




**KEY TO THE NON-POLYDORID SPIONIDAE FROM SOUTHERN CALIFORNIA  
(INTERTIDAL TO 500 METERS)<sup>1</sup>**

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

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<sup>1</sup> Species in bold type have been recorded off Point Loma.

8. Setiger 5 modified ..... **Polydorid complex<sup>2</sup>**  
(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) ..... *Dispio uncinata*
- 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) ..... (*Pygospio*) .. 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) ..... *Pygospio californica*
- Branchiae first present from setiger 11 - 12 (Fig.12) ..... *Pygospio elegans*
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) . . .  
..... (*Scolelepis*) .. 14
- Branchiae completely free from dorsal lamellae, present on variable number of anterior setigers, absent posteriorly (Fig. 13) ..... *Aonides* 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. .... *Scolelepis* sp. 1 of Point Loma
16. Hooded uncini unidentate or bidentate (Fig. 14) ..... *Scolelepis occidentalis*
- Hooded uncini multidentate (Fig. 15) ..... *Scolelepis (Parascolelepis) tridentata*

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<sup>2</sup> *Polydora* and *Carazziella* are differentiated by the types of spines present in the modified 5<sup>th</sup> setiger. Compare figures 8 and 9.

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) . . . . .  
 . . . . . *Scolelepis squamata*
18. Eyes arranged in straight line; hooded hooks tridentate (Fig. 17) . *Scolelepis bullibranchia*  
 Eyes arranged in trapezoid; hooded hooks multidentate . . . . . *Scolelepis* sp. B of Rossi
19. Prostomium with lateral or frontal horns (variable for *Malacocerus*) . . . . . 20  
 Prostomium broadly rounded or incised on anterior margin, without lateral or frontal horns . . . 21
20. Branchiae beginning on setiger 1 (Fig. 18) . . . . . *Malacoceros punctata*  
 Branchiae beginning on setiger 2 (Fig. 19) . . . . . *Rhynchospio glutea*
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) . . . . .  
 . . . . . *Streblospio benedicti*  
 Three pairs of pinnate branchiae, with dorsal ridge on setiger 1 (Fig. 21) . . . . .  
 . . . . . *Paraprionospio pinnata*
24. Branchiae all cirriform, 6 or more pairs (Fig. 22) . . . . . [*Prionospio (Minuspio)*] . . 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) . . . . .  
 . . . . . *Prionospio (Minuspio) multibranchiata*  
 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) . . . . .  
 . . . . . *Prionospio (Minuspio) cirrifera*  
 Prostomium narrowly rounded anteriorly, with 5 marginal peaks; posterior dorsal lamellae  
 triangular; 6 - 12 pairs of branchiae (most commonly ten) (Fig. 24) . . . . .  
 . . . . . *Prionospio (Minuspio) lighti*

27. First pair of branchiae cirriform; fourth pair pinnate with flat, plate-like pinnules (Fig. 25)  
 ..... *Aoprionospio 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 . . . . . 32
- 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) . . . . .  
 ..... *Pseudoatherospio fauchaldi*
- Prostomium distally entire; anterior neurosetae without pseudoaristate spines; posterior neuropodial 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*) . . . 35
- 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 sparse, pale yellow setae (Fig. 34) . . . . . *Laonice cirrata*
36. Prostomium bilobed, without pigment spot; notosetae absent on setiger 1 (Fig. 3) . . . . .  
 . . . . . *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)

<p><i>Aonides</i> sp.  <i>Aopronospio pygmaea</i> (Hartman, 1961)  <i>Dispio uncinata</i> Hartman, 1951  <i>Laonice appellofi</i> Soderstrom, 1920  <i>Laonice cirrata</i> (Sars, 1851)  <i>Malacoceros punctata</i> (Hartman, 1961) (formerly <i>Spio</i>)  <i>Microspio microcera</i> (Dorsey, 1977) (formerly <i>Rhynchospio</i>)  <i>Microspio pigmentata</i> (Reish, 1959)  <i>Morants duplex</i> Chamberlin, 1919  <i>Paraprionospio pinnata</i> (Ehlers, 1901)  <i>Prionospio (Minuspio) cirrifera</i> Wiren, 1883  <i>Prionospio ehlersi</i> Fauvel, 1928  <i>Prionospio heterobranchia</i> Moore, 1907  <i>Prionospio (Minuspio) lighti</i> Maciolek, 1985  <i>Prionospio (Minuspio) multibranchiata</i> Berkeley, 1927  <i>Prionospio</i> sp. A (<i>sensu</i> SCAMIT)  <i>Prionospio</i> sp. B (<i>sensu</i> SCAMIT)</p>	<p><i>Pseudoathrospio fauchaldi</i> Lovell (in press)  <i>Pygospio californica</i> Hartman, 1936  <i>Pygospio elegans</i> Claparede, 1863  <i>Rhynchospio glutea</i> (Ehlers, 1897)  <i>Scolecopsis bullibranchia</i> Rossi, 1982  <i>Scolecopsis occidentalis</i> (Hartman, 1961)  <i>Scolecopsis</i> sp. B of Rossi  <i>Scolecopsis</i> sp. <sup>3</sup><sub>1</sub> of Point Loma  <i>Scolecopsis squamata</i> (O.F. Muller, 1806)  <i>Scolecopsis (Parascolecopsis) tridentata</i> (Southern, 1914)  <i>Spio filicornis</i> (Muller, 1776)  <i>Spio maculata</i> (Hartman 1961)  <i>Spio</i> sp. A (<i>sensu</i> SCAMIT) [formerly <i>Microspio</i> sp. A (<i>sensu</i> Lovell/Harris)]  <i>Spiophanes anoculata</i> Hartman, 1960  <i>Spiophanes berkeleyorum</i> Pettibone, 1962  <i>Spiophanes bombyx</i> (Claparede, 1870)  <i>Spiophanes fimbriata</i> Moore, 1923  <i>Spiophanes missionensis</i> Hartman, 1941  <i>Spiophanes wigleyi</i> Pettibone, 1962  <i>Streblospio benedicti</i> Webster, 1879</p>
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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

by Lawrence L. Lovell and Dean Pasko



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

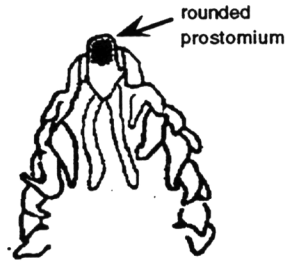


Fig. 2. *Spiophanes wigleyi*: anterior end, dorsal view.



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

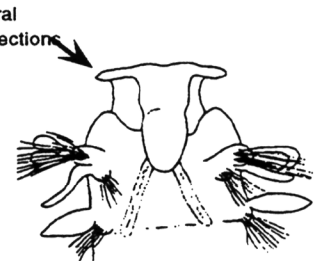


Fig. 4. *Spiophanes anunculata*: anterior end, dorsal view.

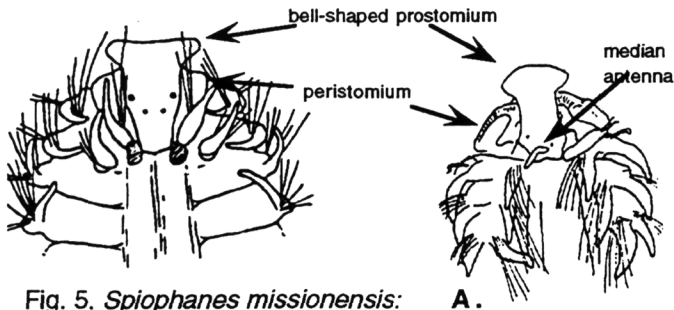


Fig. 5. *Spiophanes missionensis*: anterior end, dorsal view.

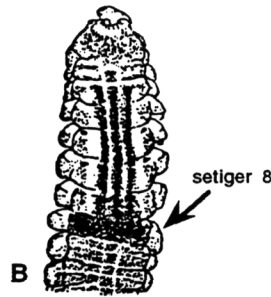


Fig. 6. *Spiophanes berkeleyorum*: A. anterior end, dorsal view; B. ventral view, showing methyl green staining pattern.

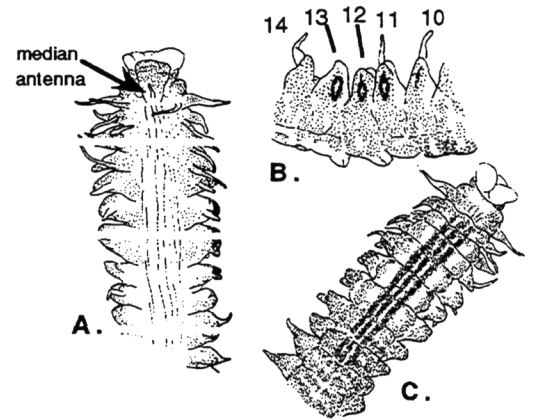


Fig. 7. *Spiophanes fimbriata*: A. anterior end, dorsal view; B. lateral view of setigers 10-14; C. ventral view, showing methyl green staining pattern.

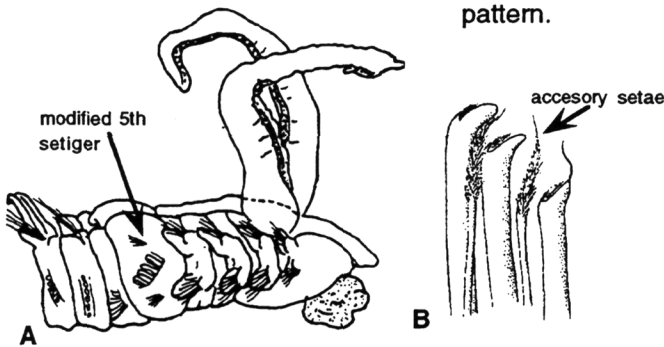


Fig. 8. *Polydora*: A. anterior end, lateral view showing modified 5th setiger; B. spines of modified 5th setiger.

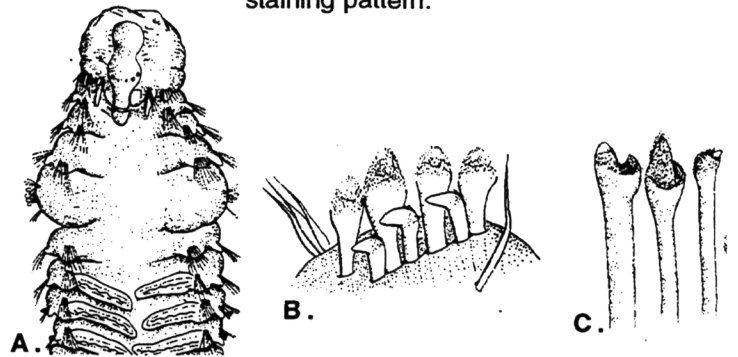


Fig. 9. *Carazziella*: A. anterior end, dorsal view; B. modified 5th setiger showing double row of spines; C. brushtop spines typical of *Carazziella*.

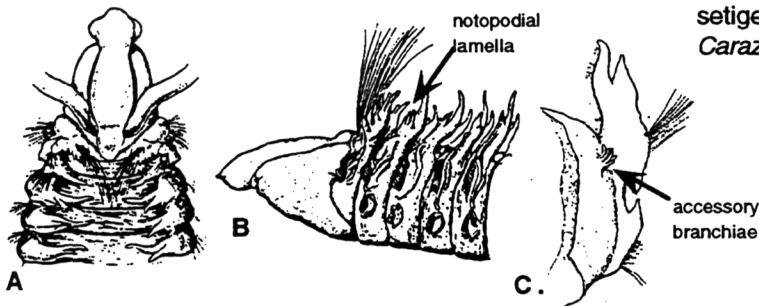


Fig. 10. *Dispio uncinata*: A. anterior end, dorsal view; B. anterior end, lateral view; C. mid-body setiger, posterior view showing accessory branchiae

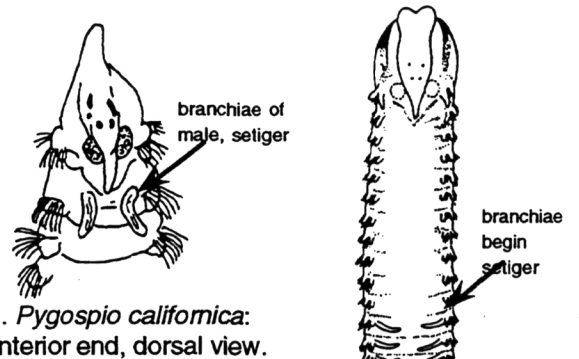


Fig. 11. *Pygospio californica*: male anterior end, dorsal view.

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

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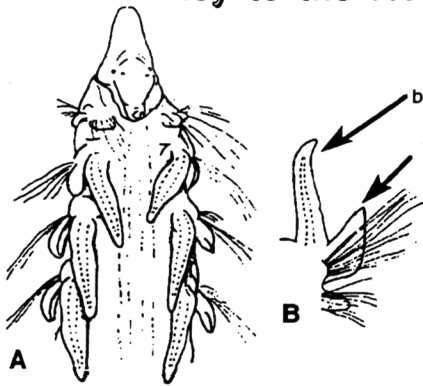


Fig. 13. *Aonides* sp.: A. anterior end, dorsal view; B. setiger 2, posterior view.

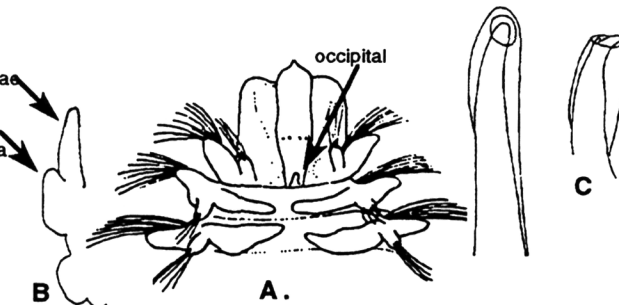


Fig. 14. *Scolelepis occidentalis*: A. anterior end, dorsal view; B. diagrammatic representation of a parapod showing branchia fused to notopod; C. unidentate hooded hook; D. bidentate hooded hook.

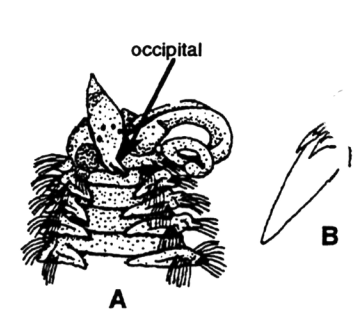


Fig. 15. *Scolelepis tridentata*: A. anterior end, dorsal view; B. head of multidentate hooded hook.

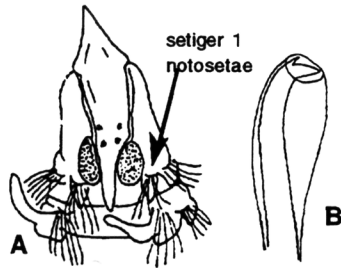


Fig. 16. *Scolelepis squamata*: A. anterior end, dorsal view; B. bidentate hooded hook.

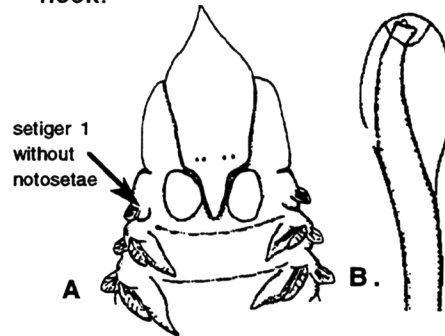


Fig. 17. *Scolelepis bullibranchia*: A. anterior end, dorsal view; B. tridentate hooded hook.

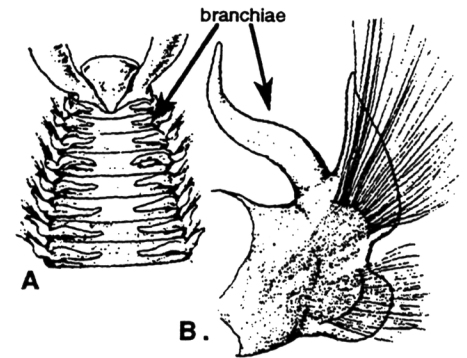


Fig. 18. *Malacocerus punctata*: A. anterior end, dorsal view; B. setiger 9, posterior view.

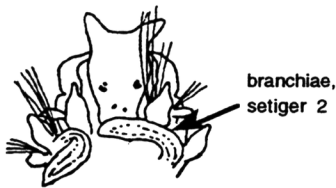


Fig. 19. *Rhyncospio glutea*: anterior end, dorsal view.

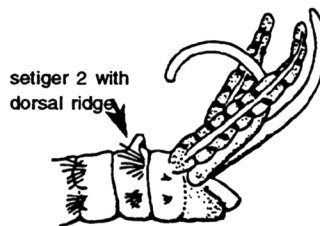


Fig. 20. *Streblospio benedicti*: anterior end, lateral view.

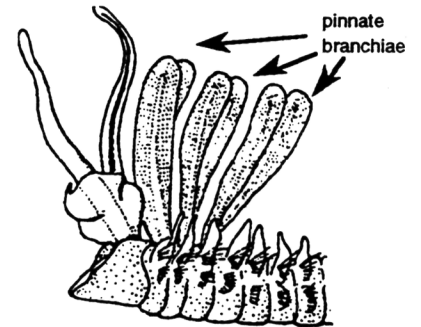


Fig. 21. *Paraprionospio pinnata*: anterior end, lateral view.

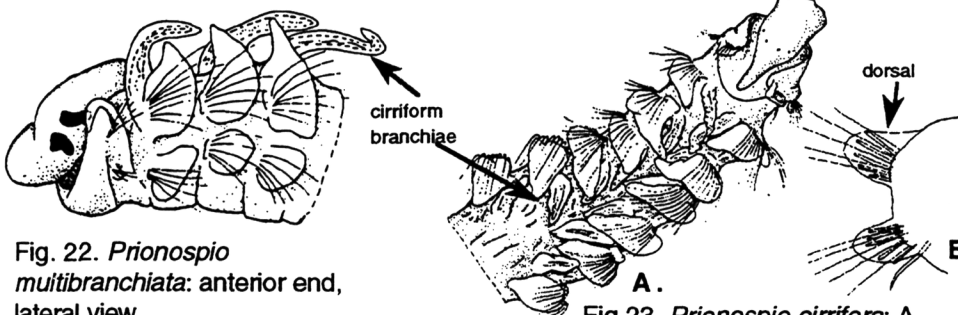


Fig. 22. *Prionospio multibranchiata*: anterior end, lateral view.

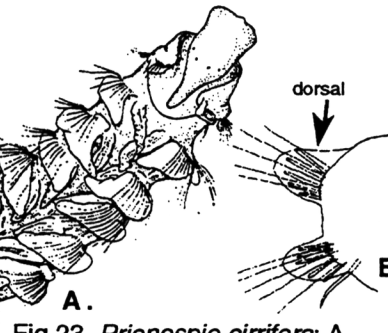


Fig. 23. *Prionospio cirrifera*: A. anterior end, dorsal view; B. posterior segment, posterior view.

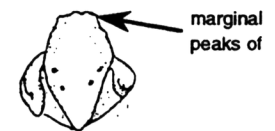


Fig. 24. *Prionospio lighti*: prostomium, dorsal view.

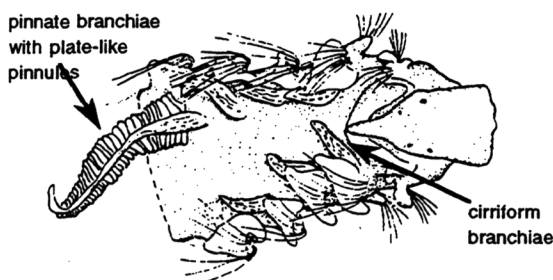


Fig. 25. *Apoprionospio pygmaea*: anterior end, dorsal view.

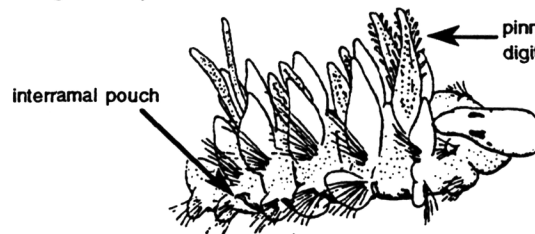


Fig. 26. *Prionospio ehlersi*: anterior end, dorsal view.

# Key to the Non-Polydorid Spionidae from Southern California

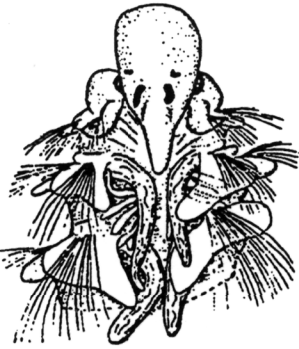


Fig. 27. *Prionospio heterobranchia*: anterior end, dorsal view.

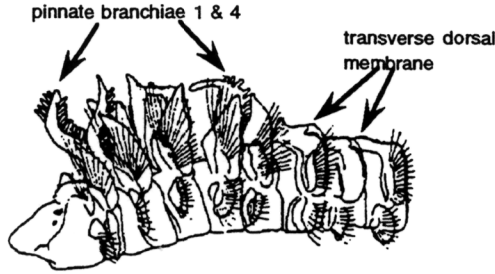


Fig. 28. *Prionospio* sp. A: anterior end, lateral view.



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

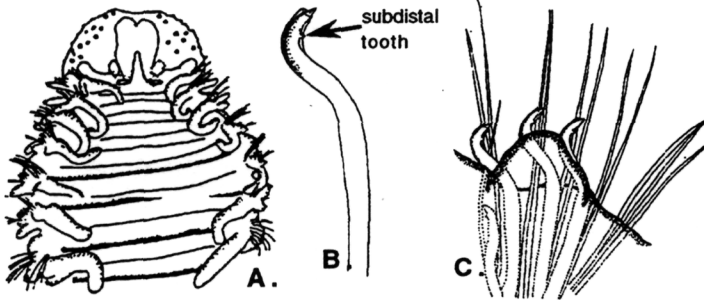


Fig. 30. *Pseudoatherospio fauchaldi*: A. anterior end, dorsal view; B. posterior neuropodial hook; C. posterior neuropodial fascicle.



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

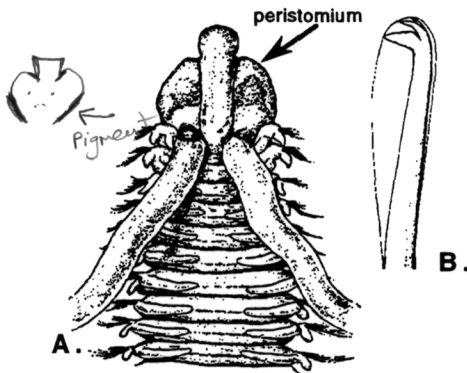


Fig. 32. *Spio maculata*: A. anterior end, dorsal view; B. tridentate hooded hook.

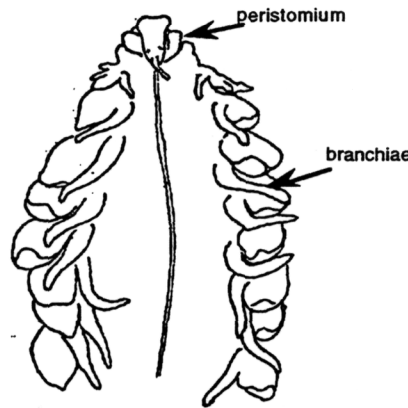


Fig. 33. *Laonice appelloff*: anterior end, dorsal view, (setae not included).



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

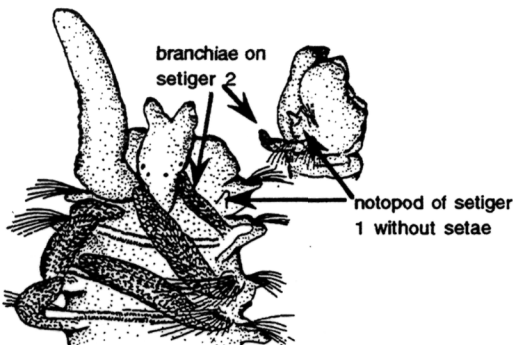


Fig. 35. *Microspio microcera*: A. anterior end, dorsal view; B. prostomium and setigers 1 and 2, lateral view.

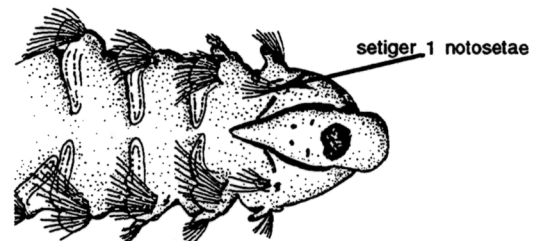


Fig. 36. *Microspio pigmentata*: anterior end, dorsal view