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Short note/Kurze Mitteilung

Voucher-confirmed occurrence and bathymetric range extension of *Patagonotothen squamiceps* (Perciformes, Nototheniidae) from the Falkland Islands

Durch Belegexemplare bestätigter Nachweis und Tiefenerweiterung von *Patagonotothen squamiceps* (Perciformes, Nototheniidae) von den Falklandinseln

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Summary: The occurrence of *Patagonotothen squamiceps* (Peters, 1877) in Falkland Islands waters is documented based on newly collected voucher specimens obtained during a fisheries survey. Five individuals were collected in shelf-trawl bycatch at depths of 104–116 m during the 2026 First Pre-Season Assessment Survey. Two specimens were preserved and deposited in the Museo Nacional de Historia Natural, Santiago, Chile (MNHNC), providing accessible reference material for future taxonomic verification. Although *P. squamiceps* has previously been mentioned in regional faunal lists and other publications, these records have not been clearly supported by explicitly documented voucher specimens. In this study, we provide new voucher material from the Falkland Islands and highlight overlooked historical museum specimens (NRM, ZMH) that have not been previously discussed in the literature. Together, these data provide the first clearly documented voucher-based evidence of the species in Falkland Islands waters and extend its known bathymetric range, previously reported mainly from shallow coastal habitats.

Keywords: bathymetric distribution, distribution record, Patagonian Shelf, range extension, shelf-trawl bycatch, voucher specimens.

Zusammenfassung: Das Vorkommen von *Patagonotothen squamiceps* (Peters, 1877) in den Gewässern der Falklandinseln wird anhand von neu gesammelten Referenzexemplaren dokumentiert, die im Rahmen einer Fischereierhebung gewonnen wurden. Fünf Exemplare wurden während der ersten vor der Saison durchgeführten Erhebungsfahrt im Jahr 2026 als Beifang in einem Schelf-Schleppnetz in Tiefen von 104–116 m gesammelt. Zwei Exemplare wurden konserviert und im Museo Nacional de Historia Natural in Santiago, Chile (MNHNC), hinterlegt, wodurch zugängliches Referenzmaterial für zukünftige taxonomische Überprüfungen bereitgestellt wurde. Obwohl *P. squamiceps* bereits in regionalen Faunenlisten und anderen Publikationen erwähnt wurde, wurden diese Nachweise bisher nicht eindeutig durch zugängliche oder explizit dokumentierte Referenzexemplare gestützt. In dieser Studie stellen wir neues Referenzmaterial von den Falklandinseln zur Verfügung und heben bisher übersehene historische Museumsexemplare (NRM, ZMH) hervor, die in der Literatur bislang nicht diskutiert wurden. Zusammen liefern diese Daten den ersten eindeutig dokumentierten, auf Referenzexemplaren basierenden Nachweis der Art in den Gewässern der Falklandinseln und erweitern ihren bekannten bathymetrischen Verbreitungsbereich, der zuvor hauptsächlich aus flachen Küstenlebensräumen berichtet wurde.

Schlüsselwörter: bathymetrische Verbreitung, Beifang in der Schelfschleppnetzfischerei, Patagonischer Schelf, Referenzexemplare, Verbreitungsnachweis, Verbreitungserweiterung.

The genus *Patagonotothen* Balushkin, 1976 (Nototheniidae: Nototheniinae) comprises 14 recognized species (Fricke et al. 2026) of benthic coastal and shelf rock cods distributed along southern South America and adjacent subantarctic regions. Species of the genus typically inhabit cold-temperate waters of the Patagonian Shelf and are commonly recorded in trawl fisheries (Laptikhovsky 2004; Arkhipkin et al. 2015).

The longtail southern cod *Patagonotothen ramsayi* is the most abundant species of the genus recorded in Falkland Islands fisheries, occurring frequently as bycatch in the Patagonian longfinned squid (*Doryteuthis gahi*, "Loligo") fishery and in finfish trawl catches, and having also been historically targeted and occasionally processed in finfish fisheries. The *D. gahi* fishery operates primarily at depths of 150–200 m (Hatfield & Murray 1999), where the most common bycatch species include Argentine hake *Merluccius hubbsi* and *P. ramsayi*. Other species of the genus, such as the black southern cod *P. tessellata*, have been reported from shallower waters less than 100 m, whereas the yellowfin notothen *P. guntheri* is typically associated with depths greater than 100 m (Collins et al. 2008; Eastman 2017). In contrast, other congeners appear comparatively rare in available fisheries records.

Although *Patagonotothen squamiceps* (Peters, 1877) has previously been mentioned in faunal lists from Argentina (Menni et al. 1984; Mabragaña & Cousseau 2021), Chile (Pequeño 1989) and in reports from the Falkland Islands Fisheries Department (FIFD) (Jones et al. 2015; Winter et al. 2017), the occurrence of the species in Falkland Islands waters has remained poorly documented. A historical specimen collected in the Berkeley Sound in 1902 is preserved in the Swedish Museum of Natural History (NRM 2967), but this material has not been explicitly discussed in subsequent taxonomic literature. The species has also been listed in genetic studies of notothenid fishes (Dettai et al. 2012). Available ecological information indicates that *P. squamiceps* typically occurs in shallow coastal habitats, often associated with rocky substrates and macroalgal assemblages (Hüne et al. 2021; Chiaramonte et al. 2023), with published records generally from depths up to about 16 m (Eastman 2017). Here we report the occurrence of *P. squamiceps* in Falkland Islands waters based on newly collected voucher specimens from a fisheries survey and document the species in shelf-trawl bycatch at depths of 104–116 m, representing a substantial extension of the known bathymetric range of the species.

Material examined

Falkland Islands: five specimens of *Patagonotothen squamiceps* collected during the 2026 First Pre-Season Assessment Survey aboard F/V *Monteferro* (station 652). Two specimens were preserved in 4% v/v formaldehyde and deposited in the Museo Nacional de Historia Natural, Santiago, Chile (MNHNC; institutional codes follow Sabaj 2020) under catalogue numbers MNHNC-ICT8294 and MNHNC-ICT8295 (fig. 1). The trawl was conducted on 11. Feb. 2026 between 11:25 h and 13:25 h, from 52°48.46' S, 59°17.23' W (104 m) to 52°47.24' S, 59°01.10' W (116 m); mean of haul 52°48.05' S, 59°08.07' W, covering a tow distance of approximately 9.84 km at an average towing speed of 4.92 knots. The bottom trawl had a vertical opening of 4.19 m, a horizontal opening of 86.58 m, and a codend mesh size of 35 mm. The specimens were frozen on board and later examined at the FIFD, where standard morphometric measurements followed Hubbs & Lagler (1958) and body weight was recorded. Two additional historical specimens of *Patagonotothen squamiceps* are present at the ichthyological collection of the Natural History Museum in Hamburg under the catalogue number ZMH-ICH-0022604.

The survey specimens were identified as *Patagonotothen squamiceps* following the key of Norman (1937), based on diagnostic characters including 30–40 tubular scales in the upper lateral line, jaws equal or with the lower jaw slightly projecting, and 13–16 gill rakers on the lower limb of the first branchial arch. These characters distinguish *P. squamiceps* from the closely related *P. sima* (Norman 1937). Meristic characters were consistent with published examinations of the species and morphometric measurements are summarised in tab. 1.

Fig. 1 A, B: *Patagonotothen squamiceps* specimens from the Museo Nacional de Historia Natural, Santiago (MNHNC). **A** MNHNC-ICT8294, 118 mm TL. **B** MNHNC-ICT8295, 126 mm TL. Photos: Martin L. Villarroel-Perez.
Abb. 1 A, B: Exemplare von *Patagonotothen squamiceps* aus dem Museo Nacional de Historia Natural, Santiago (MNHNC). **A** MNHNC-ICT8294, 118 mm TL. **B** MNHNC-ICT8295, 126 mm TL. Fotos: Martin Villarroel-Perez.

Tab. 1: Morphometric characters of *Patagonotothen squamiceps* from Falkland Islands material (MNHNC, n = 2; unvouchered n = 3) and comparative museum specimens (ZMH, n = 2). Values are expressed as mean ± standard deviation and range. BD = body depth.*
Tab. 1: Morphometrische Merkmale von *Patagonotothen squamiceps* aus Material von den Falklandinseln (MNHNC, n = 2; nicht deponiertes Material n = 3) sowie Vergleichsmaterial aus dem ZMH (n = 2). Werte als Mittelwert ± Standardabweichung und Spannweite angegeben. BD = body depth.*

Character	*P. squamiceps* MNHNC-ICT8294, MNHNC-ICT8295 and unvouchered specimens (3)	*P. squamiceps* ZMH-ICH-0022604 (n = 2)
TL (mm)	105.7 ± 26.2 (73.5–129.5)	66.9 ± 3.8 (64.2–69.6)
SL (mm)	88.8 ± 23.5 (59.0–110.0)	53.4 ± 3.1 (51.2–55.6)
HL (% SL)	29.8 ± 1.0 (28.7–30.9)	32.4 ± 0.9 (31.8–33.1)
BD (% SL)	23.6 ± 1.1 (22.6–25.4)	22.6 ± 0.1 (22.6–22.6)
Predorsal length (% SL)	31.3 ± 2.0 (29.2–33.9)	31.9 ± 0.5 (31.5–32.2)
Preanal length (% SL)	47.8 ± 1.9 (45.6–49.5)	44.7 ± 0.5 (44.4–45.1)
Caudal peduncle depth (% SL)	7.5 ± 0.9 (7.4–7.6)	9.7 ± 0.1 (9.6–9.7)
Snout length (% HL)	24.6 ± 3.6 (21.4–29.4)	25.3 ± 0.4 (25.1–25.6)
Orbit diameter (% HL)	22.2 ± 1.5 (20.0–23.5)	26.3 ± 1.5 (25.3–27.4)
Interorbital width (% HL)	17.8 ± 1.0 (16.7–19.0)	24.9 ± 0.4 (24.6–25.1)

*MNHNC and unvouchered specimens were measured freshly thawed, whereas ZMH specimens were measured after fixation; differences may reflect preservation effects in addition to natural variation.

The examined specimens from the survey (n = 5) measured 105.7 ± 26.2 mm total length (TL) (range 73.5–129.5 mm) and weighed 16.6 ± 10.9 g (range 4–30 g). Morphometric measurements of the ZMH specimens (fig. 2), expressed as percentages of standard length (SL) and head length (HL), were consistent with those obtained from the Falkland material (tab. 1).

Historical records of *P. squamiceps* from the Falkland Islands originate from early expeditions' material initially identified as *Notothenia sima* Richardson, 1845. Lönnberg (1905) reported numerous specimens collected during the Swedish South Polar Expedition from several coastal localities in the Falkland Islands, including the Berkeley Sound (specimen later catalogued as NRM 2967, Swedish Museum of Natural History; 16 m depth; collected in 1902, identified as *N. squamiceps* by DeWitt (unpublished) in 1965), Port Louis, Port Williams and Port Stanley, at depths between 1 and 25 m. Two years later Lönnberg (1907:9) mentioned additional eleven specimens of '*Notothenia sima*' from Port Stanley. However, apparently twelve specimens have been collected by Wilhelm Michaelsen on 17. Jul. 1893, most probably during a stop-over from his 'Hamburger Magalhaensische Sammelreise' back to Germany. Those specimens have been deposited in the Natural History Museum of Hamburg (ZMH) under the original number NMH 10118. In November 1993 Arkadii Balushkin examined these specimens during a visit to Hamburg and confirmed ten of the specimens as *Patagonotothen sima* (now ZMH-ICH-0017932), but identified and separated two specimens as *P. squamiceps* (now ZMH-ICH-0022604, fig. 2).

Norman (1937) subsequently examined Falkland material from the Discovery Expedition (stations D-53, D-55 and D-56) and concluded that these specimens were referable to *N. squamiceps* rather than *N. sima*, distinguishing the species by its deeper body, broader interorbital region with larger scales, higher number of gill rakers, and differences in coloration (fig. 1).

The present material provides newly curated voucher specimens from a contemporary fisheries survey and documents the occurrence of the species in shelf-trawl bycatch at depths of 104–116 m, considerably deeper than the shallow coastal habitats previously reported for the species. These specimens (MNHNC-ICT 8294–8295) and associated photographs of fresh and fixed specimens (ZMH-ICH-0017932) provide accessible reference material for future taxonomic verification, monitoring, and comparative studies. The present record confirms the occurrence of *P. squamiceps* in Falkland Is-

Fig. 2 A, B: *Patagonotothen squamiceps* specimens from the Natural History Museum of Hamburg (ZMH). **A** ZMH-ICH-0022604, 70 mm TL. **B** ZMH-ICH-0022604, 64 mm TL. Photos: Timo Moritz (LIB-Hamburg).
Abb. 2 A, B: Exemplare von *Patagonotothen squamiceps* aus dem Zoologischen Museum Hamburg (ZMH). **A** ZMH-ICH-0022604, 70 mm TL. **B** ZMH-ICH-0022604, 64 mm TL. Fotos: Timo Moritz (LIB-Hamburg).

lands shelf ecosystems and represents a marked extension of the known bathymetric range of the species.

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