

Cape Range Bush Blitz

Marine Fishes

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Nomenclature and taxonomy used in this report is consistent with:

The Australian Faunal Directory (AFD)

<http://www.environment.gov.au/biodiversity/abrs/online-resources/fauna/afd/home>

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List of contributors

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Abstract

A two week dedicated marine fish sampling fieldtrip was undertaken to Exmouth Gulf, to the east of Cape Range peninsula, north-western Australia, as part of a larger Bush Blitz survey. Exmouth Gulf is a large marine embayment (~ 3000 km²) dominated by soft sediment habitats that have been extensively trawled for commercial prawn fisheries. The reef and mangrove fish communities are poorly known. Marine fishes were sampled from seventeen sites, with 15 in Exmouth Gulf and two just outside the gulf on the west side of the peninsula. Sites were accessed by road, boat and helicopter and collections were made both intertidally and subtidally, on SCUBA or snorkel, using anaesthetics, spears and a variety of nets. A total of 78 species were collected as museum vouchers, including tissue samples and photographs from all species. No introduced or threatened fauna was identified. Important outcomes include substantially improved spatial resolution for the distribution of the region's fish fauna and significant range extension and infill records for 9 species. Noteworthy outcomes from this work included the first fish collections made from the southern gulf mangroves and the identification, elsewhere in the gulf, of relatively intact reef habitats that support diverse and healthy fish communities. Several putative new species are among the samples and further research may identify additional cryptic lineages in need of taxonomic research.

1. Introduction

Cape Range peninsula is located at the western margin of the Pilbara Bioregion in north western Australia. The marine environments surrounding Cape Range peninsula can be loosely divided into two broad habitats. The west coast is dominated by Ningaloo Reef, which is a 260 km long narrow fringing/barrier coral reef with an extensive back-reef lagoon (Wilson 2013). The lagoon is generally quite shallow (mostly a few metres deep) and the water relatively clear. The lagoonal benthic habitat is dominated by sand and rubble substrata with subtidal patch reefs of mostly *Acropora* corals, and extensive sandstone rocky intertidal platforms along the shoreline (Cassata and Collins 2008). Ningaloo Reef was protected as a marine park in 1987 and in 2011 was recognised with World Heritage Status.

To the east of the peninsula is the large embayment of Exmouth Gulf, some 40 km wide and 80 km long (ca 3000 km²). The gulf is dominated by soft sediments with widespread filter-feeder communities of sponges and soft corals. Much of the gulf has been subjected to widespread prawn trawling since the early 1960s (Kangas et al. 2007). The north western edge of the gulf is fringed with intertidal reef platforms and sandy beaches, leading to subtidal weedy rubble reefs and seagrass communities. The eastern and southern edges of the gulf are very turbid and support broad mudflats and mangrove lined tidal creeks. A row of subtidal shoals and emergent islands some 5-10 km off the eastern shore provide dense and diverse coral reefs that have avoided impact by trawling.

Ningaloo Reef is bathed by the southern flowing warm-water Leeuwin Current, which provides conditions suited to typical Indo-West Pacific fauna and likely delivers larvae from more northerly source reefs (Hutchins 1994; Watson and Harvey 2009). It is also a popular destination for tourism and has been surveyed extensively over the years (e.g. Holmes et al. 2017). As a result, the fish fauna is relatively well documented and, in general, is similar to many other reefs of the North West Shelf (e.g. ALA 2019; Jenkins 2019).

In contrast, the fish fauna of Exmouth Gulf is poorly known, especially the reef fishes. Other than the fish species caught as bycatch in prawn trawls (Kangas et al. 2007) only a few unpublished records exist from two short surveys (Hutchins 1996; WAM unpubl. data) and a few incidental museum records (ALA 2019). The mangrove systems are effectively unstudied for fishes.

This report summarises the results of a two week targeted survey of selected marine fishes in the Cape Range area, primarily in the under-represented Exmouth Gulf.

2. Methods

2.1 Site selection

Most sampling sites were located in Exmouth Gulf, with a few targeted collections on the west coast of the Cape Range peninsula (Appendix 1). Sites were chosen to represent as wide a range of habitat types as possible, including subtidal and intertidal coral reefs, sponge and rubble reefs, algae and seagrass pavements, and mangrove-lined, tidally influenced creeks. Site locations were partly determined by accessibility via boat, 4WD or helicopter and OHS requirements.

2.2 Survey techniques

Marine fishes were sampled by several methods.

- 1) **Clove oil** (anaesthetic) or **hand spear** using SCUBA or snorkel (Fig. 1). This targeted collection method was the main approach and is a global standard because it allows collection of small cryptic species as well as larger mobile species.
- 2) **Small handheld dipnets** were used to sample some fishes in intertidal habitats.
- 3) **Hand-held drag net** was used in some mangrove areas. It was deployed by two operators holding a pole at either end of a 5 m long net with a 1.5 m drop and 10 mm stretched mesh dimension. The base of the net was weighted to drag along the bottom. The operators walked along the shallow water, often with additional people herding fish toward the net.
- 4) **Cast net**, deployed by throwing from the shore to create a large circle that sinks to the bottom, trapping fish, before being retrieved (Figs. 2-3). This net had a stretched mesh size of 25 mm and a diameter of 2.4 m.
- 5) **Small set barrier/gill nets**, two 5 m long nets with a 1.5 m drop and stretched mesh dimensions of 25–35 mm were deployed across a small mangrove creek and left in place for approximately one hour.



Figure 1. Sampling using handspear, net and clove oil (squirt bottle attached to belt) on SCUBA at Bundegi (CR-19-28). Seasnakes were often very inquisitive.



Figure 2. Deploying cast net in a mangrove creek at southern end of Exmouth Gulf (CR-19-22).



Figure 3. Sorting catch from a cast net with BHP participants in a mangrove creek at Bay of Rest (CR-19-17).

2.2.1 Methods used at standard survey sites

Standard survey sites were both terrestrial and therefore not sampled during the marine surveys.

2.3 Identifying the collections

Tentative identifications of vouchered specimens were made by the authors in the field using field guides and other taxonomic literature. These identifications were later confirmed for retained vouchers at the WA Museum laboratory using low-magnification stereo microscopes, fresh colour photographs, available literature and comparison to specimens housed in the museum's collection. Primary literature sources included Carpenter and Neim (2001), Allen and Erdmann (2012), and Allen (2018), but numerous species-specific references were also referred to.

3. Results and Discussion

Appendix 1 lists all marine fishes recorded during the Bush Blitz.

3.1 Un-named or not formalised taxa

The goby genus *Pseudogobius* is represented by several species in Australian waters, and existence of several undescribed species is well known. *Pseudogobius* sp. B "plain" is one of the most widespread and common species in north-western Australia (Fig. 4; Hammer et al. 2021). The group is currently being revised by MAGNT researchers Dr Michael Hammer and Dr Helen Larson.

Table 1. Putatively un-named or not formalised taxa	
Taxon	Comment
<i>Pseudogobius</i> sp. B "plain"	widespread and common species in north-western Australia. Tissue sample taken.



Figure 4. *Pseudogobius* sp. B "plain" (28 mm SL) collected from Bay of Rest (CR-19-17). WAM P.34990-002

3.2 Putative new species (new to science)

In this report, ‘putative new species’ means an unnamed species that, as far as can be ascertained, was identified as a new species as a direct result of this Bush Blitz.

The identities of the three gobiid taxa listed in Table 2 (Fig. 5) could not be confirmed by the authors following careful examination of the specimens in the laboratory, including consultation with published literature, and comparison with voucher specimens in the WAM collection. Although they are listed here as putative new species, further taxonomic research, including molecular systematic work, is needed in order to accurately determine the status of these taxa.

Table 2. Putative new species (new to science)	
Species	Comment
<i>Pleurosicya</i> sp. “EG”	Sponge-associated species
<i>Bathygobius</i> cf <i>fuscus</i>	Differs from <i>B. fuscus</i> in several morphological characters
<i>Eviota</i> sp. “EG”	Diverse and difficult genus to identify

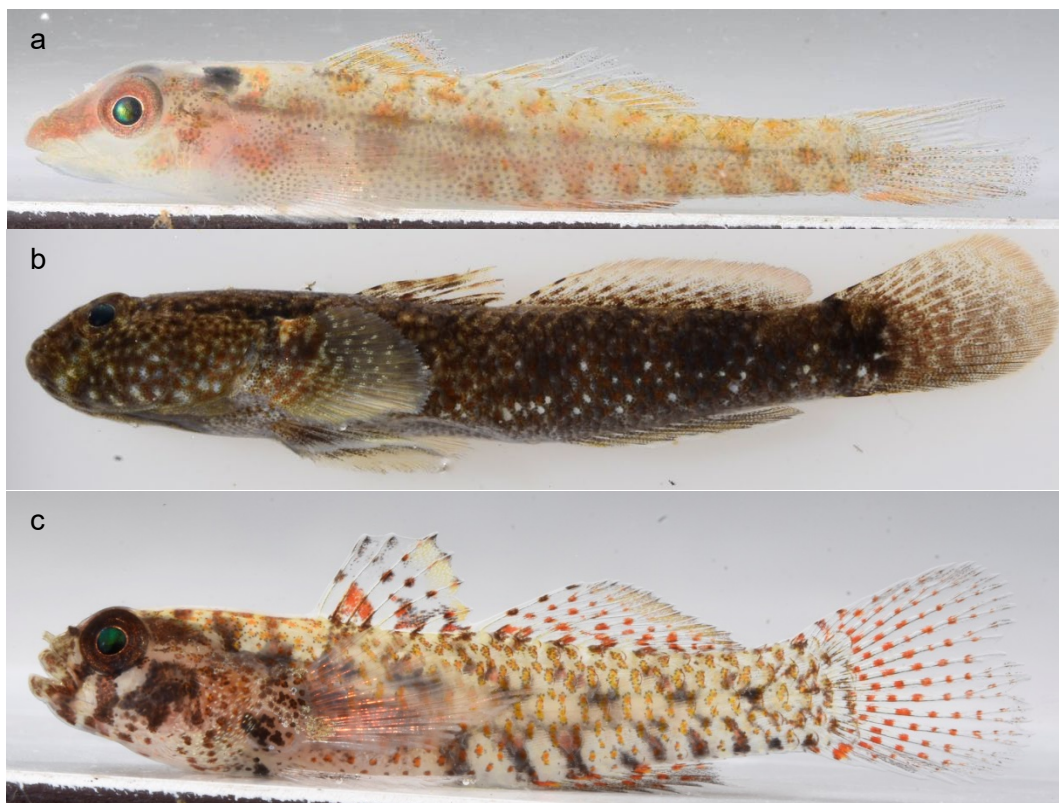


Figure 5. **a.** *Pleurosicya* sp. “EG” (22 mm SL) collected from Bundegi sponge garden (CR-19-25), WAM P.34993-001; **b.** *Bathygobius* cf *fuscus* (40 mm SL) collected from Bay of Rest (CR-19-17), WAM P.34990-004; **c.** *Eviota* sp. “EG” (18 mm SL) collected from south of Two Rocks (CR-19-30), WAM P.34995-003.

3.3 Exotic and pest species

No exotic or pest species of marine fishes were recorded.

3.4 Threatened species

No fish species listed as critically endangered, vulnerable or conservation dependent under the *Environmental Protection and Biodiversity Conservation Act 1999* (Commonwealth) or *Biodiversity Conservation Act 2016* (Western Australia) were recorded during the Bush Blitz.

Species	Listing status and level (EBPC, State/Territory)	Location sighted/observed	Indication of abundance

3.5 Range extensions

Other than species inhabiting trawl grounds (Kangas et al. 2007) Exmouth Gulf has been relatively poorly sampled for fishes. Consequently, many of the species represent new records for the area but most are widespread species known from nearby waters and these new records reflect the limited previous sampling in the gulf and the limited significance, from a commercial fisheries standpoint, of these taxa. However, nine species collected during this Bush Blitz do represent significant range extensions and important distribution infill records (Table 5). Most are range extensions of 200-300 km southward from the well-studied reefs around the Dampier Archipelago and Monte Bello Islands in the Pilbara

Species	Location sighted/observed	Distance from nearest known record (km)	Comments
<i>Lepadichthys sandaracatus</i>	5 Mile Reef, Ningaloo	300	distribution infill
<i>Barbuligobius boehlkei</i>	Two Rocks, Exmouth Gulf	222	distribution infill
<i>Pleurosicya plicata</i>	Y Island, Exmouth Gulf	211	southerly range extension
<i>Taeniamia melasma</i>	Y Island, Exmouth Gulf	270	southerly range extension
<i>Pempheris oualensis</i>	Y Island, Exmouth Gulf	340	distribution infill
<i>Pseudogobius</i> sp. B "plain"	Bay of Rest, Exmouth Gulf	?	distribution infill; difficult to determine due to misidentifications in collections
<i>Siphamia tubulata</i>	Bundegi sponge garden, Exmouth Gulf	280	southerly range extension
<i>Apogonichthys perdix</i>	Bundegi, Exmouth Gulf	80	distribution infill
<i>Eviota inutilis</i>	Bundegi, Exmouth Gulf	320	distribution infill

3.6 Genetic information

Tissue samples were taken from almost every vouchered fish specimen. Some will be used to aid in identification, and some will potentially reveal unrecognised cryptic lineages. Other tissue samples are important additions to large phylogenies.

4. Information on species lists

The species list provided in Appendix 1 represents one of very few short surveys of fishes in Exmouth Gulf. Other than the fish species caught as bycatch in prawn trawls (Kangas et al. 2007) only a few unpublished records exist from two short surveys (Hutchins 1996; WAM unpubl. data) and a few incidental museum records (ALA 2019). Until this Bush Blitz, the mangrove systems at the southern end of the Gulf were effectively unstudied for fishes. As a result, this report should not be considered as representing a complete species inventory of the region.

In addition, this survey deliberately prioritised species that are behaviourally cryptic, or known to belong to taxonomically complex and poorly documented groups, such as Gobiidae, Apogonidae and mangrove associated fauna. The identifications provided here are based on available literature and WAM collections, but for some of these groups, there is a paucity of information for accurate identification. Many of the identifications may change as research continues and further resources become available. Indeed, some may even represent as yet unrecognised species.

5. Information for land managers

Survey sites were largely selected to visit poorly sampled regions of Exmouth Gulf that potentially captured a range of habitat types, primarily reef and mangrove. It included soft-bottom 'sponge gardens', shallow algae reefs, submerged pavement and intertidal platforms (Fig. 6 a-d). Of particular note are the submerged reefs around Y Island and Exmouth Reefs on the eastern side of the gulf (Fig. 6 e,f). These reefs appeared to be largely intact with no observed evidence of human impacts, such as fishing line, anchor scars or trawling damage. The reef structures extend high (3-4 m) off the silty surrounding areas and provide a dense and rich habitat of sponge and soft coral communities. The abundance of large fishes including coral trout, groupers, tuskfish (bluebone), snappers and sweetlips was a stand-out feature of these reefs compared to sites closer to Exmouth. The populations of large carnivorous fishes at these isolated reef patches have probably remained somewhat unfished due to the distance from town and relatively small reef area, but they are potentially susceptible to increased fishing pressure once discovered.

Few mangrove stands south of Exmouth Gulf are as extensive as those visited during this Bush Blitz (Fig. 6 g). In addition several species of mangrove are at the southern end of their distribution in Exmouth Gulf. Mangrove fish fauna has received considerably less scientific attention compared to reef species, however mangroves provide an important habitat for many species that are not found elsewhere, as well as critical nursery habitat for the juvenile phase of many reef species including some of commercial and recreational importance (Alistar and Duke 1987; Igulu et al. 2015). These areas need continued management. In Exmouth Gulf, most of the mangrove stands are difficult to access from the land and probably face infrequent direct human impacts, however issues around sea temperature and sea level changes may have future consequences. Mangroves are susceptible to development, oil and sewerage spills and sedimentation.

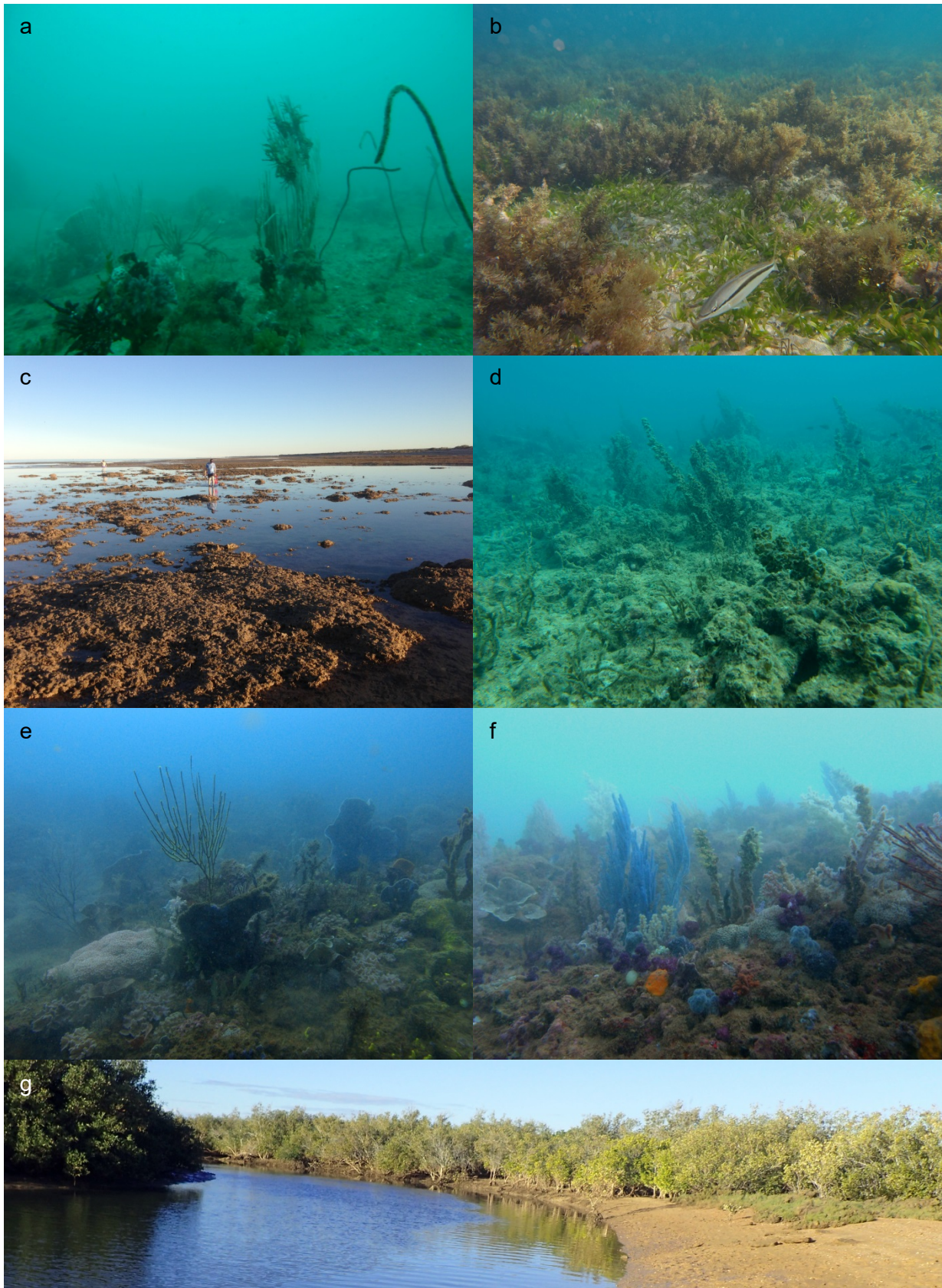


Figure 6. Examples of sampled habitats in Exmouth Gulf. **a.** ‘sponge garden’, Bundegi, CR-19-25 (~20m depth); **b.** submerged pavement with seaweed and seagrass, Two Rocks, CR-19-05 (~2m depth); **c.** intertidal reef platform, Bundegi, CR-19-06; **d.** algae reef, Bundegi, CR-19-28 (~4m depth); **e.** sponge reef, Y Island, CR-19-17 (~10m depth); **f.** sponge reef, Exmouth Reefs North, CR-19-11 (~ 10m depth); **g.** mangrove-lined creek, Bay of Rest, CR-19-17.

6. Other significant findings

nil

7. Conclusions

Exmouth Gulf supports a diversity of habitats that house a high diversity of fishes. The targeted survey for fishes during the 2019 Cape Range Bush Blitz added substantially to spatial information of species in the region and expanded the known range of nine species by up to 340 km. This study collected the first museum fish vouchers from the Exmouth Gulf mangroves and documented some important habitats on the east side of the gulf. The study also collected material for future studies to uncover new data on the taxonomy of the region's fishes, including extensive tissue collections for genetic research. Given the paucity of reef fish surveys in Exmouth Gulf, there is a need to continue to survey and retain valuable vouchers to fully understand the diversity and identity of the region's species to ensure accurate alpha taxonomy is used for conservation assessments and management plans.

Acknowledgements

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References

- Alistar, R. and Duke, N. (1987) Mangroves as nursery sites: comparisons of the abundance and species composition of fish and crustaceans in mangroves and other nearshore habitats in tropical Australia. *Marine Biology* **96**: 197-205.
- Allen, G.R. (2018) *Field Guide to Marine Fishes of Tropical Australia and South-east Asia*. Perth : Western Australian Museum.
- Allen, G.R. and Erdmann, M.V. (2012) *Reef fishes of the East Indies*. Perth, Australia: University of Hawai'i Press, Volumes I-III. Tropical Reef Research.
- Atlas of Living Australia 2019. Atlas of Living Australia website. www.ala.org.au
- Carpenter, K.E. and Niem, V.H. (eds). (2001) *The Living Marine Resources of the Western Central Pacific. FAO Species Identification Guide for Fisheries Purposes*. Rome : FAO
- Cassata, L. and Collins, L.B. (2008) Coral reef communities, habitats, and substrates in and near sanctuary zones of Ningaloo Marine Park. *Journal of Coastal Research* **24**:139–151
- Hammer, M.P., Adams, M., Unmack, P.J., Assell, K.L. & Bertozzi, T. (2021) Surprising *Pseudogobius*: Molecular systematics of benthic gobies reveals new insights into estuarine biodiversity (Teleostei: Gobiiformes). *Molecular Phylogenetics and Evolution* **160**: 107140.
- Holmes, T., Wilson, S., Bancroft, K., Shedrawi, G., Rule, M., Murray, K. and Kendrick, A. (2017) *Ecological monitoring in the Ningaloo marine reserves 2017*. Department of Biodiversity, Conservation and Attractions, Kensington, WA. *Marine Monitoring Program Report 1*, 74 p.
- Hutchins, J.B. (1994) A survey of the nearshore reef fish fauna of Western Australia's west and south coasts - the Leeuwin Province. *Records of the Western Australian Museum Supplement* **46**: 1–66.
- Hutchins, J.B. (1996) Fishes. In Hutchins, J.B., Slack-Smith, S.M., Bryce, C.W., Morrison, S.M. and Hewitt, M.A. marine biological survey of the Muiron Islands and the eastern shore of Exmouth Guf, Western Australia. Western Australian Museum, Perth. pp. 112–135. Unpublished report to the Ocean Rescue 2000 Program.
- Igulu, M.M., Nagelkerken, I., Dorenbosch, M., Grol, M.G.G., Harborne, A.R., Kimirei, I.A., Mumby, P.J., Olds, A.D. and Mgaya, Y.D. (2015). Mangrove Habitat Use by Juvenile Reef Fish: Meta-Analysis Reveals that Tidal Regime Matters More than Biogeographic Region. *PLOS ONE* **9**: e114715.
- Kangas, M.I., Morrison, S., Unsworth, P., Lai, E., Wright, I. and Thomson, A. (2007) Development of biodiversity and habitat monitoring systems for key trawl fisheries in Western Australia. Final report to Fisheries Research and Development Corporation on Project No. 2002/038. Fisheries Research Report No. 160, Department of Fisheries, Western Australia, 334p.
- Watson, D.L. and Harvey, E.S. (2009) Influence of the Leeuwin Current on the distribution of fishes and the composition of fish assemblages. *Journal of the Royal Society of Western Australia* **92**:147–154
- Wilson, B. (2013) *The Biogeography of the Australian North West Shelf: Environmental Change and Life's Response*. Elsevier: Burlington, MA.

Appendix 1. List of fishes recorded during the Cape Range Bush Blitz

Family	Species	Common name	Putative new species	Threatened (EPBC Act)	Threatened (State/Territory Act)	Exotic/pest
Acanthuridae	<i>Acanthurus grammoptilus</i>	Inshore Surgeonfish	No	No	No	No
Ambassidae	<i>Ambassis vachellii</i>	Vachell's Glassfish	No	No	No	No
Apogonidae	<i>Ostorhinchus cookii</i>	Cook's Cardinalfish	No	No	No	No
Apogonidae	<i>Ostorhinchus pallidofasciatus</i>	Palestriped Cardinalfish	No	No	No	No
Apogonidae	<i>Ostorhinchus cavitensis</i>	Whiteline Cardinalfish	No	No	No	No
Apogonidae	<i>Taeniamia melasma</i>	Blackspot Cardinalfish	No	No	No	No
Apogonidae	<i>Ostorhinchus doederleini</i>	Fourline Cardinalfish	No	No	No	No
Apogonidae	<i>Siphamia tubulata</i>	Pipe Siphonfish	No	No	No	No
Apogonidae	<i>Foa fo</i>	Samoan Cardinalfish	No	No	No	No
Apogonidae	<i>Apogonichthys perdix</i>	Perdix Cardinalfish	No	No	No	No
Atherinidae	<i>Atherinomorus endrachtensis</i>	Endracht Hardyhead	No	No	No	No
Atherinidae	<i>Hypoatherina temminckii</i>	Samoan Hardyhead	No	No	No	No
Atherinidae	<i>Atherinomorus vaigiensis</i>	Common Hardyhead	No	No	No	No
Belontiidae	<i>Strongylura strongylura</i>	Blackspot Longtom	No	No	No	No
Blenniidae	<i>Entomacrodus striatus</i>	Blackspotted Rockskipper	No	No	No	No
Blenniidae	<i>Plagiotremus rhinorhynchus</i>	Bluestriped Fangblenny	No	No	No	No
Blenniidae	<i>Parablennius postoculomaculatus</i>	False Tasmanian Blenny	No	No	No	No
Blenniidae	<i>Cirripectes filamentosus</i>	Filamentous Blenny	No	No	No	No
Blenniidae	<i>Ecsenius yaeyamaensis</i>	Palespotted Combtooth Blenny	No	No	No	No
Caesionidae	<i>Pterocaesio digramma</i>	Doubleline Fusilier	No	No	No	No
Chaetodontidae	<i>Chelmon marginalis</i>	Margined Coralfish	No	No	No	No
Chaetodontidae	<i>Chaetodon assarius</i>	Western Butterflyfish	No	No	No	No
Chaetodontidae	<i>Chaetodon plebeius</i>	Bluespot Butterflyfish	No	No	No	No
Clupeidae	<i>Herklotsichthys blackburni</i>	Blackburn's Herring	No	No	No	No
Clupeidae	<i>Nematalosa erebi</i>	Bony Bream	No	No	No	No
Dasyatidae	<i>Neotrygon ningalooensis</i>	Ningaloo Maskray	No	No	No	No
Engraulidae	<i>Thryssa hamiltoni</i>	Hamilton's Thryssa	No	No	No	No
Gerreidae	<i>Gerres subfasciatus</i>	Common Silverbidy	No	No	No	No
Gobiesocidae	<i>Lepadichthys sandaracatus</i>	Shark Bay Clingfish	No	No	No	No
Gobiidae	<i>Istigobius nigroocellatus</i>	Blackspotted Sandgoby	No	No	No	No
Gobiidae	<i>Bathygobius fuscus</i>	Dusky Frillgoby	No	No	No	No
Gobiidae	<i>Barbuligobius boehlkei</i>	Cryptic Bearded Goby	No	No	No	No
Gobiidae	<i>Priolepis nuchifasciata</i>	Threadfin Reefgoby	No	No	No	No
Gobiidae	<i>Pleurosicya plicata</i>	Lobed Ghostgoby	No	No	No	No
Gobiidae	<i>Bryaninops amplus</i>	Large Whipgoby	No	No	No	No
Gobiidae	<i>Valenciennea muralis</i>	Mural Glidergoby	No	No	No	No
Gobiidae	<i>Yongeichthys nebulosus</i>	Hairfin Goby	No	No	No	No

Gobiidae	<i>Pseudogobius</i> sp "northern 2"	Fatnose Goby	Yes	No	No	No
Gobiidae	<i>Istigobius decoratus</i>	Decorated Sandgoby	No	No	No	No
Gobiidae	<i>Bathygobius cf fuscus</i>	Frillgoby	Yes	No	No	No
Gobiidae	<i>Periophthalmus argentilineatus</i>	Silverlined Mudskipper	No	No	No	No
Gobiidae	<i>Acentrogobius gracilis</i>	Bluespotted Mangrovegoby	No	No	No	No
Gobiidae	<i>Pleurosicya</i> sp. "EG"	Ghostgoby	Yes	No	No	No
Gobiidae	<i>Asterropteryx semipunctata</i>	Starry Goby	No	No	No	No
Gobiidae	<i>Gnatholepis cauerensis</i>	Shoulderspot Goby	No	No	No	No
Gobiidae	<i>Eviota inutilis</i>	Chestspot Eviota	No	No	No	No
Gobiidae	<i>Eviota</i> sp "Cape Range"	Eviota	No	No	No	No
Labridae	<i>Coris caudimacula</i>	Spot-tail Wrasse	No	No	No	No
Labridae	<i>Coris pictoides</i>	Pixy Wrasse	No	No	No	No
Labridae	<i>Halichoeres melanochir</i>	Orangefin Wrasse	No	No	No	No
Labridae	<i>Suezichthys cyanolaemus</i>	Bluethroat Rainbow Wrasse	No	No	No	No
Leiognathidae	<i>Nuchequula gerreiodes</i>	Blackneck Ponyfish	No	No	No	No
Mugilidae	<i>Liza subviridis</i>	Greenback Mullet	No	No	No	No
Mullidae	<i>Parupeneus indicus</i>	Yellowspot Goatfish	No	No	No	No
Opistognathidae	<i>Opistognathus darwiniensis</i>	Darwin Jawfish	No	No	No	No
Paralichthyidae	<i>Pseudorhombus jenynsii</i>	Smalltooth Flounder	No	No	No	No
Pempheridae	<i>Pempheris schwenkii</i>	Silver Bullseye	No	No	No	No
Pempheridae	<i>Pempheris oualensis</i>	Oualan Bullseye	No	No	No	No
Platycephalidae	<i>Cymbacephalus nematophthalmus</i>	Fringe-eye Flathead	No	No	No	No
Platycephalidae	<i>Platycephalus westraliae</i>	Yellowtail Flathead	No	No	No	No
Plotosidae	<i>Plotosus lineatus</i>	Striped Catfish	No	No	No	No
Pomacentridae	<i>Pomacentrus milleri</i>	Miller's Damsel	No	No	No	No
Pomacentridae	<i>Neopomacentrus cyanomos</i>	Regal Demoiselle	No	No	No	No
Pomacentridae	<i>Pomacentrus nagasakiensis</i>	Blue-scribbled Damsel	No	No	No	No
Pomacentridae	<i>Pomacentrus coelestis</i>	Neon Damsel	No	No	No	No
Pseudochromidae	<i>Pseudochromis cyanotaenia</i>	Yellowhead Dottyback	No	No	No	No
Pseudochromidae	<i>Pseudochromis wilsoni</i>	Yellowfin Dottyback	No	No	No	No
Pseudochromidae	<i>Assiculus punctatus</i>	Bluespotted Dottyback	No	No	No	No
Pseudochromidae	<i>Blennodesmus scapularis</i>	Ocellate Eel Blenny	No	No	No	No
Scorpaenidae	<i>Scorpaenodes evides</i>	Cheekspot Scorpionfish	No	No	No	No
Serranidae	<i>Epinephelus corallicola</i>	Coral Grouper	No	No	No	No
Serranidae	<i>Epinephelus fasciatus</i>	Blacktip Rockcod	No	No	No	No
Sillaginidae	<i>Sillago lutea</i>	Mud Whiting	No	No	No	No
Sparidae	<i>Acanthopagrus morrisoni</i>	Western Yellowfin Bream	No	No	No	No
Tetraodontidae	<i>Arothron manilensis</i>	Narrowlined Puffer	No	No	No	No
Tetraodontidae	<i>Canthigaster axiologus</i>	Crowned Toby	No	No	No	No
Tetraodontidae	<i>Tragulichthys jaculiferus</i>	Longspine Porcupinefish	No	No	No	No
Tripterygiidae	<i>Enneapterygius larsonae</i>	Blackhead Threefin	No	No	No	No