
**A Pelagic Basslet *Howella sherborni* (Family Acropomatidae)
off of the Aleutian Islands**

Morgan S. Busby and James Wilder Orr

Reprinted from the
Alaska Fishery Research Bulletin
Vol. 6 No. 1, Summer 1999

The Alaska Fishery Research Bulletin can found on the World Wide Web
at URL: <http://www.state.ak.us/adfg/geninfo/pubs/afrb/afrbhome.htm> .

A Pelagic Basslet *Howella sherborni* (Family Acropomatidae) off of the Aleutian Islands

Morgan S. Busby and James Wilder Orr

ABSTRACT: An adult male pelagic basslet *Howella sherborni* was collected in a bottom trawl during a research survey in June 1993, south of Unimak Island, Alaska. This represents a northwestward extension of the known range by approximately 2,656 km (1,415 km north in latitude). We provide information on the size, morphology, and diagnostic features of this and other specimens of *Howella* collected in the equatorial and north Pacific. The taxonomic status and systematics of the genus *Howella* are discussed.

INTRODUCTION

Pelagic basslets, genus *Howella* Ogilby, are small (<100 mm standard length, SL), oceanic midwater fishes, typically found in tropical and temperate waters worldwide at depths to 3,200 m (Fedoryako 1976; Eschmeyer et al. 1983; Heemstra 1986; Willis et al. 1988; Post and Quéro 1991). According to Heemstra (1986), *Howella* is distinguished from other genera of the family Acropomatidae by the following characters: the opercle has a single spine dorsally and a cluster of spines ventrally, the subopercle and interopercle have sharp spines, the preopercle margin is finely serrate, the dorsal rim of the orbit has 2 small spines, and the pectoral fin extends past the origin of the anal fin.

Howella comprises 5 recognized species (Fedoryako 1976). In the northeast Pacific, *Howella sherborni* (Norman) is the most commonly reported species in oceanic waters off the western coast of North America at latitudes to 40° N (Fedoryako 1976). *Howella brodiei* Ogilby has also been reported off California (Berry and Perkins 1966; Hubbs et al. 1979; Eschmeyer et al. 1983), and in the eastern transition zone (lat 40° – lat 50° N) (Willis et al. 1988). Mead and DeFalla (1965) considered *H. sherborni* to be a synonym of *H. brodiei*, although Fedoryako (1976) concluded that these names represented distinct species and referred material identified from the eastern North

Pacific to *H. sherborni*. Most recently, Post and Quéro (1991) concluded that *H. brodiei* was a wide-ranging species from the northern hemisphere and equator, whereas *H. sherborni* was strictly a southern hemisphere species. *Howella pammelas* (Heller and Snodgrass) appears to be restricted to the eastern tropical Pacific (Heller and Snodgrass 1903; Sandknop and Watson 1996). *Howella parini* Fedoryako is known from the northwestern Hawaiian Islands, and *H. zina* Fedoryako is known from coastal Japan (Amaoka et al. 1978). In this paper, we report the first pelagic basslet collected in Alaskan waters.

SPECIMEN COLLECTION AND IDENTIFICATION

An adult male *Howella sherborni* (78.5 mm SL, Figure 1) was collected on 12 June 1993 south of Unimak Island in the Aleutian Islands (53° 36.75' N, 165° 06.03' W) of Alaska. The collection was made during a National Marine Fisheries Service, Alaska Fisheries Science Center (AFSC), research cruise using a Nor'eastern bottom trawl with a 9.2-m vertical opening and a 13.5-m horizontal opening. The specimen was collected during daylight, 0902–1045 hours Alaska Daylight Time, in a trawl towed to a depth of 466 m.

Authors: MORGAN S. BUSBY is a research fishery biologist and JAMES WILDER ORR is a research zoologist for the National Marine Fisheries Service/NOAA, Alaska Fisheries Science Center, Resource Assessment and Conservation Engineering Division, 7600 Sand Point Way NE, Seattle, WA 98115-0070.

Acknowledgments: W. C. Flerx (AFSC) — collected all three UW specimens (UW 041661, 041662, 041683). D. M. Markle, Oregon State University — provided specimens from OSU. H. J. Walker, Scripps Institution of Oceanography — provided the SIO specimens. A.W. Kendall Jr. and A.C. Matarese (AFSC), E. Sandknop and W. Watson (Southwest Fisheries Science Center), C. Mecklenburg (Point Stephens Research Associates), and 2 anonymous reviewers — reviewed the manuscript.

We examined other specimens of *Howella* from the equatorial, eastern tropical, and North Pacific for comparison. Morphometrics and meristics of all specimens were obtained using the methods of Amaoka et al. (1978; Tables 1 and 2). The following meristics of the Alaskan specimen were recorded: D VIII + I,9; A III, 7; P1 15,14; P2 I,5; branchiostegal rays 7; pseudobranchiae 18; gill rakers on first arch 30; lateral line scales 41; vertebrae 10 + 16 = 26. *Howella sherborni* is distinguished from other species of *Howella* by having these meristic counts along with a simple dorsal opercular spine which is shorter than the complex ventral opercular spine, the presence of small teeth on the vomer, uniserial teeth on the palatine, and the absence of scale spines other than those on the posterior margin (Fedoryako 1976). In addition, *H. sherborni* has 4 or 5 scale rows between the lateral line and origin of the second dorsal fin, and *H. brodiei* has only 3 scale rows (Post and Quéro 1991). The specimen has been deposited in the University of Washington Fish Collection (catalog number UW 041661).

DISCUSSION

The capture of *H. sherborni* near Unimak Island extends its known Pacific range northwestward about 2,656 km (1,415 km north in latitude) from Northern California. A moderate El Niño in 1992–1993 may have influenced this northerly occurrence (Bailey et al. 1995).

Our specimen was collected during a daylight tow to 466 m, but it was probably caught in near-surface waters during deployment or retrieval of the trawl. The collection depth of our specimen was consistent with depth distributions recorded for both *H. sherborni* and *H. brodiei*. *Howella* has been reported to undergo vertical migrations that may be related to its life history.

Eschmeyer et al. (1983) reported *H. brodiei* off California at depths of 305–1,829 m during daylight and near the surface at night. Willis et al. (1988) noted collections of 7 specimens of *H. brodiei* in the eastern

transition zone: 6 were captured at depths >500 m and one at 120 m. Post and Quéro (1991) determined that individuals of *H. sherborni* measuring <75 mm SL were captured at depths <700 m, but those measuring 75–99 mm SL were collected between 700 and 2,000 m in the Atlantic Ocean. Similarly, *H. brodiei* <75 mm SL were collected at depths <400 m, but individuals measuring 75–99 mm SL were captured at greater depths, most often between 400 and 1,100 m.

Vomerine and palatine dentition is apparently not useful in separating *H. sherborni* and *H. brodiei*. Sandknop and Watson (1996) examined California Current specimens and reported that vomerine teeth were obsolete, blunt, nearly imbedded in tissue, and easily overlooked in many larger specimens, and palatine teeth were absent or minute and embedded in tissue, as in nearly all material we examined from off of southern Oregon and northern California. In Atlantic collections (Post and Quéro 1991), vomerine and palatine dentition in *Howella* varied between individuals captured in the same haul. Post and Quéro (1991) concluded that the number of scales between the second dorsal-fin origin and lateral line separate Atlantic populations of the 2 species. In our comparisons, a specimen from the equatorial Pacific (SIO 60-225), initially identified as *H. brodiei*, has prominent vomerine and palatine teeth but only 3 scale rows between the lateral line and the origin of the second dorsal fin and may represent an undescribed species of *Howella*.

Although our specimen from Alaskan waters possesses characters that best match those described for *H. sherborni* (Fedoryako 1976; Post and Quéro 1991), only a single small (probably broken) vomerine tooth is present. Other characters, including the presence of palatine teeth and 5 scale rows between the lateral line and the origin of the second dorsal fin (Table 2), confirm its identification as *H. sherborni*. Although characters provided in the most recently published revision of *Howella* (Fedoryako 1976) allow us to refer to our specimen from Alaskan waters as *H. sherborni*, examination of other eastern North Pacific specimens and observations by other authors suggest that a revision of *Howella* is necessary.

REFERENCES

- Amaoka, K., K. Nakaya, and K. Abe. 1978. First record of the percichthyid fish *Howella parini* from Japan. Japanese Journal of Ichthyology 25(2):149–152.
- Bailey, K. M., S. A. Macklin, R. K. Reid, R. D. Brodeur, W. J. Ingraham, J. F. Piatt, M. Shima, R. C. Francis, P. J. Anderson, T. C. Royer, A. B. Hollowed, D. A. Somerton, and W. S. Wooster. 1995. ENSO events in the Northern Gulf of Alaska, and effects on selected marine fisheries. California Cooperative Oceanic Fisheries Investigations Reports 36:78–96.
- Berry, F. H., and H. C. Perkins. 1966. Survey of pelagic fishes of the California Current area. Fishery Bulletin 65:625–682.

Table 1. Morphometrics of *H. sherborni* collected off of Alaska (UW 041661), and other northeastern, tropical, and equatorial Pacific Ocean specimens of *Howella* examined in this study. Measurements are %SL. Blank entries indicate character was damaged.

Measurements (%SL)	<i>H. sherborni</i>			<i>H. brodiei?</i>			<i>H. brodiei</i>		
	Alaska UW 041661	N. California UW 041662	N. California OSU 11642-1	N. California OSU 11642-2	N. California OSU 11642-3	Equatorial Pacific SIO 60-225	S. Oregon UW 041683	N. Central Pacific SIO 74-46	E. Tropical Pacific SIO 76-394
Standard length (mm)	78.5	80.0	79.6	61.6	58.6	58.3	72.0	66.5	59.2
Body depth	27.1	26.6	28.2	27.4	27.2	26.9	25.1	28.1	26.9
Body width	14.4	12.4	14.9	13.9	13.1	16.3	14.4	14.3	14.7
Head length	34.4	34.2	33.9	36.7	36.0	38.4	35.3	33.1	38.5
Maxilla length	12.8	13.5	13.2	13.3	12.9	13.6	13.8	12.9	14.7
Mandible length	17.3	16.4	16.8	16.0	16.7	16.6	17.5	15.9	17.7
Caudal peduncle depth	10.8	9.8	11.5	12.7	12.2	12.0	10.6	11.6	12.8
Snout length	6.7	6.5	7.0	7.4	7.1	7.2	7.8	7.1	7.6
Eye diameter	13.4	14.5	13.9	13.6	13.7	14.1	13.9	12.3	13.9
Interorbital width	6.8	7.1	7.4	7.3	8.0	9.3	8.5	8.0	9.5
Longest element of first dorsal fin	13.4	14.6	13.7	16.8	14.3	16.8	13.8	16.1	15.9
Longest element of second dorsal fin	11.5	14.3	11.6	12.8	12.3	14.9	13.5	13.5	10.3
Longest element of anal fin	13.9	9.6	12.2	15.2	12.3	14.9	14.4	14.6	13.3
Pectoral fin length	31.8	30.8	34.8	34.6	30.6	34.5	32.4	18.8	27.0
Pelvic fin length	17.5	15.3	16.2	20.0	17.0	16.8	15.3	18.8	14.7
Base of first dorsal fin	12.7	10.2	10.3	13.0	10.2	13.0	11.4	11.0	11.5
Base of second dorsal fin	9.7	11.8	10.5	11.1	11.3	11.5	9.7	12.0	12.2
Base of anal fin	9.4	8.1	10.3	10.7	10.9	9.9	10.4	15.3	10.8
Length between dorsal fins	16.3	11.7	14.5	12.7	14.9	11.0	14.7	13.1	15.7
Length between dorsal fin origins	21.7	22.9	22.1	26.8	25.7	25.6	24.3	26.3	27.2
Pelvic origin to anus	26.6	28.7	29.0	28.7	25.8	27.4	29.9	26.0	27.9
Anal origin to anus	2.5	2.7	2.3	2.3	2.7	1.5	1.9	1.8	1.5
Predorsal length	34.4	39.3	38.0	39.7	39.4	41.3	39.6	35.8	41.6
Preadanal length	61.9	61.4	65.7	62.4	59.9	62.4	66.4	64.8	64.9
Prepelvic length	34.6	38.7	36.6	34.1	35.3	36.7	35.0	39.2	36.1
Prepectoral length	36.9	36.2	36.3	36.4	36.1	38.9	36.7	35.5	37.0

Table 2. Meristics and status of vomerine and palatine teeth of *H. sherborni* collected off of Alaska (UW 041661), and other northeastern, tropical, and equatorial Pacific Ocean specimens of *Howella* examined in this study. All have 7 branchiostegal rays; VIII + I, 9 dorsal-fin elements; I, 5 pelvic-fin elements; 9 + 8 principal caudal rays; and 10 + 16 = 26 vertebrae.

	<i>H. sherborni</i>			<i>H. brodiei?</i>		<i>H. brodiei</i>			
	Alaska UW 041661	N. California UW 041662	N. California OSU 11642-1	N. California OSU 11642-2	N. California OSU 11642-3	Equatorial Pacific SIO 60-225	S. Oregon UW 041683	N. Central Pacific SIO 74-46	E. Tropical Pacific SIO 76-394
Counts and teeth status									
Anal fin	III,7 15/14	III,7 15/16	III,6 16/16	III,7 15/14	III,7 15/15	III,7 15/15	III,7 15/15	III,7 14/14	III,7 14/14
Pectoral fin	41	41	36	39	38	37	35	36	41
Scales on lateral line	12	12	12	12	13	10	12	10	10
Scales on transverse row	5	4	4	4	4	3	4	3	3
Scales between II & origin of 2nd dorsal	8+1+21=30	8+1+21=30	8+1+22=31	9+1+21=31	9+1+21=31	9+1+18=28	8+1+21=31	8+1+18=27	10+1+22=33
Gill rakers	18	17	19	19	17	19	19	17	21
Pseudobranchiae	Present	Absent	Present	Present	Present	Present	Present	Present	Present
Vomerine teeth	Present	Present	Absent	Absent	Absent	Present	Absent	Present	Present
Palatine teeth	Present	Present	Absent	Absent	Absent	Present	Absent	Present	Present

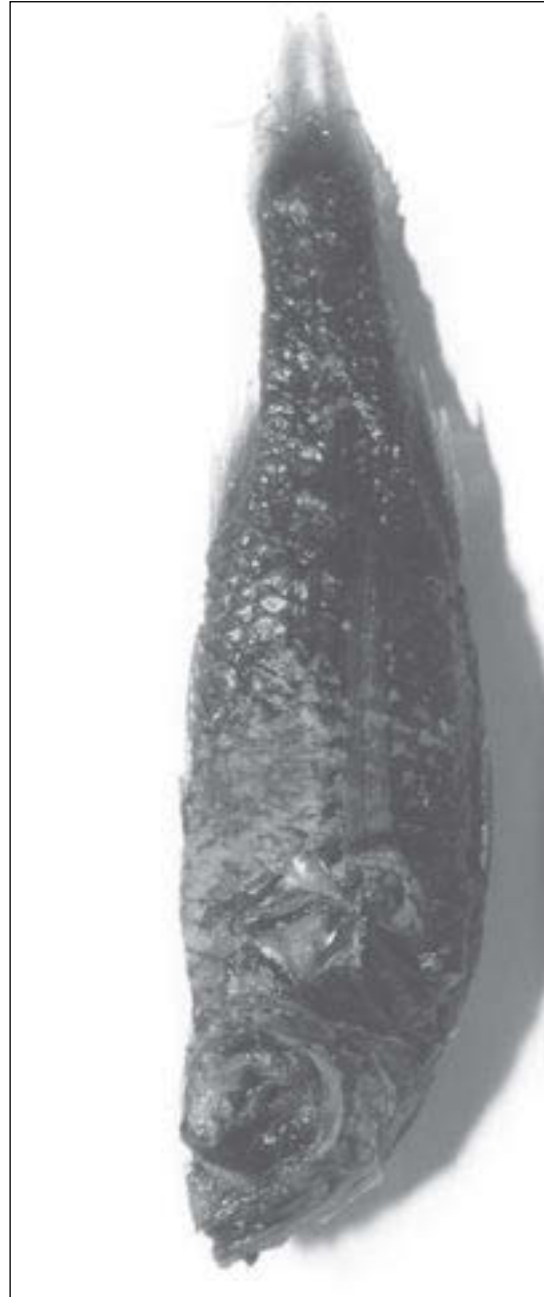


Figure 1. *Howella sherborni* (Norman) from off of Unimak Island, Alaska, UW 041661, 78.5 mm SL.

- Eschmeyer, W. N., E. S. Herald, and H. Hammann. 1983. A field guide to Pacific coast fishes of North America from the Gulf of Alaska to Baja California. Houghton Mifflin Company, Boston.
- Fedoryako, B. I. 1976. Materials on the systematics and distribution of the "oceanic Cheilodipteridae." Pages 156–190 in N. V. Parin, editor. Biology and distribution of the tropical deep-sea fishes. Trudy Instituta Okeanologii Akad. Nauka SSSR 104 [Translation prepared by Smithsonian Institution, Washington, D.C.]
- Heemstra, P. C. 1986. Family No. 176: Acropomatidae. Pages 561–563 in M. M. Smith and P. C. Heemstra, editors. Smith's sea fishes. Macmillian South Africa Ltd., Johannesburg.
- Heller, E., and R. E. Snodgrass. 1903. Papers from the Hopkins Stanford Galapagos expedition 1898–1899. Proceedings of the Washington Academy of Sciences 5:189–229.
- Hubbs, C. L., W. I. Follett, and L. J. Dempster. 1979. List of the fishes of California. Occasional Papers of the California Academy of Sciences 133.
- Mead, G. W., and J. E. De Falla. 1965. New oceanic cheilodipterid fishes from the Indian Ocean. Bulletin of the Museum of Comparative Zoology 134(7):261–274.
- Post, J., and J. C. Quéro. 1991. Distribution and taxonomy of *Howella* (Perciformes, Percichthyidae) from the Atlantic. Cybium 15(2):111–128.
- Sandknop, E. M., and W. Watson. 1996. Howellidae: pelagic basslets. Pages 1072–1079 in H. G. Moser, editor. The early stages of fishes in the California Current Region. California Cooperative Oceanic Fisheries Investigations Atlas No. 33.
- Willis, J. M., W. G. Pearcy, and N. V. Parin. 1988. Zoogeography of midwater fishes in the Subarctic Pacific. Pages 79–142 in T. Nemoto, and W. G. Pearcy, editors. The biology of the subarctic Pacific; proceedings of the Japan–United States of America seminar on the biology of micronekton of the subarctic Pacific, Part II. Bulletin of the Ocean Research Institute, University of Tokyo.

The Alaska Department of Fish and Game administers all programs and activities free from discrimination on the bases of race, color, national origin, age, sex, religion, marital status, pregnancy, parenthood, or disability. The department administers all programs and activities in compliance with Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act of 1990, the Age Discrimination Act of 1975, and Title IX of the Education Amendments of 1972.

If you believe you have been discriminated against in any program, activity, or facility, or if you desire further information please write to ADF&G, P.O. Box 25526, Juneau, AK 99802-5526; U.S. Fish and Wildlife Service, 4040 N. Fairfield Drive, Suite 300, Arlington, VA 22203 or O.E.O., U.S. Department of the Interior, Washington DC 20240.

For information on alternative formats for this and other department publications, please contact the department ADA Coordinator at (voice) 907-465-4120, (TDD) 907-465-3646, or (FAX) 907-465-2440.