



***Cirrhilabrus hygroxerus*, a new species of fairy wrasse (Pisces: Labridae) from the Timor Sea, northern Australia**

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Abstract

A new species of labrid fish, *Cirrhilabrus hygroxerus*, is described from 19 type specimens, 38.4–56.1 mm SL, collected from the eastern Timor Sea, Northern Territory, Australia. The new taxon belongs to a species complex containing five other Indo-Pacific species, comprising *C. humanni* (western Lesser Sunda Islands of Indonesia and East Timor), *C. joanallena* (western Sumatra), *C. morrisoni* (Hibernia Reef, western Timor Sea), *C. naokoae* (Nias Island, western Sumatra), and the widespread *C. rubriventralis* (Red Sea, western Indian Ocean, Maldives, and Sri Lanka). Members of this complex typically have a single row of scales on the cheek and share the unique combination in the terminal-phase (TP) male of an elevated anterior dorsal fin, rounded caudal fin, and large fan or club-shaped pelvic fins without filamentous extensions. The new species is most similar to *C. humanni* and *C. morrisoni*, and the three species have apparently allopatric distributions in the Timor Sea-western Sunda Islands region. These three species share a uniquely shaped dorsal fin characterized by the presence of an anterior elevated, spike-like pennant. The best means of separating these species are differences in the color patterns of the TP male, primarily on the head, upper body, and on the dorsal, anal, and pelvic fins. The new species is distinguished by a combination of a yellow-orange upper head, blackish upper body, mainly blackish dorsal fin, and scarlet-red pelvic and anal fins. The female of *C. hygroxerus* is most similar to that of *C. morrisoni*, sharing a yellowish head and yellow pectoral-fin base.

Key words: coral-reef fishes, taxonomy, systematics, Indo-Pacific Ocean, biogeography, marine biodiversity.

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Introduction

The genus *Cirrhilabrus* Temminck & Schlegel, 1845 contains small colorful fishes (commonly known as fairy wrasses) that inhabit tropical coral reefs, ranging from the Red Sea and western Indian Ocean to the Hawaiian Islands and southeastern Polynesia. It is the second largest genus in the family after *Halichoeres*, with 52 valid species at present (Tea *et al.* 2016). Despite the large number of species, the genus was poorly documented until recent decades, due to the proclivity of many species for rubble habitats below about 20 m depth. The widespread use of scuba gear by diving scientists over the past 55 years has had a remarkable impact on our knowledge of this group, with all but six species having been discovered since the 1960s. Meristic and morphological differences between species are usually subtle and of limited value for distinguishing species, although the shapes of the dorsal, caudal, and pelvic fins are often useful.

One of the most valuable diagnostic features is the remarkable terminal-phase (TP) male color pattern, which is especially intensified during courtship and spawning, which occurs daily, usually about 1–2 hours before sunset. The colorful TP males are typically far outnumbered by the much smaller and relatively drab-colored initial-phase (IP) females. Like other members of the labrid family, *Cirrhilabrus* are broadcast spawners, with eggs being released and simultaneously fertilized in the water column, within a few meters of the bottom.

The spawning mode and relatively long pelagic larval duration (PLD) of many other labrid species no doubt plays a major role in the widespread distributions characteristic of numerous family members. However, many *Cirrhilabrus* species differ notably from the majority of wrasses in exhibiting limited regional distributions, or, in some unusual cases, such as the species described here, being restricted to small offshore islands and reef complexes. A possible explanation for these very limited ranges may be low dispersal ability of pelagic larvae. Although there remains a general lack of knowledge of PLDs for this genus, Victor (1986) reported the relatively short mean PLD of 21 days for *C. cyanopleura* (Bleeker, 1851) from the East Indian region. Several of these extreme restricted-range species occur in northern Australia, including *C. bathyphilus* Randall & Nagareda, 2002 (Coral Sea); *C. morrisoni* Allen, 1999 (western Timor Sea); *C. randalli* Allen, 1995 (offshore reef and atolls of Western Australia to Rote, Indonesia); and *C. squirei* Walsh, 2014 (Great Barrier Reef and Coral Sea). The present paper describes another species in this assemblage that first came to our attention as part of a shipment of live aquarium specimens from the Timor Sea. It was first considered as a possible variant of *C. humanni* Allen & Erdmann, 2012, but subsequent specimens revealed consistent species-level differences. We therefore describe it as a new species, the fifty-third member of the genus.

Materials and Methods

Counts of fin spines are given in Roman numerals and soft rays in Arabic numerals. Pectoral-ray counts include the rudimentary upper ray. The lateral line is interrupted; the count of the anterior part is given first, followed by a plus sign and the peduncular part. Only lateral-line scales with tubes are counted. All the tubed scales of the peduncular part are counted, even though one is usually located posterior to the base of the caudal fin. Gill-raker counts include all rudiments. Digital x-rays were utilized for counts of vertebrae and procurrent caudal-fin rays.

Lengths of specimens are given as standard length (SL), the straight-line measurement from the front of the upper lip to the base of the caudal fin (end of hypural plate). Measurements in Table 2 are given as percentages of the standard length. Head length is the distance from the front of the upper lip to the posterior end of the opercular membrane. Body depth is the greatest depth to the base of the dorsal fin (adjusting for any malformation of the abdomen due to preservation). Body width is measured just posterior to the opercular flap. Snout length is taken from the front of the upper lip to the fleshy edge of the orbit (if the upper jaw is protruded, it is pressed back to the nonprotractile position before the measurement is taken). Orbit diameter is the greatest fleshy diameter. Interorbital width is the least bony width. Caudal peduncle depth is the least depth; caudal peduncle length is the horizontal measurement between verticals at the rear base of the anal fin and the caudal-fin base. Measurements of fin spines and rays are taken to the extreme base of these elements. The dorsal-pennant height is measured from the base of the first dorsal-fin spine to the tip of the membranous extension between the first two dorsal-fin spines.

Pectoral-fin length is taken from the tip of the longest ray to the base of this ray. Pelvic-fin length is measured from the base of the spine to the tip of the longest ray.

Data in parentheses in the descriptions refer to paratypes, if differing from the holotype. Type specimens are deposited at the Australian Museum, Sydney (AMS), Museum and Art Gallery of the Northern Territory, Darwin (NTM); United States National Museum of Natural History, Washington, D.C. (USNM); and Western Australian Museum, Perth (WAM). In addition, the holotype of *Cirrhilabrus humanni*, deposited at the Museum Zoologicum Bogoriense, Cibinong, Java, Indonesia (MZB), was examined.



Figure 1. *Cirrhilabrus hygroxerus*, freshly captured paratype, WAM P.34502-001, male, 56.1 mm SL, eastern Timor Sea (M.P. Hammer).

Cirrhilabrus hygroxerus, n. sp.

Monsoon Fairy-wrasse

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Figures 1–5; Tables 1 & 2.

Holotype. NTM S.17975-001, male, 54.1 mm SL, approximately 10° 42.0'S, 129° 18.6'E, eastern Timor Sea, Northern Territory, Australia, 20 m, barrier net, Tim Green, Oct. 26, 2015.

Paratypes. (collected with holotype unless stated otherwise) AMS I.47190-001, male, 50.7 mm SL and 2 females, 38.4 & 41.0 mm SL; NTM S.17975-004, 2 females, 39.9 & 49.5 mm SL; NTM S.17975-002, male, 48.6 mm SL and 2 females, 47.0 & 50.5 mm SL; NTM S.17975-003, 2 males, 48.6 & 50.7 mm SL; NTM S.17934-031, male, 46.1 mm SL, same data except Aug. 3, 2015; USNM 432519, male, 54.6 mm SL and 2 females, 40.1 & 41.0 mm SL; WAM P.34502-001, male, 56.1 mm SL and 3 females, 41.9–45.9 mm SL.

Diagnosis. Dorsal-fin rays XI,9; anal-fin rays III,9; pectoral-fin rays 15; lateral-line scales 15–17 + 4–8; median predorsal scales 4–5; single horizontal scale rows on cheek below eye; gill rakers 11–14 (usually 13); body depth 3.3–4.0 in SL; head length 2.7–3.0 in SL; snout length 3.5–4.5 in HL; dorsal fin more or less uniform



Figure 2. *Cirrhilabrus hygroxerus*, freshly captured paratype, WAM P.34502-001, female, 45.9 mm SL, eastern Timor Sea (M.P. Hammer).

height except for elevated pennant comprised of membranous extension between first two spines, well-developed in mature males, 1.4–2.2 in HL; pelvic fins of male moderately elongate, reaching posteriorly to about base of first soft anal-fin ray, 2.6–3.2 in SL; caudal fin rounded. Male in life mainly blackish on upper half of body and white below; upper half of head yellow orange; dorsal fin mainly blackish, anal fin scarlet red with row of blue spots at base; pelvic fins scarlet red with black area at base; pectoral fins with prominent black base. Female in life yellow orange on upper two-thirds of head, grading to scarlet red on body; lower part of head, breast, and belly white; head and body with four narrow, lavender stripes; dorsal fin dusky red, yellowish basally, often with blackish or grey membrane between first two spines; anal and pelvic fins red-orange to pinkish; pectoral fins translucent with conspicuous yellow base.

Description. (meristic data from all 19 specimens and morphometric data from 16 specimens, 38.4–56.1 mm SL) Dorsal-fin rays XI,9; anal-fin rays III,9; all dorsal and anal-fin soft rays branched except first (first dorsal-fin ray unbranched in 72% of paratypes, and first anal-fin ray unbranched in 56% of paratypes), last dorsal and anal-fin soft ray branched to base; pectoral-fin rays 15, upper two unbranched (including rudimentary splint-like



Figure 3. *Cirrhilabrus hygroxerus*, live holotype, NTM S.17975-001, male, 54.1 mm SL, eastern Timor Sea (M.P. Hammer).

uppermost ray); pelvic-fin rays 1,5; principal caudal-fin rays 13, uppermost and lowermost rays unbranched; upper and lower procurrent caudal-fin rays 6 (5–6), posteriormost segmented; lateral-line interrupted, pored scales 16 + 7 (15–17 + 4–8); scales above lateral line to origin of dorsal fin 2; scales below lateral line to anus 6; median predorsal scales 4 (4–5); median preventral scales 4 (4–5); single horizontal scale row on cheek; circumpeduncular scales 15 (14–15); gill rakers 13 (except 2 paratypes with 14 and one with 11); pseudobranchial filaments 12 (10–12); branchiostegal rays 5; total vertebrae 25 (8 specimens).

Greatest body depth 3.7 (3.3–4.0) in SL; body compressed, width 2.1 (1.7–2.2) in depth; dorsal profile of head nearly straight, becoming slightly convex on nape; head length 3.0 (2.7–3.0) in SL; snout length 3.9 (3.5–4.5) in HL; orbit diameter 4.3 (3.4–4.4) in HL; interorbital width 4.4 (3.8–4.7) in HL; caudal-peduncle depth 2.4 (2.2–2.7) in HL; caudal-peduncle length 2.2 (1.9–2.5) in HL.

Mouth small, terminal and oblique, maxilla reaching vertical at anterior nostril, upper-jaw length 4.7 (4.3–4.8) in HL; dentition typical of genus with three pairs of enlarged canine teeth at front of upper jaw, gradually longer and more laterally recurved proceeding posteriorly; series of about 27–30 small conical teeth medial to anterior canines and continuing on side of jaw; lower jaw with single stout pair of canines anteriorly, protruding obliquely outward and slightly lateral to medial pair of upper jaw; inner series of about 19–20 small conical teeth in lower jaw; tongue short with rounded anterior edge; gill rakers small, longest on first arch about one-third length of longest gill filaments of holotype.

Posterior margin of preopercle with about 36 (24–32) tiny serrae (often difficult to detect due to overlying soft tissue); upper posterior edge of preopercle free to level of middle of pupil; anterior ventral edge of preopercle free to below about anterior margin of pupil; anterior nostril very small, in short membranous tube with posterior flap, located anterior to upper edge of eye and closer to eye than to snout tip; aperture of posterior nostril much larger than cephalic sensory pores, with a slightly elevated rim, located posterior and slightly dorsal to anterior nostril on a vertical with anterior margin of eye; pores of cephalic lateralis system adjacent to eye from behind middle of orbit to below front of orbit 13 (11–14); pores on side of snout anterior to eye 3; pores on posterior and ventral edges of preopercle 9 (7–9), continuing as a series of 4 (3–4) pores on mandible to front of chin; cluster of 4 tiny mid-interorbital pores; pores adjacent to upper edge of eye to above posterior nostril 7 (5–7); pores from upper margin of preopercle to upper rear corner of eye 7 (5–7); and series of 7 (6–8) small pores on side of nape from anterior end of lateral line to front of most anterior predorsal scale.

Scales cycloid; head scaled except snout, interorbital region, lips, and chin, also broad (maximum width about equal to half width of adjacent cheek scale) naked flange on posterior and ventral edges of preopercle; cheek with single row of large cycloid scales; base of dorsal and anal fins with row of large, pointed, elongate scales, one per inter-radial membrane (except first and last scale generally covers two membranes), tallest slightly more than one-third length of adjacent dorsal-fin spines (scales progressively shorter posteriorly on membranes of soft portion of fin); base of caudal fin with three enormous scales (middle and largest about 4 times larger than body scales), middle one overlapping those above and below, reaching about one-half distance to posterior margin of fin; pectoral fins naked; pelvic fins with a median ventral process of two elongate scales, more pointed posterior scale about three-fourths length of pelvic spine and about equal in length to slender axillary scale above each pelvic fin.

Origin of dorsal fin above second lateral-line scale; dorsal fin mostly uniform height except for elevated pennant comprised of membranous extension between first two spines, well-developed in mature males and smaller in females; height of dorsal pennant 1.7 (1.4–2.2 and 2.0–3.4 in male vs. female paratypes) in HL; first dorsal-fin spine 2.4 (2.3–4.1), third dorsal-fin spine 3.1 (3.1–4.2), last dorsal-fin spine 3.0 (2.5–3.4), all in HL; interspinous membranes extending well above spine tips, supported by terminal cirrus projecting dorsally or posteriorly from behind each spine tip, each cirrus one-half spine length in adult males and slightly shorter in females; longest (first or second) dorsal-fin soft ray 2.6 (2.4–3.1) in HL; origin of anal fin vertical with base of penultimate dorsal-fin spine; first anal-fin spine 5.0 (5.1–6.7), second anal-fin spine 3.9 (3.5–5.0), third anal-fin spine 3.4 (3.0–4.1), all in HL; penultimate anal-fin soft rays usually longest, 2.4 (2.4–3.1) in HL; caudal fin rounded, 3.6 (3.6–4.3) in SL; third and fourth pectoral-fin rays longest, 1.5 (1.5–1.8) in HL; origin of pelvic fins level with upper pectoral-fin base and origin of dorsal fin; pelvic fins of males moderately elongate, reaching to about base of first soft ray of anal fin, 2.8 (2.6–3.2 in male paratypes) in SL; pelvic fins of females shorter, 3.4–5.0 in SL.

Color of male in life. (Figs. 1 & 3) Upper half of body or area above line connecting upper pectoral-fin base

and lower caudal-fin base mainly black (sometimes with horizontal row of small blue spots on lower portion of black area), ventral half of head and adjacent lower body white; individual scales marking boundary between black and white zones on body with central black streak, blue margin on dorsal half, and white margin on lower half, resulting in zigzag boundary between black dorsal zone and white ventral zone; upper half of head and snout region yellow-orange, sometimes with thin lavender stripe above eye, on side of snout, and adjacent to lower edge of eye; lips yellow; eye with dusky orange iris and thin yellow ring around pupil; dorsal fin blackish with a blue sheen, including pennant at beginning of fin, with relatively narrow brownish to reddish submarginal zone, (widening on posteriormost portion of fin), and fine whitish outer margin; two rows of blue spots on dorsal fin, including one along base (one per fin ray), and second row on outer portion of fin (sometimes faint or absent except on posterior portion of fin); short, oblique blue band usually at base of dorsal-fin pennant; anal fin scarlet-red (grading posteriorly to dusky brownish red in holotype), with row of relatively large blue spots along base, narrow black submarginal stripe and fine white outer margin; caudal fin dusky brownish with yellow fin rays and scattered blue spots; pelvic fins scarlet-red with black area at base; pectoral fins translucent with prominent black base. Fresh specimens (Fig. 1) exhibit a similar pattern except middle portion of caudal fin bluish.

Color of female in life. (Figs. 2 & 4) Upper two-thirds of head yellow-orange, grading to scarlet-red on body; lower part of head, breast, and belly white; head with four narrow, lavender stripes, uppermost extending from just above eye and side of nape to upper edge of caudal peduncle, second from snout tip to front of eye, continued



Figure 4. *Cirrhilabrus hygroxerus*, live female paratypes, NTM S.17975-004, 39.9 and 49.5 mm SL, eastern Timor Sea (M.P. Hammer).

TABLE 1

Proportional measurements of selected type specimens of
Cirrhilabrus hygroxerus, n. sp., as percentages of the standard length
(*=damaged)

	holotype				paratypes					
	NTM S.	WAM P	USNM	AMS I.	NTM S.	NTM S.	NTM S.	WAM P	USNM	AMS I.
	17975	34502	432519	47190	17975	17975	17975	34502	432519	47190
	males				females					
Standard length (mm)	54.1	56.1	54.6	50.7	48.6	50.5	47.0	45.9	41.0	38.4
Body depth	26.9	25.0	26.1	27.1	26.3	25.6	26.2	26.4	29.6	30.1
Body width	13.1	12.6	11.9	12.8	13.2	15.4	15.8	12.9	13.7	14.4
Head length	33.5	32.8	34.3	34.5	32.8	32.8	33.9	34.6	34.8	35.4
Snout length	8.7	9.4	8.8	9.9	7.7	8.1	9.2	9.0	8.9	8.5
Orbit diameter	7.9	7.5	8.8	8.2	8.6	8.6	9.3	8.8	9.2	10.4
Interorbital width	7.6	7.4	7.3	8.2	7.4	7.6	8.9	8.1	7.8	8.1
Upper jaw	7.2	7.7	7.4	8.1	7.7	7.3	7.8	7.4	7.3	7.6
Depth of caudal peduncle	14.0	12.4	12.7	13.7	13.7	14.0	13.6	13.2	15.9	13.9
Length of caudal peduncle	14.9	16.8	15.1	18.0	16.3	14.3	15.4	15.2	16.3	15.0
Predorsal distance	33.1	31.9	32.6	35.1	32.5	34.9	35.0	33.7	34.9	35.9
Preanal distance	60.1	59.1	60.4	60.1	60.6	59.9	60.5	62.0	65.2	64.1
Prepelvic distance	34.4	32.7	33.5	36.3	34.2	33.3	30.0	34.0	34.2	37.8
Length of dorsal-fin base	57.7	54.9	54.0	57.0	53.8	55.7	57.4	57.1	59.8	56.6
Dorsal pennant height	14.1	17.1	19.1	9.7	11.6	9.0	9.3	10.0	9.5	8.5
1 st dorsal-fin spine	14.1	10.0	11.1	9.7	11.6	9.0	9.3	10.0	9.5	8.5
3 rd dorsal-fin spine	10.7	9.5	10.7	8.2	9.9	9.0	10.2	10.4	11.2	10.5
Last dorsal-fin spine	11.0	12.7	12.8	11.4	12.8	11.5	13.6	11.0	10.3	12.1
Longest (1 st) soft-dorsal-fin ray	12.8	12.1	13.1	11.2	12.1	12.9	14.1	14.1	12.1	13.9
Length of anal-fin base	25.5	23.5	23.4	24.7	23.9	25.8	24.3	23.2	23.8	21.3
1 st anal-fin spine	6.7	6.1	5.6	5.1	6.2	5.8	5.5	6.0	6.1	*
2 nd anal-fin spine	8.7	8.7	8.5	6.9	9.3	8.0	9.3	8.9	7.6	9.0
3 rd anal-fin spine	9.7	9.7	9.7	8.5	10.3	9.8	11.3	10.0	11.0	10.0
Longest (8 th) soft-anal-fin ray	13.7	12.2	14.0	11.2	13.6	12.7	13.6	12.8	11.4	13.2
Caudal-fin length	27.6	23.0	25.2	23.5	27.3	25.4	26.8	27.3	26.3	27.1
Pectoral-fin length	22.3	21.6	19.5	20.6	20.4	22.0	22.6	21.4	22.1	23.1
Pelvic-fin-spine length	13.6	13.5	11.9	13.3	12.3	12.0	13.7	12.6	11.3	13.6
Pelvic-fin length	35.8	35.8	33.6	33.5	38.0	24.9	29.5	27.9	21.4	20.3

from upper rear edge of eye to below posterior portion of dorsal fin, third from side of snout, continued behind lower rear edge of eye to upper pectoral-fin base, and lowermost in contact with lower edge of eye, extending from mouth to middle of opercle; additionally, rows of small lavender spots or short vertical lines, corresponding with horizontal scale rows frequently present on side of body; eye with red iris and narrow yellow ring around pupil; dorsal fin dusky red, yellowish basally, often with blackish or grey membrane between first two spines and fine white outer margin; anal fin red-orange to pinkish with fine white outer margin; pelvic fins pale pinkish; pectoral fins translucent with conspicuous yellow base.

Color of male in alcohol. (Fig. 5 upper) Generally blackish on upper two-thirds of side, more or less abruptly grading to whitish ventrally; upper part of head (above lower edge of eye) pale greyish with slightly diagonal, darker grey stripe immediately below eye and frequently a duller stripe along upper edge of eye; dorsal fin mainly blackish with translucent submarginal stripe and narrow black margin; anal fin semi-translucent whitish (except posterior half mainly blackish on holotype), with row of blackish spots on basal portion; caudal fin dusky greyish, grading to translucent on outermost portion; pelvic fins whitish, except blackish at base; pectoral fins semi-translucent whitish with prominent black band across base.

Color of female in alcohol. (Fig. 5 lower) Generally yellowish tan, sometimes with faint dark-edged whitish stripe along upper back from above eye to caudal peduncle and another from mid-interorbital to dorsal-fin origin; fins semi-translucent whitish, except membrane between first two dorsal spines frequently blackish and some specimens with blackish basal stripe on spinous portion of fin; five smallest specimens, 38.4–41.8 mm SL, with tiny black spot posteriorly on upper edge of caudal peduncle.

Distribution and habitat. The new species is currently known only from a single reef area in the eastern Timor Sea (Fig. 6), approximately 200 km north of Darwin, Australia. It was collected and observed in depths of about 18–37 m. The habitat appears to be localized to sloping rubble bottoms with scattered, low outcrops of rock or coral and occasional large coral outcrops.



Figure 5. *Cirrhilabrus hygroxerus*, NTM S.17975-001, preserved holotype (above), male, 54.1 mm SL, and NTM S.17975-004, preserved paratype (below), 49.5 mm SL, eastern Timor Sea (G.R. Allen).

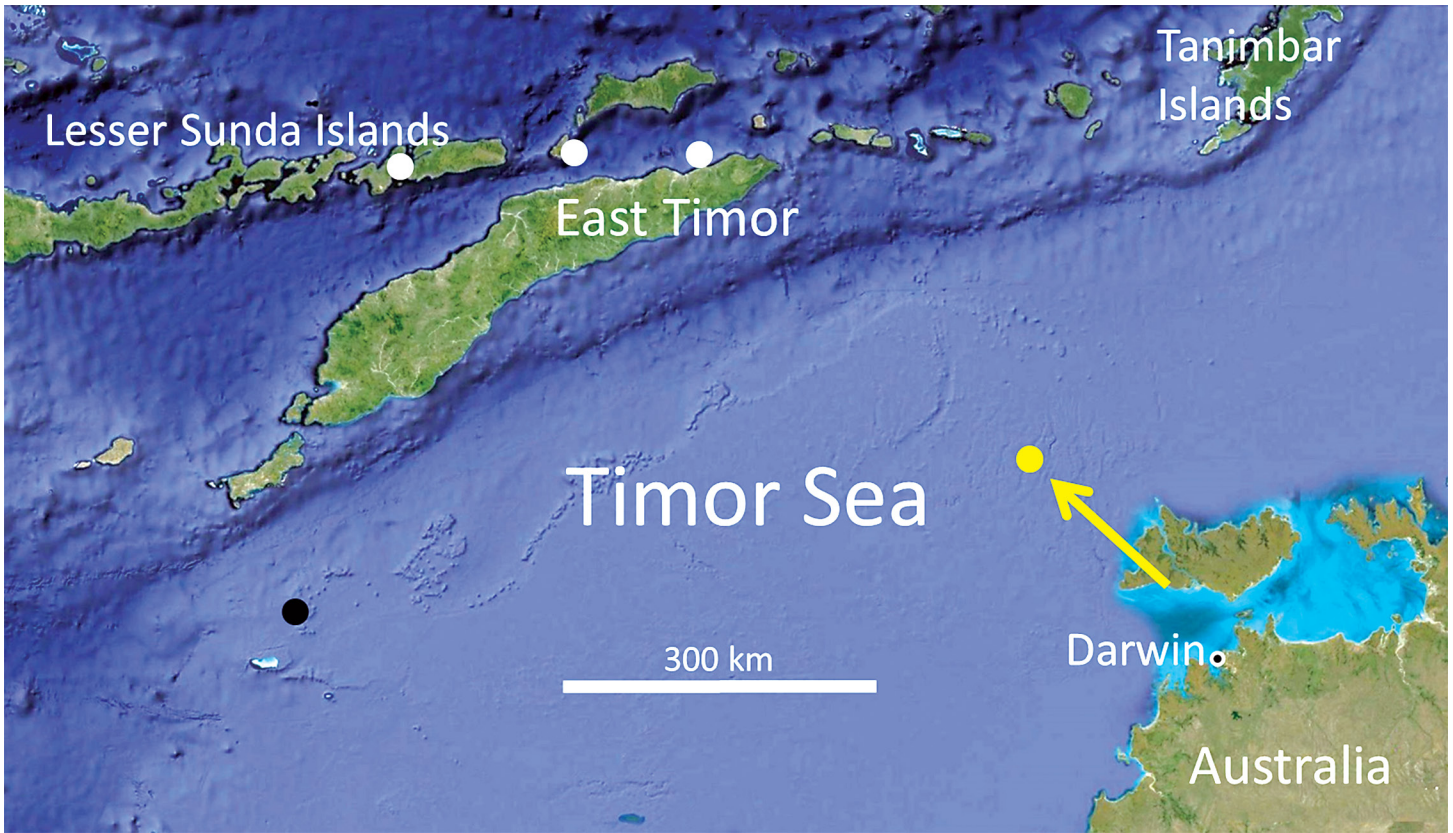


Figure 6. Map of Timor Sea-Lesser Sunda region showing locality records for *Cirrhilabrus hygroxerus* (arrow and yellow circle), *C. humanni* (white circles) and *C. morrisoni* (black circle).

Etymology. The species is named *hygroxerus* (from Greek *hygros*, meaning wet, and *xeros*, meaning dry), with reference to the monsoonal cycle of wet and dry seasons of northern tropical Australia. The name is also intended as an acknowledgment of Monsoon Aquatics, the aquarium fish company that supplied all of the type specimens and continues to be an excellent source of specimens for NTM. The species epithet should be considered a noun in apposition.

Comparisons. The new species is most similar to *C. humanni* (Fig. 7) and *C. morrisoni* (Fig. 8), which also occur in the Timor Sea-eastern Lesser Sunda region, but with apparently allopatric distributions (Fig. 6). Differences in TP-male color patterns provide the best means of distinguishing the three species (Table 2). The

TABLE 2

Comparison of salient color-pattern features of TP male *Cirrhilabrus hygroxerus*, *C. morrisoni*, and *C. humanni*

Character	<i>C. hygroxerus</i>	<i>C. morrisoni</i>	<i>C. humanni</i>
Upper half of body	Solid blackish	Pink to reticulated blackish	Orange-red to brown
Black pectoral-fin base	yes	yes	no
Dorsal fin	mainly black	mainly black	mainly red
Pelvic fins	orange-red	black	deep red
Anal fin	mainly red	mainly black	deep red
Yellow zone on lower side	no	no	yes

new species combines various features of the other two taxa. For example, the mainly blackish upper body and adjacent dorsal fin and black pectoral-fin base are reminiscent of *C. morrisoni*, but the reddish pelvic and anal fins are similar to *C. humanni*. The female of *C. hygroxerus* is most similar to *C. morrisoni*, with both species sharing the yellowish head and yellow pectoral-fin. The original description of *C. humanni* (Allen & Erdmann 2012) included an underwater photograph showing an unusual short, broad, lobular dorsal-fin pennant, which was thought to be a distinguishing feature. However, subsequent collections and observations of this species indicate the normal configuration is similar to the spike-like pennant of *C. hygroxerus* and *C. morrisoni*. These species belong to a complex that also includes *C. naokoae* Randall & Tanaka, 2009 (Nias Island, western Sumatra), *C. joanalleneae* Allen, 2000 (western Sumatra), and *C. rubriventralis* Springer & Randall, 1974 (Red Sea and western and central Indian Ocean). Members of this group typically have a single row of scales on the cheek and share the unique TP male combination of an elevated anterior dorsal fin, rounded caudal fin, and large fan or club-shaped pelvic fins that lack filamentous extensions. The six species vary only slightly with regards to meristics and morphometrics, which is not unusual among closely related species in this genus. In contrast to the three



Figure 7. *Cirrhilabrus humanni*, underwater photos of TP male (above), approx. 55 mm SL, and female (below), approx. 40 mm SL, East Timor (G.R. Allen).

species from the Timor Sea-eastern Lesser Sunda region, which are characterized by a short, spike-like dorsal pennant, *C. naokoae* has a sail-like, triangular elevation encompassing the anterior half of the spinous dorsal fin, whereas both *C. joanallenae* and *C. rubriventralis* possess a long, trailing filamentous extension of the first two dorsal-fin spines. The description of *C. naokoae* was based on three aquarium-trade specimens believed to have originated from the vicinity of Medan, Sumatra. However, subsequent information provided by one of the authors (H. Tanaka, pers. comm.) indicated that the specimen actually originated from Nias Island off the Indian Ocean coast of Sumatra, Indonesia.



Figure 8. *Cirrhitilabrus morrisoni*, underwater photos of TP male (top), transitional male (middle), both approx. 45 mm SL, and female (bottom), approx. 40 mm SL, Hibernia Reef, western Timor Sea (G.R. Allen).

Discussion. *Cirrhilabrus hygroxerus* represents an important addition to the marine fauna of northern Australia and the Indo-Pacific, being a vividly coloured, narrow-range endemic reef-fish species with specific habitat requirements. It is also the first record of the fairy-wrasse genus *Cirrhilabrus* from Northern Territory waters (Larson *et al.* 2013). Further exploration of offshore reefs in the region is likely to reveal additional new range records and possibly new species.

Other material examined.

Cirrhilabrus humanni: MZB 20589 (holotype), male, 54.5 mm SL, Pura Island, Lesser Sunda Islands, Indonesia; WAM P.33399-003 (paratypes), 2 female specimens, 26.2–39.2 mm SL, collected with holotype; WAM P.33742-002, 2 male specimens, 43.0–44.0 mm SL, East Timor.

Cirrhilabrus morrisoni: WAM P.31471-001 (holotype), male, 46.8 mm SL, Hibernia Reef, western Timor Sea; WAM P.31471-002 (paratypes), 3 male specimens, 42.4–43.4 mm SL, collected with holotype.

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