

KEY TO THE NON-POLYDORID SPIONIDAE FROM SOUTHERN CALIFORNIA  
(INTERTIDAL TO 500 METERS)

by  
Lawrence L. Lovell and Dean Pasko

1. Branchiae absent; setiger 1 with 1 - 2 large recurved neuropodial spines in addition to capillary setae (Fig. 1) . . . (*Spiophanes*) 2  
 Branchiae present; setiger 1 without recurved neuropodial spines (see Fig. 13) . . . . . 7
2. Prostomium rounded anteriorly, without lateral projections; prostomium with medial orange pigment spot; median antennae absent (Fig. 2) . . . . . *Spiophanes wigleyi*  
 Prostomium bell or T-shaped, with short or long lateral projections (Figs. 3-7); prostomium without pigment spot; median antennae present or absent . . . . . 3
3. Prostomium T-shaped with long lateral projections . . . . . 4  
 Prostomium bell shaped without lateral projections . . . . . 5
4. Eyes present (Fig. 3) . . . . . *Spiophanes bombyx*  
 Eyes absent (Fig. 4) . . . . . *Spiophanes anoculata*
5. Median antennae absent; peristomium poorly developed (Fig. 5) . . . . . *Spiophanes missionensis*  
 Median antennae present; peristomium well developed (Fig. 6) . . . . . 6
6. Prostomium flairs laterally at distal end; neuropodial glands in setigers 10 - 13 without pigment; ventrum of setiger 8 forms dark transverse band with methyl green stain; dorsal transverse membrane without fimbriae (Fig. 6) . . . . . *Spiophanes berkeleyorum*  
 Prostomium straight or with a slight constriction distally; neuropodial glands in setigers 10 - 13 darkly pigmented; setiger 8 does not form transverse band of methyl green stain; dorsal transverse membrane with fimbriae (Fig. 7) . . . . . *Spiophanes fimbriata*
7. Modified segment present in anterior region (Figs. 8 & 9) . . . . . 8  
 Modified segment absent in anterior region . . . . . 9
8. Setiger 5 modified . . . . . Polydorid complex (includes *Pseudopolydora*, *Polydora* (Fig. 8), *Carazziella* (Fig. 9), *Boccardiella*, and *Boccardia*)  
 Setiger 16 modified . . . . . *Morants duplex*

9.	Notopodial post-setal lamellae of first 2 - 3 parapodia with 1 or more lobes; accessory branchiae present (Fig. 10) . . . . .	
	. . . . .	<i>Dispio uncinata</i>
	Notopodial post-setal lamellae of anterior parapodia entire; accessory branchiae absent . . . . .	10
10.	Branchiae limited to middle and posterior setigers, except for a single pair on setiger 2 in males (Fig. 11) . . . . .	( <i>Pygospio</i> ) 11
	Branchiae beginning on setiger 1 or 2 and continuing for a variable number of setigers . . . . .	12
11.	Branchiae first present from setiger 17 - 21 (Fig. 11) . . . . .	<i>Pygospio californica</i>
	Branchiae first present from setiger 11 - 12 (Fig. 12) . . . . .	<i>Pygospio elegans</i>
12.	Prostomium conical, distally pointed, occasionally blunt with minute point; or conical and distally tapering (Figs. 13 & 14) . . . . .	13
	Prostomium with distal lateral or frontal horns, broadly rounded, or incised on anterior margin (Figs. 19, 26, & 30) . . . . .	19
13.	Branchiae fused to dorsal lamellae at least basally, continuing to end of body (Fig. 14) . . . . .	( <i>Scoelelepis</i> ) 14
	Branchiae completely free from dorsal lamellae, present on variable number of anterior setigers, absent posteriorly (Fig. 13) . . . . .	<i>Aonides</i> spp.
14.	Occipital cirrus (median antenna) present (Figs. 14 & 15) . . . . .	15
	Occipital cirrus (median antenna) absent (Fig. 17) . . . . .	17
15.	Setiger 1 with notosetae . . . . .	16
	Setiger 1 without notosetae. . . . .	<i>Scoelelepis</i> sp. 1 of Point Loma
16.	Hooded uncini unidentate or bidentate (Fig. 14) . . . . .	<i>Scoelelepis occidentalis</i>
	Hooded uncini multidentate (Fig. 15) . . . . .	<i>Scoelelepis (Parascoelelepis) tridentata</i>
17.	Notosetae absent on setiger 1; hooded hooks tridentate or multidentate . . . . .	18
	Notosetae present on setiger 1; hooded hooks uni-, bi- or tridentate (Fig. 16) . . . . .	<i>Scoelelepis squamata</i>

18.	Eyes arranged in straight line; hooded hooks tridentate (Fig. 17) . . . . .	<i>Scolelepis bullibranchia</i>	
	Eyes arranged in trapezoid; hooded hooks multidentate . . . . .	<i>Scolelepis</i> sp. B of Rossi	
19.	Prostomium with lateral or frontal horns (variable for <i>Malacocerus</i> ) . . . . .		20
	Prostomium broadly rounded or incised on anterior margin, without lateral or frontal horns . . . . .		21
20.	Branchiae beginning on setiger 1 (Fig. 18)	<i>Malacoceros punctata</i>	
	Branchiae beginning on setiger 2 (Fig. 19)	<i>Rhynchospio glutea</i>	
21.	Branchiae present anteriorly only (Fig. 23) . . . . .		22
	Branchiae present throughout most of the body (Fig. 32) . . . . .		31
22.	Branchiae begin on setiger 1 . . . . .		23
	Branchiae begin on setiger 2 . . . . .		24
23.	One pair of apinnate branchiae, with dorsal ridge on setiger 2 (Fig. 20) . . . . .	<i>Streblospio benedicti</i>	
	Three pairs of pinnate branchiae, with dorsal ridge on setiger 1 (Fig. 21) . . . . .	<i>Paraprionospio pinnata</i>	
24.	Branchiae all cirriform, 6 or more pairs (Fig. 22) . . . . .	<i>[Prionospio (Minuspio)]</i>	25
	Branchiae a combination of pinnate and cirriform, 4 or 5 pairs (Figs. 25 & 26) . . . . .		27
25.	Prostomium with 2 pairs of large eyes, 6 - 8 pairs of branchiae (Fig. 22) . . . . .	<i>Prionospio (Minuspio) multibranchiata</i>	
	Prostomium with 2 pairs of small eyes, 6 - 12 pairs of branchiae. .26		
26.	Prostomium truncate anteriorly, triangular in appearance, sometimes with 1 medial peak; posterior dorsal lamellae rounded; 6 - 8 pairs of branchiae (Fig. 23) . . . . .	<i>Prionospio (Minuspio) cirrifera</i>	
	Prostomium narrowly rounded anteriorly, with 5 marginal peaks; posterior dorsal lamellae triangular; 6 - 12 pairs of branchiae (most commonly ten) (Fig. 24) . . . . .	<i>Prionospio (Minuspio) lighti</i>	

27. First pair of branchiae cirriform; fourth pair pinnate with flat, plate-like pinnules (Fig. 25) . . . . . *Apoprionospio pygmaea*
- First pair of branchiae pinnate; pinnules digitiform (Fig. 26) . . . . . [Prionospio (Prionospio)] 28
28. Branchial pairs 2, 3 and 4 cirriform; interramal pouches present from setigers 2 - 4, continuing to mid-body (Fig. 26). . . . . *Prionospio ehlersi*
- Branchial pairs 2 - 3 cirriform; interramal pouches absent . . . . . 29
29. Four pairs of branchiae; pairs 1 and 4 pinnate (Figs. 28 & 29) . . . . . 30
- Five pairs of branchiae, pairs 1, 4, and 5 pinnate (Fig. 27) . . . . . *Prionospio heterobranchia*
30. Branchial pairs 1 and 4 pinnate, subequal, or with fourth pair longer than first; dorsal transverse membranes present from setiger 7 (Fig. 28) . . . . . *Prionospio* sp. A (sensu SCAMIT)
- Branchial pairs 1 and 4 pinnate; first pair two to three times longer than fourth; dorsal transverse membranes absent (Fig. 29) . . . . . *Prionospio* sp. B (sensu SCAMIT)
31. Branchiae begin on setiger 1 . . . . . 31
- Branchiae begin on setiger 2 . . . . . 34
32. Prostomium incised anteriorly; neurosetae of some anterior setigers with pseudoaristate setae; posterior neuropidal hooks with subdistal secondary tooth (Fig. 30) . . . . . *Pseudatherospio fauchaldi*
- Prostomium distally entire; anterior neurosetae without pseudoaristate spines; posterior neuropidal hooks with small secondary tooth distal (Fig. 32) . . . . . 33
33. (**Note: 3 choices**) Branchiae on setigers 1 and 2 subequal; prostomium with dark pigment; hooded hooks bidentate (Fig. 31) . . . . . *Spio filicornis*
- Branchiae on setiger 1 longer than on setiger 2; first pair of branchiae pigmented, ciliated, and with distal swelling; prostomium without pigment; anterior dorsum pigmented; hooded hooks multi-dentate; nuchal organs form distinct zigzag pattern . . . . . *Spio* sp. A (sensu SCAMIT)
- Branchiae on setiger 1 shorter than on setiger 2; prostomium without pigment; peristomium with patches of pigment; hooded hooks tridentate (Fig. 32) . . . . . *Spio maculata*

34. Interramal pouches present . . . . . (*Laonice*). 34  
 Interramal pouches absent . . . . . (*Microspio*). 36
35. Prostomium protrudes beyond peristomial wings; thoracic  
 parapodial fascicles with dense, brassy colored setae (Fig. 33)  
 . . . . . *Laonice appellofi*  
 Prostomium does not protrude beyond peristomial wings;  
 thoracic parapodial fascicles sparce, pale yellow setae  
 (Fig. 34) . . . . . *Laonice cirrata*
36. Prostomium bilobed, without pigment spot; notosetae absent  
 on setiger 1 (Fig. 35) . . . . . *Microspio microcera*  
 Prostomium rounded, with a pigment spot; notosetae present  
 on setiger 1 (Fig. 36) . . . . . *Microspio pigmentata*

NON-POLYDORID SPIONIDAE (POLYCHAETA)  
FROM SOUTHERN CALIFORNIA  
(INTERTIDAL TO 500 METERS)

*Aonides* sp.

*Apoprionospio pygmaea* (Hartman, 1961)

*Dispio uncinata* Hartman, 1951

*Laonice appellofi* Soderstrom, 1920

*Laonice cirrata* (Sars, 1851)

*Malacoceros punctata* (Hartman, 1961) (formerly *Spio*)

*Microspio microcera* (Dorsey, 1977) (formerly *Rhynchospio*)

*Microspio pigmentata* (Reish, 1959)

*Morants duplex* Chamberlin, 1919

*Paraprionospio pinnata* (Ehlers, 1901)

*Prionospio* (*Minuspio*) *cirrifer* Wiren, 1883

*Prionospio ehlersi* Fauvel, 1928

*Prionospio heterobranchia* Moore, 1907

*Prionospio* (*Minuspio*) *lighti* Maciolek, 1985

*Prionospio* (*Minuspio*) *multibranchiata* Berkeley, 1927

*Prionospio* sp. A (*sensu* SCAMIT)

*Prionospio* sp. B (*sensu* SCAMIT)

*Pseudathrospio fauchaldi* Lovell (in press)

*Pygospio californica* Hartman, 1936

*Pygospio elegans* Claparede, 1863

*Rhynchospio glutea* (Ehlers, 1897)

*Scolelepis bullibranchia* Rossi, 1982

*Scololepis occidentalis* (Hartman, 1961)

*Scololepis* sp. B of Rossi

*Scololepis* sp. 1 of Point Loma

*Scololepis squamata* (O.F. Muller, 1806)

*Scolelepis* (*Parascolelepis*) *tridentata* (Southern, 1914)

*Spio filicornis* (Muller, 1776)

*Spio maculata* (Hartman 1961)

*Spio* sp. A (sensu SCAMIT) [formerly *Microspio* sp. A  
(sensu Lovell/Harris)]

*Spiophanes anoculata* Hartman, 1960

*Spiophanes berkeleyorum* Pettibone, 1962

*Spiophanes bombyx* (Claparede, 1870)

*Spiophanes fimbriata* Moore, 1923

*Spiophanes missionensis* Hartman, 1941

*Spiophanes wigleyi* Pettibone, 1962

*Streblospio benedicti* Webster, 1879

Non-polydorid spionids not included in the list or key which may occur in southern California are: *Prionospio anuncata* Fauchald, 1972; and *Spiophanes lowai* Solis-Weiss, 1983.

# Key to the Non-Polydorid Spionidae from Southern California

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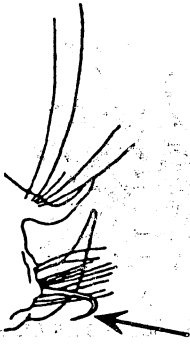


Fig. 1. Setiger 1, showing neuropodial spine of *Spiophanes*.

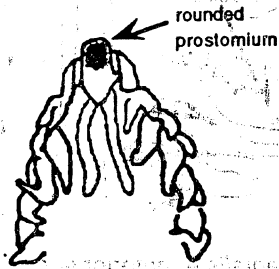


Fig. 2. *Spiophanes wigleyi*: anterior end, dorsal view.

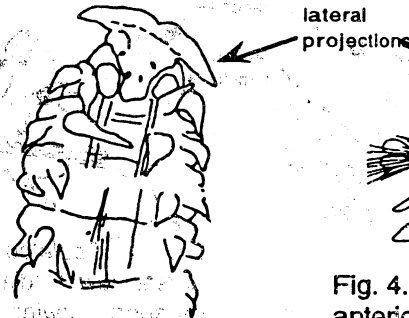


Fig. 3. *Spiophanes bombyx*: anterior end, dorsal view.

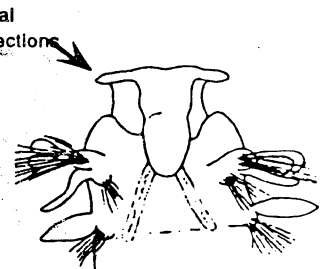


Fig. 4. *Spiophanes anunculata*: anterior end, dorsal view.

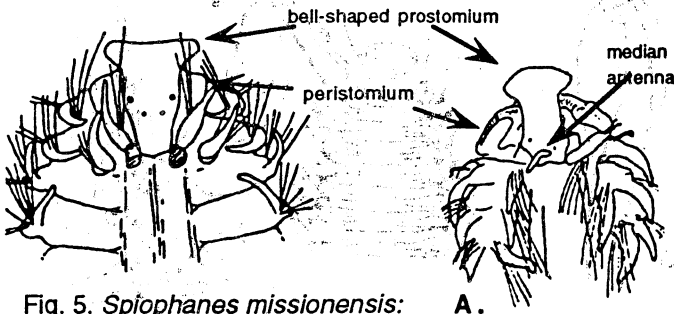


Fig. 5. *Spiophanes missionensis*: anterior end, dorsal view.

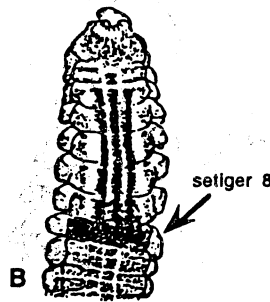


Fig. 6. *Spiophanes berkeleyorum*: A. anterior end, dorsal view; B. ventral view, showing methyl green staining pattern.

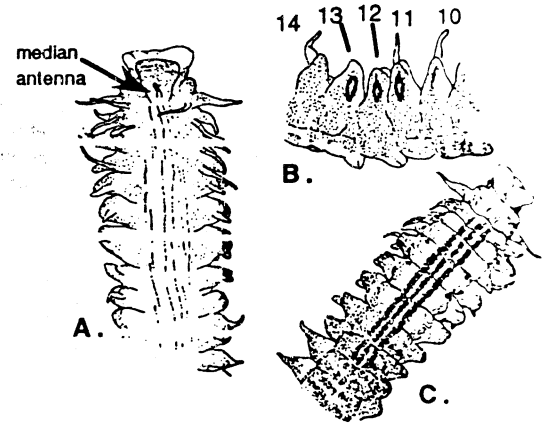


Fig. 7. *Spiophanes fimbriata*: A. anterior end, dorsal view; B. lateral view of setigers 10-14; C. ventral view, showing methyl green staining pattern.

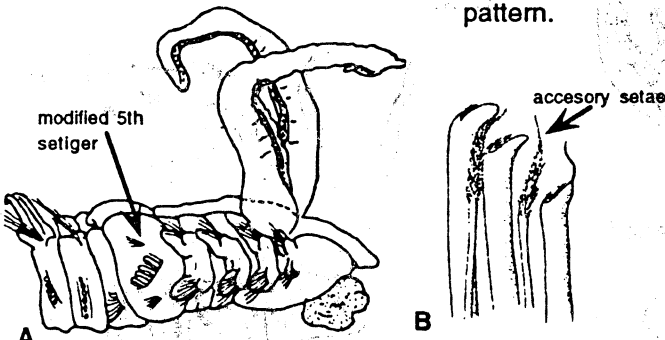


Fig. 8. *Polydora*: A. anterior end, lateral view showing modified 5th setiger; B. spines of modified 5th setiger.



Fig. 9. *Carazziella*: A. anterior end, dorsal view; B. modified 5th setiger showing double row of spines; C. brushtop spines typical of *Carazziella*.

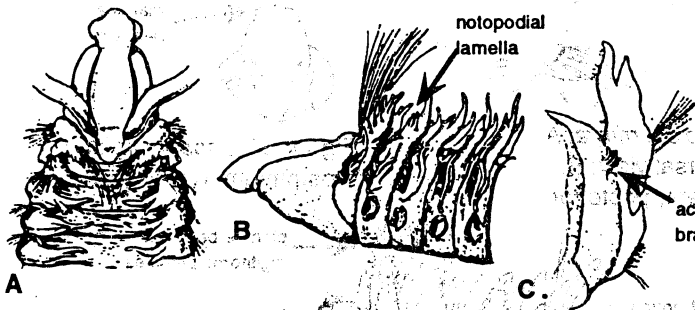


Fig. 10. *Dispio uncinata*: A. anterior end, dorsal view; B. anterior end, lateral view; C. mid-body setiger, posterior view showing accessory branchiae

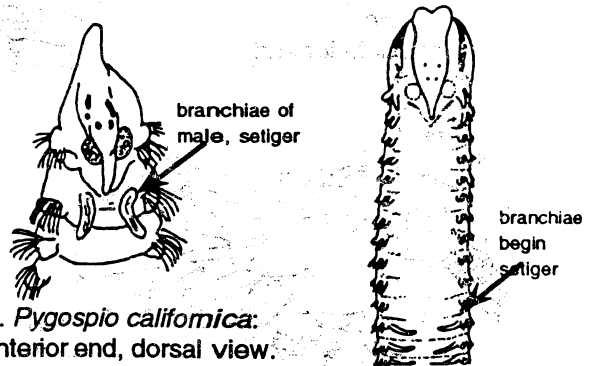


Fig. 11. *Pygospio californica*: male anterior end, dorsal view.

Fig. 12. *Pygospio elegans*: anterior end, dorsal view.



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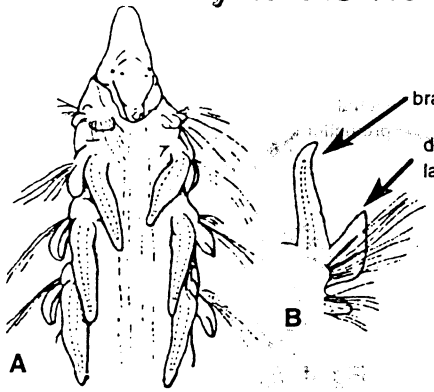


Fig. 13. *Aonides* sp.: A. anterior end, dorsal view; B. setiger 2, posterior view.

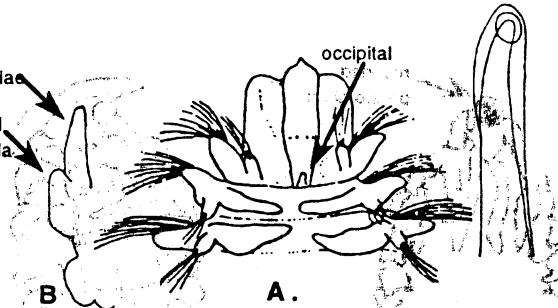


Fig. 14. *Scolelepis occidentalis*: A. anterior end, dorsal view; B. diagrammatic representation of a parapod showing branchia fused to notopod; C. unidentate hooded hook; D. bidentate hooded hook.

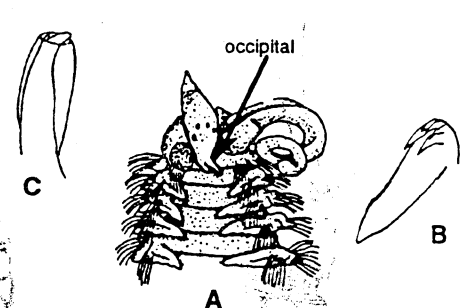


Fig. 15. *Scolelepis tridentata*: A. anterior end, dorsal view; B. head of multidentate hooded hook; C. unidentate hooded hook; D. bidentate hooded hook.

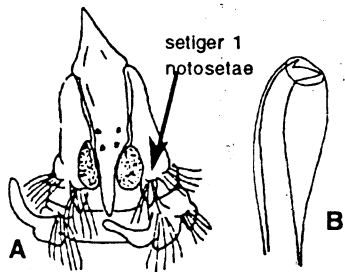


Fig. 16. *Scolelepis squamata*: A. anterior end, dorsal view; B. bidentate hooded hook.

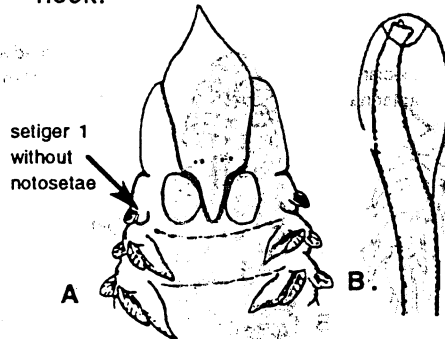


Fig. 17. *Scolelepis bullibranchia*: A. anterior end, dorsal view; B. tridentate hooded hook.

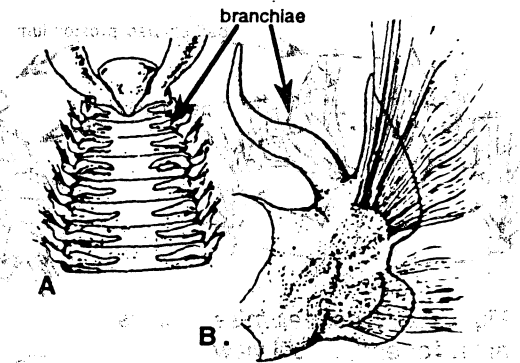


Fig. 18. *Malacocerus punctata*: A. anterior end, dorsal view; B. setiger 9, posterior view.

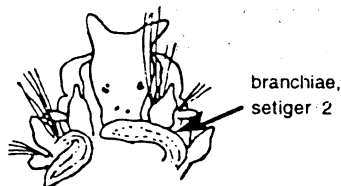


Fig. 19. *Rhyncospio glutea*: anterior end, dorsal view.

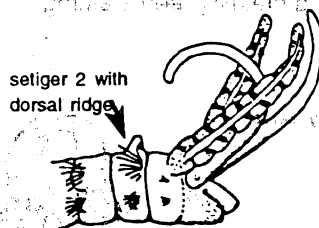


Fig. 20. *Streblospio benedicti*: anterior end, lateral view.

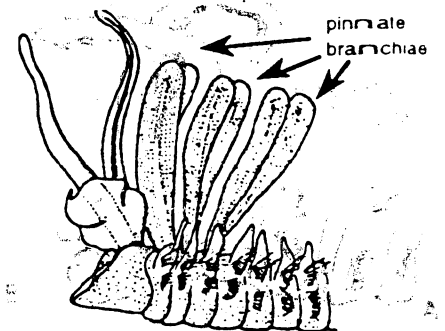


Fig. 21. *Paraprionospio pinnata*: anterior end, lateral view.

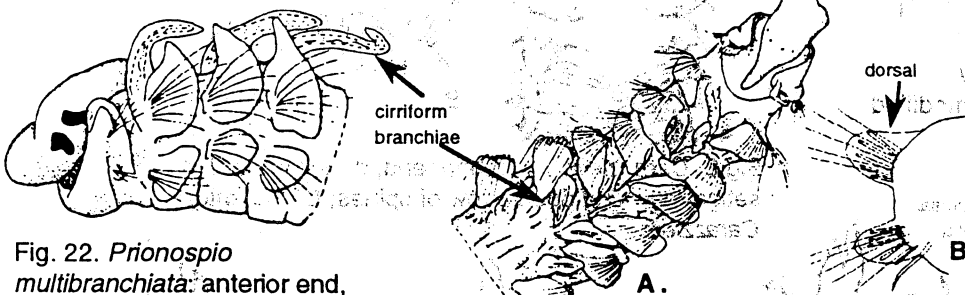


Fig. 22. *Prionospio multibranchiata*: anterior end, lateral view.

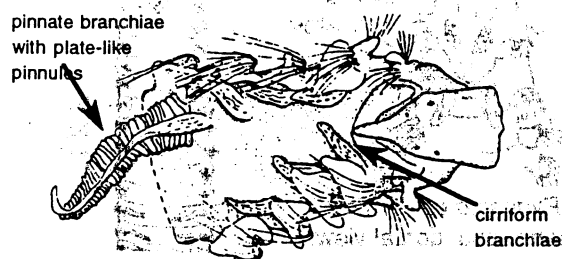


Fig. 25. *Apoprionospio pygmaea*: anterior end, dorsal view.

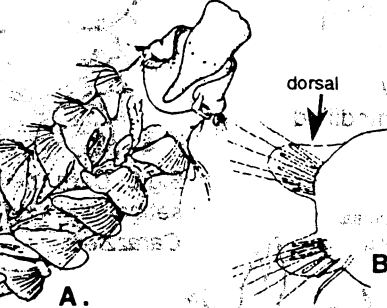


Fig. 23. *Prionospio cirrifera*: A. anterior end, dorsal view; B. posterior segment, posterior view.

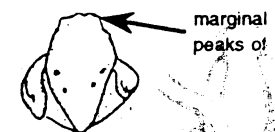


Fig. 24. *Prionospio lighti*: prostomium, dorsal view.

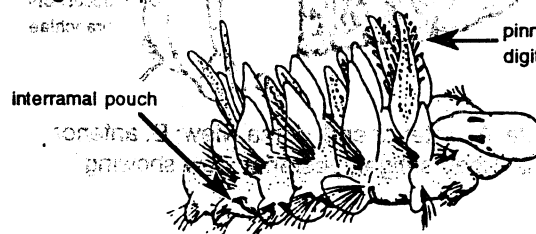


Fig. 26. *Prionospio ehlersi*: anterior end, dorsal view.

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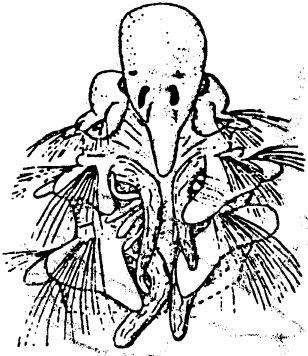


Fig. 27. *Prionospio heterobranchia*: anterior end, dorsal view.

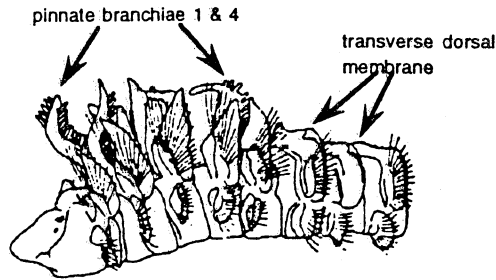


Fig. 28. *Prionospio* sp. A: anterior end, lateral view.



Fig. 29. *Prionospio* sp. B: anterior end, lateral view.

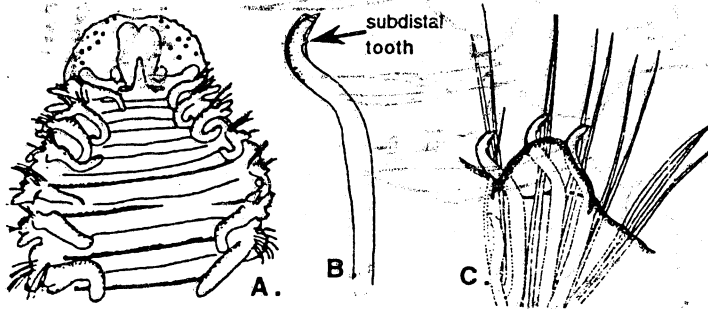


Fig. 30. *Pseudoatherospio fauchaldi*: A. anterior end, dorsal view; B. posterior neuropodial hook; C. posterior neuropodial fascicle.



Fig. 31. *Spio filicomis*: anterior end, dorsal view.

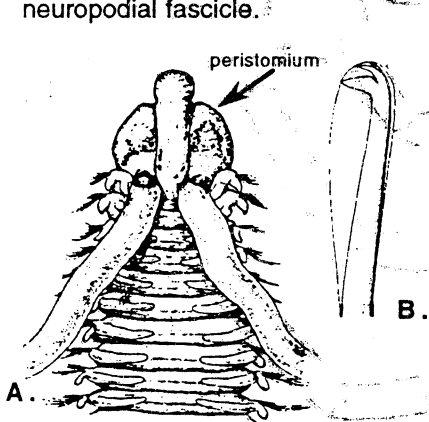


Fig. 32. *Spio maculata*: A. anterior end, dorsal view; B. tridentate hooded hook.

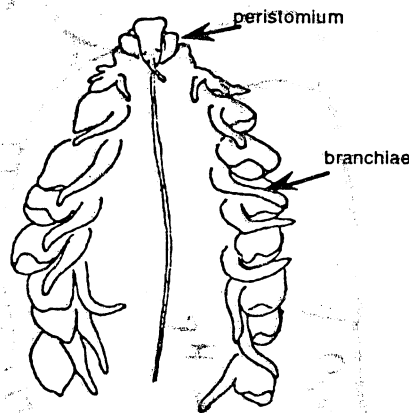


Fig. 33. *Laonice appellofi*: anterior end, dorsal view, (setae not included).



Fig. 34. *Laonice cirrata*: anterior end, dorsal view.

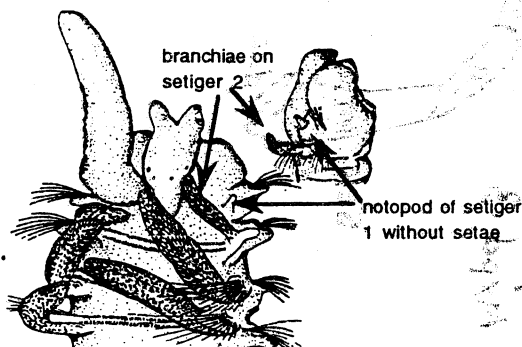


Fig. 35. *Microspio microcera*: A. anterior end, dorsal view; B. prostomium and setigers 1 and 2, lateral view.

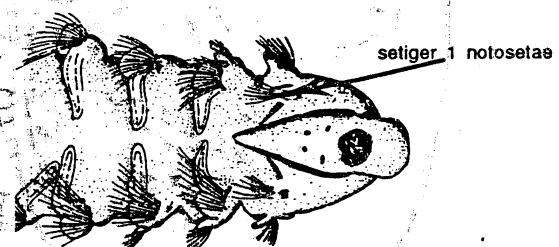


Fig. 36. *Microspio pigmentata*: anterior end, dorsal view.