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# *Pseudoicichthys australis* (HAEDRICH, 1966) and *Anotopterus pharao* ZUGMAYER, 1911, rare fishes from Antarctic waters

[With 3 Tables]

Abstract: Morphometrical analysis of four specimens of *Pseudoicichthys australis* (*Centrolophidae*) and eleven specimens of *Anotopterus pharao* (*Anotopteridae*) are given. These species are very rare in world ichthyological collections.

During the First Polish Marine Antarctic Expedition in the Scotia Sea area (1975–1976) four specimens of *Pseudoicichthys australis* (HAEDRICH, 1966) and nine specimens of *Anotopterus pharao* ZUGMAYER, 1911 were caught. Two further specimens of *Anotopterus pharao* were caught during January 1979 near Elephant Island, South Shetland Islands. There are only six specimens of *Pseudoicichthys australis* recorded in the literature at present – the type specimen described by HAEDRICH (1966) as *Icichthys australis* and 5 specimens caught by Soviet Antarctic Expeditions. On this basis PARIN and PERMITIN (1969) described a new genus *Pseudoicichthys*.

According to TEMPLEMAN (1970), *Anotopterus pharao* is known only from about 50 specimens, young ones mainly or fragmentary specimens (heads only). Eleven of them were caught in the southern Atlantic and seven in Antarctic waters. Eight of eleven specimens listed below are the largest cited in the literature to date (see also ROFEN 1966 and ANDRIASHEV 1976).

It is of special interest to ichthyology to describe all specimens of such a rare species to increase our knowledge of their biology, taxonomy, distribution etc.

All specimens of *Pseudoicichthys australis* numbered MEPAN-1501a–1501d were caught on March 14th 1976 at a depth of 300 metres (depth to the bottom was 1000 metres); coordinate 53°30′ S, 37°05′ W; surface temperature +3.5°C.

There are some differences between specimens caught by Polish Expedi-

tion and those of HAEDRICH (1966) and PARIN and PERMITIN (1969) — see table 1. They have shorter heads, shorter pectoral and ventral fins, shorter praedorsal and praeanal distances, shorter snout and maxilla, lower body and a smaller interorbital width. There are small differences in the number of dorsal fin rays.

These differences may be due to morphometrical developmental changes. They may also be caused by small differences in measuring methods. On the basis of such a small number of specimens we cannot reach any firm conclusions. It is also possible that these specimens represent a new species.

All the investigated specimens of *Anotopterus pharao* (table 3) were females in stage 2 or even 3 on a five-degree scale. Gonads were very long, extending through

Table 1. Meristic and morphometric characters of *Pseudoicichthys australis* (HAEDRICH, 1966)

| Characters | Specimen No | | | |
|---|---|---|---|---|
| | MEPAN-1501-a | MEPAN-1501-b | MEPAN-1501-c | MEPAN-1501-d |
| total length in mm | 354 | 334 | 316 | 299 |
| standard length in mm | 305 | 287 | 269 | 260 |
| in % of standard length | | | | |
| head length | 21.31 | 21.25 | 22.68 | 25.38 |
| pectoral fin length | 12.79 | 12.20 | 12.64 | 12.69 |
| ventral fin length | 4.26 | 4.89 | 4.46 | 5.38 |
| dorsal fin height | 6.23 | 7.32 | 5.95 | 7.69 |
| praedorsal distance | 40.00 | 37.28 | 40.15 | 36.92 |
| praeanal distance | 57.38 | 56.10 | 59.48 | 59.62 |
| height maximum | 34.75 | 34.49 | 34.57 | 35.77 |
| height minimum | 9.51 | 10.10 | 9.29 | 9.62 |
| in % of head length | | | | |
| snout length | 16.92 | 18.85 | 18.03 | 18.18 |
| eye diameter | 21.54 | 18.03 | 19.67 | 16.67 |
| interorbital width | 25.38 | 28.69 | 27.05 | 25.76 |
| maxilla length | 26.15 | 22.95 | 26.23 | 21.21 |
| dorsal fin rays | 41*) | 40*) | 41*) | 42 |
| anal fin rays | 28*) | 27*) | 26*) | 28 |
| pectoral fin rays | 18 | 17 | 16 | 17 |
| gill rakers | 5+1+13 | 6+1+11 | 6+1+11 | 6+1+12 |
| lateral line**) | 143 | 137 | 130 | 140 |
| vertebrae***) | — | — | — | 50 |

* The rays were hardly visible and may be verified after making a radiograph.

** The scales were absent in all specimens, so the number of scales along the lateral line was determined by counting residual scale marks.

*** I have not been able to make radiographs at present, but one specimen (MEPAN-1501-d) has been stained with alizarine.

Table 2. Meristic and morphometric characters of *Anotopterus pharao* ZUGMAYER, 1911

| Characters | Specimen No | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 701a | 701b | 701c | 701d | 701e | 701f | 701g | 701h | 701i | 701j | 701k |
| total length in mm | 942 | 857 | 835 | 996 | 980 | 908 | 887 | — | 958 | 1048 | — |
| standard length in mm | 920 | 834 | 813 | 964 | 937 | 876 | 853 | 860 | 925 | 1008 | — |
| in % of standard length | | | | | | | | | | | |
| head length | 20.76 | 23.26 | 21.65 | 20.02 | 24.12 | 22.03 | 22.86 | 22.91 | 24.76 | 23.02 | — |
| height maximum | 4.29 | 4.56 | 3.69 | — | — | 3.88 | — | 4.77 | 4.32 | 5.26 | — |
| height minimum | 1.30 | 1.32 | 1.41 | 1.24 | 1.60 | 1.54 | 1.47 | 1.45 | 1.51 | 1.61 | — |
| snout–anal distance | 96.09 | 94.36 | 95.82 | 95.12 | 95.09 | 95.09 | 94.72 | 94.88 | 93.08 | 93.75 | — |
| adipose fin height | 1.96 | 2.40 | 2.21 | 1.97 | 2.03 | 2.05 | 2.23 | 2.21 | 2.27 | 3.67 | — |
| anus–anal fin distance | 32.17 | 30.94 | 26.81 | 31.33 | 25.93 | 28.54 | 26.73 | — | — | 28.47 | — |
| anal fin base | 5.33 | 5.40 | 5.78 | 5.29 | 5.23 | 5.71 | 5.98 | 5.35 | 5.24 | 5.11 | — |
| pectoral fin length | 4.67 | 4.68 | 4.31 | 4.41 | 5.55 | 4.11 | 5.04 | 4.42 | 4.54 | 5.16 | — |
| in % of head length | | | | | | | | | | | |
| snout length – | | | | | | | | | | | |
| – to the end of mandible | 82.72 | 72.68 | 73.30 | 74.09 | 73.45 | 71.50 | 72.31 | 72.59 | 64.19 | — | — |
| – to the margin of eye | — | 65.46 | 65.91 | 65.80 | 65.49 | 66.32 | 64.10 | 64.47 | 55.46 | 53.45 | 55.34 |
| eye diameter | 5.76 | 5.67 | 6.53 | 6.99 | 7.08 | 6.74 | 7.18 | 6.85 | 6.55 | 6.68 | 7.28 |
| interorbital width | 4.71 | 4.64 | 5.11 | 6.22 | 6.19 | 5.18 | 5.90 | 5.58 | 5.68 | 5.82 | 5.83 |
| postorbital length | 29.84 | 29.38 | 28.98 | 27.98 | 28.32 | 27.98 | 29.49 | 28.43 | 28.82 | 30.17 | 28.16 |
| maxilla length | 54.45 | 53.61 | 55.11 | 54.40 | 55.75 | 54.92 | 54.36 | 55.33 | 55.46 | 62.07 | 63.11 |
| pectoral fin rays number | | | | | | | | | | | |
| left side | 12 | 15 | 14 | 13 | 14 | 14 | 15 | 14 | 13 | — | 12 |
| right side | 12 | 15 | 13 | 13 | 14 | 14 | 15 | 13 | 13 | 13 | 12 |
| ventral fin rays number | | | | | | | | | | | |
| left side | 7 | 7 | 8 | 9 | 8 | 8 | 9 | 9 | 8 | 8 | — |
| right side | 7 | — | 8 | 8 | 8 | 8 | 10 | 9 | 8 | — | — |
| anal fin rays number | 14 | 15 | 15 | 13 | 14 | 16 | 16 | 15 | 14 | 15 | — |

most of the body cavity, but the eggs were small, hardly visible to the naked eye. One of them contain about 250,000 eggs. Most intestines were empty but in one case strongly digested remains were found with aboundant black pigment. None of the specimens listed in the table 2 differed significantly from the data of ROFEN (1966) and TEMPLEMAN (1970) and they, with no doubt belonged to the bipolarly distributed *Anotopterus pharao*.

Table 3. Phenological data of *Anotopterus pharao* ZUGMAYER, 1911

| No of spec. | Date | Coordinate | Depth of net | Depth to bottom | Temper. |
|---|---|---|---|---|---|
| MEPAN- | 4 III 1976 | 58°24′ S | | | |
| -701-a | | 26°00′ W | 570–200 m | 1300 m | – |
| MEPAN- | Febr. 1976 | S. Orkney | | | |
| -701-b-c | | Islands | – | – | – |
| MEPAN- | 4 II 1976 | 63°13′ S | | | |
| -701-d | | 64°22′ W | 50 m | 300 m | – |
| MEPAN- | March | S. Sandwich | | | |
| -701-e-f | 1976 | Islands | – | – | – |
| MEPAN- | January | King George | | | |
| -701-g | 1976 | Island | – | – | – |
| MEPAN- | 28 I 1976 | 63°39′ S | | | |
| -701-h | | 65°57′ W | 90–35 m | 2900 m | +1.3°C |
| MEPAN- | 7 III 1976 | 58°54′ S | | | |
| -701-i | | 32°28′ W | 46–36 m | 3500 m | +2°C |
| MEPAN- | 20 I 1979 | 61°15′ S | | | |
| -701-j | | 56°19′ W | 500–180 m | bott. trawl | 0°C |
| MEPAN- | 17 I 1979 | 62°30′ S | | | |
| -701-k | | 54°22′ W | 300 m | bott. trawl | –1°C |

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STRESZCZENIE

[Tytuł: *Pseudoicichthys australis* (HAEDRICH, 1966) i *Anotopterus pharao* ZUGMAYER, 1911, rzadkie gatunki ryb z wód antarktycznych]

Autor daje szczegółową charakterystykę morfometryczną czterech egzemplarzy *Pseudoicichthys australis* (*Centrolophidae*) (tabela 1) i 11 egzemplarzy *Anotopterus pharao* (*Anotopteridae*) (tabela 2 i 3). W światowych kolekcjach do tej pory znanych było jedynie 6 egzemplarzy *P. australis* i około 50 *A. pharao*.

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РЕЗЮМЕ

[Заглавие: *Pseudoicichthys australis* (HAEDRICH, 1966) и *Anotopterus pharao* ZUGMAYER, 1911, редкие виды рыб из Антарктики]

Автор дает подробную морфологическую характеристику 4 экземпляров *Pseudoicichthys australis* (*Centrolophidae*) (Табл. 1) и 11 экземпляров *Anotopterus pharao* (*Anotopteridae*) (Табл. 2 и 3). Из мировых коллекций известно до настоящего времени только 6 экземпляров *P. australis* и около 50 экземпляров *A. pharao*.

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