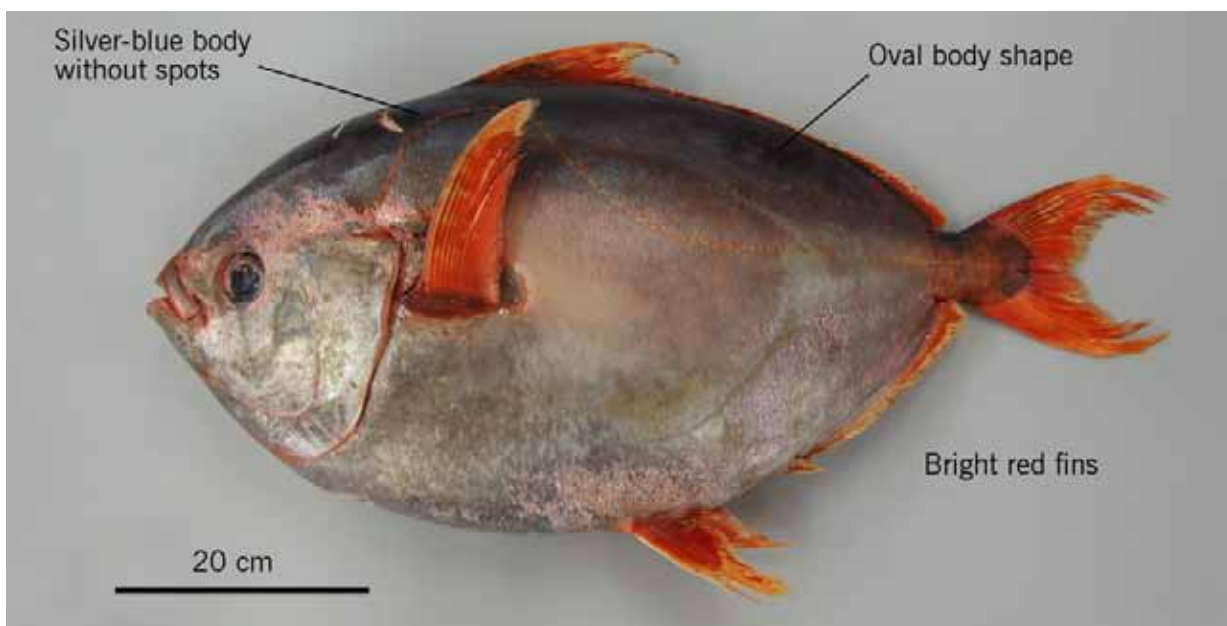
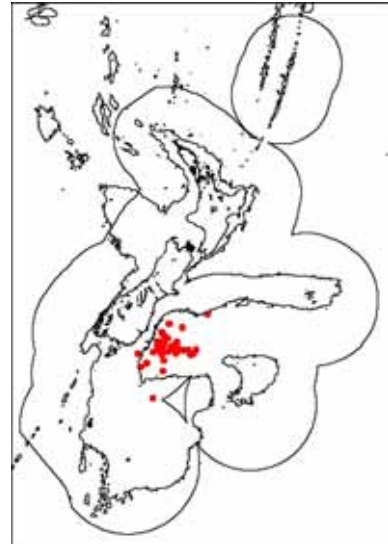
Family: 202. Lampridae (opahs)

Maori names: n.a.

Other names: Southern opah

MFish reporting code: PAH

MFish research code: PAH



Distinguishing features: Oval dark silver-blue body lacking spots, and upright bright red fins.

Colour: Body dark silver-blue without spots. Fins bright red.

Size: To about 120 cm TL.

Distribution: East coast of the South Island south of 45 S. Elsewhere, widespread in temperate waters of the southern hemisphere south of about 34 S.

Depth: To about 500 m.

Similar species: Moonfish (*L. guttatus*) has a pink, blue, or purple body covered in white spots. Moonfish is sometimes incorrectly recorded as opah.

Biology & ecology: Pelagic, oceanic.

References

Parin & Kukuyev (1983), Roberts & Stewart (1998).

Unicornfish

Lophotus capellei

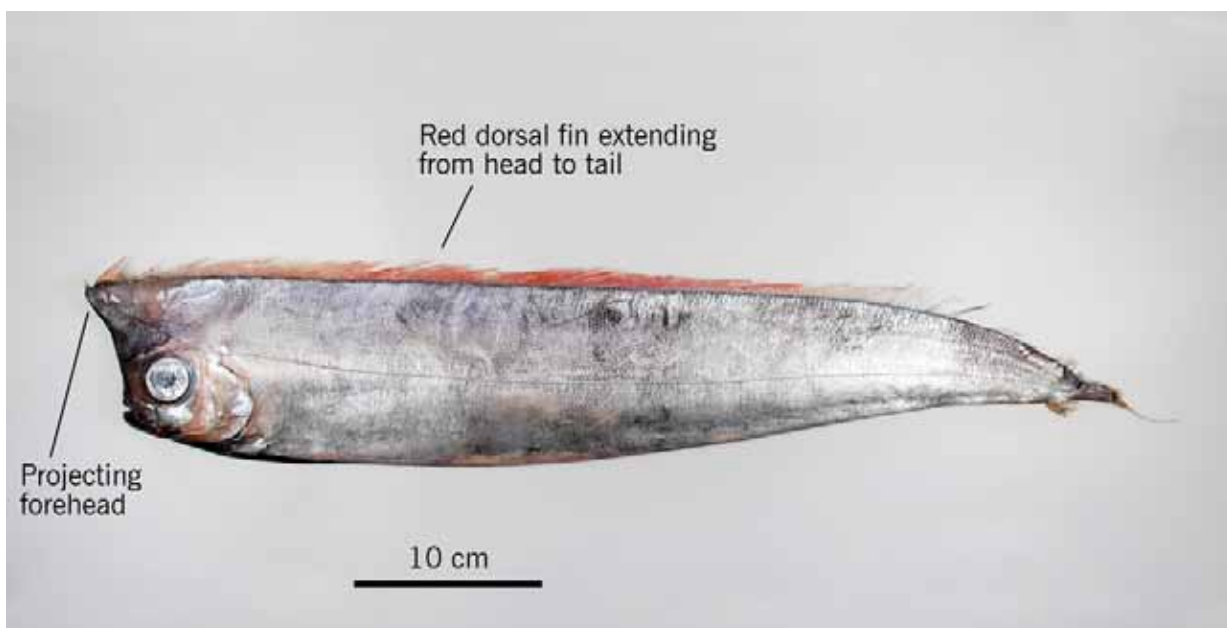
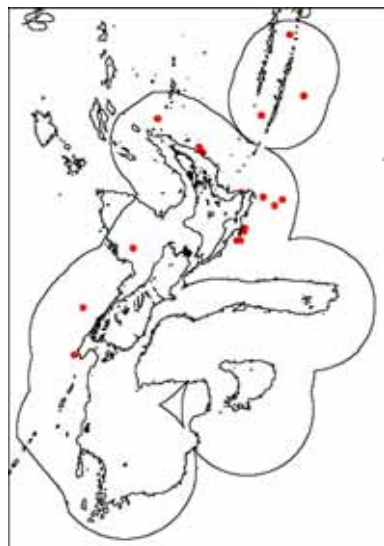
Family: 204. Lophotidae (crestfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: LCA

MFish research code: LCA



Distinguishing features: Elongate laterally flattened body. Head with upright crest on projecting forehead. Dorsal fin extends from head to tail. No pelvic fin and small anal fin. Pair of ink sacs present near anus.

Colour: Body silvery with bright red crest and dorsal fin.

Size: To about 200 cm TL.

Distribution: Caught mainly around the North Island with occasional southern captures. Widely distributed in warm waters of the Atlantic and Pacific Oceans but nowhere common.

Depth: Unknown.

Similar species: Dealfish (*Trachipterus trachipterus*) and scalloped dealfish (*Zu elongatus*) lack an upright crest on a projecting forehead.

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

References

Chapman et al. (2006), Paulin et al. (1989), Stewart (1995).

Dealfish

Trachipterus trachipterus

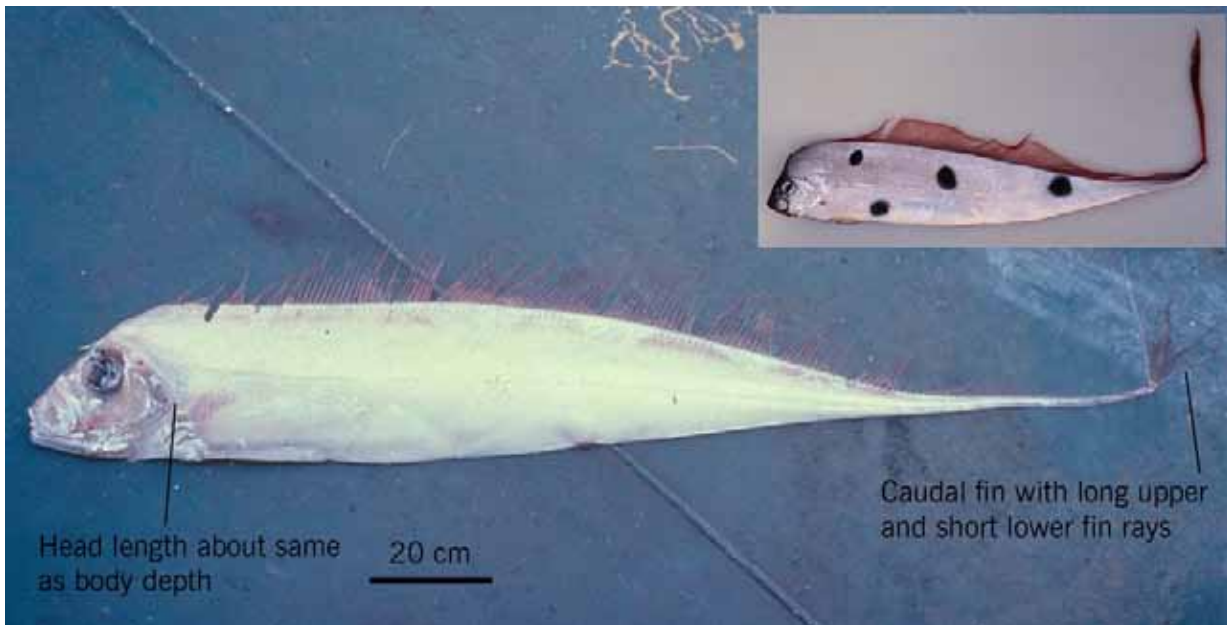
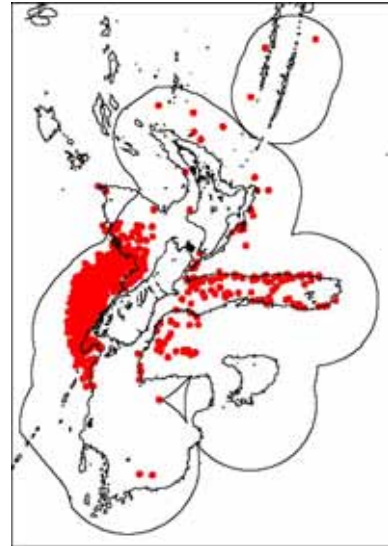
Family: 206. Trachipteridae (ribbonfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: DEA

MFish research code: DEA



Distinguishing features: Elongate silvery sided body with red dorsal and caudal fins. Head length about the same as body depth in adults. Anal fin absent. Pelvic fin with 5 to 7 rays often elongate in juveniles. Scales absent except for lateral line scales that are tubular and bear sharp spines.

Colour: Head and body silvery, but dull brownish if the skin has been rubbed off. Fins crimson-red. Small specimens have 4 black spots on the body.

Size: To about 2 m.

Distribution: Probably widespread in New Zealand. Worldwide in all oceans.

Depth: Not known. Captured on tuna longlines at less than 200 m and by trawlers down to about 1000 m in NZ waters.

Similar species: Oarfish (*Regalecus glesne*) has black bands and spots on the sides of the body and grows to a much larger size (about 17 m). Scalloped dealfish (*Zu elongatus*) has a scalloped (undulating) ventral body margin between the pelvic fin bases and beginning of the tail.

Biology & ecology: Unknown. Probably lives in midwater. Juveniles sometimes strand.

References

Bagley et al. (2000), Carpenter & Niem (1999), May & Maxwell (1986), Paulin et al. (1989), Stewart (1995).

Scalloped dealfish

Zu elongatus

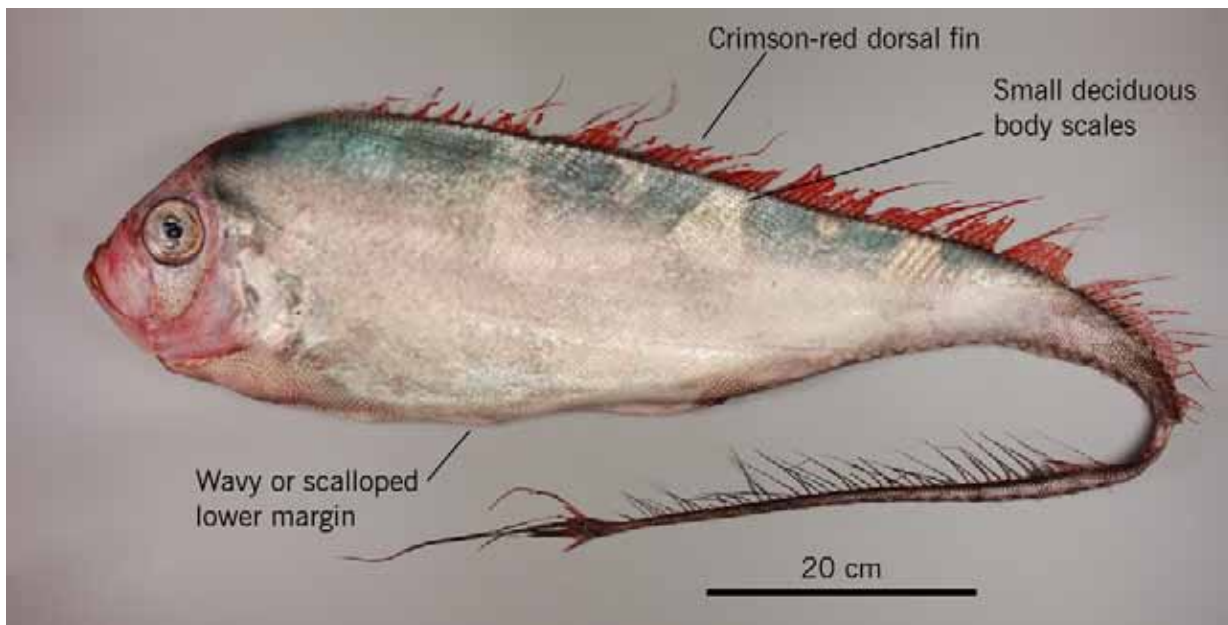
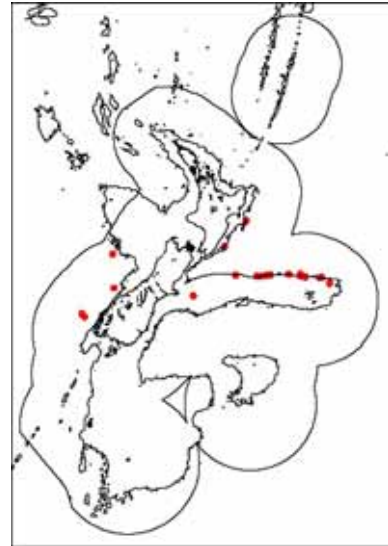
Family: 206. Trachipteridae (ribbonfishes)

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.

Colour: Body silvery with faint dark broad vertical bands, 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 trachipterus*) 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).

Ribaldo

Mora moro

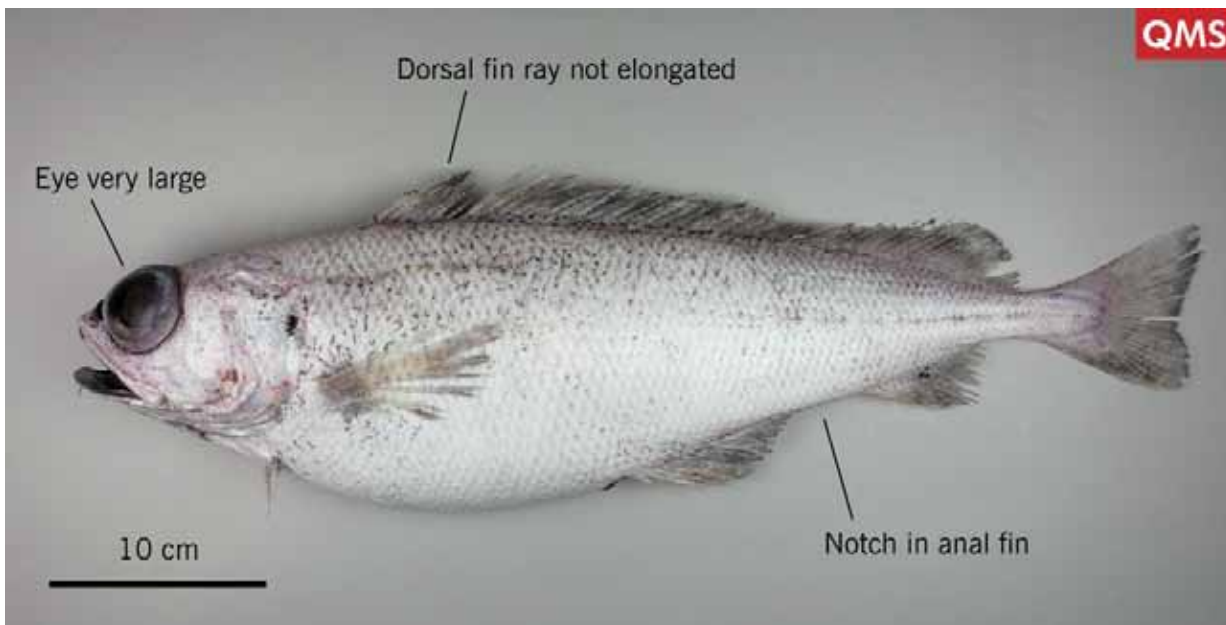
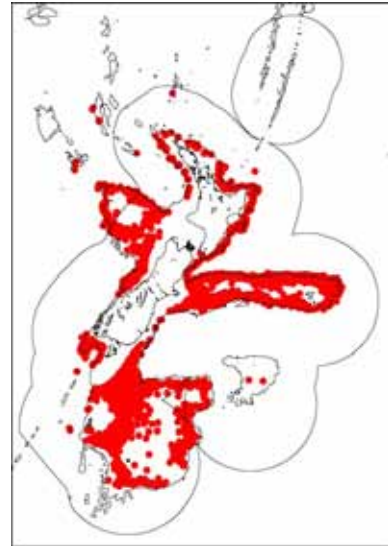
Family: 216. Moridae (deepsea cods)

Maori names: n.a.

Other names: n.a.

MFish reporting code: RIB

MFish research code: RIB



Distinguishing features: Two dorsal fins, the first lacking an elongated ray. Deep notch in the anal fin giving the appearance of two fins. Huge eye, much longer than snout. Chin barbel present. Uniform pale greyish-brown head and body.

Colour: Uniform pale greyish-brown head and body. All fins slightly dusky.

Size: To about 79 cm TL.

Distribution: Widespread in New Zealand. Southern Australia (NSW, Vic, Tas, SA, WA), and temperate waters of the northern and southern hemispheres.

Depth: 400 to 1100 m.

Similar species: Other morid cods lack the short ray in the first dorsal fin, huge eye, and pale body and head.

Biology & ecology: Demersal. Carnivore, feeding on fishes, crustaceans, cephalopods, and other invertebrates. Females reach a larger size than males. Probably spawns in winter.

References

Anderson et al. (1998), Cohen et al. (1990), Gomon et al. (2008).

Hoki

Macrurus novaezelandiae

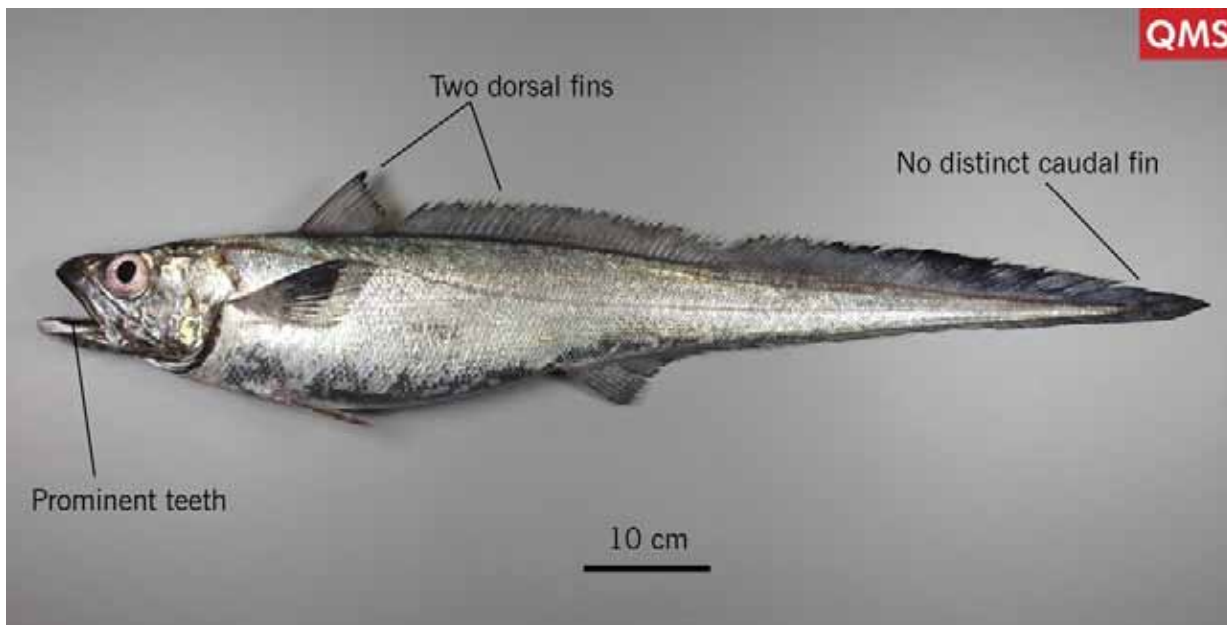
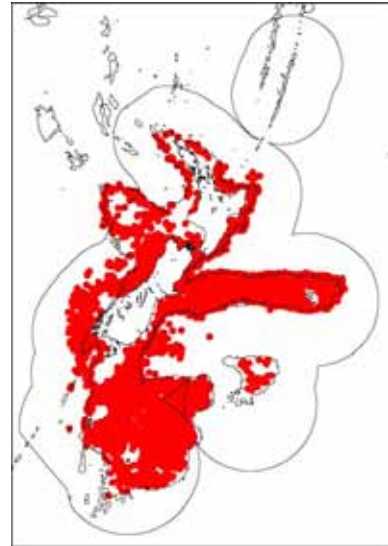
Family: 218. Merlucciidae (merluccid hakes)

Maori names: Hoki

Other names: Blue grenadier (Aus.)

MFish reporting code: HOK

MFish research code: HOK



Distinguishing features: Long tapering body, laterally flattened. First dorsal fin short-based, second dorsal fin long and continuous with the anal fin round the tail. Terminal mouth with slender long teeth. Scales shed very easily.

Colour: Upper head and body silvery with a purple or blue-green tinge, silvery sides and belly. Fins darker.

Size: To at least 142 cm TL.

Distribution: Widespread in New Zealand. Southern Australia from about Sydney to southern Western Australia, including Tasmania.

Depth: 10 to 1200 but usually 200 to 600 m.

Similar species: Javelinfish (*Lepidorhynchus denticulatus*) has a very high first dorsal fin, low second dorsal fin, and dark ventral body surface. *Lyconus* sp. has strong teeth in both jaws with two canine-like teeth on the tip of the upper jaw, longest teeth in the mouth about half eye diameter, no clear separation between the first and second dorsal fins, and very soft skin on the body that is usually lost. Hake (*Merluccius australis*) has a separate tail fin and a deep notch on the anal fin.

Biology & ecology: Wide geographical (34 to 54 S) and depth distributions in New Zealand. Small individuals are known from shallow waters and large fish are generally found deeper than 400 m. Migrate to and spawn from late June to September at known spawning grounds on the west coast South Island, Puysegur, Pegagus Canyon, Conway Trough, and Cook Strait. Feed on midwater fish, squids and crustaceans. Attain a maximum age of about 25 years.

References

Cohen et al. (1990), Gomon et al. (2008), Paulin et al. (1989).

Hake

Merluccius australis

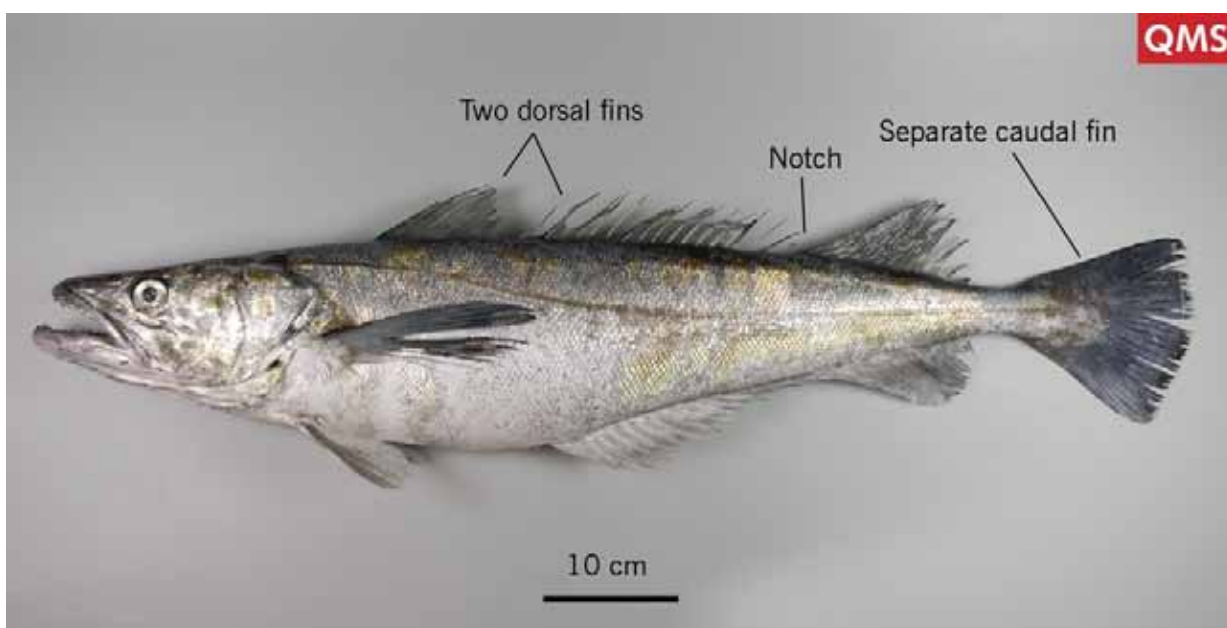
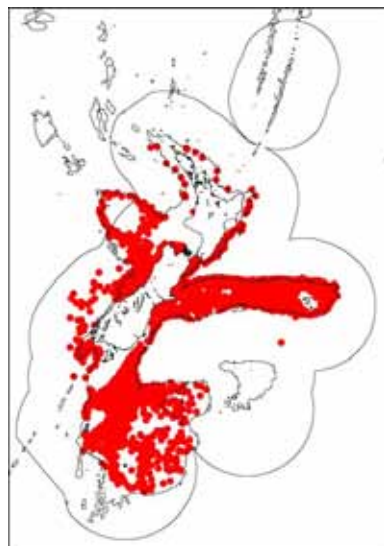
Family: 218. Merlucciidae (merluccid hakes)

Maori names: Kehe

Other names: Southern hake

MFish reporting code: HAK

MFish research code: HAK



Distinguishing features: Two dorsal fins, the first short-based and the second fin long with a notch about midway. Long anal fin with a notch. Separate truncated caudal fin. No chin barbel. Teeth in jaws large, sharp, with outer ones fixed and inner ones depressible inwards.

Colour: Steel-greyish above sometimes with bronze sheen, paler grey-silvery on sides and whitish below. Pectoral, dorsal, and caudal fins dusky, anal and pelvic fins paler.

Size: To at least 140 cm TL.

Distribution: Widespread in New Zealand. Southern tip of South America in the Pacific and Atlantic Oceans.

Depth: 400 to 1100 m.

Similar species: Hoki (*Macruronus novaezelandiae*) lacks a separate caudal fin and lacks a deep notch in the second dorsal and anal fins. Johnson's cod (*Halargyreus johnsonii*) has bands of tiny teeth in the jaws and lacks a notch in the second dorsal fin.

Biology & ecology: Demersal. Three main spawning grounds are known: west coast South Island from June to October with a peak in September, west of Chatham Island from at least September to January, northeast of Auckland Island from September to February with a peak in September-October. Females grow larger than males. Reaches age of at least 25 years.

References

Anderson et al. (1998), Cohen et al. (1990), Ministry of Fisheries (2008), Paulin et al. (1989).

Flyingfishes

Cheilopogon pinnatibarbatus

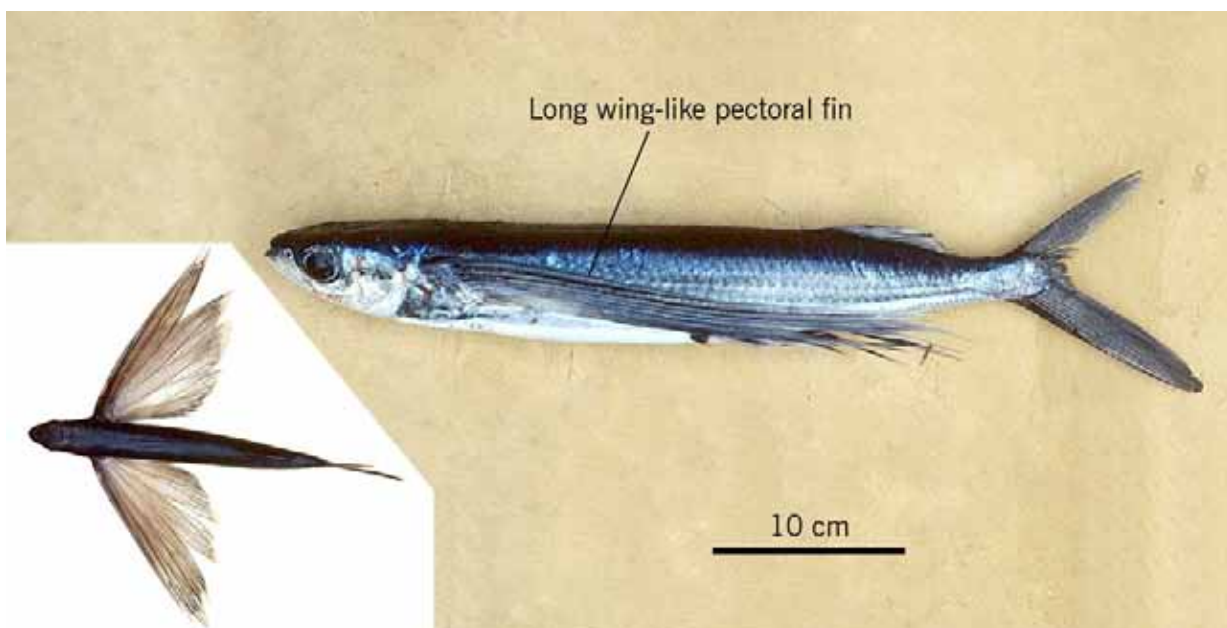
Family: 253. Exocoetidae (flyingfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: FLY

MFish research code: FLY



Distinguishing features: Very long pectoral fins (and pelvic fins in some species) forming wings, which give the capacity to glide for considerable distance above the surface of the water. Lateral line running along the lower body on each side. Dorsal and anal fins set well back on the body and lacking spines. Lower lobe of caudal fin longer than upper lobe.

Colour: Dark iridescent blue or green above, pale silvery below.

Size: To about 45 cm SL, but other species are usually less than about 30 cm SL.

Distribution: Found as far south as Cook Strait. Worldwide in tropical and warm temperate seas.

Depth: 0 to perhaps 20 m, but unknown.

Similar species: Other fishes lack the wing-like pectoral fins set high on the body. There are seven species of flying fishes recorded from New Zealand. Collecting specimens and identification of species is difficult. The barbeled flying fish (*Cheilopogon pinnatibarbatus*) is the largest and most common species known from New Zealand.

Biology & ecology: Pelagic. Found in surface waters.

References

Paul (2000), Paulin & Stewart (1996), Stewart (2003).

Saury

Scomberesox saurus

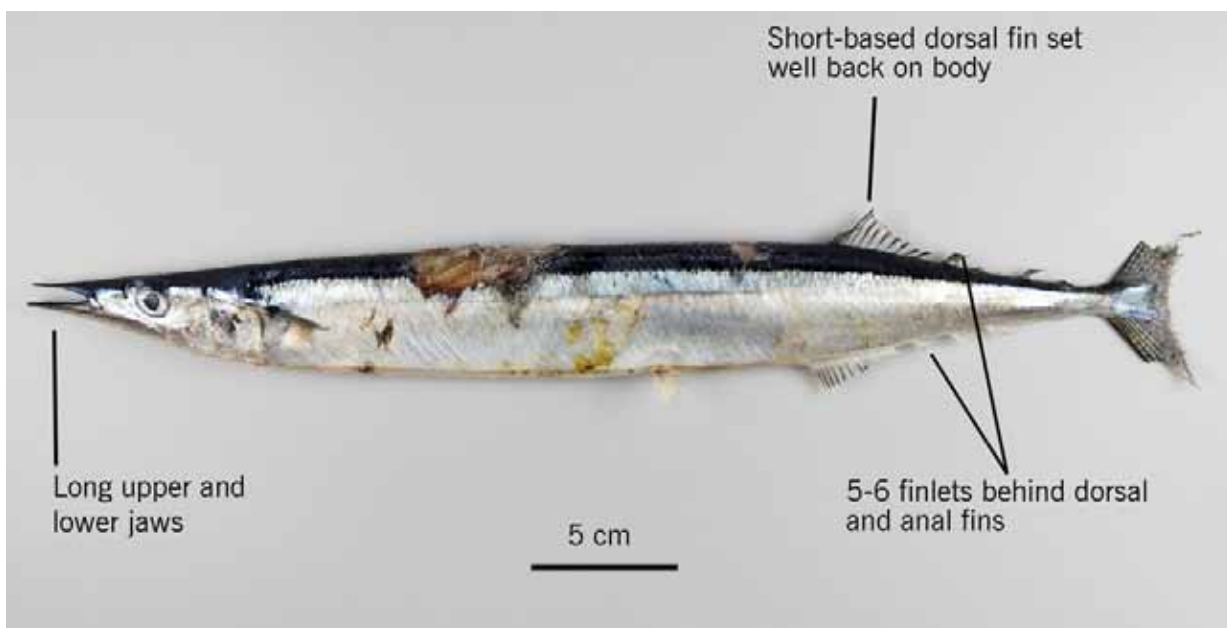
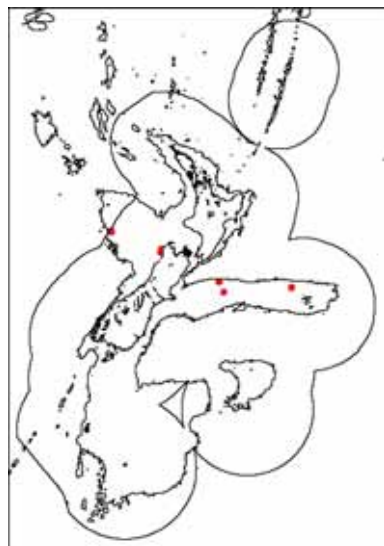
Family: 256. Scomberesocidae (sauries)

Maori names: Moeanu

Other names: Ocean piper, needle fish

MFish reporting code: SAU

MFish research code: SAU



Distinguishing features: Elongate compressed body. Elongated toothless upper and lower jaws.

Short-based dorsal fin set well back on the body. Five to six small finlets behind dorsal and anal fins.

Colour: Dark blue above, silvery-white below, with a broad silver lateral stripe on the sides. Dark blue or green spot on the pectoral fin base.

Size: To about 45 cm FL.

Distribution: Common in northern New Zealand waters. Southern Australia from NSW to WA.

Throughout temperate waters of the southern hemisphere and the North Atlantic Ocean.

Depth: 0 to 30 m.

Similar species: Garfish (*Hyporhamphus ihi*) has an elongate beak-like extension of the lower jaw, short triangular upper jaw, and lacks finlets.

Biology & ecology: Pelagic schooling species living at or near the surface. Oceanic, but known to sometimes come close to shore in large numbers.

References

Gomon et al. (2008), Paul (2000), Paulin et al. (1989).

Bass groper

Polyprion americanus

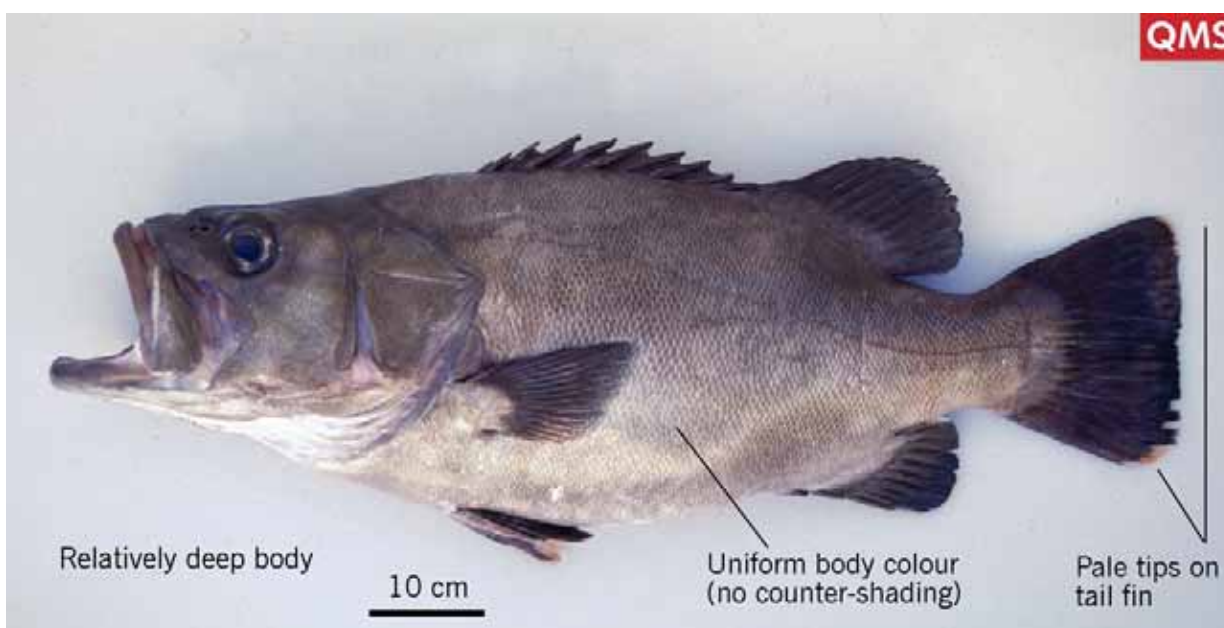
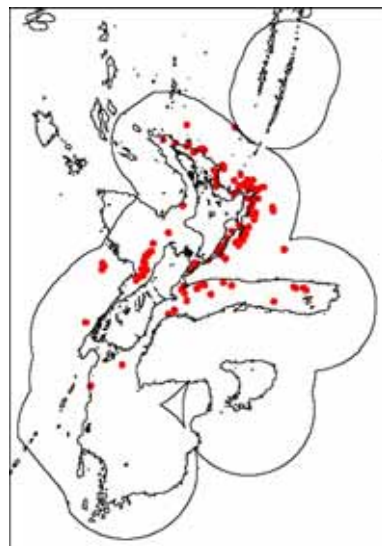
Family: 337. Polyprionidae (wreckfishes)

Maori names: Moeone, toti

Other names: n.a.

MFish reporting code: BAS

MFish research code: BAS



Distinguishing features: Adults have a relatively uniform body coloration without a sharp change from dark upper to pale lower body (no counter-shading), upper and lower tips of the tail fin pale, tail margin is straight to slightly rounded, and the lower jaw is only slightly protruding.

Colour: Adults have uniform body colour without a sharp change from dark upper to pale lower body. Upper and lower tips of tail fin pale. Leading edge of pelvic fin pale. Pelagic juveniles have mottled body camouflage pattern with dark brown to grey blotches on pale cream to yellow background.

Size: To about 200 cm TL.

Distribution: Widespread in New Zealand from at least the Three Kings Islands to the southern end of the Stewart/Snares shelf/slope, including shallower parts of the Chatham Rise and Chatham Islands. Temperate seas of the southern and northern hemispheres, including southern Australia (NSW, Tas, WA), southern Africa, Tristan da Cunha, Vema Seamount, St. Paul and Amsterdam Islands, North Atlantic and the Mediterranean.

Depth: 30 to 900 m.

Similar species: Adult hapuku (*P. oxygeneios*) have a dark upper body with a sharp change about mid-body to a pale silvery lower body (counter-shading), the tail fin is uniform blackish or greyish lacking pale upper and lower tips, the tail margin is straight or slightly forked, and the lower jaw is strongly protruding.

Biology & ecology: Adults are demersal over reefs and rises and appear to be much less common than hapuku in New Zealand. Juveniles are pelagic, sometimes well offshore, and have been observed around colonies of goose barnacles attached to floating objects at the surface. Probably settle on the bottom at about 60 cm TL. Probably reach ages of at least 40 years.

References

Anderson et al. (1998), May & Maxwell (1986), Ministry of Fisheries (2008), Paul (2000), Paulin et al. (1989), Roberts (1996, 2000), Smith & Heemstra (1986).

Hapuku

Polyprion oxygeneios

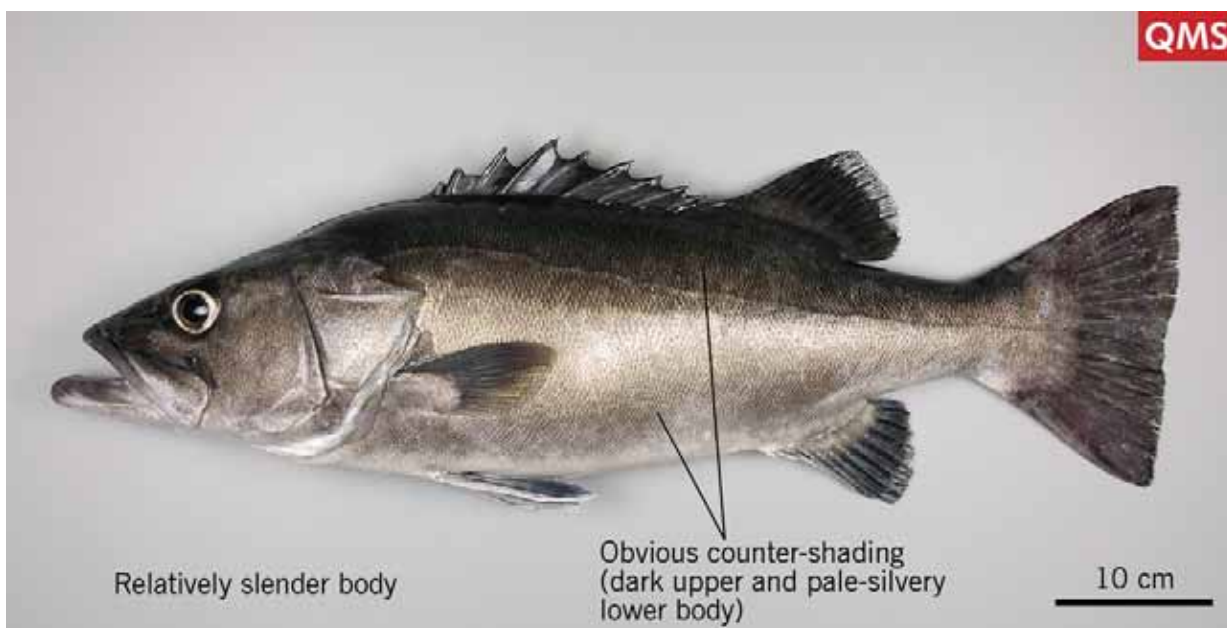
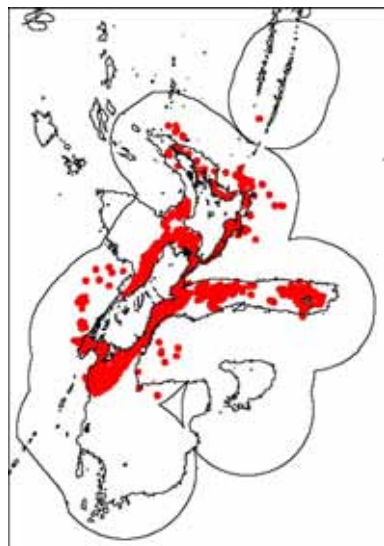
Family: 337. Polyprionidae (wreckfishes)

Maori names: Haapuku, kapua, whapuku

Other names: n.a.

MFish reporting code: HAP

MFish research code: HAP



Distinguishing features: Adults have a dark upper body with a sharp change about mid-body to a pale silvery lower body (counter-shading), the tail fin is uniform blackish or greyish lacking pale upper and lower tips, the tail margin is straight or slightly forked, and the lower jaw is strongly protruding.

Colour: Adults have dark upper body with a sharp change to a pale silvery lower body. Tail fin uniform blackish lacking pale upper and lower tips. Other fins dark except pelvics which have a whitish leading edge. Pelagic juveniles have a series of 3 or 4 broad vertical irregular dark bands on the body.

Size: To at least 150 cm TL.

Distribution: Widespread in New Zealand from at least the Three Kings Islands to the southern end of the Stewart/Snares shelf/slope, including shallower parts of the Chatham Rise and Chatham Islands. Southern Australia and Chile.

Depth: 50 to 600 m.

Similar species: Adult bass groper (*P. americanus*) have a relatively uniform body coloration without a sharp change from dark upper to pale lower body (no counter-shading), upper and lower tips of the tail fin pale, tail margin is straight to slightly rounded, and the lower jaw is only slightly protruding.

Biology & ecology: Adults are demersal over reefs and rises. Juveniles are pelagic, sometimes well offshore and settle on the bottom at about 50 cm TL. Reach an age of at least 60 years. Spawn in winter but spawning areas are unknown. Predators of fishes and invertebrates such as red cod, tarakihi, blue cod, hoki, squids.

References

Anderson et al. (1998), Gomon et al. (2008), Ministry of Fisheries (2008), Paul (2000), Paulin et al. (1989), Roberts (1996, 2000).

Dolphinfish

Coryphaena hippurus

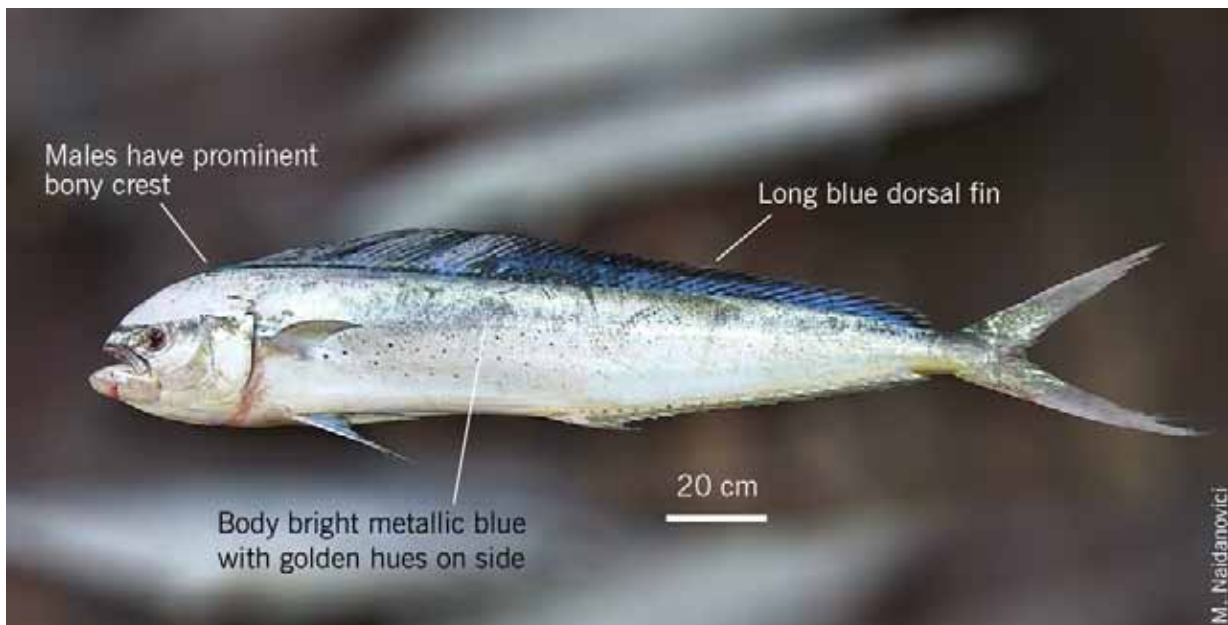
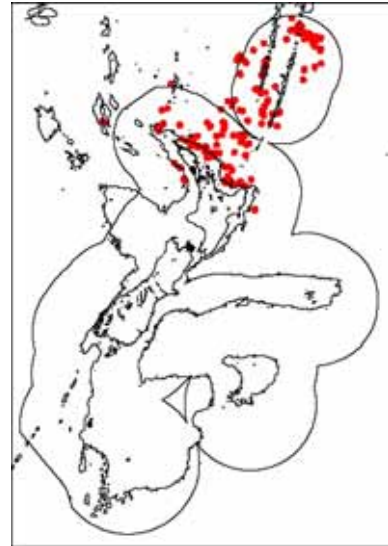
Family: 361. Coryphaenidae (dolphinfishes)

Maori names: n.a.

Other names: Mahi mahi, common dolphinfish

MFish reporting code: DOF

MFish research code: DOF



Distinguishing features: Single long dorsal fin extending from above eye almost to caudal fin with 58 to 66 rays. A concave anal fin extending from anus almost to caudal fin. Prominent bony crest on front of head in mature males. Oval tooth patch on tongue.

Colour: Body colours are striking with golden hues on the sides, metallic blues and greens on the back and sides, white and yellow on the lower body. Small specimens have pronounced vertical bars on the sides of the body.

Size: To at least 150 cm FL.

Distribution: Caught from the Bay of Plenty northwards. Globally distributed in tropical and subtropical waters.

Depth: 0 to 85 m.

Similar species: Pompano dolphinfish (*Coryphaena equiselis*), which is not confirmed in New Zealand waters, has a trapezoid (square at front) shaped patch of teeth on the tongue and fewer dorsal fin rays (52 to 59).

Biology & ecology: Pelagic. Usually found in open waters but sometimes occurs near the coast. Forms schools.

References

Chapman et al. (2006), Paul (2000), Stewart (2003).

Remoras

Remora spp.

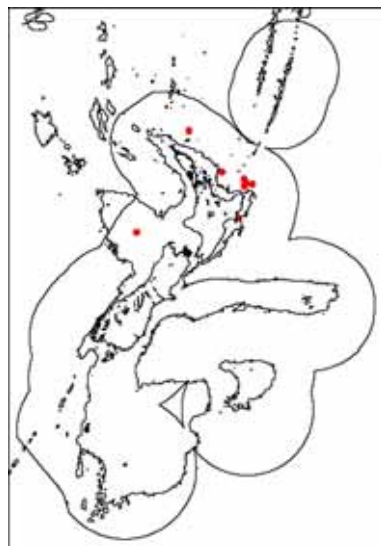
Family: 363. Echeneidae (remoras)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: REM



Body generally small
smooth and tapered

Distinguishing features: Distinctive sucker disc on the top of the head. The disc has a wide rubbery flange around the margin and a series of muscular laminae, and is used to attach to host fish. Long dorsal and anal fins, lacking spines. Small with a smooth tapered body.

Colour: Pale grey to dark brown or black.

Size: From about 20 to 100 cm SL depending on the species.

Distribution: Remoras are more common in northern New Zealand waters, although some may be found in the south. Tropical and subtropical waters of the Pacific, Indian and Atlantic Oceans.

Depth: Unknown (probably dependent on host).

Similar species: Sharksucker (*Echeneis naucrates*) 18 to 28 laminae. Slender remora (*Phtheichthys lineatus*) rarer, smaller, 9 to 11 laminae. Grey marlinsucker (*Remora brachyptera*) robust body, 15 to 18 laminae, 27 to 34 second dorsal rays. Common remora (*R. remora*) 16 to 20 laminae, 21 to 27 second dorsal rays. Hardfin marlinsucker (*R. osteochir*) longest disc to past end of the pectoral fins, 17 to 18 laminae, 25 second dorsal rays. White remora (*Remorina albescens*) 13 to 14 laminae, whitish.

Biology & ecology: Sharksucker can be found free-swimming in shallow tropical coastal waters, or attached to sharks, their preferred host. Slender remora favour barracudas as hosts. The other species found in New Zealand waters are oceanic, including the grey marlinsucker and the hardfin marlinsucker, both of which favour billfish as hosts, the common remora which prefers sharks as hosts, and the white remora which is found attached to manta rays.

References

Collette (1999), Paulin & Habib (1982), Stewart (1997b).

Koheru

Decapterus koheru

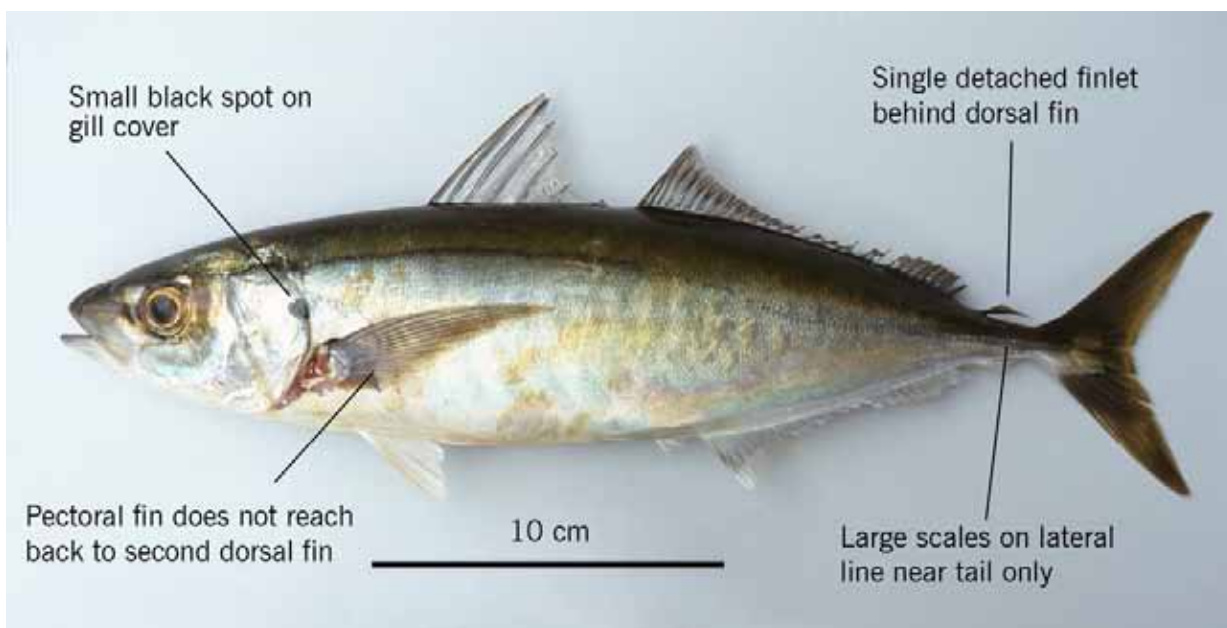
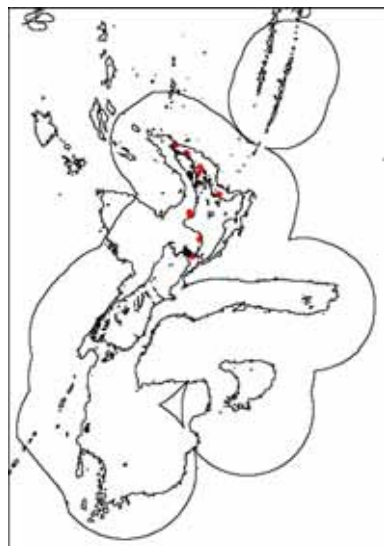
Family: 364. Carangidae (jacks, pompanos)

Maori names: Koheru, hature

Other names: n.a.

MFish reporting code: KOH

MFish research code: KOH



Distinguishing features: Large scales (scutes) on the lateral line only near the tail. Pectoral fin short, not reaching back to the origin of second dorsal fin. Lateral line curves down gently below second dorsal fin. Single detached finlet behind second dorsal fin.

Colour: Blue-green above, sides silvery, golden stripe along back in life.

Size: To 40 cm FL.

Distribution: Three Kings Islands to the northern South Island, but most abundant on the northeast coast of the North Island. Known only from New Zealand but may also occur at the Kermadec Islands.

Depth: 0 to 55 m.

Similar species: Greenback jack mackerel (*Trachurus declivis*), slender jack mackerel (*Trachurus murphyi*), and yellowtail jack mackerel (*Trachurus novaezelandiae*), all have large scute-like scales along the entire length of the lateral line, a long pectoral fin reaching back to at least the origin of the second dorsal fin, and the lateral line dips down abruptly below the second dorsal fin.

Biology & ecology: Coastal, regularly schools around northern coastal reefs, and found in shallow bays, harbours and estuaries.

References

Francis (1996), Francis (2001), Francis et al. (1987), Paul (2000), Paulin (1995).

Pilotfish

Naucrates ductor

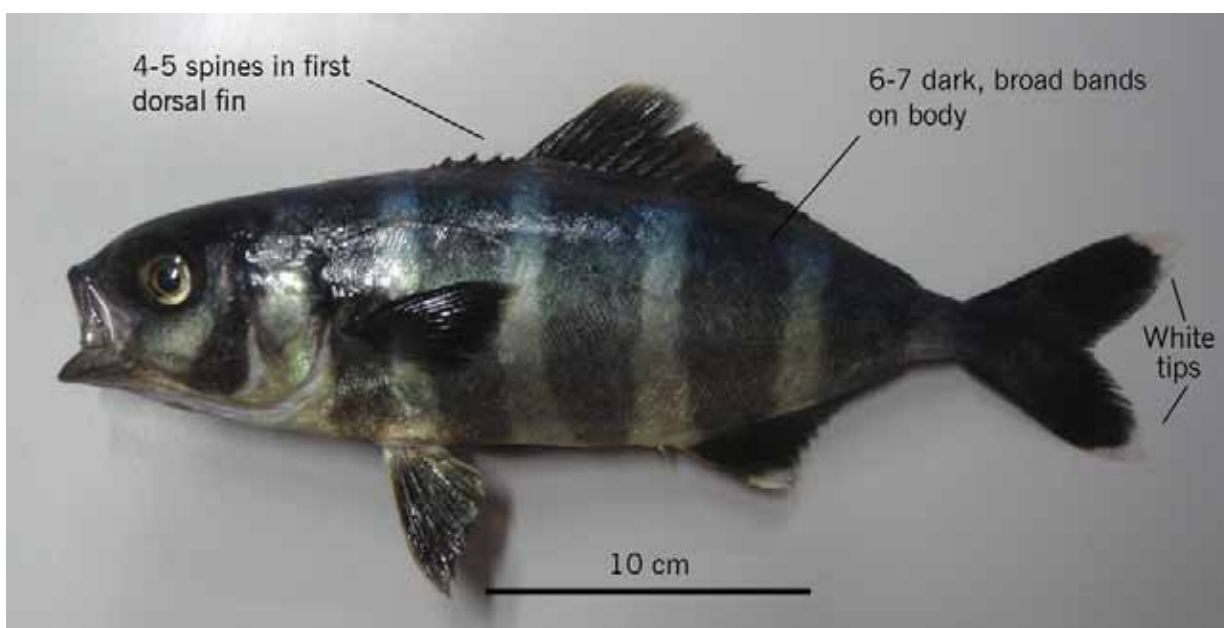
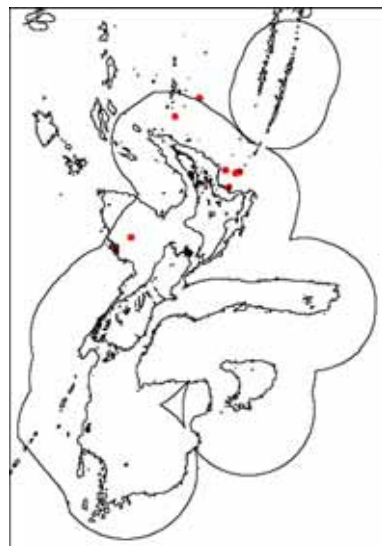
Family: 364. Carangidae (jacks, pompanos)

Maori names: n.a.

Other names: n.a.

MFish reporting code: UNI

MFish research code: PIF



Distinguishing features: Body with 6 to 7 broad, dark vertical bars. Prominent white tips on upper and lower lobes of caudal fin. First dorsal fin with 4 to 5 spines not connected by a membrane.

Colour: Body dark to pale bluish, with 6 to 7 broad, dark vertical bars. Prominent white tips on upper and lower lobes of caudal fin and smaller white tips on second dorsal and anal fin lobes. Caudal peduncle with a well developed lateral fleshy keel on each side.

Size: To about 63 cm FL.

Distribution: Recorded from northern New Zealand only. Widespread in warm oceans of the world.

Depth: 0 to 30 m.

Similar species: Ocean blue-eye (*Schedophilus labyrinthicus*) has faint broad dark vertical bands in life but these fade on death, lacks white tipped caudal fin lobes, lacks a keel on the caudal peduncle, and has seven to nine short spines in the first dorsal fin that increase in length posteriorly.

Biology & ecology: Pelagic. Often associated with large slow-moving fishes but also observed near reefs.

References

Paul (2000), Paulin et al. (1989).

Trevally

Pseudocaranx georgianus

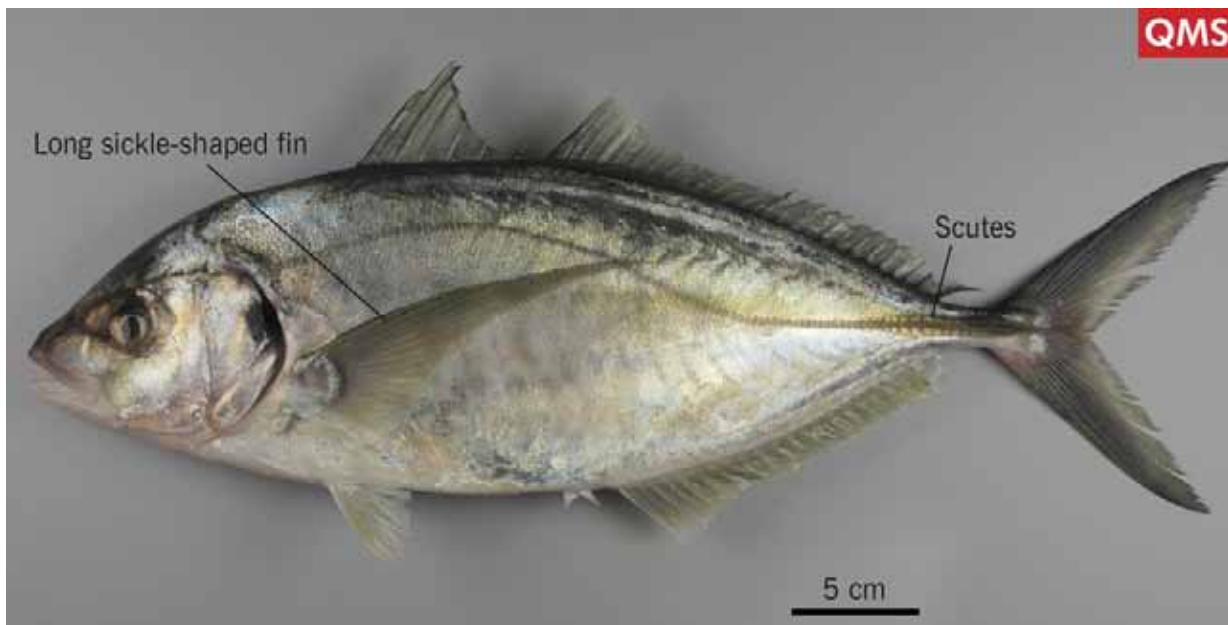
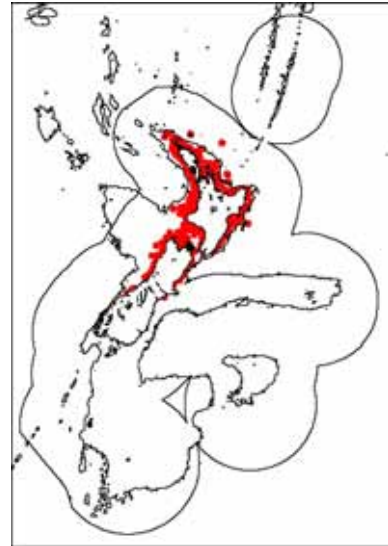
Family: 364. Carangidae (jacks, pompanos)

Maori names: Araara

Other names: n.a.

MFish reporting code: TRE

MFish research code: TRE



Distinguishing features: Moderately deep body with elongated sickle-shaped pectoral fin, small body scales, a row of large lateral line scutes (scales) on tail in front of caudal fin, and 2 short stout spines ahead of the anal fin soft rays.

Colour: Body light blue-green above, silvery white below, and with a yellowish sheen. Fins light yellow-green. A dark blotch on the upper rear edge of the gill cover.

Size: To about 80 cm FL.

Distribution: Common around the North Island, and present around the northern South Island. In southern Australia from New South Wales round to Western Australia.

Depth: 0 to 150 m.

Similar species: Small common warehou (*Seriolella brama*) has a similar body shape and sickle shaped pectoral fin but lacks lateral line scutes at the base of the tail, has a large dark oval blotch on the body behind the head, and lacks the 2 short strong anal fin spines.

Biology & ecology: Occupies a variety of habitats from shallow harbours to pelagic and demersal waters of the continental shelf, often near reefs.

References

Carpenter & Niem (1999), Hirt-Chabbert (2006), James & Stephenson (1974), May & Maxwell (1986), Paul (2000), Paulin et al. (1989), Smith-Vaniz & Jelks (2006).

Kingfish

Seriola lalandi

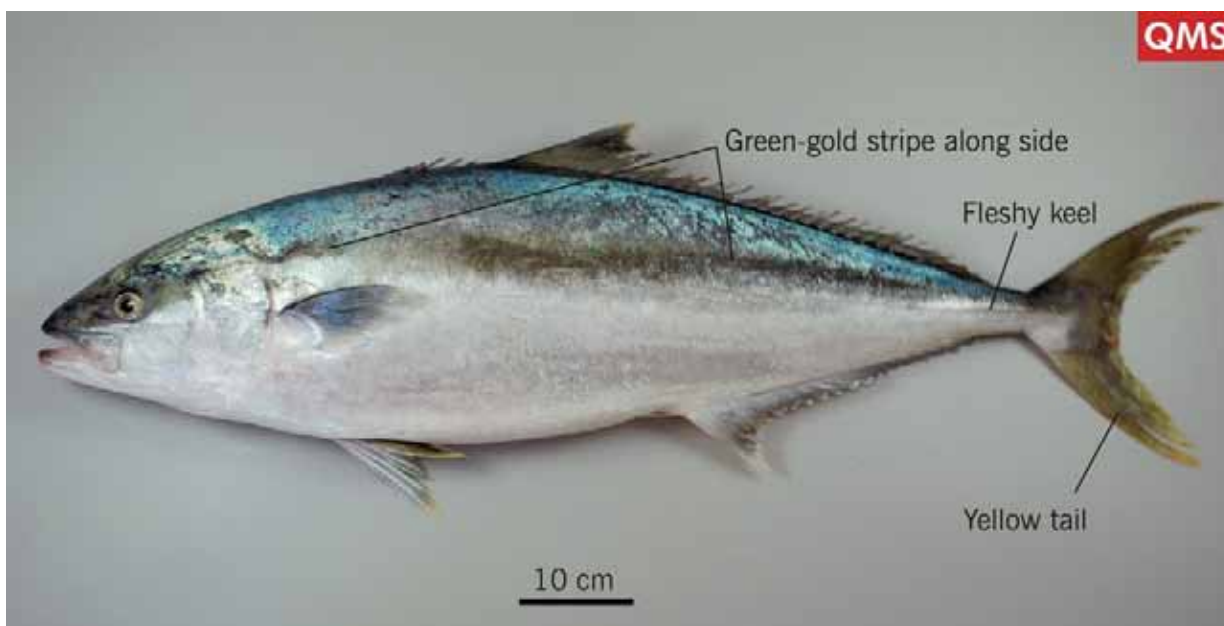
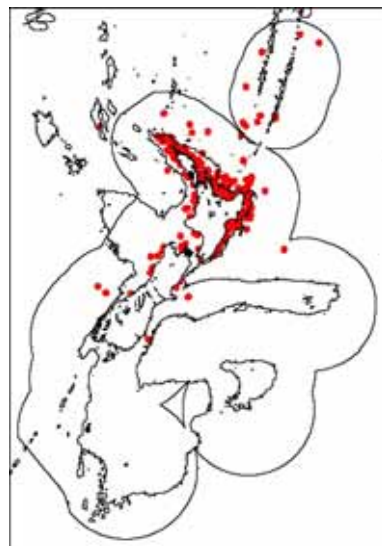
Family: 364. Carangidae (jacks, pompanos)

Maori names: Haku

Other names: Yellowtail kingfish

MFish reporting code: KIN

MFish research code: KIN



Distinguishing features: Large elongate fish with green-gold stripe along the side from snout through eye to yellow tail. No lateral line scutes. Small fleshy keel on tail in front of caudal fin. Teeth whitish.

Colour: Body bluish-green above, silvery-white below, with green-gold stripe along the side from snout to tail. Caudal fin olive-yellow, pectoral and pelvic fins yellowish.

Size: To about 160 cm FL.

Distribution: Common around northern New Zealand, seasonally present around central regions. Populations also around much of the Indo-Pacific in subtropical waters.

Depth: 0 to 200 m.

Similar species: Other large jacks have infrequently been reported from northern New Zealand. These include Samson fish (*Seriola hippos*) which has the tissue surrounding the teeth engorged with blood making the teeth reddish, and almaco jack (*S. rivoliana*) which lacks the small fleshy caudal keel and has a dark or dusky caudal fin.

Biology & ecology: Pelagic on continental shelf, often associated with reefs.

References

Carpenter & Niem (1999), Chapman et al. (2006), Francis (2001), Hirt-Chabbert (2006), Paul (2000), Paulin & Stewart (2001), Paulin et al. (1989).

Greenback jack mackerel

Trachurus declivis

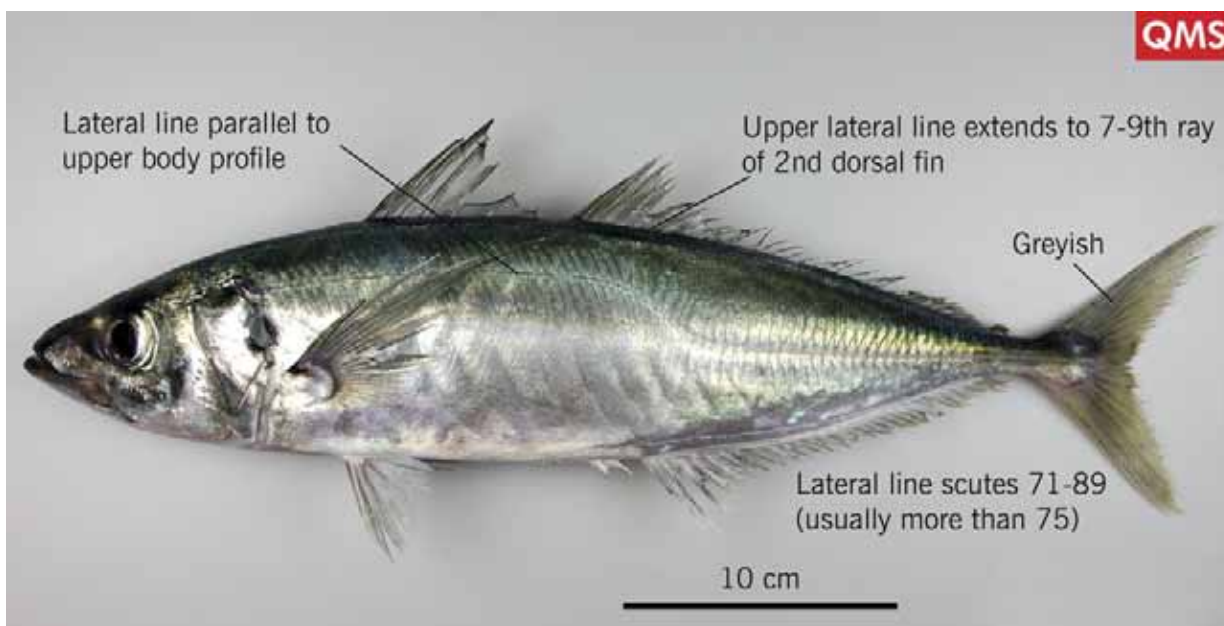
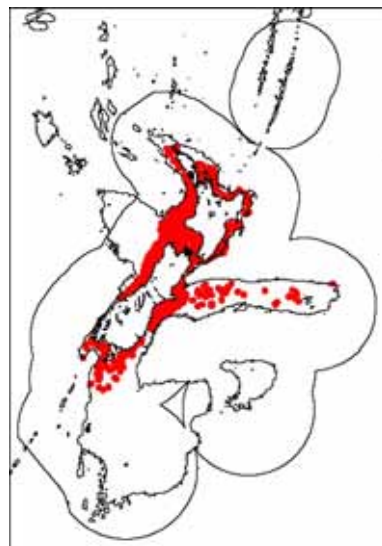
Family: 364. Carangidae (jacks, pompanos)

Maori names: n.a.

Other names: Horse mackerel, scad

MFish reporting code: JMA

MFish research code: JMD



Distinguishing features: Large scute-like scales along the entire length of the lateral line with the front (curved) part of the lateral line parallel with the curve of the upper body profile. Upper accessory lateral line (immediately below base of dorsal fin) stops below fifth to eleventh (usually seventh to ninth) ray in second dorsal fin. Body bluish-green above with greyish caudal fin.

Colour: Greenish above, silvery below. Caudal fin greyish.

Size: To about 55 cm FL.

Distribution: Common around New Zealand, including the Chatham Rise, but absent from the Southern Plateau. Southern half of Australia.

Depth: 0 to 300 m.

Similar species: There are three very similar jack mackerel species in New Zealand waters. Yellowtail jack mackerel (*T. novaezealandiae*) and slender jack mackerel (*T. murphyi*) both have a short upper accessory lateral line extending back to the start of the second dorsal fin.

Biology & ecology: Pelagic.

References

Carpenter & Niem (1999), Froese & Pauly (2007), Hirt-Chabbert (2006), May & Maxwell (1986), Paul (2000), Paulin et al. (1989), Stephenson & Robertson (1977).

Slender jack mackerel

Trachurus murphyi

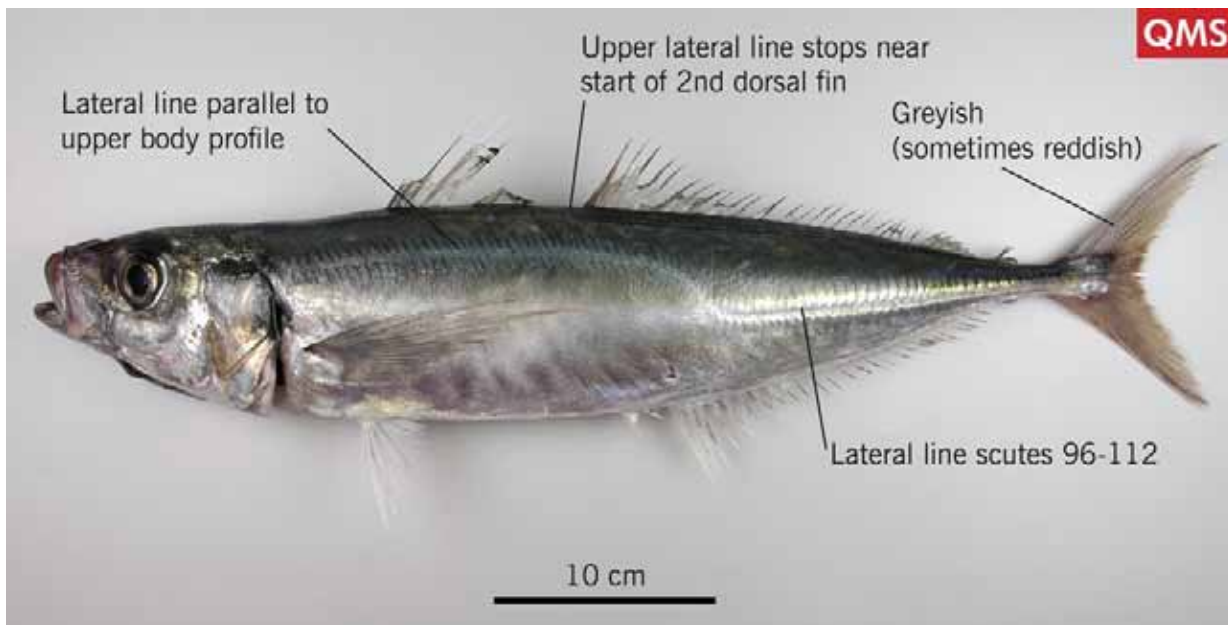
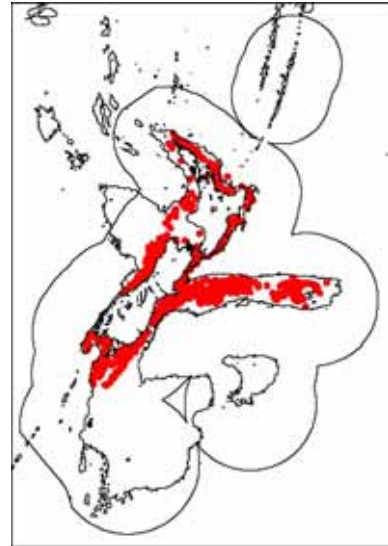
Family: 364. Carangidae (jacks, pompanos)

Maori names: n.a.

Other names: Peruvian jack mackerel, Inca scad

MFish reporting code: JMA

MFish research code: JMM



Distinguishing features: Large scute-like scales along the entire length of the lateral line with the front (curved) part of the lateral line parallel with the curve of the upper body profile. Body bluish-green above with greyish caudal fin. Caudal fin region may be reddish (bloody) because of damage from the meshes of the net.

Colour: Bluish green above, silvery below. Caudal fin greyish but may be reddish (bloody) due to damage from the net.

Size: To about 60 cm FL.

Distribution: Common around New Zealand, especially southern areas including the Chatham Rise but absent from the Southern Plateau. Common off Peru and Chile.

Depth: 0 to 500 m.

Similar species: There are three very similar jack mackerel species in New Zealand waters. Yellowtail jack mackerel (*T. novaezealandiae*) also has a short upper accessory lateral line but it has 67 to 81 lateral line scales (scutes) compared to 96 to 112 in slender jack mackerel. Greenback jack mackerel (*T. declivis*) has a long upper accessory lateral line which extends back to the 5th to 11th, usually 7th to 9th ray of the second dorsal fin.

Biology & ecology: Pelagic.

References

Froese & Pauly (2007), Hirt-Chabbert (2006), Paul (2000), Paulin et al. (1989), Smith-Vaniz (1995).

Yellowtail jack mackerel

Trachurus novaezelandiae

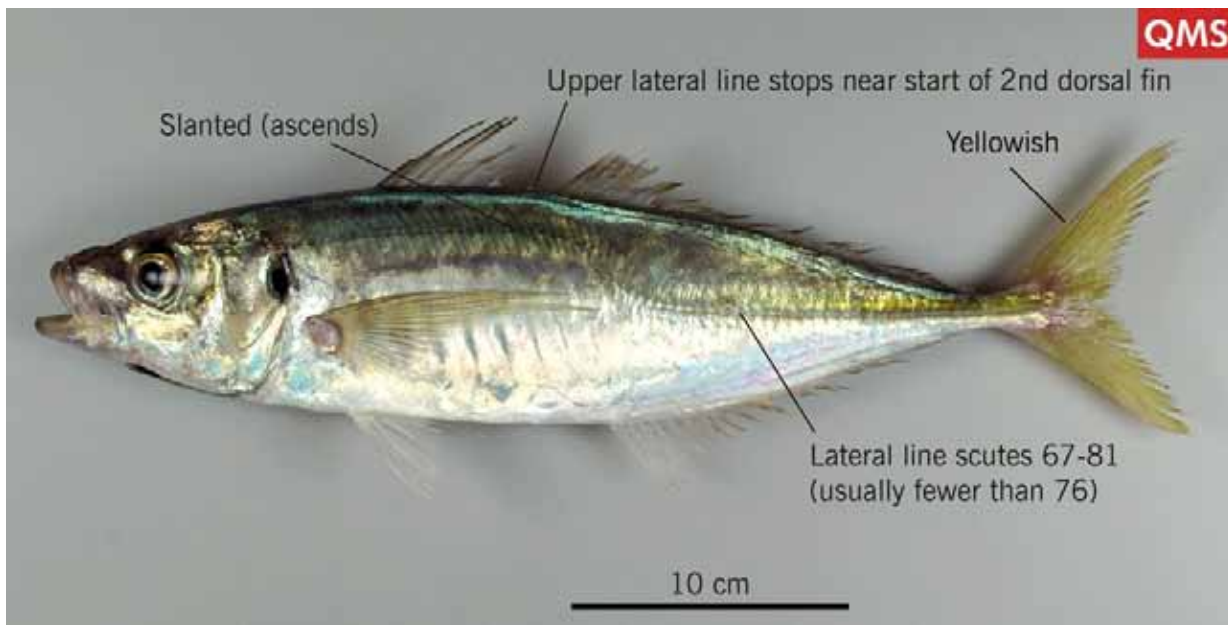
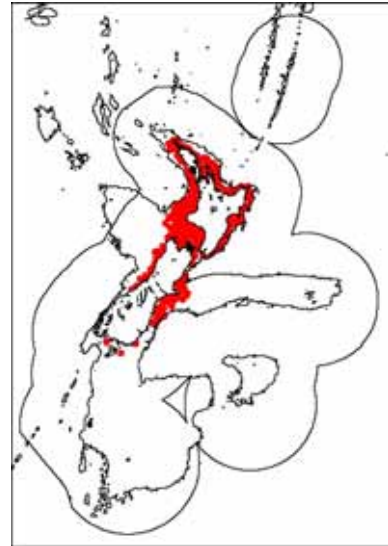
Family: 364. Carangidae (jacks, pompanos)

Maori names: Haature, hauture

Other names: Yellowtail

MFish reporting code: JMA

MFish research code: JMN



Distinguishing features: Large scute-like scales along the entire length of the lateral line with the front (curved) part of the lateral line slanted or ascending slightly front to rear. Upper accessory lateral line (immediately below base of dorsal fin) stops below first to fifth (usually first or second) ray in second dorsal fin. Body yellowish-green above with yellowish caudal fin.

Colour: Brassy green above, silvery below, sometimes with iridescent brown vertical bands in fresh specimens. Yellowish tinges on scutes on tail, caudal and second dorsal fins yellowish.

Size: To about 47 cm FL.

Distribution: Common around northern and central coastal New Zealand but absent from Chatham Rise and Southern Plateau. Southern half of Australia.

Depth: 0 to 150 m.

Similar species: There are three very similar jack mackerel species in New Zealand waters. Slender jack mackerel (*T. murphyi*) also has a short upper accessory lateral line but it has 96 to 112 lateral line scales (scutes) compared to 67 to 81 in yellowtail jack mackerel. Greenback jack mackerel (*T. declivis*) has a long upper accessory lateral line which extends back to the 5th to 11th, usually 7th to 9th ray of the second dorsal fin.

Biology & ecology: Pelagic.

References

Carpenter & Niem (1999), Froese & Pauly (2007), Hirt-Chabbert (2006), May & Maxwell (1986), Paul (2000), Paulin et al. (1989), Stephenson & Robertson (1977).

Southern bream

Brama australis

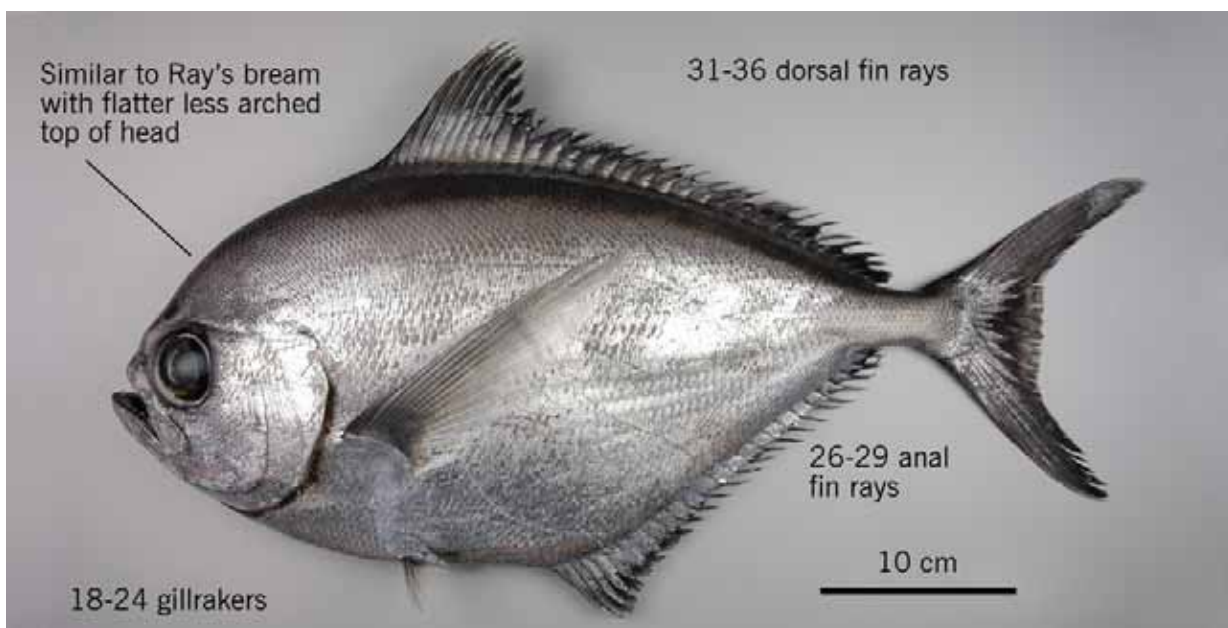
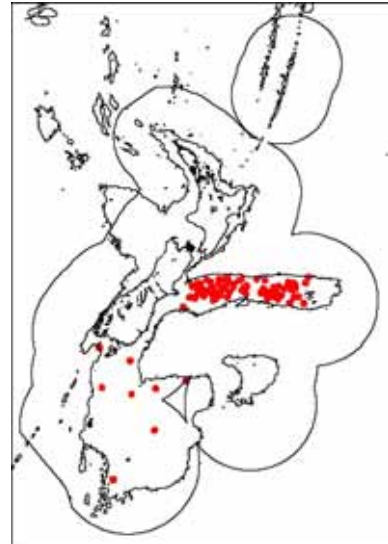
Family: 367. Bramidae (pomfrets)

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).

Ray's bream

Brama brama

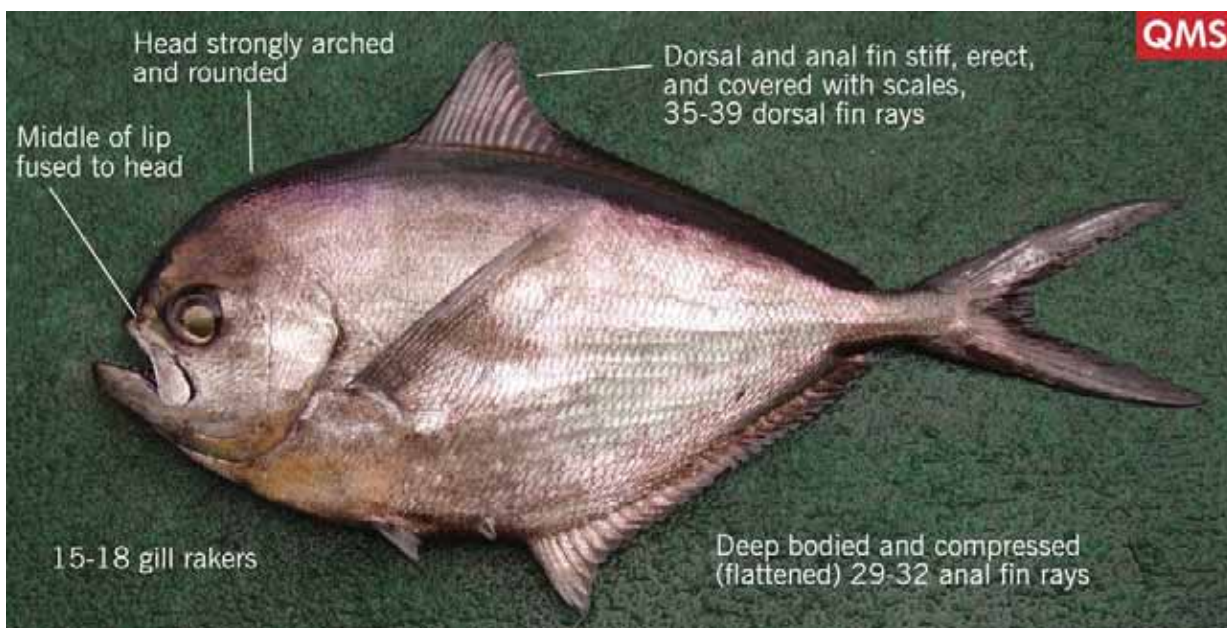
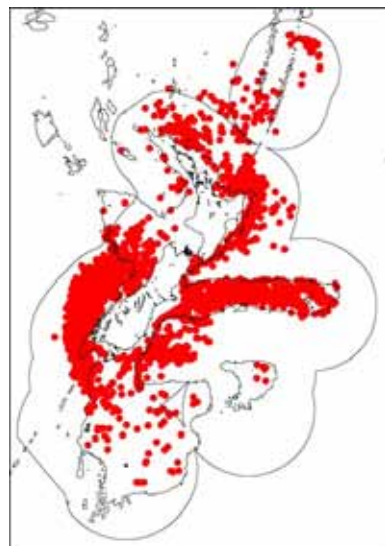
Family: 367. Bramidae (pomfrets)

Maori names: n.a.

Other names: n.a.

MFish reporting code: RBM

MFish research code: RBM



Distinguishing features: Dorsal profile of head strongly arched and rounded. Middle of upper lip fused to head. Dorsal and anal fins stiff, erect and covered with scales. Dorsal fin elements (spines plus rays) 35 to 39 (often 37 to 38), anal fin elements 29 to 32 (often 30), and gill rakers on outer side of first arch 15 to 18.

Colour: Body metallic silver fading to silvery brown on death.

Size: To about 60 cm FL.

Distribution: Widely distributed around New Zealand, including the Kermadec region, Chatham Rise and the Subantarctic region, but may be most abundant in the south. Fisheries records of this species are likely to include southern bream (*B. australis*) and to a lesser extent bronze bream (*Xenobrama microlepis*) because of confused identification of these species. Found in the North Atlantic Ocean and throughout the subtropical to subantarctic waters of the southern hemisphere.

Depth: Surface to about 200 m, possibly deeper.

Similar species: Southern bream (*B. australis*) has a less strongly arched upper head profile, fewer dorsal fin elements (spines plus rays) 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. Bronze bream (*Xenobrama microlepis*) has a less strongly arched upper head profile and the upper lip is free and not joined to the head near the snout tip. It is likely that southern bream in particular, but also bronze bream, have been confused with Ray's bream.

Biology & ecology: Pelagic.

References

Bagley et al. (2000), Chapman et al. (2006), Last & Baron (1994), Paulin (1981), Stewart (2001a).

Wingfish

Pteraclis velifera

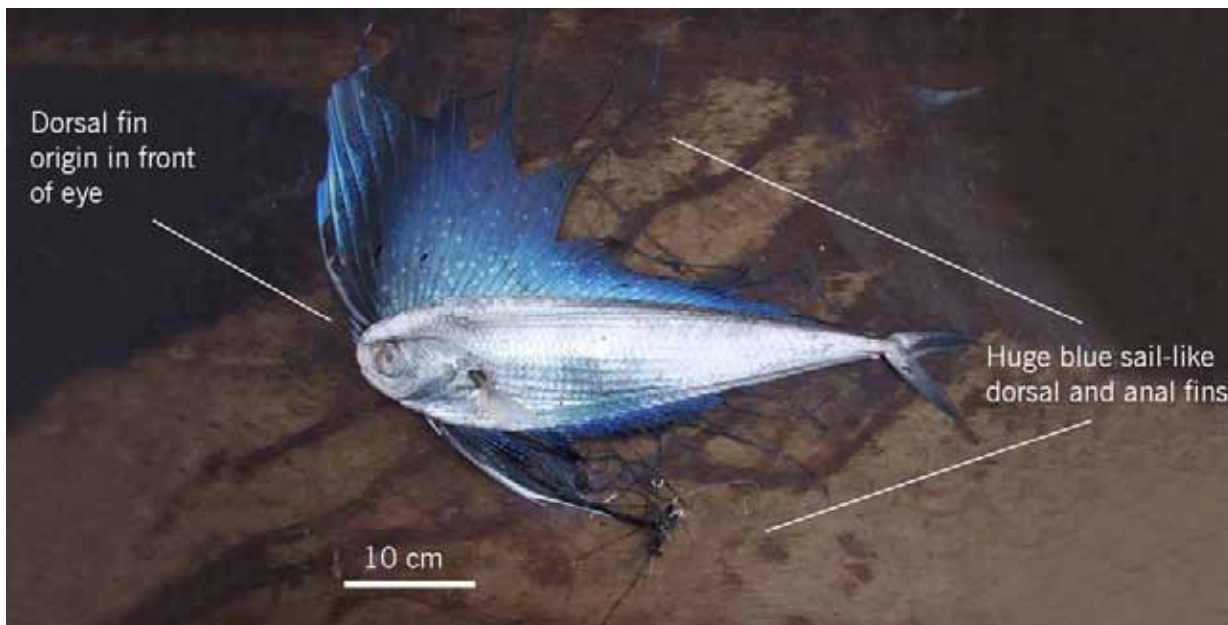
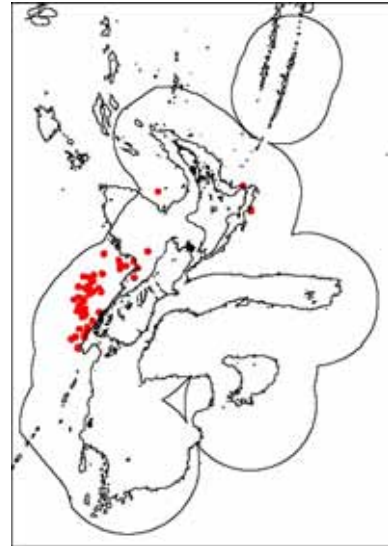
Family: 367. Bramidae (pomfrets)

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.

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, and the dorsal fin origin is above or behind the eye.

Biology & ecology: Pelagic, usually in oceanic waters.

References

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

Fanfish

Pterycombus petersii

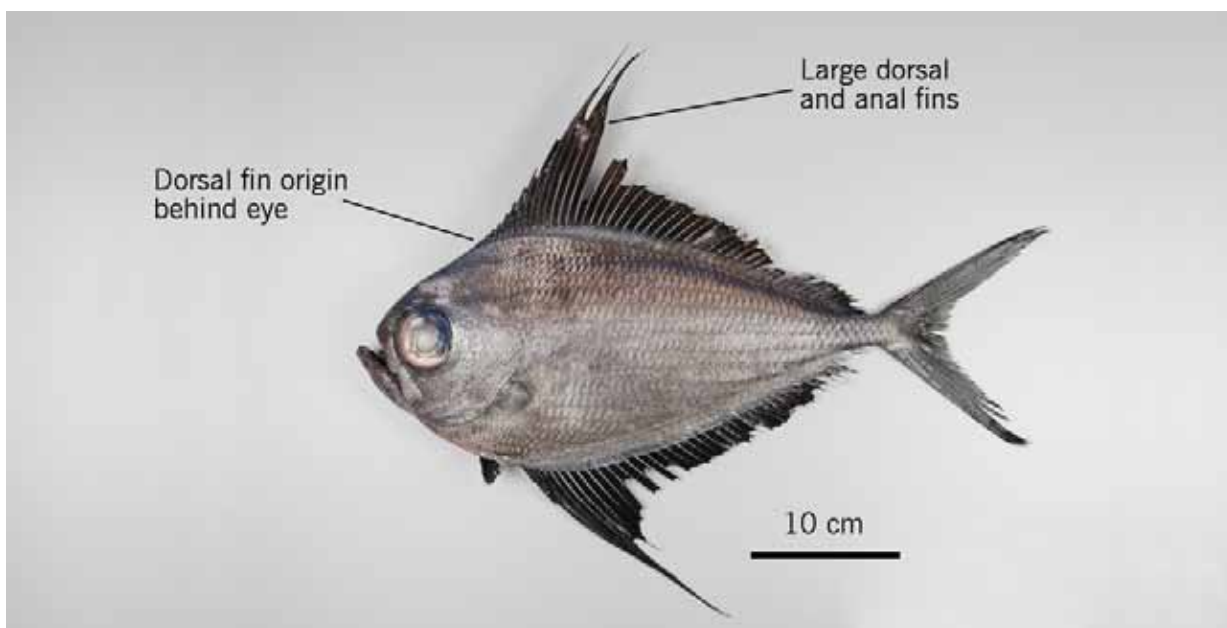
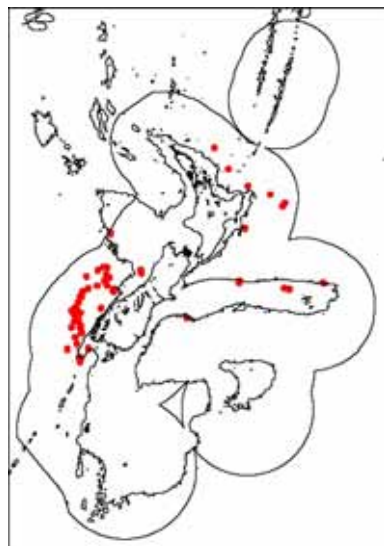
Family: 367. Bramidae (pomfrets)

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: Wingfish (*Pteraclis velifera*) has huge sail-like dorsal and anal fins, the first few dorsal fin rays are much thicker than the rest, and the dorsal fin origin is well ahead of the eye.

Biology & ecology: Pelagic.

References

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

Flathead pomfret

Taractes asper

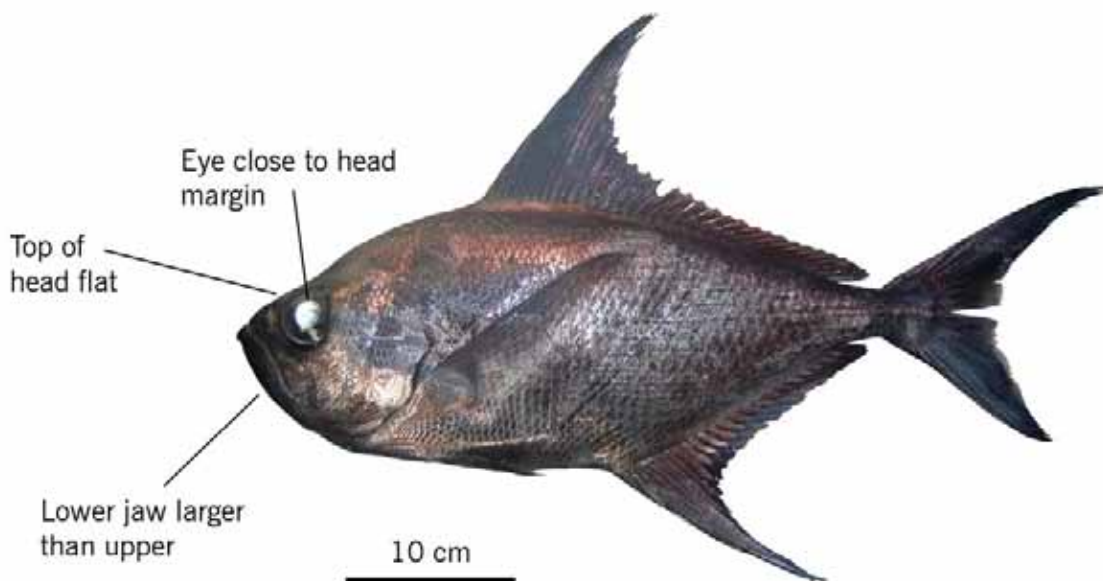
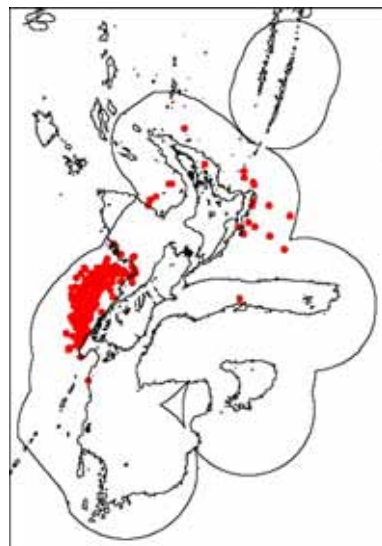
Family: 367. Bramidae (pomfrets)

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. 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: 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.

Biology & ecology: Pelagic.

References

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

Big-scale pomfret

Taractichthys longipinnis

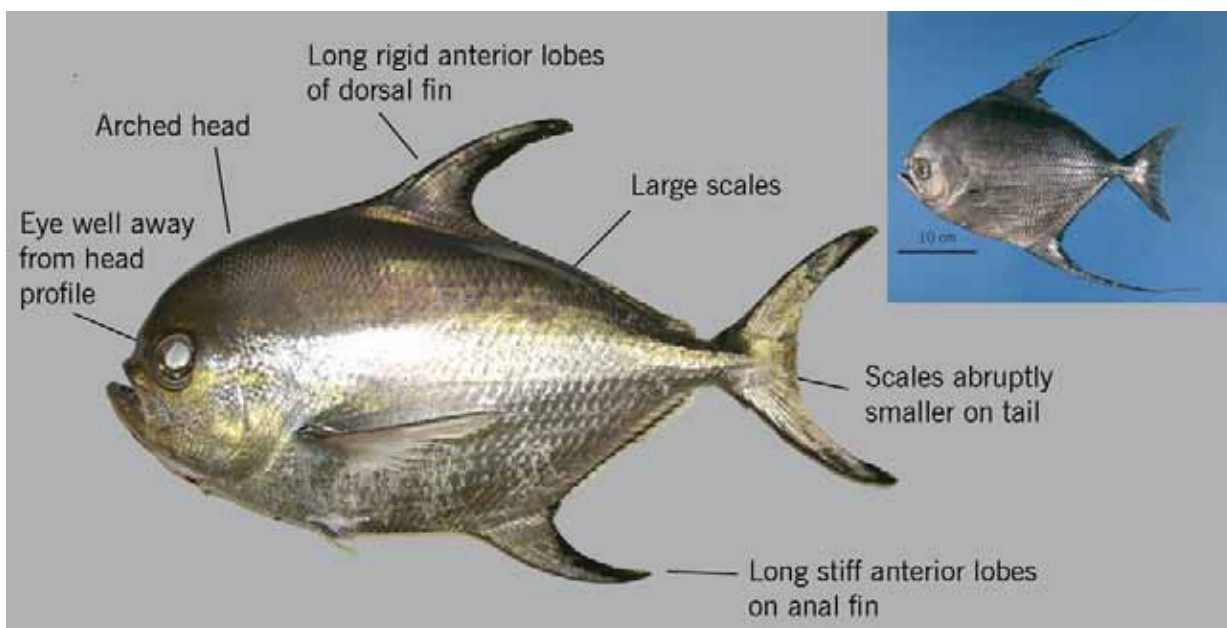
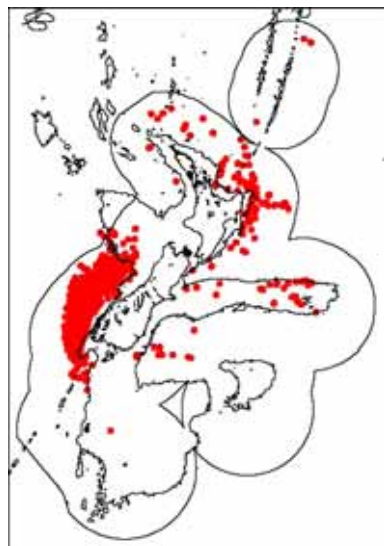
Family: 367. Bramidae (pomfrets)

Maori names: n.a.

Other names: Longfinned bream, longfinned pomfret

MFish reporting code: BSP

MFish research code: BSP



Distinguishing features: Top of head prominently arched with eye well away from head margin. Long stiff anterior lobes of dorsal and anal fins. Large body scales, 39 to 46 scales between the hind edge of the operculum and the caudal fin base. Scales on tail fin abruptly smaller than on caudal peduncle. Juveniles have extremely elongated dorsal and anal fin rays which become relatively shorter with age.

Colour: Silver-grey.

Size: To about 100 cm FL in New Zealand.

Distribution: Throughout New Zealand including the Kermadec region, Chatham Rise and the Subantarctic, with greatest abundance around the South Island. Widespread in tropical and temperate oceanic waters of the Atlantic, Indian, and Pacific Oceans.

Depth: To about 500 m.

Similar species: Ray's bream (*Brama brama*) has smaller scales, especially at the base of the tail, and lacks stiff fin spines. Flathead pomfret (*Taractes asper*) has a flatter head profile. Sickie pomfret (*Taractichthys steindachneri*) may also occur in New Zealand waters and has fewer scales (34 to 38) between the hind edge of the operculum and the caudal fin base.

Biology & ecology: Pelagic.

References

Bagley et al. (2000), Paul (2000), Paulin et al. (1989), Stewart (2001b).

Bronze bream

Xenobrama microlepis

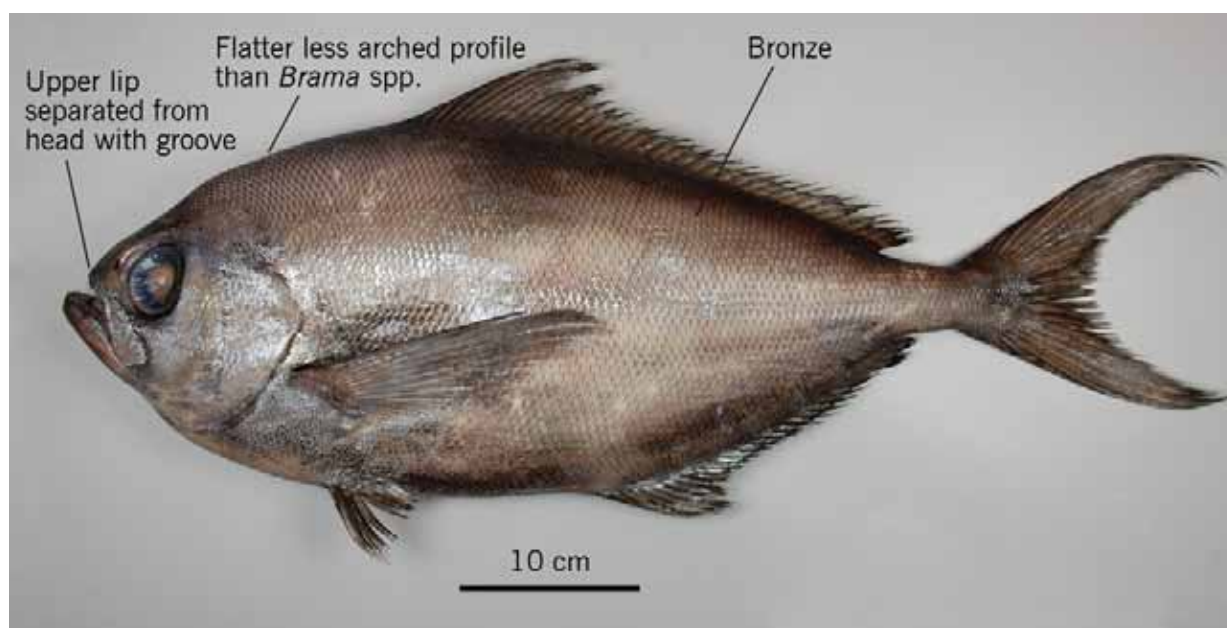
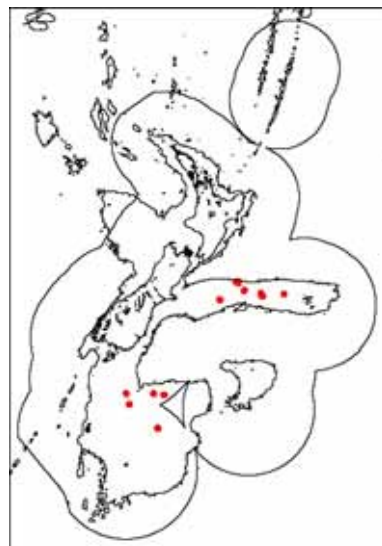
Family: 367. Bramidae (pomfrets)

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 gold.

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).

Kahawai

Arripis trutta

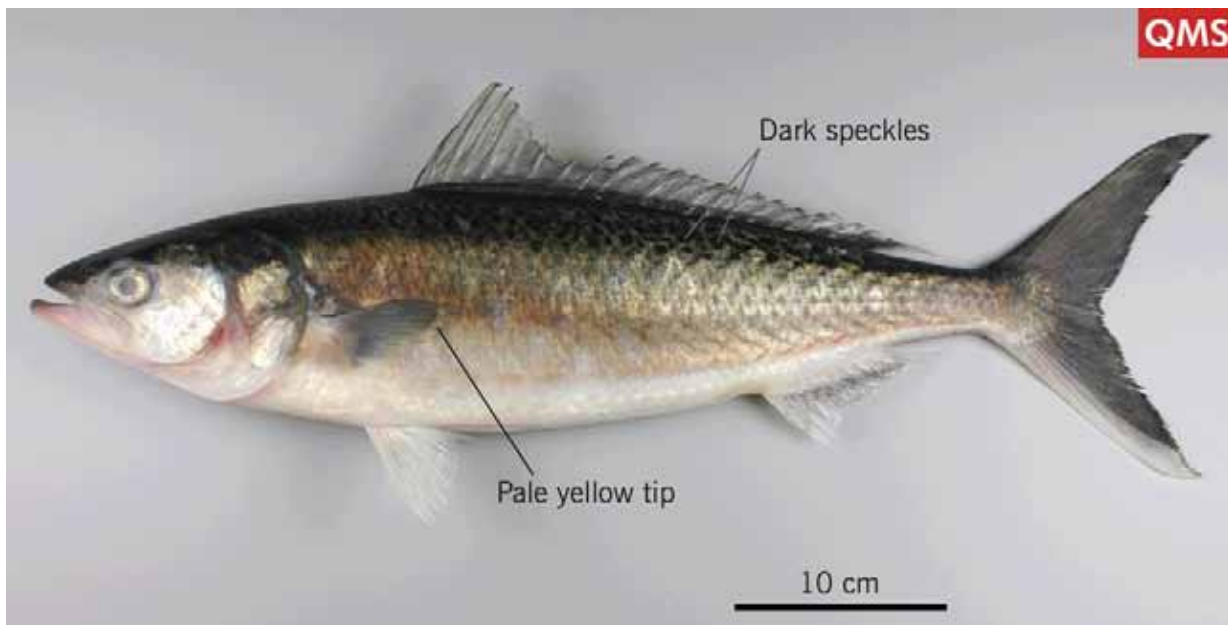
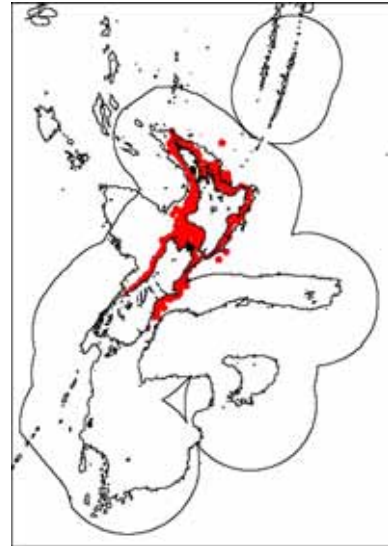
Family: 389. Arripidae (Australasian salmon, kahawai)

Maori names: Kahawai

Other names: Eastern Australian salmon (Australia)

MFish reporting code: KAH

MFish research code: KAH



Distinguishing features: Easily recognised streamlined body with irregular small dark speckles on upper sides, firm large scales.

Colour: Greenish-blue above with irregular small dark speckles, shading to silvery-white below. Outer edge of pectoral fin pale yellow. Tail fin lobe about the same as head length.

Size: To about 70 cm FL.

Distribution: Throughout New Zealand, more abundant about and north of Cook Strait, present in southern areas only in warmer months. Also southeast Australia.

Depth: 0 to 150 m.

Similar species: *Arripis xylabion* occurs in the far north, is rare, and has a grey pectoral fin and tail fin lobe longer than head length.

Biology & ecology: Pelagic on continental shelf, often in schools.

References

Francis (2001), Hirt-Chabbert (2006), May & Maxwell (1986), Paul (2000), Paulin et al. (1989).

Scaly stargazer

Pleuroscopus pseudodorsalis

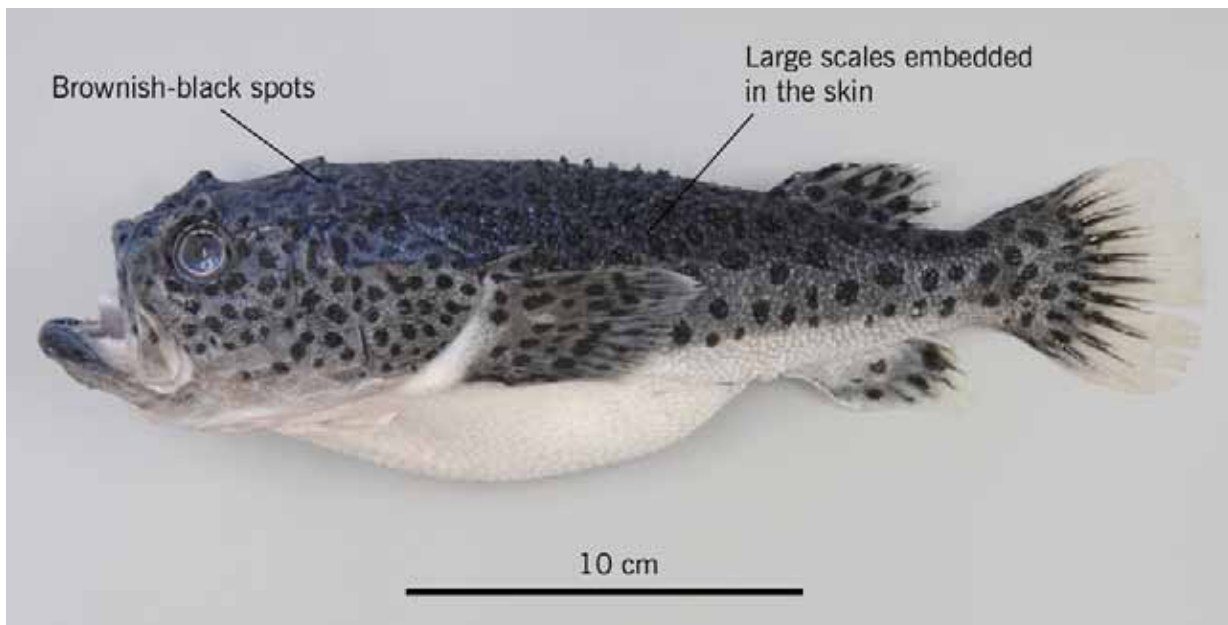
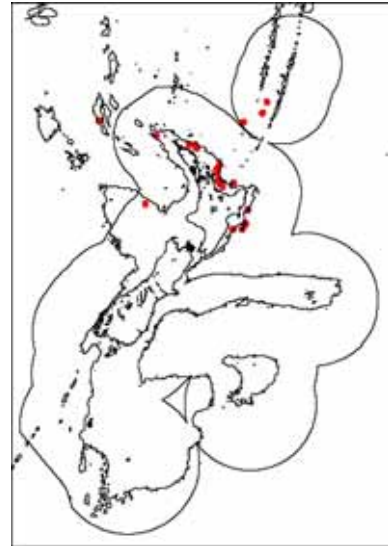
Family: 443. Uranoscopidae (stargazers)

Maori names: n.a.

Other names: n.a.

MFish reporting code: PLZ

MFish research code: PLZ



Distinguishing features: Large body scales embedded in the skin of the upper body. Bluish-grey upper head and body with small brownish-black spots and mottling. Spinous first dorsal fin reduced to 8 to 10 (usually 9 or 10) low bony protruberances in front of the soft dorsal fin.

Colour: Adults bluish-grey upper head and body with dark spots and mottling. Lower head and body pale, whitish. Spots/mottling on base of pectoral, dorsal and caudal fins. Small fish with dark blue upper body, many small black spots, white or grey lower sharply demarcated from the dark upper body.

Size: To at least 70 cm TL.

Distribution: Northern New Zealand. Southern Australia and southern Africa.

Depth: 200 to 800 m.

Similar species: Other stargazers lack large body scales embedded in the skin, bluish-grey upper head and body with small brownish-black spots and mottling, and spinous first dorsal fin reduced to 8 to 10 (usually 9 or 10) low bony protruberances in front of the soft dorsal fin.

Biology & ecology: Small individuals live in near-surface waters, i.e., are pelagic. Larger individuals are found on the seafloor.

References

Kishimoto et al. (1988), Gomon et al. (2008), Paulin et al. (1989).

Black mackerel

Scombrolabrax heterolepis

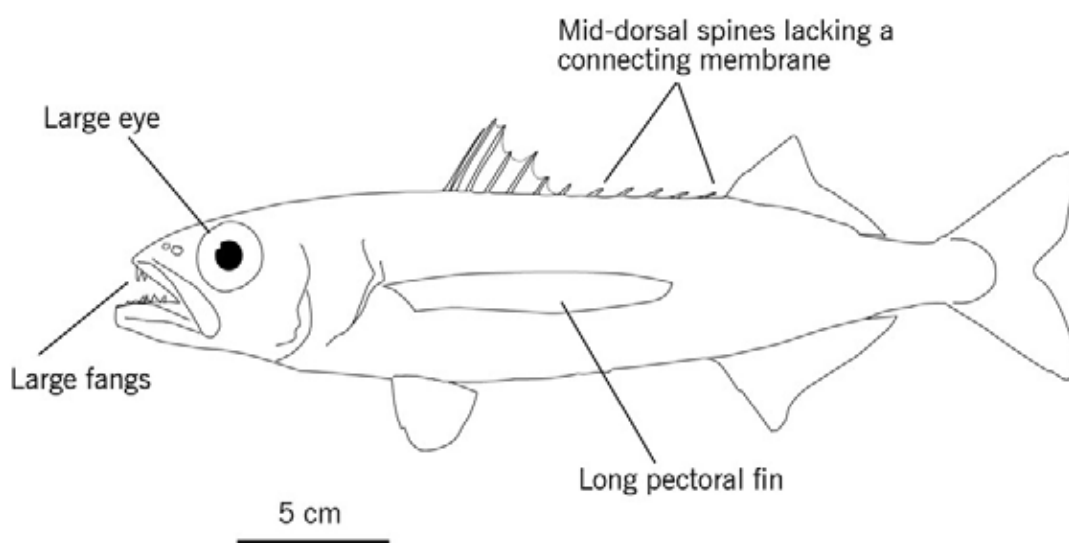
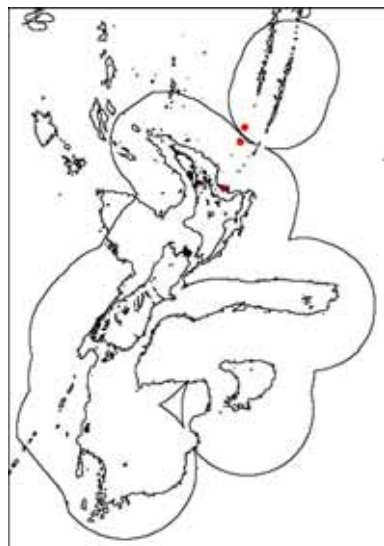
Family: 471. Scombrolabracidae (longfin escolar)

Maori names: n.a.

Other names: Longfin escolar

MFish reporting code: MAC

MFish research code: BLM



Distinguishing features: Dark brown to black, cigar-shaped body. Two or 3 large fangs at the front of the upper jaw. Very long pectoral fins. Base of the first spinous dorsal fin about twice the length of the second soft-rayed dorsal fin. Single lateral line running along the upper body close to the base of the dorsal fins. Irregular shaped deciduous scales.

Colour: Body dark brown to black.

Size: To about 30 cm FL.

Distribution: Mostly recorded from the North Island northwards. Throughout tropical and subtropical waters of Atlantic, Indian and western central Pacific Oceans.

Depth: 100 to 900 m.

Similar species: Small gempylids such as *Rexea* spp. have a branched (two) lateral line and a silvery sided body.

Biology & ecology: Oceanic and pelagic. Found over the continental shelf and slope on underwater rises.

References

Chapman et al. (2006), Stewart (1991, 2003).

Barracuda

Sphyraena acutipinnis

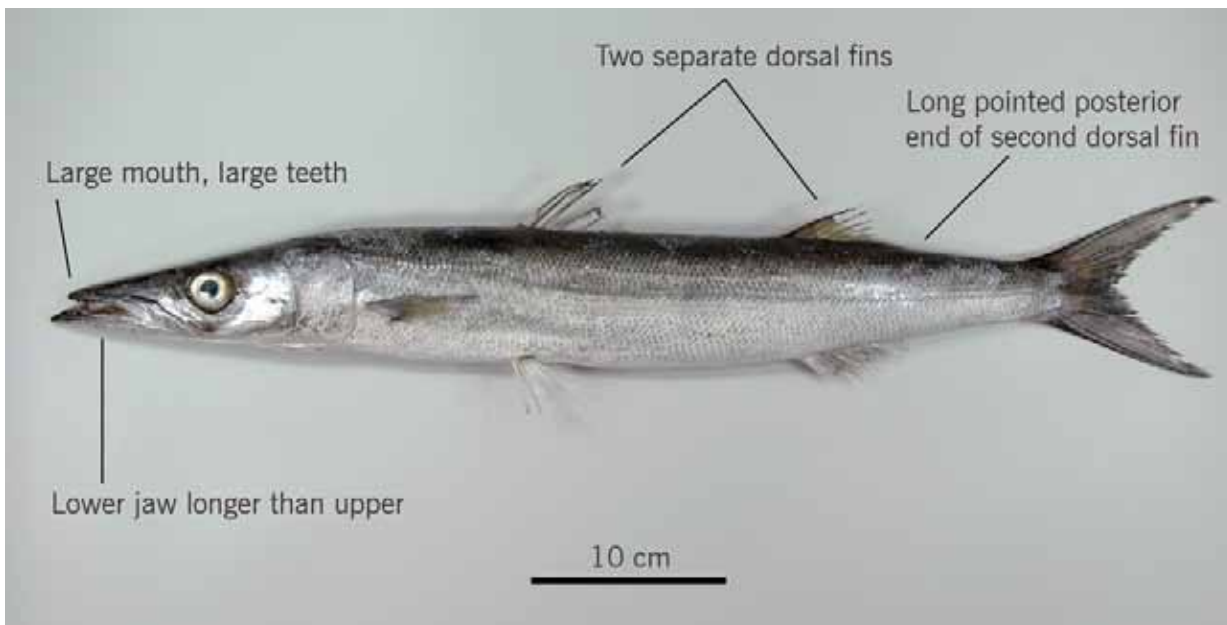
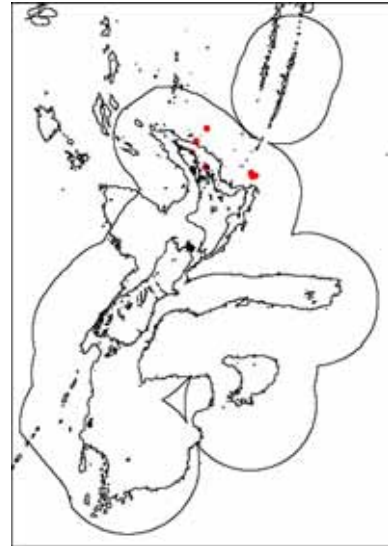
Family: 472. Sphyraenidae (barracudas)

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 Houhora to the Bay of Plenty in New Zealand. 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).

Snake mackerel

Gempylus serpens

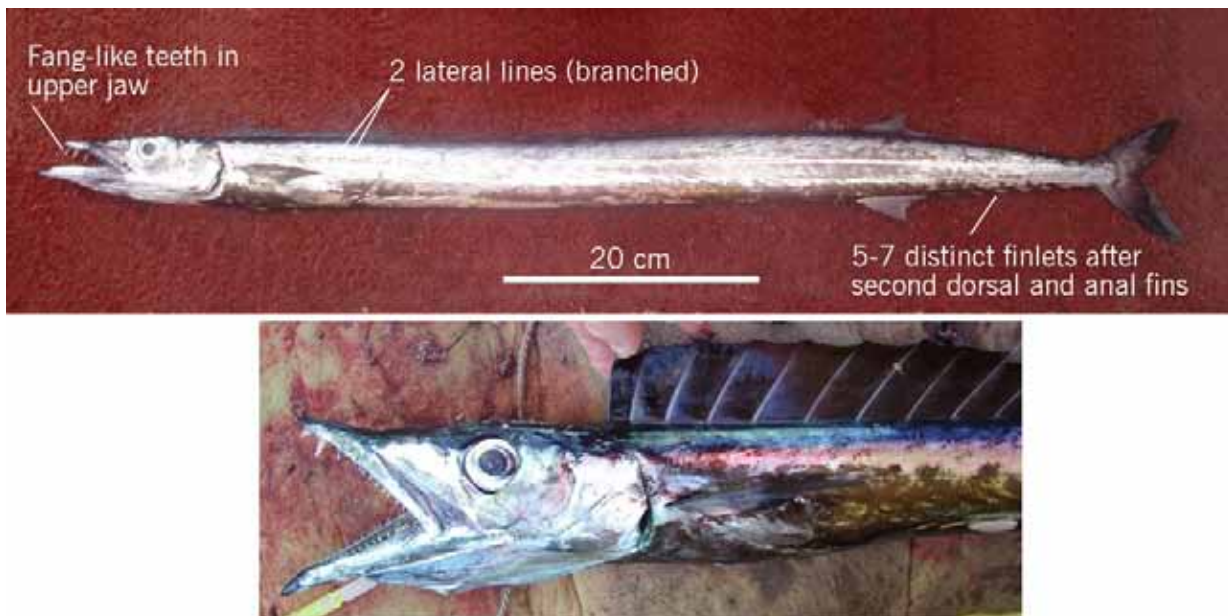
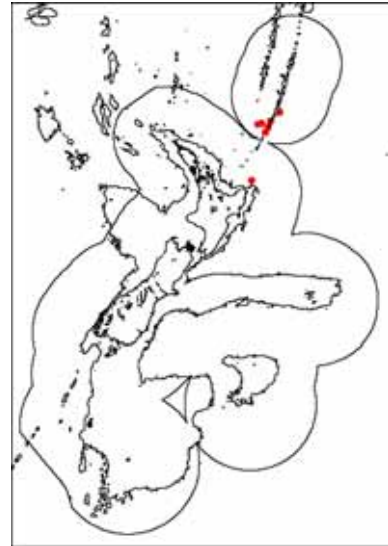
Family: 473. Gempylidae (snake mackerels)

Maori names: n.a.

Other names: n.a.

MFish reporting code: GSE

MFish research code: GSE



Distinguishing features: Very elongate body. Long-based spiny first dorsal fin and shorter second dorsal fin followed by 5 to 7 finlets. Anal fin also followed by 5 to 7 finlets. Double lateral line (branched).

Colour: Body uniformly dark brown dorsally, silvery sides. First dorsal fin dark.

Size: To 112 cm FL.

Distribution: Recorded from northeast North Island and the Kermadec Islands. Widespread in tropical and subtropical seas, but adults sometimes in temperate waters.

Depth: 0 to 200 m and perhaps deeper.

Similar species: Black barracouta (*Nesiarchus nasutus*) has a single, mostly straight, lateral line. Frostfish (*Lepidopus caudatus*) has a very long, flatter body with a smaller forked tail fin, strongly arched profile of head near origin of the dorsal fin, single lateral line, and a single nostril.

Biology & ecology: Rare in New Zealand waters. Oceanic, pelagic. Adults migrate to surface at night. Spawns in tropical waters. Juveniles stay at surface only during the day.

References

Chapman et al. (2006), Nakamura & Parin (1993), Stewart & Roberts (1999), Stewart (1991).

Escolar

Lepidocybium flavobrunneum

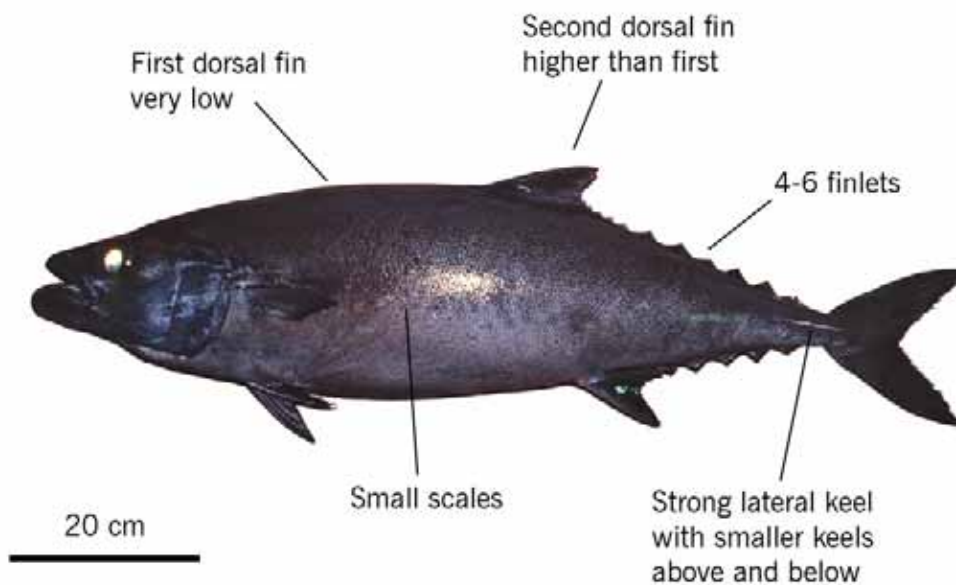
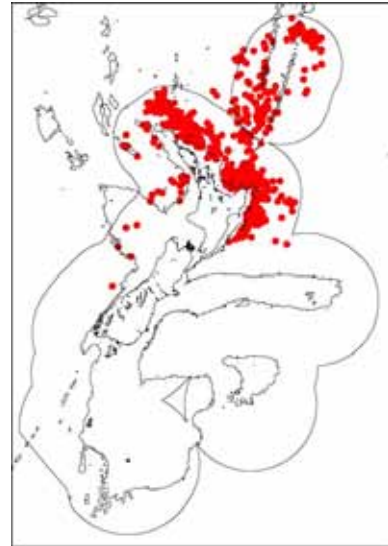
Family: 473. Gempylidae (snake mackerels)

Maori names: n.a.

Other names: n.a.

MFish reporting code: LEP

MFish research code: LEP



Distinguishing features: Prominent lateral keel on caudal peduncle, flanked by smaller accessory keels above and below. Undulating lateral line. First dorsal fin very low, with higher second dorsal fin followed by 4 to 6 finlets. Body scales small giving relatively smooth skin.

Colour: Body almost uniformly dark brown, becoming almost black in larger fish.

Size: To about 200 cm FL.

Distribution: Most records are from around the North Island and waters north of New Zealand, but there are some records from the northwest South Island. Widely distributed in tropical and temperate seas of the world, except probably the northern Indian Ocean.

Depth: 0 to 300 m.

Similar species: Oilfish (*Ruvettus pretiosus*) has skin covered with spinous bony tubercles (very rough), second dorsal fin is followed by two finlets, and lacks keels on the caudal peduncle.

Biology & ecology: Pelagic, mostly over the continental slope, migrates towards the surface at night.

References

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

Black barracouta

Nesiarchus nasutus

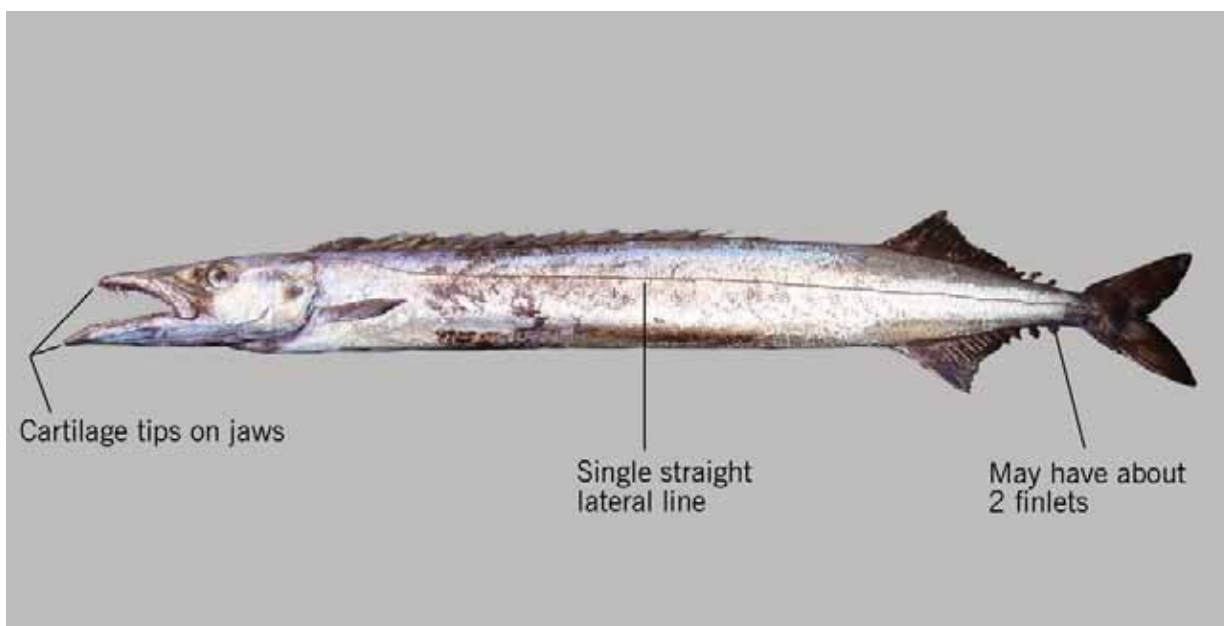
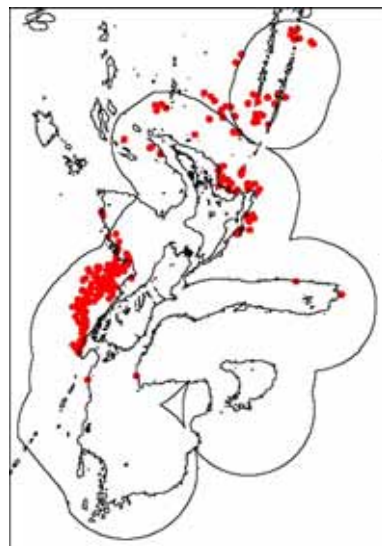
Family: 473. Gempylidae (snake mackerels)

Maori names: n.a.

Other names: Black gemfish

MFish reporting code: BBA

MFish research code: BBA



Distinguishing features: Cartilaginous projection on both jaws. Single lateral line mostly straight. About 2 finlets behind the second dorsal and anal fins.

Colour: Body dark brown with violet tint dorsally (fades on death), silvery sides. Fin membranes black.

Size: To 130 cm SL.

Distribution: Recorded from the North Island, Kermadec Islands, and west coast of South Island. Probably worldwide in tropical and subtropical seas except in the eastern Pacific and northern Indian Oceans.

Depth: About 200 to 1200 m.

Similar species: Barracouta (*Thyrsites atun*) lacks a cartilaginous projection on the lower jaw, has a single lateral line running from behind the head along upper body and dropping to mid-body near rear of spinous dorsal fin, 5 to 7 finlets behind second dorsal fin and 6 to 7 behind anal fin. Snake mackerel (*Gempylus serpens*) has a branched (double) lateral line, more finlets (5 to 7) and is more elongate.

Biology & ecology: Adults pelagic over continental shelf or underwater rises. Larvae and juveniles pelagic, and found only in the tropics.

References

Bagley et al. (2000), Chapman et al. (2006), Nakamura & Parin (1993), Stewart (1991).

False frostfish

Paradiplospinus sp.

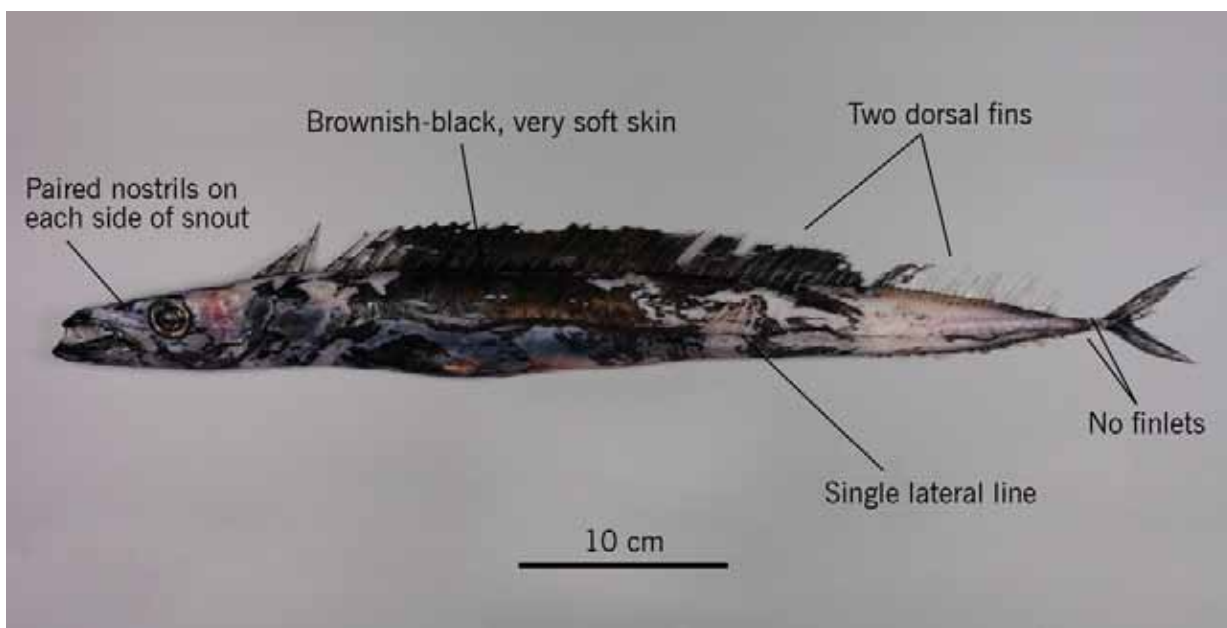
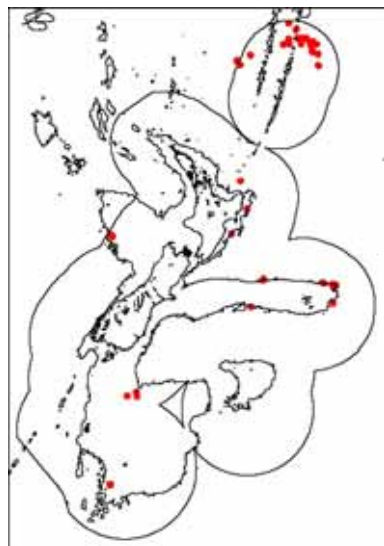
Family: 473. Gempylidae (snake mackerels)

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 silvery brownish-black, juveniles silvery.

Size: To at least 43 cm SL.

Distribution: Records of this species from longline catches in New Zealand are uncertain and may include frostfish.

Depth: About 300 to 600 m.

Similar species: Black barracouta (*Nesiarchus nasutus*) and snake mackerel (*Gempylus serpens*) have finlets behind the second dorsal and anal fins. 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.

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

References

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

Gemfish

Rexea solandri

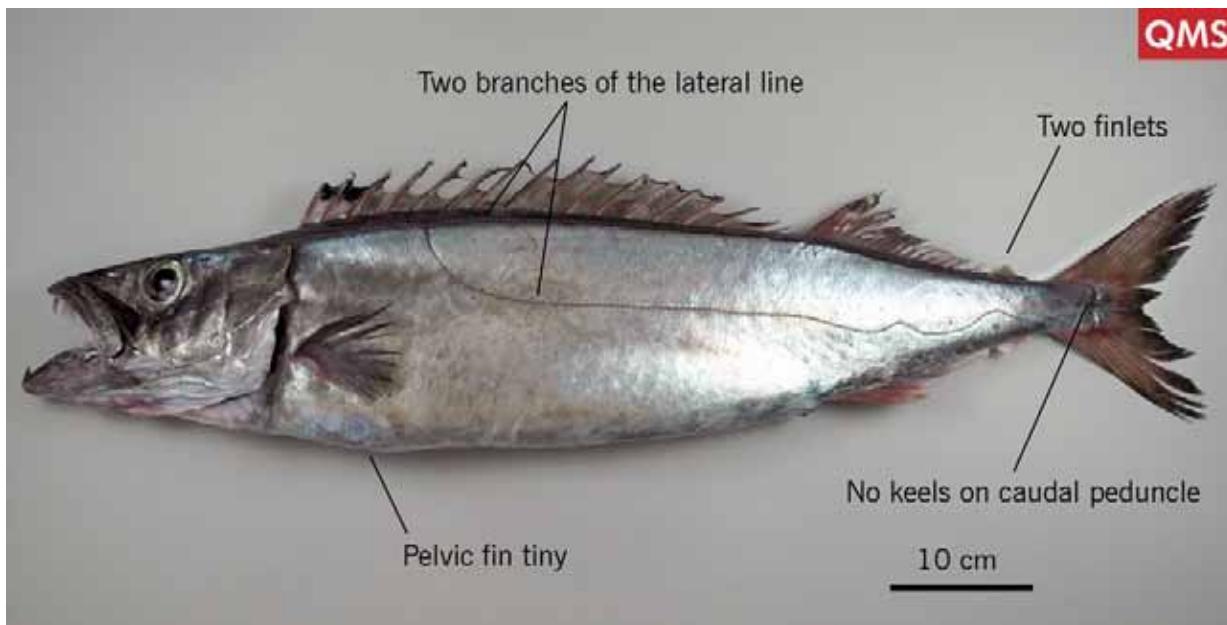
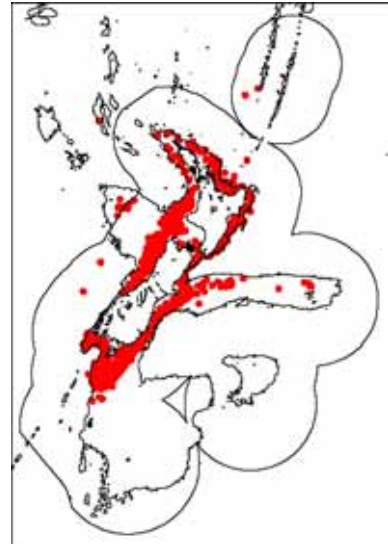
Family: 473. Gempylidae (snake mackerels)

Maori names: Tikati

Other names: n.a.

MFish reporting code: SKI

MFish research code: SKI



Distinguishing features: Long spinous and shorter soft rayed dorsal fin. Two dorsal and anal finlets behind fins. Upper jaw with 3 to 4 fang-like teeth at front. Lower jaw with 2 prominent teeth at front. Tiny pelvic fin with 1 spine and 2 to 3 soft rays. Protruding lower jaw. No keels on caudal peduncle. One lateral line branching into two at about fifth dorsal spine. Upper branch to near rear of second dorsal fin and lower branch undulates near mid-body towards caudal peduncle. Minute scales on body and rear of head.

Colour: Body iridescent blue above, silvery on side and below. Large black blotch at the front of the first dorsal fin on the upper webbing of the first two or three spines. Other fins pale or dusky.

Size: To about 135 cm FL.

Distribution: Widespread in New Zealand from Cape Reinga to the Stewart/Snares slope including shallower parts of the Chatham Rise, Chatham Islands, and possibly Challenger Plateau. Southern Australia from about Sydney (NSW) to western edge of the Great Australian Bight (WA) including Tasmania.

Depth: 50 to 600 m.

Similar species: Barracouta (*Thyrsites atun*) has a single unbranched lateral line, lacks 2 prominent teeth in the lower jaw, has a larger pelvic fin, 5 to 7 finlets behind the second dorsal fin and 6 to 7 behind the anal fin, and has black webbing between the spines of the first dorsal fin. Other smaller species of *Rexea* may occur in northern New Zealand.

Biology & ecology: Demersal, but midwater at times. Predator of fishes. Migrates to spawning grounds and probably spawns in midwinter (July). Attains at least 17 years of age.

References

Anderson et al. (1998), Gomon et al. (2008), Paulin et al. (1989).

Oilfish

Ruvettus pretiosus

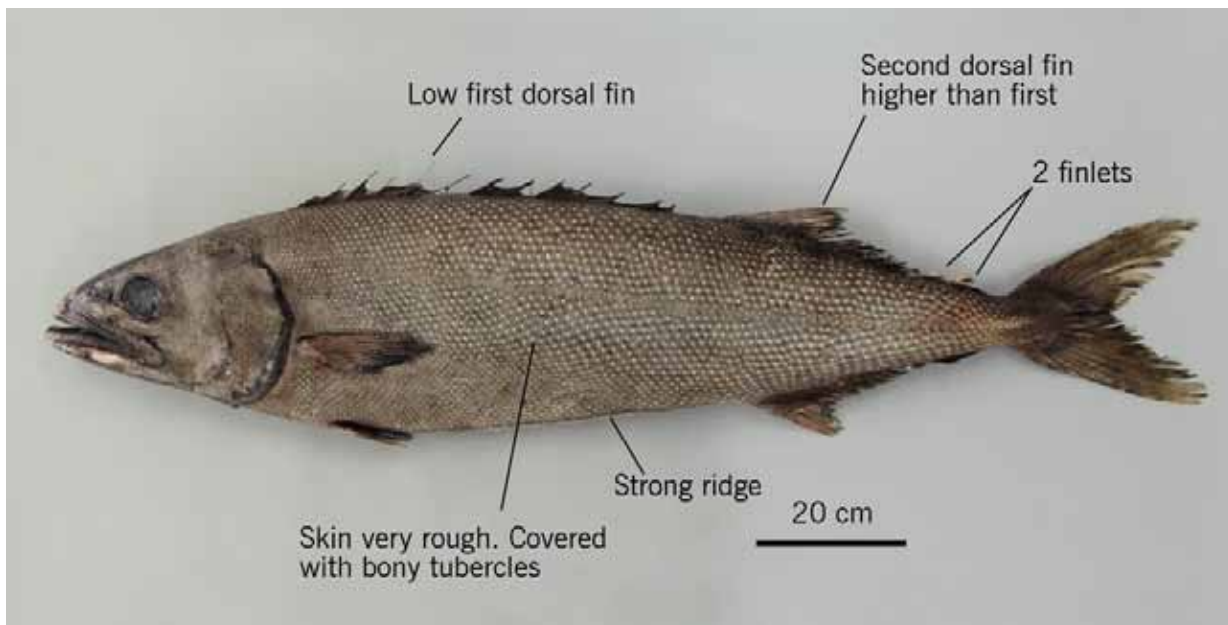
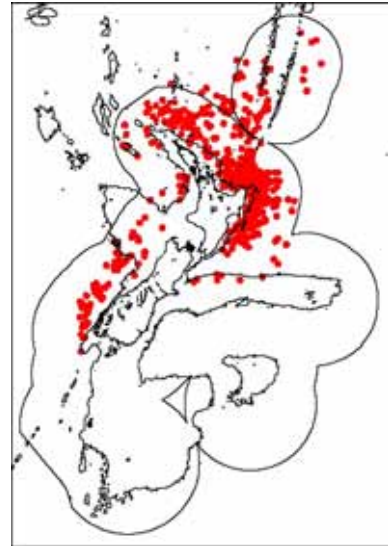
Family: 473. Gempylidae (snake mackerels)

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 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)

Barracouta

Thyrsites atun

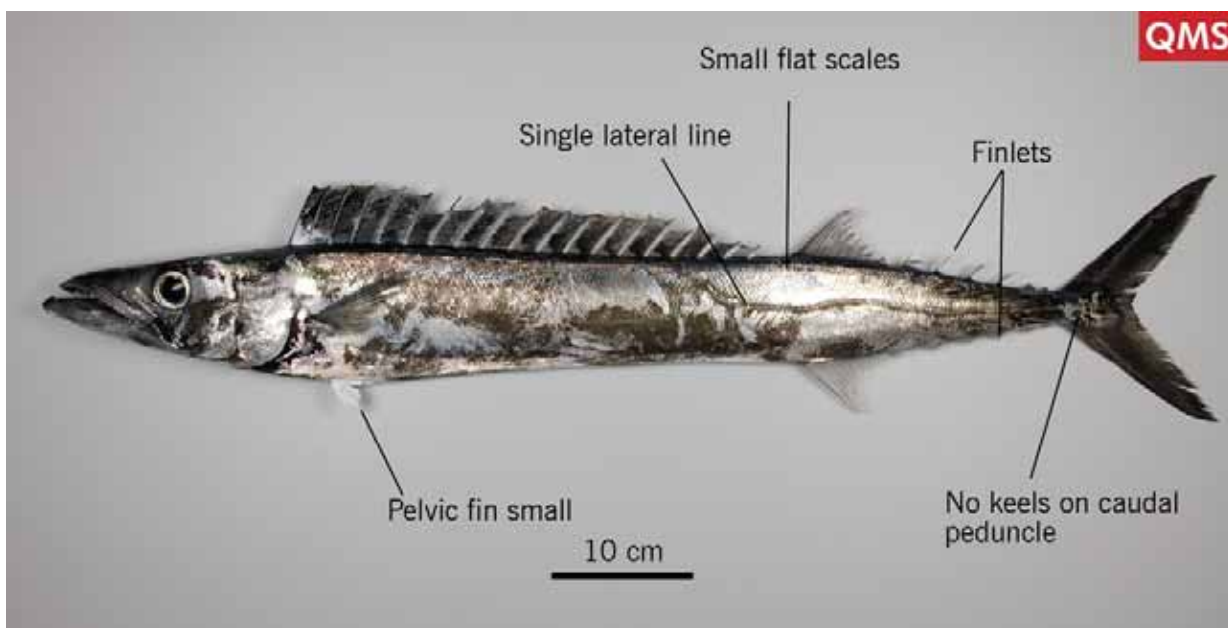
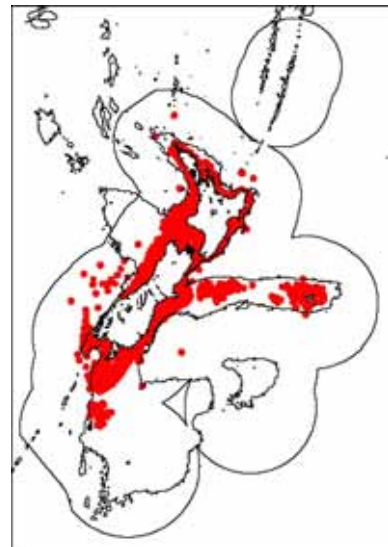
Family: 473. Gempylidae (snake mackerels)

Maori names: Mangaa, makaa

Other names: n.a.

MFish reporting code: BAR

MFish research code: BAR



Distinguishing features: Long spinous dorsal fin followed by shorter soft rayed section with separate finlets (5 to 7) at the rear. Finlets (6 to 7) also behind anal fin. Upper jaw with 3 or 4 fang-like teeth at front. Small pelvic fin with one spine and 5 soft rays. Protruding lower jaw. No fleshy keels on caudal peduncle. Single lateral line running from behind head along upper body, dropping to mid-body near rear of spinous dorsal fin. Small scales on body and most of head but often lost in the net.

Colour: Body dark silvery-blue above, silvery on side and below when fresh but more uniformly silvery after death. Webbing between spines of first dorsal fin blackish. Second dorsal, pectoral, and caudal fins dusky. Pelvic fin whitish.

Size: To about 135 cm FL.

Distribution: Widespread in New Zealand from Cape Reinga to the Auckland Islands Shelf including shallower parts of the Chatham Rise, and Chatham Islands. Widespread in the southern hemisphere including southern Australia from about Moreton Bay (Qld) round to Fremantle (WA) including Tasmania. Also South America, South Africa, and oceanic islands of these latitudes.

Depth: 0 to 400 m.

Similar species: Gemfish (*Rexea solandri*) has a branched (two part) lateral line, 2 prominent teeth in the lower jaw, a tiny pelvic fin, 2 finlets behind the second dorsal and anal fins, and has a black blotch at the front of the first dorsal fin. Black barracouta (*Nesiarchus nasutus*) has a cartilaginous projection on both jaws, lower jaw longer than upper, and a single mostly straight lateral line.

Biology & ecology: Demersal but ranges widely in the water column at times. Predator of crustaceans and small schooling fishes. Attains at least 10 years of age. Spawns late winter to summer and may migrate considerable distances to spawning grounds.

References

Anderson et al. (1998), Gomon et al. (2008), Paulin et al. (1989), Stewart (1999a).

Frostfish

Lepidopus caudatus

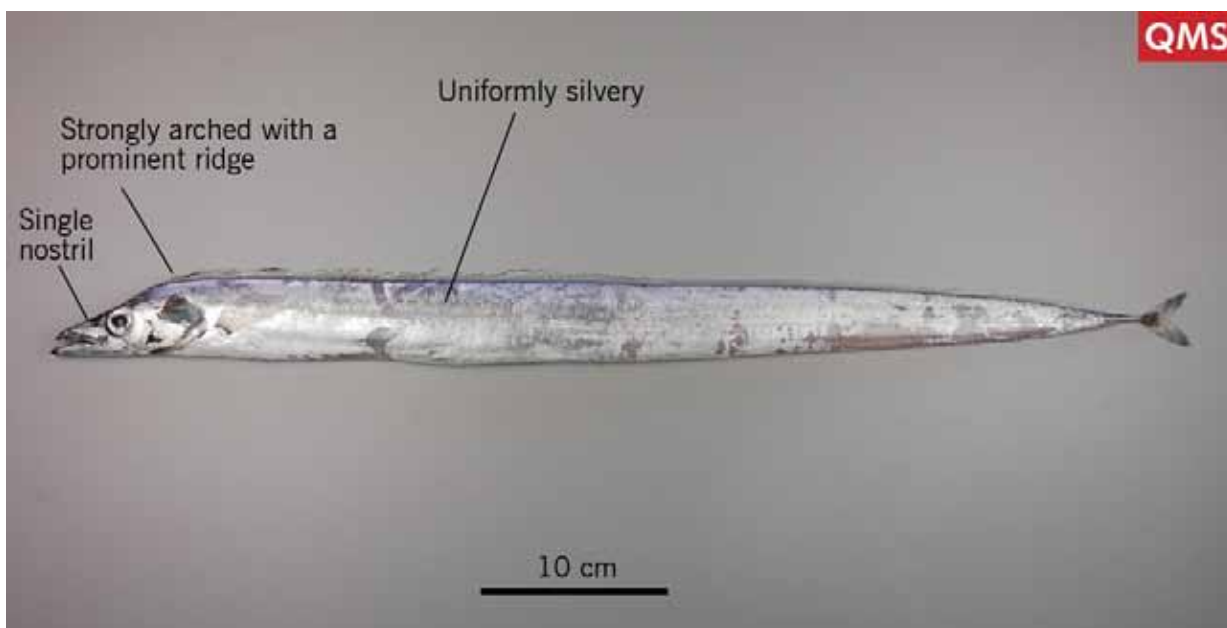
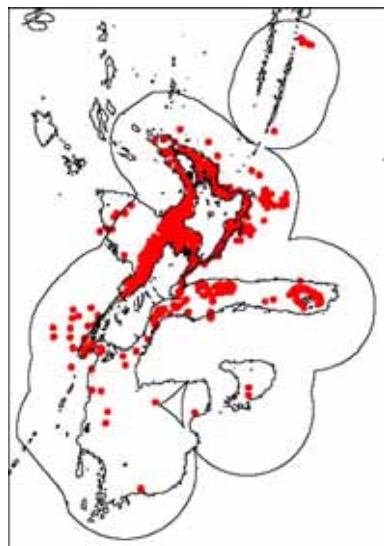
Family: 474. Trichiuridae (cutlassfishes)

Maori names: Hikau, paara, taharangi

Other names: n.a.

MFish reporting code: FRO

MFish research code: FRO



Distinguishing features: Body uniformly silvery. Very long body with small forked tail fin. Single nostril on each side of snout. Profile of head strongly arched with a prominent ridge near origin of the dorsal fin. Strong teeth in jaws, fang-like at front of upper jaw. Pelvic fin tiny. Single lateral line slightly closer to lower side near rear of body. Second (first spine tiny) anal fin spine plate-like, about half the length of the pupil. 98 to 110 dorsal fin elements (spines plus soft rays) and 59 to 66 anal fin soft rays.

Colour: Body uniformly silvery. May be black upper margin of membrane near front of first dorsal fin. Lobes of caudal fin dusky.

Size: To about 200 cm FL.

Distribution: Widespread in central and northern NZ. The few records from southern and northern NZ are uncertain and may include other species of snake mackerels (gempylids) and cutlassfishes (trichiurids). Widespread in the southern hemisphere including Australia (NSW to southern WA including Tas), South Africa including Walvis Ridge, and seamounts in the southern Indian Ocean from about 30 to 35 S. Northern hemisphere from France to Senegal in the North Atlantic Ocean and western Mediterranean.

Depth: 50 to 600 m.

Similar species: Species of *Benthodesmus* are also silvery and have a single nostril on each side of snout but head profile rises gently from tip of snout to origin of dorsal fin, i.e., not strongly arched and lacking a prominent ridge. *Benthodesmus elongatus* has 143 to 152 and *B. tenuis* 118 to 128 dorsal fin elements (spines plus soft rays) and both species are more slender and smaller (less than 100 cm FL) than frostfish. Snake mackerels (gempylids) have a pair of nostrils on each side of snout.

Biology & ecology: Demersal but move into midwater at night to feed on small crustaceans, fishes, and squids. Spawn during summer and autumn.

References

Gomon et al. (2008), Nakamura & Parin (1993), Stewart (1996).

Wahoo

Acanthocybium solandri

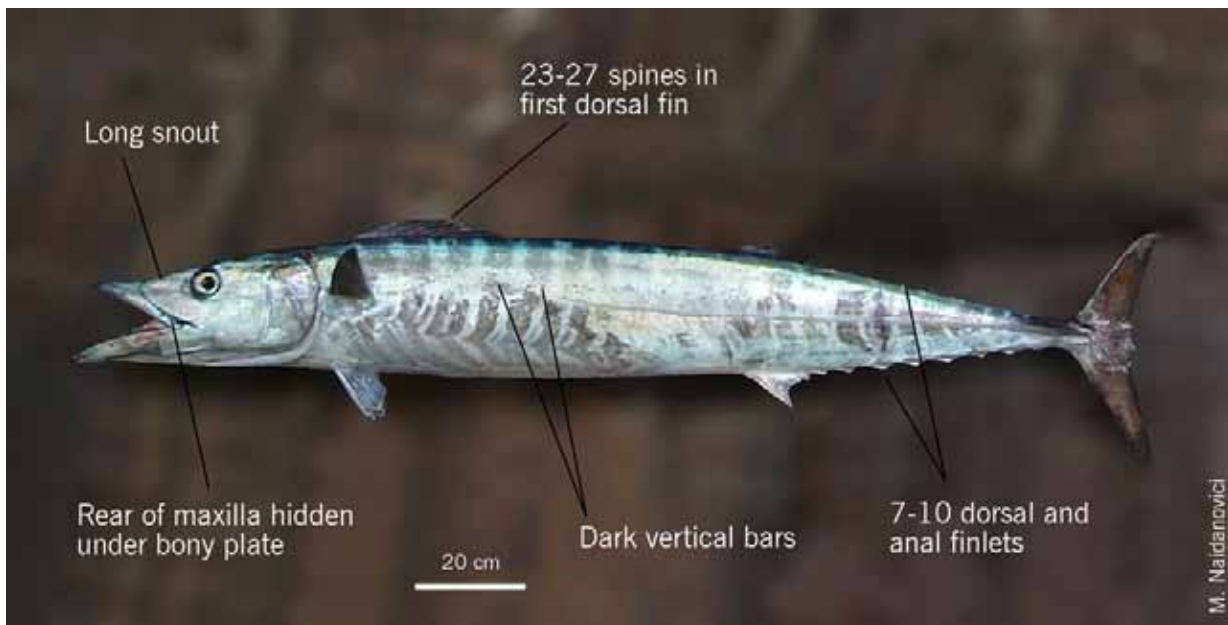
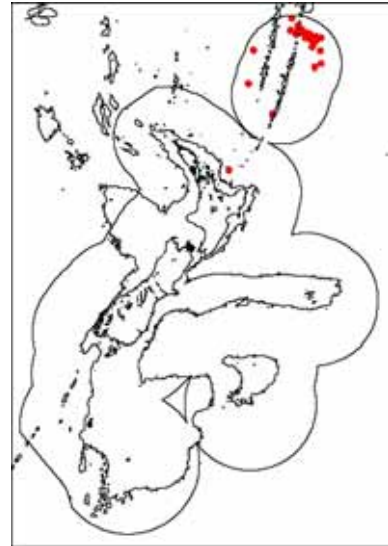
Family: 475. Scombridae (mackerels, tunas)

Maori names: n.a.

Other names: n.a.

MFish reporting code: WAH

MFish research code: WAH



Distinguishing features: Elongate body and long snout (more than half of head length). Numerous dark vertical bars on body. No gill rakers. Posterior end of maxilla hidden under bony plate. Two dorsal fins, the first with 23 to 27 spines and the second with 12 to 16 rays, followed by 7 to 10 finlets, with 7 to 10 finlets behind anal fin. Single lateral line curves abruptly downward under first dorsal fin.

Colour: Body blue-black on dorsal surface, silvery-white on belly with a series of blue vertical bars which extend below lateral line, some of these are y-shaped. Body colour becomes dusky-grey after death.

Size: To 210 cm FL.

Distribution: Northern, recorded north of 36 S, mostly around the Kermadec Islands. Found in tropical and subtropical waters of all oceans.

Depth: 0 to 12 m.

Similar species: Escolar (*Lepidocybium flavobrunneum*) has a uniformly dark brown body, prominent lateral keel on the caudal peduncle, flanked by smaller accessory keels above and below, an undulating lateral line, with 4 to 6 finlets behind the second dorsal fin, and has gill rakers. Oilfish (*Ruvettus pretiosus*) has skin covered with spinous bony tubercles (very rough), second dorsal fin followed by 2 finlets, has gill rakers, and lacks keels on the caudal peduncle.

Biology & ecology: Pelagic, highly migratory and oceanic.

References

Chapman et al. (2006), Collette (2001), Collette & Nauen (1983), Stewart (1999b).

Slender tuna

Allothunnus fallai

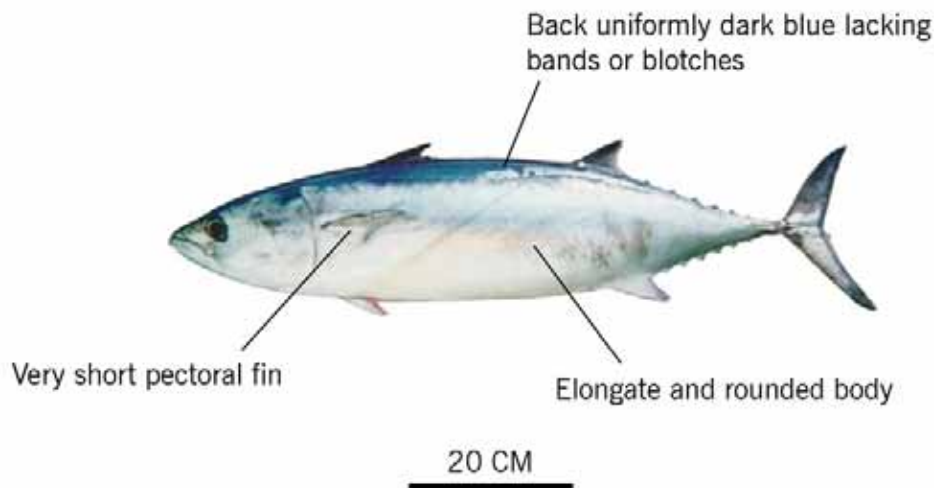
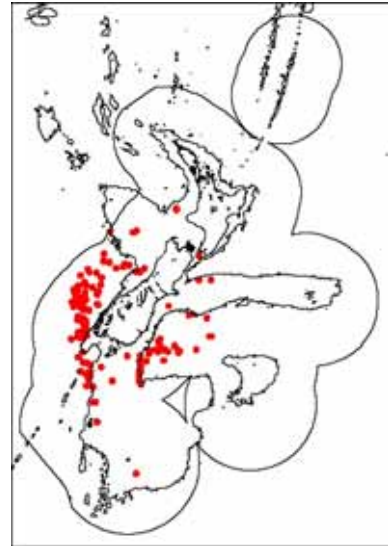
Family: 475. Scombridae (mackerels, tunas)

Maori names: n.a.

Other names: n.a.

MFish reporting code: STU

MFish research code: STU



Distinguishing features: Relatively small with an elongate and rounded body. Pectoral fins very short (about 50% of head length). Many (70 to 80) fine gill rakers on first gill arch. Back uniformly dark blue, lacking dark bands or blotches.

Colour: Back uniformly dark blue, lacking dark bands or blotches, lower sides and belly silvery white.

Size: To 94 cm FL in New Zealand, maximum recorded 96 cm FL.

Distribution: Around the South Island and the subantarctic. Circumglobal in the Southern Ocean between 20 and 50 S.

Depth: To about 200 m.

Similar species: No other tuna has the combination of slender elongated body, dark blue upper surface, very short pectoral fin, and high number of gill rakers.

Biology & ecology: Pelagic, usually in the open ocean.

References

Bagley et al. (2000), Chapman et al. (2006), Collette & Nauen (1983), Paul (2000), Yatsu (1995a, 1995b).

Butterfly tuna

Gasterochisma melampus

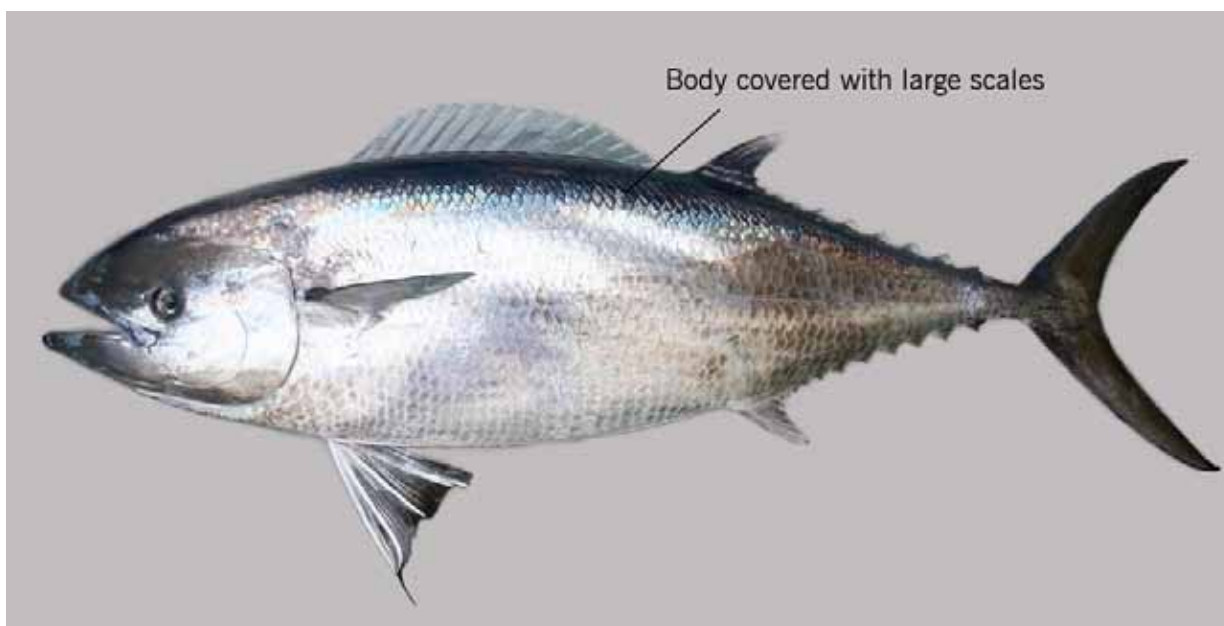
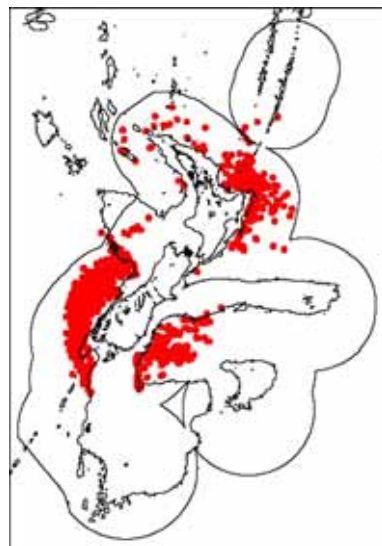
Family: 475. Scombridae (mackerels, tunas)

Maori names: n.a.

Other names: Butterfly kingfish

MFish reporting code: BTU

MFish research code: BTU



Distinguishing features: Arched head. Large body scales. Pelvic fins enormous in juveniles and still large in adults, with a distinctive fan-like appearance, fitting into a groove on the belly. No lateral keel on caudal peduncle.

Colour: Deep bluish above, silvery below, without stripes or markings.

Size: To 191 cm FL in New Zealand, larger fish not known to be recorded elsewhere.

Distribution: Widespread around New Zealand, but few north of 35 S. Widespread in southern temperate waters mostly between 35 and 50 S.

Depth: 0 to about 200 m.

Similar species: Other tunas lack an arched head, large body scales and large fan-like pelvic fin.

Biology & ecology: Pelagic, highly migratory, oceanic. May make periodic deep dives or have diurnal patterns similar to other tunas, but this is not known. Found in waters of 11.5 to 14.5 C.

References

Bagley et al. (2000), Chapman et al. (2006), Collette & Nauen (1983), Paulin & Stewart (1999).

Skipjack tuna

Katsuwonus pelamis

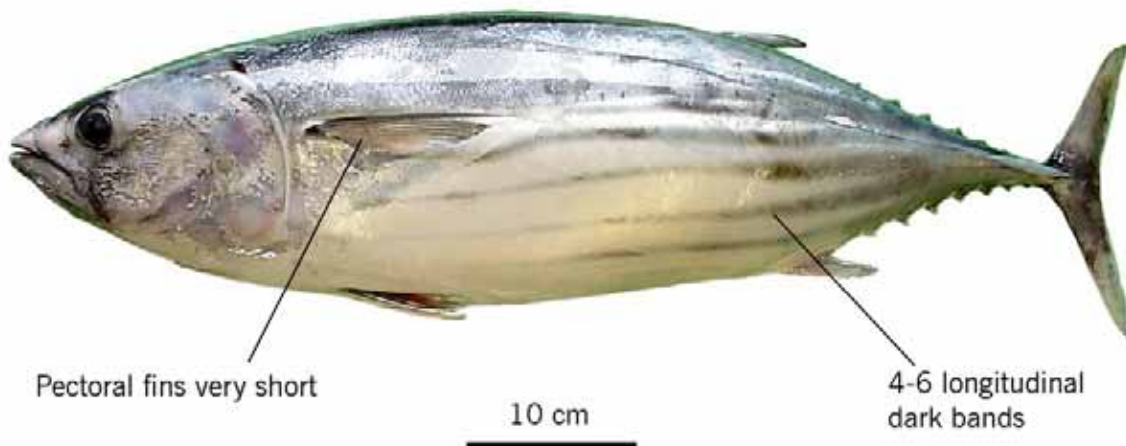
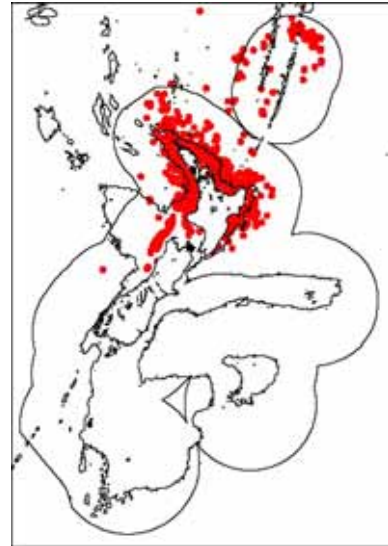
Family: 475. Scombridae (mackerels, tunas)

Maori names: n.a.

Other names: Striped tuna

MFish reporting code: SKJ

MFish research code: SKJ



Distinguishing features: Four to six conspicuous dark bands running along the sides and lower body. Very short pectoral fins. Small conical teeth in jaws.

Colour: Body dark purplish-blue on dorsal surface, paler below, with 4 to 6 very conspicuous longitudinal dark bands.

Size: To about 110 cm FL.

Distribution: Caught around the North Island, mostly north of 40 S, and the Kermadec Islands. Occurs in tropical and warm-temperate waters of all oceans except the Black Sea.

Depth: 0 to 260 m during the day, but stay in surface waters at night.

Similar species: Australian bonito (*Sarda australis*) has numerous (more than 6) dark bands running along the upper, mid, and lower body, and has large conical teeth in both jaws.

Biology & ecology: Pelagic, highly migratory, oceanic. Favours temperatures of 15 to 30 C. Schools in surface waters.

References

Bagley et al. (2000), Chapman et al. (2006), Collette & Nauen (1983).

Blue mackerel

Scomber australasicus

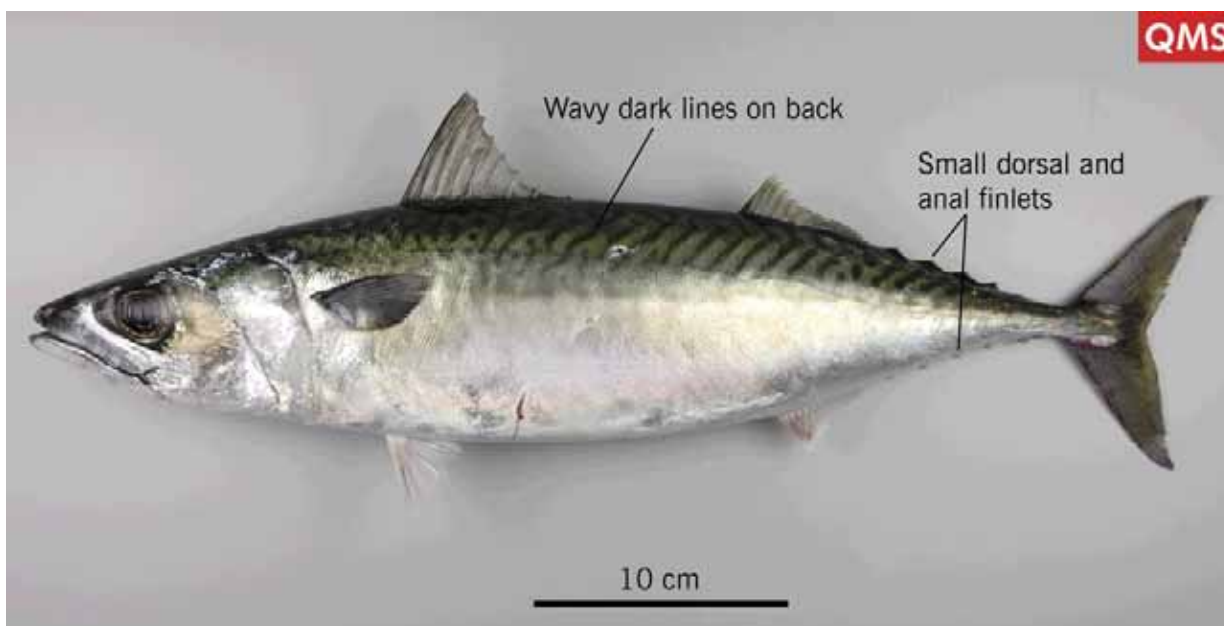
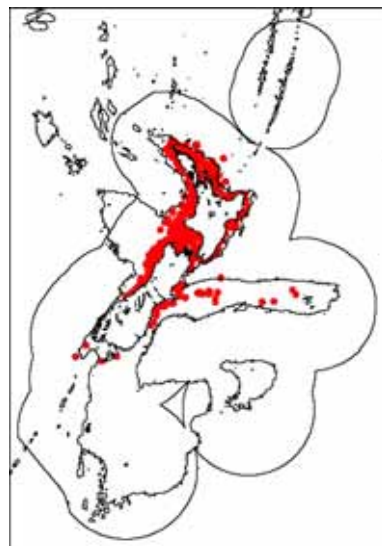
Family: 475. Scombridae (mackerels, tunas)

Maori names: Tawatawa

Other names: English mackerel, Pacific mackerel

MFish reporting code: EMA

MFish research code: EMA



Distinguishing features: Small tuna-like species, with distinctive pattern of wavy dark lines across the back, and lighter coloured markings along the sides and belly. Five small dorsal and anal finlets in front of tail fin.

Colour: Body mid to dark blue-green above with many dark wavy lines, sides and belly silvery-white with lighter dots and bars.

Size: To about 55 cm FL.

Distribution: Present around New Zealand but uncommon in southern areas. Also Australia, Japan, China, Hawaii, Mexico, India, Red Sea.

Depth: 0 to 150 m.

Similar species: Jack mackerel species (*Trachurus* spp.) have enlarged scales (scutes) along the lateral line, no wavy dark bars on the upper body, and 2 stout anal fin spines. Frigate tuna (*Auxis thazard*) have 15 or more narrow, oblique to nearly horizontal, dark wavy lines in the scaleless area above the lateral line, 8 finlets behind the second dorsal fin, and 7 finlets behind the anal fin.

Biology & ecology: Pelagic over the continental shelf.

References

Carpenter & Niem (1999), Hirt-Chabbert (2006), May & Maxwell (1986), Paul (2000), Paulin et al. (1989).

Albacore tuna

Thunnus alalunga

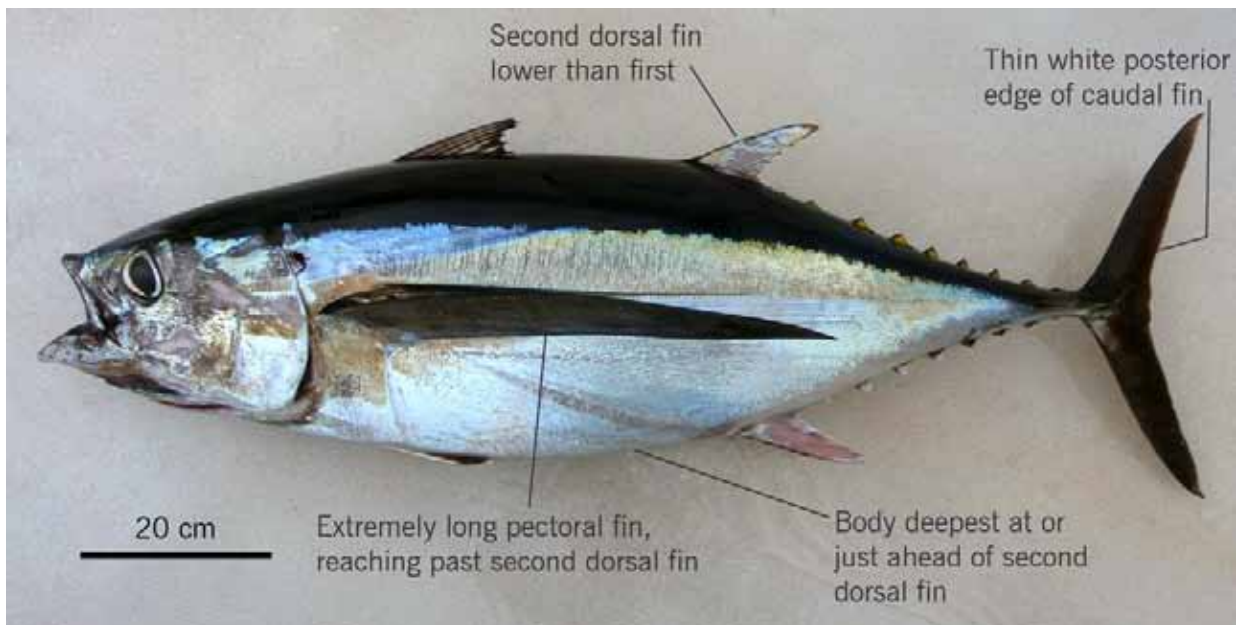
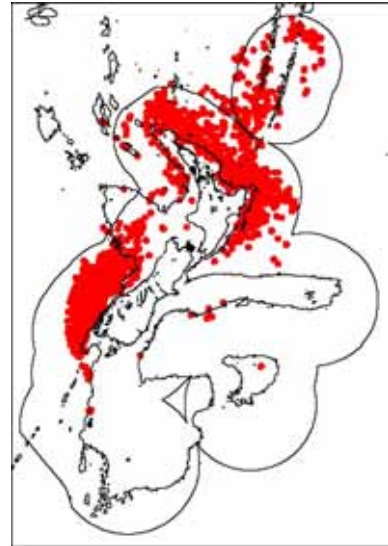
Family: 475. Scombridae (mackerels, tunas)

Maori names: n.a.

Other names: Albacore

MFish reporting code: ALB

MFish research code: ALB



Distinguishing features: Pectoral fins extremely long, at least 30% of FL, and reaching beyond the second dorsal fin origin. Second dorsal lower than first dorsal fin. Body deepest at or just anterior to second dorsal fin. Posterior margin of caudal fin white. Ventral surface of liver striated.

Colour: Body dark on dorsal surface, whitish below. Posterior margin of caudal fin white. Dorsal and anal fins yellow.

Size: To about 140 cm FL.

Distribution: Widespread around New Zealand, mostly between 34 S and 44 S, but rarely found on the east coast of the South Island. Tropical and temperate waters of all oceans.

Depth: Surface to at least 380 but to 600 m in the Atlantic Ocean.

Similar species: Small bigeye tuna (*Thunnus obesus*) has a different body shape, being deepest near the middle of the first dorsal fin, the second dorsal fin is higher than the first dorsal fin and it lacks the white posterior margin of the caudal fin. Other tunas lack extremely long pectoral fins.

Biology & ecology: Pelagic, highly migratory, oceanic. Favoured depth depends on vertical thermal structure and oxygen content. Prefer temperatures of 15 to 19 C and migrate over great distances. Smaller albacore are closer to the surface than larger ones.

References

Bagley et al. (2000), Chapman et al. (2006), Collette & Nauen (1983).

Yellowfin tuna

Thunnus albacares

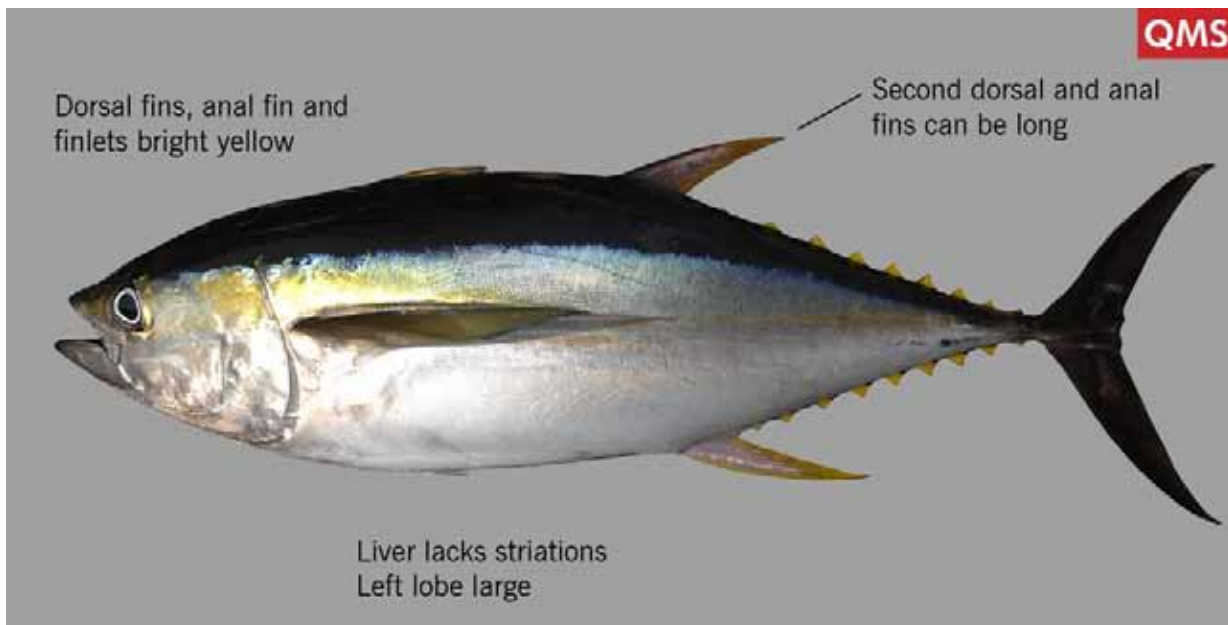
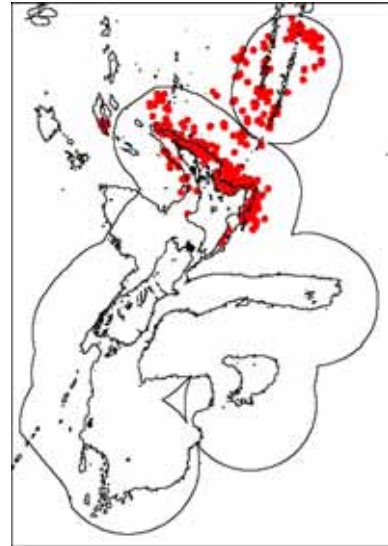
Family: 475. Scombridae (mackerels, tunas)

Maori names: n.a.

Other names: n.a.

MFish reporting code: YFN

MFish research code: YFN



Distinguishing features: Body deepest near the middle of the first dorsal fin. Dorsal and anal fins and finlets bright yellow. Large specimens may have very long second dorsal and second anal fins. Second dorsal fin higher than first. Ventral surface of liver not striated.

Colour: Body dark on dorsal surface, whitish below, belly frequently has about 20 broken, nearly vertical lines. Dorsal and anal fins and finlets bright yellow.

Size: To 164 cm FL in New Zealand, elsewhere to 239 cm FL.

Distribution: Caught around the North Island, north of 40 S, and Kermadec Islands. Occurs worldwide in tropical and subtropical seas, but absent from the Mediterranean Sea.

Depth: 0 to 100 m.

Similar species: Bigeye tuna (*Thunnus obesus*) and all other *Thunnus* species have striations on the ventral surface of the liver. Bigeye tuna have a long pectoral fin (22 to 31% of FL) in large specimens (over 110 cm FL) and very long in smaller specimens.

Biology & ecology: Pelagic, highly migratory, oceanic. Favoured depth is closely related to thermocline structure. Mostly in the top 90 m during the daytime, i.e., the interface between the mixed layer and the top layers of the thermocline. At night they swim closer to the surface. Found in temperatures of 18 to 31 C.

References

Bagley et al. (2000), Chapman et al. (2006), Collette & Nauen (1983), Holland et al. (1990).

Southern bluefin tuna

Thunnus maccoyii

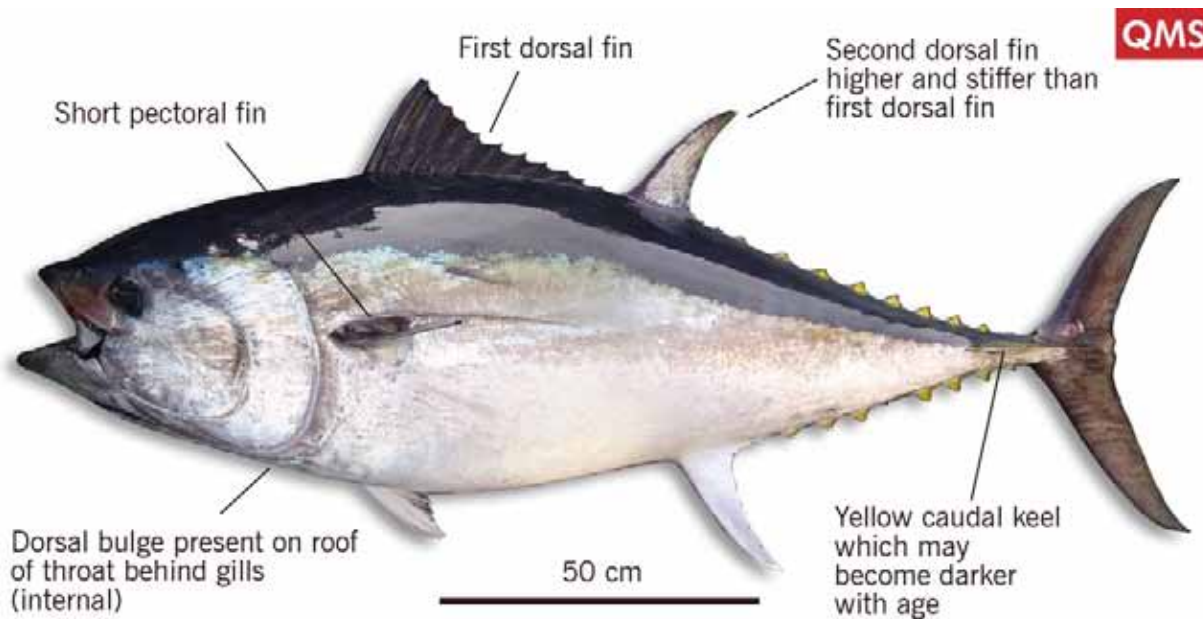
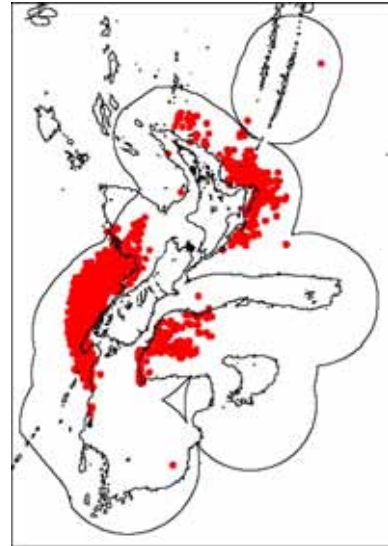
Family: 475. Scombridae (mackerels, tunas)

Maori names: n.a.

Other names: Bluefin, southern bluefin

MFish reporting code: STN

MFish research code: STN



Distinguishing features: Large species. Body deepest near middle of first dorsal fin. Pectoral fins short (less than 80% of head length). Second dorsal fin higher than first. Prominent bulge on the roof of the throat (dorsal bulge) behind the gills which may only be obvious when the gills are removed.

Colour: Bluish-black above and silvery-white below, yellow finlets, caudal keel usually yellow but can become dark with age.

Size: To 215 cm FL in New Zealand, maximum recorded 225 cm FL.

Distribution: Around the South Island and east coast of the North Island, with few fish north of 34° S. Elsewhere found in the Southern Ocean usually south of 30° S.

Depth: Mostly 0 to 40 m with dawn and dusk dives and occasional deep dives to 800 m (or more).

Similar species: Pacific bluefin tuna (*Thynnus orientalis*) is very similar in external appearance, but has a reduced, narrow internal dorsal bulge.

Biology & ecology: Pelagic, oceanic in cold temperate waters generally below 15°C (except for spawning fish and larvae). Highly migratory. Adults undergo seasonal migration to spawning grounds. Usually caught beyond the continental shelf in New Zealand. Young fish are caught over the continental shelf in Australia.

References

Bagley et al. (2000), Chapman et al. (2006), Collette & Nauen (1983), Davis & Stanley (2002), Evans & Patterson (2007), Griggs (2000), Gunn et al. (2006), Murray et al. (1999), Smith & Griggs (2000), Smith et al. (2001), Willis & Hobday (2007).

Bigeye tuna

Thunnus obesus

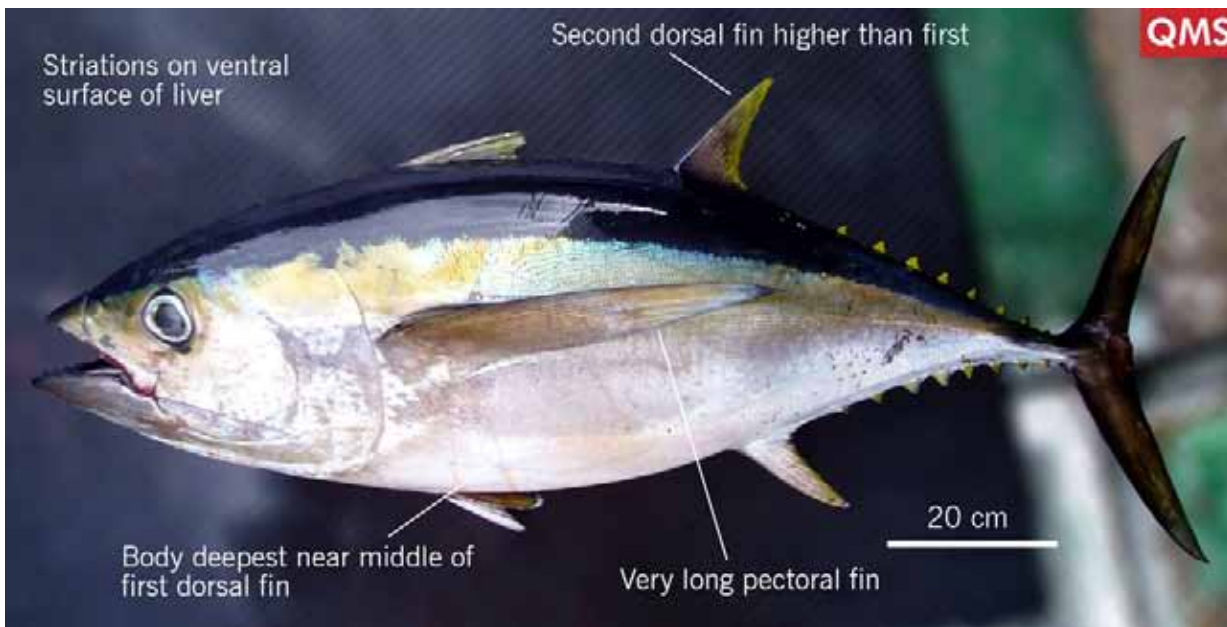
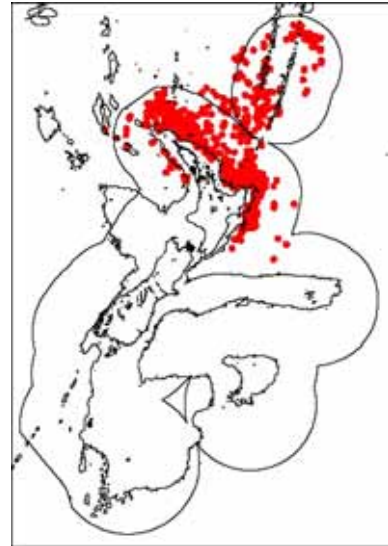
Family: 475. Scombridae (mackerels, tunas)

Maori names: n.a.

Other names: n.a.

MFish reporting code: BIG

MFish research code: BIG



Distinguishing features: Large species, reaching at least 192 cm FL. Body is deepest near the middle of the first dorsal fin. Large eyes. Long pectoral fin (22 to 31% of FL) in large specimens (over 110 cm FL) and very long in smaller specimens. Second dorsal higher than first dorsal fin. Ventral surface of liver striated.

Colour: Body dark on dorsal surface, whitish below. First dorsal fin deep yellow, second dorsal and anal fins light yellow, finlets bright yellow edged with black.

Size: To 192 cm FL in New Zealand, elsewhere reaches 250 cm FL.

Distribution: Caught around the North Island, mostly north of 40 S, and the Kermadec Islands. Occurs worldwide in tropical seas, but absent from the Mediterranean Sea.

Depth: Mostly 0 to 50 m.

Similar species: Southern bluefin tuna (*Thunnus maccoyii*) has a smaller eye and shorter pectoral fin. Yellowfin tuna (*T. albacares*) has bright yellow dorsal and anal fins and finlets, often very long second dorsal and anal fins, and lacks striations on ventral surface of liver. Albacore tuna (*T. alalunga*) has the second dorsal lower than first dorsal fin, and a white posterior margin of caudal fin.

Biology & ecology: Pelagic, highly migratory, oceanic. Favoured depth is closely related to thermocline structure. Swim in the top 100 m at night and move to greater depths during the day, often around 200 m and down to 400 to 500 m. The optimum temperature range is 18 to 22 C.

References

Bagley et al. (2000), Chapman et al. (2006), Collette & Nauen (1983), Dagorn et al. (2000), Holland et al. (1990).

Pacific bluefin tuna

Thunnus orientalis

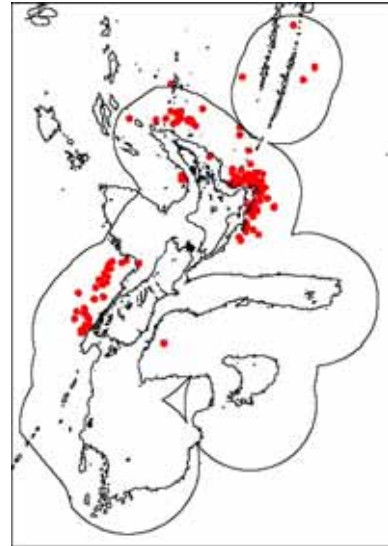
Family: 475. Scombridae (mackerels, tunas)

Maori names: n.a.

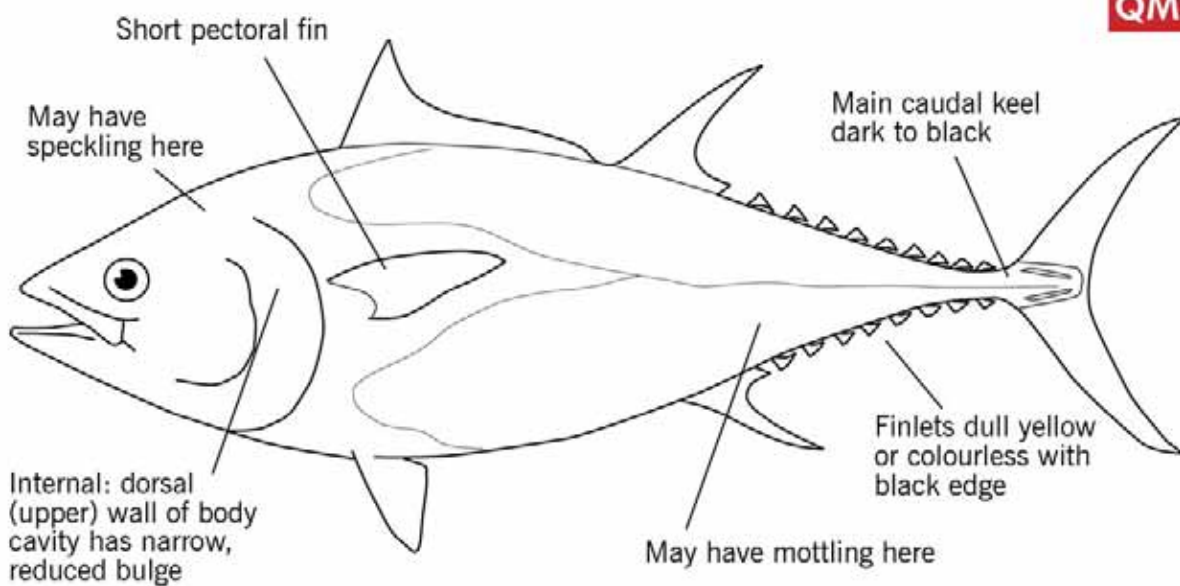
Other names: Northern bluefin tuna

MFish reporting code: TOR

MFish research code: TOR



QMS



Distinguishing features: Large species, reaching at least 270 cm FL. Body deepest near the middle of the first dorsal fin. Short pectoral fin (less than 80% of head length). Second dorsal fin higher than first. Black lateral keels on caudal peduncle. Dorsal wall of body cavity has a narrow reduced bulge.

Colour: Body dark on dorsal surface, whitish below but darker body coloration in some fish. May have speckling around head and operculum area and may have mottled pattern on ventral surface behind anal fin. Black keels on caudal peduncle.

Size: To 270 cm FL in New Zealand, elsewhere to over 300 cm FL.

Distribution: Caught all around New Zealand but predominantly in the north. Known primarily from the northern Pacific, but also in the western and central Pacific Ocean where 46 S appears to be the southern limit.

Depth: 0 to 100 m.

Similar species: Southern bluefin tuna (*Thunnus maccoyii*) is very similar in external appearance, but can be distinguished by the prominent bulge on the roof of the throat (dorsal bulge) behind the gills.

Biology & ecology: Pelagic, highly migratory, oceanic. Favoured depth is closely related to thermocline structure. Spend more than 80% of the time in the top 40 m but may make occasional short dives to 200 m or more. There are also diurnal and seasonal patterns of vertical movements, closely related to water temperature. Swim closer to the surface at night and also at sunrise and sunset. Undergo extensive long distance migrations, e.g., to northern spawning grounds. Mainly a northern species but has a wide temperature tolerance.

References

Chapman et al. (2006), Collette & Nauen (1983), Griggs (2000), Kitagawa et al. (2000, 2002, 2007), Marcinek et al. (2001), Murray (2005), Smith & Griggs (2000), Smith et al. (2001).

Swordfish

Xiphias gladius

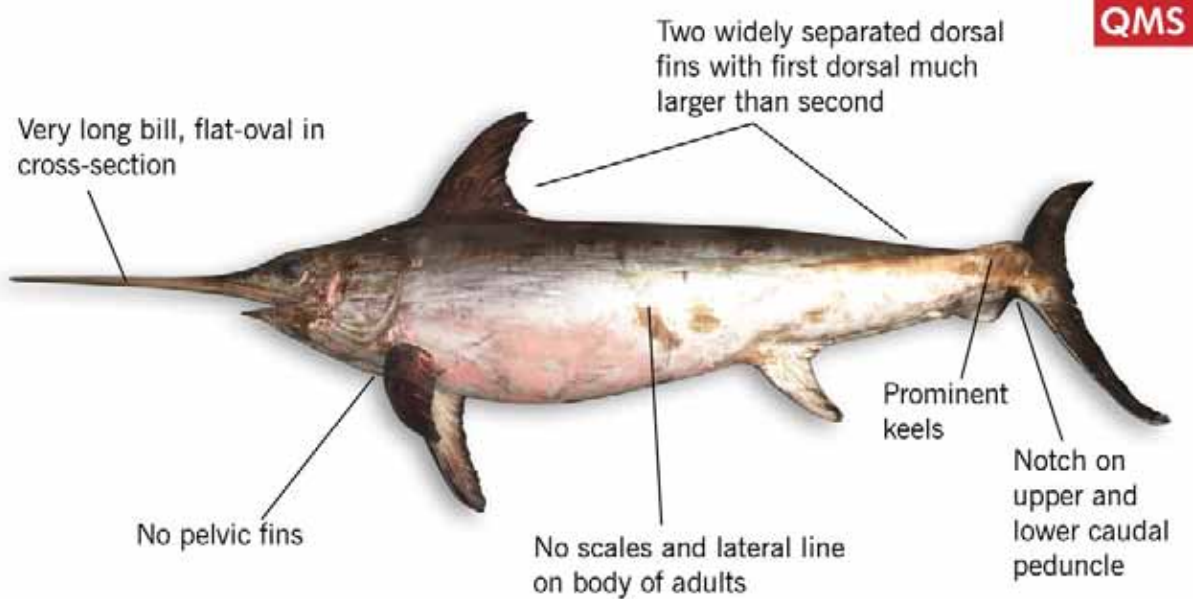
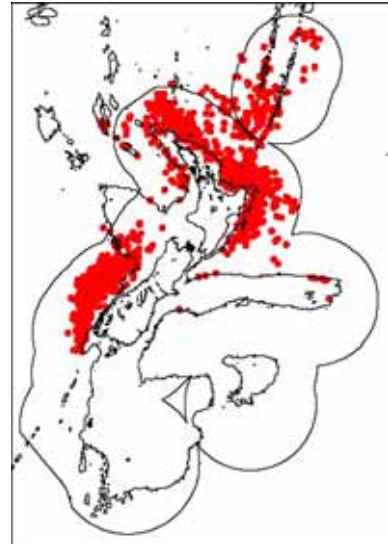
Family: 476. Xiphiidae (swordfishes)

Maori names: Paea

Other names: Broadbill swordfish, broadbill

MFish reporting code: SWO

MFish research code: SWO



Distinguishing features: Upper jaw prolonged into a long bill, flat-oval in cross section. Two widely separated dorsal fins with the first much larger than the second in adults. No pelvic fins. Prominent caudal keel. Notch on upper and lower caudal peduncle. Juveniles less than about 130 cm FL have scales, teeth, a lateral line, and a continuous dorsal fin. Teeth and lateral line disappear with growth.

Colour: Blackish-brown above, paler brown-white below, with blackish-brown fins.

Size: To 330 cm FL in New Zealand, maximum at least 500 cm.

Distribution: Widespread in New Zealand but probably more abundant north of about 43 S. Worldwide in tropical, temperate and sometimes cold waters of all oceans.

Depth: 0 to 900 m. Near the surface during the night and deeper during the day, with occasional deep dives possibly to 1000 m.

Similar species: Marlins have shorter bills that are round in cross section, and have pelvic fins.

Biology & ecology: Pelagic, usually found in surface waters warmer than 13 C, but tolerate 5 to 27 C. Highly migratory species, able to undergo long distance migrations. Usually caught beyond the continental shelf.

References

Bagley et al. (2000), Chapman et al. (2006), Murray et al. (1999), Nakamura (1985), Paul (2000), Takahashi et al. (2003).

Indo-Pacific sailfish

Istiophorus platypterus

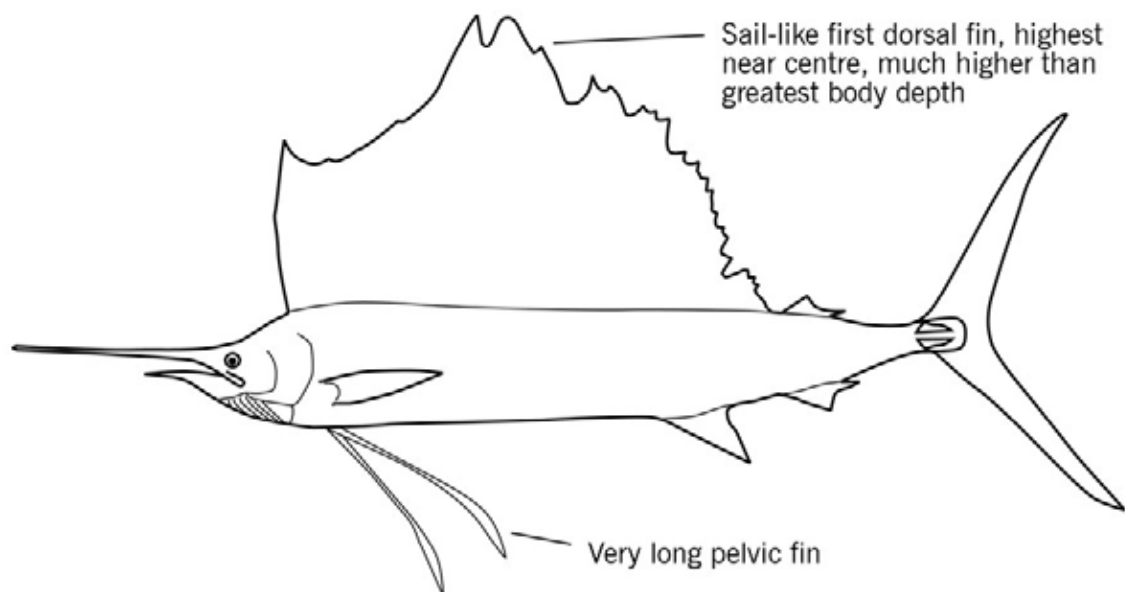
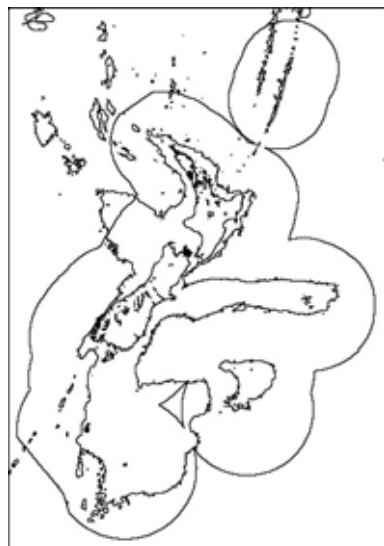
Family: 477. Istiophoridae (billfishes)

Maori names: n.a.

Other names: Sailfish

MFish reporting code: SAI

MFish research code: SAI



Distinguishing features: First dorsal fin sail-like and much higher than the greatest body depth, greatest height near centre of body. Pelvic fins extremely long, almost reaching to anus, and depressible into a groove. Single visible lateral line.

Colour: Body dark blue dorsally, sides light blue splattered with brown, about 20 vertical light blue bars, dorsal fin dark blue, other fins brownish.

Size: To about 350 cm TL.

Distribution: Tropical and temperate waters of the Pacific and Indian Oceans. Not confirmed in New Zealand longline catches but it is expected to occur here. Recorded from about 35 to 45 S in the western South Pacific Ocean.

Depth: 0 to 200 m.

Similar species: Other billfishes lack the sail-like dorsal fin.

Biology & ecology: Pelagic, highly migratory, oceanic, usually found above the thermocline. Spend more than 85% of time above 90 m depth, mostly in the top 10 m, with occasional brief deep dives to 200 m, probably limited by temperature. Tends to approach continental coasts, islands, and reefs.

References

Chapman et al. (2006), Nakamura (1985).

Black marlin

Makaira indica

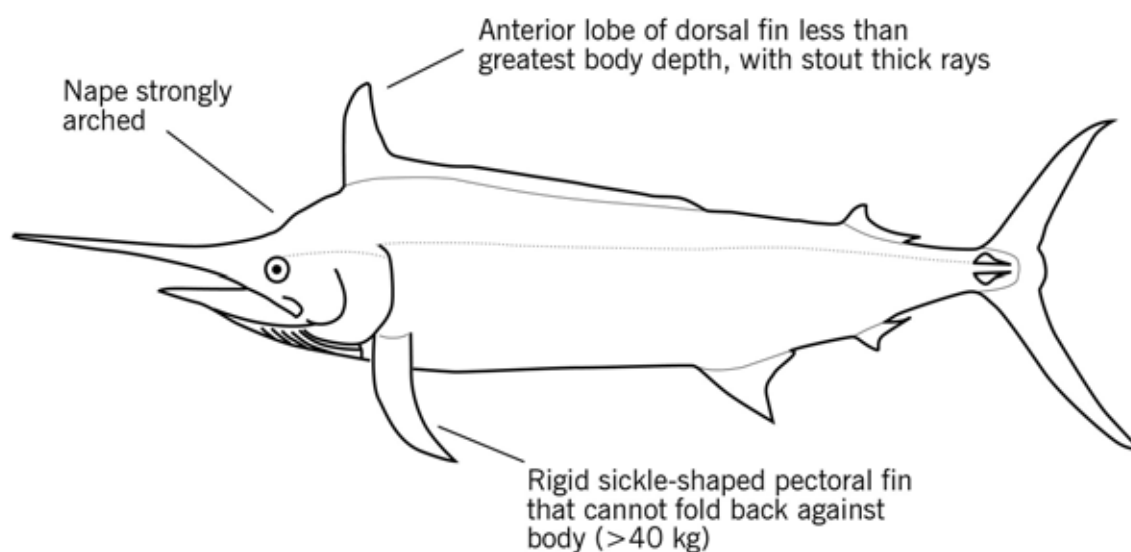
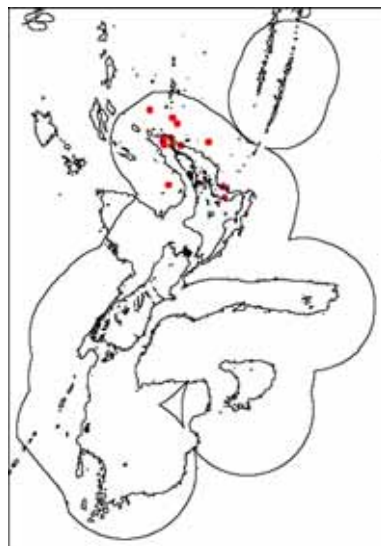
Family: 477. Istiophoridae (billfishes)

Maori names: Taketonga

Other names: n.a.

MFish reporting code: BKM

MFish research code: BKM



Distinguishing features: First dorsal fin low, with anterior lobe lower (about half) body depth and composed of stout thick fin rays. Nape conspicuously elevated (arched). Pectoral fin rigid, sickle-shaped, and unable to be folded back against body. Bill long, very stout, and round in cross section. Pelvic fins short and slender, shorter than pectoral fins, and depressible into ventral grooves.

Colour: Body dark blue dorsally, silver-white ventrally, without bars or markings (colour becomes dark grey after death). First dorsal fin blackish to dark blue, other fins dark brown.

Size: To about 450 cm TL.

Distribution: Caught around the northern North Island. Widespread in tropical and subtropical waters of the Pacific and Indian Oceans, and occasionally enters temperate waters reportedly reaching as far south as 45 S in the western South Pacific Ocean.

Depth: 0 to 240 m.

Similar species: Blue marlin (*Makaira mazara*) has pectoral fin that can be folded back against the body, and a looped lateral line. Striped marlin (*Tetrapturus audax*) has a pectoral fin that can be folded back against the body, high first dorsal fin with anterior lobe equal to or higher than body depth and composed of soft fin rays, single visible lateral line, and about 20 conspicuous vertical cobalt-blue bars (remain after death).

Biology & ecology: The least abundant marlin in New Zealand. Pelagic, highly migratory, oceanic. Spend most time in surface waters, often the top 10 m, with occasional brief deep dives. Often ventures into near shore waters close to landmasses, islands, and coral reefs. Undergo seasonal north-south migrations.

References

Chapman et al. (2006), Gunn et al. (2003), Nakamura (1985).

Blue marlin

Makaira mazara

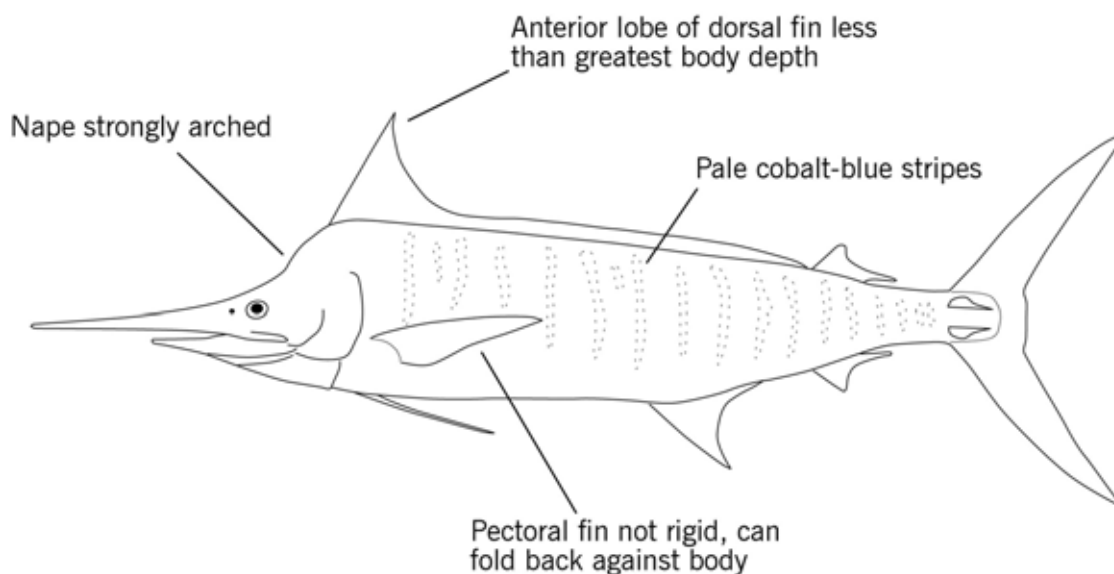
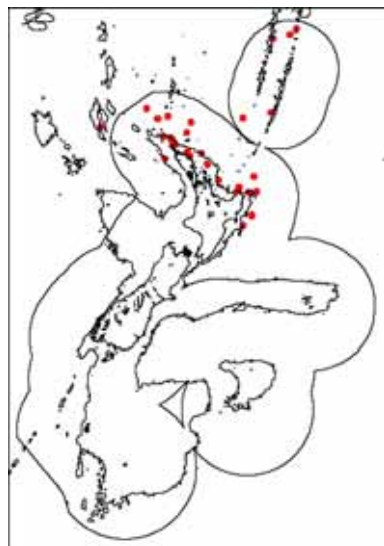
Family: 477. Istiophoridae (billfishes)

Maori names: n.a.

Other names: Indo-Pacific blue marlin

MFish reporting code: BEM

MFish research code: BEM



Distinguishing features: First dorsal fin high, but with anterior lobe lower than body depth. Nape conspicuously elevated (arched). Pectoral fin strap-like and able to be folded back against the body. Bill long, stout, and round in cross section. Pelvic fins moderately long and slender, shorter than pectoral fins, and depressible into ventral grooves. Origin of second dorsal fin slightly behind origin of second anal fin.

Colour: Body blue dorsally, silver-white ventrally, with about 15 obscure vertical cobalt-blue bars (colour becomes dark after death). First dorsal fin membrane blue-black, other fins dark brown.

Size: To about 500 cm TL.

Distribution: Northern North Island and the Kermadec Islands. Mainly tropical and subtropical waters of the Pacific and Indian Oceans. It is the most tropical billfish species, often found in equatorial waters, but gets as far south as about 35 S in the western South Pacific Ocean.

Depth: 0 to 210 m.

Similar species: Striped marlin (*Tetrapturus audax*) has a high first dorsal fin, but with anterior lobe equal to or higher than body depth and composed of soft fin rays, single visible lateral line, and about 20 conspicuous vertical cobalt-blue bars (remain after death). Black marlin (*Makaira indica*) has a rigid, sickle-shaped pectoral fin, which can't be folded back against the body.

Biology & ecology: Pelagic, highly migratory, oceanic. Spend about half of the time in the top 10 m, with brief deep dives. Mostly confined to waters warmer than 24 C at the surface. Undergo seasonal north-south migrations. Not seen close to land masses or islands except where there is a sharp drop-off.

References

Block et al. (1992), Chapman et al. (2006), Nakamura (1985).

Shortbill spearfish

Tetrapturus angustirostris

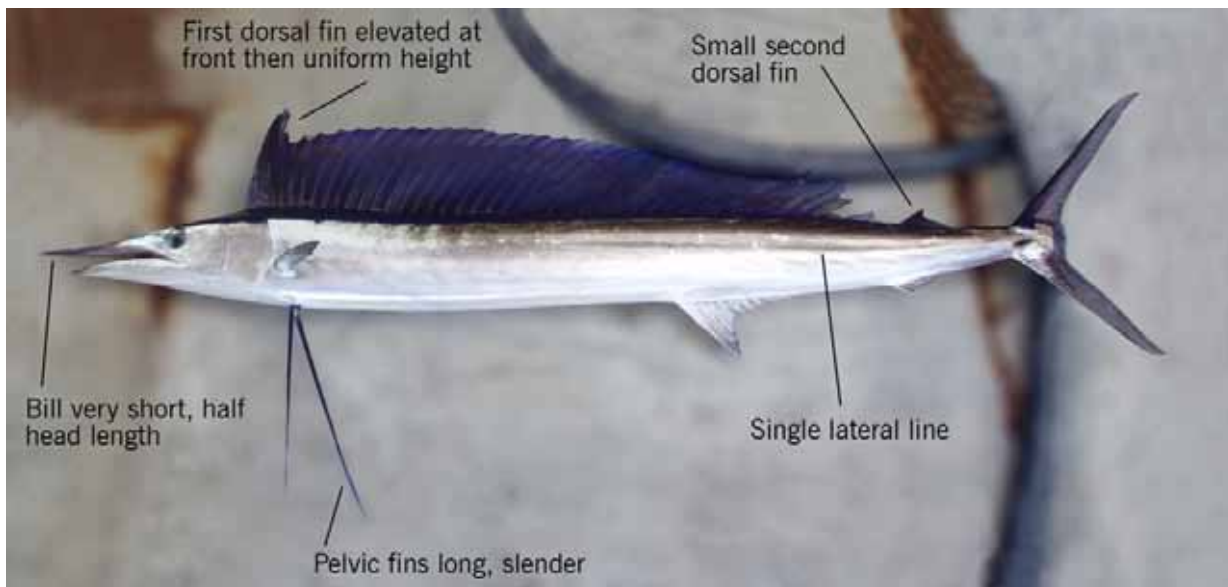
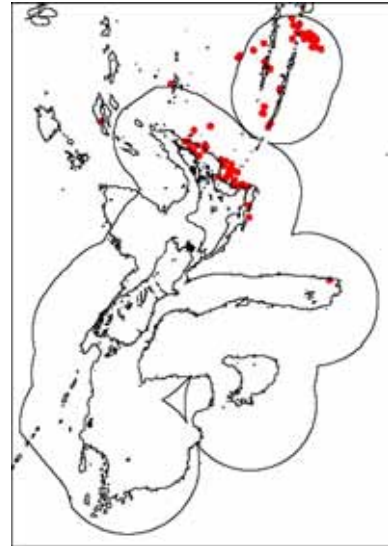
Family: 477. Istiophoridae (billfishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: SSF

MFish research code: SSF



Distinguishing features: Bill very short, usually less than 15% of body length, equal to or shorter than head length. First dorsal fin highest at anterior end (higher than body depth) then decreases and maintains uniform height, second dorsal fin small. Pelvic fins long and slender, about twice the length of the pectoral fins. Single visible lateral line.

Colour: Body dark blue dorsally, silver-white ventrally, without bars or markings. A few fish show faint blue vertical bars. First dorsal fin dark blue, other fins brownish.

Size: To about 202 cm TL in New Zealand.

Distribution: Found around the North Island, mostly north of 40 S, and the Kermadec Islands, mostly beyond the 1000 m depth contour. Tropical, subtropical and temperate waters of the Pacific and Indian Oceans.

Depth: Surface to at least 350 m.

Similar species: Other billfishes have much longer bills.

Biology & ecology: Pelagic, highly migratory oceanic species, usually found well offshore, beyond the 1000 m depth contour. Spend most time in the top 80 m, with some deep dives to about 350 m. They are reportedly caught deeper, with claims that catch rates are highest at much greater depths.

References

Boggs (1992), Chapman et al. (2006), Nakamura (1985).

Striped marlin

Tetrapturus audax

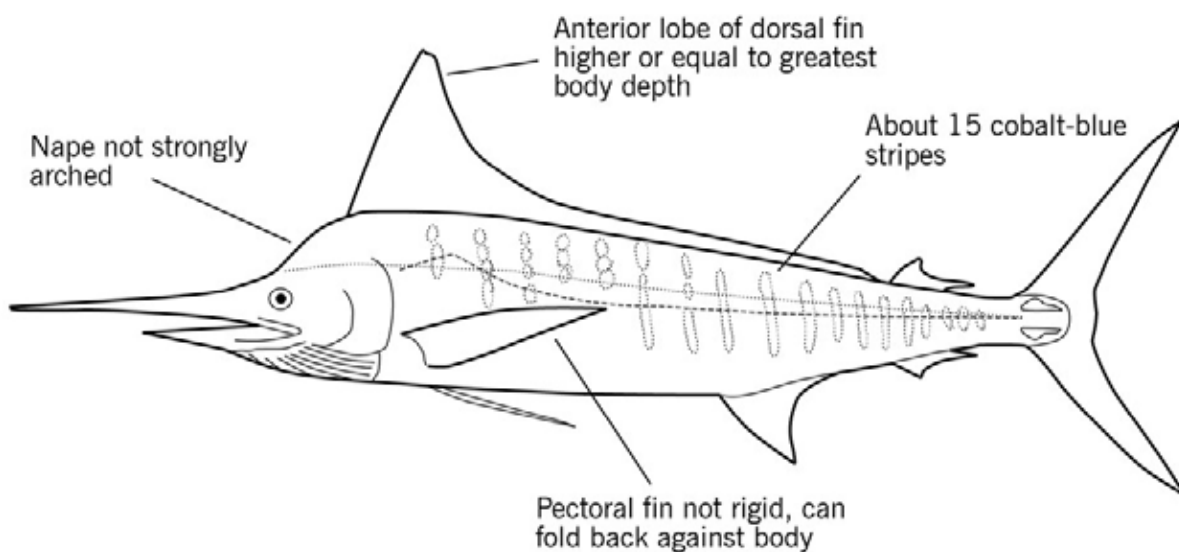
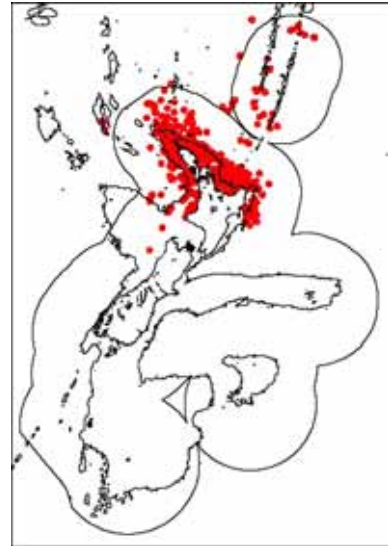
Family: 477. Istiophoridae (billfishes)

Maori names: Takaketonga

Other names: n.a.

MFish reporting code: STM

MFish research code: STM



Distinguishing features: First dorsal fin high, with anterior lobe equal to or higher than body depth and composed of soft fin rays. Pectoral fin strap-like and able to be folded back against the body. Bill long and round in cross section. Pelvic fins long and slender, and almost equal in length to pectoral fins. Single visible lateral line.

Colour: Body dark blue dorsally, silver-white ventrally, with about 20 conspicuous vertical cobalt-blue bars (colour and stripes remain after death). First dorsal fin membrane blue-black, other fins brownish.

Size: To 420 cm TL.

Distribution: Around the North Island, mostly north of 40 S, and the Kermadec Islands, with a few records from more southern waters. Mainly occurs in tropical, subtropical and temperate waters of the Pacific and Indian Oceans as far south as about 45 S in the western South Pacific Ocean.

Depth: 0 to 200 m.

Similar species: Blue marlin (*Makaira mazara*) has anterior lobe of the first dorsal fin lower than body depth, strongly elevated (arched) nape, origin of second dorsal fin slightly behind origin of second anal fin, and looped lateral line. Black marlin (*M. indica*) has a low first dorsal fin with anterior lobe lower (about half) body depth and composed of stout thick fin rays, strongly elevated nape, and rigid, sickle-shaped pectoral fin, which can't be folded back against the body.

Biology & ecology: Pelagic, highly migratory, oceanic. Spend more than 85% of the time above 90 m depth, mostly in the top 10 m, with occasional brief dives down to about 200 m. Deep dives are probably limited by temperature rather than depth. Usually found above the thermocline, and generally bounded by 20 and 25 C isotherms in the western Pacific. Undergo long distance migrations. Mostly caught beyond the 1000 m depth contour.

References

Bagley et al. (2000), Boggs (1992), Brill et al. (1993), Chapman et al. (2006), Nakamura (1985).

Rudderfish

Centrolophus niger

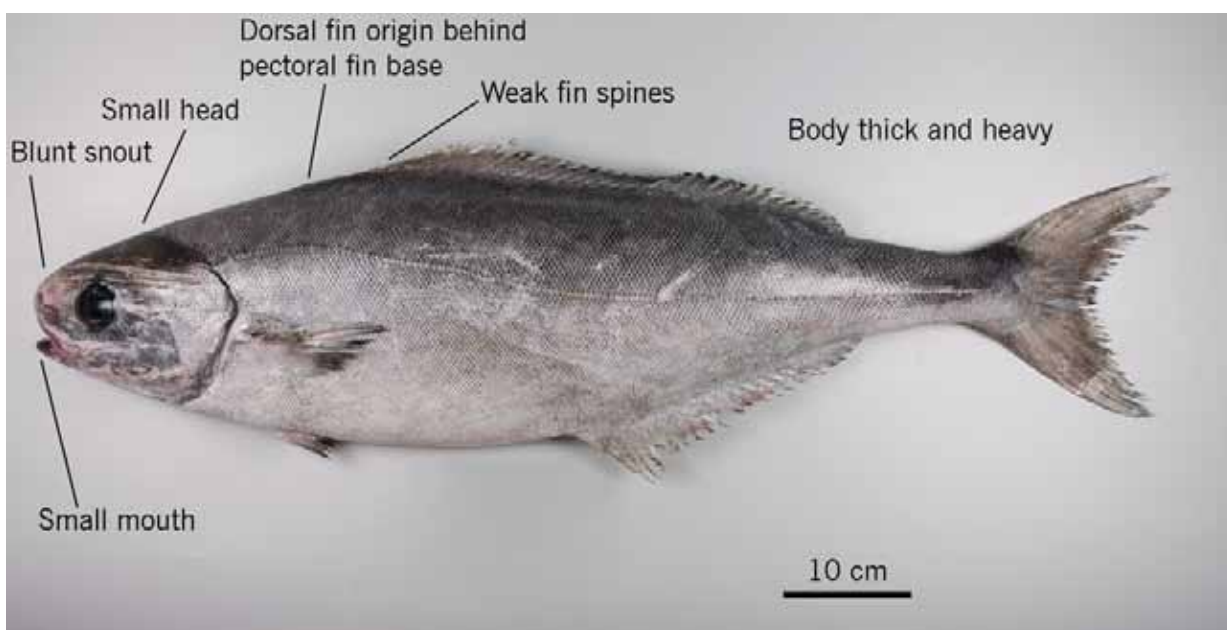
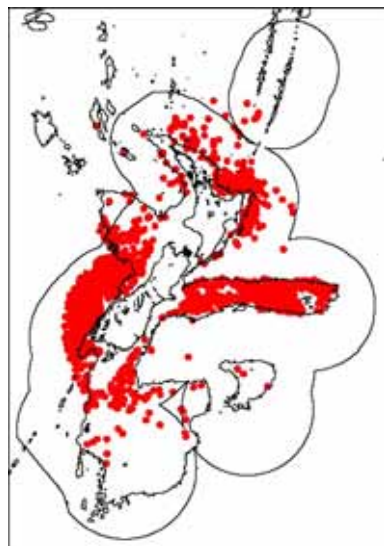
Family: 479. Centrolophidae (medusafishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: RUD

MFish research code: RUD



Distinguishing features: Body thick and heavy. Small head, blunt snout, small mouth. Weak fin spines, with long, low dorsal and anal fins. Dorsal fin origin behind the pectoral fin bases, and very small pelvic fins. Scales absent on the upper head from the tip of the snout to about the rear edge of the eyes and from the pre-operculum.

Colour: Adults mid to dark brown, paler below. Juveniles have two broad dark vertical bands on the body.

Size: To about 130 cm FL.

Distribution: Throughout New Zealand including the Kermadec region, Chatham Rise and the Subantarctic. Found in the Southern Ocean from South Africa to South America, and in the Mediterranean and northern Atlantic Ocean.

Depth: To about 900 m.

Similar species: Tasmanian ruffe (*Tubbia tasmanica*), has the dorsal origin over the pectoral fin base and has numerous oblique rows of pores below the dorsal fin and above the anal fin. Ragfish (*Pseudoicichthys australis*) has a less stout body and a short snout. Gempylids have enlarged fangs in the jaws, strong fin spines, and larger pelvic fins.

Biology & ecology: Pelagic, in temperate waters.

References

Bagley et al. (2000), Francis et al. (1999), Paul (2000), Paulin et al. (1989), Stewart (1999c).

Bluenose

Hyperoglyphe antarctica

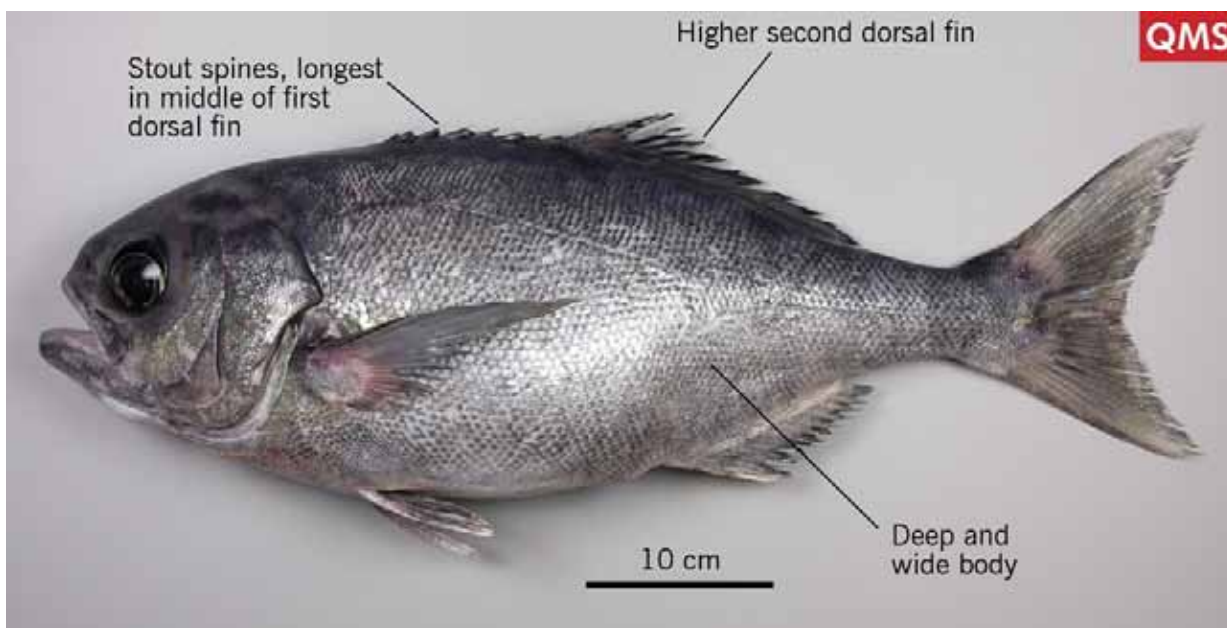
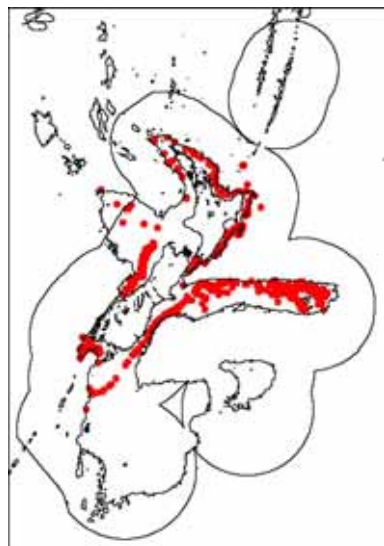
Family: 479. Centrolophidae (medusafishes)

Maori names: Matiri

Other names: n.a.

MFish reporting code: BNS

MFish research code: BNS



Distinguishing features: Two dorsal fins, the first low with 8 to 9 stout spines, scarcely separated from the second soft dorsal which is much higher and has 18 to 21 rays. The middle spines in the first dorsal fin are longer than the others. Nape scaleless except for a small ovate patch of scales on each side above and behind the eye. Anal fin with 13 to 16 soft rays. Deep and wide body. Lateral line arched just behind the head then curves down to reach the midline of the body at about the middle of the anal fin.

Colour: Dark greyish-blue above and more greyish-silvery on the sides and belly. Fins all greyish, paler below.

Size: To at least 137 cm FL.

Distribution: Widespread in New Zealand from north of Cape Reinga to the southern edge of the Stewart/Snares Shelf, and Chatham Rise. Widespread in the southern hemisphere including southern Australia (NSW, Tas), South Africa, Tristan de Cunha.

Depth: 200 to 800 m.

Similar species: Species of *Seriolella* have at least 25 second dorsal fin soft rays and 19 anal fin soft rays. Silver warehou (*S. punctata*) and common warehou (*S. brama*) have dark blotches above pectoral fin base. White warehou (*S. caerulea*) is paler than bluenose, with an undulating lateral line. Ocean blue-eye (*Schedophilus labyrinthicus*) is rarer and northern and has 7 to 9 short spines in first dorsal fin that increase in length posteriorly, 26 to 29 dorsal fin soft rays, and 18 to 19 anal fin soft rays.

Biology & ecology: Adults demersal over deep rocky reefs and rises. Juveniles probably live at near-surface depths for about two years (to about 47 cm FL) then recruit to near the seafloor. Attain ages of at least 60 years. No distinct spawning grounds known. Probably spawn mid-late summer.

References

Anderson et al. (1998), Gomon et al. (2008), McDowall (1982), Stewart & Roberts (2004).

Ragfish

Pseudoicichthys australis

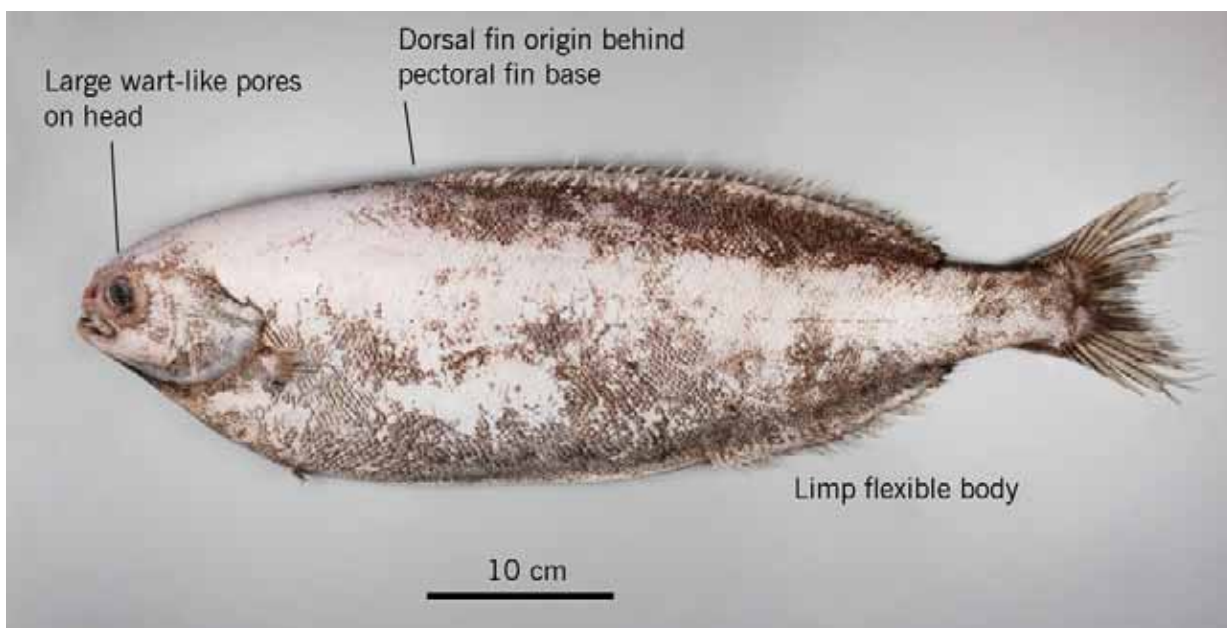
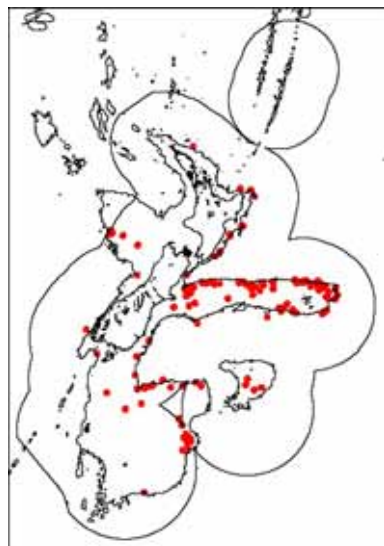
Family: 479. Centrolophidae (medusafishes)

Maori names: n.a.

Other names: Southern drifffish

MFish reporting code: RAG

MFish research code: RAG



Distinguishing features: Limp bodied fish with small head, blunt snout with wart-like pores, and small mouth. Head including snout, operculum and cheeks scaled. Single long-based dorsal fin with soft rays. Dorsal fin origin well behind pectoral fin base. Small pelvic fin.

Colour: Body uniformly brown to blackish. Tips of each fin and gill membrane tinged with black.

Size: To about 80 cm TL.

Distribution: Recorded from around the South Island of New Zealand. Validity of some records from fisheries surveys is uncertain. Also recorded from Tasmania, Chile, Argentina, the Falkland Islands, South Georgia, South Orkney Islands, and the Kerguelen Islands.

Depth: Uncertain. Adults possibly 500 to 1200 m. Juveniles near the surface to about 300 m.

Similar species: Slender ragfish (*Schedophilus huttoni*) is thinner bodied, more elongate, dorsal fin origin is above pectoral fin base, single large pore at the base of each dorsal fin ray. Tasmanian ruffe (*Tubbia tasmanica*) has dorsal fin origin above pectoral fin base and an oblique row of small pores at the base of each dorsal fin ray. Rudderfish (*Centrolophus niger*) has a more robust body, lacks scales on the snout and pre-operculum (cheek), snout length is longer than eye diameter. Pelagic butterfish (*Schedophilus maculatus*) has robust body but has a series of single pores at base of each dorsal fin ray running along the body.

Biology & ecology: Rare in New Zealand. Probably a deep, cool water species.

References

Anderson et al. (1989), McDowall (1982), Parin & Piotrovsky (2004), Stewart (1999c).

Cubehead

Cubiceps spp.

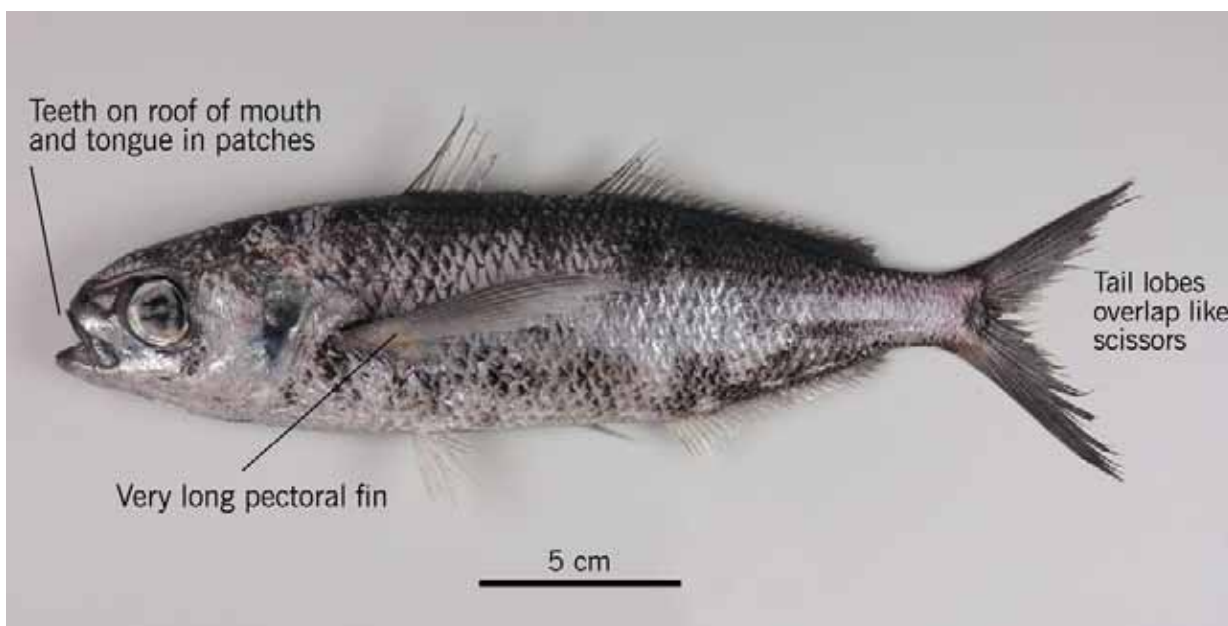
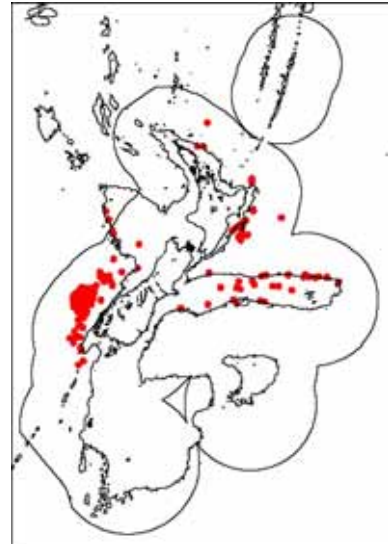
Family: 480. Nomeidae (driftfishes)

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 dark brown to black for black cubehead, and pale to dark blue-grey for blue 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: Black cubehead (*Cubiceps baxteri*) has teeth on the roof of the mouth in a straight line. Blue cubehead (*C. caeruleus*) has an oval patch of teeth on the tongue.

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

References

Stewart & Roberts (2002).

Squairetail

Tetragonurus cuvieri

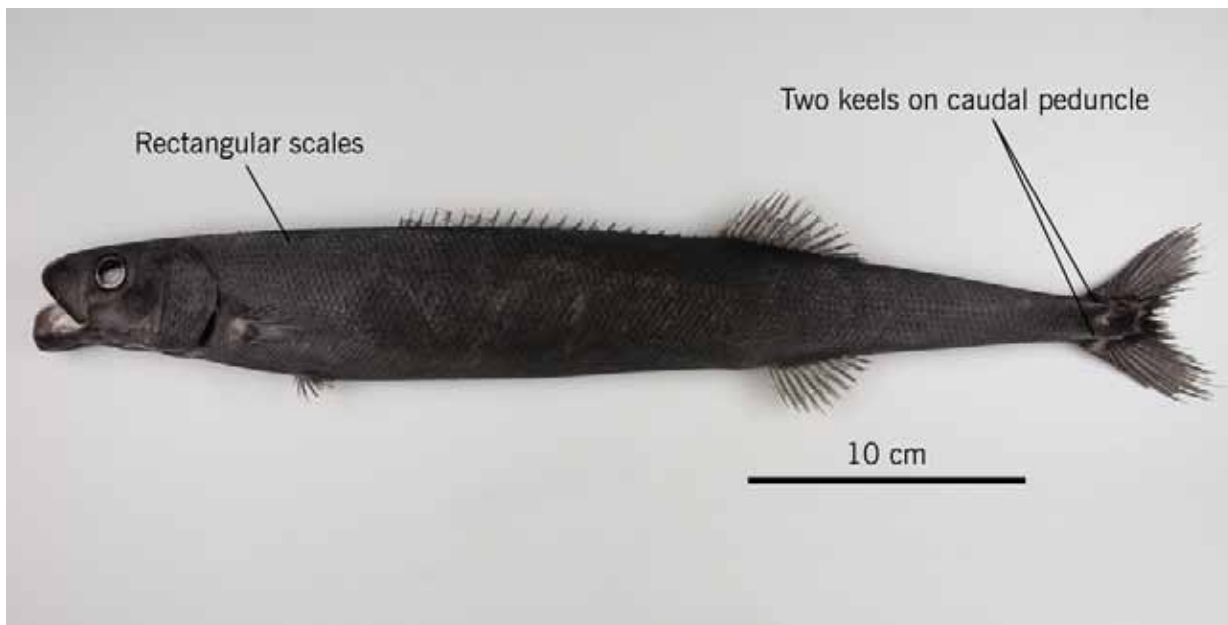
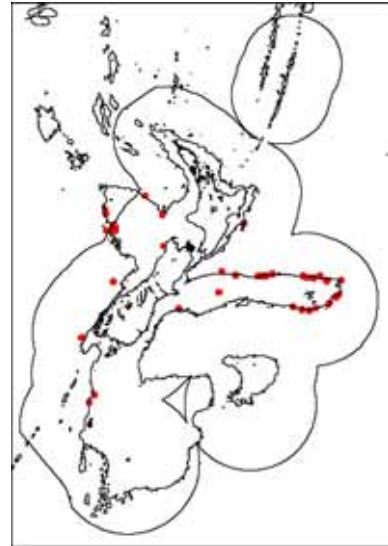
Family: 482. Tetragonuridae (squairetails)

Maori names: n.a.

Other names: n.a.

MFish reporting code: TET

MFish research code: TET



Distinguishing features: Elongate rounded body covered in firmly attached rectangular scales arranged in spiralling rows. Large lower jaw, concealed by upper jaw when closed, but bearing a curved row of blade-like teeth. Two prominent keels on each side of the caudal peduncle.

Colour: Head, body, and fins uniformly brownish-black in adults.

Size: To at least 70 cm FL.

Distribution: Widespread in New Zealand. Southern Australia (NSW, Vic, Tas) and widely distributed in subtropical and temperate waters of the Atlantic, Mediterranean, Pacific, and Indian Oceans.

Depth: 400 to 1300 m.

Similar species: Other fishes lack the combination of body shape, body scale pattern, lower jaw teeth, and keels on the caudal peduncle.

Biology & ecology: Oceanic fishes and probably capable of fast swimming. Presumably the adults live in midwater. The distinctive jaws and teeth are possibly adapted for feeding on soft bodied invertebrates such as ctenophores and jellyfishes.

References

Anderson et al. (1998), Gomon et al. (2008), Paulin et al. (1989).

Porcupine fish

Allomycterus pilatus

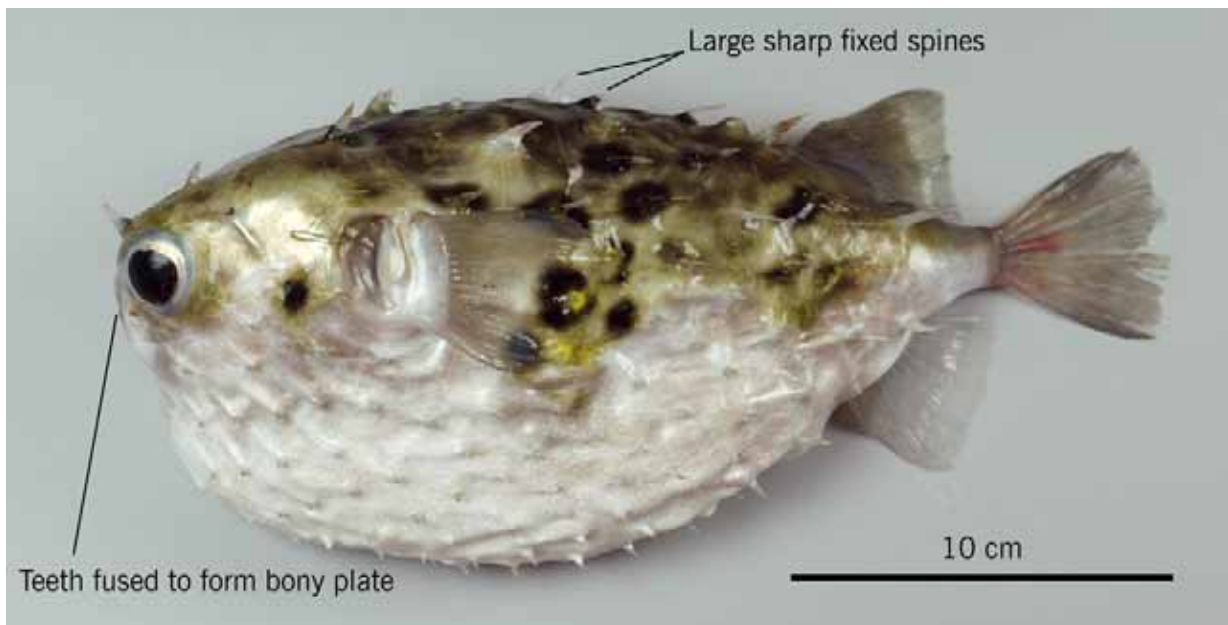
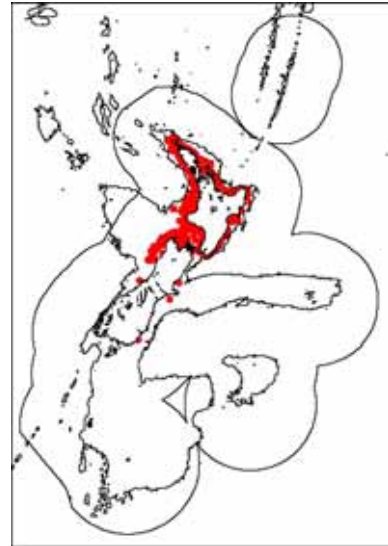
Family: 510. Diodontidae (porcupinefishes)

Maori names: n.a.

Other names: n.a.

MFish reporting code: POP

MFish research code: POP



Distinguishing features: Inflatable globular body covered with prominent spines. Teeth fused into beak-like jaws. Interorbital region (between the eyes) mostly lacks spines but the spines present are short and erect (fixed).

Colour: Olive brown above, white below. Blackish blotches about the size of the eyes or smaller on the upper surface and sides. Yellowish blotches on sides in front of pectoral fin base, behind pectoral fin, and below the dorsal fin.

Size: To about 50 cm TL.

Distribution: Central and northern New Zealand. Southern Australia.

Depth: 5 to 320 m.

Similar species: The only other porcupinefish (*Diodon hystrix*) recorded from New Zealand is rare, probably occurs only in the far north, and has very long, sharp, erectile spines between the eyes.

Biology & ecology: Unknown. Presumed to live near the seafloor but has been observed in schools near the surface, e.g., in Wellington Harbour.

References

Anderson et al. (1998), Gomon et al. (2008), Paulin et al. (1989).

Sunfish

Mola mola

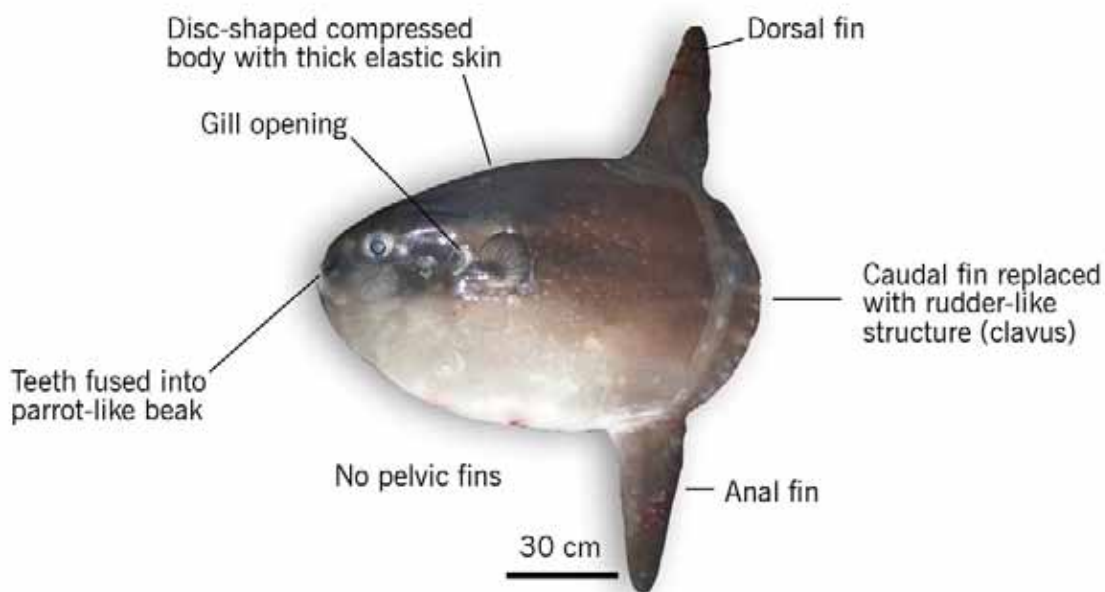
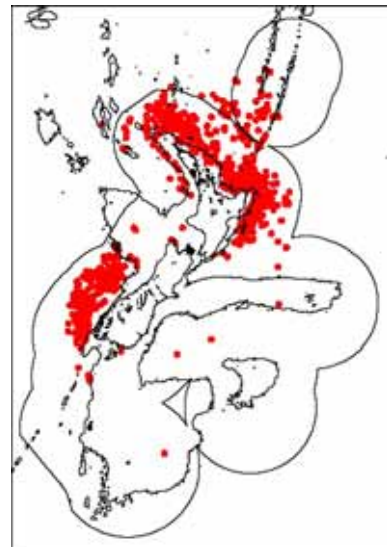
Family: 511. Molidae (molas)

Maori names: n.a.

Other names: Ocean sunfish, common sunfish

MFish reporting code: SUN

MFish research code: SUN



Distinguishing features: Disc-shaped scaleless body covered with extremely thick, elastic skin. Caudal fin replaced by a rudder-like structure (clavus). Dorsal and anal fins very high with short base. Very small mouth, teeth fused to form a parrot-like beak.

Colour: Body greyish-brown dorsally, paler ventrally.

Size: To about 300 cm TL.

Distribution: Around most of New Zealand including the Kermadec Islands. Found in warm and temperate zones of all oceans.

Depth: 0 to 480 m.

Similar species: Sharptailed sunfish (*Masturus lanceolatus*) is rare and has elongated central filaments in the clavus. The oblong sunfish (*Ranzania laevis*) is also rare, grows to only about 90 cm TL, and has a more elongate body, a more pointed head, and is brightly coloured.

Biology & ecology: Pelagic. Found on slopes adjacent to deep water. Often seen "basking" on the surface and showing only an undulating dorsal fin, sometimes mistaken for a shark fin.

References

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Barracudinas	Paralepididae	196	18, 60
Basking sharks	Cetorhinidae	21	16, 29
Billfishes	Istiophoridae	477	22, 112
Cow sharks	Hexanchidae	32	17, 38
Crestfishes	Lophotidae	204	19, 63
Cutlassfishes	Trichiuridae	474	22, 100
Deepsea cods	Moridae	216	19, 66
Devil rays	Mobulidae	58b	18, 52
Dogfish sharks	Squalidae	34	17, 39
Dolphinfishes	Coryphaenidae	361	20, 73
Driftfishes	Nomeidae	480	23, 120
Flyingfishes	Exocoetidae	253	19, 69
Gulper sharks	Centrophoridae	35	17, 40
Hammerhead sharks	Sphyrnidae	30	17, 37
Herrings	Clupeidae	97	18, 55
Hound sharks	Triakidae	27	16, 33
Jacks, pompanos	Carangidae	364	20, 75
Kitefin sharks	Dalatiidae	39	17, 49
Lancetfishes	Alepisauridae	195	18, 58
Lantern sharks	Etmopteridae	36	17, 42
Longfin escolar	Scombrolabracidae	471	21, 91
Mackerel sharks	Lamnidae	22	16, 30
Mackerels, tunas	Scombidae	475	22, 101
Medusafishes	Centrolophidae	479	22, 117
Merlucoid hakes	Merlucciidae	218	19, 67
Molas	Molidae	511	23, 123
Opahs	Lampridae	202	19, 61
Pomfrets	Bramidae	367	20, 82
Porcupinefishes	Diodontidae	510	23, 122
Remoras	Echeneidae	363	20, 74
Requiem sharks	Carcharhinidae	29	16, 34
Ribbonfishes	Trachipteridae	206	19, 64
Sauries	Scomberesocidae	256	20, 70
Sleeper sharks	Somniosidae	37	17, 44
Snake mackerels	Gempylidae	473	21, 93
Squaretails	Tetragonuridae	482	23, 121
Stargazers	Uranoscopidae	443	21, 90
Swordfishes	Xiphiidae	476	22, 111
Thresher sharks	Alopiidae	20	16, 27
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<i>Alepisaurus ferox</i>	Longsnouted lancetfish	LAT	LAT	59
<i>Allomycterus pilatus</i>	Porcupine fish	POP	POP	122
<i>Allothunnus fallai</i>	Slender tuna	STU	STU	102
<i>Alopias superciliosus</i>	Bigeye thresher	BET	BET	27
<i>Alopias vulpinus</i>	Thresher shark	THR	THR	28
<i>Arripis trutta</i>	Kahawai	KAH	KAH	89
<i>Brama australis</i>	Southern bream	UNI	SRB	82
<i>Brama brama</i>	Ray's bream	RBM	RBM	83
<i>Carcharhinus brachyurus</i>	Bronze whaler shark	BWH	BWH	34
<i>Carcharhinus longimanus</i>	Oceanic whitetip shark	OSD	OWS	35
<i>Carcharodon carcharias</i>	White pointer shark	WPS	WPS	30
<i>Centrolophus niger</i>	Rudderfish	RUD	RUD	117
<i>Centrophorus squamosus</i>	Leafscale gulper shark	CSQ	CSQ	40
<i>Centroscymnus coelolepis</i>	Portuguese dogfish	CYL	CYL	44
<i>Centroscymnus crepidater</i>	Longnose velvet dogfish	CYP	CYP	45
<i>Centroscymnus owstoni</i>	Owston's dogfish	CYO	CYO	46
<i>Cetorhinus maximus</i>	Basking shark	BSK	BSK	29
<i>Cheilopogon pinnatibarbus</i>	Flyingfishes	FLY	FLY	69
<i>Coryphaena hippurus</i>	Dolphinfish	DOF	DOF	73
<i>Cubiceps</i> spp.	Cubehead	CUB	CUB	120
<i>Dalatias licha</i>	Seal shark	BSH	BSH	49
<i>Deania calcea</i>	Shovelnose dogfish	SND	SND	41
<i>Decapterus koheru</i>	Koheru	KOH	KOH	75
<i>Engraulis australis</i>	Anchovy	ANC	ANC	54
<i>Etmopterus baxteri</i>	Baxter's lantern dogfish	ETB	ETB	42
<i>Etmopterus lucifer</i>	Lucifer dogfish	ETL	ETL	43
<i>Galeorhinus galeus</i>	School shark	SCH	SCH	33
<i>Gasterochisma melampus</i>	Butterfly tuna	BTU	BTU	103
<i>Gempylus serpens</i>	Snake mackerel	GSE	GSE	93
<i>Hyperoglyphe antarctica</i>	Bluenose	BNS	BNS	118
<i>Isistius brasiliensis</i>	Cookie-cutter shark	OSD	IBR	50
<i>Istiophorus platypterus</i>	Indo-Pacific sailfish	SAI	SAI	112
<i>Isurus oxyrinchus</i>	Mako shark	MAK	MAK	31
<i>Katsuwonus pelamis</i>	Skipjack tuna	SKJ	SKJ	104
<i>Lamna nasus</i>	Porbeagle shark	POS	POS	32
<i>Lampris guttatus</i>	Moonfish	MOO	MOO	61
<i>Lampris immaculatus</i>	Opah	PAH	PAH	62
<i>Lepidocybium flavobrunneum</i>	Escolar	LEP	LEP	94
<i>Lepidopus caudatus</i>	Frostfish	FRO	FRO	100
<i>Lophotus capellei</i>	Unicornfish	LCA	LCA	63
<i>Macruronus novaezelandiae</i>	Hoki	HOK	HOK	67
<i>Magnisudis prionosa</i>	Barracudina	BCA	BCA	60
<i>Makaira indica</i>	Black marlin	BKM	BKM	113
<i>Makaira mazara</i>	Blue marlin	BEM	BEM	114
<i>Manta birostris</i>	Manta ray	RMB	RMB	52
<i>Merluccius australis</i>	Hake	HAK	HAK	68
<i>Mobula japanica</i>	Spinetail devil ray	MJA	MJA	53

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<i>Naucrates ductor</i>	Pilotfish	UNI	PIF	76
<i>Nesiarchus nasutus</i>	Black barracouta	BBA	BBA	95
<i>Notorynchus cepedianus</i>	Broadnose sevengill shark	SEV	SEV	38
<i>Paradiplospinus</i> sp.	False frostfish	PDS	PDS	96
<i>Pleuroscopus pseudodorsalis</i>	Scaly stargazer	PLZ	PLZ	90
<i>Polyprion americanus</i>	Bass groper	BAS	BAS	71
<i>Polyprion oxygeneios</i>	Hapuku	HAP	HAP	72
<i>Prionace glauca</i>	Blue shark	BWS	BWS	36
<i>Proscymnodon plunketi</i>	Plunket's shark	PLS	PLS	47
<i>Pseudocaranx georgianus</i>	Trevally	TRE	TRE	77
<i>Pseudoicichthys australis</i>	Ragfish	RAG	RAG	119
<i>Pteraclis velifera</i>	Wingfish	WIN	WIN	84
<i>Pteroplatytrygon violacea</i>	Pelagic stingray	DAS	DAS	51
<i>Pterycombus petersii</i>	Fanfish	FAN	FAN	85
<i>Remora</i> spp.	Remoras	UNI	REM	74
<i>Rexea solandri</i>	Gemfish	SKI	SKI	97
<i>Rhincodon typus</i>	Whale shark	WSH	WSH	26
<i>Ruvettus pretiosus</i>	Oilfish	OFH	OFH	98
<i>Sardinops sagax</i>	Pilchard	PIL	PIL	55
<i>Scomber australasicus</i>	Blue mackerel	EMA	EMA	105
<i>Scomberesox saurus</i>	Saury	SAU	SAU	70
<i>Scombrobrax heterolepis</i>	Black mackerel	MAC	BLM	91
<i>Seriola lalandi</i>	Kingfish	KIN	KIN	78
<i>Sphyraena acutipinnis</i>	Barracuda	BDA	BDA	92
<i>Sphyrna zygaena</i>	Hammerhead shark	HHS	HHS	37
<i>Sprattus antipodum</i>	Slender sprat	SPR	SPA	56
<i>Sprattus muelleri</i>	Stout sprat	SPR	SPM	57
<i>Squalus acanthias</i>	Spiny dogfish	SPD	SPD	39
<i>Taractes asper</i>	Flathead pomfret	TAS	TAS	86
<i>Taractichthys longipinnis</i>	Big-scale pomfret	BSP	BSP	87
<i>Tetragonurus cuvieri</i>	Squaretail	TET	TET	121
<i>Tetrapturus angustirostris</i>	Shortbill spearfish	SSF	SSF	115
<i>Tetrapturus audax</i>	Striped marlin	STM	STM	116
<i>Thunnus alalunga</i>	Albacore tuna	ALB	ALB	106
<i>Thunnus albacares</i>	Yellowfin tuna	YFN	YFN	107
<i>Thunnus maccoyii</i>	Southern bluefin tuna	STN	STN	108
<i>Thunnus obesus</i>	Bigeye tuna	BIG	BIG	109
<i>Thunnus orientalis</i>	Pacific bluefin tuna	TOR	TOR	110
<i>Thyrsites atun</i>	Barracouta	BAR	BAR	99
<i>Trachipterus trachipterus</i>	Dealfish	DEA	DEA	64
<i>Trachurus declivis</i>	Greenback jack mackerel	JMA	JMD	79
<i>Trachurus murphyi</i>	Slender jack mackerel	JMA	JMM	80
<i>Trachurus novaezelandiae</i>	Yellowtail jack mackerel	JMA	JMN	81
<i>Xenobrama microlepis</i>	Bronze bream	UNI	BBR	88
<i>Xiphias gladius</i>	Swordfish	SWO	SWO	111
<i>Zameus squamulosus</i>	Velvet dogfish	OSD	ZAS	48
<i>Zu elongatus</i>	Scalloped dealfish	UNI	ZEL	65

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Barracouta	<i>Thyrsites atun</i>	BAR	BAR	99
Barracuda	<i>Sphyrna acutipinnis</i>	BDA	BDA	92
Barracudina	<i>Magnisudis prionosa</i>	BCA	BCA	60
Basking shark	<i>Cetorhinus maximus</i>	BSK	BSK	29
Bass groper	<i>Polyprion americanus</i>	BAS	BAS	71
Baxter's lantern dogfish	<i>Etmopterus baxteri</i>	ETB	ETB	42
Bigeye thresher	<i>Alopias superciliosus</i>	BET	BET	27
Bigeye tuna	<i>Thunnus obesus</i>	BIG	BIG	109
Big-scale pomfret	<i>Taractichthys longipinnis</i>	BSP	BSP	87
Black barracouta	<i>Nesiarchus nasutus</i>	BBA	BBA	95
Black mackerel	<i>Scombrolabrax heterolepis</i>	MAC	BLM	91
Black marlin	<i>Makaira indica</i>	BKM	BKM	113
Blue mackerel	<i>Scomber australasicus</i>	EMA	EMA	105
Blue marlin	<i>Makaira mazara</i>	BEM	BEM	114
Blue shark	<i>Prionace glauca</i>	BWS	BWS	36
Bluenose	<i>Hyperoglyphe antarctica</i>	BNS	BNS	118
Broadnose sevengill shark	<i>Notorynchus cepedianus</i>	SEV	SEV	38
Bronze bream	<i>Xenobrama microlepis</i>	UNI	BBR	88
Bronze whaler shark	<i>Carcharhinus brachyurus</i>	BWH	BWH	34
Butterfly tuna	<i>Gasterochisma melampus</i>	BTU	BTU	103
Cookie-cutter shark	<i>Isistius brasiliensis</i>	OSD	IBR	50
Cubehead	<i>Cubiceps</i> spp.	CUB	CUB	120
Dealfish	<i>Trachipterus trachipterus</i>	DEA	DEA	64
Dolphinfish	<i>Coryphaena hippurus</i>	DOF	DOF	73
Escolar	<i>Lepidocybium flavobrunneum</i>	LEP	LEP	94
False frostfish	<i>Paradiplospinus</i> sp.	PDS	PDS	96
Fanfish	<i>Pterycombus petersii</i>	FAN	FAN	85
Flathead pomfret	<i>Taractes asper</i>	TAS	TAS	86
Flyingfishes	<i>Cheilopogon pinnatibarbus</i>	FLY	FLY	69
Frostfish	<i>Lepidopus caudatus</i>	FRO	FRO	100
Gemfish	<i>Rexea solandri</i>	SKI	SKI	97
Greenback jack mackerel	<i>Trachurus declivis</i>	JMA	JMD	79
Hake	<i>Merluccius australis</i>	HAK	HAK	68
Hammerhead shark	<i>Sphyrna zygaena</i>	HHS	HHS	37
Hapuku	<i>Polyprion oxygeneios</i>	HAP	HAP	72
Hoki	<i>Macruronus novaezelandiae</i>	HOK	HOK	67
Indo-Pacific sailfish	<i>Istiophorus platypterus</i>	SAI	SAI	112
Kahawai	<i>Arripis trutta</i>	KAH	KAH	89
Kingfish	<i>Seriola lalandi</i>	KIN	KIN	78
Koheru	<i>Decapterus koheru</i>	KOH	KOH	75
Leafscale gulper shark	<i>Centrophorus squamosus</i>	CSQ	CSQ	40
Longnose velvet dogfish	<i>Centroscymnus crepidater</i>	CYP	CYP	45
Longsnouted lancetfish	<i>Alepisaurus ferox</i>	LAT	LAT	59
Lucifer dogfish	<i>Etmopterus lucifer</i>	ETL	ETL	43
Mako shark	<i>Isurus oxyrinchus</i>	MAK	MAK	31
Manta ray	<i>Manta birostris</i>	RMB	RMB	52
Moonfish	<i>Lampris guttatus</i>	MOO	MOO	61

Common name	Scientific name	MFish reporting code	MFish research code	Page
Oceanic whitetip shark	<i>Carcharhinus longimanus</i>	OSD	OWS	35
Oilfish	<i>Ruvettus pretiosus</i>	OFH	OFH	98
Opah	<i>Lampris immaculatus</i>	PAH	PAH	62
Owston's dogfish	<i>Centroscymnus owstoni</i>	CYO	CYO	46
Pacific bluefin tuna	<i>Thunnus orientalis</i>	TOR	TOR	110
Pelagic stingray	<i>Pteroplatytrygon violacea</i>	DAS	DAS	51
Pilchard	<i>Sardinops sagax</i>	PIL	PIL	55
Pilotfish	<i>Naucrates ductor</i>	UNI	PIF	76
Plunket's shark	<i>Proscymnodon plunketi</i>	PLS	PLS	47
Porbeagle shark	<i>Lamna nasus</i>	POS	POS	32
Porcupine fish	<i>Allomycterus pilatus</i>	POP	POP	122
Portuguese dogfish	<i>Centroscymnus coelolepis</i>	CYL	CYL	44
Ragfish	<i>Pseudoicichthys australis</i>	RAG	RAG	119
Ray's bream	<i>Brama brama</i>	RBM	RBM	83
Remoras	<i>Remora</i> spp.	UNI	REM	74
Ribaldo	<i>Mora moro</i>	RIB	RIB	66
Rudderfish	<i>Centrolophus niger</i>	RUD	RUD	117
Saury	<i>Scomberesox saurus</i>	SAU	SAU	70
Scalloped dealfish	<i>Zu elongatus</i>	UNI	ZEL	65
Scaly stargazer	<i>Pleuroscopus pseudodorsalis</i>	PLZ	PLZ	90
School shark	<i>Galeorhinus galeus</i>	SCH	SCH	33
Seal shark	<i>Dalatias licha</i>	BSH	BSH	49
Shortbill spearfish	<i>Tetrapturus angustirostris</i>	SSF	SSF	115
Shortsnouted lancetfish	<i>Alepisaurus brevirostris</i>	ABR	ABR	58
Shovelnose dogfish	<i>Deania calcea</i>	SND	SND	41
Skipjack tuna	<i>Katsuwonus pelamis</i>	SKJ	SKJ	104
Slender jack mackerel	<i>Trachurus murphyi</i>	JMA	JMM	80
Slender sprat	<i>Sprattus antipodum</i>	SPR	SPA	56
Slender tuna	<i>Allothunnus fallai</i>	STU	STU	102
Snake mackerel	<i>Gempylus serpens</i>	GSE	GSE	93
Southern bluefin tuna	<i>Thunnus maccoyii</i>	STN	STN	108
Southern bream	<i>Brama australis</i>	UNI	SRB	82
Spinetail devil ray	<i>Mobula japonica</i>	MJA	MJA	53
Spiny dogfish	<i>Squalus acanthias</i>	SPD	SPD	39
Squairetail	<i>Tetragonurus cuvieri</i>	TET	TET	121
Stout sprat	<i>Sprattus muelleri</i>	SPR	SPM	57
Striped marlin	<i>Tetrapturus audax</i>	STM	STM	116
Sunfish	<i>Mola mola</i>	SUN	SUN	123
Swordfish	<i>Xiphias gladius</i>	SWO	SWO	111
Thresher shark	<i>Alopias vulpinus</i>	THR	THR	28
Trevally	<i>Pseudocaranx georgianus</i>	TRE	TRE	77
Unicornfish	<i>Lophotus capellei</i>	LCA	LCA	63
Velvet dogfish	<i>Zameus squamulosus</i>	OSD	ZAS	48
Wahoo	<i>Acanthocybium solandri</i>	WAH	WAH	101
Whale shark	<i>Rhincodon typus</i>	WSH	WSH	26
White pointer shark	<i>Carcharodon carcharias</i>	WPS	WPS	30
Wingfish	<i>Pteraclis velifera</i>	WIN	WIN	84
Yellowfin tuna	<i>Thunnus albacares</i>	YFN	YFN	107
Yellowtail jack mackerel	<i>Trachurus novaezelandiae</i>	JMA	JMN	81

Index 5 – Alphabetical list of species MFish research codes

MFish research code	MFish reporting code	Scientific name	Common name	Page
ABR	ABR	<i>Alepisaurus brevirostris</i>	Shortsnouted lancetfish	58
ALB	ALB	<i>Thunnus alalunga</i>	Albacore tuna	106
ANC	ANC	<i>Engraulis australis</i>	Anchovy	54
BAR	BAR	<i>Thyrsites atun</i>	Barracouta	99
BAS	BAS	<i>Polyprion americanus</i>	Bass groper	71
BBA	BBA	<i>Nesiarhus nasutus</i>	Black barracouta	95
BBR	UNI	<i>Xenobrama microlepis</i>	Bronze bream	88
BCA	BCA	<i>Magnisudis prionosa</i>	Barracudina	60
BDA	BDA	<i>Sphyraena acutipinnis</i>	Barracuda	92
BEM	BEM	<i>Makaira mazara</i>	Blue marlin	114
BET	BET	<i>Alopias superciliosus</i>	Bigeye thresher	27
BIG	BIG	<i>Thunnus obesus</i>	Bigeye tuna	109
BKM	BKM	<i>Makaira indica</i>	Black marlin	113
BLM	MAC	<i>Scombrobrax heterolepis</i>	Black mackerel	91
BNS	BNS	<i>Hyperoglyphe antarctica</i>	Bluenose	118
BSH	BSH	<i>Dalatias licha</i>	Seal shark	49
BSK	BSK	<i>Cetorhinus maximus</i>	Basking shark	29
BSP	BSP	<i>Taractichthys longipinnis</i>	Big-scale pomfret	87
BTU	BTU	<i>Gasterochisma melampus</i>	Butterfly tuna	103
BWH	BWH	<i>Carcharhinus brachyurus</i>	Bronze whaler shark	34
BWS	BWS	<i>Prionace glauca</i>	Blue shark	36
CSQ	CSQ	<i>Centrophorus squamosus</i>	Leafscale gulper shark	40
CUB	CUB	<i>Cubiceps</i> spp.	Cubehead	120
CYL	CYL	<i>Centroscymnus coelolepis</i>	Portuguese dogfish	44
CYO	CYO	<i>Centroscymnus owstoni</i>	Owston's dogfish	46
CYP	CYP	<i>Centroscymnus crepidater</i>	Longnose velvet dogfish	45
DAS	DAS	<i>Pteroplatytrygon violacea</i>	Pelagic stingray	51
DEA	DEA	<i>Trachipterus trachipterus</i>	Dealfish	64
DOF	DOF	<i>Coryphaena hippurus</i>	Dolphinfish	73
EMA	EMA	<i>Scomber australasicus</i>	Blue mackerel	105
ETB	ETB	<i>Etmopterus baxteri</i>	Baxter's lantern dogfish	42
ETL	ETL	<i>Etmopterus lucifer</i>	Lucifer dogfish	43
FAN	FAN	<i>Pterycombus petersii</i>	Fanfish	85
FLY	FLY	<i>Cheilopogon pinnatibarbatus</i>	Flyingfishes	69
FRO	FRO	<i>Lepidopus caudatus</i>	Frostfish	100
GSE	GSE	<i>Gempylus serpens</i>	Snake mackerel	93
HAK	HAK	<i>Merluccius australis</i>	Hake	68
HAP	HAP	<i>Polyprion oxygeneios</i>	Hapuku	72
HHS	HHS	<i>Sphyrna zygaena</i>	Hammerhead shark	37
HOK	HOK	<i>Macruronus novaezelandiae</i>	Hoki	67
IBR	OSD	<i>Isistius brasiliensis</i>	Cookie-cutter shark	50
JMD	JMA	<i>Trachurus declivis</i>	Greenback jack mackerel	79
JMM	JMA	<i>Trachurus murphyi</i>	Slender jack mackerel	80
JMN	JMA	<i>Trachurus novaezelandiae</i>	Yellowtail jack mackerel	81
KAH	KAH	<i>Arripis trutta</i>	Kahawai	89
KIN	KIN	<i>Seriola lalandi</i>	Kingfish	78
KOH	KOH	<i>Decapterus koheru</i>	Koheru	75
LAT	LAT	<i>Alepisaurus ferox</i>	Longsnouted lancetfish	59

MFish research code	MFish reporting code	Scientific name	Common name	Page
LCA	LCA	<i>Lophotus capellei</i>	Unicornfish	63
LEP	LEP	<i>Lepidocybium flavobrunneum</i>	Escolar	94
MAK	MAK	<i>Isurus oxyrinchus</i>	Mako shark	31
MJA	MJA	<i>Mobula japanica</i>	Spinetail devil ray	53
MOO	MOO	<i>Lampris guttatus</i>	Moonfish	61
OFH	OFH	<i>Ruvettus pretiosus</i>	Oilfish	98
OWS	OSD	<i>Carcharhinus longimanus</i>	Oceanic whitetip shark	35
PAH	PAH	<i>Lampris immaculatus</i>	Opah	62
PDS	PDS	<i>Paradiplospinus</i> sp.	False frostfish	96
PIF	UNI	<i>Naucrates ductor</i>	Pilotfish	76
PIL	PIL	<i>Sardinops sagax</i>	Pilchard	55
PLS	PLS	<i>Proscymnodon plunketi</i>	Plunket's shark	47
PLZ	PLZ	<i>Pleuroscopus pseudodorsalis</i>	Scaly stargazer	90
POP	POP	<i>Allomycterus pilatus</i>	Porcupine fish	122
POS	POS	<i>Lamna nasus</i>	Porbeagle shark	32
RAG	RAG	<i>Pseudoicichthys australis</i>	Ragfish	119
RBM	RBM	<i>Brama brama</i>	Ray's bream	83
REM	UNI	<i>Remora</i> spp.	Remoras	74
RIB	RIB	<i>Mora moro</i>	Ribaldo	66
RMB	RMB	<i>Manta birostris</i>	Manta ray	52
RUD	RUD	<i>Centrolophus niger</i>	Rudderfish	117
SAI	SAI	<i>Istiophorus platypterus</i>	Indo-Pacific sailfish	112
SAU	SAU	<i>Scomberesox saurus</i>	Saury	70
SCH	SCH	<i>Galeorhinus galeus</i>	School shark	33
SEV	SEV	<i>Notorynchus cepedianus</i>	Broadnose sevengill shark	38
SKI	SKI	<i>Rexea solandri</i>	Gemfish	97
SKJ	SKJ	<i>Katsuwonus pelamis</i>	Skipjack tuna	104
SND	SND	<i>Deania calcea</i>	Shovelnose dogfish	41
SPA	SPR	<i>Sprattus antipodum</i>	Slender sprat	56
SPD	SPD	<i>Squalus acanthias</i>	Spiny dogfish	39
SPM	SPR	<i>Sprattus muelleri</i>	Stout sprat	57
SRB	UNI	<i>Brama australis</i>	Southern bream	82
SSF	SSF	<i>Tetrapturus angustirostris</i>	Shortbill spearfish	115
STM	STM	<i>Tetrapturus audax</i>	Striped marlin	116
STN	STN	<i>Thunnus maccoyii</i>	Southern bluefin tuna	108
STU	STU	<i>Allothunnus fallai</i>	Slender tuna	102
SUN	SUN	<i>Mola mola</i>	Sunfish	123
SWO	SWO	<i>Xiphias gladius</i>	Swordfish	111
TAS	TAS	<i>Taractes asper</i>	Flathead pomfret	86
TET	TET	<i>Tetragonurus cuvieri</i>	Squartail	121
THR	THR	<i>Alopias vulpinus</i>	Thresher shark	28
TOR	TOR	<i>Thunnus orientalis</i>	Pacific bluefin tuna	110
TRE	TRE	<i>Pseudocaranx georgianus</i>	Trevally	77
WAH	WAH	<i>Acanthocybium solandri</i>	Wahoo	101
WIN	WIN	<i>Pteraclis velifera</i>	Wingfish	84
WPS	WPS	<i>Carcharodon carcharias</i>	White pointer shark	30
WSH	WSH	<i>Rhincodon typus</i>	Whale shark	26
YFN	YFN	<i>Thunnus albacares</i>	Yellowfin tuna	107
ZAS	OSD	<i>Zameus squamulosus</i>	Velvet dogfish	48
ZEL	UNI	<i>Zu elongatus</i>	Scalloped dealfish	65

Index 6 – Alphabetical list of species MFish reporting codes

MFish reporting code	MFish research code	Scientific name	Common name	Page
ABR	ABR	<i>Alepisaurus brevirostris</i>	Shortsnouted lancetfish	58
ALB	ALB	<i>Thunnus alalunga</i>	Albacore tuna	106
ANC	ANC	<i>Engraulis australis</i>	Anchovy	54
BAR	BAR	<i>Thyrsites atun</i>	Barracouta	99
BAS	BAS	<i>Polyprion americanus</i>	Bass groper	71
BBA	BBA	<i>Nesiarhus nasutus</i>	Black barracouta	95
BCA	BCA	<i>Magnisudis prionosa</i>	Barracudina	60
BDA	BDA	<i>Sphyaena acutipinnis</i>	Barracuda	92
BEM	BEM	<i>Makaira mazara</i>	Blue marlin	114
BET	BET	<i>Alopias superciliosus</i>	Bigeye thresher	27
BIG	BIG	<i>Thunnus obesus</i>	Bigeye tuna	109
BKM	BKM	<i>Makaira indica</i>	Black marlin	113
BNS	BNS	<i>Hyperoglyphe antarctica</i>	Bluenose	118
BSH	BSH	<i>Dalatias licha</i>	Seal shark	49
BSK	BSK	<i>Cetorhinus maximus</i>	Basking shark	29
BSP	BSP	<i>Taractichthys longipinnis</i>	Big-scale pomfret	87
BTU	BTU	<i>Gasterochisma melampus</i>	Butterfly tuna	103
BWH	BWH	<i>Carcharhinus brachyurus</i>	Bronze whaler shark	34
BWS	BWS	<i>Prionace glauca</i>	Blue shark	36
CSQ	CSQ	<i>Centrophorus squamosus</i>	Leafscale gulper shark	40
CUB	CUB	<i>Cubiceps</i> spp.	Cubehead	120
CYL	CYL	<i>Centroscymnus coelolepis</i>	Portuguese dogfish	44
CYO	CYO	<i>Centroscymnus owstoni</i>	Owston's dogfish	46
CYP	CYP	<i>Centroscymnus crepidater</i>	Longnose velvet dogfish	45
DAS	DAS	<i>Pteroplatytrygon violacea</i>	Pelagic stingray	51
DEA	DEA	<i>Trachipterus trachipterus</i>	Dealfish	64
DOF	DOF	<i>Coryphaena hippurus</i>	Dolphinfish	73
EMA	EMA	<i>Scomber australasicus</i>	Blue mackerel	105
ETB	ETB	<i>Etmopterus baxteri</i>	Baxter's lantern dogfish	42
ETL	ETL	<i>Etmopterus lucifer</i>	Lucifer dogfish	43
FAN	FAN	<i>Pterycombus petersii</i>	Fanfish	85
FLY	FLY	<i>Cheilopogon pinnatibarbatulus</i>	Flyingfishes	69
FRO	FRO	<i>Lepidopus caudatus</i>	Frostfish	100
GSE	GSE	<i>Gempylus serpens</i>	Snake mackerel	93
HAK	HAK	<i>Merluccius australis</i>	Hake	68
HAP	HAP	<i>Polyprion oxygeneios</i>	Hapuku	72
HHS	HHS	<i>Sphyrna zygaena</i>	Hammerhead shark	37
HOK	HOK	<i>Macruronus novaezelandiae</i>	Hoki	67
JMA	JMD	<i>Trachurus declivis</i>	Greenback jack mackerel	79
JMA	JMM	<i>Trachurus murphyi</i>	Slender jack mackerel	80
JMA	JMN	<i>Trachurus novaezelandiae</i>	Yellowtail jack mackerel	81
KAH	KAH	<i>Arripis trutta</i>	Kahawai	89
KIN	KIN	<i>Seriola lalandi</i>	Kingfish	78
KOH	KOH	<i>Decapterus koheru</i>	Koheru	75
LAT	LAT	<i>Alepisaurus ferox</i>	Longsnouted lancetfish	59
LCA	LCA	<i>Lophotus capellei</i>	Unicornfish	63
LEP	LEP	<i>Lepidocybium flavobrunneum</i>	Escolar	94
MAC	BLM	<i>Scombrobrax heterolepis</i>	Black mackerel	91

MFish reporting code	MFish research code	Scientific name	Common name	Page
MAK	MAK	<i>Isurus oxyrinchus</i>	Mako shark	31
MJA	MJA	<i>Mobula japanica</i>	Spinetail devil ray	53
MOO	MOO	<i>Lampris guttatus</i>	Moonfish	61
OFH	OFH	<i>Ruvettus pretiosus</i>	Oilfish	98
OSD	IBR	<i>Isistius brasiliensis</i>	Cookie-cutter shark	50
OSD	OWS	<i>Carcharhinus longimanus</i>	Oceanic whitetip shark	35
OSD	ZAS	<i>Zameus squamulosus</i>	Velvet dogfish	48
PAH	PAH	<i>Lampris immaculatus</i>	Opah	62
PDS	PDS	<i>Paradiplospinus</i> sp.	False frostfish	96
PIL	PIL	<i>Sardinops sagax</i>	Pilchard	55
PLS	PLS	<i>Proscymnodon plunketi</i>	Plunket's shark	47
PLZ	PLZ	<i>Pleuroscopus pseudodorsalis</i>	Scaly stargazer	90
POP	POP	<i>Allomycterus pilatus</i>	Porcupine fish	122
POS	POS	<i>Lamna nasus</i>	Porbeagle shark	32
RAG	RAG	<i>Pseudoicichthys australis</i>	Ragfish	119
RBM	RBM	<i>Brama brama</i>	Ray's bream	83
RIB	RIB	<i>Mora moro</i>	Ribaldo	66
RMB	RMB	<i>Manta birostris</i>	Manta ray	52
RUD	RUD	<i>Centrolophus niger</i>	Rudderfish	117
SAI	SAI	<i>Istiophorus platypterus</i>	Indo-Pacific sailfish	112
SAU	SAU	<i>Scomberesox saurus</i>	Saury	70
SCH	SCH	<i>Galeorhinus galeus</i>	School shark	33
SEV	SEV	<i>Notorynchus cepedianus</i>	Broadnose sevengill shark	38
SKI	SKI	<i>Rexea solandri</i>	Gemfish	97
SKJ	SKJ	<i>Katsuwonus pelamis</i>	Skipjack tuna	104
SND	SND	<i>Deania calcea</i>	Shovelnose dogfish	41
SPD	SPD	<i>Squalus acanthias</i>	Spiny dogfish	39
SPR	SPA	<i>Sprattus antipodum</i>	Slender sprat	56
SPR	SPM	<i>Sprattus muelleri</i>	Stout sprat	57
SSF	SSF	<i>Tetrapturus angustirostris</i>	Shortbill spearfish	115
STM	STM	<i>Tetrapturus audax</i>	Striped marlin	116
STN	STN	<i>Thunnus maccoyii</i>	Southern bluefin tuna	108
STU	STU	<i>Allothunnus fallai</i>	Slender tuna	102
SUN	SUN	<i>Mola mola</i>	Sunfish	123
SWO	SWO	<i>Xiphias gladius</i>	Swordfish	111
TAS	TAS	<i>Taractes asper</i>	Flathead pomfret	86
TET	TET	<i>Tetragonurus cuvieri</i>	Squairetail	121
THR	THR	<i>Alopias vulpinus</i>	Thresher shark	28
TOR	TOR	<i>Thunnus orientalis</i>	Pacific bluefin tuna	110
TRE	TRE	<i>Pseudocaranx georgianus</i>	Trevally	77
UNI	BBR	<i>Xenobrama microlepis</i>	Bronze bream	88
UNI	PIF	<i>Naucrates ductor</i>	Pilotfish	76
UNI	REM	<i>Remora</i> spp.	Remoras	74
UNI	SRB	<i>Brama australis</i>	Southern bream	82
UNI	ZEL	<i>Zu elongatus</i>	Scalloped dealfish	65
WAH	WAH	<i>Acanthocybium solandri</i>	Wahoo	101
WIN	WIN	<i>Pteraclis velifera</i>	Wingfish	84
WPS	WPS	<i>Carcharodon carcharias</i>	White pointer shark	30
WSH	WSH	<i>Rhincodon typus</i>	Whale shark	26
YFN	YFN	<i>Thunnus albacares</i>	Yellowfin tuna	107

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.