

# Deepwater shark and skate identification guide



for commercial fishers in southern Australia



Australian Government

Australian Fisheries Management Authority

# Acknowledgements

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# Contents

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1	Introduction .....	5
2	Shark terminology .....	6
3	Skate terminology.....	7
4	Shark identification key .....	8
5	Harrisons dogfish.....	10
6	Southern dogfish .....	11
7	Endeavour dogfish .....	12
8	Brier shark .....	13
9	Longsnout dogfish .....	14
10	Mandarin shark.....	15
11	Greeneye dogfish .....	16
12	Piked dogfish .....	17
13	Whitespotted dogfish.....	18
14	Prickly dogfish .....	19
15	Prickly shark .....	20
16	Bramble shark .....	21
17	Bareskin dogfish .....	22
18	Southern lanternshark.....	23
19	Slender lanternshark .....	24
20	Short-tail lanternshark .....	25
21	Pink lanternshark.....	26
22	Lined lanternshark.....	27
23	Blackmouth lanternshark.....	28
24	Pigmy lanternshark.....	29

25	Blackbelly lanternshark .....	30
26	Mollers lanternshark .....	31
27	Smooth lanternshark .....	32
28	Bristled lanternshark.....	33
29	Black shark .....	34
30	Portuguese dogfish .....	35
31	Golden dogfish .....	36
32	Owstons dogfish .....	37
33	Plunkets dogfish .....	38
34	Sharpnose sevengill .....	39
35	Whitefin swellshark.....	40
36	Australian sawtail catshark.....	41
37	Sydney skate .....	42
38	Grey skate .....	43
39	Bight skate .....	44
40	Deepwater skate .....	45
41	Longnose skate .....	46
42	Whitespotted skate.....	47
43	Melbourne skate .....	48

# 1 Introduction

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This identification guide has been developed to assist Australian commercial fishers to accurately identify deepwater sharks and skates that are encountered during fishing operations.

The shark and skate species detailed within this guide are caught primarily in the Southern and Eastern Scalefish and Shark Fishery (SESSF) using trawl, longline and dropline methods. In addition, a number of these species are also caught in the Great Australian Bight (GAB) Trawl Fishery.

Some species contained within this guide cannot be landed by commercial fishers and must be returned to the water upon capture. Commonwealth operators should ensure they are familiar with the no-take species and handling practices detailed in their fishing concession conditions.

At the time of printing, fishers are not required to report the capture of threatened deepwater shark species on a Listed Marine and Protected Species Form, although all deepwater sharks and skates caught must be reported in daily fishing logbooks.

It is important that fishers report captures of deepwater sharks and skates accurately, as good quality data and information from commercial fishers is fundamental to ensuring that our fisheries remain sustainable.

**For further information contact AFMA on: 1300 723 621.**

## 2 Shark terminology

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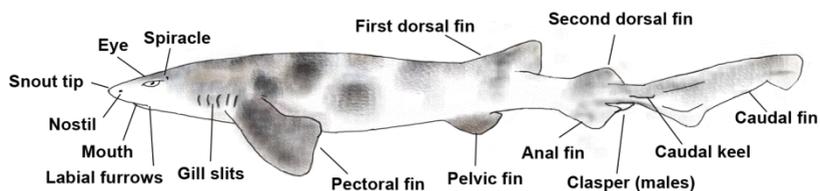


Fig. 1.1 structural features of sharks

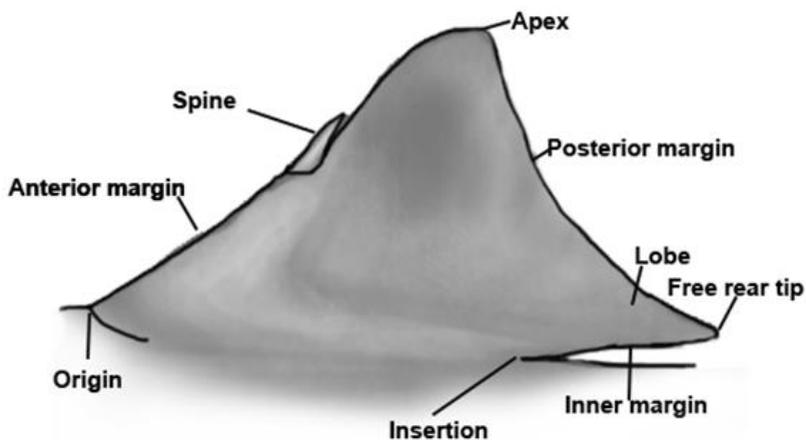


Fig. 1.2 dorsal fin features of sharks

### 3 Skate terminology

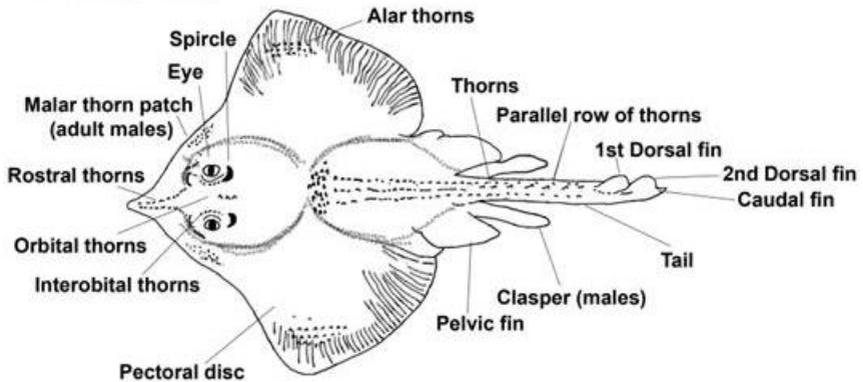


Fig. 2.1 structural features of skates, dorsal view

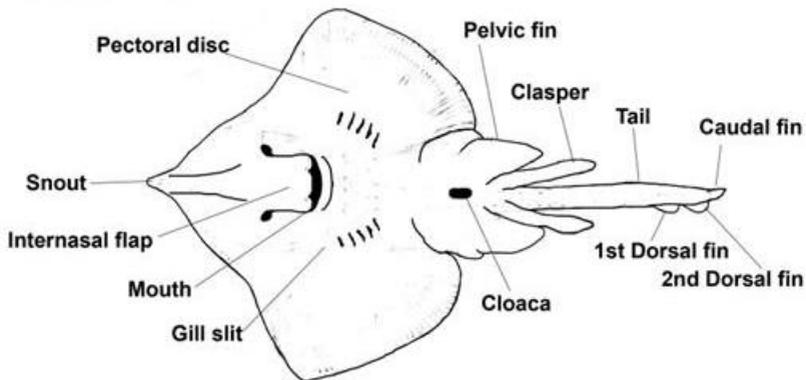


Fig. 2.2 structural features of skates, ventral view

## 4 Shark identification key

No.	Description	Image
1.	A single dorsal fin and seven gill openings <b>(go to number 11)</b>	
2.	Two dorsal fins with anal fins absent <b>(go to numbers 4-10)</b>	
3.	Two dorsal fins with anal fins present <b>(go to numbers 12-13)</b>	
4.	Upper teeth are mostly blade-like whereas the lower teeth are usually broader; spines on the dorsal fins are usually present <b>(gulper sharks)</b> <b>Pages 10-14</b>	
5.	Teeth in both jaws are similar in shape to each other; caudal fin without a sub-terminal notch; upper pre-caudal pit present <b>(dogfishes)</b> <b>Pages 15-18</b>	
6.	Very deep body with tall dorsal fins; head length equal to or less than the height of the first dorsal fin <b>(prickly dogfishes)</b> <b>Page 19</b>	

No.	Description	Image
7	First dorsal fin originating above the base of the pelvic fins and both dorsal fins located near the caudal fin <b>(bramble sharks)</b> <b>Pages 20-21</b>	
8	Underneath and sides of body and caudal fin usually with dark markings <b>(lantern sharks)</b> <b>Pages 22-33</b>	
9	Narrow head, round or cone-like; no spine on the second dorsal fin <b>(kitefin sharks)</b> <b>Page 34</b>	
10	Broad head appearing flattened or blunt nosed when observed from the side. Short spine on the second dorsal fin often partly covered with skin <b>(sleeper sharks)</b> <b>Pages 35-38</b>	
11	Narrow and pointed head with large eyes, plain body colour and no bigger than 1.4 m <b>(sharpnose sevengill)</b> <b>Page 39</b>	
12	Start of the first dorsal fin origin well behind the start of the pelvic fin <b>(whitefin swell shark)</b> <b>Page 40</b>	
13	Second dorsal fin larger than first dorsal fin <b>(Australian sawtail catshark)</b> <b>Page 41</b>	

## 5 Harrison's dogfish

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SCIENTIFIC NAME: *Centrophorus harrissoni*

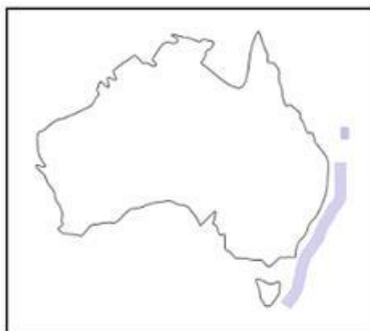
FAO CODE: CEU

MAXIMUM SIZE: Born at about 35cm and reaches 114cm.

COLOURATION: Upper body light-greyish or brownish; pale underside, each dorsal-fin with a dark blotch at the base.

### DISTINCTIVE FEATURES

1. Eyes moderately large.
2. First dorsal fin origin well behind pectoral fin insertion.
3. Prominent spines extending from first and second dorsal fin.
4. First dorsal fin relatively short and high (height 1.8 to 2.1 times the length measured from the exposed spine origin to the rear tip).
5. No inter-dorsal ridge.
6. Second dorsal fin about two-thirds to three-quarters height of first dorsal fin.
7. Trailing edge of tail with notch.



### DISTRIBUTION

Eastern Australia, mainly demersal on continental and insular slopes in depth of 220 to 680m, but recorded from New Zealand in 1050m.

## 6 Southern dogfish

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SCIENTIFIC NAME: *Centrophorus zeehaani*

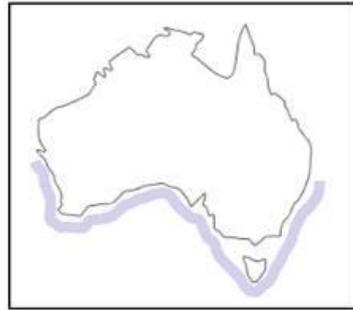
FAO CODE: CEM

MAXIMUM SIZE: Born at about 45cm and reaches at least 103cm.

COLOURATION: Upper body light brown in adults, grey in juveniles; pale underside, tips and trailing edges of dorsal fins can be dark, less so in adults.

### DISTINCTIVE FEATURES

1. Small white spot in the middle of the upper surface of the snout.
2. Pectoral fin rear tips moderately elongated, reaching beyond level of the first dorsal spine.
3. Prominent short and robust spines extending from first and second dorsal fin origins.
4. Second dorsal fin about two-thirds to three-quarters height of first dorsal fin.
5. No inter-dorsal ridge.
6. Pre-caudal pit present.
7. Trailing edge of tail with notch.



### DISTRIBUTION

From Shark Bay (Western Australia) to Forster (New South Wales), including Tasmania. Demersal on the upper continental slope in depths of 200 to 700m; often deeper than 400m.

## 7 Endeavour dogfish

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SCIENTIFIC NAME: *Centrophorus moluccensis*

CAAB CODE: 37 020011

MAXIMUM SIZE: Born at about 33cm and reaches 100cm.

COLOURATION: Upper body light-greyish or brownish; pale underside, tail mostly greyish with a pale trailing edge.

### DISTINCTIVE FEATURES

1. Eyes relatively large.
2. Pectoral fin rear tips elongated, reaching beyond level of the first dorsal spine.
3. Prominent short and robust spines extending from first and second dorsal fin origins.
4. First dorsal fin relatively short and high (height 1.6 to 2.1 time the length measured from the exposed spine origin to the rear tip).
5. No inter-dorsal ridge.
6. Trailing edge of tail with notch.



### DISTRIBUTION

From Albany to the Kimberley (Western Australia) and Lakes Entrance (Victoria) to Ingham (Queensland). Demersal on outer continental and insular shelves and upper slopes at 120 to 820m, most abundant in 300 to 500m.

## 8 Brier shark

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SCIENTIFIC NAME: *Deania calcea*

FAO CODE: DCA

MAXIMUM SIZE: Born at about 30cm and reaches 122cm.

COLOURATION: Adults vary from uniform light or dark grey to dark brown. Juveniles have darker patches above the eye and gill regions.

### DISTINCTIVE FEATURES

1. Snout extremely long and flattened.
2. Eye large, its diameter is 4.1 to 6.2 per cent of the total length (from snout to caudal fin tip).
3. First dorsal fin extremely long and low.
4. Second dorsal fin shorter and taller than first dorsal fin.
5. Dorsal fin spines grooved, second dorsal fin spine usually longer than first.

**To distinguish from longsnout dogfish compare dorsal fin characteristics.**



### DISTRIBUTION

From Coffs Harbour (New South Wales) to Green Head (Western Australia), including Tasmania. A deepwater demersal species of the continental and insular slopes and outer shelves from 70 to 1470m, most common between 600 to 1100m.

## 9 Longsnout dogfish



SCIENTIFIC NAME: *Deania quadrispinosa*

FAO CODE: SDQ

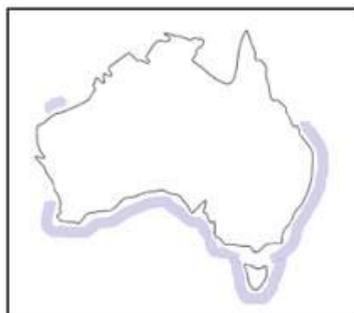
MAXIMUM SIZE: Born at about 24cm and reaches 118cm.

COLOURATION: Dorsal surfaces brownish, greyish or black, paler ventrally. Fins sometimes white edged.

### DISTINCTIVE FEATURES

1. Snout extremely long and flattened.
2. Eye large, diameter is 3.6 to 5.0 per cent of total length.
3. First dorsal fin relatively short and tall.
4. Second dorsal fin similar in size and shape and only slightly taller than first dorsal fin.
5. Dorsal fin spines grooved, second spine usually longer than first.

**To distinguish from brier shark compare dorsal fin characteristics.**

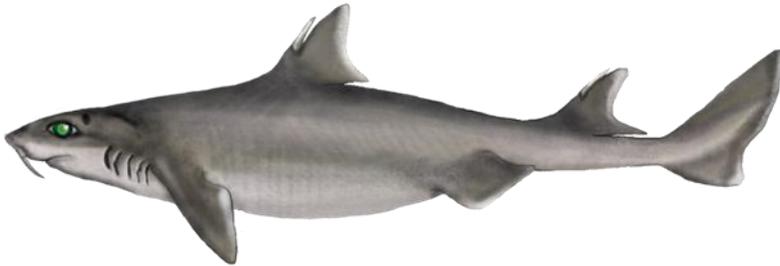


### DISTRIBUTION

Mainly southern Australia from Moreton Island (Queensland) to Perth (Western Australia), including Tasmania; also off Port Headland (Western Australia). Demersal on the outer continental shelf and upper slope in 150 to 1350m, mainly 400 to 800m.

# 10 Mandarin shark

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SCIENTIFIC NAME: *Cirrhitidae australis*

CAAB CODE: 37 020049

MAXIMUM SIZE: Reaches at least 123cm.

COLOURATION: Dorsal surfaces uniformly greyish, pale ventrally. Posterior fin margins and insertions of pectoral and pelvic fins, white.

## DISTINCTIVE FEATURES

1. Snout short and bluntly pointed.
2. Very long nasal barbels reaching to level of mouth.
3. Teeth similar in both jaws, blade-like.
4. Dorsal fins large, about equal in size with stout spines.
5. Sub-terminal notch absent on caudal fin.



## DISTRIBUTION

From Sydney (New South Wales) to eastern Tasmania. Demersal on the upper continental slope at depths of 350 to 650m.

# 11 Greeneye dogfish

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SCIENTIFIC NAME: *Squalus chloroculus*

CAAB CODE: 37 020048

MAXIMUM SIZE: Reaches about 99cm.

COLOURATION: Upper body greyish and a pale underside, caudal fin margin dusky, upper tip white.

## DISTINCTIVE FEATURES

1. Broadly pointed snout, direct length is less than orbital width.
2. Pectoral fin near tips reaching to be in-line with the origin of the first dorsal spine.
3. Slender-bodied shark.
4. Prominent slender spines extending from 1<sup>st</sup> and 2<sup>nd</sup> dorsal fin origins, first spine shorter than second.
5. No inter-dorsal ridge.
6. Caudal fin without sub-terminal notch.
7. Dark patch on caudal fin and centre of trailing edge.



## DISTRIBUTION

From Eucla (Western Australia) to Jervis Bay (New South Wales), including Tasmania. Demersal on upper to mid continental slope at 220 to 1350m.

## 12 Piked dogfish

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SCIENTIFIC NAME: *Squalus megalops* (alternative name: *Piked spurdog*)

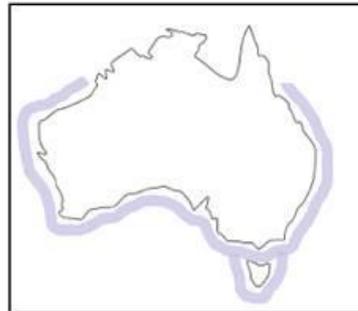
FAO CODE: DOP

MAXIMUM SIZE: Females reach 64cm, males reach 47cm.

COLOURATION: Upper body and fins light greyish brown to brownish (bronzey in life), paler ventrally.

### DISTINCTIVE FEATURES

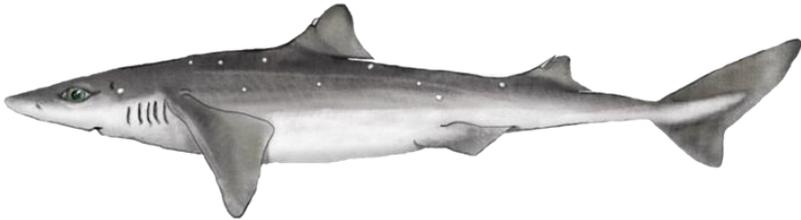
1. Pectoral fin deeply concave.
2. Raked first dorsal fin.
3. First dorsal fin spine originating over the pectoral fin inner-margin and lower than associated fin (much smaller than second dorsal spine).
4. Second dorsal fin spine slender and equal in height or taller than second dorsal fin.
5. Pre-caudal pit present.
6. Caudal fin relatively short and without sub-terminal notch.



### DISTRIBUTION

From North West Shelf (Western Australia) to south of Whitsunday Islands (Queensland), including Tasmania. Occurs mainly on the continental shelf, sometimes near shore, also on continental slope to at least 580m.

## 13 Whitespotted dogfish



SCIENTIFIC NAME: *Squalus acanthias*

FAO CODE: DGS

MAXIMUM SIZE: Reaches at least 100cm, born at about 22cm.

COLOURATION: Upper body bluish to grey with an irregular array of poorly defined white spots.

### DISTINCTIVE FEATURES

1. Eye diameter about half of snout length.
2. First dorsal fin raked slightly backward.
3. First dorsal fin spine less than half the height of the fin and much shorter than second dorsal fin spine.
4. Second dorsal fin and spine about equal in height.
5. Pre-caudal pit present.
6. Caudal fin relatively short and broad without sub-terminal notch.



### DISTRIBUTION

Common off Tasmania and Victoria, also recorded around the Great Australian Bight, usually inshore in bays and estuaries shallower than 30m. Found down to 650m in other areas globally.

# 14 Prickly dogfish

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SCIENTIFIC NAME: *Oxynotus bruniensis*

FAO CODE: OXB

MAXIMUM SIZE: Born at about 24cm and reaches at least 75cm.

COLOURATION: Uniform brownish or greyish, tips of dorsal, pectoral and pelvic fins white or translucent.

## DISTINCTIVE FEATURES

1. Snout short and blunt.
2. Body humped behind head, almost triangular in cross-section.
3. Abdominal ridge present between each pectoral and pelvic fin.
4. First dorsal fin with a large upright sail like portion behind the dorsal spine.
5. First dorsal spine inclined forward and partly concealed beneath skin.
6. Second dorsal fin upright and triangular smaller than first dorsal fin.
7. Second dorsal spin inclined backwards, spine barely protruding.

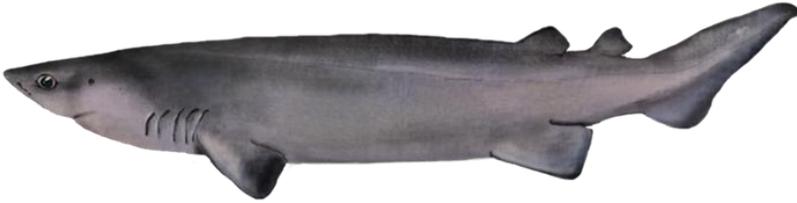


## DISTRIBUTION

From Crowdy Head (New South Wales) to about Esperance (Western Australia). Lives near the bottom on continental and insular shelves and slopes at depths of 50 to 1050m, most frequent in 350 to 650m.

# 15 Prickly shark

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SCIENTIFIC NAME: *Echinorhinus cookei*

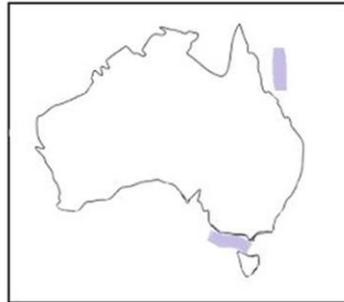
FAO CODE: ECK

MAXIMUM SIZE: Born at 40 to 45cm and reaches about 400cm.

COLOURATION: Greyish brown with black distal fin margins; white around mouth and on bottom surface of snout.

## DISTINCTIVE FEATURES

1. Snout short and blunt.
2. Thorn-like denticles regularly distributed and are not fused into compound plates.
3. Dorsal fins small, close together and situated towards the rear of the body, first dorsal fin originating behind the pelvic fin origin.
4. Caudal fin without sub-terminal notch.



## DISTRIBUTION

Widely distributed throughout the Pacific Ocean, it is known to occur in waters off Victoria and Queensland. Lives near the bottom on continental and insular shelves and slopes at depths to 1100m.

## 16 Bramble shark

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SCIENTIFIC NAME: *Echinorhinus brucus*

FAO CODE: SHB

MAXIMUM SIZE: Birth size unknown, likely between 30 to 90cm, reaches at least 260cm.

COLOURATION: Dorsal surfaces dark purplish grey to brown with whitish denticles, paler ventrally; dark spots may be present on the back and sides.

### DISTINCTIVE FEATURES

1. Snout relatively short.
2. Denticles very large, sparse, and irregularly distributed with some bases fused into plates.
3. Dorsal fins small, close together and situated towards the rear of the body.
4. Caudal fin without sub-terminal notch.



### DISTRIBUTION

Australian records from Victoria and the Great Australian Bight. On or near the bottom of continental and insular shelves and slopes mainly at depths of 400 to 900 m, occasionally taken shallower.

# 17 Bareskin dogfish

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SCIENTIFIC NAME: *Centroscyllium kamoharai*

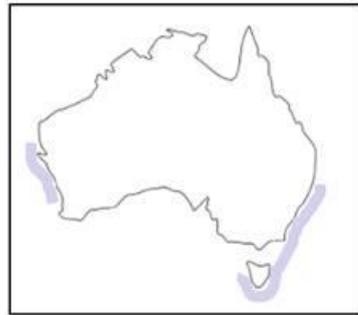
FAO CODE: CYK

MAXIMUM SIZE: Size at birth unknown, likely between 16 to 31cm and reaches at least 63cm.

COLOURATION: Uniformly black when undamaged, white where skin is chafed.

## DISTINCTIVE FEATURES

1. Mouth very short and broadly arched, teeth small.
2. First dorsal fin origin behind rear tip of the pectoral fin.
3. Second dorsal fin slightly larger than first dorsal fin; second dorsal spine considerably longer than first dorsal fin spine.
4. Skin and denticles are easily removed, mostly ragged (especially when trawl caught).

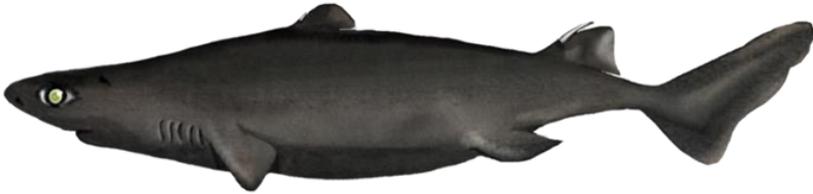


## DISTRIBUTION

From Port Macquarie (New South Wales) to southern Tasmania, and off Western Australia from North West Cape to Bunbury, possibly throughout the Great Australian Bight. Demersal on the continental slope from 730 to 1280m, but mostly deeper than 900m.

## 18 Southern lanternshark

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SCIENTIFIC NAME: *Etmopterus baxteri* (Synonymy: *E. granulosus*)

CAAB CODE: 37 020021

MAXIMUM SIZE: Born at 21 to 23cm and reaches 90cm.

COLOURATION: Uniform brownish to black, pale where denticles and skin have been removed, flank marking indistinct.

### DISTINCTIVE FEATURES

1. First dorsal fin origin mostly behind pectoral fin tip.
2. First dorsal fin long and low; spine short, broad and equal in height to fin.
3. Second dorsal fin origin over or slightly in advance of pelvic fin insertion.
4. Second dorsal fin similar height to first dorsal fin; fin spine robust and long, mostly curving over fin tip.
5. Pelvic flank marking usually indistinct.



### DISTRIBUTION

From southern New South Wales, Victoria and Tasmania including the southern seamounts in 220 to 1450m.

# 19 Slender lanternshark



SCIENTIFIC NAME: *Etmopterus bigelowi*

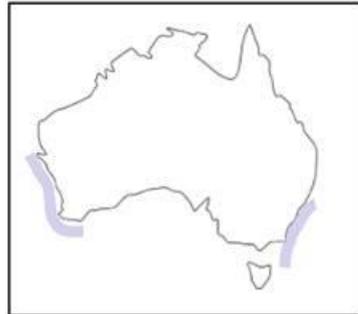
FAO CODE: ETB

MAXIMUM SIZE: Born at about 15cm and reaches at least 70cm.

COLOURATION: Pale greyish (juveniles darker); belly usually darker than upper surface, broad black tip on the upper lobe of the caudal fin.

## DISTINCTIVE FEATURES

1. Head relatively long, distance from snout tip to first gill slit greater than distance from first gill slit to dorsal fin origin.
2. Distance from pelvic fin insertion to lower lobe of caudal fin shorter than distance from snout tip to gill slits.
3. Second dorsal fin about twice the height of the first dorsal fin.
4. Second dorsal spine equal to or slightly longer than first dorsal spine.

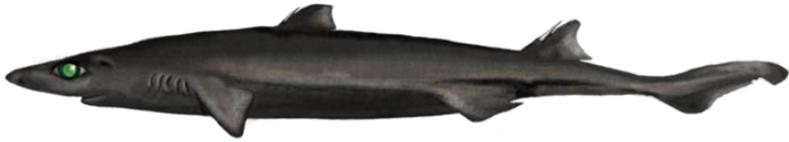


## DISTRIBUTION

From Sydney (New South Wales) to Maria Island (Tasmania) and North West Shelf to Bunbury (Western Australia) from 450 to 1450m, appears to live mid-water.

## 20 Short-tail lanternshark

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SCIENTIFIC NAME: *Etmopterus brachyurus*

FAO CODE: ETH

MAXIMUM SIZE: Born at about 15cm and reaches at least 50cm.

COLOURATION: Light brown dorsally with a purple sheen in life, distinct dark markings behind pelvic fin.

### DISTINCTIVE FEATURES

1. First dorsal fin origin slightly behind the rear tip of the pectoral fin.
2. First dorsal fin small and low with a short spine reaching about three-quarters of distance to fin tip.
3. Second dorsal about twice the size of the first dorsal.
4. Dark pelvic flank marking about twice the size of the caudal fin marking.



### DISTRIBUTION

From Lancelin to Shark Bay (Western Australia) and off Cairns (Queensland). Demersal on the upper continental slope in depths of 400 to 600m.

## 21 Pink lanternshark

---



SCIENTIFIC NAME: *Etmopterus dianthus*

CAAB CODE: 37 020029

MAXIMUM SIZE: Reaches at least 41cm.

COLOURATION: Light pinkish to brownish grey dorsally, dusky to black ventrally, distinct black markings behind pelvic fin.

### DISTINCTIVE FEATURES

1. First dorsal fin origin well behind the rear tip of the pectoral fin.
2. First dorsal fin spine relatively short reaching about half the distance to the fin tip.
3. Second dorsal fin origin over or slightly in-front of pelvic fin origin.
4. Second dorsal spine long almost reaching the tip of the second dorsal fin.
5. Pelvic flank and caudal fin markings.



### DISTRIBUTION

Little information on distribution, known to occur off Cairns (Queensland) near the bottom of the upper continental slope in 700 to 880m.

## 22 Lined lanternshark

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SCIENTIFIC NAME: *Etmopterus dislineatus*

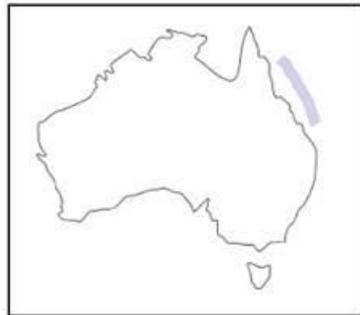
CAAB CODE: 37 020031

MAXIMUM SIZE: Reaches at least 45cm.

COLOURATION: Dorsal surfaces and flanks light silvery brown with a striking pattern of small black dashes and dots.

### DISTINCTIVE FEATURES

1. Body very elongated.
2. Denticles bristle like.
3. First dorsal fin small, low with a short spine reaching about three-quarters of the distance to the fin tip.
4. Second dorsal fin about twice the size of the first dorsal fin; fin spine long and reaching about three-quarters of distance to fin tip.
5. Longitudinal pattern of small black dots and dashes.



### DISTRIBUTION

Currently only known to occur between Cairns and Rockhampton (Queensland) on or near the bottom of the upper continental slope at 600 to 800m.

## 23 Blackmouth lanternshark

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SCIENTIFIC NAME: *Etmopterus evansi*

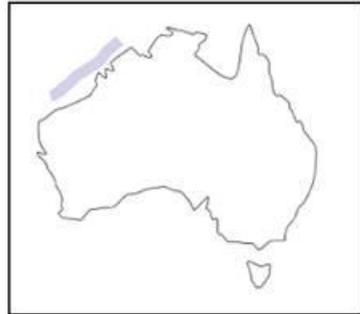
CAAB CODE: 37 020030

MAXIMUM SIZE: Reaches at least 32cm.

COLOURATION: Light brown dorsally and darker ventrally, dark borders around the mouth, eyes and sometimes gills. Distinct black markings at pelvic fin.

### DISTINCTIVE FEATURES

1. First dorsal fin small and low; spine short and slender reaching about three-quarters of distance to fin tip.
2. Second dorsal fin about twice the size of the first dorsal fin; spine long and slender tip curved towards caudal fin reaching level of fin tip or slightly above.
3. Pre-caudal marking elongated, four to five times longer than caudal fin marking.
4. Moderately elongated caudal peduncle.



### DISTRIBUTION

Known only from north of the Dampier Archipelago to Ashmore Reef (Western Australia) from the continental sloped in depths of 430 to 550m.

## 24 Pigmy lanternshark

---



SCIENTIFIC NAME: *Etmopterus fuscus*

CAAB CODE: 37 020028

MAXIMUM SIZE: Reaches at least 29cm.

COLOURATION: Dark greyish or black; flank and caudal marking faint but distinct.

### DISTINCTIVE FEATURES

1. First dorsal fin origin well forward of the rear tip of the pectoral fin. Denticles bristle like.
2. First dorsal fin small and low; spine short and less than half the height of the fin.
3. Second dorsal fin origin well behind insertion of pelvic fin.
4. Second dorsal fin more than twice the height of the first dorsal fin; spine long and greater in length than the fin.
5. Pelvic flank marking distinct.
6. Caudal fin marking short and occurring at the margin of the fin.



### DISTRIBUTION

Only known from seven specimens from Broome (Western Australia) from the continental slope in 430 to 550m.

## 25 Blackbelly lanternshark

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SCIENTIFIC NAME: *Etmopterus lucifer*

FAO CODE: ETF

MAXIMUM SIZE: Born at about 15cm and reaches 47cm.

COLOURATION: Light brown dorsally, merging from darker brown on flanks to blackish ventrally. Distinct black markings behind pelvic fin.

### DISTINCTIVE FEATURES

1. First dorsal fin origin about over or slightly behind tip of pectoral fin.
2. First dorsal fin small and low; spine short reaching about three-quarters of distance to fin tip.
3. Second dorsal fin origin over/behind insertion of pelvic fin.
4. Second dorsal fin about twice the size of the first dorsal fin; spine long nearly reaching fin tip and curved at the tip towards the caudal fin.



### DISTRIBUTION

Widespread around southern Australia from Perth (Western Australia), around Tasmania to Cairns (Queensland). On or near the bottom of the outer continental and insular shelves and upper slopes in 150 to 1350m, mainly between 400 and 900m.

## 26 Mollers lanternshark

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SCIENTIFIC NAME: *Etmopterus molleri*

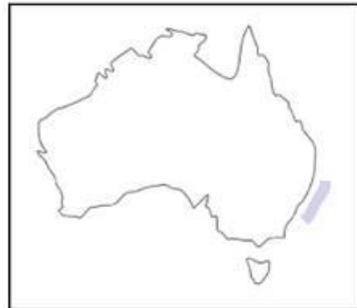
FAO CODE: ETL

MAXIMUM SIZE: Born at about 15cm and reaches 46cm.

COLOURATION: Light brown dorsally, merging from darker brown on flanks to blackish ventrally, usually with a pale strip.

### DISTINCTIVE FEATURES

1. First dorsal fin origin almost over the rear tip of the pectoral fin.
2. First dorsal fin small and low; spine short reaching about three-quarters of distance to fin tip.
3. Second dorsal fin origin slightly/well behind the pelvic fin insertion.
4. Second dorsal fin about twice the size of the first dorsal fin; spine long and the tip curved towards the caudal fin.
5. Pale stripe extending from pectoral fin insertions to pelvic fin origins.



### DISTRIBUTION

Off Sydney (New South Wales).  
Demersal on the upper continental slope in depths of 240 to 700m.

## 27 Smooth lanternshark

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SCIENTIFIC NAME: *Etmopterus pusillus*

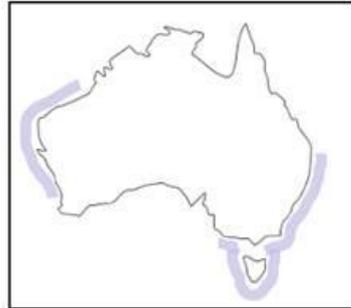
FAO CODE: ETB

MAXIMUM SIZE: Reaches at least 50cm.

COLOURATION: Pale brownish or chocolate brown, dorsal surface usually slightly paler than underside, fins mostly pale.

### DISTINCTIVE FEATURES

1. Head relatively short, distance from snout to first gill slit equal to or less than distance from first gill slit to first dorsal fin origin.
2. First dorsal fin origin behind pectoral fin tip by an eye diameter or more.
3. Second dorsal fin origin behind pelvic fin insertion.
4. Second dorsal fin almost twice the height of first dorsal fin.
5. Second dorsal spine greater than fin length.



### DISTRIBUTION

Northern New South Wales to western Victoria, including Tasmania and the Cascade Plateau, and from Bunbury to Rowley Shoals (Western Australia). Pelagic and demersal on continental and insular slopes at depths from 280 to 1100m.

## 28 Bristled lanternshark

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SCIENTIFIC NAME: *Etmopterus unicolour*

FAO CODE: ETJ

MAXIMUM SIZE: Born at about 17cm and reaches 79cm.

COLOURATION: Uniformly dark brown to brownish black; denticles not deciduous.

### DISTINCTIVE FEATURES

1. Snout short and broadly rounded.
2. Eyes large.
3. Denticles of adults not arranged in regular rows.
4. First dorsal fin origin well behind pectoral fin tip.
5. First dorsal fin long and low; fin spine very short, broad, about half the height of the fin.
6. Second dorsal fin origin mostly over posterior half of the pelvic fin.
7. Second dorsal fin about twice the height of the first dorsal fin; fin spine strong, extending about three-quarters of fin.



### DISTRIBUTION

From Crowdy Head (New South Wales) to Perth (Western Australia), including Tasmania and southern seamounts from 750 to 1500m.

## 29 Black shark

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SCIENTIFIC NAME: *Dalatias licha*

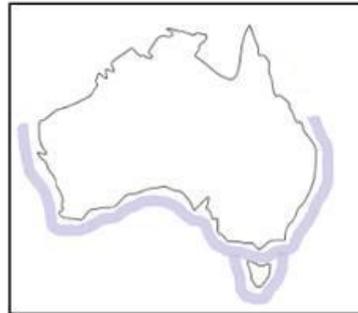
FAO CODE: SCK

MAXIMUM SIZE: Born at 30 to 40cm and reaches at least 160cm.

COLOURATION: Mostly uniformly black, sometimes light grey or brown, lips pale.

### DISTINCTIVE FEATURES

1. Snout short, its length is considerably less than distance from mouth to first gill slit.
2. Pectoral fins paddle shape, maximum width about half of their length.
3. First dorsal fin lobe-like, origin just behind the rear tips of pectoral fins.
4. Second dorsal fin slightly larger and more triangular in shape than first dorsal fin.



### DISTRIBUTION

From Swain Reefs (Queensland) to Port headland (Western Australia), including Tasmania and adjacent seamounts. Mainly demersal (sometimes pelagic) on the outer continental and insular shelves and slopes from 50 to 1800m, mainly 450 to 850m.

## 30 Portuguese dogfish

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SCIENTIFIC NAME: *Centroscymnus coelolepis*

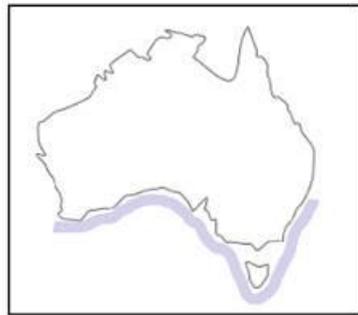
FAO CODE: CYO

MAXIMUM SIZE: Born at about 30cm and reaches 122cm.

COLOURATION: Uniformly golden brown to dark brown.

### DISTINCTIVE FEATURES

1. Upper teeth dagger like and lower teeth wider and blade like.
2. Denticles from above the gill slits are typically smooth, leaf-shaped and lack ridges.
3. First dorsal fin low and lobe-like.
4. Dorsal fin spines small and slender, only tips protruding through skin.



### DISTRIBUTION

From Cape Hawke (New South Wales) to Cape Leeuwin (Western Australia), including Tasmania. On or near the bottom of the continental slope and abyssal plain in depths from 270 to 3700m, more common from 770 to 1430m.

# 31 Golden dogfish

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SCIENTIFIC NAME: *Centroselachus crepidater*

CAAB CODE: 37 020012

MAXIMUM SIZE: Born at 30 to 35cm and reaches 105cm.

COLOURATION: Uniformly dark brown to black.

## DISTINCTIVE FEATURES

1. Upper teeth slender and dagger like, lower teeth are blade like.
2. Body slender.
3. Dorsal fins relatively large, about equal in size and height.
4. Fin spines small and slender, only tips protruding through skin.



## DISTRIBUTION

From Crowdy Head (New South Wales) to Perth (Western Australia), including Tasmania and southern seamounts. On or near the bottom of the continental and insular slopes in depths of 270 to 2100m, most common in 780 to 1100m.

## 32 Owstons dogfish

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SCIENTIFIC NAME: *Centroscymnus owstonii*

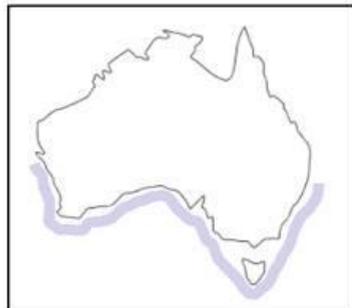
CAAB CODE: 37 020019

MAXIMUM SIZE: Born at about 30cm and reaches 120cm.

COLOURATION: Uniformly dark brown to black.

### DISTINCTIVE FEATURES

1. Upper teeth dagger-like and lower teeth blade-like.
2. Relatively large and flat denticles giving it a smooth-skinned appearance.
3. Low and lobe-like first dorsal fin.
4. Second dorsal fin is taller and more triangular in shape than the first dorsal fin.
5. Short dorsal fin spines.



### DISTRIBUTION

From Cape Hawke (New South Wales) to Exmouth Gulf (Western Australia), including Tasmania and the southern seamounts.

Demersal on the upper continental slope at depths of 500 to 1400m but most common from 730 to 1100m.

## 33 Plunkets dogfish

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SCIENTIFIC NAME: *Proscymnodon plunketi*

CAAB CODE: 37 020013

MAXIMUM SIZE: Born at 32 to 36cm and reaches 170cm.

COLOURATION: Uniformly greyish brown, juveniles more greyish.

### DISTINCTIVE FEATURES

1. Snout is short, about equal to or slightly less than distance from mouth to first gill slit.
2. Broad (almost round) pectoral fins.
3. First dorsal fin slightly smaller than the second dorsal fin.
4. Fin spines small and robust, only the tips protruding through skin.



### DISTRIBUTION

From Portland (Victoria) to Port Macquarie (New South Wales), including Tasmania, the Norfolk Ridge and nearby seamounts. Records from southern Western Australia, yet to be verified. Demersal on the continental and insular slopes from 250 to 1550m.

## 34 Sharpnose sevengill

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SCIENTIFIC NAME: *Heptranchias perlo*

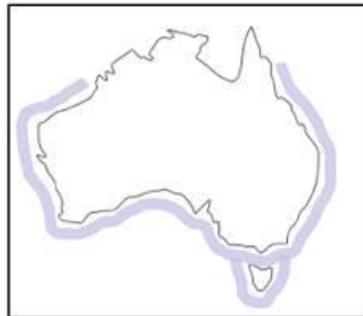
FAO CODE: HXT

MAXIMUM SIZE: Born at about 25cm and reaches 139cm.

COLOURATION: Dorsal surface brownish grey, ventral surfaces paler. Upper caudal and dorsal fin tips dark in juveniles, becoming very faint in adults. The eyes are fluorescent green in life.

### DISTINCTIVE FEATURES

1. Head narrow, snout relatively pointed.
2. Large eyes.
3. Seven pairs of long gill slits.
4. Single dorsal fin small, origin over inner margins of pelvic fins.
5. Caudal peduncle long, more than twice the length of the dorsal fin base.



### DISTRIBUTION

From Cairns (Queensland), around Tasmania to the Ashmore Reef (Western Australia). On or near the bottom of the continental, insular shelves and upper slopes. Usually in depths of 100 to 400m, but has been recorded both inshore and at depths of 1000m.

## 35 Whitefin swellshark

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SCIENTIFIC NAME: *Cephaloscyllium albiginnum*

CAAB CODE: 37 015013

MAXIMUM SIZE: Reaches 110cm.

COLOURATION: Medium brownish or greyish dorsally, broad saddles on back and large blotches on sides are darker, pre-dorsal space usual with five bars, fins mostly dark with pale margins.

### DISTINCTIVE FEATURES

1. Head short and very broad.
2. Body very robust.
3. Teeth very small and similar in both jaws.
4. Stomach highly inflatable.
5. First dorsal fin usually over anterior half of pelvic fin base and considerably larger than second dorsal fin.
6. Second dorsal fin mostly behind anal fin origin.
7. Pectoral fins relatively large and broad.



### DISTRIBUTION

Outer continental shelf in 120 to 550m from Bateman's Bay (New South Wales), to Eucla (Western Australia), including Tasmania.

## 36 Australian sawtail catshark

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SCIENTIFIC NAME: *Figaro boardmani*

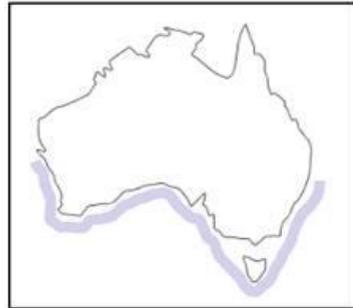
CAAB CODE: 37 015009

MAXIMUM SIZE: Reaches 61cm.

COLOURATION: Dorsal surface greyish with a pattern of darker pale edged saddles. Dorsal and pectoral fins with dark bases and pale margins. Ventral surface uniformly pale.

### DISTINCTIVE FEATURES

1. Head short and narrow.
2. Body relatively slender.
3. Teeth small and closely spaced.
4. Stomach not inflatable.
5. First dorsal fin origin over insertion of pelvic fin.
6. Second dorsal fin larger than first dorsal fin and mostly behind anal fin origin.
7. Pectoral fins relatively large and broad.
8. Caudal fin short with distinctive lower lobe.



### DISTRIBUTION

Widespread and common off the southern coast of Australia (including Tasmania) from Carnarvon (Western Australia) to Noosa (Queensland). Outer continental shelf and upper slope in 150-650m.

## 37 Sydney skate

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SCIENTIFIC NAME: *Dipturus australis*

CAAB CODE: 37 031002

MAXIMUM SIZE: Reaches about 55cm.

COLOURATION: Upper surface of disc yellowish brown with paler yellowish blotches; paler near margin and on mid-snout, under-surface mostly white.

### DISTINCTIVE FEATURES

1. Moderately elongated snout, with a firm cartilage support.
2. One thorn in central disc area.
3. Quadrangular disc, broader than long.
4. Dorsal surface of disc smooth except for a dense patch of denticles on snout tip and a narrow band along the mid-anterior margin.
5. Pelvic fins large.
6. No denticles on under-surface.



### DISTRIBUTION

From Moreton Bay (Queensland) to Tathra (New South Wales). On the continental shelf and upper slope from 20 to 330m.

## 38 Grey skate

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SCIENTIFIC NAME: *Dipturus canutus*

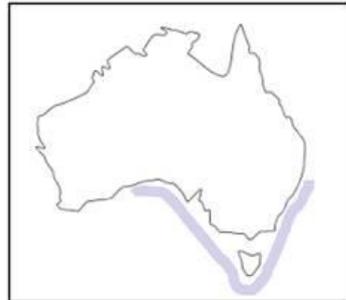
CAAB CODE: 37 031028

MAXIMUM SIZE: Reaches a total length of 90cm.

COLOURATION: Upper surface uniformly pale grey to greyish brown (white where deciduous skin has been removed) Ventral surfaces whitish, with irregular dark greyish patches at the anterior margin.

### DISTINCTIVE FEATURES

1. Moderate length snout, with a firm cartilage support.
2. Mouth broad to very broad.
3. One to three thorns in the central disc area.
4. Quadrangular disc, broader than long.
5. Pectoral fin broadly rounded.
6. Tail relatively short.



### DISTRIBUTION

From Crowdy Head (New South Wales) to at least Eucla (Western Australia), including Tasmania. Most abundant on the slope in depths of 400 to 600m.

## 39 Bight skate

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SCIENTIFIC NAME: *Dipturus gudgeri*

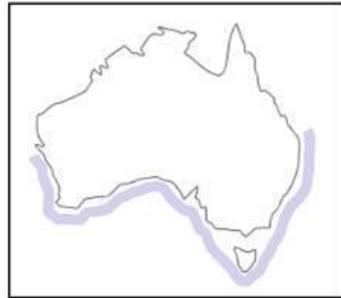
CAAB CODE: 37 031010

MAXIMUM SIZE: Reaches at least 184cm, free swimming at 26cm.

COLOURATION: Upper surface uniformly greyish to greyish green (sometimes brown in immature); darkest on posterior margins. Ventral surfaces variable, greenish grey to greyish brown.

### DISTINCTIVE FEATURES

1. Very long snout, pointed with a firm cartilage support.
2. Mouth moderately broad.
3. No thorns in the central disc area.
4. Quadrangular disc, broader than long.
5. Dorsal and caudal fins dusky or black.
6. Tail with one to three rows of thorns in adults, single row in juveniles.



### DISTRIBUTION

From Tweed Heads (New South Wales) to Geraldton (Western Australia), including Tasmania. Occurs along the outer continental shelf and upper slope from 150 to 750m.

# 40 Deepwater skate

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SCIENTIFIC NAME: *Dipturus acrobelus*

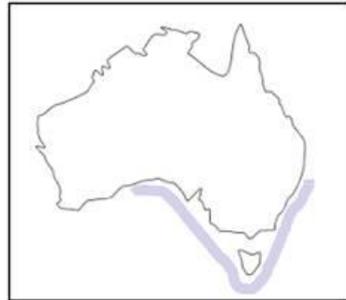
CAAB CODE: 37 031035

MAXIMUM SIZE: Reaches a length of 137cm, born at about 20cm.

COLOURATION: Dorsal surface uniformly pale grey to brown (sometimes white in WA), with light patches where skin is removed (in eastern Australian specimens). Ventral surface brownish black.

## DISTINCTIVE FEATURES

1. Very long snout, pointed with a firm cartilage support.
2. Mouth narrow.
3. Quadrangular disc, broader than long.
4. One to three thorns in central disc area.
5. Dorsal fins black in adolescents and dusky in adults.
6. Tail short, almost oval in cross-section, very slender.
7. Tail with one to five irregular rows of large thorns.



## DISTRIBUTION

From Crowdy head (New South Wales) to Eyre (Western Australia), including Tasmania. On the mid-continental slope from 450 to 1350m (mainly 800 to 1000m).

# 41 Longnose skate

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SCIENTIFIC NAME: *Dipturus confusus*

CAAB CODE: 37 031005

MAXIMUM SIZE: Reaches a length of at least 70cm.

COLOURATION: Dorsal surface brownish or yellowish (rarely greyish), usually with a complex pattern of paler spots, blotches and reticulations. Ventral surface white with grey areas (concentrated around head and central disc), ventral pores black-edged.

## DISTINCTIVE FEATURES

1. Moderately elongated snout, pointed with a firm cartilage support.
2. Quadrangular disc, broader than long.
3. Zero to six thorns in central disc area (usually one or more).
4. No thorns on dorsal midline.
5. Anterior margin of disc straight.
6. Pectoral fin apex broadly rounded.
7. Tail short, very depressed, rather broad.
8. Dorsal fins small to moderate, broadly rounded, equal in height, separated slightly/joined at base.

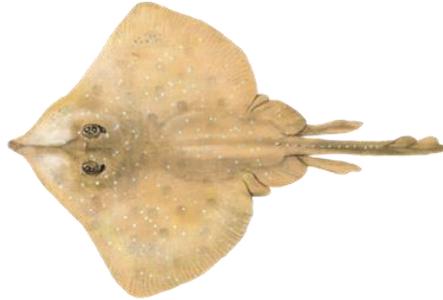


## DISTRIBUTION

From Portland (Victoria) to Sydney (New South Wales), including Tasmania. Generally in depths of 20 to 120m. Recorded rarely on the continental slope to 400m.

## 42 Whitespotted skate

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SCIENTIFIC NAME: *Dipturus cerva*

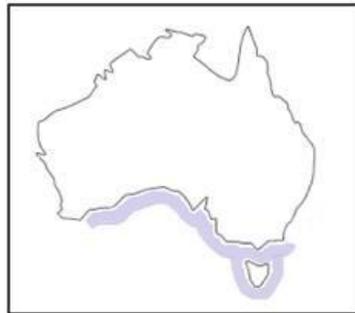
CAAB CODE: 37 031003

MAXIMUM SIZE: Reaches a length of about 66cm.

COLOURATION: Upper surface yellowish brown to greyish brown with, small white spots and no pale reticulations; occasionally with large, dusky blotches. Under-surface white with greyish areas.

### DISTINCTIVE FEATURES

1. Snout short to moderate length, pointed, with firm cartilage support.
2. Quadrangular disc, broader than long.
3. One to three thorns in central disc area (usually one).
4. No thorns on dorsal midline of disc before genital organs.
5. Pectoral fin apex broadly rounded.
6. Tail short and broad, with double median row of sharp thorns (males) and lateral rows, rarely double (females).

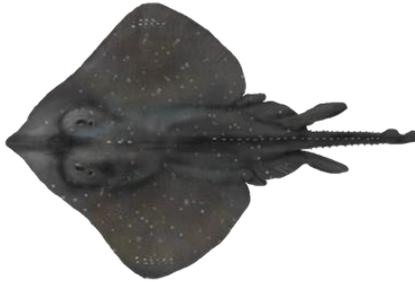


### DISTRIBUTION

From Gabo Island (Victoria) to the Recherche Archipelago (Western Australia), including Tasmania. Occurs on the continental shelf and upper slope in depths of 50 to 470m, possibly even shallower at times.

## 43 Melbourne skate

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SCIENTIFIC NAME: *Spiniraja whitleyi*

CAAB CODE: 37 031006

MAXIMUM SIZE: Reaches a length of about 200cm.

COLOURATION: Upper surface dark grey or brown, with white flecks. Juveniles with large dark blotch on each side of disc, sometimes with smaller blotches posteriorly. Ventral surface cream or white, sometimes grey.

### DISTINCTIVE FEATURES

1. Snout broad with a firm rostral cartilage.
2. Quadrangular disc, broader than long.
3. Mouth broad.
4. One to five small thorns in central disc and shoulder area.
5. No other thorns of midline of disc before genital organs.
6. Tail short, very depressed, broad; with one to three rows of thorns.
7. Dorsal fins moderate to large, broadly rounded, raked backwards.



### DISTRIBUTION

Mainly on the continental shelf between Sydney (New South Wales) and Albany (Western Australia), including Tasmania. Most abundant close inshore but recorded to 350m.

