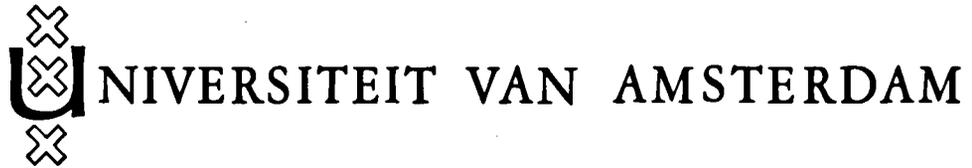


# BULLETIN ZOOLOGISCH MUSEUM



Vol. 9 No. 22 1983

FIRST RECORD OF THE WORM PIPEFISH, *NEROPHIS LUMBRICIFORMIS* (PENNANT, 1776)  
IN COASTAL WATERS OF THE NETHERLANDS, WITH NOTES ON OTHER ANIMAL SPECIES  
RECENTLY RECORDED FROM THE OOSTERSCHELDE

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ABSTRACT

The Worm pipefish, *Nerophis lumbriciformis* (Pennant, 1776) is recorded for the first time from along the coast of the Netherlands. A juvenile specimen of 44 mm total length was caught in the Oosterschelde on November 21st, 1982. A key to the species of pipefishes from the coastal waters of the Netherlands and from adjacent coasts is given. Other animal species recently recorded for the first time from the Oosterschelde are enumerated.

A juvenile specimen of 44 mm total length of the Worm pipefish, *Nerophis lumbriciformis* (Pennant, 1776) was collected by the junior author at Goesche Sas, along the coast of the Oosterschelde (fig. 1) on November 21st, 1982, during an excursion of the marine working group of the Royal Dutch Natural History Society (K.N.N.V.). It was caught with a dip net in shallow water at the seaside of the sluices at Goesche Sas,

on the slope of the dike in dense algal vegetation with mainly *Gigartina stellata* (Stackhouse) and *Laminaria saccharina* (Linnaeus), on artificial rocky substrate. The water was clear, with a chlorinity of about 16‰ and a temperature of 11.0°C.

Although a small specimen, it could be identified easily by its characters as given in the key below.

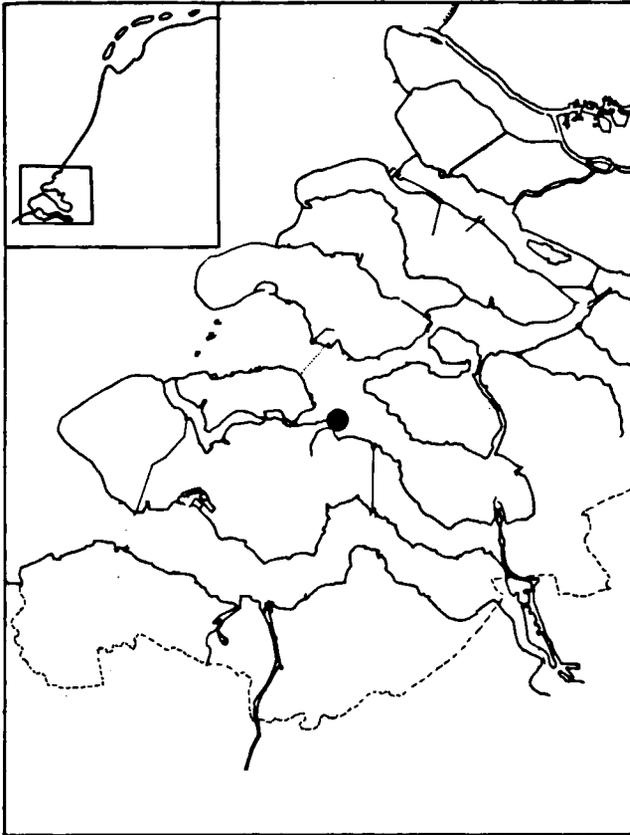


Fig. 1. Map of the southwestern part of the Netherlands, showing mainly the province Zeeland and the locality where *Nerophis lumbriciformis* was collected (spot) in the Oosterschelde.

This is the first record of *Nerophis lumbriciformis* in the coastal waters of the Netherlands, from where three other pipefish species were recorded previously (Nijssen & De Groot, 1980: 60-62), viz. *Syngnathus acus* Linnaeus, 1758, *Syngnathus rostellatus* Nilsson, 1855, and *Entelurus aequoreus* (Linnaeus, 1758).

Previous to the disappearance of the Eel-grass by a fungal disease, a fifth species, the Deep-snouted pipefish, *Syngnathus typhle* Linnaeus, 1758, was fairly common in the Dutch Wadden Sea. Two specimens were deposited in the Institute of Taxonomic Zoology (ZMA 116.733/734), which were caught in November, 1931. Since 1932 it disappeared from the Dutch coastal waters. So, this species is not relatively common as stated in Wheeler (1969: 244). The recovery of Eel-grass in the Dutch Wadden Sea was inhibited by the closure in 1932 of the former Zuider Sea, which became the IJssel Lake, filled with fresh water. However, *S. typhle* was never recorded again.

Key to the species of pipefishes from the coastal waters of the Netherlands and from adjacent coasts (modified after Wheeler, 1969 & 1978,

and after Bauchot & Pras, 1980).-

- 1a. Caudal fin absent; body ending in a point..... (*Nerophis*) 5
- 1b. Caudal fin rays present; caudal fin well developed or rudimentary..... 2
- 2a. Pectoral fins and anal fins absent; caudal fin with minute caudal fin rays; dorsal fin mostly in advance of the vent. ....*Entelurus aequoreus* (Linnaeus, 1758) (fig. 2a)

Snout longer than half the head length, the upper profile smoothly concave to the nape; Dorsal fin with 37-47 rays; 28-31 pre-anal rings, and 60-70 post-anal rings; Maximum total length of females 65 cm, of males 40 cm.

Colour in life: pale brown or yellowish-brown; body rings on the sides each with a narrow, vertical, pale bluish bar, bordered with dark. Horizontal dark line before and beyond eye.

Lives among large algae; is also found off-shore, oceanic, down to 100 m depth. Eggs exposed, adhered to the abdomen of the male.

E: Snake pipefish - G: Grosse Schlangennadel - F: Entélure - D: Adderzeenaald.

Regularly caught in Dutch coastal waters, although not in large numbers.

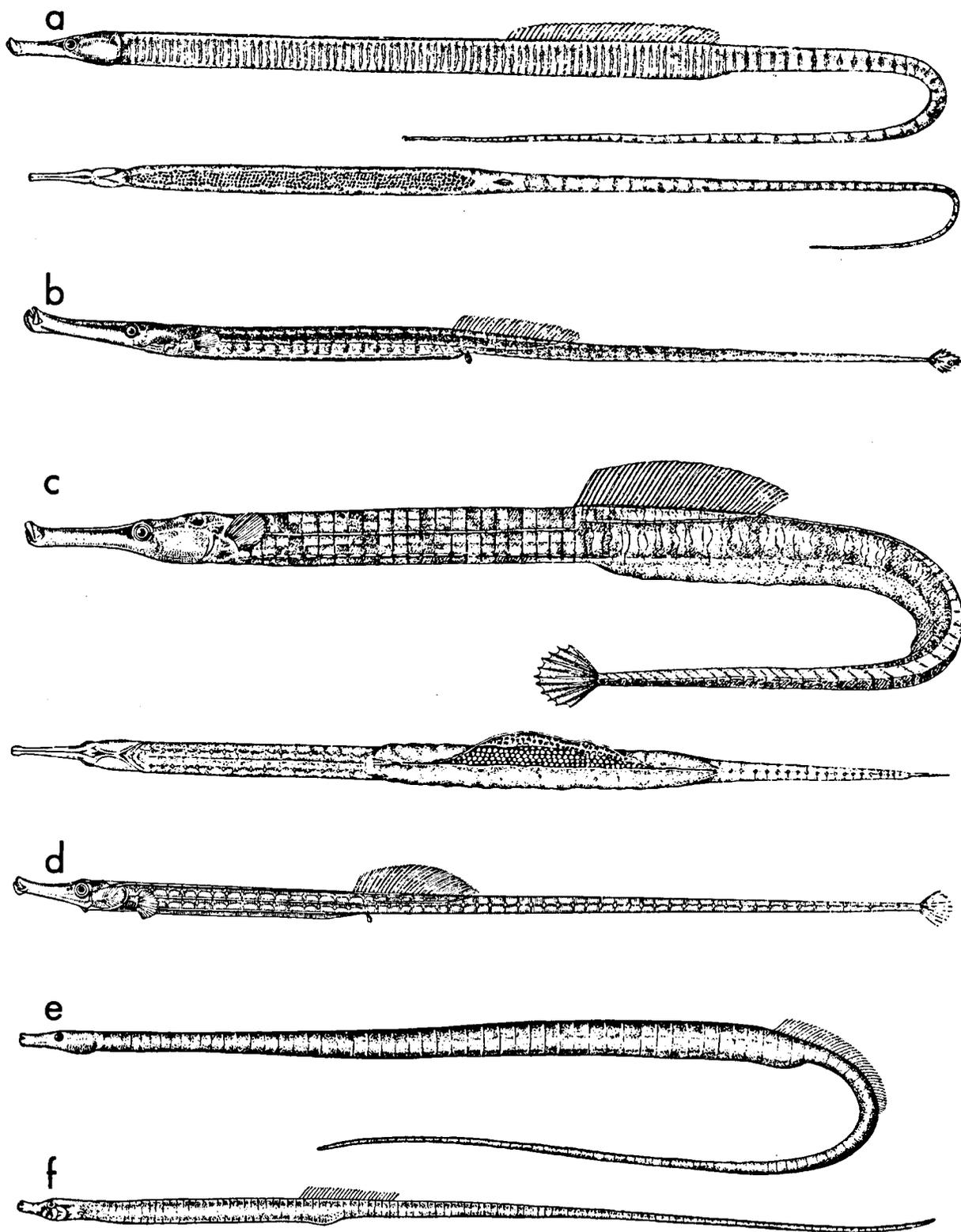


Fig. 2. a) *Entelurus aequoreus*; b) *Syngnathus typhle*; c) *Syngnathus acus*; d) *Syngnathus rostellatus*; e) *Nerophis ophidion*; f) *Nerophis lumbriciformis* (all after Poll, 1947).

- 2b. Pectoral fins and small anal fin present; caudal fin well developed; dorsal fin mostly beyond the vent.....  
.....(*Syngnathus*) 3

- 3a. Snout laterally strongly compressed; head profile straight over eye.....  
..... *Syngnathus typhle*  
Linnaeus, 1758 (fig. 2b)

Snout long, about four-fifth the head length; Dorsal fin with 28-42 rays; 16-21 pre-anal rings, and 33-39 post-anal rings; maximum total length 35 cm.

Colour in life: back and sides light greenish brown or plain brown; head around eye freckled with small, dark markings; ventrally pale brown.

Lives among *Zostera* on sandy shores, confined to coastal waters, down to 20 m depth. Eggs covered in well developed brood pouch, under the tail of the male.

E: Deep-snouted pipefish - G: Grasnadel - F: Siphonostome - D: Trompetterzeenaald.

Not recorded in Dutch coastal waters since 1932, when this species, then common in the Wadden Sea (Redeke, 1941: 172-173), disappeared.

- 3b. Snout rounded in cross-section; head profile arched over eye..... 4

- 4a. Snout considerably longer than half the head length; nape with a conspicuous crest..... *Syngnathus acus*  
Linnaeus, 1758 (fig. 2c)

Dorsal fin with 34-45 rays; 17-21 pre-anal rings, and 39-43 post-anal rings; maximum total length 47 cm.

Colour in life: back brownish with greenish hue and dusky cross-bars; ventrally creamy-yellow, darker towards the tail.

Lives in shallow coastal waters, down to 50 m depth, frequently in outer estuaries on mud and sand. Eggs covered in well developed brood pouch, under the tail of the male.

E: Greater pipefish - G: Grosse Seenaald - F: Syngnathe aiguille - D: Grote zeenaald.

Regularly caught in Dutch coastal waters, although not in large numbers.

- 4b. Snout less than half the head length; nape without crest.....  
..... *Syngnathus rostellatus*  
Nilsson, 1855 (fig. 2d)

Dorsal fin with 36-45 rays; 13-18 pre-anal rings, and 37-42 post-anal rings; maximum total length 17 cm.

Colour in life: warm brown with darker mottlings, often forming cross-bars;

often a dark blotch before the eye; ventrally creamy with silvery reflections.

Lives in shallow waters, down to 10 m depth, on sand (particularly in estuaries) among *Zostera*, and on rocks with dense, algal cover; is also found under stones. Eggs covered in well developed brood pouch under the tail of the male.

E: Nilsson's pipefish - G: Kleine Seenaald - F: Syngnathe de Duméril - D: Kleine zeenaald.

Regularly caught in Dutch coastal waters, although not in large numbers.

- 5a. Snout straight, about half the head length..... *Nerophis ophidion*  
(Linnaeus, 1758) (fig. 2e)

Caudal fin, anal fin, and pectoral fins absent (juveniles may have small pectoral fins); upper snout profile straight; Dorsal fin with 33-34 rays; 27-33 pre-anal rings, and 67-82 post-anal rings; maximum total length of females 30 cm, of males 25 cm.

Colour in life: back greenish brown, sides with whitish, vertical markings; mature females with bluish markings on the head and on anterior body.

Lives particularly among large brown algae and *Zostera* down to 25 m depth. Eggs exposed, in shallow groove in the belly of the male.

E: Straight-nosed pipefish - G: Kleine Schlangennadel - F: Nérophis ophidion - D: Grote wormzeenaald.

Not yet recorded from Dutch coastal waters.

- 5b. Snout tilted upward, about one-third the head length..... *Nerophis lumbriciformis*  
(Pennant, 1776) (fig.2f)

Caudal fin, anal fin, and pectoral fins absent (juveniles may have small pectoral fins); upper snout profile concave; Dorsal fin with 24-28 rays; 17-19 pre-anal rings, and 41-54 post-anal rings; maximum total length of females 17 cm, of males 14 cm.

Colour in life; overall dark green or brown, except lighter, dark bordered markings on head, throat, and on anterior body.

Living in the tidal zone, confined to rocky areas with algae, down to 30 m depth. Eggs exposed, in shallow groove in the belly of the male.

E: Worm pipefish - G: Krummschnauzige Schlangennadel - F: Nérophis lombricoïde - D: Kleine wormzeenaald.

One specimen recorded from Dutch coastal waters (Oosterschelde).

Other animal species recently recorded from the Oosterschelde.-

Some other animal species have recently been recorded from the Oosterschelde for the first time as autochthonous in the Netherlands.

The Derbio (Pisces, Carangidae), *Trachinotus ovatus* (Linnaeus, 1758) was caught on 21.X.1976 (Nijssen & De Koeijer, 1977). The Golden grey mullet (Pisces, Mugilidae), *Liza aurata* (Risso, 1810) was collected on 17.VIII.1980 (Nijssen, De Groot & Doornbos, 1981).

Several species of sponges were found in the Oosterschelde for the first time, viz.: *Haliclona loosanoffi* Hartman, 1958, recorded by Van Soest (1976), *H. rosea* (Bowerbank, 1866), and *H. cf. simplex* (Bowerbank, 1866) recorded by De Weerd (1983), *Mycale micracanthoxea* Buizer & Van Soest, 1977, and *Scypha scaldiensis* Van Koolwijk, 1982, the latter two species described as new.

Also ascidians (Tunicata, Ascidiacea) were recently recorded from the Oosterschelde for the first time in the Netherlands (Buizer, 1983), viz.: *Aplidium glabrum* (Verrill, 1871), and *Diplosoma listerianum* (Milne Edwards, 1841).

These records indicate the importance of this area for the Dutch marine fauna. We have to await the consequences of the partial enclosure of the Oosterschelde - which was started in August, 1983 - for its ecosystem, fauna, and flora. This partial enclosure will be a fact in 1986. The surface of the Oosterschelde will then be decreased from 45.000 to 35.000 hectares. The volume of the tides will be reduced with 35%.

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received : 17.VIII.1983.  
distributed : 21.X.1983.