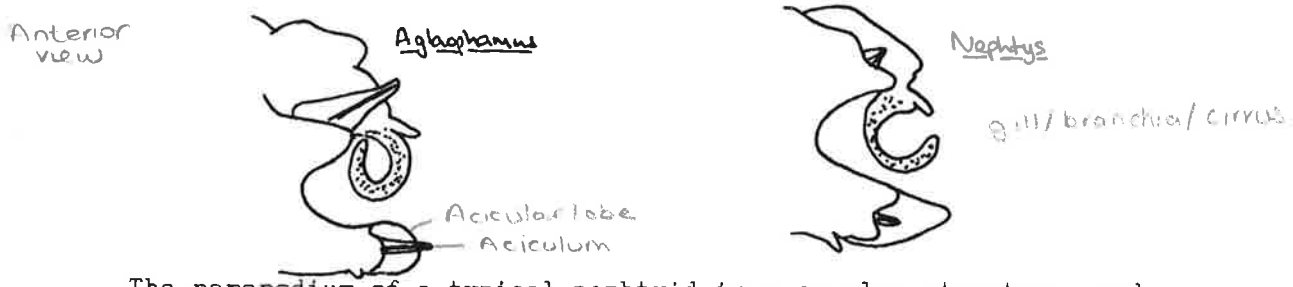
EB ECSA Polychaete Workshop
Fort Popton
1990

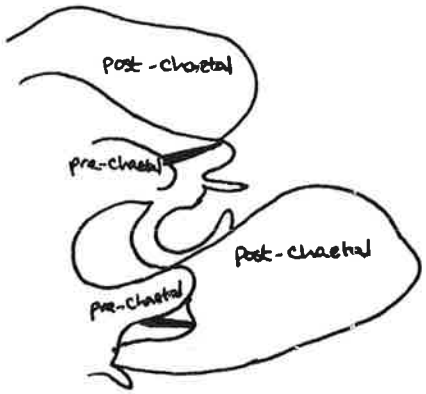
British Nephtyidae

The British Nephtyidae belong to only 2 genera - *Aglaophamus* and *Nephtys*. The family is fairly homogeneous morphologically, the main features of taxonomic importance relating to the parapodia, the eversible pharynx, and, to a lesser extent, the details of the prostomium and first segment. An additional character, the first segment to bear the inter-ramal cirri or gills, has recently been shown to be of considerable value.

The gills are present between the parapodial lobes of a number of mid-body segments, their direction of curve effectively distinguishing the 2 genera. In *Aglaophamus*, they curve downwards and outwards, whilst in *Nephtys*, they curve outwards and downwards.

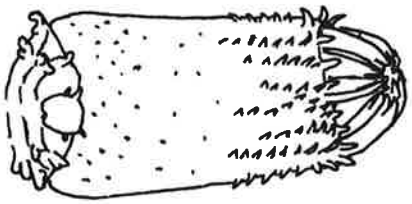


The parapodium of a typical nephtyid is a complex structure, and identification depends on understanding its basic structure. It consists of 2 rami - the dorsal or notopodial ramus and the ventral or neuropodial ramus. Each ramus is supported by an internal spine, the aciculum, and bears chaetae in essentially 2 groups. Each ramus is composed of an acicular lobe, with a pre-chaetal lobe in front of it and a post-chaetal lobe behind it. Sandwiched between these 3 lobes are the 2 groups of chaetae.

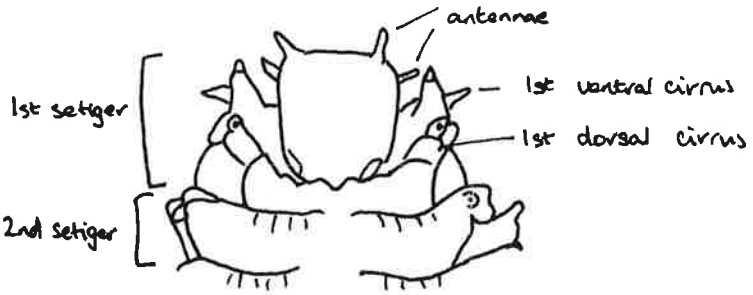


The shapes of all of the parapodial lobes and lamellae, whilst changing to some extent along the length of the body, are essentially characteristic for a given species. Clearly there is also an ontogenetic progression in the degree of development in some parapodial features, although this has perhaps been over-estimated in the past.

The pharynx of a nephtyid is eversible, and is frequently found in its everted state in preservced material. Around the aperture of the everted pharynx are a series of 20 bifid terminal papillae, and on its surface are a series of longitudinal rows of papillae. in *Nephtys* species there are 22 such rows, whilst in the British species of *Aglaophamus*, 14 rows are present. The number of papillae in each row varies between species, and an elongate mid-dorsal and mid-ventral papilla may be present. Proximal to these rows of papillae, the surface of the everted pharytnx may bear small protuberances, giving it a rough appearance.



The prostomium of a typical nephtyid is approximately rectangular in outline, with a pair of short antennae at the anterior corners. Asecond pair of antennae (also called palps) are present on the ventral side of the prostomium, and may or may not be visible dorsally. The first setiger is somewhat reduced, though still composed of 2 rami. The dorsal cirrus is situated on the dorsal side of the notopodial ramus (in contrast to the situation in the remining setigers, where it moves to the ventral side of the notopodial ramus, being associated with the gills, where present). This dorsal cirrus varies in shape between species, being reduced to a low mound in some, and developed into an elongate shape in others.



Identification of British Nephtyidae

Identification relies largely on parapodial morphology. Differences do occur between species in the morphology of the anterior end and of the everted pharynx, but interpretation of these structures is difficult. Consequently parapodial morphology will be used almost exclusively.

To examine a nephtyid parapodium it is essential to view it from the anterior face. It is therefore advisable to always remove parapodia from one side of the animal for consistency of orientation. A parapodium ois relatively easily removed by pulling at right angles to the body having taken a firm grip of the parapod with forceps, and whilst holding the rest of the body steady. Parapodia should be examined in water (formalin preserved material) or in glycerol. First find the tips of the acicula, which give a useful reference point. Then attempt to see the details and degree of development of the pre- and post-chaetal lamellae. Beware of well developed post-chaetal lamellae bending back under the rest of the parapodium on the slide.

Further useful information can be obtained by determining the first setiger to bear gills. This is relatively easy on large individuals, and with practice and appropriate light conditions, is quite feasible even for very small specimens. The specimen should be held on its side, and the space between the parapodial rami gently probed with amounted needle. Experiment with the position of the light source to find the most suitable light conditions.

British Nephtyidae

Aglaophamus malmgreni
Aglaophamus rubella
Nephtys assimilis
Nephtys caeca
Nephtys cirrosa
Nephtys ciliata
Nephtys hombergii
Nephtys hystricis
Nephtys incisa
Nephtys kersivalensis
Nephtys longosetosa
Nephtys paradoxa
Nephtys pente

Nephtys assimilis and *N. kersivalensis* have recently been redescribed and given specific status, both having previously been synonymized with *N. hombergii* (Rainer 1989). In a paper in press at the moment, Sebastian Rainer has also redescribed *N. hystricis* and *N. incisa* from type material, and has shown that the specific definitions have become switched over the years. Thus Fauvel (1923) has got these 2 species the wrong way around.

The accompanying identification aid is not given in the form of a standard key, as this would be largely a repitition of that given in Rainer (1989). It simply presents views of typical mid-body parapodia of all species, with the important features indicated, and some relevant additional information.

Selected references

Fauchald, K. 1963. Nephtyidae (polychaeta) from Norwegian waters. Sarsia, 13: 1-32.

Rainer, S., 1984. *Nephtys pente*, sp. nov. (Polychaeta: Nephtyidae) and a key to *Nephtys* from northern Europe. J. mar. biol. Ass. U.K., 64: 899-907.

Rainer, S., 1989. Redescrition of *Nephtys assimilis* and *N. kersivalensis* (Polychaeta:Phyllodocida) and a key to *Nephtys* from Northern Europe. J. mar. biol. Ass. U.K., 69:875-889.

Redescription of N. hystricus + N. incisa in press!

NEPHTYIDAE

Gills curved inwards

turn animal on side

Gills from setiger 7–10

Aglaophamus malmgreni

Gills from setiger 2

note differences Post chaetal lamellae

Aglaophamus rubella

Gills curved outwards

Gills expanded, foliose

Nephtys paradoxa

deep-water

Gills cirrate

Gills from setiger 3: ventral post-chaetal lamella S-shaped along lower edge

Nephtys longosetosa

Gills from setiger 4 or later; lower edge of ventral post-chaetal lamella smoothly curved or straight

→ (2)

(2)

Acicular lobe distinctly bilobed with acicular between 2 lobes

Acicular lobe pointed or evenly rounded

Gills from setiger 5 or 6

Gills not before setiger 7

Gills from setiger 7 (or less often 6).

differs from favel due to earlier mix up

Gills from setiger 9 (less often 8 or 10)

Gills from setiger 4 or 5 (occasionally 6)

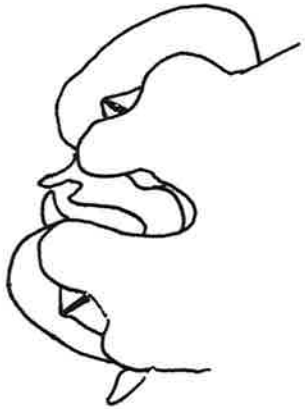
(3)

Nephtys pente

Nephtys ciliata

rare

genuine Br. Isl. records needed!



Nephtys hystricis

Nephtys incisa

Favel has these two species mixed up with each other!

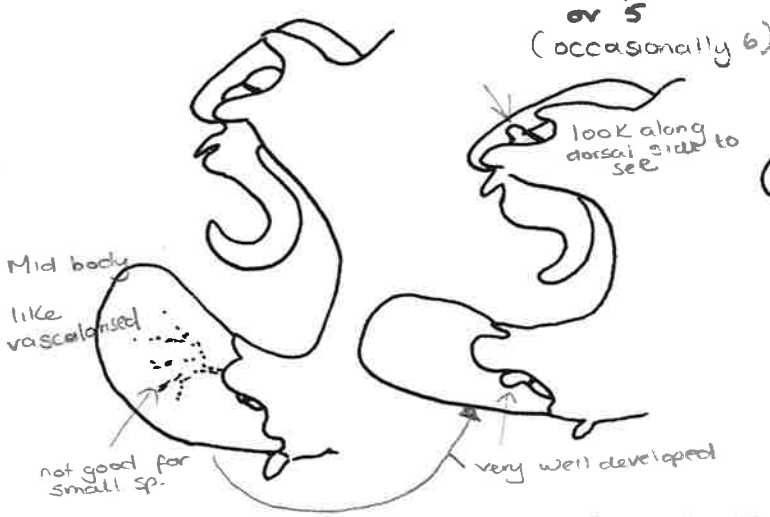
Proboscis if out, out less than hombergii etc

occasional specimen doesn't fit

By setiger 10, notopodial pre-chaetal lamella well developed and distinctly bilobed

Notopodial pre-chaetal lamella never well developed – just a simple ridge

Gills from 4



Nephtys assimilis

Vascularised lamella, curved upwards.

offshore

has much smaller bump than hombergii

Gills from 4 or 5 (occasionally 6)

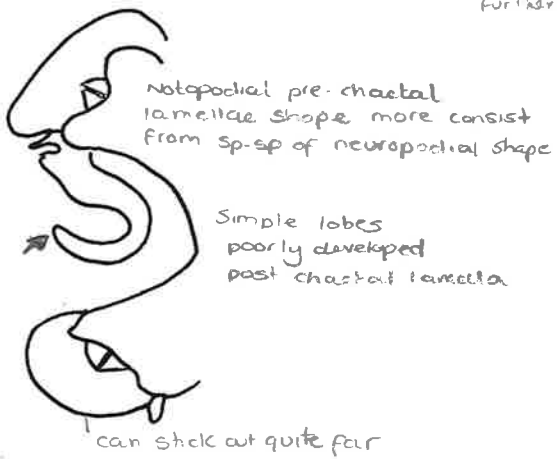
all previously hombergii

Nephtys hombergii

(intertidal) small papilla adjacent to aciculum tip.

intertidal + offshore

Gills from 4



Nephtys kersivalensis

acicular lobes conical. Post-setal lamellae poorly developed.

offshore.

most common

all 3 offshore

Gills from 4

Nephtys cirrosa

Geniculate chaetae

In posterior segments dorsal cirrus and gill of equal size.

Gills from 4

Nephtys caeca