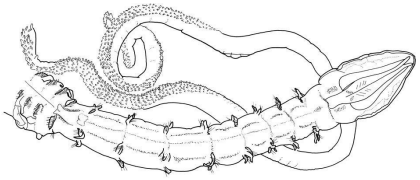
PORCUPINE MARINE NATURAL HISTORY SOCIETY

2023 Roger Bamber Grant project

An essential guide to Magelonidae, UK and European species

- Annelida
- Polychaeta (Bristleworms)
- Magelonidae



A. Taylor & K. Mortimer

COLLECTING SHOVEL HEAD WORMS ON THE SHORE

A handy pictorial step-by-step guide to collecting shovel head worms (Magelonidae) on shore. Once collected you can use our other handy print out guides for the UK and Europe to identify your magelonid. The techniques described below may be applied to collecting other polychaete groups.

Where to Find Magelonids?

- [ ] In soft, muddy to fine sandy sediments, towards lower shore.
- [ ] The worms are best collected at low tides, below the height of 0.8 m. Tide times can be checked in the Admiralty Tide Tables or online.

How to Collect Magelonids?

- [ ] Gently dig a spade full of sediment and place besides the hole [1].
- [ ] Take chunks gently away from large piece of sediment [2] looking for thin, thread-like white worms (<1mm wide) [3]. If you see one, gently take the worm along with the sediment either side, in order to prevent breakage, and gently wash the sediment away using a water bottle of seawater (not too strong a jet) [4, 5]. Try and keep your finger/hand underneath the worm so you don't lose it [6].
- [ ] Once you have removed most of sediment, place in palm of hand and keep moist. If you can wash away any remaining sediment then do so [7], this will help processing later on.
- [ ] Use a pair of fine forceps to gently lift worm into a seawater filled tube/small pot [8, 9].
- [ ] Magelonids are very long, thin and fragile, so care must be taken to get whole animals [10].

Top Tips for Collecting Magelonids

- [ ] It can be useful to work in pairs, to ensure you collect the worms intact.
- [ ] Handle magelonids with care they are extremely fragile.
- [ ] Don't allow worm to dry out, always keep moist and in hot weather it helps to keep fingers wet as well. The hole created from digging will fill up with water which can be useful for washing away excess sediment, and keeping the worms moist.
- [ ] Don't place too much sediment in collection tube, this will help later for identification, as worms will cover themselves in the sediment [10].
- [ ] Don't put too many worms in one tube. Keep tubes cool, either by sitting them in a bucket of seawater or a cool box.
- [ ] Try to not to cast a shadow over the sampling area as this can make it harder to spot the worms.
- [ ] For additional information consult this handy video: https://www.flickr.com/photos/museumwales/16640618951/in/set-72157647052339024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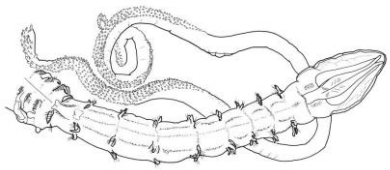
Annelida

Polychaeta (Bristleworms)

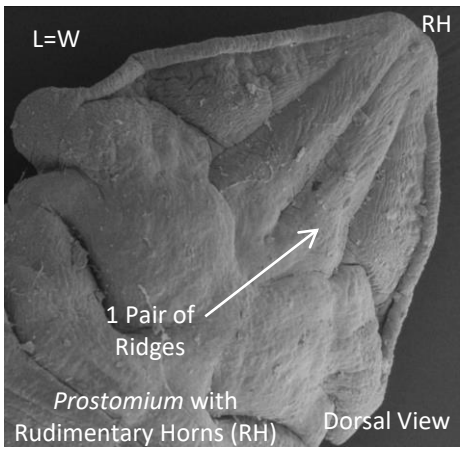
Magelonidae

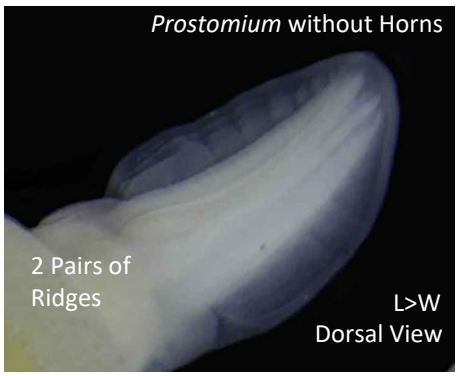


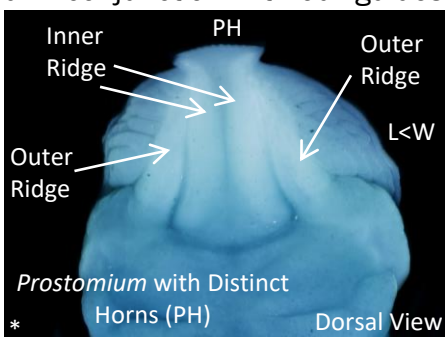
A. Taylor & K. Mortimer

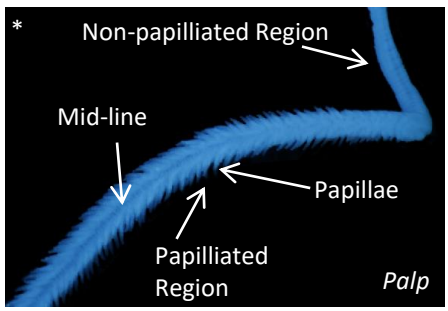
KEY FEATURES TO IDENTIFY SHOVEL HEAD WORMS

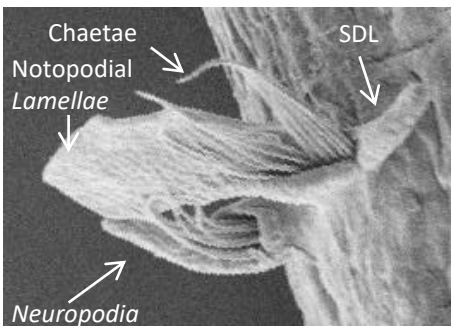
Magelonids are a group of marine bristleworms commonly known as shovel head worms, due to their flattened spade-like head. They are common in sands and muds. This guide will help you understand some key identifying features of magelonids. This guide can be used in conjunction with our guides to UK and/or Non-UK European species of magelonids.





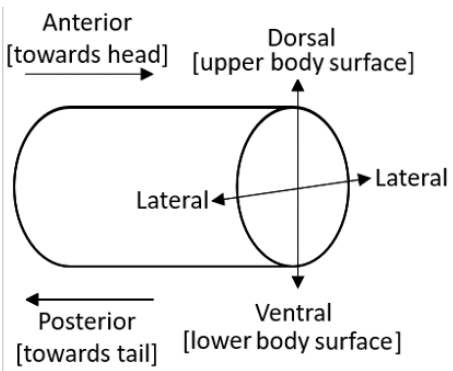


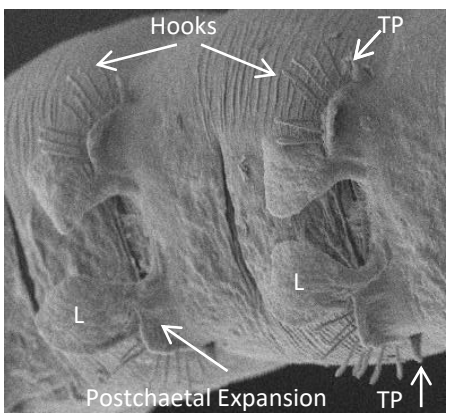




Thoracic *parapodium*

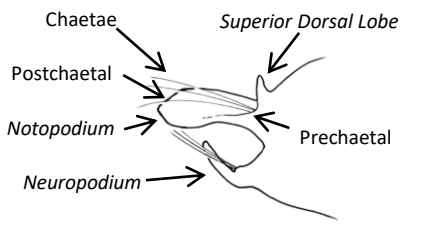
SDL = *Superior Dorsal Lobe*

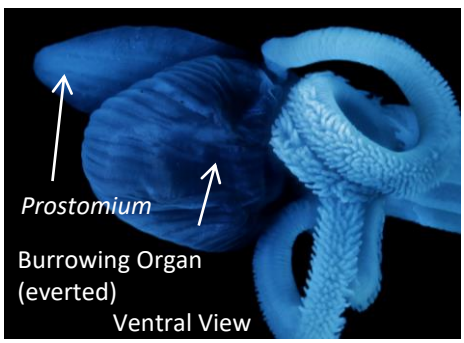


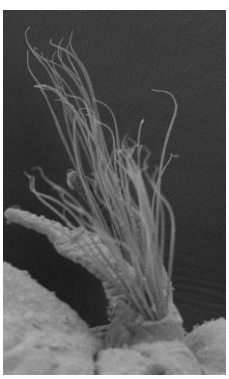


Abdominal *parapodia*

TP = Triangular Processes, L = lamellae

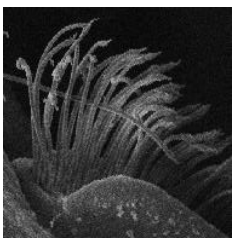




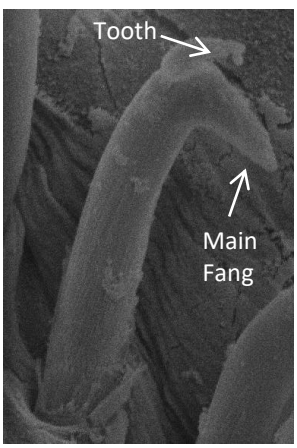


Capillary *Chaetae*

*stained with Methyl Green

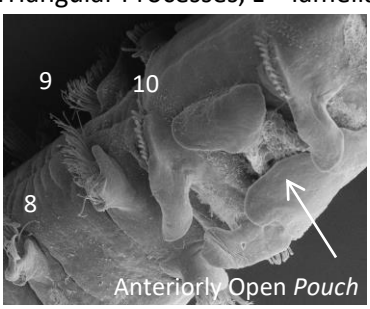


Mucronate Chaetae

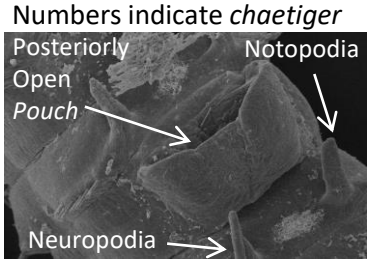


Bidentate Hook (Hood Broken)

Tridentate Hook (Hood Broken)



Numbers indicate *chaetiger*



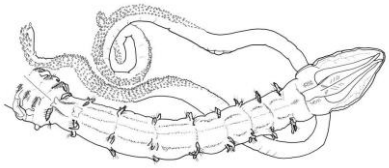
GLOSSARY OF KEY IDENTIFYING FEATURES

This glossary provides some basic information on key identification features of magelonids*. A more detailed glossary of terms, including more characteristics will be published in due course

*Definitions given relate to magelonids specifically rather than other polychaete groups

Prostomium (Plural: Prostomia)	The anterior most region of the body, which together with the peristomium comprises the 'head region'. In magelonids the head region is distinctly spade shaped and used for digging in soft sediments. A key feature in shovel head worms to note is the length compared with width (L>W, longer than wide, L<W, wider than long, L=W, length and width similar), and any patterns on the surface.
Prostomial Horns	Protrusions from the top of the *prostomium*, which can be distinct, or rudimentary (less marked, often squared and straight on top edge). Presence/absence is a key feature.
Thorax	Anterior part of the body, behind the head end, which in magelonids includes either eight or nine *chaetigers*. This region is often noticeably different from the *abdomen,* with an obvious junction between the two regions. The thorax carries only *capillary chaetae* (see below).
Palp(s)	Two long feeding 'tentacles' protruding from the base of the head (ventral), either side of the mouth, covered in small finger shaped projections known as papillae, unique to magelonids. *Note: easily lost during collection
Chaetiger(s)	Segment(s) carrying bristles (*chaetae*).
Parapodium (Plural: Parapodia)	Fleshy projections from the *chaetiger* bearing *chaetae.* These are split into an upper (*notopodium*) and lower part (*neuropodium*).
Chaeta (Plural: Chaetae)	The bristle(s) which give polychaetes their common name the 'bristleworms', made from chitin and often protruding along the body. Magelonids have capillary chaetae (long, thin and tapering) in the thorax, and hooded hooks in the abdomen. The hooks maybe *bidentate* (with one large main fang and a smaller upper tooth) or *tridentate* (with one large fang and two smaller upper teeth). Unidentate and polydentate hooks can be found in non-European species.
Mucronate Chaeta(e)	Specialized chaetae occurring on *chaetiger* nine of some magelonid species, the ends of which are bulbous, terminating in sharply pointed tips.
Lamella (Plural: Lamellae)	A flattened structure; term often used to describe the *parapodia* of magelonids, particularly in the *notopodia*. Important to note their size, shape and position e.g., before the *chaetae* (*prechaetal*), after the *chaetae* (*postchaetal*), or under the *chaetae* (subchaetal/ventral). Note: some authors use lobe(s) to describe more slender structures.
Notopodium (Plural: Notopodia)	The upper part of a *parapodium,* formed into *lamellae* and which may have *superior dorsal lobes.* *Hint: The no**TOP**odium is the upper (top) part of the parapodium.*
Neuropodium (Plural: Notopodia)	The lower part of the *parapodium*, formed into lamellae/lobes, which may vary in position and number along the *thorax*.
Superior Dorsal Lobe(s) (SDL)	Often thin, finger-shaped protrusion at the top of the *notopodia* in the *thorax.* In magelonids may be absent, present on all thoracic *chaetigers* or present only on a few (sometimes chaetigers 1–8, or 4–8).
Abdomen	The body from either chaetiger nine or ten, which is marked by the presence of hooded hooks; often looks distinct from the thorax and has many *chaetigers.*
Pouches	Pocket-like, found on the sides of various *chaetigers* in the abdomen, either on both sides of a segment, or just one. Note their shape, and the *chaetigers* on which they occur, whether they are paired or singular and which way they open.

- Annelida
- Polychaeta (Bristleworms)
- Magelonidae



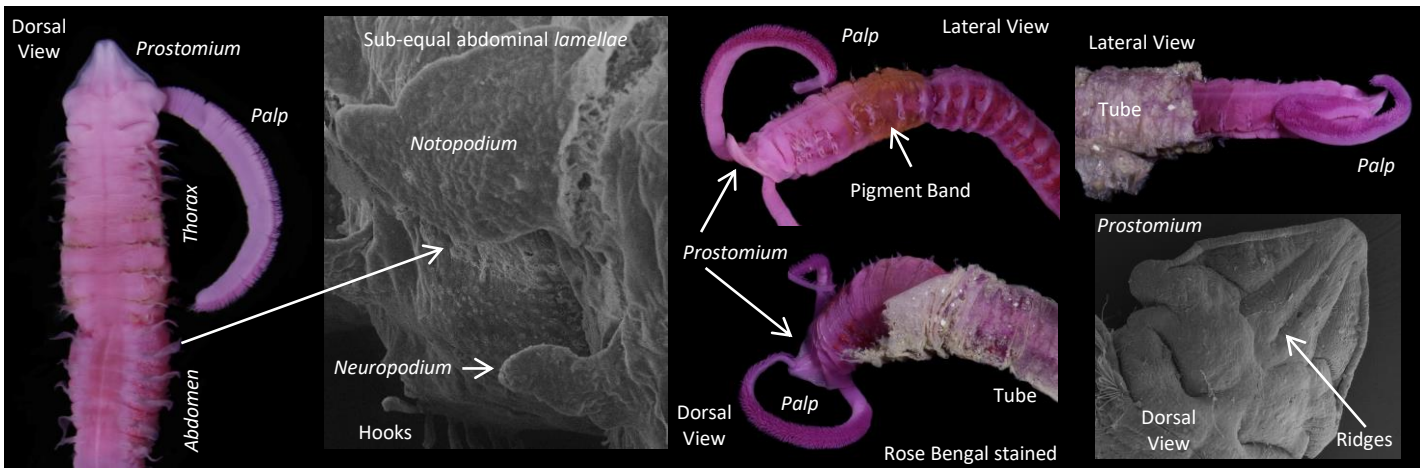
A. Taylor & K. Mortimer

UK SPECIES OF SHOVEL HEAD WORMS

Magelonids are a group of marine bristleworms commonly known as shovel head worms, due to their flattened spade-like heads (*prostomium*). They are common in sands and muds and can be recognised easily by the head, and the presence of two feeding tentacles (called *palps*) which have finger-like projections called papillae. For guidance on terminology (highlighted herein in italics) please see our guide to 'Key Features to Identify Shovel Head Worms.

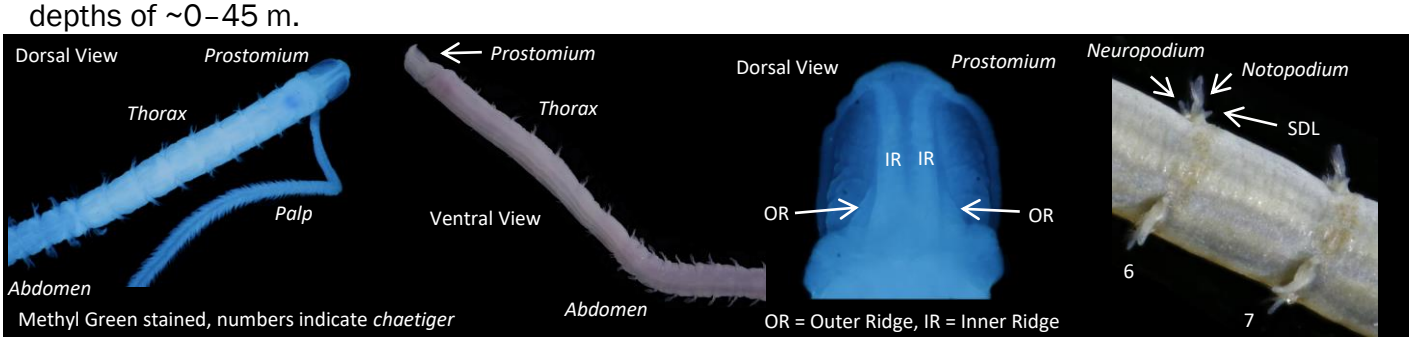
Magelona alleni Wilson, 1958

A large, stout species with a distinct band of red to brown pigment between *chaetigers* five to nine (can fade in preserved specimens). End of *prostomium* straight and squared. Builds distinct tubes of sand grains. Occurs from Norway to Nigeria, from intertidal to ~100 m. Could be confused with *M. equilamellae* (although does occur in UK), and the two species can occur together. *Magelona alleni* can be distinguished in having larger *notopodia* than the *neuropodia* (sub-equal) in the *abdomen*, while in *M. equilamellae* they are equal in size.



Magelona filiformis Wilson, 1959

A slender species with a longer than wide *prostomium*, the top (anterior) edge of which is generally straight and squared. *Superior dorsal lobes* (SDL) are present above the *notopodia* on *chaetigers* one to eight. Maybe confused with *Magelona minuta* but can be distinguished by the hooded hooks which are *tridentate* (two smaller fangs above the main fang) as opposed to *bidentate* (one small fang above the main fang) in *M. minuta*. Found from the North East Atlantic to Mediterranean, at depths of ~0–45 m.



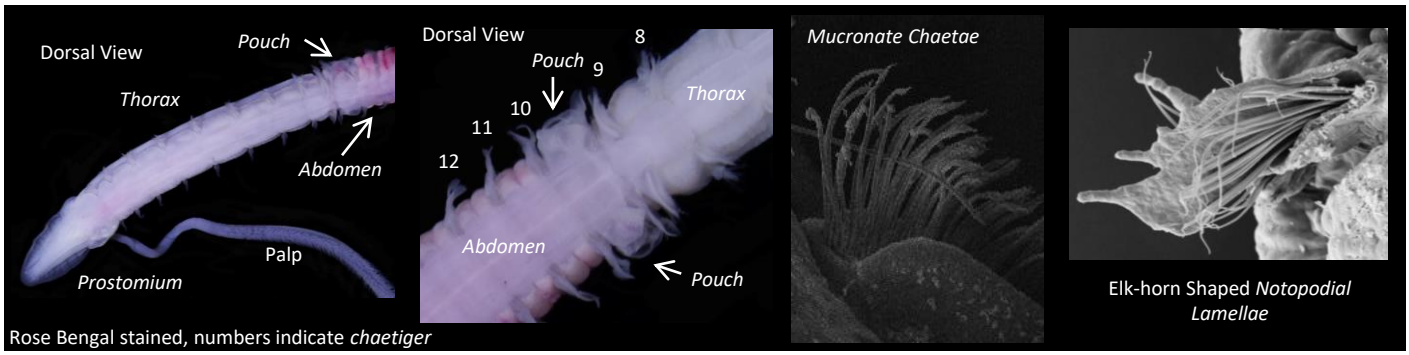
References:

Fiege, D., Licher, F. & Mackie, A.S.Y. (2000) A partial review of the European Magelonidae (Annelida: Polychaeta): *Magelona mirabilis* redefined and *M. johnstoni* sp. nov. distinguished. *Journal of the Marine Biological Association of the United Kingdom*, 80, 215–234. https://doi.org/10.1017/S0025315499001800

Mills, K. & Mortimer, K. (2018) Redescription of *Magelona minuta* Eliason, 1962 (Annelida), with discussions on the validity of *Magelona filiformis minuta*. *Zootaxa*, 4527 (4), 541–559. https://doi.org/10.11646/zootaxa.4527.4.5

Magelona johnstoni Fiege, Licher & Mackie, 2000

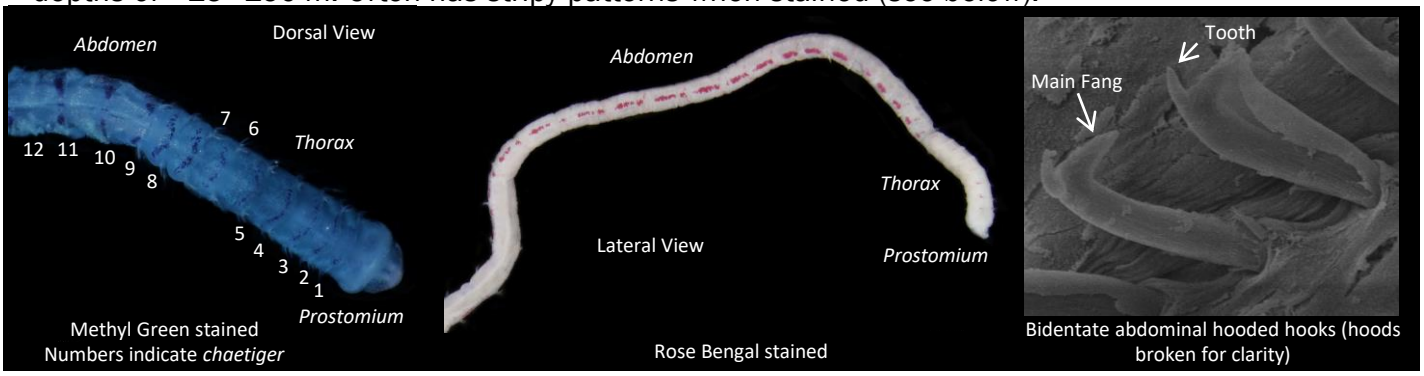
A common species on shore, with a longer than wide *prostomium*. Possesses specialised bristles (*mucronate chaetae*) of *chaetiger* nine. Similar to *M. mirabilis* but can be distinguished by paired *pouches* at the start of the abdomen. Additionally separated from all remaining European species in having *superior dorsal lobes* from the middle to posterior thorax only (usually *chaetigers* four to eight). Known from the North Sea to, and including, the Mediterranean, at depths of ~0–88 m.



Rose Bengal stained, numbers indicate *chaetiger*

Magelona minuta Eliason, 1962

UK's smallest magelonid and an offshore species. Minute (~0.3 mm wide), and can be distinguished from all other European magelonids in having *bidentate* (only one small tooth above the main fang) *hooded hooks* in the *abdomen*. Can be separated from *M. filiformis* which has *superior dorsal lobes* on *chaetigers* one to eight, absent in *M. minuta*. Known from Norway to off West Africa, in confirmed depths of ~15–160 m. Often has stripy patterns when stained (see below).



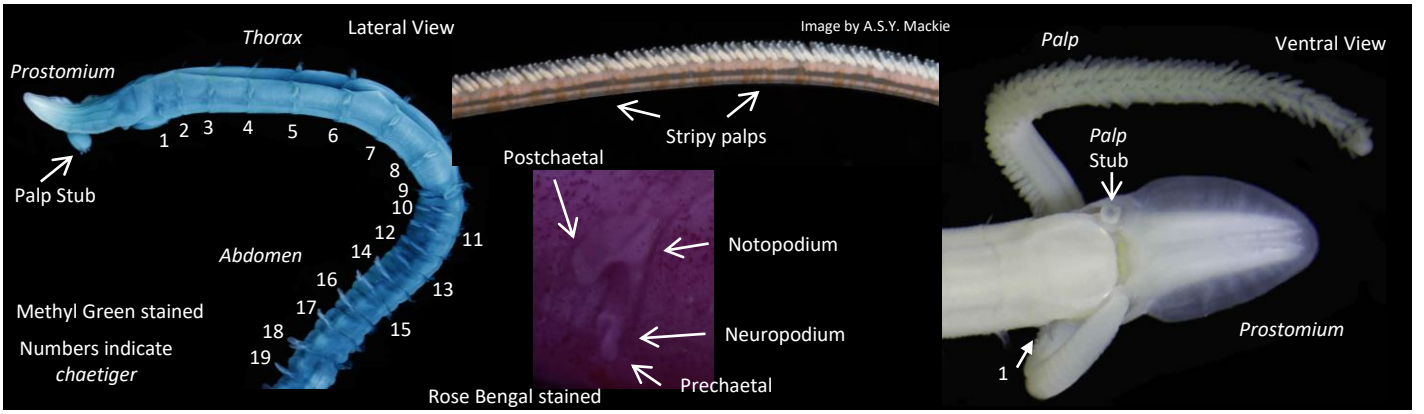
Methyl Green stained
Numbers indicate *chaetiger*

Rose Bengal stained

Bidentate abdominal hooded hooks (hoods broken for clarity)

Magelona mirabilis (Johnston, 1865)

UK's longest magelonid (up to ~10 cm). Long *prostomium,* and specialised bristles (*mucronate chaetae*) on *chaetiger* nine (as above). Can be confused with *M. johnstoni,* but differs in lacking *pouches* at the start of the *abdomen*, in having smooth *notopodia* and in lacking *superior dorsal lobes* above the *notopodia* in the *thorax*. The species has distinctly stripy *palps*, which can be spotted even on shore. Known from the North Sea to, and including, the Mediterranean, ~0–32 m.



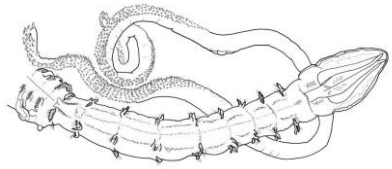
Methyl Green stained
Numbers indicate *chaetiger*

Rose Bengal stained

Annelida

Polychaeta (Bristleworms)

Magelonidae



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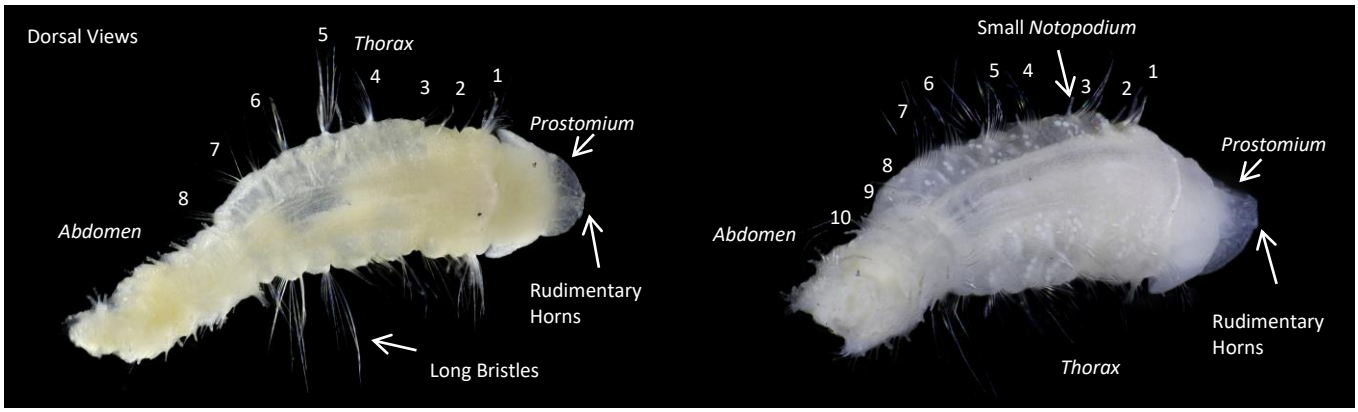
NON-UK EUROPEAN SPECIES OF SHOVEL HEAD WORMS

Magelonids are a group of marine bristleworms commonly known as shovel head worms, due to their flattened spade-like head (*prostomium*). They are common in sands and muds and can be recognised easily by the head, and the presence of two feeding tentacles (called *palps*) which have finger-like projections called papillae. For guidance on terminology (highlighted by italics) please see our guide to 'Key Features to Identify Shovel Head Worms'.

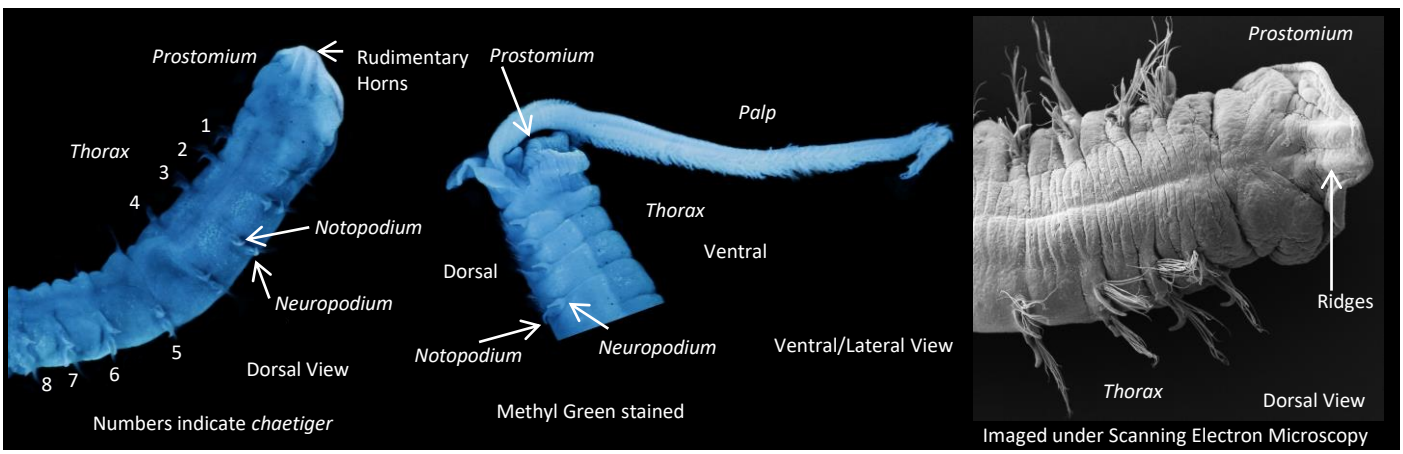
Magelona bizkaiensis (Aguirrezabalaga, Ceberio & Fiege, 2001)

A deep water species found at depths of 1000–1040 m. Main distinguishing features are a *thorax* with only EIGHT *chaetigers*, very small *parapodia* and long bristles (*chaetae*). *Prostomium* is wider than long with rudimentary *horns* and one pair of ridges. Very distinct difference in width of *thorax* and *abdomen*. Known only from the Bay of Biscay to the Mediterranean.



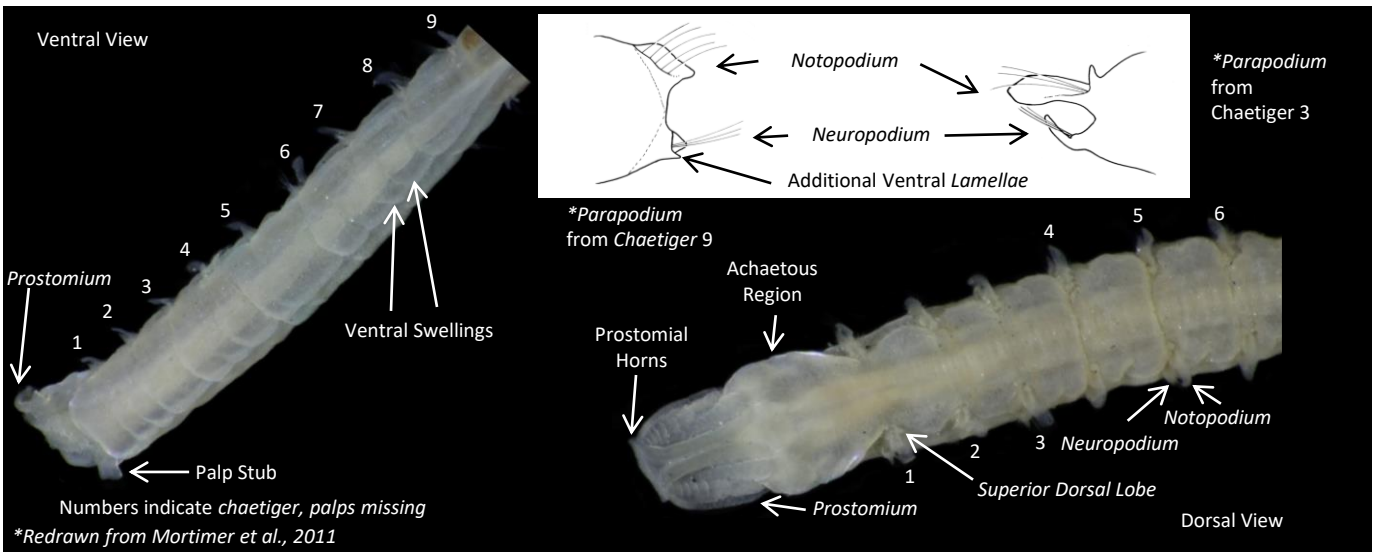
Magelona equilamellae Harmelin, 1964

A stout and robust animal with a distinct pigment band from *chaetigers* five to nine (often fades in preserved specimens, as below). *Prostomium* with rudimentary *prostomial horns*, and only one pair of muscular ridges down the middle. Builds distinct tubes of sand grains. Occurs in the Mediterranean and possibly across southern Europe. Found at depths of ~0–50 m. Does not occur in Northern Europe. Can be confused with *Magelona alleni* and the two species do occur together. *Magelona alleni* is distinguished in having *parapodia* of the *abdomen* which are larger in the *notopodia* than the *neuropodia* (sub-equal) whereas they are equal in *M. equilamellae.*



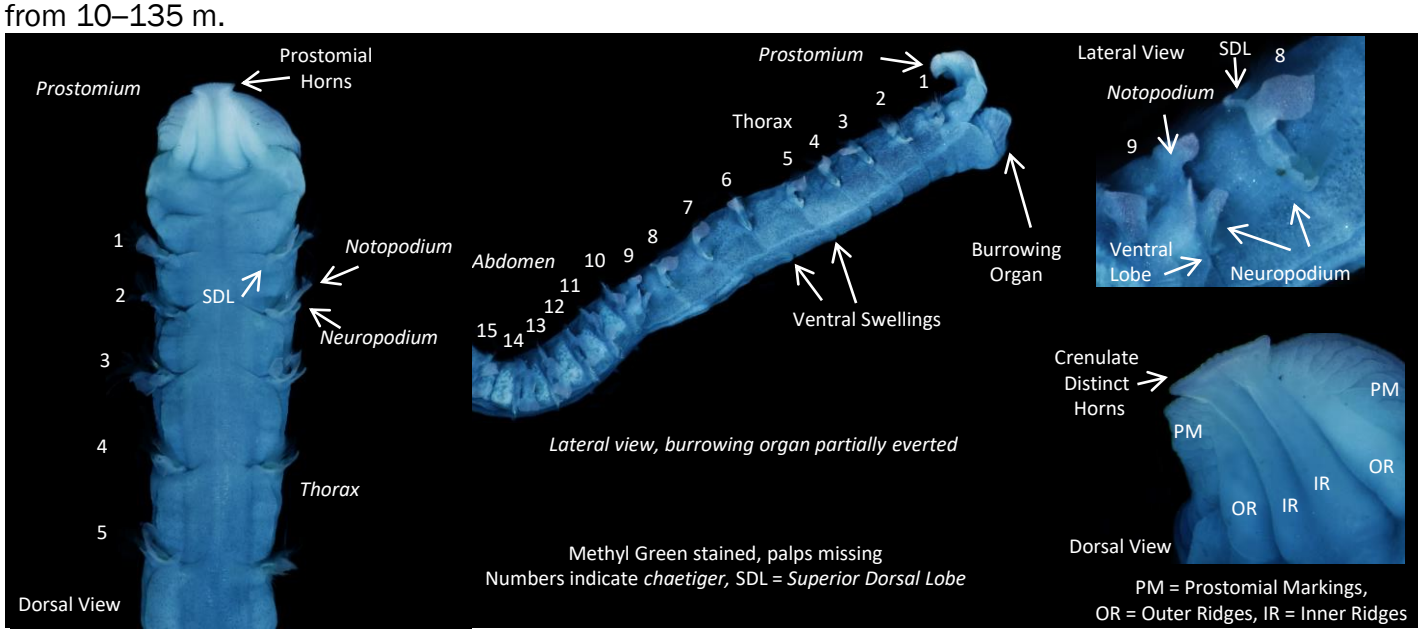
Magelona lusitanica Mortimer, Gil & Fiege, 2011

Prostomium longer than wide, with distinct *prostomial horns*. Thorax with *superior dorsal lobes* in the *notopodium*. *Neuropodia* of *chaetiger* nine with additional ventral *lamellae*. Known from the Bay of Biscay to southern Portugal, at depths between 105–327 m. Could be confused with *M. filiformis*.



Magelona wilsoni Glémarec, 1967

A stout and robust species. *Prostomium* wider than long with distinct *prostomial horns*. The top (anterior) margin is crenulated (forming small notches). *Thorax* with *superior dorsal lobes* in the *notopodia* which are foliaceous (large, leaf-shape). Additional ventral lobe on *chaetiger* nine underneath the *neuropodia*. Known from the Bay of Biscay to the Mediterranean, at depths ranging from 10–135 m.



Further info can be found at: https://www.mapress.com/zt/article/view/zootaxa.4767.1.4

References:

Aguirrezabalaga, F., Ceberio, A. & Fiege, D. (2001) *Octomagelona bizkaiensis* (Polychaeta: Magelonidae) a new genus and species from the Capbreton Canyon (Bay of Biscay, north-east Atlantic). *Journal of the Marine Biological Association of the United Kingdom*, 81 (2), 221–224. https://doi.org/10.1017/S0025315401003678

Mortimer, K., Gil, J. & Fiege, D. (2011) Portuguese *Magelona* (Annelida: Magelonidae) with a description of a new species, a re-description of *Magelona wilsoni* Glémarec, 1966 and a key to adult Magelonidae from European waters. *Italian Journal of Zoology*, 78 (S1), 124–139. https://doi.org/10.1080/11250003.2011.583449

Harmelin, J.G. (1964) Étude de l'endofaune des "mattes" d'herbiers de *Posidonia oceanica* Delile. *Recueil des Travaux de la Station Marine d'Endoume*, 35 (51), 43–105.

Glémarec, M. (1967) Les Magelonidae des côtes de Bretagne: description de *Magelona wilsoni* n. sp. *Vie Milieu*, 17, 1077–1085. [Dated 1966, published 1967].

Essential Guide to Magelonidae Taylor & Mortimer

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http://pmnhs.co.uk/projects