

ENDEMIC FISHES OF THE BIRD'S HEAD SEASCAPE



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**All photos GR Allen & MV Erdmann except where noted*



Cirrhilabrus cenderawasih Allen and Erdmann, 2006

The Cendrawasih fairy wrasse. Endemic to Cendrawasih Bay, this beautiful little wrasse is common on sheltered seaward reefs in depths of 20-60m (most common below 30m). Groups of 10-20 individuals (including 1-5 males) are commonly encountered on rubble slopes



Paracheilinus nursalim Allen and Erdmann, 2008

Nursalim's flasher wrasse. Known primarily from the FakFak and Kaimana coastlines, this stunning flasher wrasse is seen in Raja Ampat only in southeastern Misool in depths of 20-45m. Watch for the male's stunning displays in late afternoon when light levels start to dip.



Paracheilinus walton Allen and Erdmann, 2006

Walton's flasher wrasse. Known only from Cendrawasih Bay (Yapen to Purup), this brilliantly-coloured wrasse is found on rubble and Halimeda slopes below 20m and is most active and colourful in the late afternoon, when the males display for their harem of females.



Hemiscyllium freycineti Quoy and Gaimard, 1824

Raja Ampat walking shark. Also known as a bamboo shark, this charismatic nocturnal species is common in shallow reef and seagrass beds throughout Raja Ampat, where it “walks” across the bottom in search of crustaceans and snails. Known only from Raja Ampat



Hemiscyllium henryi Allen and Erdmann, 2008

The Triton Bay walking shark (also known as bamboo or epaulette shark) was only discovered in 2006 and is found on shallow reef flat and rocky shore areas in 3-10m depth. It is active at night only and walks around on the bottom, feeding on crustaceans and small fish. Known only from Triton Bay



Hemiscyllium galei Allen and Erdmann, 2008

Like its nearby sister species in Raja Ampat and Kaimana, the Cendrawasih Bay walking shark is a nocturnal species which can be found on shallow reefs and seagrass beds, where it uses its pectoral and pelvic fins to “walk” across the bottom in search of prey ranging from crabs and shrimps to snails and small fish. Known only from Cendrawasih Bay



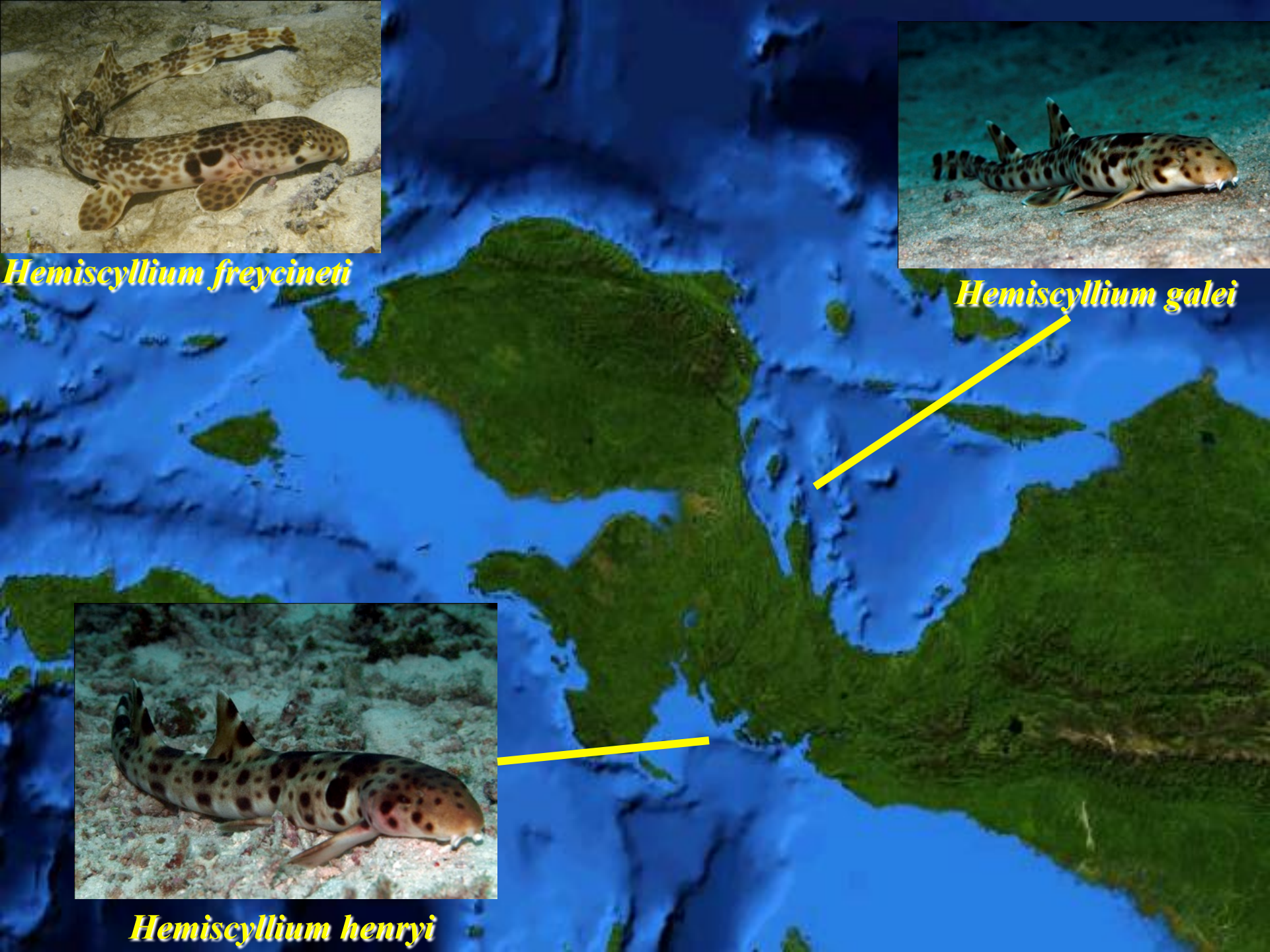
Hemiscyllium freycineti

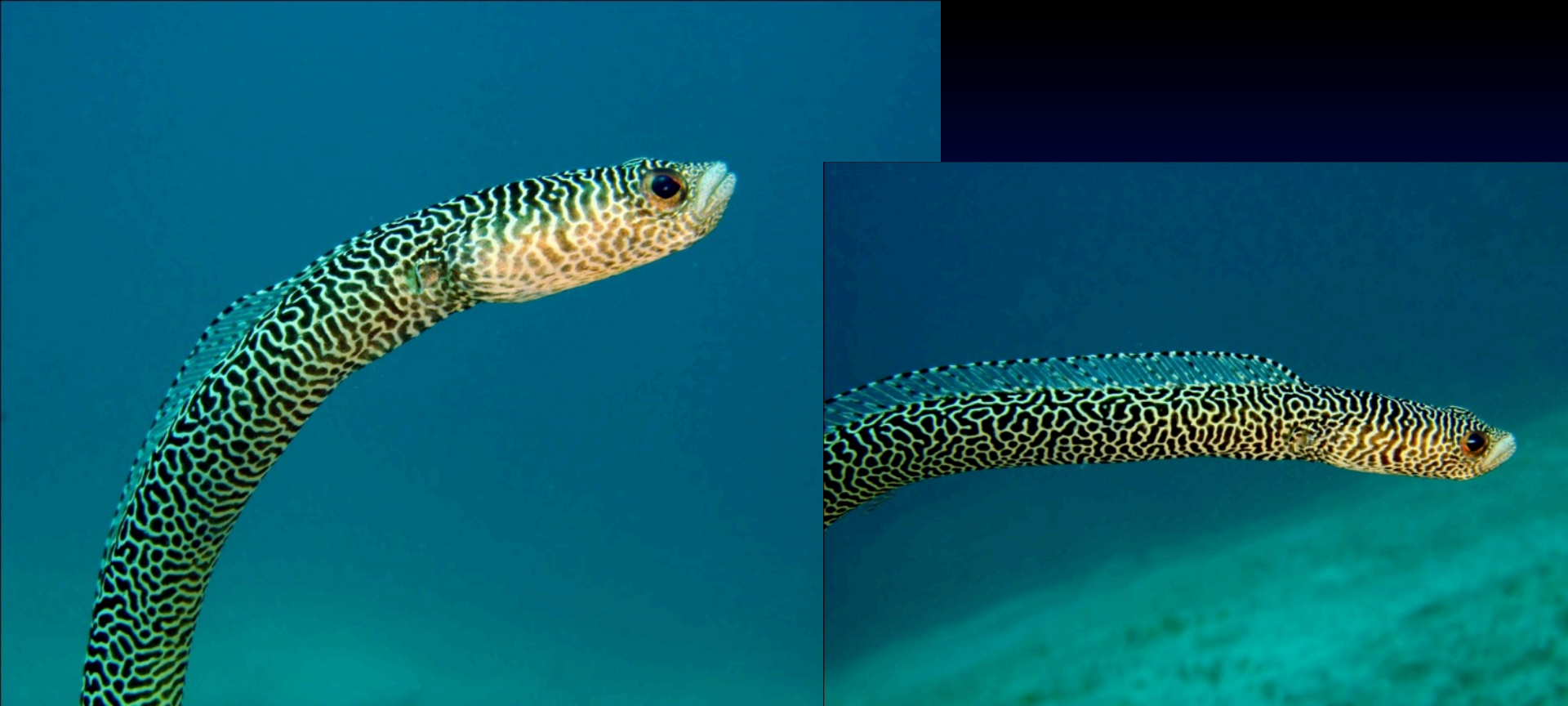


Hemiscyllium galei



Hemiscyllium henryi





Heteroconger mercyae Allen and Erdmann, 2009

Recently discovered in March 2009 near Tanjung Papisol, Kaimana, this stunning garden eel occurs in depths of 5-10 meters on silty coastal slopes in large aggregations. Like all garden eels, they feed on plankton, swaying in the current with only their tails in their burrows – though they quickly withdraw as divers approach. Photos by Roger Steene from Milne Bay, PNG, indicate this species may also be found there.



B Jones



Heteroconger sp.

Papuan garden eel. Recently discovered in 2010, one population is known from a silty inshore habitat in Cendrawasih Bay in depths of 15-20m, while the other was found in clean white coral sand on an offshore island in the Kaimana region in 25-35m depth. Ongoing work will soon determine if these are two different species and will provide name(s) for them.



Lutjanus papuensis Allen, White & Erdmann, 2013

Papuan snapper. This beautiful snapper with distinctive reddish-orange body colouration and bright yellow fins is known with certainty from Raja Ampat and Cendrawasih Bay only, though it is likely more widespread. It is found around large coral heads in depths of 10-15m.



Hoplolatilus erdmanni Allen, 2007

Erdmann's tilefish. Rarely seen above 40m, this tilefish lives on current-swept sandy bottoms, where it builds large mounds of coral rubble in which 2-6 individuals reside. Now recorded throughout the Bird's Head, including Triton Bay, FakFak, SE Misool, and Pulau Purup in Cendrawasih Bay



Forcipiger wanai Allen & Erdmann, 2012

Cendrawasih long-nosed butterflyfish. Yet another apparent Cendrawasih Bay endemic species, this conspicuous species (with dusky body colouration compared to its bright yellow cousins) is found in coral rich environments in depths of 3-15m.



Chromis athena Allen and Erdmann, 2008

Athena damselfish. Known only from the Fam Island group in the Dampier Strait region of Raja Ampat, this attractive gold-crested damsel is found in depths of 50-65m on steep outer reef slopes.



Chromis unipa Allen and Erdmann, 2009

UNIPA chromis. Discovered during a UNIPA (State University of Papua) fish taxonomy field course in November 2008, this beautiful damsel is known only from deep (40-70m) outer reef slopes of Tridacna and other atolls in Cendrawasih Bay.



Chrysiptera giti Allen and Erdmann, 2008

This pretty blue devil damselfish is found in coral-rich lagoonal environments in depths of 5-20m. To date it has been found only along the FakFak-Kaimana coastline and also in the Togian islands in nearby Sulawesi.



Chrysiptera pricei Allen and Adrim, 1992

Price's Blue Devil. This attractive damselfish is known only from Cendrawasih Bay, where it is found in shallow, sheltered (and often silty) bays throughout the region, from Yapen to Purup. Frequently associated with coral-rich habitats



Chrysiptera sp. 1

Raja Ampat Blue Devil. This attractive damselfish closely related to *C. oxycephala*, but has been shown genetically to be distinct. It is found in coral-rich lagoon areas of Raja Ampat in 2-10m depth. The juvenile has an attractive blue crest (bottom right). Soon to be described.



Chrysiptera sp. 2

Cendrawasih Blue Devil. Like the preceding damsel, this strikingly beautiful yellow fish is closely related to *C. oxycephala*, but has been shown genetically to be a Cendrawasih endemic species that will soon be described. It is also found in coral rich lagoonal areas in 2-10m depth. The juvenile colouration (bottom right) is also very distinctive.



Pomacentrus fakfakensis Allen and Erdmann, 2009

This brown damsel with blue-fringed fins is known only from shallow, silty reefs in 3-8m from the FakFak-Kaimana coastline (recorded from Karawatu Island in Kaimana and the Kokas islands in northern FakFak).



Amblyglyphidodon flavopurpureus Allen & Erdmann, 2012
Cendrawasih damselfish. This damsel is common in Cendrawasih Bay at depths of 10-30m on steep slopes, often around sea fans or black coral. It was initially thought to be a colour variant of *A. aureus*, but has been shown genetically to be distinct. Common in Cendrawasih, though occasionally seen in Raja Ampat and possibly further west to Sulawesi.



Pterocaesio monikae Allen and Erdmann, 2008

Known only from Cendrawasih Bay, this dwarf species of fusilier is commonly found in schools of up to several hundred along steep outer reef slopes in the clear water areas of Cendrawasih Bay. The fish schools up and down the slopes from 5-50m



Pentapodus numberii Allen and Erdmann, 2009

Numberi's whiptail. Named for Indonesia's Minister of Fisheries, this whiptail is found throughout Raja Ampat and Kaimana in more turbid reef areas in 8-30m depth. The males can "turn on" a mid-lateral yellow stripe depending on their mood (see inset at lower right).



Scorpaenodes bathycolus Allen & Erdmann, 2012

Deepreef scorpionfish. This unique scorpionfish was described from specimens from FakFak in the southern Bird's Head. It is known only from depths below 60m.



Pictichromis caitlinae Allen, Gill and Erdmann, 2008

This beautiful and curious dottyback is only known from Cendrawasih Bay, where it will actively investigate divers that hover motionless over the reef. Typically on gradual slopes in 8-25m depth, usually retreating into crevices in the sand/coral interface.



Manonichthys jamali Allen and Erdmann, 2007

Jamal's dottyback. Found in southern Misool through to Triton Bay, this dottyback inhabits dense coral thickets in 9-16m depth, where it mimics and preys upon the young of the common damselfish *Chromis retrofasciatus*. Named for a young crew member of the *MV Citra Pelangi* who died in the course of the rapid assessment of Triton Bay.



Pseudochromis jace Allen, Gill and Erdmann, 2008

This shy dottyback is commonly seen alone or in pairs in 35-45m depth around sponges, soft coral or rocky outcrops on steep coastal sand slopes. Breeding females show a bright cherry belly. Most common in Kaimana area, but also recorded from Batanta and Fam in Raja Ampat.



Pseudochromis matahari Gill, Erdmann & Allen, 2009
Sunset dottyback. This aptly-named dottyback is found in depths of 30-50m around sponges and coral outcrops on gradual sandy reef slopes in clear water. Known only from northern Raja Ampat and neighboring Halmahera.



Pseudochromis ammeri Gill, Allen & Erdmann, 2012
Ammer's dottyback. Described in honor of Raja Ampat dive pioneer Max Ammer, this eye-catching dottyback is common throughout Raja Ampat and northern FakFak amongst rubble at the base of reef slopes in 18-30m depth. Younger individuals show a more distinct banding pattern (lower right photo)



Pseudochromis erdmanni Gill & Allen, 2011

Erdmann's dottyback. This fearsome-looking and aggressive dottyback (max length 10cm) has been found in Raja Ampat, Halmahera, Ambon and North Sulawesi. It is found on deep slopes below 35m and is associated with sponges and soft corals in the sand. Female is black.



Pseudochromis sp. 1

Greenhead dottyback. This beautiful dottyback is known only from deep reefs (below 50m) of northern Raja Ampat. It is frequently found in association with sponges growing on the deep current swept slopes of Dampier Strait and around Kawe Island.



Pseudochromis sp. 3

Wayag dottyback. This secretive dottyback is found on the ceilings of karst overhangs and caves in northern Raja Ampat, and is particularly common in the Wayag-Uranie chain. It appears to be a new species endemic to Raja Ampat.



Pseudochromis sp. 4

Wandammen dottyback. This secretive and drab-coloured dottyback is known only from the Wandammen peninsula of Cendrawasih Bay, where it lives on silty coastal reefs in depths of 3-8m, taking shelter under coral rubble and sponges.



Lubbockichthys sp.

Cendrawasih dottyback. This deep-dwelling dottyback, still undescribed, was discovered in 2010 in deep (50-70m) caves along the outer steep walls of Cendrawasih Bay atolls. Males and females display different colouration, with the female red with yellow tail and the males more overall drab olive with only a hint of red.



Ostrorhinchus oxygrammus Allen, 2001

Papuan cardinalfish. A deepwater (40-50m) cardinal that prefers coastal reefs and is found on rocky outcrops on silty or Halimeda algal-covered bottoms. Recorded in Raja Ampat and Cendrawasih Bay



Apogonichthyoides erdmanni Fraser & Allen, 2011

Erdmann's cardinalfish. This deep-dwelling species was only discovered in early 2011 at a depth of 70m in SE Misool in Raja Ampat. It was found under an overhanging coral head.



Siphamia stenotes Gon and Allen, 2012

Narrow siphonfish. This tiny cardinalfish lives in small schools in association with crinoid featherstars or branching corals in 10-20m depth in coastal bays of Kaimana. Has recently been photographed also in Banyumandi Bay in Bali, so may no longer qualify as BHS endemic



Siphamia misoolensis Gon, Allen & Erdmann, 2014

Misool siphonfish. A deep-dwelling cardinalfish (60-70 m) currently known only from the Fiabacet reefs of SE Misool in Raja Ampat. The species is found in loose aggregations of 10-50 individuals around ledges and crevices on steep, current-swept walls, and has frequently been observed associating with small gorgonians and crinoids



Eviota raja Allen, 2001

Raja Ampat coral goby. A tiny, mid-water hovering goby that is found in sheltered, coral-rich bays throughout Raja Ampat.



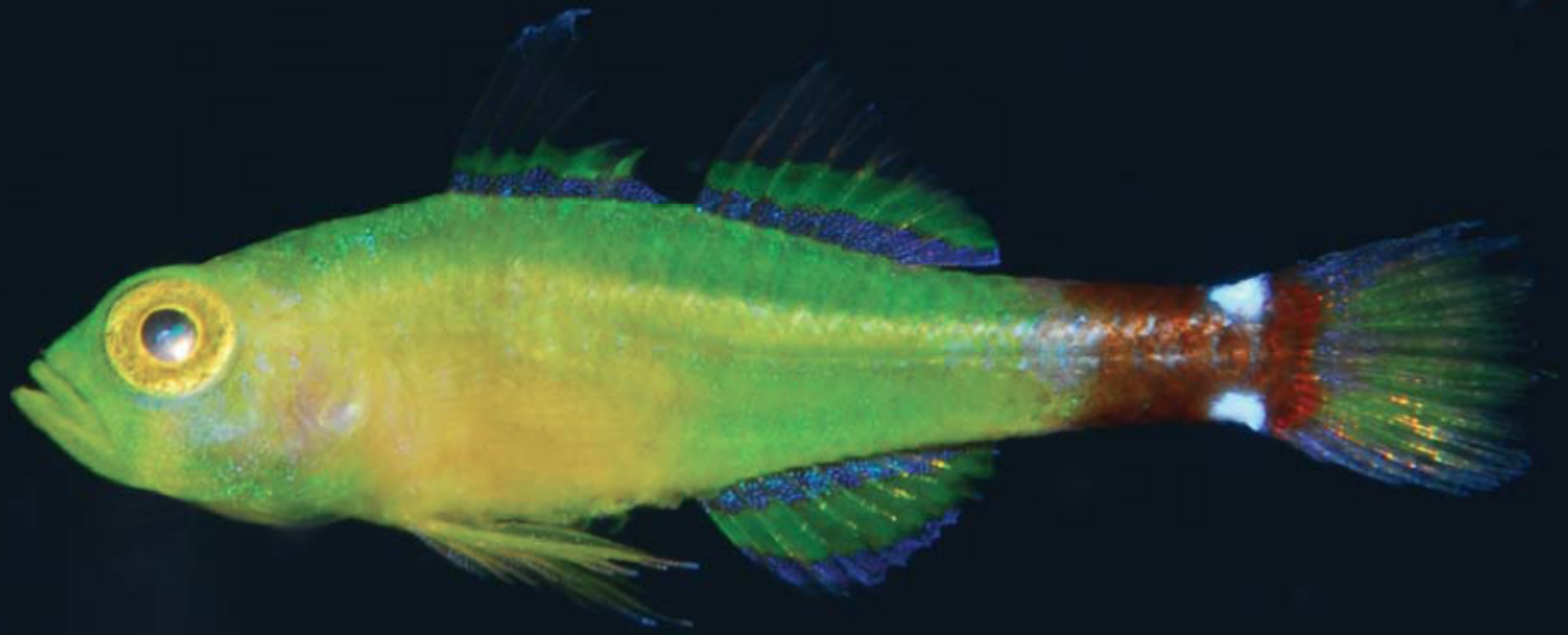
Eviota tetha Greenfield and Erdmann, 2014

Tetha's dwarfgoby. This beautiful little goby is named after Creusa "Tetha" Hittipeuw, one of Indonesia's first marine conservationists who tragically passed away in 2013. Tetha worked for WWF Indonesia and dedicated her life to marine conservation in eastern Indonesia – with a strong focus on the leatherback turtles of the Bird's Head. This goby is endemic to Cendrawasih Bay, where it is found in sheltered coral rich lagoons in 20-30m.



Trimma helenae Winterbottom, Erdmann & Cahyani, 2014

Helen's pygmy goby. This unique coral goby is named after Helen Newman, a tireless marine conservationist who worked hard to develop marine tourism protocols for the BHS and cofounded Sea Sanctuaries Trust to work with communities to manage the Penemu area of Raja Ampat. This goby is apparently endemic to Raja Ampat (known only from Penemu), where it is found in caves on steep protected drop-offs at depths of 25-32m.



Trimma meranyx Winterbottom, Erdmann & Cahyani, 2014
Day-night pygmy goby. This coral goby is named for the unique spot pattern on the tail (a “double sun in the darkness”). It was originally discovered in FakFak, but has since been found in Raja Ampat, Lembah Strait and Milne Bay – so it is a “BHS ++ endemic”. Found individually in small crevices and caves in the 55-70m depth range on steep slopes.



Trimma pajama Winterbottom, Erdmann & Cahyani, 2014

Pajama pygmy goby. This beautiful coral goby is named for its “striped pajama” colour pattern. It has been described from Raja Ampat and FakFak, though there are photographs that indicate the species may also be found in Palau and Milne Bay. It lives in a unique habitat – it is exclusively associated with *Halimeda* algae beds, usually in 6-20m depth



Trimma sp. 102

Polka-dot pygmy goby. This striking coral goby is only known from the Bambu Islands west of the Fam group in Raja Ampat. It was photographed and collected at a depth of 70m. Will soon be described as soon as more specimens are available.



Vanderhorstia wayag Allen & Erdmann, 2012

Wayag shrimp goby. A small but beautiful shrimp goby that is abundant on the lagoonal sand slope in 8-15m in front of the Wayag MPA field station in Raja Ampat. Known only with certainty from Wayag, though likely to be more widespread.



Acentrogobius cendrawasih Allen & Erdmann, 2012

Cendrawasih sand goby. An easily overlooked sand goby found on silty slopes of the Wandammen Peninsula in Cendrawasih Bay in depths of 15-35m. Known only from Cendrawasih Bay.



Lepadichthys akiko Allen & Erdmann, 2012

Cenderawasih clingfish. A beautiful red and white striped clingfish discovered in 2010 in Cendrawasih Bay in 70m depth on steep outer reef slopes in association with coralline algae and sponges.



Calumia eilperini Allen and Erdmann, 2010

Eilperin's gudgeon. Closely related to a goby, this striking gudgeon is known only from Cendrawasih Bay in sheltered, stilly reef environments in 5-12m depth.



Calumia papuensis Allen and Erdmann, 2010

Papuan gudgeon. This stunning, tiny fish measures less than 2cm and was discovered in November 2008 in Cendrawasih Bay, though it was later found in FakFak and neighboring Banda as well. From sheltered, coral-rich lagoonal environments in 20-50m depth.



Meiacanthus erdmanni Smith-Vaniz and Allen, 2011

Erdmann's fangblenny. A rare deep-dwelling species of fangblenny that was discovered in 2010 on the steep outer reef slopes of the atolls of Cendrawasih Bay. Known only from depths of 60-70m.



Opistognathus rufilineatus Smith-Vaniz and Allen, 2007

This attractive jawfish is known only from the freshwater vents area near Kamaka village in Triton Bay, where it is found in depths of 20-30m in close proximity to cold freshwater seeps (presumably from the Triton Lakes). Like all jawfish, it is a mouthbrooder.



Stalix sp.

This inconspicuous jawfish, not yet described by science, has been found in silty bays in SE Misool (Tomolol area), Kokas Islands (FakFak) and Triton Bay in Kaimana. It is found in depths of 20-40m in small mucus-lined holes. It is possible this is the same species as is found in the South China Sea (Brunei and Anambas), but this is still being investigated.



Kalyptatherina helodes Ivantsoff and Allen, 1984

Raja Ampat blue-eye. This small but striking fish is commonly found in schools of 20-100 individuals skimming the surface amongst the roots of Raja Ampat's several "blue water mangrove" areas in northern Misool and Gam islands.



Diancistrus niger Schwarzhans, Møller and Nielsen, 2005

The Raja Ampat cusk eel is a secretive species unlikely to be seen by divers. It lives deep in coral crevices in coral rich reef slope areas. The Raja Ampat cusk eel has never been photographed live, but it is presumed to look similar to the pictured individual, which is a new endemic species from Nusa Penida, Bali



Microbrotula geraldalleni Schwarzhans & Nielsen, 2012

Papuan viviparous brotula. This secretive brotula, with a pink body and blackish-purple head, is known only from Cendrawasih Bay and is found in reef crevices in 10-15m depth. Unlikely to be seen by divers!



Himantura sp. 1

Giant whipray. This massive stingray (3.2m disc width, 6m apical lobe to tip of tail!) has been photographed repeatedly at Blue Magic dive site in Raja Ampat at base of reef in 30m+. Possibly the Mekong giant freshwater ray, but also possibly new! More images urgently needed!!



Astreopora acroporina Wallace, Turak and Devantier, 2011
One of 3 new *Astreopora* species discovered in Cendrawasih Bay in 2006, this unusual coral is found in the inshore coral-rich lagoons of coastal Cendrawasih Bay in depths of 1-3m. There are up to 40 endemic species of hard coral from the Bird's Head which are currently being examined closely by coral taxonomists.



Odontodactylus sp.

Cendrawasih mantis shrimp. One of 8 endemic mantis shrimp found in the Bird's Head, this particular species is closely related to the peacock mantis shrimp, but is known only from Cendrawasih Bay in depths of 25-50m. It lives in burrows on sand and rubble slopes and will readily display to a diver's camera!

SUSPECTE ENDEMICIS OF THE BHS

CENDRAWASIH BAY

ONGOING SPECIES QUESTIONS

GEOGRAPHICALLY-SPECIFIC COLOUR PATTERNS



- Besides the many new and endemic species discovered in Cendrawasih, we also recorded a host of unusual colour patterns in wide-ranging species – ie, the colour pattern in Cendrawasih Bay individuals is strongly different from the normal colour pattern of the species in other areas of the Indo-Pacific.
- Following slides show colour differences (currently being investigated by genetic techniques to determine if separate species)
- Provides yet more evidence of isolation of Cendrawasih Bay

Normal
Colour



Cendrawasih
Colour

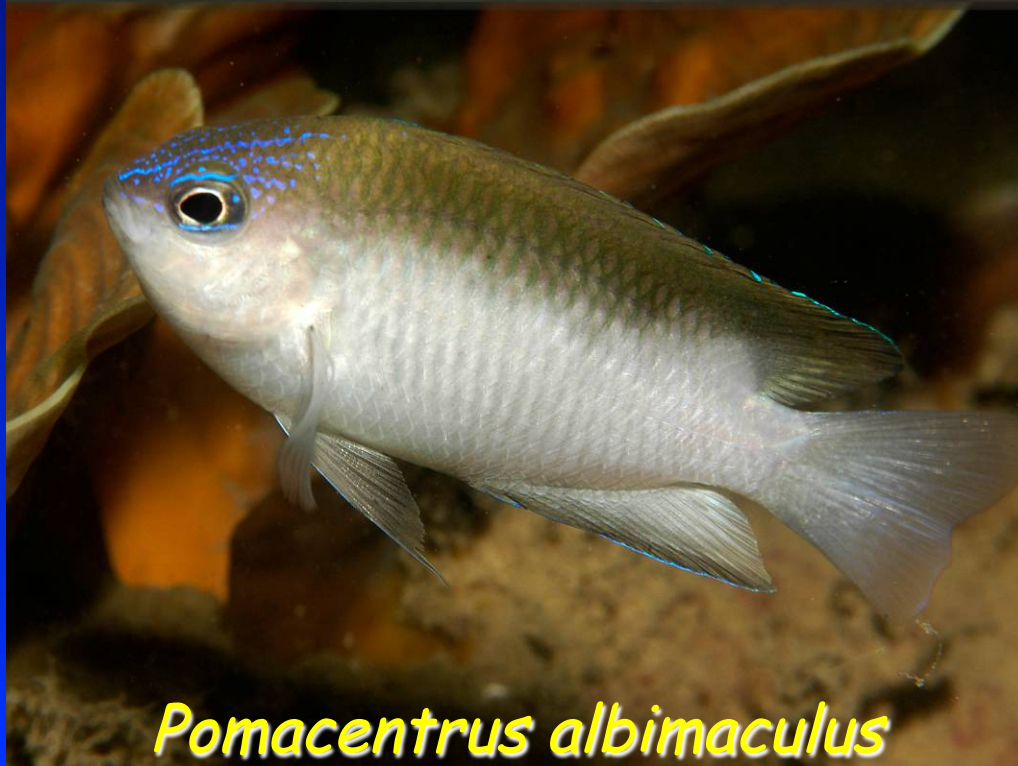


Neoglyphidodon nigroris

Normal
Colour



Cendrawasih
Colour



Pomacentrus albimaculus

Normal
Colour



Cendrawasih
Colour



Normal
Colour



Cendrawasih
Colour

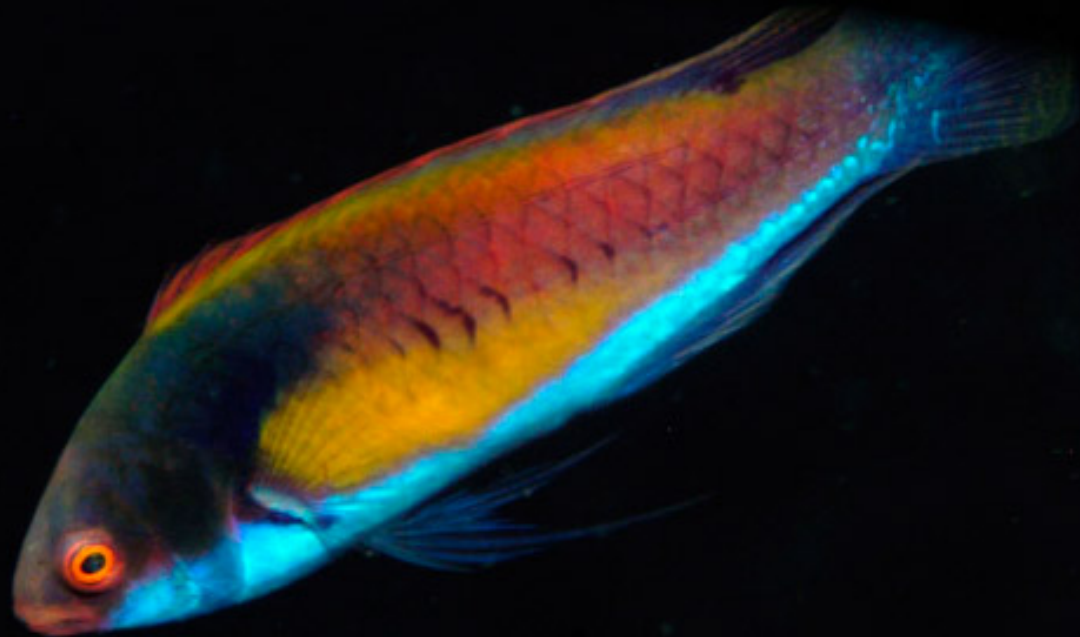


Meiacanthus grammistes

Normal
Colour



Cendrawasih
Colour



Cirrhilabrus lyukuensis