
New North American Records of the Northeast Pacific Scorpaenids
Adelosebastes latens and *Sebastes glaucus*

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ABSTRACT: The Aleutian scorpionfish *Adelosebastes latens* Eschmeyer, Abe, and Nakano, 1979, and the gray rockfish *Sebastes glaucus* Hilgendorf, 1880, are reported from new North American records from the Aleutian Islands, Alaska. Both records represent significant range extensions of about 2,200 km for each species. New diagnoses and notes on morphology, habitat, and species associations are provided for each species.

INTRODUCTION

The Aleutian scorpionfish *Adelosebastes latens* Eschmeyer, Abe, and Nakano, 1979, was described (Eschmeyer et al. 1979) from a single specimen collected from the Emperor Seamount chain (Hawaiian Submarine Ridge). Since the original description, only 14 additional specimens have been collected, and those throughout the Emperor Seamounts, from 34° to 41°N and 170° to 171°E (Kanayama 1981; Barsukov et al. 1984). Here we report upon 2 additional specimens (Figure 1) collected from the Aleutian Islands, Alaska, by National Oceanic and Atmospheric Administration, National Marine Fisheries Service observers during longline operations. We provide an emended diagnosis for the species.

We also report new North American records of the gray rockfish *Sebastes glaucus* Hilgendorf, 1880, from 2 specimens (Figure 2) collected by longline and trawl off Agattu Island of the Aleutian Islands (Hilgendorf 1880) and provide the first diagnosis for this species.

Fishing effort along the western extent of the Aleutian Islands chain has increased during the 1990s. Until the late 1980s, commercial fishing around the Aleutian Islands had been centered in the eastern portion of the chain, close to the primary fishing port of Dutch Harbor on Unalaska Island. In 1990, because

fishing quotas were used in other regions of the Bering Sea and Gulf of Alaska, domestic fishermen shifted away from highly fished traditional areas and began focusing on marginal fishing areas, such as the central and western Aleutian Islands. These areas were considered marginal because bottom topography rendered trawling difficult; therefore, fishermen switched to discretely targetable, stationary gears such as longlines and crab pots. Additional records of other species may be expected as fishing effort continues to increase, although no additional records of these species have been reported since 1991. Triennial trawl surveys conducted by the National Marine Fisheries Service since 1980 have not recorded *A. latens* or *S. glaucus*, although the depths sampled by these surveys extend only to about 400 m, which is shallower than the recorded depths for *A. latens* (Ronholt et al. 1994).

METHODS

Counts and measures follow Eschmeyer (1969) and Eschmeyer et al. (1979). Standard length (SL) is used throughout. Data for the holotype of *A. latens* is taken from Eschmeyer et al. (1979). Kanayama's (1981) morphometric data, expressed in "times in head length," for *A. latens* was converted to percent standard length. Sex of *A. latens* specimens was determined

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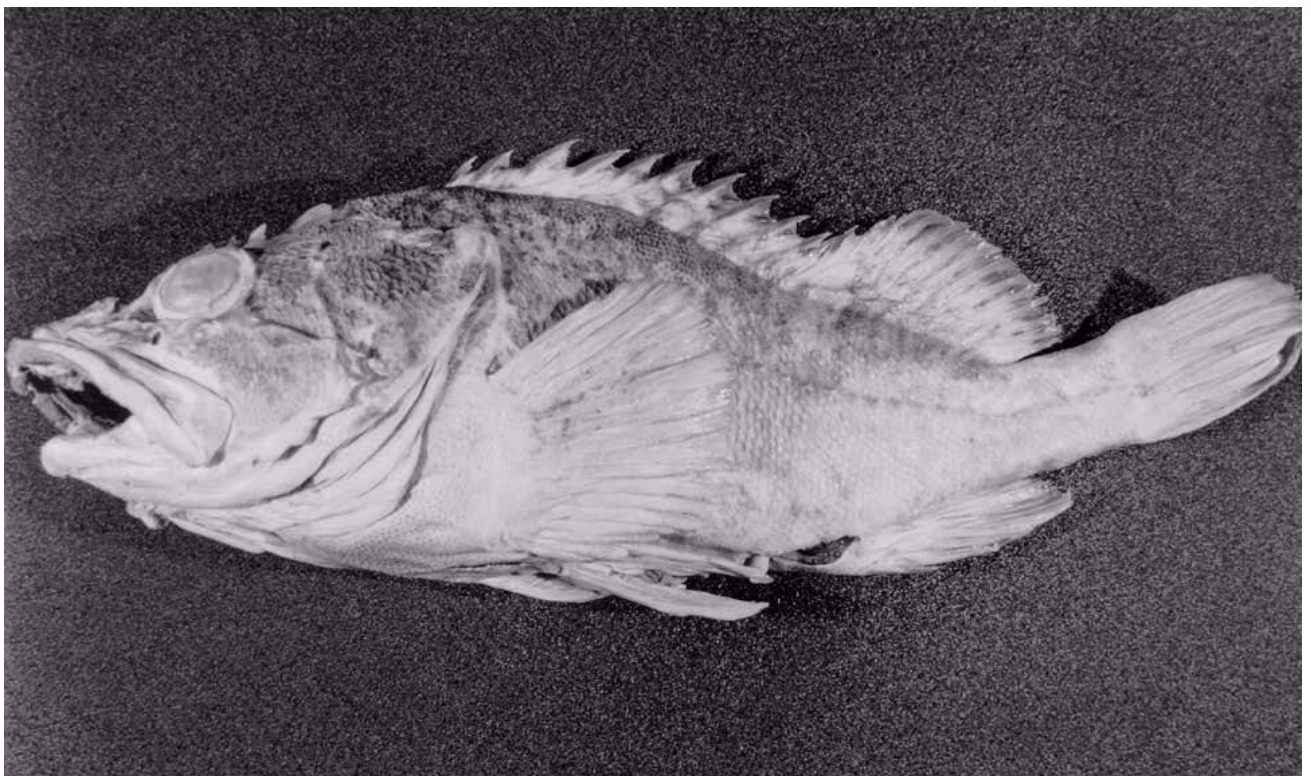
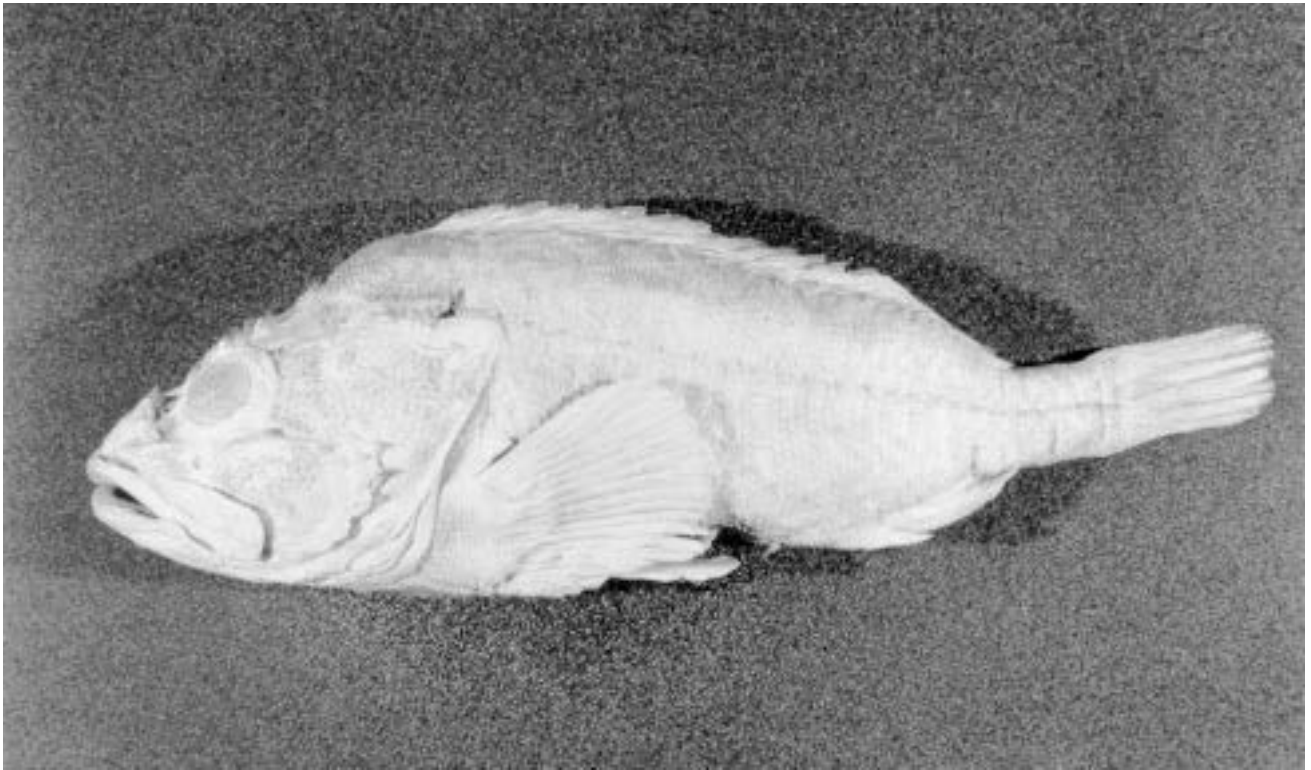


Figure 1. Aleutian scorpionfish *Adelosebastes latens*: (top) UW 022688, male, 325 mm SL, 51°22'N 178°10'W, 14.8 km southeast of Ilak Island, Delarof Islands, 732-m depth; (bottom) UW 022685, male, 335 mm SL, 51°21'16"N 178°48'39"W, 14.8 km southwest of Ilak Island, Delarof Islands, 687-m depth.

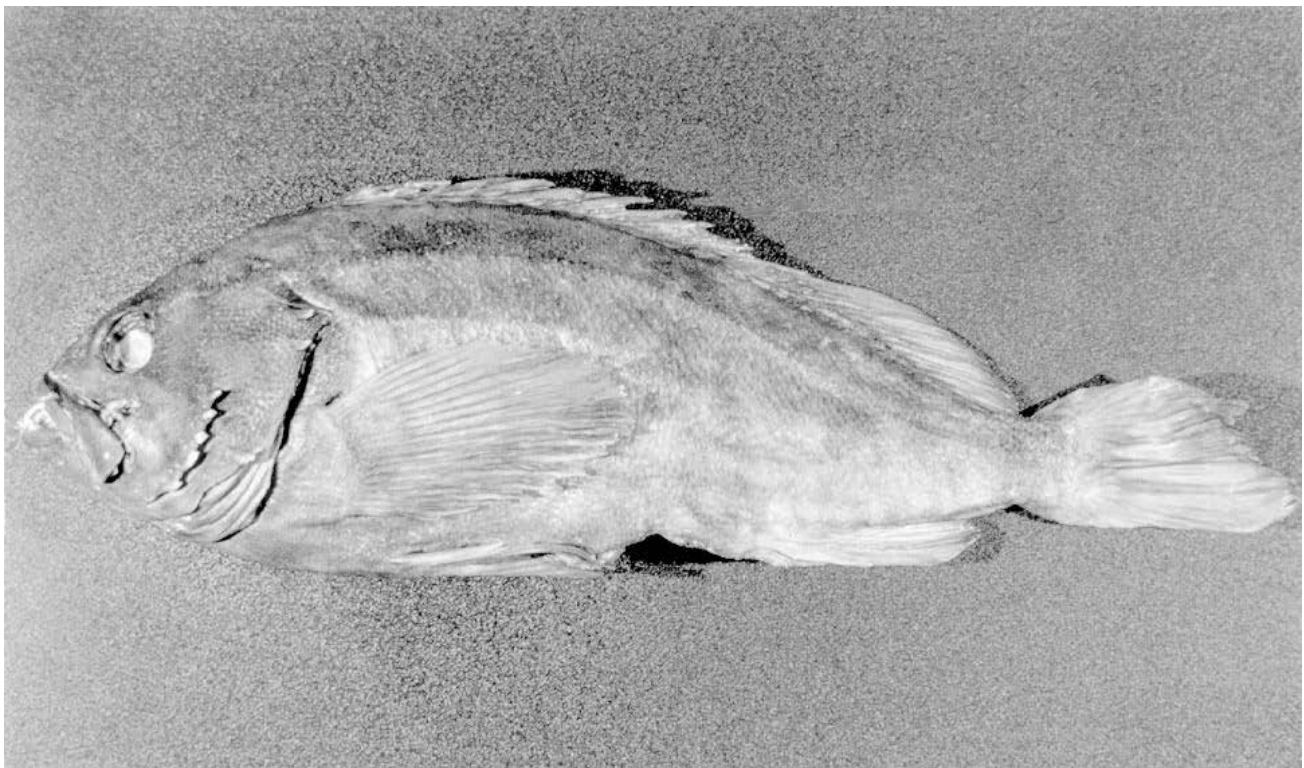
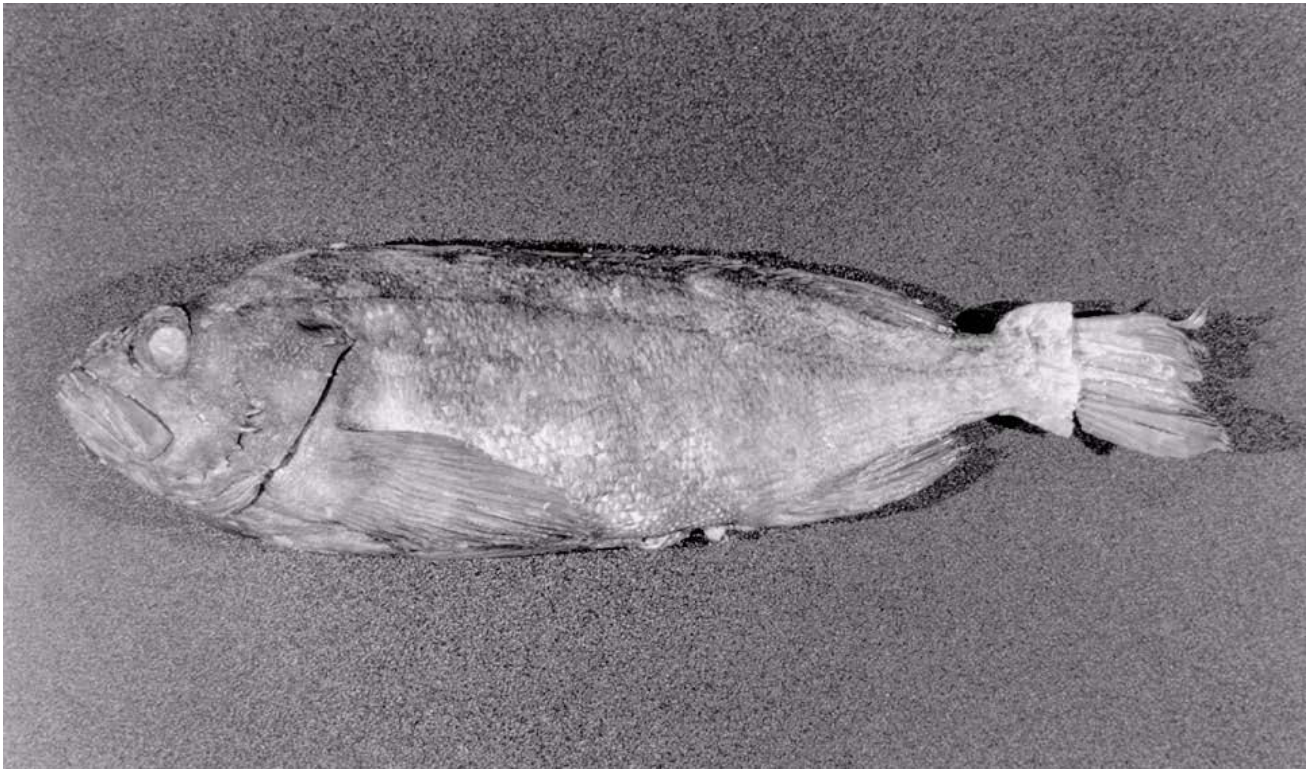


Figure 2. Gray rockfish *Sebastes glaucus*: (top) UW 022656, 370.0 mm SL, 52°19'N 174°40'W, 35.2 km south of Atka Island, Andreanof Islands, 122-m depth; (bottom) UW 022691, 439.0 mm SL, 52°20'N 174°38'W, 37.1 km south of Atka Island, Andreanof Islands, 123-m depth.

Table 1. Meristics of *Adelosebastes latens* specimens collected in the Aleutian Islands (UW 022688, UW 022685), the holotype of Eschmeyer et al. (1979), and specimens of Kanayama (1981) and Barsukov et al. (1984).

Counts	UW 022688	UW 022685	Holotype	Kanayama	Barsukov et al.
Nr of specimens	1	1	1	7	7
Nr dorsal rays	XII,13	XII,13	XIII,13	XII–XIII,12–13	XII,12–13
Nr anal rays	III,5	III,5	III,5	III,5	III,5
Nr pectoral rays	21,21	18,21	21,na	20–22	20–22,20–22
Nr principal caudal rays	I,6+6,I	I,6+6,I	I,6+6,I	I,7–8+6–7,I	I,6+6,I
Nr gill rakers (upper + lower)	24(7+17)	24(7+17)	24–25(7+[17–18])	24(7+17)	24(7+17)
Nr lateral line scales (pored scales)	85(28+1)	74(29+1)	100(29+1)	na(28–29)	na(29+1)
Nr scales above lateral line	21	22	na	na	na
Nr scales below lateral line	24	25	na	na	na
Nr vertebrae (abdominal + caudal)	26(10+16)	26(10+16)	26(na)	26(10+16)	26(10+16)

na = not available

by using a Giemsa stain procedure; i.e., gonadal tissue previously fixed in 10% formalin and preserved in 70% ethanol was placed in the stain for 2 min, deionized water for 2 min, and then air-dried. Institutional abbreviations follow Leviton et al. (1985).

ADELOSEBASTES LATENS — ALEUTIAN SCORPIONFISH

Figure 1; Tables 1, 2

Adelosebastes latens Eschmeyer, Abe, and Nakano, 1979 (Eschmeyer et al. 1979; p 80, Plate 1, Figures 1 and 2; original description; type: Emperor Seamounts, ZUMT 54–180); Kanayama (1981; p 124; description, key, records; Emperor Seamounts); Barsukov et al. (1984; description, records; Emperor Seamounts); Amaoka (1984a; p 315, Plate 281G; synopsis, distribution); Ishida (1994; p 4 and following; morphology, phylogenetics).

New Material Examined

Two males, 325 and 335 mm SL, were collected in the vicinity of the Delarof Islands of the Aleutian Islands chain. These records constitute the first report of the species in North American waters and extend the species' known range by about 2,200 km. The 325-mm

specimen, collected at 51°22'N 178°10'W, 14.8 km southeast of Ilak Island at a 732-m depth, is cataloged at the University of Washington Fish Collection (UW 022688). The 335-mm specimen (UW 022685) was obtained at 51°21'16"N 178°48'39"W, 14.8 km southwest of Ilak Island at a depth of 687 m.

Diagnosis

(Eschmeyer et al. 1979; emended) Dorsal fin: spines XII, rays 13 (last double); Anal fin: spines III, rays 5 (last double); Pectoral fin: rays 20–22. Suborbital ridge with spines weak or absent, more strongly developed in large adults. Pectoral fin slightly bilobed. Unscaled area adjacent to dorsal fin; tiny scales on back grading into normal scales nearer lateral line. Individuals up to 288 mm nearly uniform red in life; adults 325–335 mm with dorsal mottling in 3 broad, diffuse bands.

Morphology

The morphology of our specimens of *A. latens* agrees well with the description of the holotype (Eschmeyer et al. 1979) and other specimens (Kanayama 1981; Barsukov et al. 1984), with minor exceptions (Tables 1 and 2): the count of 18,21 (left, right) pectoral rays in UW 022685. In the holotype, the count is 21 (Eschmeyer et al. 1979) and is 20–22 in

Table 2. Morphometrics in millimeters and percent of standard length in parentheses of *Adelosebastes latens* specimens collected in the Aleutian Islands (UW 022688, UW 022685), the holotype of Eschmeyer et al. (1979), and specimens of Kanayama (1981) and Barsukov et al. (1984).

Measurements (mm)	UW 022688	UW 022685	Holotype	Kanayama	Barsukov et al.
Standard length	325	335	281	181.8–288.0	132–240
Head length	135.3(41.6)	146.5(43.7)	122(43)	na(43.1–44.7)	na(41.7–43.5)
Snout length	35.1(11.0)	41.3(12.3)	29.7(10)	na(9.7–12.1)	na(8.4–11.9)
Orbit diameter	31.2(9.6)	35.5(10.6)	32.9(12)	na(10.2–14.0)	na(11.6–13.3)
Least interorbital width	18.8(5.8)	17.1(5.1)	14.3(05)	na(4.3–5.2)	na(3.7–5.9)
Maxillary length	67.4(20.7)	76.7(22.9)	58.6(21)	na	na
Gill raker length	8.0(2.5)	9.0(2.7)	na	na	na
Suborbital width	10.1(3.3)	12.5(3.7)	na	na	na
Predorsal length	125.8(38.7)	135.2(40.4)	109(39)	na(32.6–39.4)	na(37.0–40.0)
Body depth at anal origin	73.1(22.7)	81.9(24.5)	na	na(20.6–22.0)	
Greatest body depth	113.0(34.8)	114.7(34.2)	99.4(35)	na(26.9–32.1)	na(31.3–33.3)
Pectoral fin length	72.5(22.3)	81.1(24.2)	81.3(29)	na(22.6–28.9)	na(22.2–26.3)
Pelvic fin length	58.5(18.0)	64.3(19.2)	56.6(20)	na(17.5–22.0)	na(19.6–21.3)
Dorsal spine 3 length	29.6(9.1)	33.9(10.1)	31.3(11)	na	na(11.4–15.1)
Penultimate dorsal spine length	24.0(7.3)	27.6(8.0)	21.5(08)	na	na(8.6–9.9)
Anal fin length	42.1(13.0)	43.5(12.6)	59.4(21)	na(12.1–13.1)	
Anal spine 1 length	20.0(6.2)	23.7(6.9)	21.5(08)	na	na(7.8–10.8)
Anal spine 2 length	52.4(16.1)	60.3(17.5)	49.0(17)	na	na(19.4–24.3)
Anal spine 3 length	48.6(15.0)	47.0(13.6)	44.5(16)	na	na(14.5–17.7)
Caudal peduncle depth	28.8(8.1)	30.4(8.8)	na	na	na(7.8–9.3)
Caudal peduncle length	58.9(18.1)	65.42(19.0)	na	na	na(15.1–19.7)
Caudal fin length	56.6(17.4)	57.5(16.7)	55.3(20)	na(19.4–21.1)	na(19.61–21.74)

na = not available

the 14 specimens of Kanayama (1981) and Barsukov et al. (1984). Although we interpret our count as anomalous because of the extreme difference in left- and right-side counts, no evidence of physical injury is present. Other scorpaenids exhibit a bilateral difference of up to 2 rays (Chen 1986) and a total range of 3 (Eschmeyer and Randall 1975) or 4 (Eschmeyer 1969; Chen 1986) rays.

Coloration of the 2 specimens also differs from that described for all other material. Our specimens had extensive dark blotches over the nape and dorsum, although both were also bright crimson red over most of their bodies in life (yellowish in preservation). Previously reported specimens were nearly entirely bright crimson red with black on the rear of the gill cover and on the fin membranes of the dorsal and pectoral fins especially (see color photos in Eschmeyer et al. 1979 and Masuda et al. 1984; see description in

Kanayama 1981 and Barsukov et al. 1984). A particularly prominent dusky area was noted by Eschmeyer et al. (1979) on the pectoral fin at about two-thirds its length. Before preservation, both new specimens had a background coloration of crimson red, and the 325-mm specimen was nearly identical in its patches of dark coloration patterns to previously described material (color photos on file with senior author). Unlike other material, however, the 335-mm specimen exhibits 3 dark bands of diffuse olivaceous-brown mottling dorsally, which persisted in preservation. The first dark band extends from the nape and the membrane between dorsal fin spines 1–3, across the operculum and just posterior to the gill cover, dorsal to the pectoral fin base; a prominent and distinct dark blotch persists between the 2 prominent spines at the operculum's dorsoposterior margin. The second band extends ventrally from the membrane between dorsal fin spines

Table 3. Species composition of catches by weight containing *Adelosebastes latens* from the Aleutian Islands. Data from Resource Ecology and Fisheries Management Division, Alaska Fisheries Science Center.

Taxon	Percent of Catch	
	UW 022685	UW 022688
<i>Anoplopoma fimbria</i>	56	22
<i>Sebastobolus alascanus</i>	26	9
Rajidae (unidentified)	7	<1
<i>Sebastes borealis</i>	5	<1
Macrouridae (unidentified)	5	50
<i>Reinhardtius hippoglossoides</i>	2	19
Other species combined	<1	<1

6 and 11 to the lateral line. The third band extends ventrally from the membrane between dorsal fin rays 1 and 11 to the lateral line. A prominent dusky region is present on pectoral fin rays 5–8. The gill chamber is black. The peritoneum is gray-silver with black dots ventrally, becoming jet black dorsally.

Species and Habitat Associations

Both specimens were captured in commercial longline operations targeting sablefish *Anoplopoma fimbria*. The 6 most abundant species groups captured with both specimens were identical (Table 3) and typical of the fishes taken in Aleutian commercial fisheries at these depths (M. Brown, National Marine Fisheries Service, Seattle, personal communication). The reported depth for these specimens is shallower (687–732 m) than that of previously collected material (900–1,200 m; Eschmeyer et al. 1979; Kanayama 1981; Amaoka 1984a; Barsukov et al. 1984).

Table 4. Meristics of *Sebastes glaucus* from the Aleutian Islands (UW 022656, UW 022691) and from Hokkaido, Japan (Matsubara 1943).

Counts	UW 022656	UW 022691	Matsubara
Nr of specimens	1	1	19
Nr dorsal rays	XIV,14	XIV,15	XIV,14–17
Nr anal rays	III,8	III,8	III,7–9
Nr pectoral rays	19,20	19,20	18–20
Nr principal caudal rays	I,7+8,I	I,7+8,I	na
Nr gill rakers (upper + lower)	35(10+25)	34(9+25)	35–41(11–13+24–29)
Nr lateral line scales (pored scales)	78(52)	64(50)	na(48–54)
Nr scales above lateral line	21	24	na
Nr scales below lateral line	26	27	na
Nr vertebrae	29	29	29–30

na = not available

SEBASTES GLAUCUS — GRAY ROCKFISH

Figure 2; Tables 4, 5

Sebastes glaucus Hilgendorf, 1880 (Hilgendorf 1880; p 170; original description; Yeso, Japan); Matsubara (1943; p 180 redescription, Figure 67; Hokkaido, Japan); Amaoka (1984b; p 310; synopsis, distribution, Plate 276A); Chen (1986; meristics); Matarese et al. (1989; meristics).
Sebastes glaucus Jordan and Evermann, 1898 (Jordan and Evermann 1898; p 1777; new combination; Bering Island); Jordan and Gilbert (1899; p 447; description from Jordan and Evermann 1898); Jordan and Starks (1904; p 97; description from Jordan and Evermann 1898); Gilbert and Burke (1912; p 36; description, record; Mednyy Island, Bering Sea); Jordan et al. (1913; p 232; synonymy, record; Hokkaido, Bering Island); Schmidt (1950; p 117; synonymy, record; Commander Islands, Sea of Japan); Barsukov (1964; p 258; description, record; Kamchatka, Commander Islands, northern Sea of Japan and Sea of Okhotsk).
Emmelas glaucus Jordan, Evermann, and Clark, 1930 (Jordan et al. 1980; p 364; new combination).

New Material Examined

Two specimens, 358 and 427 mm SL, were collected in the vicinity of the Andreanof Islands of the Aleutian Islands chain, extending the known range by 2,200 km (Jordan and Evermann 1898; Barsukov 1964). The 427-mm specimen was collected at 52°20'N

Table 5. Morphometrics in millimeters and percent of standard length in parentheses of *Sebastes glaucus* from the Aleutian Islands (UW 022656, UW 022691) and from Hokkaido, Japan (Matsubara 1943).

Measurements (mm)	UW 022656	UW 022691	Matsubara
Standard length	358.0	427.0	220–440
Head length	107(28.9)	134(30.5)	na(32.7–35.3)
Predorsal length	102(27.6)	126(28.7)	na
Body depth at anal origin	96(26.0)	113(25.7)	na
Greatest body depth	113(30.5)	146(33.3)	na
Pectoral fin length	93(25.1)	112(25.5)	na
Pelvic fin length	72(19.5)	89(20.3)	na
Anal fin length	60(16.2)	72(16.4)	na
Caudal fin length	65.5(17.7)	92(21.0)	na
	Percent Head Length		
Snout length	27(25.2)	32(23.9)	na(23.1–28.6)
Orbit diameter	26(24.3)	28(20.9)	na(20.5–25.5)
Least interorbital width	32(29.9)	42(31.3)	na(26.2–31.1)
Maxillary length	55(51.4)	74(55.2)	na(47.4–55.6)
Dorsal-spine 3 length	41(38.3)	Broken	na(32.0–41.3)
Penultimate dorsal-spine length	27(25.2)	34(25.4)	na(18.4–26.7)
Anal spine 1 length	17(15.9)	18(13.4)	na(11.7–17.1)
Anal spine 2 length	21.5(20.1)	30(22.4)	na(21.7–32.3)
Anal spine 3 length	33.5(31.3)	42(31.3)	na(27.1–35.7)
Gill raker length	16(15.0)	19(14.2)	na
Suborbital width	10(9.4)	13(9.7)	na
Caudal peduncle depth	29(27.1)	33(24.6)	na(26.3–30.5)
Caudal peduncle length	83(77.6)	86(64.2)	na

na = not available

174°38'W, 37.1 km south of Atka Island at a 123-m depth; it is cataloged at the University of Washington Fish Collection (UW 022691). The 358-mm specimen (UW 022656) was obtained from 52°19'N 174°40'W, 35.2 km south of Atka Island at a 122-m depth.

Diagnosis

Body and fin color dark grey with yellow wash, yellow especially prominent in fins; mouth large, maxilla extending to posterior margin of orbit; interorbital strongly convex, eyes far below dorsal margin of head; dorsal spines 14; nasal spines present, other head spines obsolete; vertebrae 29–30.

Morphology and Remarks

Jordan and Evermann (1898) noted Hilgendorf's (1880) original description was based on a single dried specimen and that his narrative lacked sufficient detail to determine the identity of their specimens of *S. glaucus*. Thus, they redescribed the species on the basis of a single individual from "Bering Island" and noted the range to the coasts of Japan. Gilbert and

Burke (1912) noted the capture of a single specimen from "Preobrazhenskoi Bay," Mednyy Island. In his monumental work on scorpaenoids of Japan, Matsubara (1943) provided a detailed redescription of *S. glaucus* based on 19 individuals from the coasts of Japan. Subsequently, Masuda et al. (1984) illustrated a specimen, and Amaoka (1984b) provided a brief descriptive account noting its range to "the Okhotsk Sea, northern Sea of Japan, and the Bering Sea." Our specimens agree with these descriptions (Tables 4,5) and represent the first records from the Aleutian Islands, a range extension of over 2,200 km.

In life, *S. glaucus* can be distinguished from all other congeners on the basis of body coloration (uniformly gray with a yellow wash; see photo in Masuda et al. 1984), head shape (interorbital space strongly convex), mouth size (maxilla extending to posterior part of orbit), and dorsal spine count (mode of 14). When preserved, *S. glaucus* is dark brown with some darker mottling, and 2 species found in the region are similar when preserved: black rockfish *S. melanops* Girard, 1856, and dusky rockfish *S. ciliatus* (Tilesius, 1810). A significant meristic character separating *S. glaucus* from these 2 similar species is the number

Table 6. Species composition of catches by weight containing *Sebastes glaucus* from the Aleutian Islands. Data from Resource Ecology and Fisheries Management Division, Alaska Fisheries Science Center.

Taxon	Percent of Catch	
	UW 022656	UW 022691
<i>Sebastes polyspinis</i>	44	0
<i>Sebastes alutus</i>	28	0
<i>Theragra chalcogramma</i>	15	0
<i>Gadus macrocephalus</i>	12	76
<i>Hippoglossus stenolepis</i>	0	20
<i>Hemilepidotus</i> sp.	0	2
Rajidae (unidentified)	0	2
Other species combined	<1	<1

of dorsal spines, which is typically 14 in *S. glaucus* and 13 in all other *Sebastes*, except northern rockfish *S. polyspinis* (Taranetz and Moiseev, 1933) of the northeast Pacific (Matsubara 1943; Phillips 1957; Eschmeyer et al. 1983) and *S. hubbsi* and *S. owstoni* of the northwest Pacific (Matsubara 1943; Masuda et al. 1984; Chen 1986). Chen's (1986) record of 13 dorsal spines in *S. polyspinis* is in error (personal communication as cited in Matarese et al. 1989). *S. glaucus* is easily distinguished from all 3 by body shape and coloration.

Other meristic characters distinguishing *S. glaucus* include total gill rakers on first arch: 35–41 versus 32–35 in *S. ciliatus* and 34–38 in *S. melanops*

(Matarese et al. 1989). In addition, *S. ciliatus* typically has a smaller mouth: the maxilla extends only to mid-orbit, unlike *S. glaucus* and *S. melanops*. *S. melanops* differs in head spine count, typically possessing nasal, preorbital, and postocular spines; *S. glaucus* possesses only a nasal spine. The peritoneum of *S. melanops* is typically white to gray, or spotted with black; in *S. glaucus* it is jet black. Head spines and peritoneum color in *S. glaucus* is similar to that of *S. ciliatus*.

Species and Habitat Associations

The 2 specimens of *S. glaucus* reported here were collected from catches displaying different species compositions (Table 6), which probably reflect the disparate nature of the fishing gear. The 427-mm specimen was captured in a commercial longline set that captured 75% Pacific cod *Gadus macrocephalus* Tilesius, 1810, and 20% Pacific halibut *Hippoglossus stenolepis* Schmidt, 1904, both benthic fishes. In contrast, the 358-mm specimen was captured in a commercial trawl that also captured 56% northern rockfish and 37% Pacific ocean perch *S. alutus* (Gilbert, 1890), fishes characteristic of demersal trawls. The capture depths reported here are the first recorded in the literature. Of previous habitat descriptions, Gilbert and Burke (1912) noted their specimen was collected on hook-and-line, and Amaoka (1984b) described *S. glaucus* as "living in rather deep waters, collected by trawl net and long line."

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