aqua, Journal of Ichthyology and Aquatic Biology

# Three new species of blennioid shore fishes discovered at Navassa Island, Caribbean Sea

**Jeffrey T. Williams**

Division of Fishes, Department of Systematic Biology, National Museum of Natural History, Washington, DC 20560, USA. E-mail: williams.jeff@nmnh.si.edu

**Accepted: 03.09.2002**

**Keywords**
Navassa, Caribbean, West Indies, reef fishes, new species, rotenone, Chaenopsidae, Dactyloscopidae

**Abstract**
An exploratory expedition to Navassa Island was carried out in April-May 1999. Specimens representing eight undescribed cryptic species were taken with rotenone while occupying 22 collecting stations, mostly by scuba diving: five blennioids, two clingfishes, and a goby. Descriptions of three of the blennioids, two chaenopsids and a dactyloscopid, are included here: *Acanthemblemaria harpeza* new species based on 268 specimens from Navassa; *Emblemaria vitta* new species based on two specimens, the holotype from Navassa and the paratype from Belize; and *Gillellus inescatus* new species based on one specimen from Navassa. Descriptions of these three new species are provided herein to allow the use of the names in a checklist of the shorefishes of Navassa Island, which is in press in **aqua**.

**Zusammenfassung**
Eine Forschungsexpedition zu der Navassa Inseln wurde im April-May 1999 unternommen. Es sind acht unbeschriebene kryptische Spezies mit Rotenon an 22 Sammelstationen, meistens mit Tauchflaschen, gefunden worden: fünf Schleimfische, zwei Saugfische eine Grundel. Die Beschreibung von drei Schleimfischarten, zwei Chaenopsiden und ein Dactyloscopid wird hier vorgenommen: *Acanthemblemaria harpeza* n. sp. basierend auf 268 Exemplaren von Navassa; *Emblemaria vitta* n. sp. basierend auf zwei Exemplaren, der Holotyp von Navassa und der Paratyp von Belize; und *Gillellus inescatus* n. sp. basierend auf ein Exemplar von Navassa. Die Beschreibung dieser drei neuen Spezies erfolgt heute, damit man die Namen in einer Checkliste der Küstenfische von der Navassa Insel in der nächsten Ausgabe von **aqua** benutzen kann.

**Résumé**
En avril-mai 1999, une expédition a exploré l'île Navassa. Des spécimens de huit espèces cryptiques ont été capturées à la roténome lors de l'examen de 22 sites de collecte, le plus souvent en plongée autonome: cinq blennies, deux poissons-ventouses et un gobie. Cet article comprend la description de trois des blennioïdes, deux chaenopsidés et un dactyloscopidé: *Acanthemblemaria harpeza,* espèce nouvelle, sur base de 268 spécimens de Navassa; *Emblemaria vitta,* espèce nouvelle, sur base de deux spécimens, l'holotype de Navassa et le paratype de Belize; et *Gillellus inescatus*, espèce nouvelle sur base d'un spécimen de Navassa. Les descriptions de ces trois espèces nouvelles permettent de faire figurer les noms dans une liste des poissons du littoral de l'île Navassa, sous presse dans **aqua.**

**Sommario**
Nel periodo aprile-maggio 1999 fu condotta una spedizione naturalistica all'Isola Navassa. Nelle immersioni subacquee, mediante l'impiego del rotenone, furono catturati in 22 stazioni di raccolta esemplari dalle abitudini criptiche appartenenti ad otto specie non ancora descritte: cinque del gruppo delle bavose, due succiascogli e un ghiozzo. Tre specie affini alle bavose sono descritte in questo articolo; si tratta di due chenopsidi e di un dattiloscopide. *Acanthemblemaria harpeza* n. sp. si basa su 268 esemplari raccolti a Navassa; *Emblemaria vitta* n. sp. si basa su due esemplari, l'olotipo raccolto a Navassa e un paratipo presso lo stato di Belize; Gillellus inescatus n. sp. è invece fondato su un unico esemplare raccolto a Navassa. Le descrizioni di queste tre nuove specie vengono qui presentate per permettere l'uso dei loro nomi scientifici in una checklist dei pesci costieri dell'Isola Navassa di prossima pubblicazione su **aqua**.

## Introduction

Navassa is a small isolated island located at 18° 25'N, 75° 05' W (Fig. 1), about 55 km west of the Tiburon Peninsula of Haiti and about 220 km north-east of Morant Point, Jamaica. It was claimed by the United States under the Guano Act of 1857 (Skaggs, 1994) and designated a United States National Wildlife Refuge in April 1999. The surface area is about 3.5 km$^2$, the maximum length is 2 km, and the maximum elevation is 76 m (Turner, 1960). The island rises abruptly

from fairly deep water. The depth at the shoreline is about 24 m except for some shallower waters at the north-west end. Corals and sponges grow on the large blocks of rock that have broken off the cliffs and fallen into the waters around the island. Coral cover is most extensive in shallow waters and at about 30 m at the north-west end of the island. A major goal of the April 29-May 12, 1999, expedition to Navassa (NAV 99) on board the M/V *Quest* and the Dominican Republic's fishery vessel *Mago de Mar* was to conduct as comprehensive a survey of the fishes of Navassa as possible.

Among the fishes collected in 1999 at Navassa (Collette *et al.,* in press, reporting 234 species of fishes known from Navassa) were specimens representing eight new species of cryptic fishes. Thacker (2001) described the new goby, Briggs (2001; erroneously described as an eastern Pacific species) described one of the new clingfishes, Williams and Tyler (in press in Smithsonian Contributions to Zoology) are describing the second new clingfish species, and Williams and Mounts have submitted a manuscript to *aqua* with descriptions of two new species of *Starksia* (Labrisomidae). The other three species are described as new herein.

### Methods

Counts and measurements generally follow Smith-Vaniz and Palacio (1974) and Dawson (1982). Lengths are given as standard length (SL); lateral line is abbreviated as LL. Institutional abbreviations: BMNH-Natural History Museum, London; LACM-Los Angeles County Museum, California; MCZ-Museum of Comparative Zoology, Harvard University; SIO-Scripps Institution of Oceanography; USNM-National Museum of Natural History, Smithsonian Institution.

## *Gillellus inescatus* n. sp.

Flagfin stargazer
(Fig. 1)

**Holotype:** USNM 360232 (young male, 23.5 mm SL), Navassa Island, sand and rubble flat on outer shelf between NW Point and Lulu Bay; depth 27-30 m; NAV 99 sta. 27; rotenone; J. T. Williams, B. B. Collette, L. Micheletti; 7 May 1999.

### Diagnosis

*Gillellus inescatus* may be distinguished from all described dactyloscopid species by the following combination of characters: an esca-like structure at tip of elongated first dorsal fin spine; first three dorsal fin spines form isolated anterior finlet; lower lip with four fimbriae; upper lip lacking fimbriae; LL with more scales (23) in arched portion than in straight portion (20); pectoral fin rays 13. It differs from all other Atlantic *Gillellus* in having 11 caudal fin rays (versus 10), 20 scales in the straight portion of the LL (versus 12-19 or 22-25), and 32 caudal vertebrae (versus 23-28).

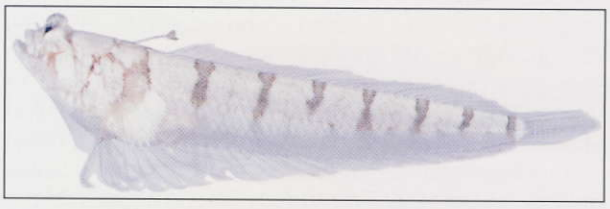

**Fig. 1.** *Gillellus inescatus* n. sp., holotype, Dactyloscopidae, USNM 360232, sta. 27, 25.3 mm SL.

### Description

Based on the only known specimen. Dorsal fin rays III + XI, 26 (total elements 40), first spine with a fleshy esca-like mass of tissue at its tip; anal fin rays II, 30; caudal fin rays 6+5=11; pelvic fin rays I,3; pectoral fin rays 13; most posterior rib on vertebral centrum 12; vertebrae 10 + 32 = 42.

Nape without scales; no scales between arched portion of LL and base of dorsal fin; scales in arched LL 23, straight portion of LL with 20; pectoral fin base and venter (belly anterior to anus) lack scales; principal preopercular canal pores 3; upper lip without fimbriae, lower lip with 4 fimbriae; opercular fimbriae 8; each eye with small supraorbital flap.

Body elongate, compressed; holotype and only known specimen 23.5 mm SL, head length 6.5 mm, length of first dorsal fin spine 2.5 mm, length of second dorsal fin spine 0.3 mm. Small esca-like structure at tip of elongated first dorsal fin spine. Genital papilla of male holotype very short and broadly conical, positioned immediately posterior to anus and anterior to base of first anal fin spine.

**Colour in life:** Head of male holotype whitish with small iridescent blue chromatophores distributed over snout, cheeks, top of head, and onto pectoral fin base, about four slender brownish streaks cross upper and lower lips, about four irregular, narrow reddish brown stripes extending posteroventrally across suborbital area, cheek with three broad diagonal stripes, the most dorsal and most ventral stripes reddish brown, extending diagonally toward angle of preopercle, these stripes bordering broad white stripe extending across middle of cheek; top of head cream-coloured, opercle white, encircled by reddish brown ring; body white ventrally, dorsal half with cream coloured background overlaid with small iridescent blue chromatophores, eight reddish brown saddles on body, first and broadest covering area anterior to and extending posteriorly beyond isolated dorsal finlet, saddle with dark reddish brown borders surrounding tan central portion, branching ventrolaterally as it encircles white opercle, posterior branch broad and extending onto pectoral fin base; subsequent seven saddles about half width of first, saddles with reddish brown outlines and central paler brown region, each saddle extending ventrally to about midlateral level on sides of body. Small esca-like structure at tip of first dorsal fin spine with reddish brown

anterior and posterior borders, caudal fin with melanophores scattered over central portion of middle rays. Pectoral fin with white blotch covering basal fifth of fin and adjacent portion of fleshy pectoral fin base. All other fins translucent.

**Colour in alcohol:** Head and body straw-coloured, without pigmentation or any evidence of dorsal saddles or other life colours described above.

### Geographic distribution

*Gillellus inescatus* is currently known only from Navassa Island, where it was taken at a depth of 27-30 m. Although known from one specimen, only limited sampling using rotenone at depths of 27 m and greater has been carried out at Navassa and a more comprehensive survey of the fauna of sand and rubble areas at depths of 30 to 50 m is needed to assess the population size of this species at Navassa.

### Etymology

The specific epithet is based on the Latin *inescare* meaning "to bait," in reference to the esca-like structure on the distal tip of the first dorsal fin spine, which might be used as a bait to lure prey toward the fish, or possibly to attract females. It is given the common name, flagfin stargazer, in reference to the esca-like structure, which resembles a flag being flown from the top of the spine.

### Affinities

Among Atlantic congeners, *Gillellus inescatus* shares the low number of lower lip fimbriae (4) with *G. uranidea, G. healae,* and *G. jacksoni;* also the absence of scales above the lateral line with *G. healae*. It differs from all in having 11 segmented caudal fin rays and an elongate first dorsal fin spine with an esca-like structure at its tip. An argument could be made for placing *inescatus* in a new genus. As only one specimen is known, and its characteristics generally concur with those of *Gillellus,* I tentatively place *inescatus* in *Gillellus.*

## *Acanthemblemaria harpeza* n. sp.

Thornbush blenny
(Figs. 2, 3)

**Holotype:** USNM 367203 (male, 24.2; measured 28.3 immediately after capture), Navassa Island, shore at undercut of island at Northwest Point; 18° 25' N, 75° 01' W; 0-4.5 m; NAV 99, sta. 5; rotenone; J. T. Williams, B. B. Collette, C. Thacker, L. Micheletti, M. Smith; 30 April 1999.

**Paratypes**: USNM 367204 (4, 19.3-23.9); collected with holotype. USNM 367206 (57, 14.7-23.5), Navassa Island, at shore on tip of Northwest Point, rocky undercut at shore with drop-off to about 4 m; 18° 25' N, 75° 01' W; 0-9 m; NAV 99, sta. 1; rotenone; J. T. Williams, B. B. Collette, C. Thacker, M. Miller; 29 April 1999. BMNH 2002.7.3.1 (5, 17.9-21.6), LACM 56003-1 (5, 18.0-21.1), MCZ 161483 (5, 18.4-23.4), SIO 02-79 (5, 19.0-23.5), and USNM 367205 (58, 15.9-25.5), all from: Navassa Island, steep rock wall at shore just east of Northwest Point; 18° 25' N, 75° 01' W; 3-9 m; NAV 99, sta. 7; rotenone; J. T. Williams, B. B. Collette, L. Micheletti, R. Allum; 30 April 1999.

**Additional material.** All from Navassa Island: USNM 359514, sta. 10; USNM 360204, NAV 99, sta. 16; USNM 359561, NAV 99, sta. 21; USNM 360322, NAV 99, sta. 28.

### Diagnosis.

*Acanthemblemaria harpeza* may be distinguished from all described species of *Acanthemblemaria* by the following combination of characters: head spines on top of head posterior to orbit well-developed, with 7-10 roughly grouped spines on either side of frontal suture; no black spot in anterior portion of spinous dorsal fin, nasal cirri heavily-branched, usually with more than 6 free tips on each cirrus; supraorbital cirri extensively-branched, with main stalk dividing basally into three or more branches, most of the tips distally bifurcate, pectoral fin rays 13, dorsal fin usually with 21 spines and 14 or 15 segmented rays, segmented anal fin rays usually 22 or 23, total vertebrae 41 or 42; terminal rays of dorsal and anal fins bound by membrane to the caudal fin along proximal half of most dorsal and most ventral caudal rays; in life, white stripe extends along underside of head from tip of lower lip almost to base of pelvics.

### Description

The holotype condition is followed by the modal value in parentheses after applicable characters. Dorsal fin rays XXI or XXII, 14 or 15 (XXI, 15; only two specimens with XXII, bimodal at 14 and 15); anal fin rays II, 21-24 (II, 24; II, 23); segmented caudal fin rays 7+6=13;

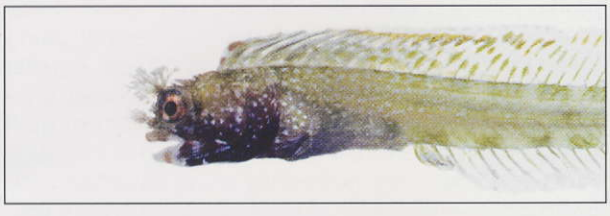

**Fig. 2.** *Acanthemblemaria harpeza* n. sp., Chaenopsidae, USNM 367203, sta. 5, 24.2 mm SL, head and anterior portion of body.

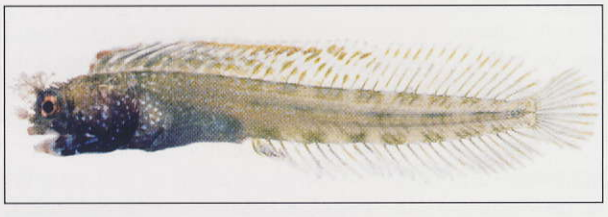

**Fig. 3.** *Acanthemblemaria harpeza* n. sp., Chaenopsidae, USNM 367203, sta. 5, 24.2 mm SL.

pectoral fin rays 13; pelvic fin rays I, 3; most posterior rib on vertebral centrum 13; vertebrae 12 + 29 or 30 = 41 or 42 (12 + 30 = 42; 12 + 30 = 42).

Dentition: upper and lower jaws with outer row of large conical teeth flanked by inner band of smaller conical teeth; palatines with double row of conical teeth (holotype with total of about 14 on each side); vomer with teeth arranged in a circle (holotype with 6 teeth).

Cephalic sensory pores: mandibular 4, common 1, preopercular 6, postemporal 2, lateral supratemporal 4; median supratemporal 1, supraorbital 2-3, posterior infraorbital 3, anterior infraorbital 3, frontal 0, median interorbital 2-3, anterior frontal 1, nasal 2 (anterior nasal pore located at ventroanterior end of nasal bone underneath the anterior nasal spines; posterior nasal pore immediately above posterior nostril at base of most dorsal nasal spine).

Supraorbital cirri extensively-branched, with main stalk dividing basally into three to six main branches; most of the tips distally bifurcate (left cirrus of holotype with 31 free tips). Anterior nostril tube-shaped with heavily-branched (usually more than 6 free tips on each) nasal cirrus arising from the distal margin of posterior wall of each tubular nostril (left cirrus of holotype with 11 free tips). Posterior nostril a rounded pore situated near the anterior border of the orbit. Well-developed fleshy flap extends along anterior margin of first dorsal spine in both sexes. Dorsal fin slightly indented between last spine and first segmented ray. Terminal rays of dorsal and anal fins bound by membrane to caudal fin just posterior to bases of most dorsal and most ventral caudal rays.

Head spines well-developed, directed anteriorly: top of head posterior to orbit with 7-10 spines in a roughly triangular group on either side of frontal suture (total for both sides 14-18 spines); posteromedial rim of orbit smooth; supraorbital rim of each frontal with posterodiagonal row of 3 anterolaterally directed spines separated by a shallow groove from row of 2-5 spines along dorsal rim of orbit (these, with their almost parallel partners on the opposite orbital rim, form a deep, concave interorbit); anterior rim (lateral ethmoid) of orbit with 5-6 short spines; ventral rim (lacrimal) of orbit with 1-2 spines anteriorly, posteriorly small tubercles form raised ridge, anterior tip of lacrimal with 2 spines projecting anterolaterally; nasal bone with longitudinal row of 4 or 5 spines (2 or 3 spines grouped beneath anterior nostril at anterior tip of nasal, 1 spine between nostrils, 1 spine dorsomedial to posterior nostril).

Body elongate, compressed; holotype and largest known specimen measured 28.3 mm SL immediately after capture, but after preservation measures 24.2 mm SL, head length 5.4 mm. Genital papilla of male holotype short and conical, positioned immediately posterior to anus and anterior to base of first anal fin spine. Females with ring of slender filaments encircling anus, gonopore borne on fleshy mound immediately posterior to anus.

**Colour in life:** Male holotype (Fig. 2, 3) with small bluish white spots over head and most of body, background colour of head with mixture of large yellow and small blue chromatophores over dorsal half, lower half of head with purplish black background, distinctive white stripe extending from tip of lower lip posteriorly along underside of head almost to base of pelvic fin; lips with alternating pale and dark bars, lips with reddish (white on lower lip) bar anteriorly, sequentially followed posteriorly by greenish blue (reddish on lower lip) bar, white bar, purplish black bar, white bar, then purplish black bar. Head spines, orbital cirri, and nasal cirri with scattered yellow, blue, and red chromatophores. Iris of eye with red pigment around pupil, scattered melanophores over outer portion. Background coloration of body similar to that of head, but blue chromatophores larger and more prominent; body pattern changes at about level of anal fin origin where yellow and blue chromatophores cluster into a series of greenish saddles alternating with broad pale interspaces along the bases of dorsal and anal fins. Dorsal fin: two red spots in the anterior fleshy flap, proximal spot small, most distal spot pupil-sized; distal white stripe extends along margin for entire length of fin; yellow stripe with embedded melanophores extending along ventral border of white marginal stripe from about spines 6 through 14, where yellow stripe breaks up and continues at about same level along fin as small yellow spots with embedded melanophores; anterior 13 to 14 spines and interspinal membranes with relatively dense blue and yellow chromatophores coalescing into irregular spots and stripes; posterior half of fin with pigment restricted to shafts of rays. Anal fin: distal tips of spines yellow; anterior four elements and their fin membranes with yellow chromatophores proximally flanked by band of densely-grouped blue chromatophores; remainder of fin with blue and yellow chromatophores restricted to shafts of rays, membranes translucent, distal white band extends along margin from first segmented ray to end of fin. Caudal fin translucent with yellow chromatophores covering distal third of shafts of rays. Pectoral fins translucent. Pelvic fins black with narrow white stripe along longest ray.

Females similar to males, but purplish black area not developed on underside of head.

**Colour in alcohol:** Male holotype with head and body cream-coloured, only pigmentation being several melanophores around the anus (all but a few melanophores, present in the colour pattern of all fresh specimens, disappeared within a few months after initial preservation in formalin and subsequent stepwise transfer into 75% ethanol). Orbital and nasal cirri translucent, orbital cirri with scattered tiny melanophores near branch tips. Dorsal fin translucent with blackish band (its width about equal to diameter of pupil) of melanophores extending along distal margin from spines 6 through 15; small groups of melanophores also present as small spots on inter-

spinal membranes between spine 17-18 and 19-20; posterior to spine 20, melanophores variously scattered along tips of some rays. Caudal fin translucent. Anal fin translucent with narrow diagonal streak of melanophores extending from distal tip of first anal spine, across interspinal membranes to a point at about mid-length of fourth fin element (second segmented ray). Pectoral fins translucent. Pelvic fin with several scattered melanophores.

Females with pigmentation similar to male above, but band extending along distal margin of dorsal fin variously beginning at spines 8-10 and terminating at spines 16-18 and no melanophores around anus or on anal fin.

### Geographic distribution

*Acanthemblemaria harpeza* is currently known only from Navassa Island where it is the most common chaenopsid in the coastal waters. It was collected at numerous stations and is currently known from 268 specimens, ranging in size from 13.3-28.3 mm SL.

### Etymology

The specific epithet is based on the Greek noun *harpeza* meaning thorn-hedge and refers to the heavily-branched nasal and orbital cirri that resemble bushes amidst the thorn-like spines on the head. It is treated as a noun in apposition. It is given the common name, thornbush blenny, in reference to the bushy cirri and thorn-like spines on the head.

### Affinities

Hastings (1990; subsequently modified by Almany and Baldwin (1996) after inclusion of their newly described species, *A. johnsoni*) hypothesized phylogenetic relationships among the species of the genus *Acanthemblemaria*. *Acanthemblemaria harpeza* shares derived character states placing it in a polytomy with *A. paula* and *A. aspera*, all of which form the sister group to *A. medusa*. *Acanthemblemaria harpeza* may be distinguished from *A. paula, A. aspera* and *A. medusa* by having more than 6 free tips on each of its extensively-branched nasal cirri and, in life, a white stripe extending along underside of head from tip of lower lip almost to base of pelvics. It further differs from *A. aspera* and *A. medusa* in lacking a black spot anteriorly in the spinous dorsal fin (present in the last two) and having more spines on top of the head. Additionally, *A. harpeza* may be distinguished from *A. paula* by having 21 or 22 dorsal fin spines (versus 18-20).

## *Emblemaria vitta* n. sp.

Ribbon blenny
(Fig. 4)

**Holotype**: USNM 367202 (18.0) Navassa Island, just south of Northwest Point on shelf off W side of island, ridges of rock with sea fans, sponges and sand/rubble at base; 26-32 m; NAV 99, sta. 25; rotenone; J. T. Williams, B. B. Collette, C. Thacker, L. Micheletti; 6 May 1999.

**Paratype**: USNM 296362 (13.5); Belize, Carrie Bow Cay, fore reef near sand trough at end of spur and groove; 10-12 m; CBC-104, K-172; B. Kensley; 3 Dec. 1985.

### Diagnosis

*Emblemaria vitta* may be distinguished from all described species of *Emblemaria* by the following combination of characters: third soft pelvic fin ray vestigial (only two obvious segmented rays), orbital cirri broad and ribbon-like, pectoral fin rays 13, segmented dorsal fin rays 13, segmented anal fin rays 19, vertebrae 12 + 25 = 37, in preservative, males with anterior portion of spinous dorsal fin black with a translucent, whitish area at base of first several spines.

### Description

Based on the two known specimens; when different, the holotype condition presented first. Dorsal fin rays XIX, 13 or XVIII, 13; anal fin rays II, 19; caudal fin rays 7+6 = 13; pelvic fin rays I,3 (third ray vestigial, that of holotype is a tiny sliver, its length goes about five times in longest pelvic ray; third ray of paratype not obvious externally); pectoral fin rays 13; most posterior rib on vertebral centrum 12; vertebrae 12 + 25 = 37.

Supraorbital commissural pores 3; 3 supratemporal pores arranged in a shallow V with most posterior (lateral) pores positioned anterior to transverse line through dorsal fin origin. Cephalic sensory pore pattern essentially identical to that described by Johnson and Greenfield (1976: fig. 1A and C) for *Emblemaria piratula*.

Orbital cirri well-developed, unbranched, broad and flattened, resembling a slender piece of ribbon; length of each cirrus about twice diameter of eye. Anterior nostril tube-shaped with simple, slender nasal cirrus arising from distal margin of posterior wall of each tubular nostril. Posterior nostril a rounded pore situated near anterior border of orbit.

Body elongate, compressed; holotype and largest known specimen 18.0 mm SL (paratype 13.5), head length 5.2 mm (4.9), depth at anus 2.7 mm (2.2), diameter of bony orbit 1.2 mm (1.1), orbital cirrus 2.7 mm (damaged in paratype). Genital papilla of male holotype

**Fig. 4.** *Emblemaria vitta* n. sp. Williams, holotype, Chaenopsidae, USNM 367202, sta. ~~25~~, ~~32.9~~ 18.0 mm SL, male, coloration after preservation in alcohol.

short and conical, positioned immediately posterior to anus and anterior to base of first anal fin spine.

**Colour in alcohol** (based on holotype): Life colours unknown. Head and anterior half of body brown, melanophores becoming more dispersed and distinct at mid-body, posterior half of body pale cream coloured. Orbital and nasal cirri pale. Anterior third of dorsal fin dark brown (almost black) with pale triangular area at bases of spines one through four, posterior two-thirds pale with narrow stripe of melanophores along distal margin. Caudal fin pale. Anal fin with brown melanophores over anterior third, posterior two-thirds pale with narrow stripe of melanophores along distal margin, tips of rays pale. Pectoral fins translucent. Pelvic fins brown.

## Geographic distribution

*Emblemaria vitta* is currently known only from Navassa Island and Carrie Bow Cay (Belize) in the Caribbean Sea. It does not appear to be common in either area, as both places have now been extensively sampled using rotenone, but only two specimens have been collected. Its sibling species, *E. piratula*, is known only from the Gulf of Mexico.

## Etymology

The specific epithet is based on the Latin noun *vitta* meaning band and refers to the ribbon-like shape of the orbital cirri. The name is treated as a noun in apposition. It is given the common name, ribbon blenny, in reference to the ribbon-like shape of the orbital cirri.

## Affinities

Within the genus *Emblemaria, E. vitta* shares the vestigial third pelvic fin ray character only with *E. piratula* Ginsburg and Reid in Ginsburg, 1942, *E. caldwelli* Stephens, 1970, and *E. hyltoni* Johnson and Greenfield, 1976. *Emblemaria vitta* and *E. piratula*, with 13 pectoral fin rays, may be distinguished from *E. caldwelli*, and *E. hyltoni*, both with 14 pectoral fin rays. The sibling species *E. vitta* and *E. piratula* have similarly shaped and pigmented dorsal fins, with the males having a large, sail-shaped black spinous portion with a pale rectangular area at its base anteriorly. *Emblemaria vitta* and *E. piratula* may be distinguished by segmented dorsal fin ray counts (13 vs. 14 to 16) segmented anal fin rays (19 vs. 20 or 21) and vertebral counts (37 vs. 39 to 40).

## Acknowledgements

I am grateful to the Animal Planet television series of Discovery Communications, Inc., and Beyond Productions, Inc., for supporting the Navassa Expedition and for the resulting television program "The Quest – Episode 3: Forbidding Islands." I appreciate the assistance of Bruce Collette, Chris Thacker, and Mike Smith, and the crew of *M/V Quest* and the Beyond staff on board in helping to take samples of the fishes of Navassa including the specimens described as new species herein. In particular, I thank the expedition leader Andrew Wight, and Ron Allum, Tove Petterson and Lynn Micheletti. For assistance in various ways, I thank Richard Rosenblatt and H. J. Walker (SIO), Jerry Finan, Kris Murphy, Jeff Clayton, Shirleen Smith, and David Smith (USNM), Sara Henley (National Marine Fisheries Service), Fernando Bretos (Center for Marine Conservation), and Carlos Rodriguez (Dominican Republic). Bruce Collette read and provided constructive comments on early drafts of the manuscript.

## References

**Almany, G. R.** & **C. C. Baldwin.** 1996. A new Atlantic species of *Acanthemblemaria* (Teleostei: Blennioidei: Chaenopsidae): morphology and relationships. *Proceedings of the Biological Society of Washington,* **109 (3)**: 419-429.

**Briggs, John C.** 2001. New clingfish (Gobiesocidae) from Isla Grande, Colombia. *Copeia,* **2001**: 745-746.

**Collette, B. B., Williams J. T., Thacker,C. E.,** & **M. L. Smith.** In press. Shore fishes of Navassa Island, West Indies: a case study of why rotenone sampling is needed for reef fish biodiversity studies. *aqua.*

**Dawson, C. E.** 1982. Atlantic sand stargazers (Pisces: Dactyloscopidae), with description of one new genus and seven new species. *Bulletin of Marine Science,* **32 (1)**: 14-85.

**Hastings, P. A.** 1990. Phylogenetic relationships of tube blennies of the genus *Acanthemblemaria* (Pisces: Blennioidei). *Bulletin of Marine Science,* **47 (3)**: 725-738.

**Johnson, R. K.** & **D. W. Greenfield.** 1976. A new chaenopsid fish, *Emblemaria hyltoni*, from Isla Roatán, Honduras. *Fieldiana Zoology,* **70 (2)**: 13-28.

**Skaggs, J. M.** 1994. *The great guano rush.* St. Martin's Griffin, New York, 334 p.

**Smith-Vaniz, W. F.** & **F. J. Palacio**. 1974. Atlantic fishes of the genus *Acanthemblemaria*, with descriptions of three new species and comments on Pacific species (Clinidae: Chaenopsinae). *Proceeding of the Academy of Natural Sciences,* **125 (11):** 197-224.

**Thacker, C. E**. 2001. *Evermannichthys bicolor*, a new goby (Teleostei: Perciformes: Gobioidei) from Navassa Island. *Los Angeles County Natural History Museum Contributions in Science,* **490**, 5 p.

**Turner, R. D**. 1960. Land shells of Navassa Island, West Indies. *Bulletin of the Museum of Comparative Zoology,* **122**: 231-244.

**Williams, J. T.** & **J. C. Tyler**. In Press (2003). Revision of the Western Atlantic clingfishes of the genus ***Tomicodon*** (Gobiesocidae), with descriptions of five new species. *Smithsonian Contributions to Zoology*, number 621.