

**Zoological Catalogue of  
Australia 35**  
**Parts 1-3: Fishes**  
*Australian Biological Resources Study*

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# FISHES

**Douglass F. Hoese, Dianne J. Bray, John R. Paxton & Gerald R. Allen**

## INTRODUCTION

Fishes are the largest and most diverse group of vertebrate animals, with an estimated 32,500 extant species (Nelson 2006), about equal to the number of all other vertebrates combined. In Australia, they are found in almost all aquatic habitats. About half of the fish species known at the time from Australian waters were treated in the work *Zoological Catalogue of Australia Volume 7 Pisces* (Paxton *et al.* 1989). That work has now been revised and incorporated into Volume 35 of the *Zoological Catalogue of Australia* series. In Paxton *et al.* (1989), the fish fauna of Australia was estimated to number 3,600 species, and it was predicted that by 2005 the number of known species would grow to 4,500. Currently the list of known species stands at 4,482 described species and approximately 300 species for which identity is as yet to be determined.

The classification presented here follows largely the work of Nelson (1994). Although there have been several changes subsequent to this classification, it does provide a useful reference point. If more recent studies are available, we have attempted to update the relevant sections. This work has changed many of the families recognised in various presentations and in the analyses in the first fish *Catalogue* (Paxton *et al.* 1989). In the interests of stability, the works of Nelson (1994) and Eschmeyer (1998) are followed here for family name spellings. Nelson's (1994) classification has been revised (see Nelson 2006). However, this later work of Nelson's was published too late to be incorporated into the current catalogue except to cite the reference where appropriate. The classification in Nelson (2006) is similar to that followed here, although the order of some families is different.

The original work of Paxton *et al.* (1989) included a total of 1,814 named species in 198 families. Changes to that original work include the addition of 400 species, changes to about 140 species scientific names and the recognition of about 15 species as junior synonyms.

The information presented in this *Catalogue* generally follows the format and style of the previously published volume. That work (Paxton *et al.* 1989), however, includes a more detailed discussion of general issues.

Geographical coverage in this volume is similar to that used in Paxton *et al.* (1989), coinciding with Australia's Exclusive Economic Zone (EEZ) (see p. xx, Figure 1). Species from Elizabeth and Middleton Reefs off the east coast of Australia are included, based on the surveys undertaken by Gill & Reader (1992) and Oxley *et al.* (2004). Lord Howe Island, which is part of the Economic Zone, is included here using the works of Francis (1993), Francis & Randall (1993) and Speare *et al.* (2004), although it was not considered in Paxton *et al.* (1989). The Territory of Ashmore and Cartier Islands is included, although Paxton *et al.* (1989) included species from that Territory in Western Australia. Allen *et al.* (1989) recorded 747 species from the area, but they included reefs outside of the Territory. Allen (1993) recorded 569 species from reef, shore and epipelagic environments from Ashmore and Cartier Islands, whereas in this work 591 species have been recorded. Kospartov *et al.* (2006) estimated 651 species from Ashmore Reef and Cartier Island. Estimates vary, depending on whether offshore and deeper benthic fishes are included. Although we have updated most of the records concerning the Territory of Ashmore and Cartier Islands, some records may have been missed, thus causing some species still to be listed as from Western Australia.

Fishes from other Australian external territories are not included. These areas are covered by various checklists: Cocos Keeling Island — Allen & Smith-Vaniz (1994); Christmas Island — Allen & Steene (1979); Macquarie Island — Williams (1988); and Norfolk Island — Francis (1993) and Francis & Randall (1993).

We have attempted to include all species that have been recorded in the literature as reported from Australia. In addition, this *Catalogue* completely updates the taxonomic groups included in Paxton *et al.* (1989). However, the literature on fishes is so extensive that undoubtedly some works may have been missed. Also there is a considerable literature for which it is not possible to verify species identifications. Therefore, we have not treated some literature, particularly where there is simply a list of species. We have endeavoured to include references up to the end of 2005 and new species descriptions covering Australian species before the middle of 2006.

Most museums around Australia kindly assisted by providing access to collections and to distribution records and these records are included, even if unpublished. However, records have not been included if we considered the identifications to be unreliable. We have respected intellectual property, and have not included species where specialists requested we not include them, in order for those workers to document occurrences of the species in Australia in the scientific literature. In a few cases new records are included based on material found in various museums in Australia and the bases of those records are included.

A major listing of Australian fishes was compiled by CSIRO Marine Laboratories in Hobart (Yearsley *et al.* 1997); the listed species were not annotated. However, Gordon Yearsley kindly provided information regarding the bases of the records. We have used that list to cross check the species presented in this *Catalogue*, and have noted some discrepancies which we were unable to resolve. In most cases, the discrepancies relate to species for which there is some uncertainty about their taxonomic status. In some cases, the CAAB list has recorded species as unidentified, but we have included records based only on published literature records. The CAAB list also includes new undescribed species and species of uncertain identity. Because we only include described species, there are numerous species in the CAAB list that we do not include. Ultimately, some of those species may be documented as occurring in Australian waters.

Hutchins (2001) compiled a checklist of just over 3,000 species of Western Australian fishes (including Ashmore and Cartier Islands). This *Catalogue* records 2,745 species from Western Australia. Hutchins' list included over 250 unnamed species, and probably 200–300 Ashmore Reef species not recorded for the mainland. For some groups there are also some duplicate listings of species under junior synonyms or species simply listed as 'species a', 'species b', etc.

Introduced fishes are included in this *Catalogue*. Although most of these are freshwater introductions (McKay 1984, 1989; Arthington & McKenzie 1997), eight marine species also appear to have been introduced into Australian waters (Paxton & Hoese 1985; Clements *et al.* 2000; Lockett & Gomon 2001). The list of freshwater introductions in this work is undoubtedly incomplete. Releases of aquarium fishes have become very common, particularly in Queensland, and we have not tried to document all these introductions, many of which have failed to establish breeding populations. Consequently, introduced freshwater species are included only where breeding populations appear to have become established.

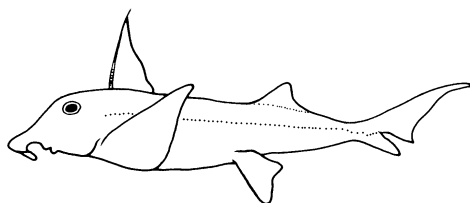
Translocation of freshwater fishes within Australia is also common and is discussed by Arthington & McKenzie (1997) and Russell *et al.* (2003). We have not attempted to document all such translocations here.

# CALLORHINCHIDAE

**Elephant Fishes, Elephantfishes, Plownose Chimaeras**

**(CAAB: 37043000)**

**John R. Paxton, Jennifer E. Gates & Douglass F. Hoese**



Callorhinchidae [Ros Poole]

## INTRODUCTION

Four or five species from the temperate latitudes of the Southern Hemisphere are currently recognised in the Callorhinchidae, but no direct comparisons of the forms on each southern continent have been made recently. One species occurs in Australia.

The elephant fishes or plownose chimaeras were briefly examined by Fowler (1941); there is no recent revision of the family. Didier (1995) treated relationships of the family.

Elephant fishes are bottom dwellers of the inshore and continental shelf. Their diet includes crabs, shrimps, shellfishes and small fishes. Unlike the other two families of chimaeras, elephant fishes have a broad, flexible snout process, a short-based second dorsal fin and a distinctly heterocercal tail. They attain up to 1.2 m in length. In New Zealand, they are of some commercial importance.

The recognition of *Callorhinchus* Lacépède, 1798 rather than *Callorhynchus* Meuschen, 1781 as the first valid use of the name (see below) requires re-examination of the spelling of the family name. Article 40 of the International Code of Zoological Nomenclature states the family name is not to be changed when the type genus is rejected as a junior synonym after 1960; *Callorhynchus* was rejected as an invalid name in 1954. As all the literature necessary to determine the first use of the family name is not available to us, we here, provisionally, follow Fowler (1941), Bigelow & Schroeder (1953) and Eschmeyer (1997) in using Callorhinchidae.

J.R.P., J.E.G. & D.F.H.

## References

- Bigelow, H.B. & Schroeder, W.C. (1953). Chimaeroids. pp. 515–588 figs 118–127 in Parr, A.E. (ed.) *Fishes of the western North Atlantic*. *Mem. Sears Fndn Mar. Res.* **1**(2): 1–599
- Didier, D.A. (1995). Phylogenetic systematics of extant chimaeroid fishes (Holocephali, Chimaeroidei). *Am. Mus. Novit.* **3119**: 1–86
- Eschmeyer, W.N. (1998). *Catalog of Fishes*. San Francisco : California Academy of Sciences 3 vols 2905 pp.

Fowler, H.W. (1941). Contributions to the biology of the Philippine Archipelago and adjacent regions. The fishes of the groups Elasmobranchii, Holocephali, Isospondyli and Ostariophysi obtained by the United States Bureau of Fisheries Steamer *Albatross* in 1907 to 1910, chiefly in the Philippine Islands and adjacent seas. *Bull. U.S. Natl. Mus.* **100**(13): 1–879 figs 1–30

***Callorhynchus*** Lacépède, 1798

***Callorhynchus*** Lacépède, B.G. (1798). *Histoire Naturelle des Poissons*. Paris : chez Plassan Vol. 1 532 pp. 25 pls [400] [Whitley's recognition of *Callorhynchus* Meuschen, 1781 as the first valid use of the name (Gronow's work being invalid due to lack of binominal nomenclature) is unacceptable; Meuschen's 1781 Index rejected by International Commission on Zoological Nomenclature (1954). *Opinions and declarations rendered by the International Commission on Zoological Nomenclature*. Opinion 261. London : International Trust for Zoological Nomenclature Vol. 5 Pt 22 pp. 281–296 1 facsimile].  
Type species: *Chimaera callorhynchus* Linnaeus, 1758 by monotypy.

Extralimital distribution: circumglobal.

***Callorhynchus milii*** (Bory de Saint-Vincent, 1823)

**Elephantfish**, Elephant Fish, Elephant Shark, Ghost Shark, Ghostshark, Plownose Chimaera, Reperepe, Silver Fish, White Fillets, White Fish, Whitefish, White-fish

CAAB: 37043001

***Callorhynchus milii*** Bory de Saint-Vincent, J.B.G.M. (1823). *Dictionnaire Classique d'Histoire Naturelle*. Paris : Rey et Gravier Vol. 3 592 pp. [62, pl. 113(1)] [articles on fishes] [as *Callorhynchus milii*].  
Type data: type status and whereabouts unknown\*.  
Type locality: Western Australia (as Côtes occidentales de la Nouvelle-Hollande) = ?Bruny Island, TAS, see Whitley, G.P. (1968). A check-list of the fishes recorded from the New Zealand region. *Aust. Zool.* **15**(1): 1–102 figs 1–2 [13].

***Callorhynchus tasmanius*** Richardson, J. (1840). On some new species of fishes from Australia. *Proc. Zool. Soc. Lond.* **8**: 25–30 [29].  
Type data: syntypes BMNH 1953.8.10.22\*.

Type locality: Port Arthur, TAS and Murder's Bay, New Zealand, see Whitley, G.P. (1968). A check-list of the fishes recorded from the New Zealand region. *Aust. Zool.* **15**(1): 1–102 figs 1–2 [13].

***Callorhynchus australis*** Owen, R. (1852). *Descriptive Catalogue of the Fossil Organic Remains of Reptilia and Pisces* contained in the Museum of the Royal College of Surgeons of England. London 184 pp. [51] [not seen].  
Type data: type status and whereabouts unknown\*.  
Type locality: TAS, see Whitley, G.P. (1939). Studies in Ichthyology No. 12. *Rec. Aust. Mus.* **20**(4): 264–277 figs 1–3 [267].

Taxonomic decision for synonymy: Whitley, G.P. (1939). Studies in Ichthyology No. 12. *Rec. Aust. Mus.* **20**(4): 264–277 figs 1–3 [267].

Distribution: NSW (Lower E coast), SA (Bass Strait, Great Australian Bight, S Gulfs coast), TAS (Bass Strait, Tas. coast), VIC (Bass Strait), WA (Great Australian Bight); Port Stephens, NSW (32°42'S) to Esperance, WA; temperate, SW Pacific (New Zealand).

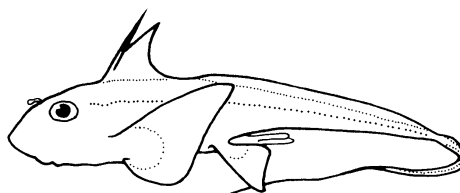
Ecology: benthic, continental shelf, inshore; to 200 m.  
References: McCulloch, A.R. (1930) [32]; Munro, I.S.R. (1961) [20] (147); Whitley, G.P. (1964) [34] (167); Coleman, N. (1980). *Australian Sea Fishes South of 30°S*. Lane Cove, N.S.W. : Doubleday Australia Pty Ltd 309 pp. [36]; Kuitert, R.H. (1993). *Coastal Fishes of South-eastern Australia*. Crawford House Press : Bathurst 437 pp. figs [24]; Last, P.R. & Stevens, J.D. (1994). *Sharks and Rays of Australia*. Canberra : CSIRO Australia 513 pp. 84 pls figs [465]; Glover, C.J.M. (1994). Families Chimaeridae, Callorhynchidae, Rhinochimaeridae. pp. 185–193 figs 164–192 in Gomon, M.F., Glover, C.J.M. & Kuitert, R.H. (eds) *The Fishes of Australia's South Coast*. Adelaide : State Print 992 pp. 810 figs [190].

# CHIMAERIDAE

## Ghost Sharks, Ratfishes, Shortnose Chimaeras

(CAAB: 37042000)

**John R. Paxton, Jennifer E. Gates, Dianne J. Bray & Douglass F. Hoese**



Chimaeridae

[Ros Poole]

## INTRODUCTION

Commonly known as ghost sharks, shortnose chimaeras and ratfishes, members of the Chimaeridae have not been reviewed since Bigelow & Schroeder (1953) studied the North Atlantic species. Didier (1995) treated relationships of the family. However, generic concepts require further study.

About 20 benthic species in two genera are currently recognised from the shelf and slope waters of all oceans. Last & Stevens (1994) described and illustrated the three Australian species from the two known genera. However, at least seven unidentified species, including two species of the genus *Chimaera* and some that are new, have been collected in Australian waters and may take the Australian fauna to at least nine species.

Ghost sharks have a short, rounded snout and a long tapering tail. The dorsal spine is associated with a venom gland. Males have a small clasper on the forehead, in addition to the intromittent organ associated with the ventral fins. Recorded food items include both invertebrates and fishes. The maximum size exceeds 1 m if the caudal filament is included.

G. Hardy provided unpublished information and kindly reviewed this family account.

J.R.P., J.E.G. & D.F.H.

## References

- Bigelow, H.B. & Schroeder, W.C. (1953). Chimaeroids. pp. 515–588 figs 118–127 in Parr, A.E. (ed.) *Fishes of the western North Atlantic. Mem. Sears Fndn Mar. Res.* **1**(2): 1–599
- Didier, D.A. (1995). Phylogenetic systematics of extant chimaeroid fishes (Holocephali, Chimaeroidei). *Am. Mus. Novit.* **3119**: 1–86
- Last, P.R. & Stevens, J.D. (1994). *Sharks and Rays of Australia*. Canberra : CSIRO Australia 513 pp. 84 pls figs

**Chimaera** Linnaeus, 1758

**Chimaera** Linnaeus, C. (1758). *Systema Naturae*. Holmiae : Salvii 10th Edn 824 pp. [236].

Type species: *Chimaera monstrosa* Linnaeus, 1758 by Linnaean tautonymy.

Extralimital distribution: circumglobal.

**Chimaera lignaria** Didier, 2002

**Giant Chimaera**

CAAB: 37042008

**Chimaera lignaria** Didier, D.A. (2002). Two new species of chimaeroid fishes from the southwestern Pacific Ocean (Holocephali, Chimaeridae). *Ichthyol. Res.* **49**(4): 299–306 [300, figs 2–4].

Type data: holotype NMNZ P.20349\*, paratypes CSIRO H.603-01\*, CSIRO H.2300-01\*, CSIRO H.2882-01\*, NMNZ P.7222\*, NMNZ P.12119\*, NMNZ P.15774\*, NMNZ P.16047\*, NMNZ P.16213\*, NMNZ P.20139\*, NMNZ P.24451\*, NMNZ P.26252\*, NMNZ P.30750\*.

Type locality: Chatham Rise [44°21.3–21.7'S, 175°37.7–40.7'E].

Distribution: TAS (S oceanic, SE oceanic); off TAS; temperate, south-west Pacific (New Zealand).

Ecology: continental slope; 458–1081 m.

Reference: Last, P.R. & Stevens, J.D. (1994). *Sharks and Rays of Australia*. Canberra : CSIRO Australia 513 pp. 84 pls figs [473] (as *Chimaera* sp. D).

**Hydrolagus** Gill, 1862

**Hydrolagus** Gill, T.N. (1862). Notes on some genera of fishes of western North America. *Proc. Acad. Nat. Sci. Philad.* **14**(7): 329–333 [331].

Type species: *Chimaera colliciei* Lay & Bennett, 1839 by original designation.

Extralimital distribution: circumglobal.

Generic references: Last, P.R. & Stevens, J.D. (1994). *Sharks and Rays of Australia*. Canberra : CSIRO Australia 513 pp. 84 pls figs; Glover, C.J.M. (1994). Families Chimaeridae, Callorhynchidae, Rhinochimaeridae. pp. 185–193 figs 164–192 in Gomon, M.F., Glover, C.J.M. & Kuiter, R.H. (eds) *The Fishes of Australia's South Coast*. Adelaide : State Print 992 pp. 810 figs.

**Hydrolagus lemures** (Whitley, 1939)

**Blackfin Ghostshark**, Bight Ghostshark, Blackfin Ghost Shark, Ghost Shark, Ratfish, Spookfish

CAAB: 37042003

**Phasmichthys lemures** Whitley, G.P. (1939). Taxonomic notes on sharks and rays. *Aust. Zool.* **9**(3): 227–262 figs 1–18 pls 20–22 [261, pl. 22(2)].

Type data: holotype AM E.3591, paratype(s) AM E.3590.

Type locality: Great Australian Bight off Eucla, WA.

Distribution: Australia, NSW (SE oceanic), NT (N coast), QLD (NE oceanic, SE oceanic), SA (S oceanic), VIC (S oceanic, SE oceanic), WA (S oceanic); known only from limital area, off Cairns, QLD to off Exmouth, WA and off Darwin, NT, absent from Bass Strait; tropical, temperate.

Ecology: benthic, continental slope, continental shelf; 200–510 m.

References: Munro, I.S.R. (1961) [20] (146); Whitley, G.P. (1964) [34] (166); Allen, G.R. (1997). *Marine Fishes of Tropical Australia and South-east Asia*. Perth : Western Australian Museum 292 pp. 106 pls [48]; Compagno, L.J.V. (1999). Chimaeras. pp. 1532–1537 in Carpenter, K.E. & Niem, V.H. (eds) *The Living Marine Resources of the Western Central Pacific*. *FAO Species Identification Guide for Fisheries Purposes*. Rome : FAO Vol. 3 pp. 1397–2068 [1537].

**Hydrolagus ogilbyi** (Waite, 1898)

**Ogilby's Ghostshark**, Ghost Shark, Ghostshark, Ogilby's Ghost Shark, Ogilbys Ghostshark, Ogilbys Spookfish, Ratfish, Spookfish, Waite's Ghost Shark, Whitefish

CAAB: 37042001

**Chimaera ogilbyi** Waite, E.R. (1898). *Report upon Trawling Operations off the Coast of New South Wales between the Manning River and Jervis Bay, carried on by H.M.C.S. Thetis*. Scientific report on the fishes. pp. 17–45 pls 1–12 [41, pl. 11].

Type data: syntypes AM I.3732, AM I.3734, AM I.3736–7 two specimens.

Type locality: off Sydney, NSW.

**Hydrolagus (Psychichthys) waitei** Fowler, H.W. (1908). A collection of fishes from Victoria, Australia. *Proc. Acad. Nat. Sci. Philad.* **59**(3): 419–444 figs 1–10 [419, fig. 1] [dated 1907; known only from the badly damaged holotype; placement in synonymy therefore uncertain].

Type data: holotype ANSP 33119\*.

Type locality: VIC.

Taxonomic decision for synonymy: Paxton, J.R., Hoese, D.F., Allen, G.R. & Hanley, J.E. (1989). *Zoological Catalogue of Australia. Pisces: Petromyzontidae to Carangidae*. Canberra : Australian Government Publishing Service Vol. 7 665 pp. [97].

Distribution: NSW (Central E coast, Lower E coast, SE oceanic), SA (S Gulfs, S oceanic), VIC (S oceanic, SE oceanic); known only from limital area, off Coffs Harbour, NSW to Beachport, SA; temperate.

Ecology: benthic, continental shelf, continental slope; 120–350 m.

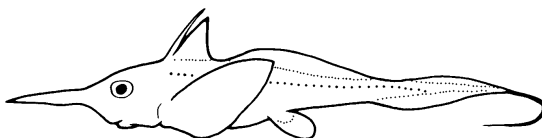
References: McCulloch, A.R. (1930) [32] (as *Chimaera ogilbyi*, *C. waitei*); Munro, I.S.R. (1961) [20] (144 and 145, as *H. waitei*); Whitley, G.P. (1964) [34] (164, 165).

# RHINCHIMAERIDAE

Longnose Chimaeras, Long-nosed Ghost Sharks, Spookfishes

(CAAB: 37044000)

Douglass F. Hoese, Jennifer E. Gates & Dianne J. Bray



Rhinochimaeridae [Ros Poole]

## INTRODUCTION

Three genera and about six species are currently recognised in the Rhinochimaeridae. One genus is restricted to the Atlantic, the other two are found in the Atlantic and Pacific. Four species from two genera are recorded from Australian waters (Last & Stevens 1994).

Longnose chimaeras live over the continental slope in depths of 200-2600 m. They are ovoviparous and reach a maximum size of about 1.5 m (excluding the caudal filament). Little is known of their habits.

The various species of longnose chimaeras have been studied by Bigelow & Schroeder (1953), Bullis & Carpenter (1966), Garrick (1971), Karrer (1972), Garrick & Inada (1975) and Inada & Garrick (1979). Didier (1995) treated relationships of the family, and Compagno *et al.* (1990) discussed *Rhinochimaera*.

D.F.H. & J.E.G.

## References

- Bigelow, H.B. & Schroeder, W.C. (1953). Chimaeroids. pp. 515–588 figs 118–127 in Parr, A.E. (ed.) *Fishes of the western North Atlantic. Mem. Sears Fndn Mar. Res.* **1**(2): 1–599
- Bullis, H.R. & Carpenter, J.S. (1966). *Neoharriotta carri* — a new species of Rhinochimaeridae from the southern Caribbean Sea. *Copeia* **1966**(3): 443–450 figs 1–5
- Compagno, L.J.V., Stehmann, M. & Ebert, D.A. (1990). *Rhinochimaera africana* sp. n., a new longnosed chimaera from southern Africa, with comments on the systematics and distribution of the genus *Rhinochimaera* Garman, 1901 (Chondrichthyes, Chimaeriformes, Rhinochimaeridae). *S. Afr. J. Mar. Res.* **9**: 201–222
- Didier, D.A. (1995). Phylogenetic systematics of extant chimaeroid fishes (Holocephali, Chimaeroidei). *Am. Mus. Novit.* **3119**: 1–86
- Garrick, J.A.F. (1971). *Harriotta raleighana*, a long-nosed chimaera (family Rhinochimaeridae), in New Zealand waters. *J. R. Soc. N.Z.* **1**(3/4): 203–213 fig. 1
- Garrick, J.A.F. & Inada, T. (1975). Dimensions of long-nosed chimaera *Harriotta raleighana* from New Zealand. *N.Z. J. Mar. Freshwat. Res.* **9**(2): 159–167

Inada, T. & Garrick, J.A.F. (1979). *Rhinochimaera pacifica*, a long-snouted chimaera (Rhinochimaeridae), in New Zealand waters. *Jpn. J. Ichthyol.* **25**(4): 235–243 figs 1–2

Karrer, C. (1972). Die Gattung *Harriotta* Goode und Bean, 1895 (Chondrichthys, Chimaeriformes, Rhinochimaeridae). *Mitt. Zool. Mus. Berl.* **48**(1): 203–221 figs 1–5

Last, P.R. & Stevens, J.D. (1994). *Sharks and Rays of Australia*. Canberra : CSIRO Australia  
513 pp. 84 pls figs

### *Harriotta* Goode & Bean, 1886

**Harriotta** Goode, G.B. & Bean, T.H. in Goode, G.B. (1886). The beginnings of natural history in America. *Proc. Biol. Soc. Wash.* **3**: 35–105 [104] [in footnotes as ‘a long-rostrated chimaeroid fish’].

Type species: *Harriotta raleighana* Goode & Bean, 1895 by subsequent monotypy, see Goode, G.B. & Bean, T.H. (1895). Scientific results of explorations by the U.S. Fish Commission Steamer *Albatross*. No. 30. On *Harriotta*, a new type of chimaeroid fish from the deeper waters of the northwestern Atlantic. *Proc. U.S. Natl. Mus.* **17**(1014): 471–473 pl. 19 [471] (dated 1894).

Extralimital distribution: circumglobal.

Generic reference: Last, P.R. & Stevens, J.D. (1994). *Sharks and Rays of Australia*. Canberra : CSIRO Australia 513 pp. 84 pls figs.

### *Harriotta haeckeli* Karrer, 1972

#### Smallspine Spookfish

CAAB: 37044003

**Harriotta haeckeli** Karrer, C. (1972). Die Gattung *Harriotta* Goode und Bean, 1895 (Chondrichthys, Chimaeriformes, Rhinochimaeridae). *Mitt. Zool. Mus. Berl.* **48**(1): 203–221 figs 1–5 [210, fig. 3].

Type data: holotype ZMB 22591\*, paratypes ZMB 22592\*, ZMUB 3256\*.

Type locality: North Atlantic [63°21'N, 57°00'W].

Distribution: TAS (SE oceanic); off St Helens, TAS; temperate, discontinuous (north-east Atlantic, central Indian Ocean).

Ecology: bathyal, continental slope; 1400–1700 m.

### *Harriotta raleighana* Goode & Bean, 1895

**Bigspine Spookfish**, Longnose Chimaera, Long-nosed Chimaera, Narrownose Chimaera, Ratfish, Spookfish

CAAB: 37044001

**Harriotta raleighana** Goode, G.B. & Bean, T.H. (1895). Scientific results of explorations by the U.S. Fish Commission Steamer *Albatross*. No. 30. On *Harriotta*, a new type of chimaeroid fish from the deeper waters of the northwestern Atlantic. *Proc. U.S. Natl. Mus.* **17**(1014): 471–473 pl. 19 [472, pl. 19] [dated 1894].

Type data: lectotype USNM 35520\*, paralectotypes USNM 38200\*, USNM 39415\*, USNM 35631\*.

Subsequent designation: Jordan, D.S. & Evermann, B.W. (1900). The fishes of North and middle America: a descriptive catalogue of the species of fish-like vertebrates

found in the waters of North America, north of the Isthmus of Panama. *Bull. U.S. Natl. Mus.* **47**(1–4): 1–3313 392 pls [3234] (on figure caption).

Type locality: north-west Atlantic, USA.

Distribution: NSW (SE oceanic), SA (S oceanic), TAS (S oceanic, SE oceanic), VIC (S oceanic, SE oceanic), WA (S oceanic, W oceanic); Broken Bay, NSW to North West Cape, WA; temperate, discontinuous (western North Atlantic, east Atlantic, North Pacific, west Indian Ocean and New Zealand).

Ecology: continental slope; 550–2600 m.

References: Garrick, J.A.F. (1971). *Harriotta raleighana*, a long-nosed chimaera (family Rhinochimaeridae), in New Zealand waters. *J. R. Soc. N.Z.* **1**(3/4): 203–213 fig. 1; Last, P.R., Scott, E.O.G. & Talbot, F.H. (1983). *Fishes of Tasmania*. Hobart : Tasmanian Fisheries Development Authority 563 pp. figs; Glover, C.J.M. (1994). Families Chimaeridae, Callorhynchidae, Rhinochimaeridae. pp. 185–193 figs 164–192 in Gomon, M.F., Glover, C.J.M. & Kuitert, R.H. (eds) *The Fishes of Australia's South Coast*. Adelaide : State Print 992 pp. 810 figs [191].

### *Rhinochimaera* Garman, 1901

**Rhinochimaera** Garman, S. (1901). Genera and families of the chimaeroids. *Proc. New Engl. Zool. Club* **2**: 75–77 [75].

Type species: *Harriotta pacifica* Mitsukuri, 1895 by original designation.

Extralimital distribution: circumglobal.

### *Rhinochimaera africana* Compagno, Stehmann & Ebert, 1990

#### Paddlenose Spookfish

CAAB: 37044004

**Rhinochimaera africana** Compagno, L.J.V., Stehmann, M. & Ebert, D.A. (1990). *Rhinochimaera africana* sp. n., a new longnosed chimaera from southern Africa, with comments on the systematics and distribution of the genus *Rhinochimaera* Garman, 1901 (Chondrichthyes, Chimaeriformes, Rhinochimaeridae). *S. Afr. J. Mar. Res.* **9**: 201–222 [206, figs 2–5]. Type data: holotype SAIAB 27744\*, paratypes ISH 1/90\* (ex ZMMU P14393), SAM 23123\*, ZIL 48699\*, ZMM P14392\*.

Type locality: Western Cape, west of Doring Bay, South Africa [31°59.8'S, 15°56.2'E].

Distribution: TAS (SE oceanic); seamounts south of Tas; temperate, Indo-west Pacific.

Ecology: benthic, continental slope.

***Rhinochimaera pacifica*** (Mitsukuri, 1895)

**Pacific Spookfish**, Narrownose Chimaera, Pacific Long-nosed Chimaera, Pinocchiofish, Ratfish

CAAB: 37044002

***Harriotta pacifica*** Mitsukuri, K. (1895). On a new genus of the chimaeroid group *Harriotta*. *Zool. Mag. (Tokyo)* 7(80): 97–98 fig. 16 [97, pl. 16].

Type data: holotype ZIUT 1453\* (probably lost).

Type locality: Kurihama, near Misaki, Sagami Sea, Japan (via Tokyo fishmarket).

Distribution: TAS (SE oceanic); temperate, discontinuous (Japan, New Zealand, Peru, North Atlantic and eastern South Atlantic).

Ecology: continental slope; 732–1000 m.

References: Inada, T. & Garrick, J.A.F. (1979). *Rhinochimaera pacifica*, a long-snouted chimaera (Rhinochimaeridae), in New Zealand waters. *Jpn. J. Ichthyol.* 25(4): 235–243 figs 1–2; Last, P.R. & Stevens, J.D. (1994). *Sharks and Rays of Australia*. Canberra : CSIRO Australia 513 pp. 84 pls figs [482]; Glover, C.J.M. (1994). Families Chimaeridae, Callorhynchidae, Rhinochimaeridae. pp. 185–193 figs 164–192 in Gomon, M.F., Glover, C.J.M. & Kuitert, R.H. (eds) *The Fishes of Australia's South Coast*. Adelaide : State Print 992 pp. 810 figs [192].