

A KEY TO THE ASTEROIDEA COLLECTED DURING THE BLM SURVEY OF  
THE SOUTHERN CALIFORNIA BIGHT, 1975-1978

Andrew L. Lissner  
Interstate Electronics Corporation  
Oceanic Engineering Division  
Anaheim, California 92803

1.	Marginal plates (supramarginals and inframarginals) large and conspicuous .....	3
-	Marginal plates not large and conspicuous .....	2
2.	Pedicellaria rare, not pedunculate .....Order Spinulosida .....	5
-	Pedicellaria common, pedunculate .....Order Forcipulatida .....	16
3.	Supramarginal plates smaller than inframarginals and similar in size to paxillae .....Order Platyasterida, <u>Luidia</u> .....	31
-	Supramarginal and inframarginal plates similar sized and larger than paxillae .....	4
4.	At least one hyaline or unpaired median tooth common to each pair of mouth plates: <u>or</u> supra-ambulacral plates reduced or absent .....Order Valvatida .....	25
-	Hyaline or median teeth absent from mouth plates: supra-ambulacral plates present, not reduced .....Order Paxillosida .....	33
5.	Mouth plates small, not spade-shaped.....	6
-	Mouth plates large and spade-shaped .....	7
6.	Oral surface with webbed, fan-like tufts of spines .....Family Asterinidae, <u>Patiria miniata</u>	
-	Oral surface without webbed spines .....Family Echinasteridae .....	9
7.	Marginal plates paxilliform, not covered by a membrane .....Family Solasteridae .....	13
-	Marginal plates covered by a membrane, not paxilliform .....	8

- 8. Nidamental chamber present  
..... Family Pterasteridae, Pteraster jordani
- No nidamental chamber present  
..... Family Korethrasteridae, Peribolaster biserialis
- 9. Aboral plates with small spinelets, not covered with thick skin  
.....Henricia ..... 10
- Aboral plates covered with thick skin  
..... Poraniopsis inflata flexilis
- 10. Rays flexible; 2 or more furrow spines on each  
adambulacral plate .....Henricia polyacantha
- Rays rigid; 1 furrow spine on each adambulacral plate  
near proximal end of ray ..... 11
- 11. Papular areas larger than pseudopaxillae; few spinelets on  
pseudopaxillae ..... Henricia aspera
- Papular areas smaller than pseudopaxillae: many, delicate  
spinelets on pseudopaxillae ..... 12
- 12. Pseudopaxillae with 20 or more spinelets.....Henricia leviuscula
- Pseudopaxillae with less than 20 spinelets  
..... Henricia leviuscula annectens
- 13. Rays 5; supramarginal and inframarginal paxillae  
equal in size ..... Lophaster furcilliger
- Rays more than 5; supramarginal paxillae  
smaller than inframarginal paxillae ..... 14
- 14. Supramarginal plates alternating with inframarginals  
in a single linear series..... Heterozonias alternatus
- Supramarginal plates not in a linear series  
with inframarginals ..... Solaster ..... 15
- 15. Aboral pseudopaxillae with 3-4 spinelets; suboral spines are  
small, and are 1, 2, or none in number.....Solaster borealis
- Aboral pseudopaxillae with 7-10 spinelets, suboral spines are  
prominent, and are 5-7 in number.....Solaster hypothrissus
- 16. Only straight pedicellaria present; prominent furrow spine  
.....Family Zoroasteridae ..... 17
- Straight and crossed pedicellaria present; no furrow spine  
.....Family Asteroiidae..... 20

17. Internal ridge present that connects first two ambulacra with body wall..... Myxoderma ..... 18
- Internal ridge absent ..... Zoroaster ..... 19
18. Terminal arm plate small (not ovoid); 1-2 papulae per area on aboral surface; plates and spines not covered by a membrane ..... Myxoderma platyacanthum
- Terminal arm plate enlarged (ovoid); more than 2 papulae per area; membrane present.....Myxoderma sacculatum
19. Single large pedicellaria not present on second spine of adambulacral plates..... Zoroaster evermanni
- Single large pedicellaria present on second spine of adambulacral plates..... Zoroaster evermanni mordax
20. Adoral carinals present ..... 22
- Adoral carinals not present ..... Subfamily Pedicellasterinae ..... 21
21. Inframarginal spines larger than supramarginal spines; podia quadriserial, biserial or both.....Ampheraster atactus
- Inframarginal and supramarginal spines are similar sized; podia biserial..... Anteliaster coscinactis
22. Rays more than 5; adambulacral spines without pedicellaria ..... 23
- Rays 5; adambulacral spines with pedicellaria ..... Subfamily Asteriinae ..... 24
23. One inframarginal spine ..... Subfamily Labidiasterinae, Rathbunaster californicus
- Two inframarginal spines ..... Subfamily Pycnopodiinae, Pycnopodia helianthoides
24. Both inner and outer inframarginal spines with crossed pedicellaria ..... Stylasterias forreri
- Only outer of two inframarginal spines with crossed pedicellaria ..... Astrometis sertulifera
25. 1-2 recurved hyaline teeth to each pair of mouth plates ..... Family Odontasteridae, Peridotaster crassus
- No recurved hyaline teeth ..... Family Goniasteridae ..... 26

26. Body surface covered by thin skin ..... Hippasteria spinosa
- Body surface not covered by thin skin ..... 27
27. Unpaired (not recurved) median tooth common to each pair of mouth plates ..... Pseudarchaster pusillus
- No median tooth ..... 28
28. Pentagonal shape; aboral interradial areas without papulae ..... Ceramaster ..... 29
- Long rays (shape not pentagonal): aboral interradial areas with papulae ..... Mediaster ..... 30
29. Furrow spines 6 or more per plate proximally ..... Ceramaster leptoceramus
- Furrow spines 5 ..... Ceramaster patagonicus
30. Papulae in groups of 2-3; pedicellaria bivalved and longer than high ..... Mediaster aequalis
- Papulae single; pedicellaria spatulate and higher than wide ..... Mediaster tenellus
31. Paxillae quadrate ..... 32
- Paxillae stellate ..... Luidia asthenosoma
32. Pedicellaria present; body size small ..... Luidia ludwigi
- Pedicellaria absent; body size large ..... Luidia foliolata
33. Podia without suckers ..... Family Astropectinidae ..... 34
- Podia with suckers ..... Family Benthoplectinidae ..... 38
34. Inframarginal and supramarginal plates equal in size forming a vertical face to the ray ..... 36
- Inframarginal and supramarginal plates unequal in size forming an angular face to the ray ..... Dipsacaster ..... 35
35. Inframarginals without spines; papulae absent from center of disc; madreporite with 1-2 paxillae ..... Dipsacaster anoplus
- Inframarginals with spines; papulae present on center of disc; madreporite with many paxillae ..... Dipsacaster eximus

- 36. Inframarginals separated from adambulacrals by actinal intermediate plates for all or part of the ray ..... Thrissacanthias penicillatus
- Inframarginals touching adambulacrals plates, no actinal intermediate plates ..... Astropecten ..... 37
- 37. Paxillae small, 4-5 are equal in length to 2 supramarginal plates ..... Astropecten verrilli
- Paxillae large, 3 are equal in length to 2 supramarginal plates ..... Astropecten ornatissimus
- 38. Supramarginal plates with 2-3 long spines; large aboral spines surrounded by a circle of spinelets ..... Nearchaster aciculosus
- Supramarginal plates with one long spine; circle of spinelets usually absent from large aboral spines ..... Benthopecten acanthonotus