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Platygobiopsis tansei, a New Species of Dorso-ventrally Flattened Gobiid Fish from Southern Japan

Muneo Okiyama

Marine Ecology Research Institute, Teikoku-shoin Bldg, 5F,
Jinbo-cho 3–29, Kanda, Chiyoda-ku, Tokyo 101–0051, Japan
E-mail: bb8m-okym@asahi-net.or.jp

Abstract A new species of *Platygobiopsis*, *P. tansei*, is described on the basis of 22 specimens, 23.0–46.8 mm SL, from depths of 60–136 m in southern Japan. It is easily distinguished from its congener, *P. akihito*, in having more second dorsal-fin rays (14–15 vs 12), fewer gill rakers on the first gill arch (0+9–10 vs 1–3+11–12), absence of chin barbels, less extensive scale development around nape and pectoral-fin base, absence of pelvic-fin frenum, and absence of sensory-canal pores and cutaneous folds on head. Its osteology is described with special references to its unusually depressed head and body. *Platygobiopsis tansei* from temperate waters is a smaller and deeper-dwelling form than its tropical congener, *P. akihito*.
Key words: *Platygobiopsis tansei*, new species, dorso-ventrally flattened goby, southern Japan.

Platygobiopsis was established on the basis of an unusually depressed head and body for a goby. The type and hitherto only known species, *P. akihito* Springer and Randall, 1992, was collected from Flores, Indonesia. This paper describes a new and second species of *Platygobiopsis* from southern Japan, with special reference to modifications of its osteology resulting from its depressed head and body. Although Springer and Randall (1992) briefly mentioned the existence of this new species citing my unpublished information, morphological and ecological aspects of these 2 congeners are compared in much greater detail here.

Materials and Methods

Counts, measurements and terminology follow those of Springer and Randall (1992), including the spinous dorsal-fin pterygiophore formula proposed by Birdsong *et al.* (1988), and cutaneous papillae and cephalic sensory pore nomenclature used by Lachner and McKinney (1978, 1979). Definitions of median fin elements are based on Birdsong (1975), but those of the caudal fin including the caudal-fin formula (=number of dorsal unbranched rays+dorsal hypaxial branched rays/ventral hypaxial branched rays+ventral unbranched rays) follow Fujita (1990). NSMT-P 33283 was cleared and double stained for bone and cartilage as outlined in Potthoff (1984). NSMT-P 77004 and 77005 were stained only for bone. Institutional abbreviations follow Leviton *et al.* (1985).

Platygobiopsis tansei sp. nov.

(New Japanese name: Beta-haze)

(Figs 1–3, Table 1)

Holotype. NSMT-P33282, ♂, 46.8 mm SL. Off Kunozan, 37°55.9′N, 138°30.6′E, Suruga Bay, Sizuoka Prefecture, Japan, muddy sand substratum, 92–120 m, 2 m beam trawl, R/V *Tansei-maru*, 17 July 1978.

Paratypes. NSMT-P 33283, 1 (♀, 40.5), and NSMT-P 77001–77003, 3 (26.8, 27.0, 27.3), taken with holotype; NSMT-P 77004–77006, 3 (26–32.9), off-Kunozan, 34°55.5′N, 138°30.6′E, 62–90 m, 2 m BT, R/V *Tansei-maru*, 17 July 1978; NSMT-P 77007, 1 (33.9), off-Kunozan, 34°55.0′N, 138°30.4′E, 120–136 m, 2 m beam trawl, R/V *Tansei-maru*, 17 July 1978; NSMT-P 77008–77010, 3 (23.0, 30.5, 31.1), off-Kunozan, 34°57.0′N, 138°27.8′E, 72–125 m, 2 m beam trawl, R/V *Tansei-maru*, 12 June 1977; NSMT-P 19015, 3 (43.9, 48.2, 1 specimen not measured), 36°47.5′N, 141°51.0′E,

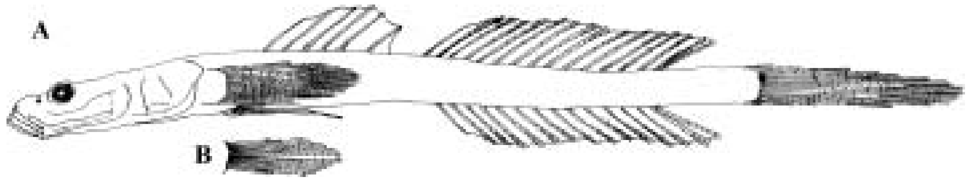

Fig. 1. *Platygobiopsis tansei*, NSMT-P 33282, holotype, 46.8 mm SL, male, the Suruga Bay. A: left side in lateral view; B: ventral view of pelvic-fin.

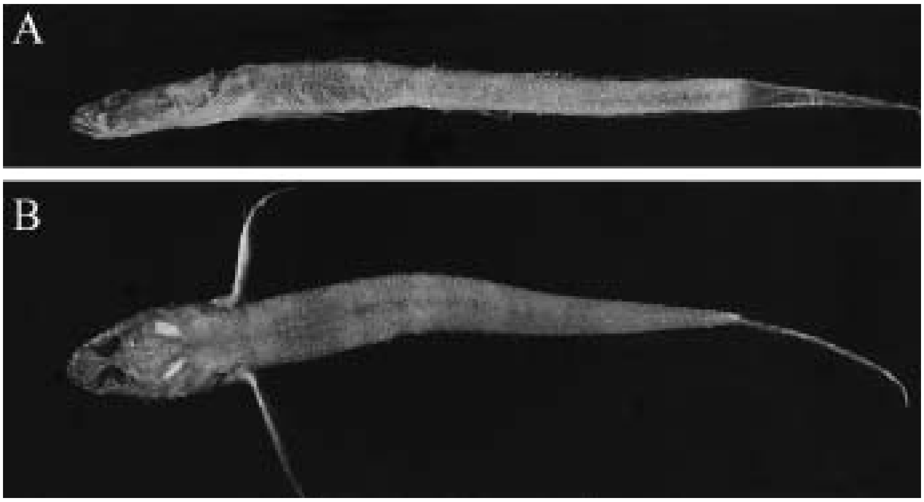

Fig. 2. Photographs of *Platygobiopsis tansei*, NSMT-P 33282, holotype, 46.8 mm SL. A: left side in lateral view; B: dorsal view.

960–970 m (questionable record, see Discussion), R/V *Soyo-maru*, 21 June 1976; NSMT-P 77011, 1 (34.5), 34°35.2′N, 137°46.1′E, 117 m, Smith-McIntyre grab, R/V *Seisui-maru*, 19 Sep. 1984; FAKU 50551, 1 (♂, 43.0), 32°47.5′N, 129°42.0′E, 60–70 m, Smith-McIntyre grab, 19 Sep. 1981, R/V *Yoko-maru*; BSKU 19127, 1 (33.6), 34°58.2′N, 140°04.2′E, 100 m, R/V *Soyo-maru*; BSKU 20122 (36.9), 20123 (44.4), 20124 (44.5), 20125 (31.7), 34°58.6′N, 140°01.2′E, 61–87 m, R/V *Soyo-maru*, 4 Mar. 1960.

Diagnosis. A species of *Platygobiopsis* with the following combination of characters: dorsal-fin rays VI, I, 13–14; outer gill rakers on first gill arch 0+9–10; chin barbel absent; predorsal scales extending anteriorly to transverse line through middle of operculum; scales absent from pectoral-fin base; no cephalic sensory-canal pores; pelvic-fin frenum absent.

Description. Dorsal-fin rays VI-I, 13–14; anal-fin rays I, 12–14; pectoral-fin rays 15–17; pelvic-fin rays I, 5; caudal-fin rays 5–6+8/7+4–5; branchiostegals 5; lateral scales approximately 50–59; predorsal scales approximately 12–13; first arch gill rakers 0+9–10; vertebrae 10+16; posteriormost pleural rib on 9th vertebra (sometimes as vestigial); posteriormost epineural on 17th vertebra.

Body elongate, remarkably depressed and wide, with moderately compressed caudal peduncle. Head small, broader than body, snout rounded in dorsal view. Eyes horizontally ovoid, dorsal half partly projecting above top of head. Mouth slightly oblique, posterior tip of maxilla extending to a vertical through anterior edge of eye. Conical teeth closely arranged in 2 and/or 3 rows on upper jaw, with larger, inwardly curved teeth scattered in outermost series, decreasing to single row posteriorly. Conical teeth of similar size arranged closely in several rows in anterior four-

Table 1. Morphometric proportions in % of standard length of *Platygobiopsis tansei*. Holotype is NSMT-P 33282.

	NSMT-P 33282	NSMT-P 19015	NSMT-P 19015	FAKU 50551	NSMT-P33283	Small paratypes (*n*=10)
Standard length, mm	46.8(♂)	48.2(♂)	43.9(♀)	43.0(♂)	40.5(♀)	23.0–33.9
Head length	22.6	20.7	21.1	23.5	21.2	23.5–26.0
Head width	16.2	13.7	14.0	15.0	18.8	13.9–18.6
Snout length	4.5	3.1	4.3	3.5	3.2	3.5–4.5
Orbit diameter	4.1	4.5	3.6	5.4	4.2	3.2–5.7
Postorbital length	15.0	12.4	13.2	15.0	13.8	11.2–16.3
Abdomen length	31.9	25.3	28.2	30.4	29.1	25.7–33.9
Body depth	12.6	6.6	7.3	5.8	8.1	5.8–11.2
Pelvic-fin length	16.0	13.6	14.3	16.9	16.5	15.2–20.9
Pectoral-fin length	20.3	17.6	16.6	13.1	16.5	13.1–26.4
Caudal-fin length	26.0	26.5	—	36.5	25.4	14.2–36.5
Caudal-peduncle length	17.5	18.2	15.9	15.4	17.3	13.9–19.2
Predorsal length	31.0	27.2	30.2	33.1	32.1	31.6–35.1

fifths of lower jaw, with larger, slightly curved teeth anteriorly. No teeth on vomer or palatine. Tongue truncate. First gill arch with 9 rakers along outer edge of distal two-thirds of ceratobranchial, rakers moderately long and slender with pointed tips, decreasing in length anteriorly; similar or fewer numbers (less than 9) of short tooth patches present along outer (except for 1st gill arch) and inner edges on all ceratobranchials. Gill opening wide, lower opercular membrane attached to isthmus below posterior margin of preopercle. Anterior nostril tubular, directed ventrally, reaching tip of upper jaw; posterior nostril without raised rim, lying close to anteriormost edge of orbit. Chin barbels absent. Head naked, without head pores. Large sagitta (otoliths) forming incomplete 'v' pattern in dorsal view with sagitta from opposite side of skull readily observed through thin cranial bone. Cephalic sensory papilla pattern complicated (Fig. 3), comprising 2 prominent horizontal (dorsal, ventral), fleshy, papillae-bearing cheek folds (dcf and vcf); 3 opercular folds (aof, hof, and vof); an extensive lateral longitudinal fold (llf); a short median longitudinal fold (mlf); a ventrolateral fold (vlf); and a most extensive preoperculomandibular fold (pom). Scales exclusively cycloid, size varying according to section of body, arranged rather irregularly. Scales on nape extending anteriorly to a transverse line through midlength of operculum; scales on breast extending anteriorly to slightly behind branchiostegal membrane; belly scaled; scales extending posteriorly to caudal base; head, occipital region and pectoral-fin base naked.

Origin of first dorsal fin slightly posterior to pectoral-fin base; outline of fin somewhat rounded. Second dorsal-fin separated from first by broad space; dorsal fins subequal in height, rays not elongated. Anal fin originates below base of first ray of second dorsal fin, and ends below last ray; height as for second dorsal fin. All soft rays in second dorsal and anal fins branched and segmented distally; last 2 rays slightly longer than preceding ones, closely set, split to base, counted as 1. Pelvic fins elongate, united medially by a well-developed connecting membrane between innermost rays; frenum absent; all rays branched once deeply, then subdivided distally into 4 (1st and 5th rays), 5 (2nd and 4th) or 8 (3rd) branches, with approximately distal two-thirds finely segmented.; pelvic fin not reaching posteriorly to level of 6th dorsal-fin spine when adpressed. Pectoral fins elongate, slightly pointed, their lengths 17–24% SL; all but dorsalmost rays branched once distally; distal halves of almost all rays finely segmented. Caudal fin elongate, moderately pointed; distal two-thirds of dorsal and ventral branched rays and neighboring ones segmented.

Urogenital papillae of both sexes moderately

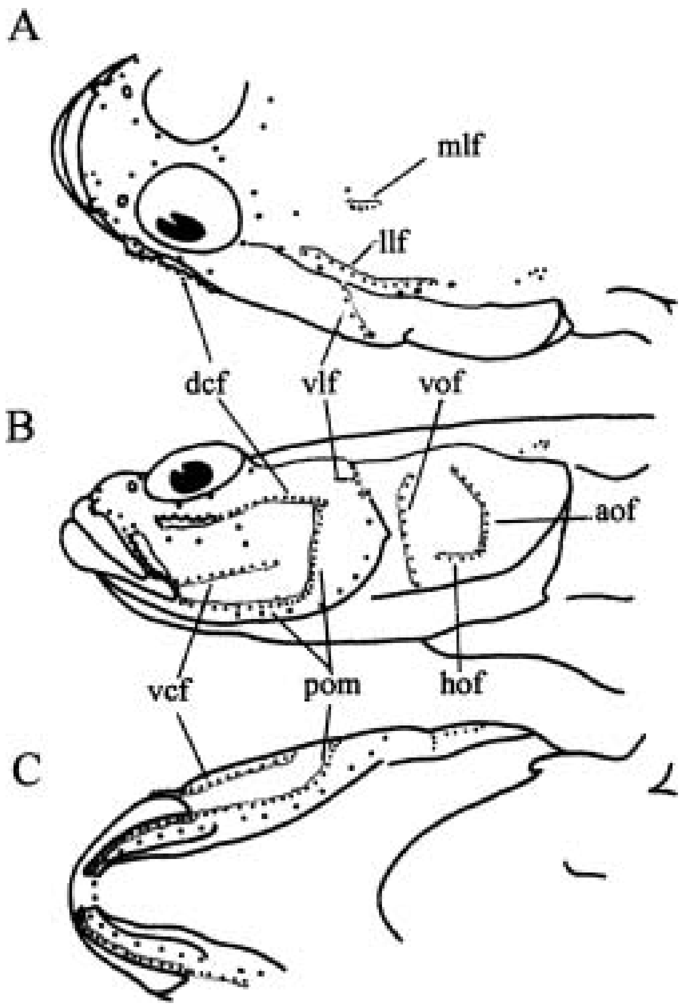

Fig. 3. Positions of cephalic sensory organ and papillae-bearing holds in *Platygobiopsis tansei*, NSMT-P 33282, holotype. A: dorsal view; B: left side in lateral view; C: ventral view. aof: arching opercle fold, dcf: dorsal cheek fold, hof: horizontal opercle fold, llf: lateral longitudinal fold, mlf: median longitudinal fold, pom: preoperculomandibular hold, vcf: central cheek fold, vlf: ventrolateral fold.

developed in specimens larger than 40 mm SL; slender, pointed in males; wider, less pointed, pigmented mid-ventrally in female.

Gut nearly straight or slightly curved at midway depending on body size; stomach and pyloric caecum indistinct.

Color in spirit (when well preserved as in Fig. 2). Head and body dark brown dorsolaterally; ventral portions unpigmented except for several small internal spots midventrally; a series of 6 slightly darker saddles on body, each associated with somewhat broad midlateral stripe; first at pectoral-fin base, second, broader than others, along base of first dorsal fin, and following 3 of similar width, evenly spaced along 2nd dorsal-fin base, and last on caudal peduncle; all fins almost transparent other than dark band extended from body onto caudal fin. Color patterns slightly variable, often difficult to discriminate particularly in smaller specimens.

Osteology: *Cranium* (Fig. 4). Cranium strongly depressed, slightly deeper posteriorly, without distinct supraoccipital crest, relative sizes of length, width, and depth about

1 : 0.74 : 0.23. Vomer toothless, broadened anteriorly, flattened dorsoventrally, posteriorly produced as narrow long process. Median ethmoid broadened anteriorly, flattened dorsoventrally, with narrow posterior process. Lateral ethmoids slender, elongate, projecting sideways, proximally based on median ethmoid, distally in contact with lachrymals. Frontals very narrow between orbits, widening in postorbital region, posterolaterally in broad contact with wing-like sphenotic and pterotic, posteriorly with supraoccipital and epiotic; anterior and lateral borders of epioccipital and lateral junction between sphenotic and pterotic separated by cartilage. Supraoccipital with narrow posterior extension between epiotics through epioccipitals. Parasphenoid forming main floor of skull, broadest at junction between sphenotics and prootics, progressively narrowing towards posterior end at about two-thirds of basioccipital length. Small intercalar surrounded by prootic, pterotic, epioccipital and basioccipital in ventral view.

Jaws, suspensorium, and opercular series (Fig. 5). Rostral cartilage barrel-shape, with shallow groove posteroventrally, lying on anterior broad part of vomer. Nasal bone absent. Premaxilla with trapezoidal crest-like post premaxillary process along rear half of upper edge. Maxilla

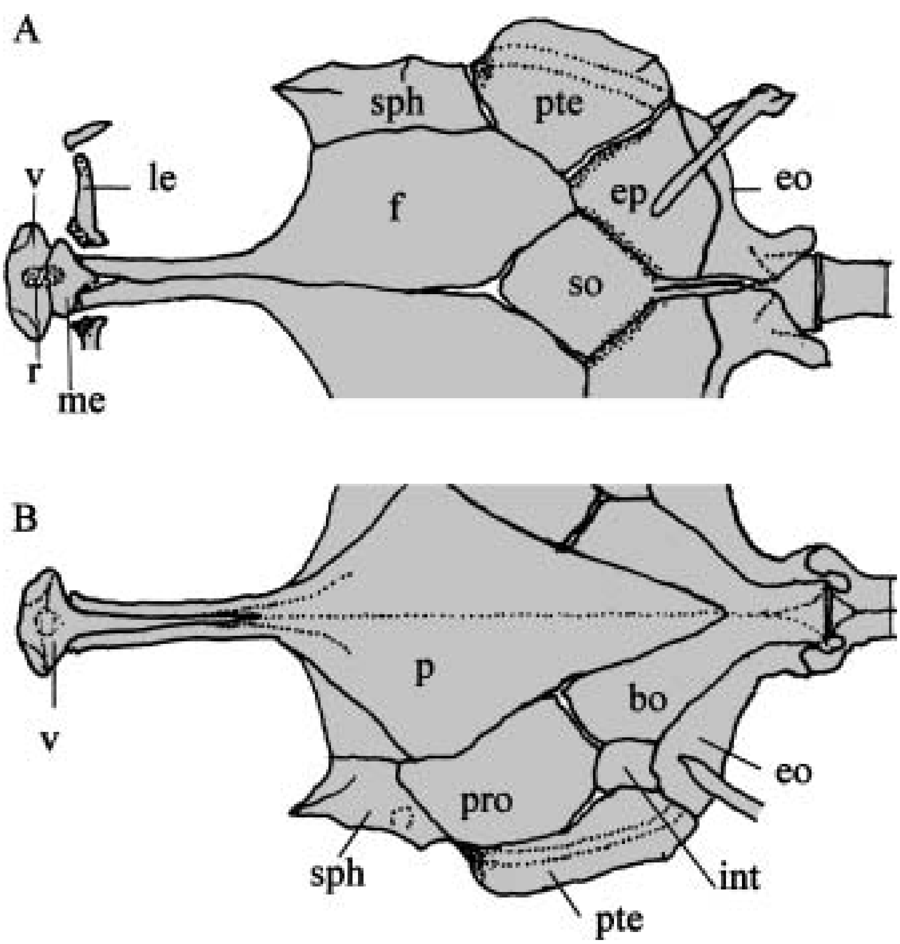

Fig. 4. Neurocranium of *Platygobiopsis tansei*, NSMT-P33283, paratype. A: dorsal view; B: ventral view. bo: basioccipital, eo: exoccipital, ep: epioccipital, f: frontal, int: intercalar, le: lateral ethmoid, me: median ethmoid, p: parasphenoid, pro: prootic, pte: pterotic, r: rostral cartilage, so: supraoccipital, sph: sphenotic, v: vomer. Cartilage is stippled.

with prominent anterior head and long shaft, posteriorly modified into well developed posteroventral process, tipped with cartilage. Dentary with closely set teeth on anterior four-fifths of length, followed by produced large toothless coronoid process; ventrally, a medial cartilaginous shelf is present. Articular cartilaginous anteroventrally, with slender Meckel's cartilage along long dorsal ramus. Retroarticular distinct. Palatine T-shaped, with shaft extending ventrally to about half of ectopterygoid length; ectopterygoid shaft straight, articulating broadly with anterior edge of quadrate. No mesopterygoid. Palato-pterygoquadrate complex and associated opercular components remarkably tilted posteriad, including wide suspensorial interspace (*sensu* Harrison, 1989). Hyomandibular with extensive anterior (articulating with sphenotic) and posterior (articulating with opercle) cylindrical struts, and smaller strut articulating with prootic. Preopercle and interopercle horizontally extended forward along quadrate. Opercle triangular with rounded tip bearing needle-like posterior filament; subopercle leaf-like, anteriorly hooked, terminating in sharply pointed tip posteriorly: dorsal and ventral margins of opercle and ventral margin of subopercle cartilaginous.

Gill arch and hyoid apparatus (Fig. 6A–D). Anterior tip of basihyal flat with cartilaginous margin; small cartilaginous basibranchial 1 attaching to anterodorsal depression of urohyal, with large interspace separating it from basibranchial 1; basibranchials 2 and 3 elongate, well ossified; basibranchial 4 small, cartilaginous; 5 slender ceratobranchials with tooth plate only on dorsomedial sides of 5th; long gill rakers restricted to outer edge of ceratobranchial 1; hypobranchials 1–3 (hb1–3) short, variously modified distally, with cartilaginous tips on both ends of hypobranchials 2–3. Upper gill arch comprising epibranchials 1–4, infrapharyngobranchials 2–4, and interarcural cartilage; epibranchial 4 uniquely robust, without cartilage-tipped uncinate process; infrapharyngobranshial 3 largest, not fused with contiguous bones (pb 2, 4). Urohyal with low lateral keels, posteriorly diverging into long dorsal and short ventral projections separated by deep indentation. Hyoid apparatus slender for entire length, branchiostegal rays inclined strongly posteriorly from attachments to hyoid bones. Dorsal and ventral hypohyals present. Short interhyal with small anterior and posterior processes, dorsally attaching by ligament to hyomandibular at posterior cartilaginous corner below posterior horizontal cylindrical strut, laterally to medial surface of preopercle. Five branchiostegal rays similarly elongate; branchiostegal 1 very slender, articulating with ventral surface of narrow anterior process of ceratohyal; branchiostegals 2–5 blade-like (2 and 5 noticeably broader at both ends), 2–4 articulating with outer ventrolateral surface of anterior ceratohyal and 5 with posterior ceratohyal; all branchiostegals, and particularly 5, distally cartilaginous.

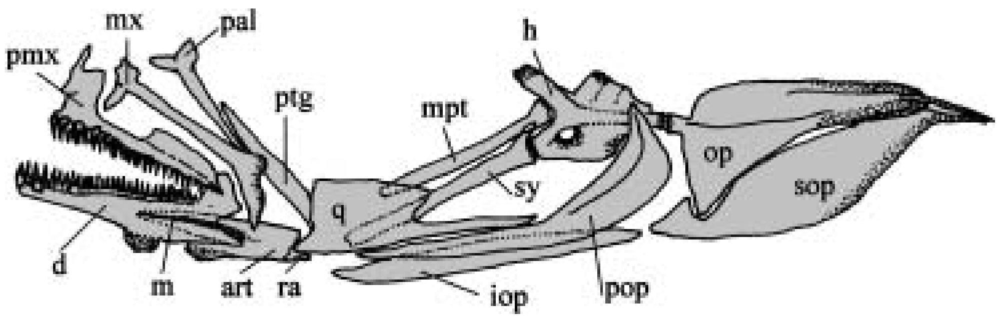

Fig. 5. Jaw, suspensorium, and opercular series of *Platygobiopsis tansei*, NSMT-P 33283, paratype. Left side in lateral view. art: articular, d: dentary, h: hyomandibular, iop: interopercle, m: Meckel's cartilage, mx: maxilla, mpt: metapterygoid, pal: palatine, pmx: premaxilla, pop: preopercle, ptg: ectopterygoid, q: quadrate, ra: retroarticular, sop: subopercle, sy: symplectic. Cartilage is stippled.

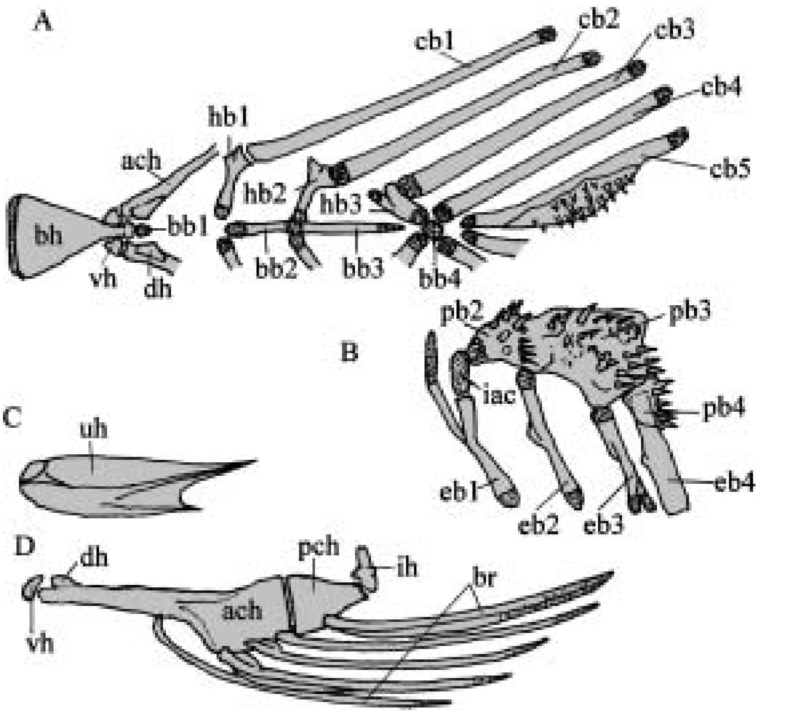

Fig. 6. Gill arch and hyoid bones of *Platygobiopsis tansei*, NSMT-P33283, paratype. A: lower gill arch in dorsal view; B: upper gill arch of left side in ventral view; C: urohyal, left side in lateral view; D: hyoid apparatus, left side in lateral view. ach: anterior ceratohyal, bb1–4: basibranchials 1–4, bh: basihyals, br: branchiostegals, cb1–5: ceratobranchials 1–5, cl: cleithrum, dh: dorsal hypohyal, eb1–4: epibranchials 1–4, hb1–3: hypobranchials 1–3, iac: interarcular cartilage, ih: interhyal, pb2–4: infrapharyngobranchials 2–4, pch: posterior ceratohyal, uh: urohyal, vh: ventral hypohyal. Cartilage is stippled.

Paired fins and girdles (Fig. 7A–C) Pectoral girdle nearly at right angle between short supracleithrum and crescent-shaped long cleithrum. Posttemporal narrowly forked anteriorly, with longer dorsal process twisted proximally to form low exterior lateral keel, ligamentously bound to epiotic; ventral process slender, short, attached only to epioccipital. Cleithrum tilted posteriad, comprising deeply forked dorsal portion, robust middle portion with remarkable arch-shaped lateral flange arising medially from broad main stem, and ventral portion of broad flat bone with prominent lateral spine (tentatively termed “ventral outer cleithral spine: vocs) and articular process for pelvic girdle; small ventral intercleithral cartilage present. Four proximal radials of similar size, each tipped with cartilage on both anterior and posterior ends, proximally supported by extensive scapular-coracoid cartilage with small foramen anterodorsally; distal radials present for all but dorsalmost pectoral-fin rays. Coracoid bound to ventral half of middle portion of cleithrum, with obtuse spine at posteroventral corner. No postcleithrum.

Pelvic girdle reversed trapezoid shape in dorsoventral view; pelvic bone remarkably flat, anteriorly tipped with gently concave, laterally raised pelvic intercleithral cartilage, posteriorly with linear cartilaginous pelvic radials except for slightly produced central post pelvic process; ventromedial postpelvic processes short, slender, fully contiguous, anteroventrally deflected.

Vertebrae and unpaired fins (Fig. 8, Fig. 7D). Vertebrae 10+16 including urostylar element; caudal vertebrae defined exclusively by presence of haemal spine with broad arch. Parapophyses

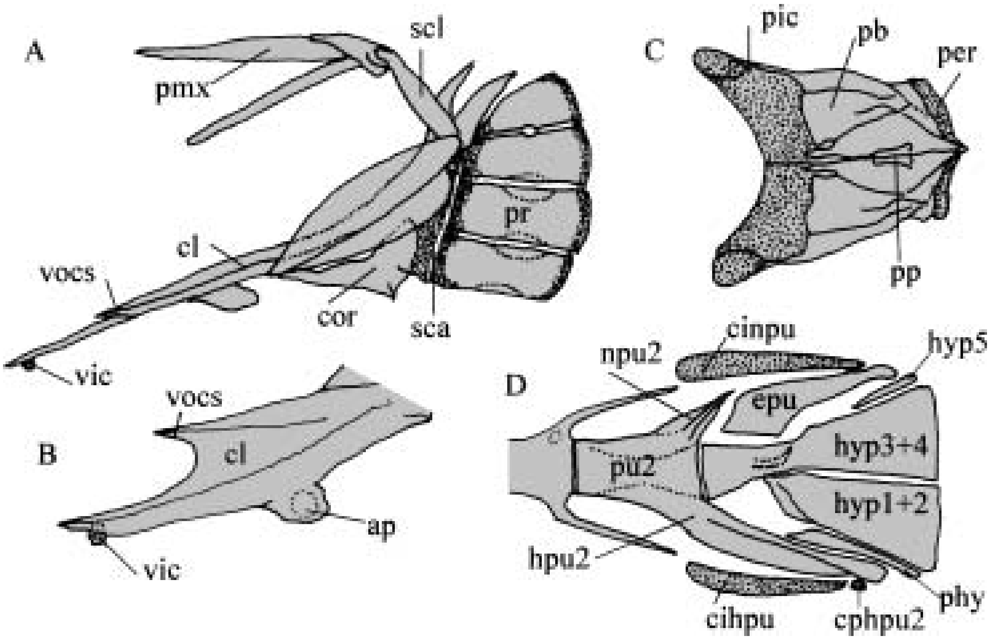

Fig. 7. Pectoral- and pelvic girdles, and caudal skeleton of *Platygobiopsis tansei*, NSMT-P 33283, paratype. A: Ppctoral girdle, left side in lateral view; B: distal part of cleithrum in ventral view; C: pelvic girdle in ventral view; D: caudal skeleton, left side in lateral view. ap: articular process for pelvic girdle, cihpu: inter-haemal cartilage, cinpu: inter-neural spine cartilage, cl: cleithrum, cor: coracoid, epu: epural, cphpu2: post-haemal spine cartilage of pu2, hpu2: haemal spine of pu2; hyp1–5: hypurals 1–5, npu2: neural spine of pu2, pb: pelvic bone, phy: parhypural, pr: proximal radial, per: pelvic radial, picc: pelvic intercleithral cartilage, pp: postpelvic process, ptm: posttemporal, sca: scapula, pu2: preural vertebra 2, scl: supracleithrum, vic: ventral inter cleithral cartilage, vocs: ventral outer cleithral spine. Cartilage is stippled.

(*sensu stricto*) blade-like, remarkably expanded laterally on vertebrae 2–10, most extensive around 8th, with basis at anterior end of respective neural arch, progressively angled from horizontal to diagonal posteriorly; homologous blade-like structure probably termed parapophysis (*sensu lato*) distinct at base of haemal spine of vertebrae 11–19.

Vertebrae 1–17 with epineurals; first epineural directly attached to lateral swelling at anterior end of vertebra 1, remainders to dorsal side of parapophyses (*sensu lato*) of vertebra 2–17. Pleurals on vertebra 3–9 (vestigial on right side of vertebra 9 in NSMT-P 33283, Fig. 8) attaching to slightly distal positions of respective epineurals; intermuscular bones forming laterally expanded arches. Dorsal pterygiophore formula 3-22110 (*sensu* Birdsong *et al.*, 1988). Dorsal- and anal-fin supports closely bound to vertebrae. Spinous dorsal-fin pterygiophores modified into boomerang-like bones as deep as long. Second dorsal-fin pterygiophores except both first and last comprising partly or fully cartilaginous proximal, medial, and distal radial; no middle radial in first pterygiophore; no middle and distal radials in last pterygiophore. All but last anal-fin pterygiophores with equal set of radials; no medial and distal radials in last pterygiophore. Two anal-fin pterygiophores present anterior to first haemal spine (AP=2), with posterior one longer and more strongly inclined.

Caudal skeleton (Fig. 7D) vertically narrow, comprising typical urostylar vertebra with relatively short, slender hypural 5 and large, broad-based epural; ventral hypural plate (hyp1+2) autogenous, dorsal hypural plate (hyp3+4) fused with ural centrum; parhypural long, slender, well separated from compound ural centrum. Neural

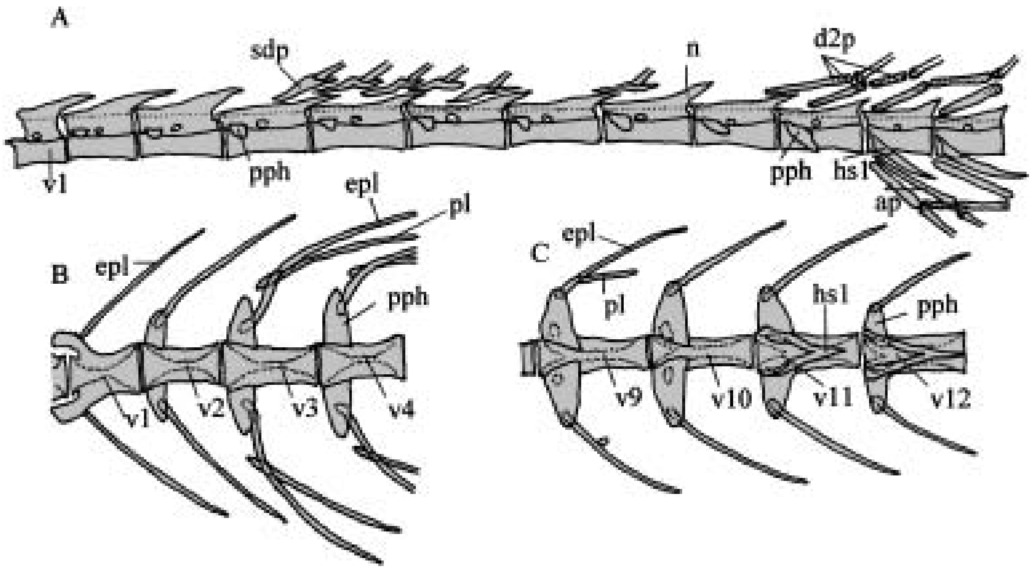

Fig. 8. Vertebrae and dorsal- and anal-fins supports of *Platygobiopsis tansei*, NSMT-P 33283, paratype. A: anterior vertebrae and dorsal- and anal fins, left side in lateral view; B: first four (v1–4) and middle four (v9–12) vertebrae and intermuscular bones in ventral view. Pleural ribs and epineurals are not shown in A. ap: anal-fin pterygiophore, d2p: second dorsal-fin pterygiophore, epl: epineural, hs1: first haemal spine, n: neural spine, pl: pleural, pph: parapophysis, sdp: spinous dorsal-fin pterygiophore, v: vertebra. Cartilage is stippled.

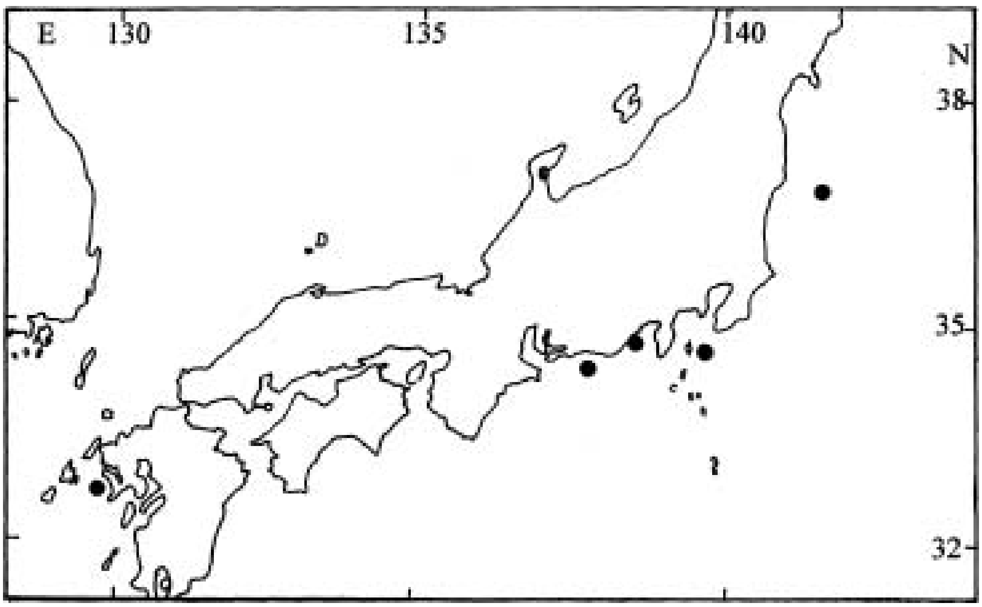

Fig. 9. Distributions of *Platygobiopsis tansei*. Symbol in Suruga Bay represents several localities in the neighbourhood.

spine of preural centrum 2 (pu2) broad based, as low as preceding neural spine; haemal spine of pu2 particularly stout, long, extending posteriorly opposite to tip of epural. Main components of dorsal and ventral procurrent cartilages, i.e., cinpu3, cihpu3+chpu2 (*sensu* Fujita, 1990), similarly elongate and paralell each other.

Etymology. "Tansei" here used as a noun in apposition, refers to the research vessel *Tansei-maru* of the Ocean Research Institute, University of Tokyo (now, of the Japan Marine Science and Technology Center) responsible for collecting many Suruga Bay specimens including the holotype.

Discussion

Distribution (Fig. 9). Collecting localities of this new species were scattered along the Pacific coast of southern Japan ranging from off the Fukushima Prefecture to Nagasaki Prefecture. Although the northernmost locality is represented by 2 specimens, this record is problematic, because the reported bottom depth of capture is unusually deep (960–970 m). Other specimens were collected exclusively from shallower bottoms between 65 and 128 m, and no other gobioids have ever been recorded from depths greater than 500 m; *Obliquogobius turkayi* Goren, collected at depths of 434–496 m in the central Red Sea (Goren, 1992), probably represents the deepest record of occurrence for a gobioid. Common occurrences of 2–5 specimens in a single tow of a 2 m or similarly large beam trawl indicate considerable abundance of *P. tansei* in the relevant depth zone of southern Japan. *Platygobiopsis tansei* can be referred to the "burrowers" (*sensu* Miller, 1993) ecological radiation of the gobioid fishes, as well as to the"deep water type" (*sensu* Takagi, 1966) of gobies defined as inhabiting relatively deep sandy mud bottom of the continental shelf.

In Suruga Bay, *P. tansei* was often found in beam trawl collections containing a lot of sandy mud sediments, probably due to the less than flat bottom configuration of the habitat. In addition, collections of 2 specimens (FAKU 50551, NSMT-P 77010) by a Smith-McIntyre grab are noteworthy. *Platygobiopsis tansei* is thus a true benthic species in the sloping sandy mud bottoms, often residing in the bottom sediment itself.

Comparison. In general morphology, *Platygobiopsis tansei* closely resembles *P. akihito*. As indicated in the species diagnosis, however, *P. tansei* can be discriminated from *P. akihoto* in having more second dorsal-fin rays (14–15 vs 12 in *P. akihoto*), fewer gill rakers on 1st gill arch (0+9–10 vs 1–3+11–12), absence of chin barbels and pelvic-fin frenum, distribution pattern of scales on dorsal surface of head (extending anteriorly to a vertical through middle of operculum vs. extending anteriorly well beyond a vertical through posterior margin of preopercle) and pectoral-fin base (naked vs. scaled), all scales on body cycloid (vs. cycloid anteriorly, ctenoid posteriorly), and no cephalic sensory-canal and pores (vs. present). Both species have essentially the same cephalic sensory papilla patterns, except for the less extensive lateral longitudinal fold and dorsal cheek fold in *P. tansei*. Although both species have 10+16 vertebrae, *P. tansei* has the posteriormost pleural ribs on the 8–9th (vs 9–10th in *P. akihito*) vertebrae, and posteriormost epipleurals on the 16–17th (vs 19–21th in *P. akihito*) vertebrae. Most of these differences possibly illustrate more retrogressive trends in *P. tansei* than in *P. akihito*. Additionally, so far as is known, *P. tansei* appears to be a smaller and deeper-living species than *P. akihito*: maximum known sizes ca. 50 mm SL (N=22 specimens) vs 96.4 mm SL (N=12 specimens) and deepest collection depths (>61 m vs 15–17 m).

Remarks. Some gobioids such as *Rhyacichthys aspro* (Milller, 1973) and *Anatifrostrum profundorum* (Ahnelt *et al.*, 2000) have a markedly depressed head or snout, but their trunks are generally less specialized. *Platygobiopsis*, as its name implies, represents the most extremely dorso-ventrally flattened form among gobies in general.

Major osteological specializations of *P. tansei* are probably modifications resulting from its depressed and/or associated wide body form: (1) the axial skeleton, particularly the head and longitudinally modified jaw and suspensorium, as well as the appendicular skeleton such as dorsal- and anal-fin pterygiophores are specifically modified into narrow organization; (2) the pectoral girdle is sharply angled at its junction with the typical supracleithrum and the elongate broad cleithrum; (3) the posttemporal is narrowly forked to allow for its attachment to the depressed skull; (4) the attachment of the pleural ribs and epipleurals have been displaced far laterally on the unusually wide parapophyses; and (5) ventral portions of the head skeleton (lower jaw, branchiostegals, and some opercular bones) are characterized in having their peripheral areas cartilaginous.

Despite its unusual osteological specializations, *P. tansei* exhibits the typical elements of a generalized gobiid skeleton as discussed by several recent authors (Miller, 1973; Birdsong, 1975; Springer, 1983; Harrison, 1989; Hoese and Gill, 1993; Winterbottom, 1993; Johnson and Brothers, 1993).

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