

M E C BIOLOGICAL PROJECT  
SAN ONOFRE NUCLEAR GENERATING STATION  
MONITORING STUDIES ON  
ICHTHYOPLANKTON AND ZOOPLANKTON  
FINAL REPORT  
APPENDICES VOLUME 1

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The appendices given in this volume, except Appendices B and C.1, have been revised and updated by the appendices given in: MEC Biological Project San Onofre Nuclear Generating Station Monitoring Studies on Ichthyoplankton and Zooplankton Final Report Appendices Volume 2: Revisions and Addenda. Specifically, Appendices A, C.2, C.3, and E of this volume are replaced by Appendices A.2, C.2, C.3, and E. respectively, of Volume 2. Appendix A.1 of Volume 2 is a new appendix. The Appendix D figures in this volume that show patterns of distribution in the cross-shelf strata (e.g., Figures D-76, D-27, D-48) are replaced by the corresponding figures of distributions given in Appendix D of Volume 2.

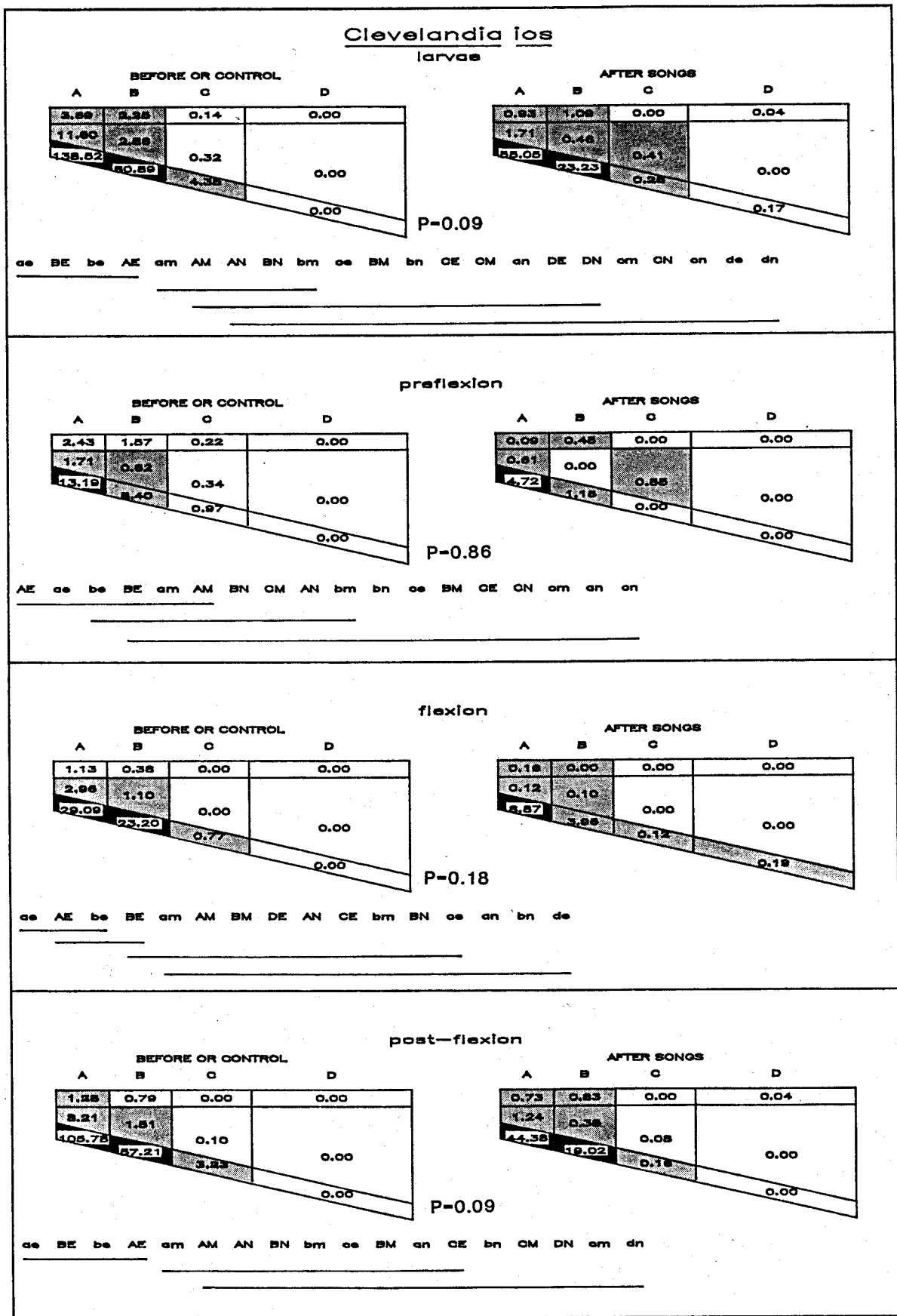


Figure D-6 . Cross-shelf distributional patterns for *Clevelandia ios*. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., AM=Block A midwater) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods). Only strata in which larvae occurred were tested. The results of the MANOVA are also shown

D-7

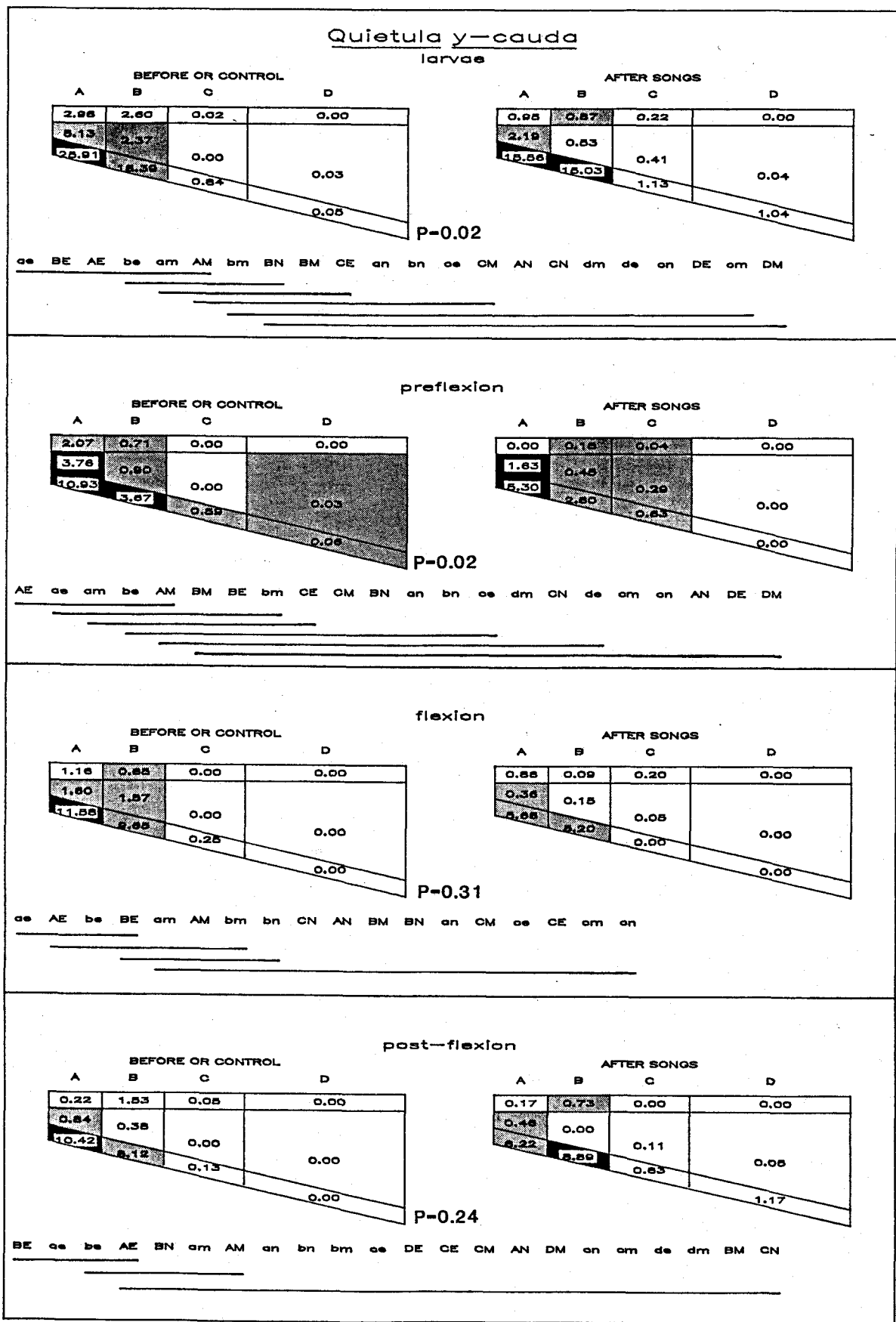


Figure D-27. Cross-shelf distributional patterns for Quietula y-cauda. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., AM=Block A midwater) are for SONGS in the After data set, lower case strata in the Before-Control data set (SONGS in the Before period and Control in both periods). Only strata in which larvae occurred were tested. The results of the MANOVA are also shown

D-28

*Ilypnus gilberti*

larvae

BE ae AE be AM CE am BM bm BN ce an bn AN om CM on de dm dn CN DM DE DN

BEFORE OR CONTROL			
A	B	C	D
6.47	14.30	0.31	0.02
25.91	10.12		
487.95	128.59	0.89	0.09
		8.17	
			0.37

AFTER SONGS			
A	B	C	D
4.70	11.07	0.84	0.23
9.67	7.68		
81.18	120.48	4.12	0.38
		32.01	
			34.78

P=0.09

BE ae AE be AM CE am BM bm BN ce an bn AN om CM on de dm dn CN DM DE DN

preflexion

BEFORE OR CONTROL			
A	B	C	D
3.47	1.38	0.08	0.02
7.35	3.42		
57.83	38.78	0.36	0.07
		3.17	
			0.20

AFTER SONGS			
A	B	C	D
1.78	1.38	0.29	0.23
4.23	2.88		
38.80	19.39	1.47	0.38
		3.87	
			0.00

P=0.06

AE BE ae be AM am BM bm CE ce an bn BN AN OM om ON de on dm dn DM DN DE

flexion

BEFORE OR CONTROL			
A	B	C	D
1.41	7.20	0.20	0.00
8.89	3.81		
65.88	66.68	0.27	0.01
		1.04	
			0.00

AFTER SONGS			
A	B	C	D
1.13	3.88	0.14	0.00
3.08	2.17		
18.88	31.78	0.61	0.00
		1.08	
			0.00

P=0.18

ae BE AE be AM am BN BM bm an CE bn ce AN CM am on dm CN DM

post-flexion

BEFORE OR CONTROL			
A	B	C	D
1.72	3.48	0.09	0.00
10.21	3.48		
67.98	69.83	0.31	0.00
		1.58	
			0.17

AFTER SONGS			
A	B	C	D
1.79	6.13	0.42	0.00
2.38	2.81		
23.48	79.28	2.05	0.00
		27.31	
			34.78

P=0.02

BE ae AE be CE am BM bm AM BN an ce bn AN am de en CM DE CN

Figure D-48 . Cross-shelf distributional patterns for *Ilypnus gilberti*. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., AM=Block A midwater) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods). Only strata in which larvae occurred were tested. The results of the MANOVA are also shown

Gobiesox rhesodon  
larvae

BEFORE OR CONTROL

A	B	C	D
0.04	0.08	0.18	0.00
1.38	0.90		
11.94	18.84	0.32	
		2.07	0.16
			1.00

AFTER SONGS

A	B	C	D
0.00	0.00	0.00	0.00
3.12	3.60		
13.42	28.27	0.14	
		29.88	0.20
			0.00

P=0.11

BE CE be AE ae ce BM am AM bm am de dm bn en an CM DM AN BN CN DE

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preflexion

BEFORE OR CONTROL

A	B	C	D
0.05	0.03	0.18	0.00
0.99	0.74		
10.95	12.94	0.34	
		1.88	0.12
			0.41

AFTER SONGS

A	B	C	D
0.00	0.00	0.00	0.00
2.97	2.47		
12.76	21.82	0.18	
		16.07	0.00
			0.00

P=0.55

BE AE be ae CE ce BM am AM bm am de dm en an bn CM AN BN ON DE DM

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flexion

BEFORE OR CONTROL

A	B	C	D
0.00	0.00	0.00	0.00
0.56	0.28		
1.99	8.22	0.00	
		0.65	0.00
			0.65

AFTER SONGS

A	B	C	D
0.00	0.00	0.00	0.00
0.12	1.82		
1.82	7.82	0.00	
		11.88	0.00
			0.00

P=.005

CE be BE ce ce AE BM am bm de AM DE

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post-flexion

BEFORE OR CONTROL

A	B	C	D
0.00	0.00	0.00	0.00
0.08	0.00		
2.38	8.13	0.00	
		0.38	0.00
			0.60

AFTER SONGS

A	B	C	D
0.00	0.00	0.00	0.00
0.38	0.00		
0.00	3.75	0.00	
		12.01	0.37
			0.00

P=0.14

CE be BE ce ce de am AM DM dm AE DE

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Figure D-69 . Cross-shelf distributional patterns for Gobiesox rhesodon. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., AM=Block A midwater) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods). Only strata in which larvae occurred were tested. The results of the MANOVA are also shown.

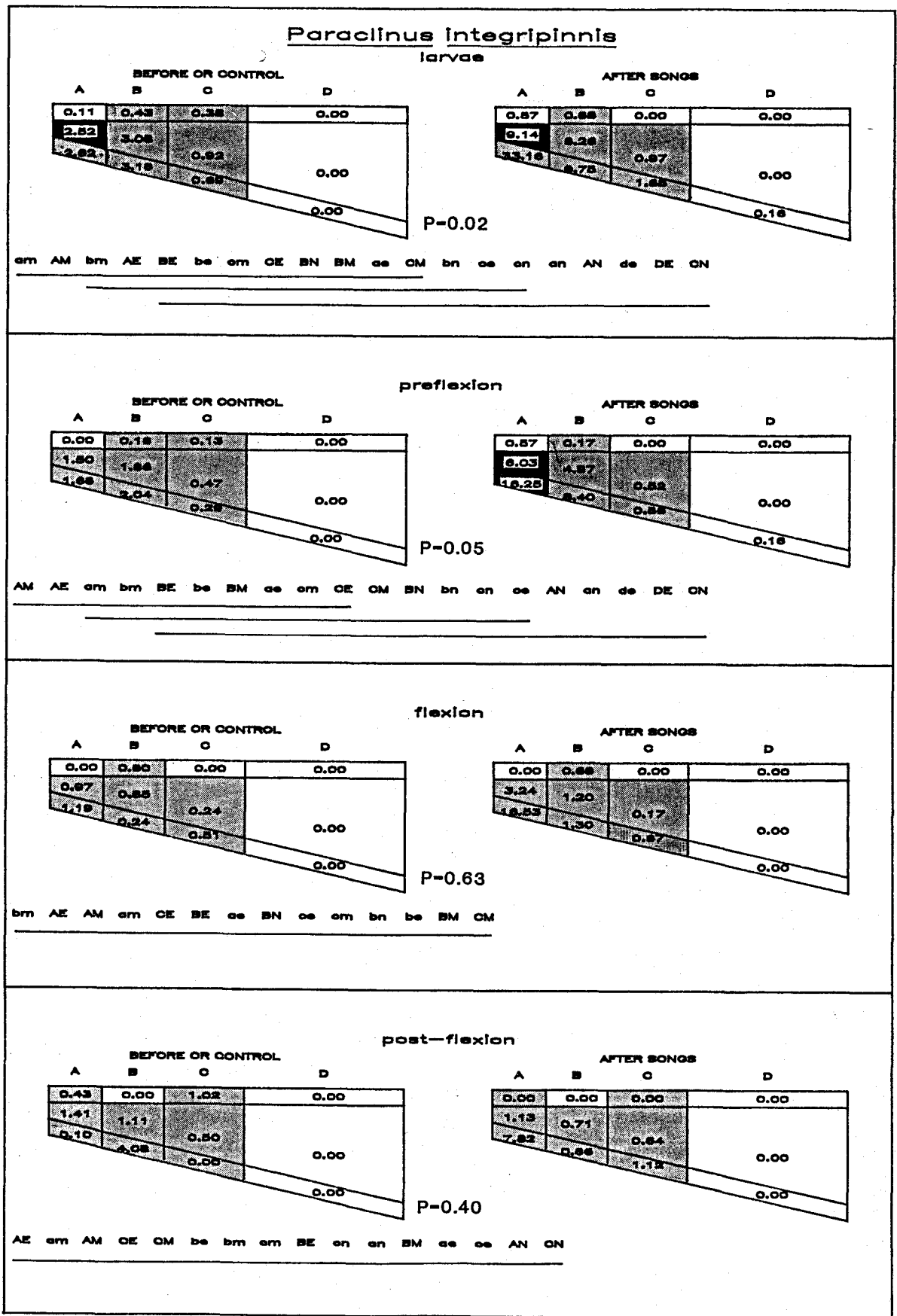
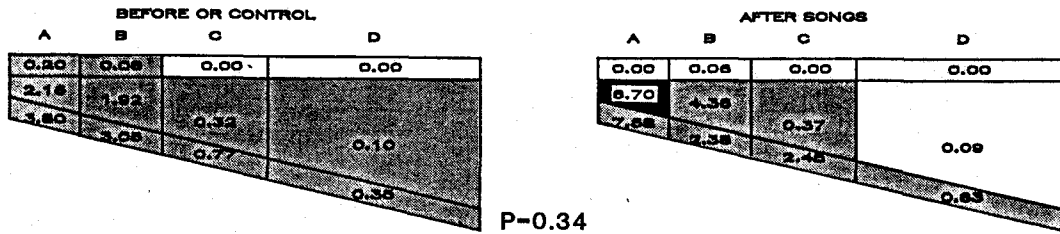


Figure D-90 . Cross-shelf distributional patterns for *Paraclinus integripinnis*. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., AM=Block A midwater) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods). Only strata in which larvae occurred were tested. The results of the MANOVA are also shown.

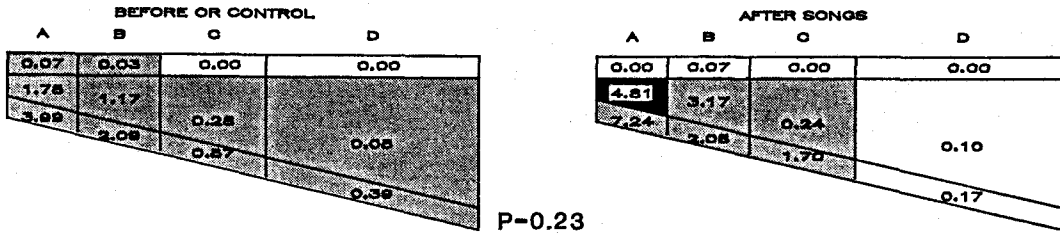
D-91

Gibbonsia type a  
larvae



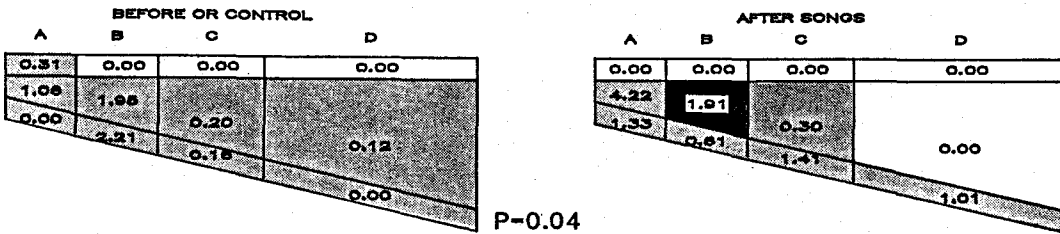
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preflexion



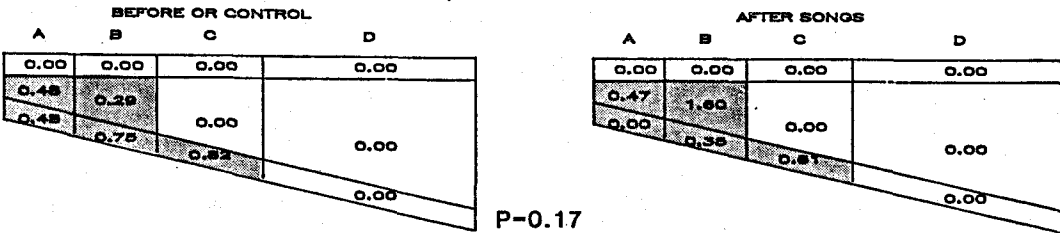
AM BM am AE ce be bm BE ee CE om an de dm bn CM BN DE DM AN

flexion



BM AM am be bm AE BE CM ee an om dm CE DE ce de AN DM

post-flexion



AM BM am ee BE CE ee be bm AE

Figure D-111. Cross-shelf distributional patterns for *Gibbonsia* type a. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., AM=Block A midwater) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods). Only strata in which larvae occurred were tested. The results of the MANOVA are also shown.



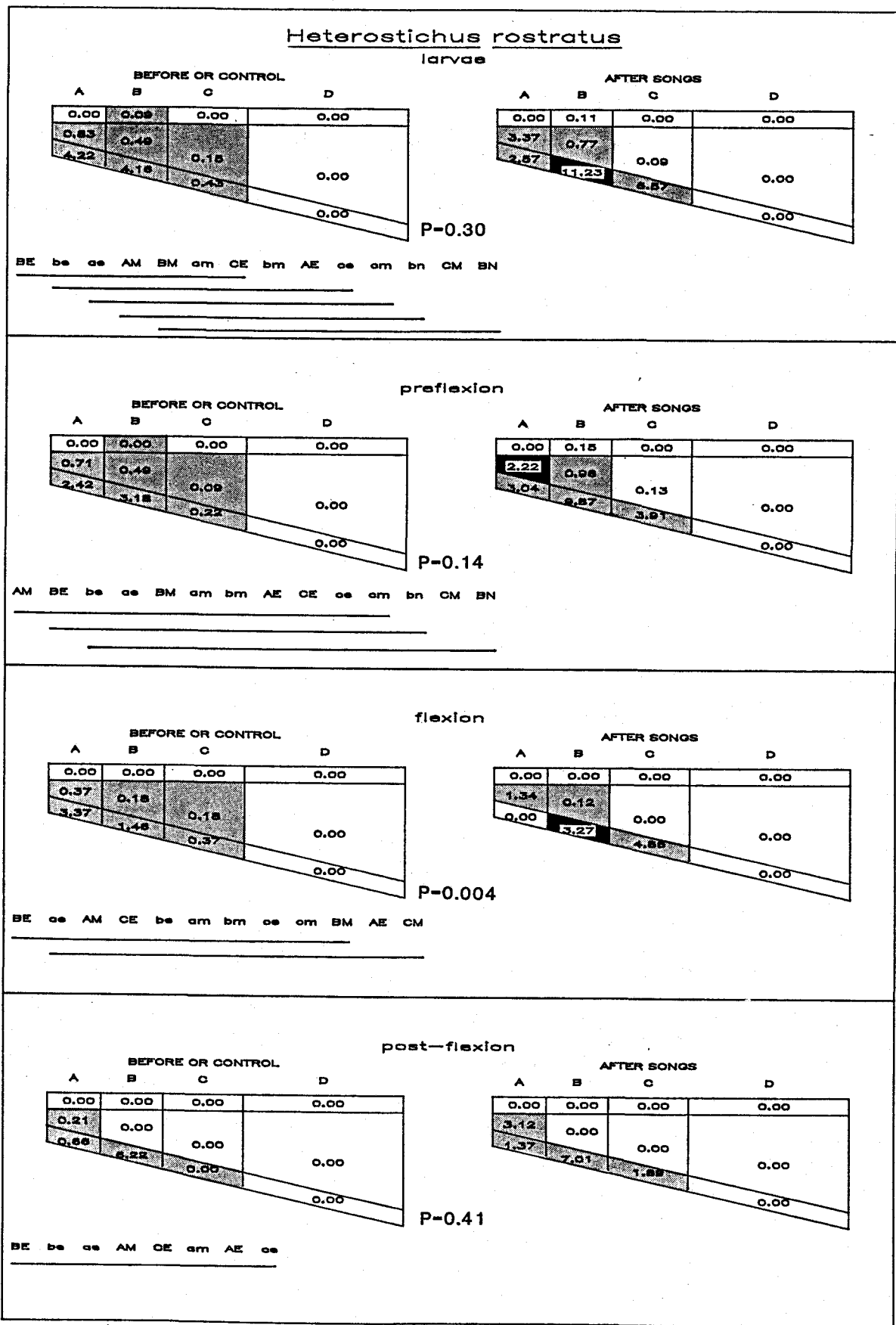


Figure D-132. Cross-shelf distributional patterns for Heterostichus rostratus. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., AM=Block A midwater) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods). Only strata in which larvae occurred were tested. The results of the MANOVA are also shown

D-133

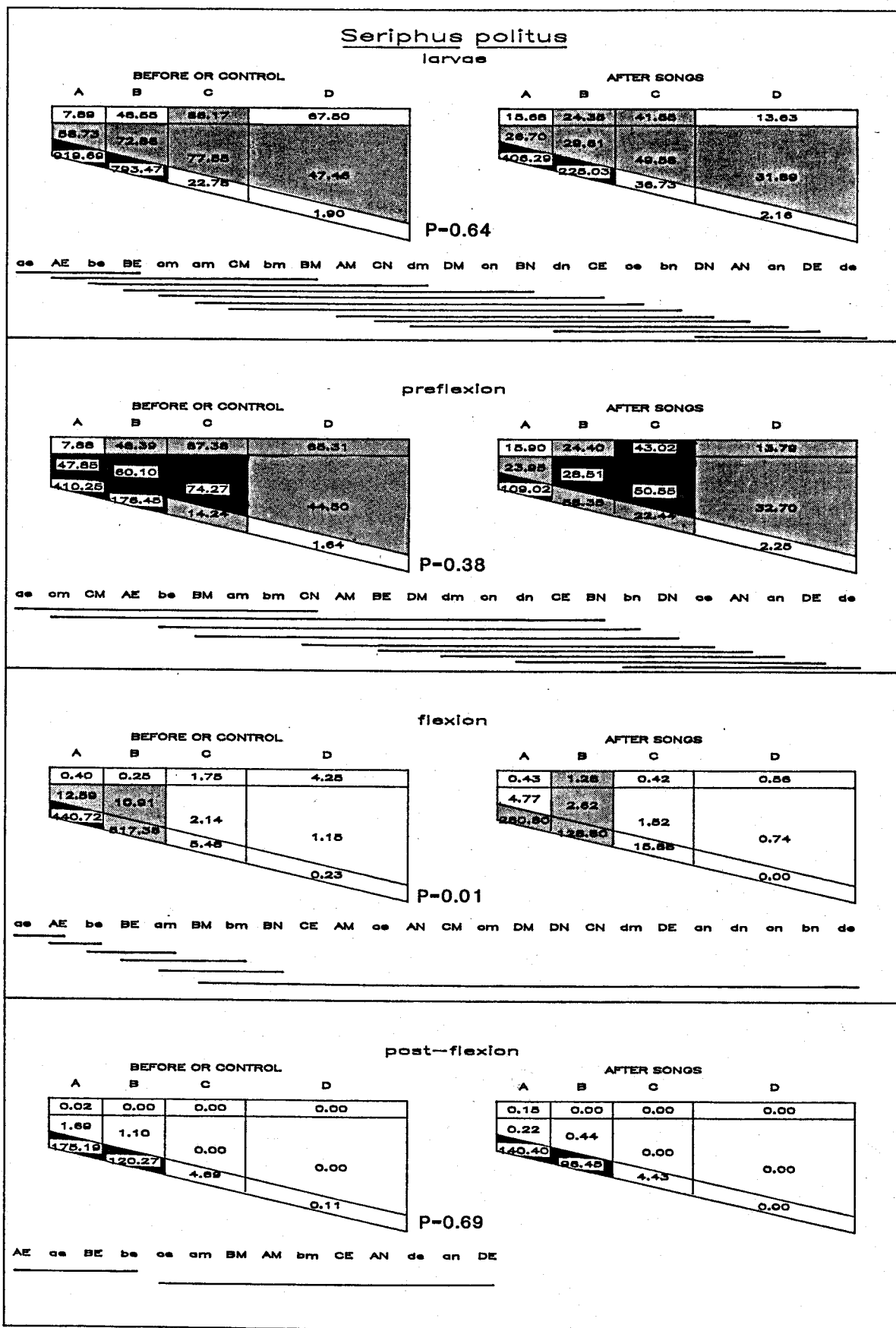
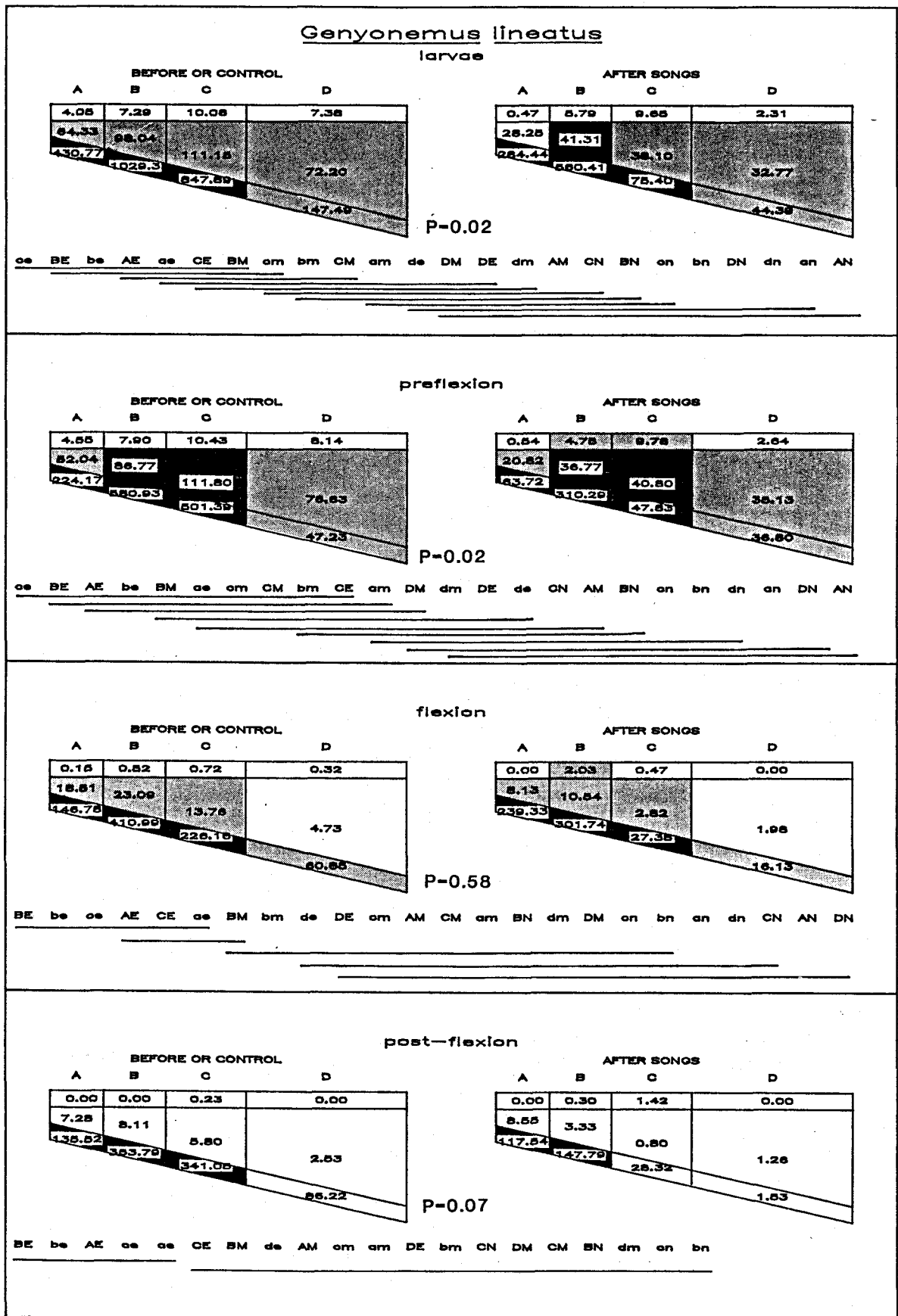


Figure D-153. Cross-shelf distributional patterns for Seriphus politus. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., AM=Block A midwater) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods). Only strata in which larvae occurred were tested. The results of the MANOVA are also shown

D-154



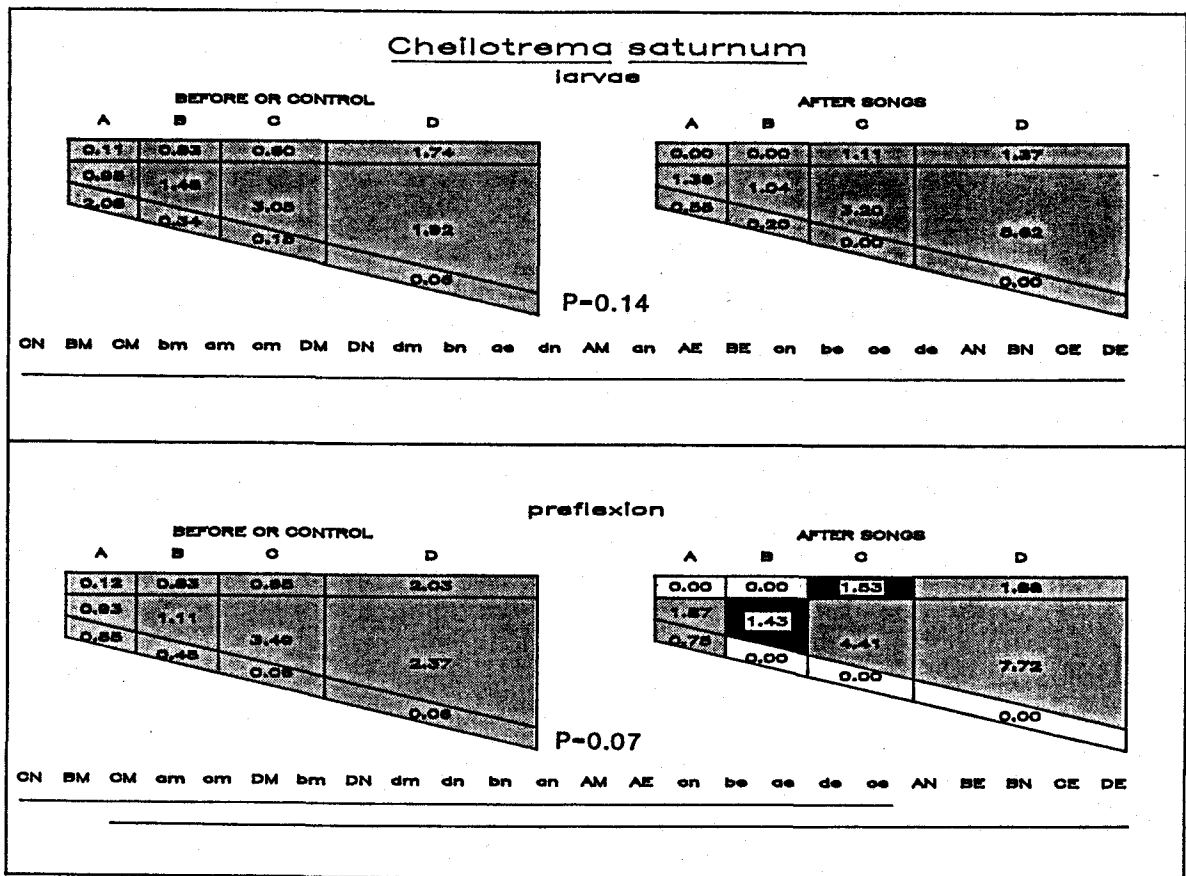


Figure D-195. Cross-shelf distributional patterns for Cheilotrema saturnum. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., AM=Block A midwater) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods). Only strata in which larvae occurred were tested. The results of the MANOVA are also shown.

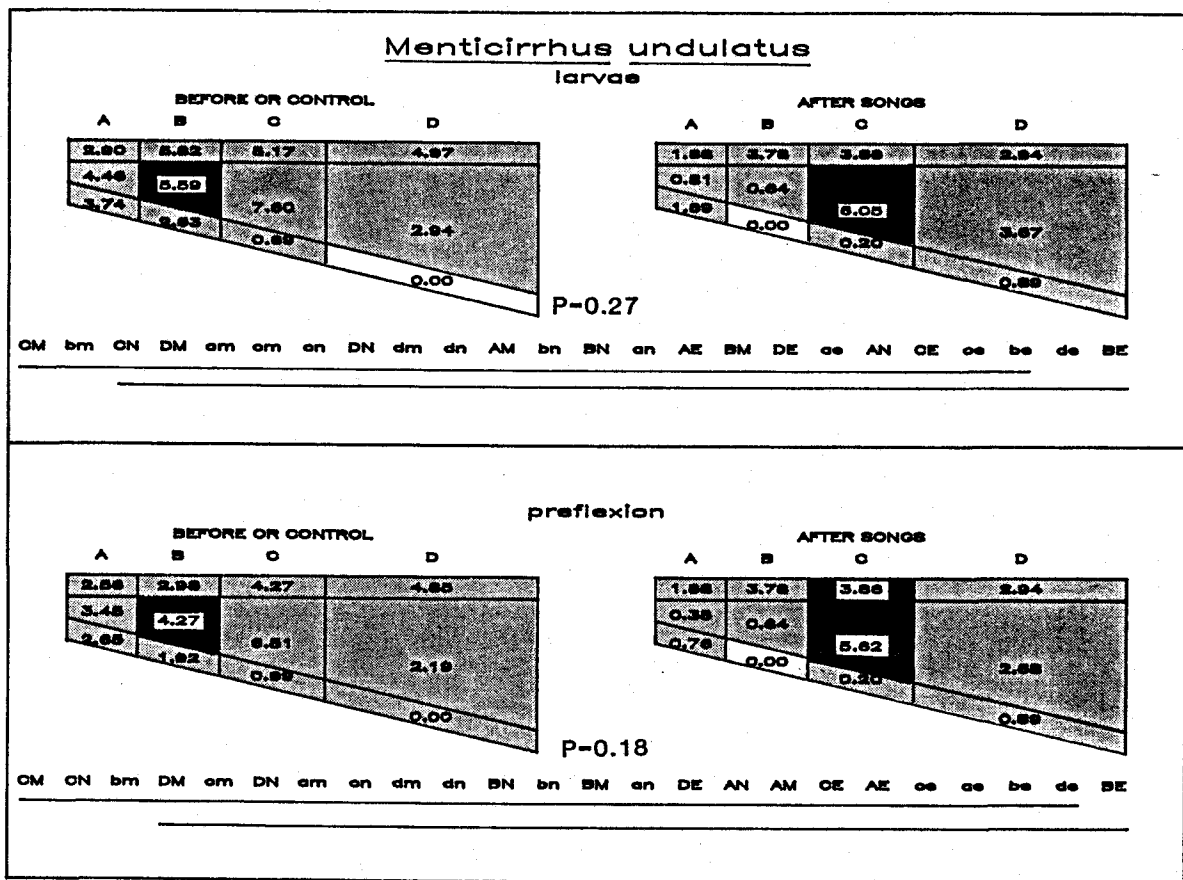


Figure D-206. Cross-shelf distributional patterns for Menticirrhus undulatus. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., AM=Block A midwater) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods). Only strata in which larvae occurred were tested. The results of the MANOVA are also shown.

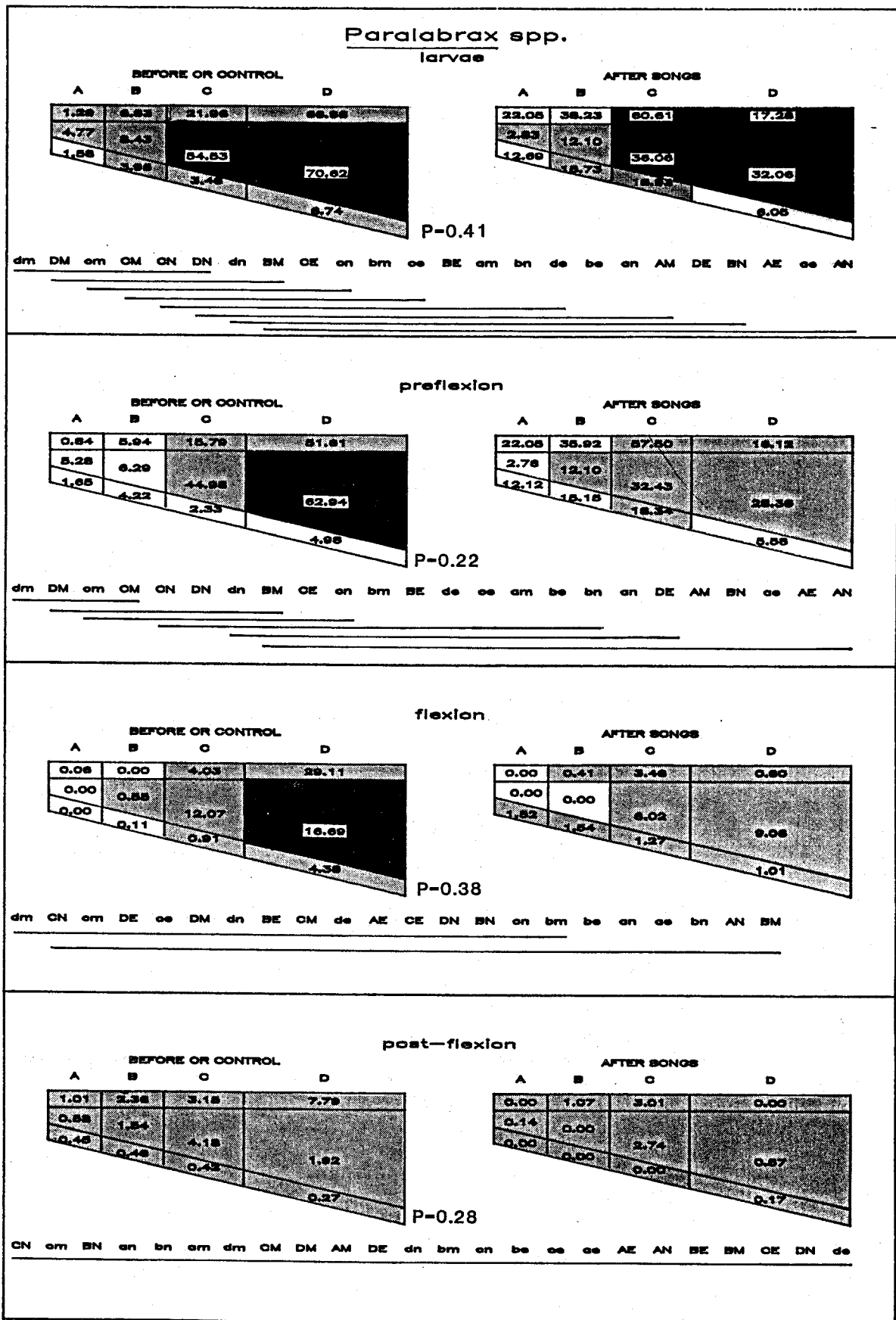


Figure D-217. Cross-shelf distributional patterns for *Paralabrax* spp. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., AM=Block A midwater) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods). Only strata in which larvae occurred were tested. The results of the MANOVA are also shown.

D-218

Hypsopsetta guttulata  
larvae

BEFORE OR CONTROL

A	B	C	D
1.08	0.94	0.23	0.21
2.65	2.14	1.01	0.19
0.27	0.88	0.24	0.00
			0.00

AFTER SONGS

A	B	C	D
0.80	0.12	0.00	0.00
0.84	0.84	0.48	0.00
0.00	0.15	0.00	0.00
			0.00

P=0.90

am bm AM CM an BM om bn BE AN BN be AE CE CN DM DN dm ee en ee dn

preflexion

BEFORE OR CONTROL

A	B	C	D
0.37	0.38	0.28	0.00
2.47	1.05	1.00	0.18
0.14	0.91	0.00	0.00
			0.00

AFTER SONGS

A	B	C	D
0.00	0.12	0.00	0.00
0.84	0.84	0.48	0.00
0.00	0.15	0.00	0.00
			0.00

P=0.95

bm am AM CM om BM be BE BN an bn dm AE AN CE CN DM on ee ee

flexion

BEFORE OR CONTROL

A	B	C	D
1.37	0.30	0.00	0.48
1.24	0.28	0.25	0.00
0.18	0.08	0.38	0.00
			0.00

AFTER SONGS

A	B	C	D
0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00
			0.00

P=0.80

an am bn AE AM AN BE BM BN CE CM DN bm om dn ee ee be

Figure D-238. Cross-shelf distributional patterns for Hypsopsetta guttulata. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., AM=Block A midwater) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods. Only strata in which larvae occurred were tested. The results of the MANOVA are also shown.

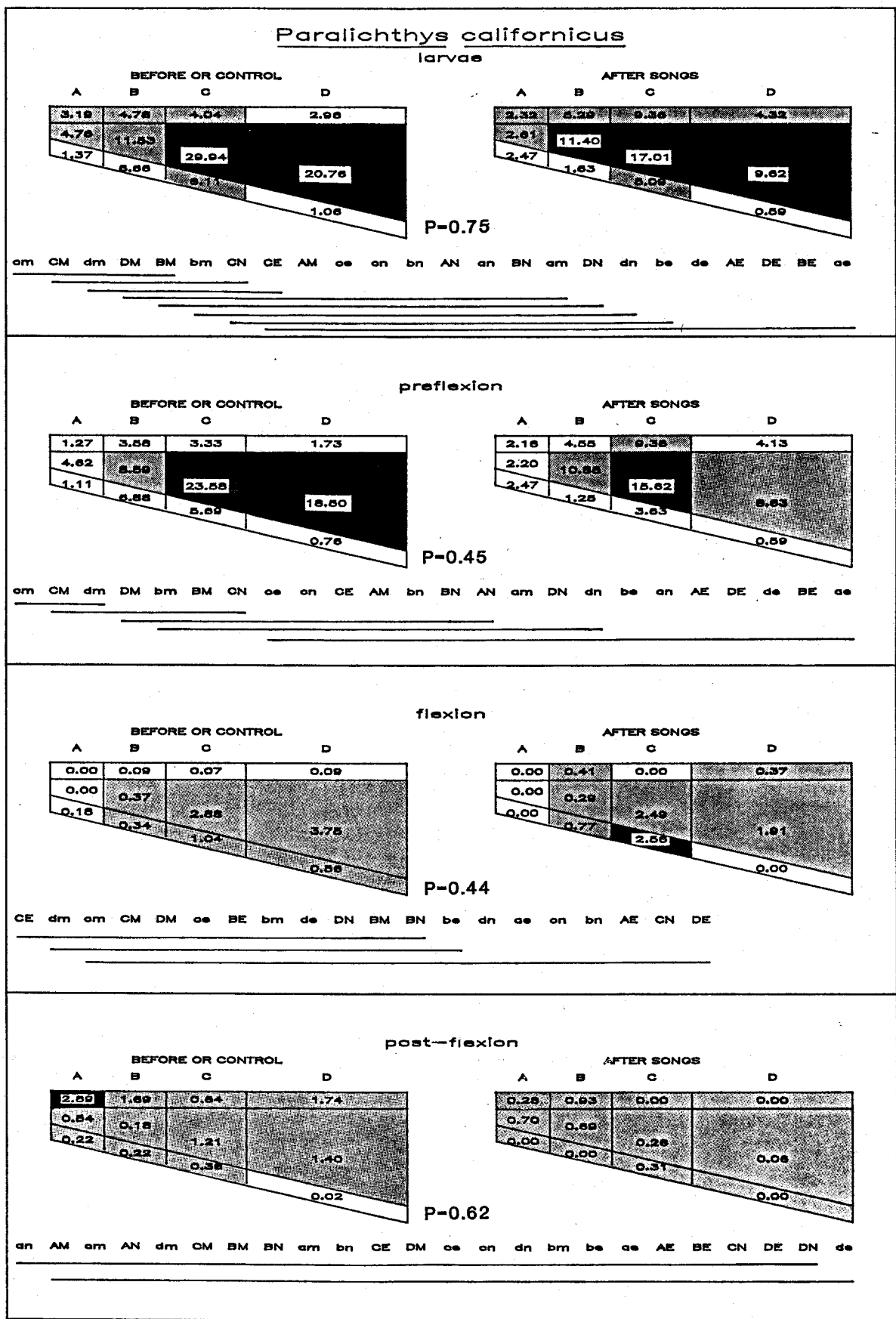


Figure D-254. Cross-shelf distributional patterns for Paralichthys californicus. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., AM=Block A midwater) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods). Only strata in which larvae occurred were tested. The results of the MANOVA are also shown.

D-255



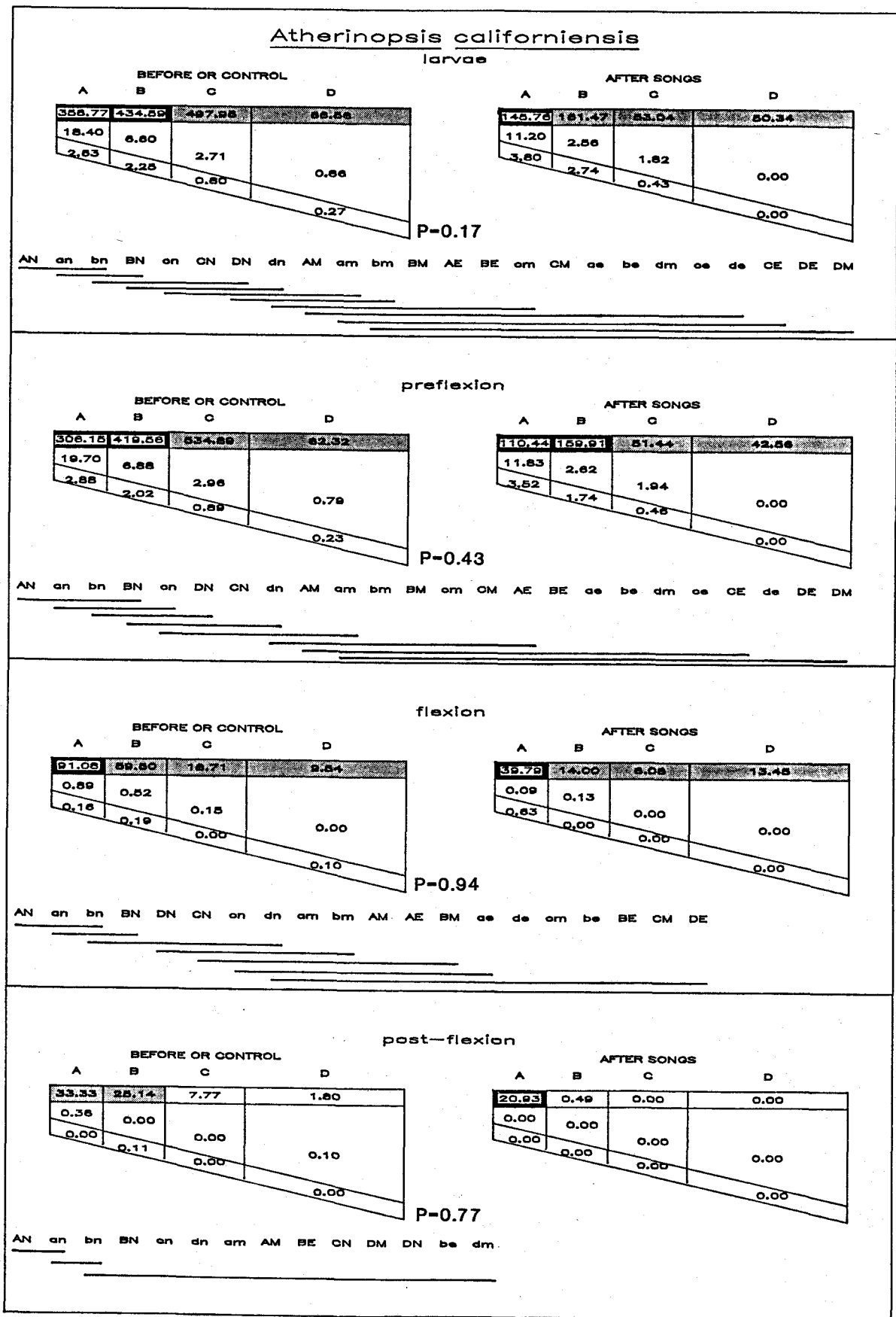


Figure D-275. Cross-shelf distributional patterns for Atherinopsis californiensis. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., AM=Block A midwater) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods). Only strata in which larvae occurred were tested. The results of the MANOVA are also shown.

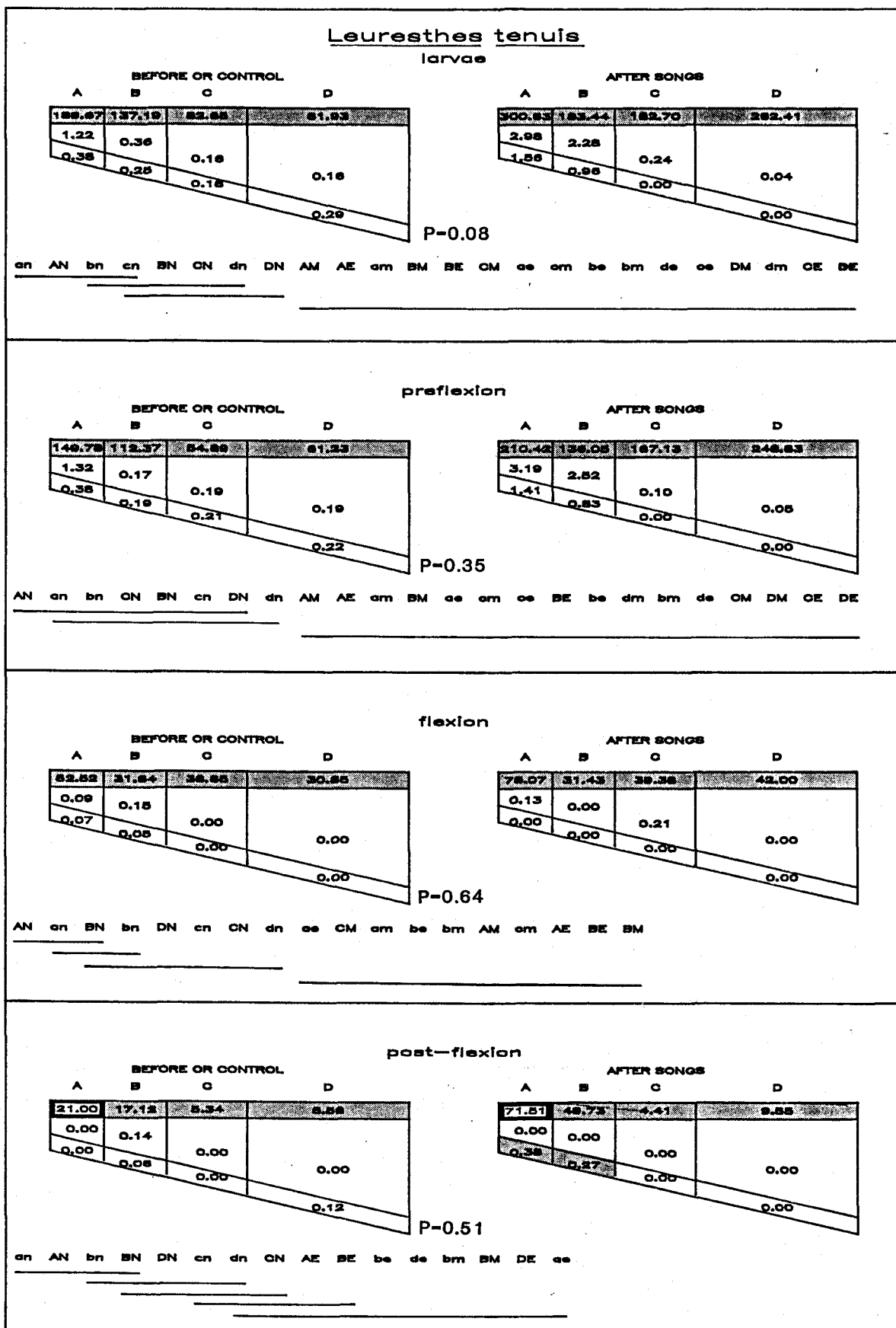


Figure D-296. Cross-shelf distributional patterns for Leuresthes tenuis. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., AM=Block A midwater) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods. Only strata in which larvae occurred were tested. The results of the MANOVA are also shown.

D-297

Engraulis mordax

larvae

BEFORE OR CONTROL

A	B	C	D
47.83	110.21	90.28	131.37
273.33	407.21		11.37
662.55	588.75	476.15	504.43
		292.08	
			82.24

AFTER SONGS

A	B	C	D
52.53	177.10	270.40	228.08
208.78	282.31		
501.80	385.54	411.55	360.92
		189.39	
			99.60

P=0.07

be ae DM dm em BE CM AE ce bm BM CE em AM ON DN DE dn on BN de bn AN an

preflexion

BEFORE OR CONTROL

A	B	C	D
34.48	67.61	50.49	50.78
132.67	242.94		
45.16	58.83	323.82	371.09
		47.82	
			15.05

AFTER SONGS

A	B	C	D
41.58	180.88	212.55	173.44
118.70	188.78		
34.99	62.25	324.05	247.26
		34.79	
			19.95

P=0.29

DM dm CM em BM bm em be ae AM ON DN DE dn on BE bn de BN DE de AE an AN

flexion

BEFORE OR CONTROL

A	B	C	D
5.48	15.03	23.54	48.42
69.53	91.45		
414.38	419.84	101.40	104.11
		67.43	
			39.33

AFTER SONGS

A	B	C	D
2.85	6.55	27.38	28.71
49.37	69.63		
47.37	183.82	54.78	77.08
		63.49	
			24.87

P=0.39

DM dm em CM BM bm em be ae BE AE CE ce AM DN DE CN dn de on BN bn an AN

post-flexion

BEFORE OR CONTROL

A	B	C	D
10.58	29.14	20.65	36.98
53.32	56.34		
423.30	401.95	73.61	45.01
		165.54	
			37.79

AFTER SONGS

A	B	C	D
7.78	18.53	21.34	20.63
39.08	43.68		
213.55	421.55	27.15	23.68
		109.98	
			52.62

P=0.13

ae be AE BE ce bm BM em em CE DM AM dm CM DE CN BN DN de dn on bn AN an

Figure D-317. Cross-shelf distributional patterns for Engraulis mordax. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., AM=Block A midwater) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods). Only strata in which larvae occurred were tested. The results of the MANOVA are also shown

D-318

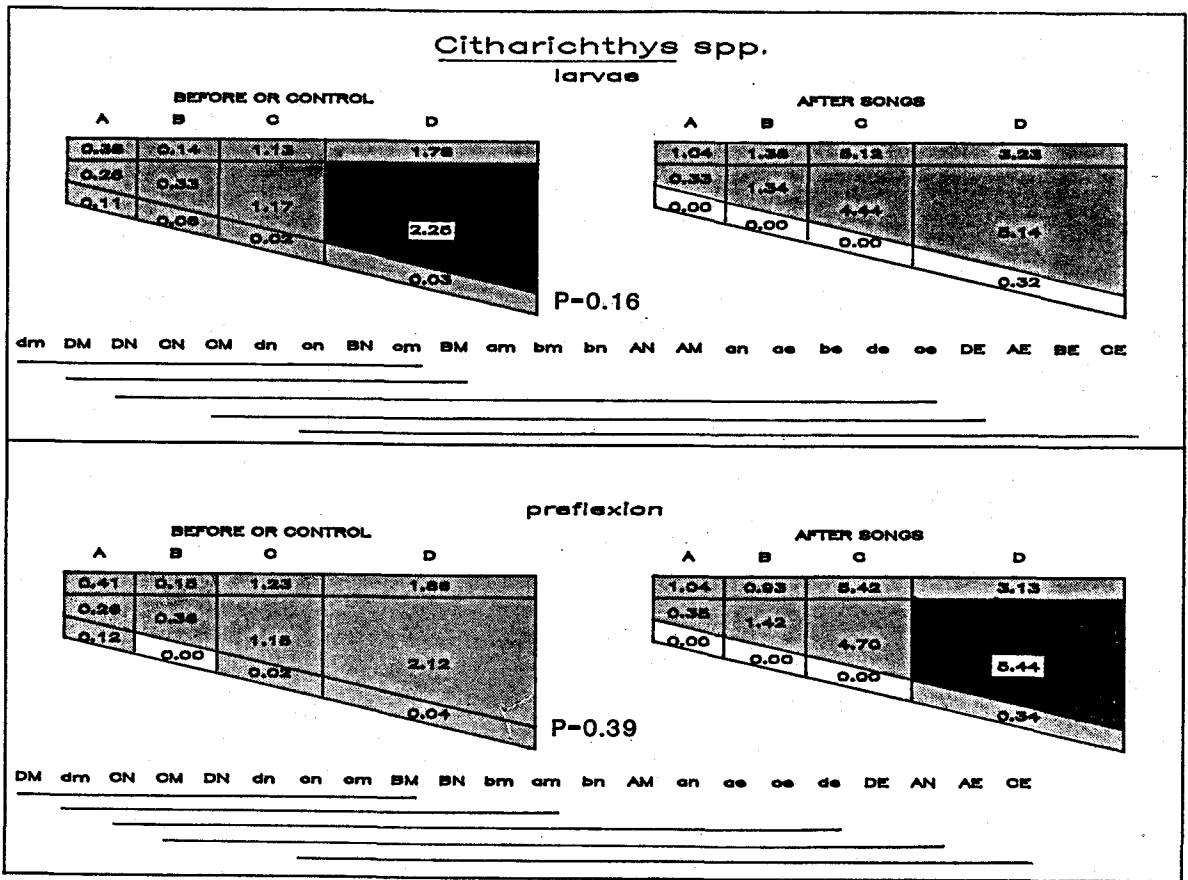


Figure D-338. Cross-shelf distributional patterns for Citharichthys spp. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., AM=Block A midwater) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods). Only strata in which larvae occurred were tested. The results of the MANOVA are also shown.

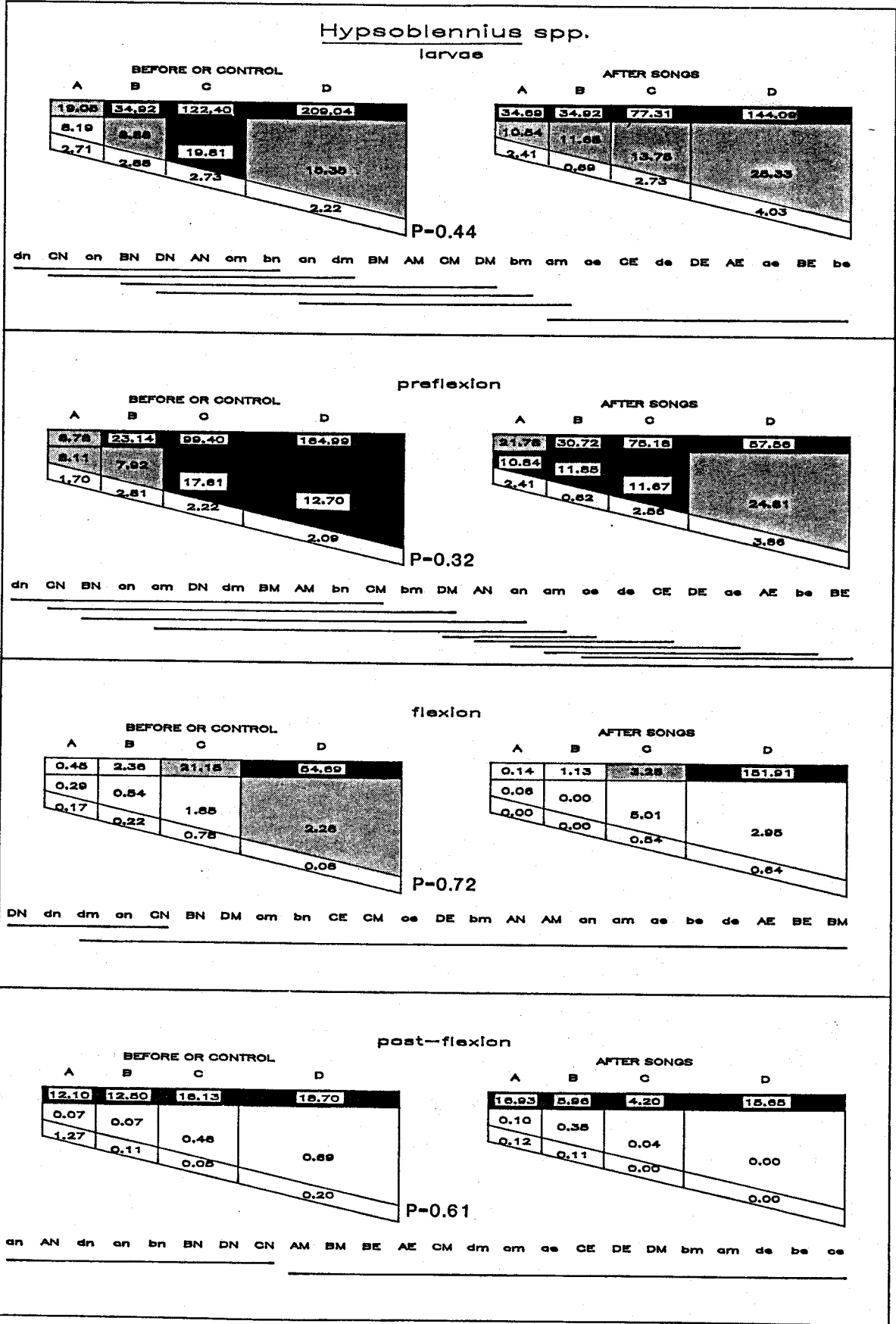
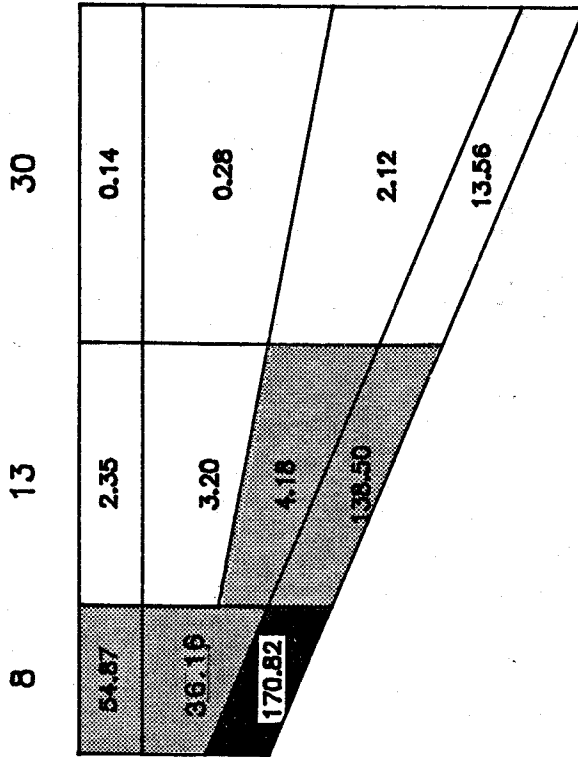


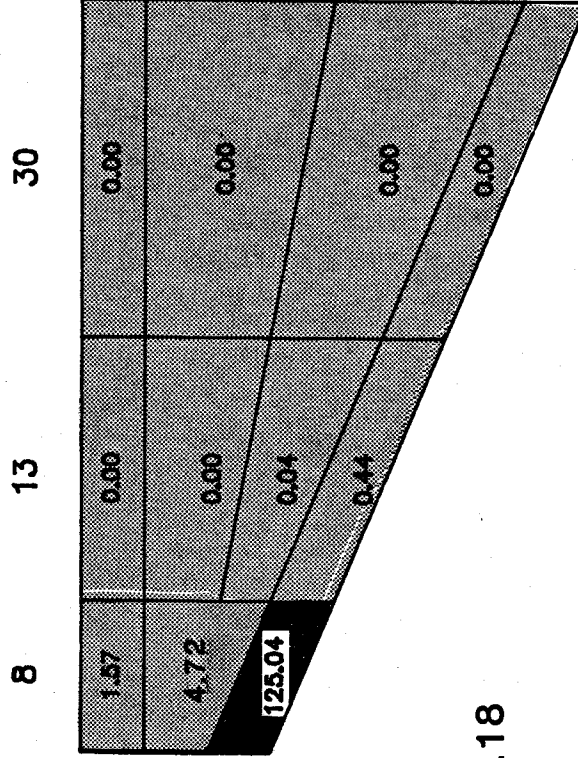
Figure D-349. Cross-shelf distributional patterns for Hypsoblennius spp. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., AM=Block A midwater) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods). Only strata in which larvae occurred were tested. The results of the MANOVA are also shown.

# Acartia clausi

BEFORE OR CONTROL



AFTER SONGS



P=0.18

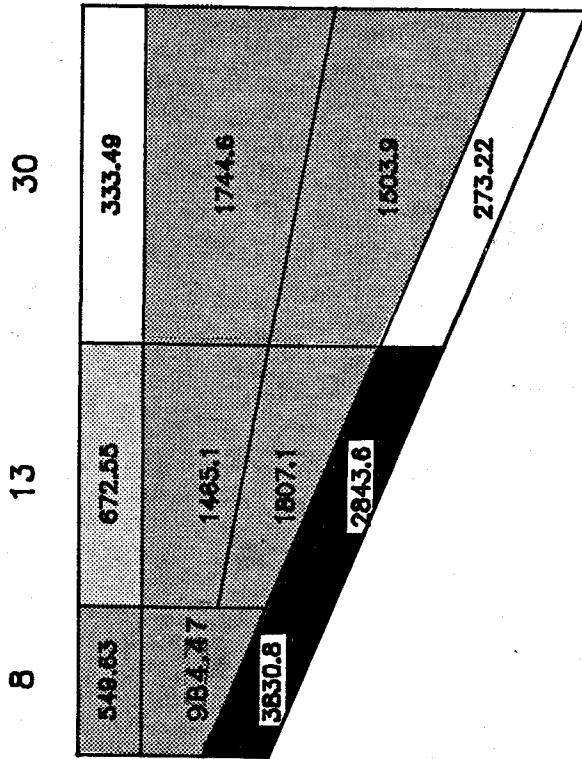
8e 8E 8s 13e 13E 8H 13H 13L 13S 30E 30H 30L 30S 13I 30e 13h 30I 30h 30s

Figure D-370. Cross-shelf distributional patterns for *Acartia clausi*. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., 8E = 8 m epibenthos) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods). Only strata in which larvae occurred were tested. The results of the MANOVA are also shown. D-371

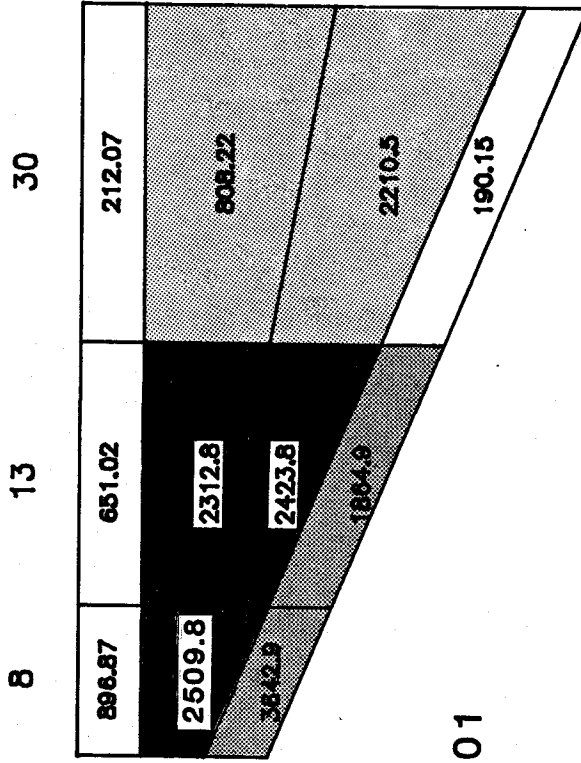


# Acartia tonsa

BEFORE OR CONTROL



AFTER SONGS



P=0.01

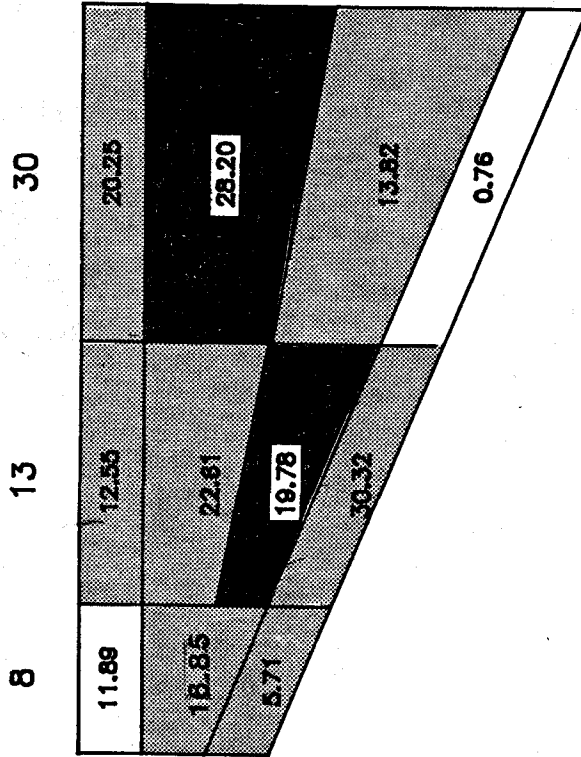
13L 8e 13H 8H 13e 13I 13E 8E 13h 8h 30I 30L 30h 30H 8s 13s 8S 13S 30s 30S 30e 30E

Figure D-382. Cross-shelf distributional patterns for *Acartia tonsa*. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., 8E = 8 m epibenthos) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods). Only strata in which larvae occurred were tested. The results of the MANOVA are also shown.

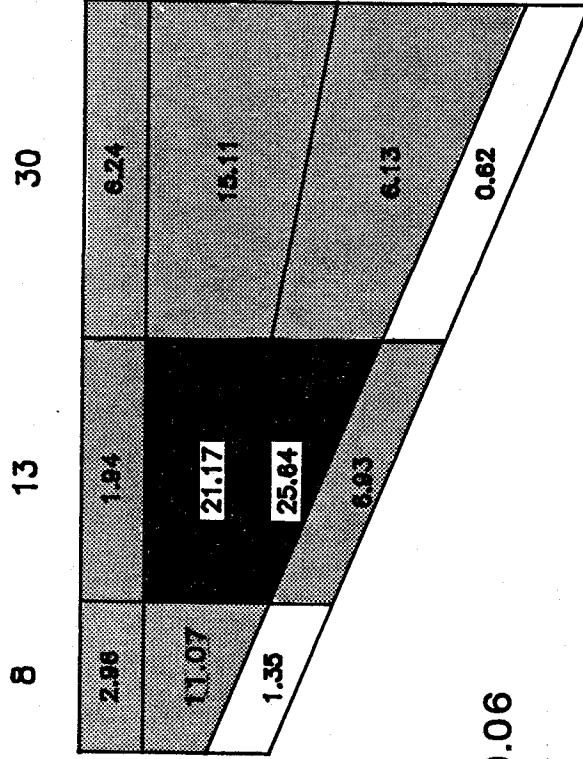


# Cirriped nauplii

BEFORE OR CONTROL



AFTER SONGS



P=0.06

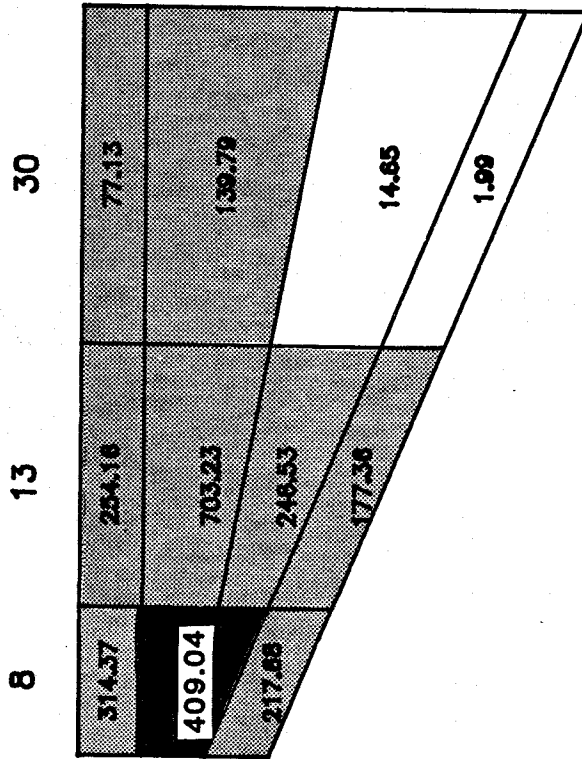
13H 13L 13I 30h 13h 13e 30I 30H 8H 30L 8h 13E 30S 30s 8S 13S 13s 8e 8s 8E 30E 30e

Figure D-388. Cross-shelf distributional patterns for cirriped nauplius. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., 8E = 8 m epibenthos) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods. Only strata in which larvae occurred were tested. The results of the MANOVA are also shown. D-389

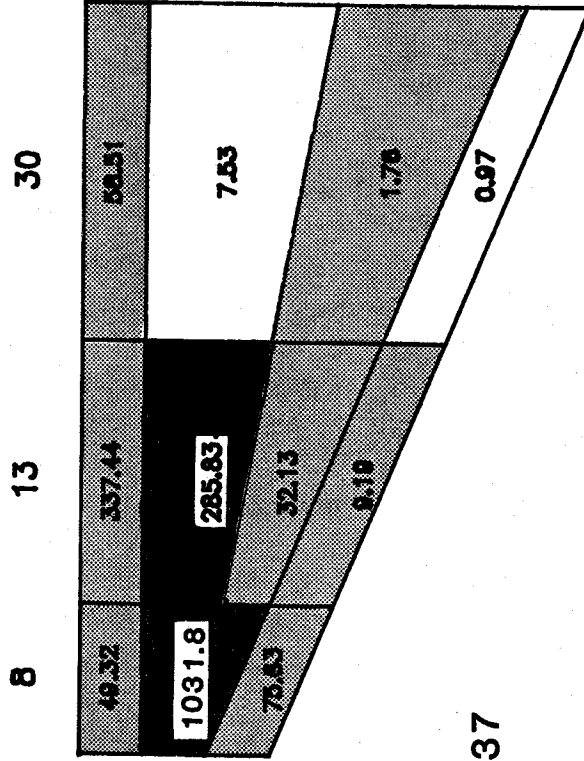


# Podon polyphemoides

BEFORE OR CONTROL



AFTER SONGS



P=0.37

8H 8h 13H 8s 13S 13h 13l 13L 8e 8E 30s 13e 30L 13E 30h 30S 30I 30H 30e 30E

Figure D-400. Cross-shelf distributional patterns for Podon polyphemoides. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., 8E = 8 m epibenthos) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods. Only strata in which larvae occurred were tested. The results of the MANOVA are also shown.

D-401

# Evadne nordmanni

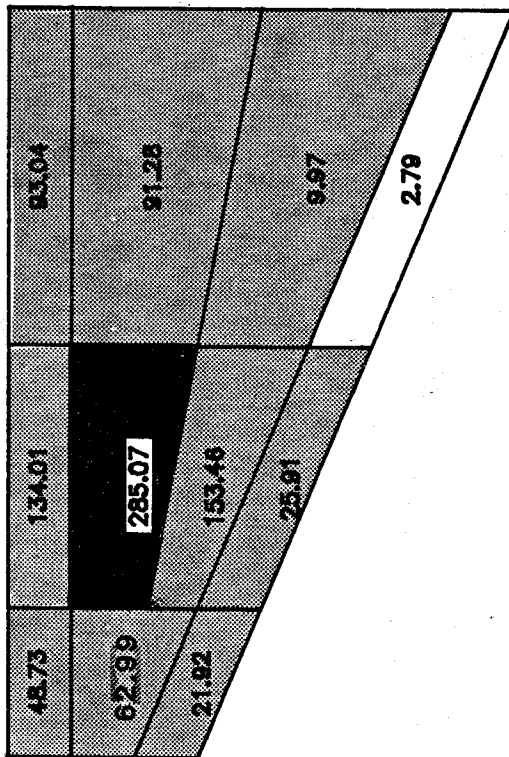
BEFORE OR CONTROL

AFTER SONGS

8

13

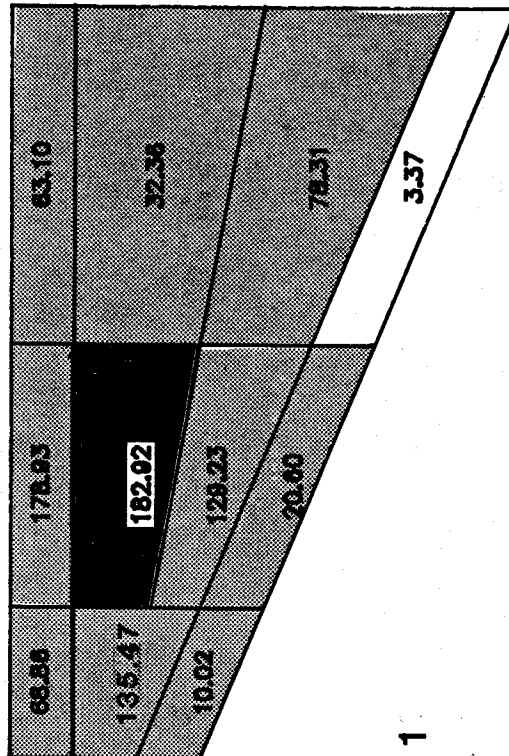
30



8

13

30



P=0.11

13H 13h 30s 13L 13S 13s 30h 8H 13I 30S 8h 8S 30H 13E 8e 13e 30L 30I 8E 30e 30E

\_\_\_\_\_

\_\_\_\_\_

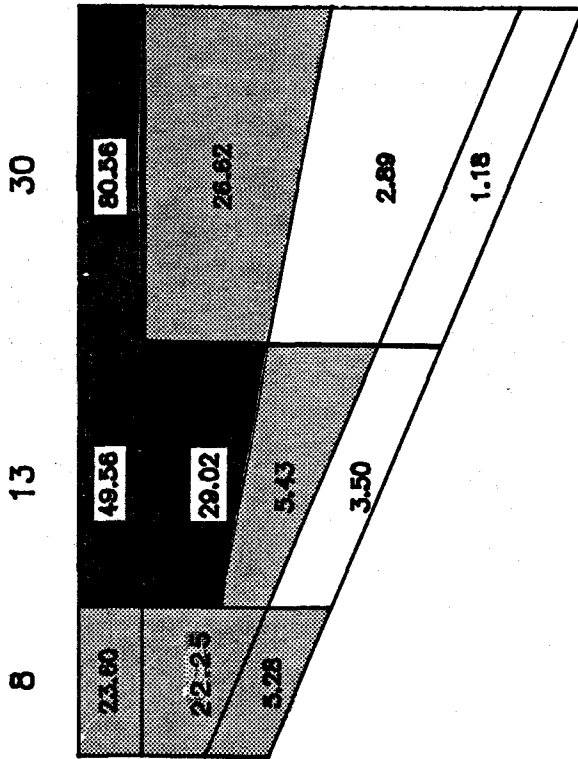
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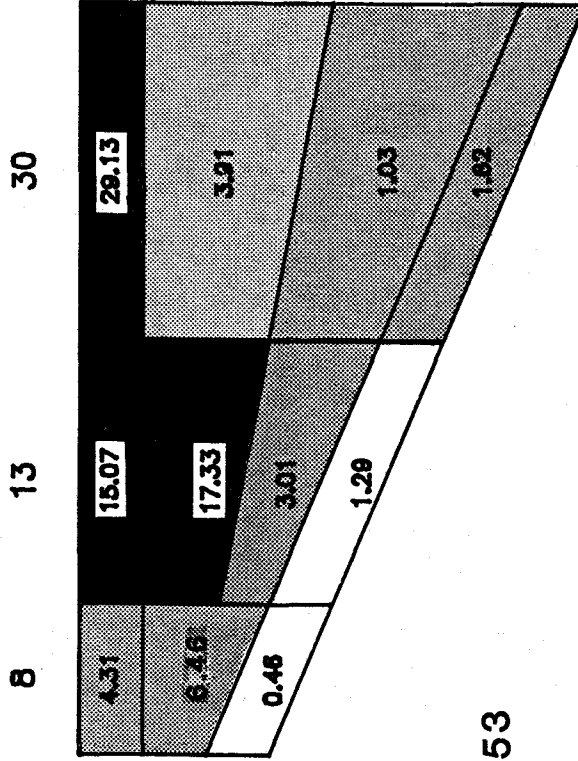
Figure D-406. Cross-shelf distributional patterns for *Evadne nordmanni*. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., 8E = 8 m epibenthos) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods). Only strata in which larvae occurred were tested. The results of the MANOVA are also shown. D-407

# Evadne spinifera

BEFORE OR CONTROL



AFTER SONGS



P=0.53

30s 13s 30S 13h 13S 30h 8s 8S 8h 13L 8H 13I 30L 30E 8e 13e 13E 8E 30I 30e

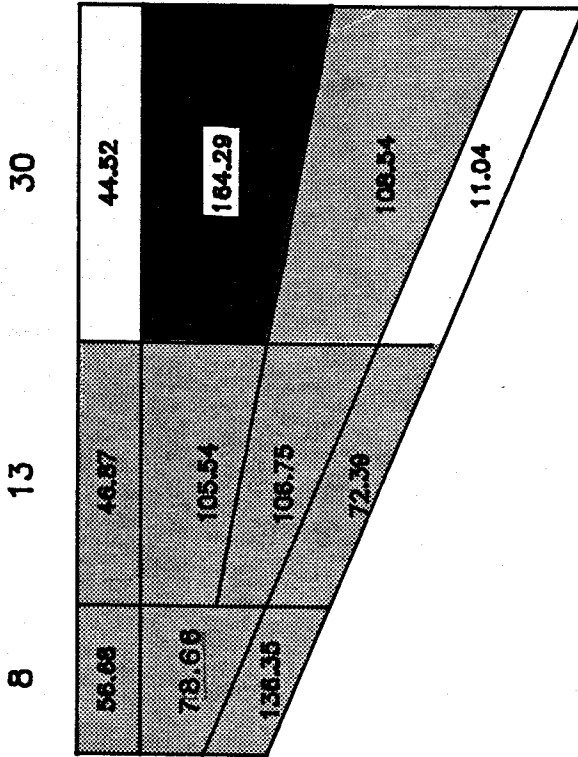
Figure D-412. Cross-shelf distributional patterns for *Evadne spinifera*. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., 8E = 8m epibenthos) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods). Only strata in which larvae occurred were tested. The results of the MANOVA are also shown.



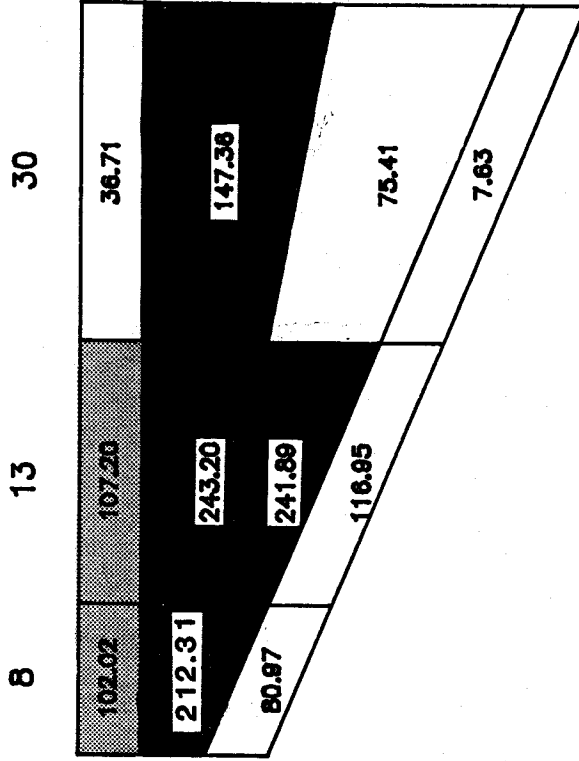


# Cyphonautes larvae

BEFORE OR CONTROL



AFTER SONGS



P=0.03

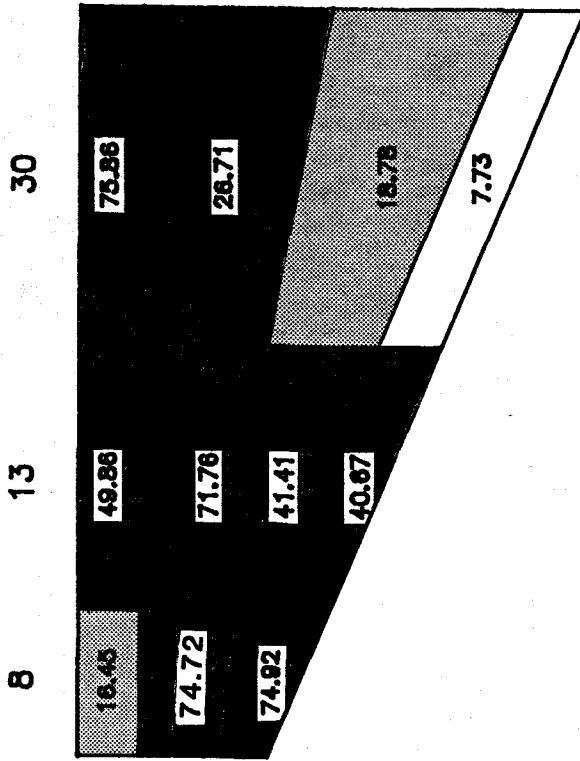
13H 8H 13L 30H 13h 13l 30l 8s 8e 8s 13S 13s 13e 30L 8E 30s 13E 30S 30e 30E

Figure D-430. Cross-shelf distributional patterns for Cyphonautes larvae. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., 8E = 8 m epibenthos) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods). Only strata in which larvae occurred were tested. The results of the MANOVA are also shown. D-431

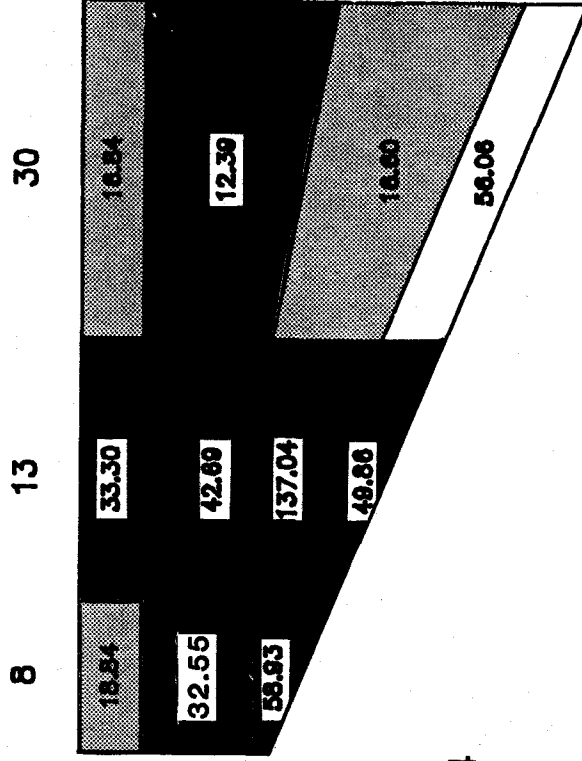


# Labidocera trispinosa

BEFORE OR CONTROL



AFTER SONGS



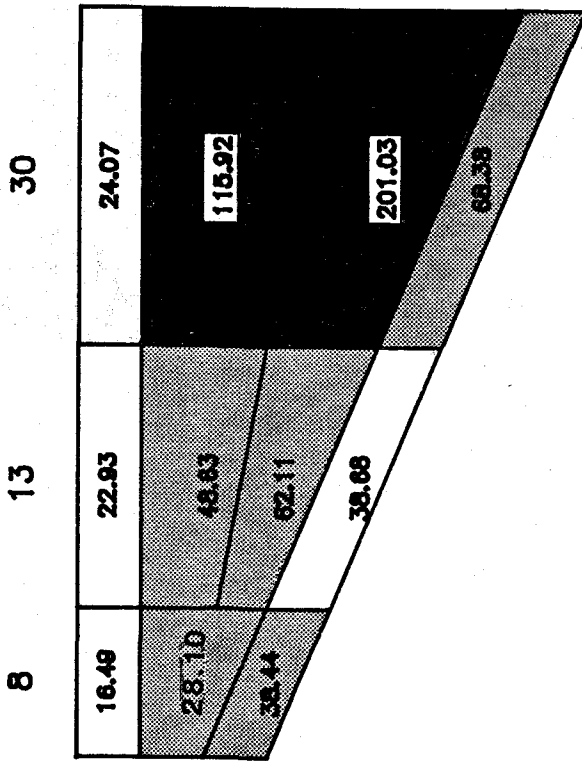
P=0.24

13L 13H 8e 13h 13e 8H 8E 13E 13I 8h 13S 30h 13s 30s 30H 30L 8s 30I 30S 8S 30E 30e

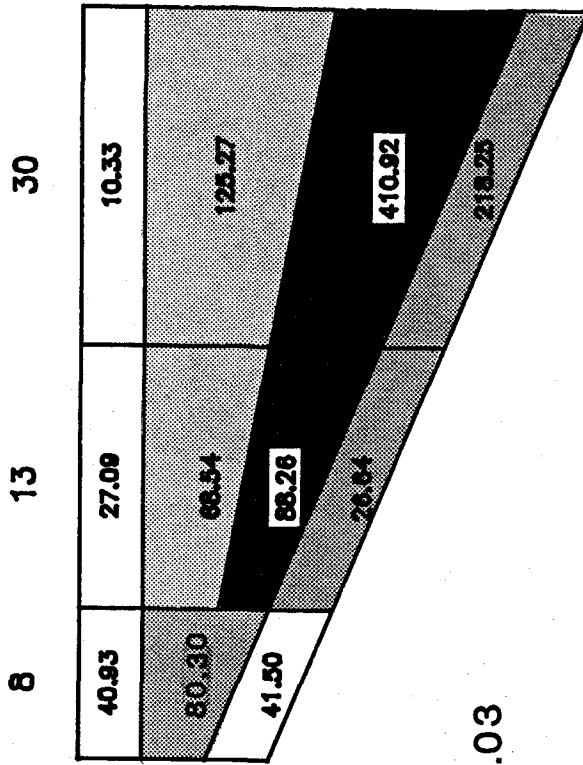
Figure D-436. Cross-shelf distributional patterns for *Labidocera trispinosa*. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., 8E = 8 m epibenthos) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods. Only strata in which larvae occurred were tested. The results of the MANOVA are also shown. D-437

# Oithona plumifera

BEFORE OR CONTROL



AFTER SONGS



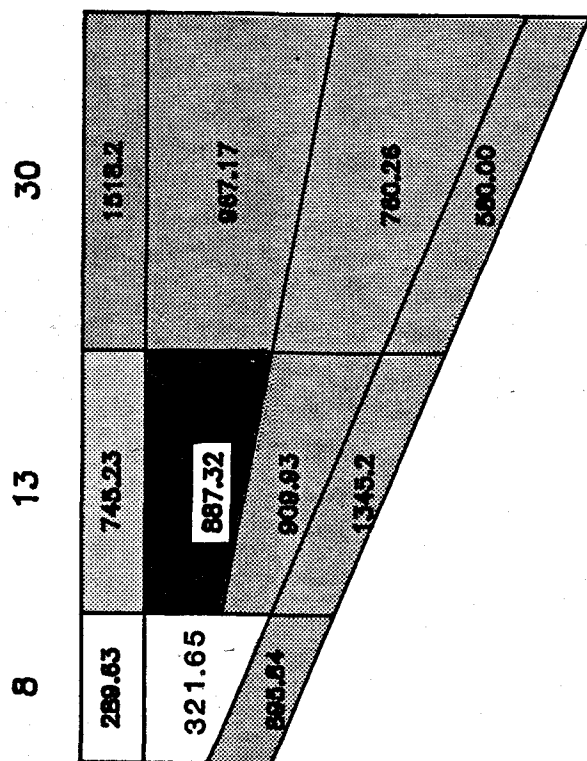
P=0.03

30L 30I 30h 13L 13H 30E 30H 13I 30e 8H 8e 13h 8h 13E 13e 8S 8E 30s 8s 13s 30S

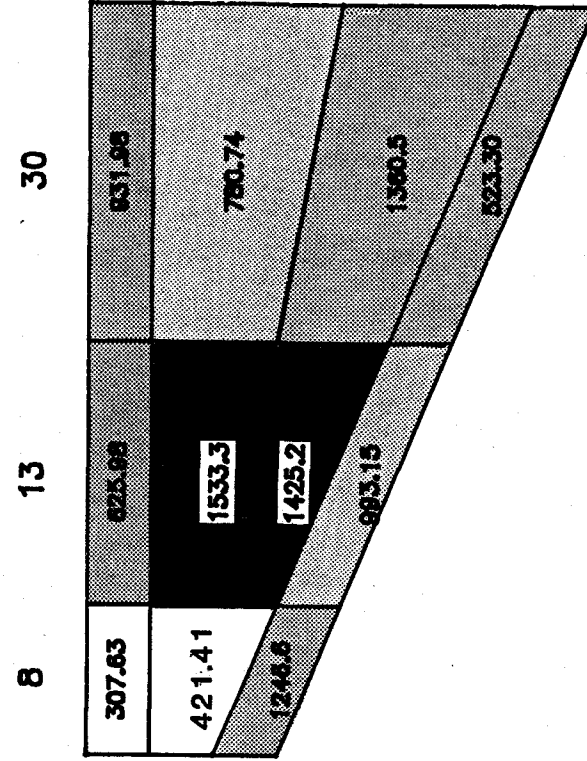
Figure D-442. Cross-shelf distributional patterns for *Oithona plumifera*. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., 8E = 8 m epibenthos) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods. Only strata in which larvae occurred were tested. The results of the MANOVA are also shown. D-443

# Paracalanus parvus

BEFORE OR CONTROL



AFTER SONGS



P=0.89

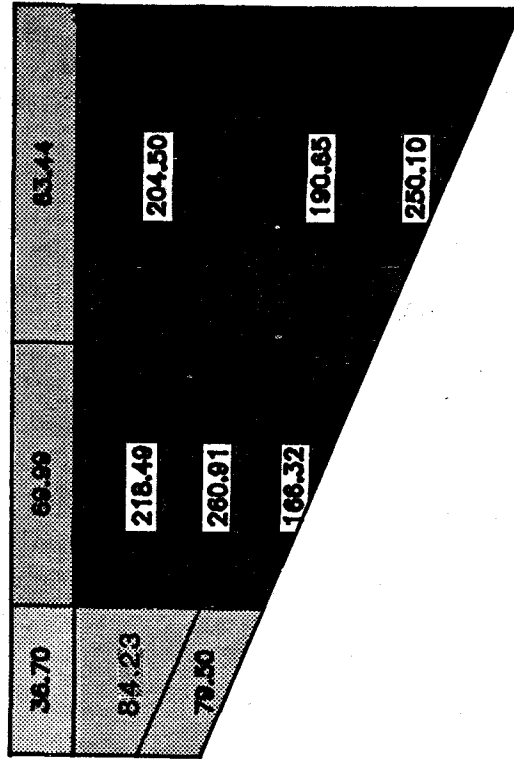
13L 13H 13h 30s 13E 13e 30L 13l 8E 8e 30H 30h 13s 30s 30E 8H 8h 8s 8S

Figure D-448. Cross-shelf distributional patterns for *Paracalanus parvus*. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., 8E = 8 m epibenthos) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods. Only strata in which larvae occurred were tested. The results of the MANOVA are also shown. D-449

# Sagitta euneritica

BEFORE OR CONTROL

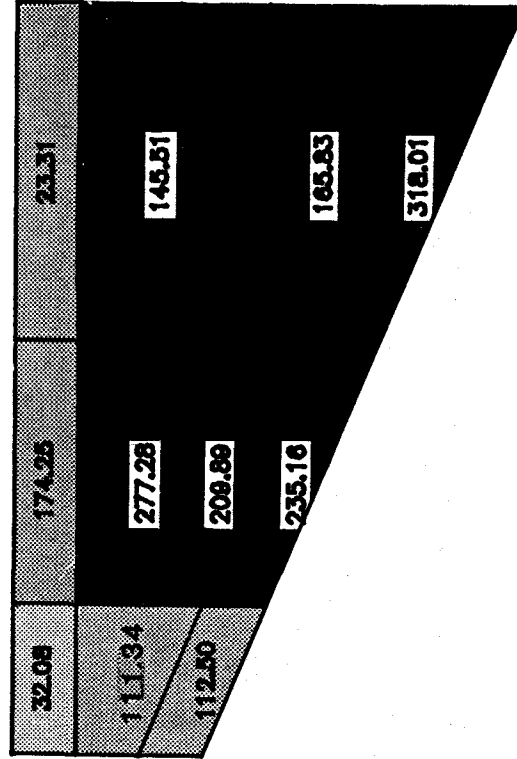
8 13 30



P=0.13

AFTER SONGS

8 13 30

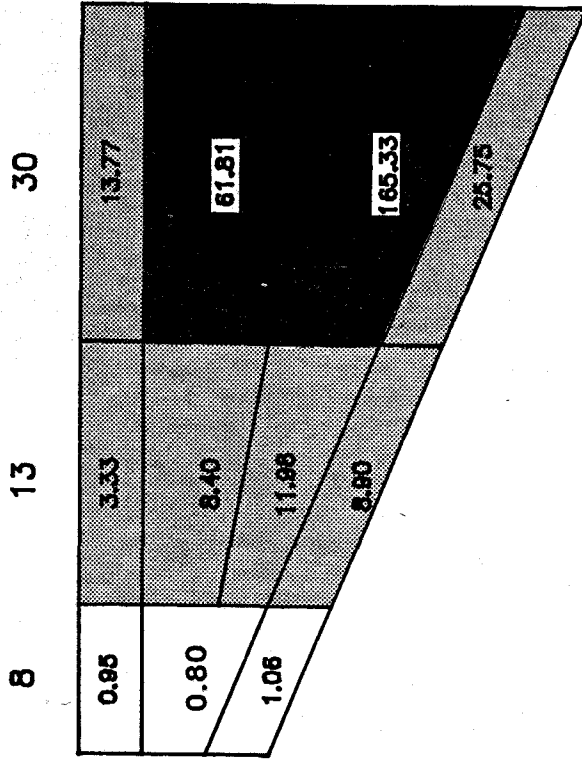


30E 30e 30L 13E 13I 30H 13e 30I 30h 13L 13H 13h 8e 30s 13s 8E 8H 13S 8h 30S 8S 8s

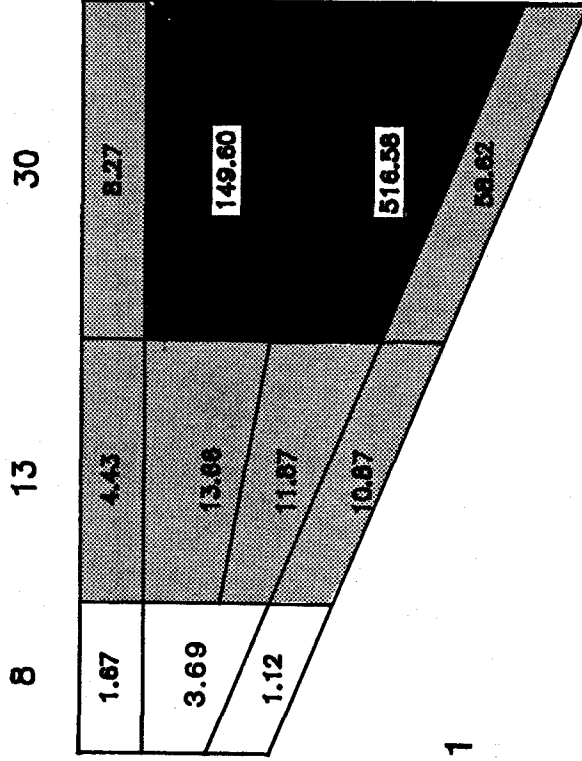
Figure D-454. Cross-shelf distributional patterns for *Sagitta euneritica*. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., 8E = 8 m epibenthos) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods. Only strata in which larvae occurred were tested. The results of the MANOVA are also shown. D-455

# Calanus pacificus

BEFORE OR CONTROL



AFTER SONGS



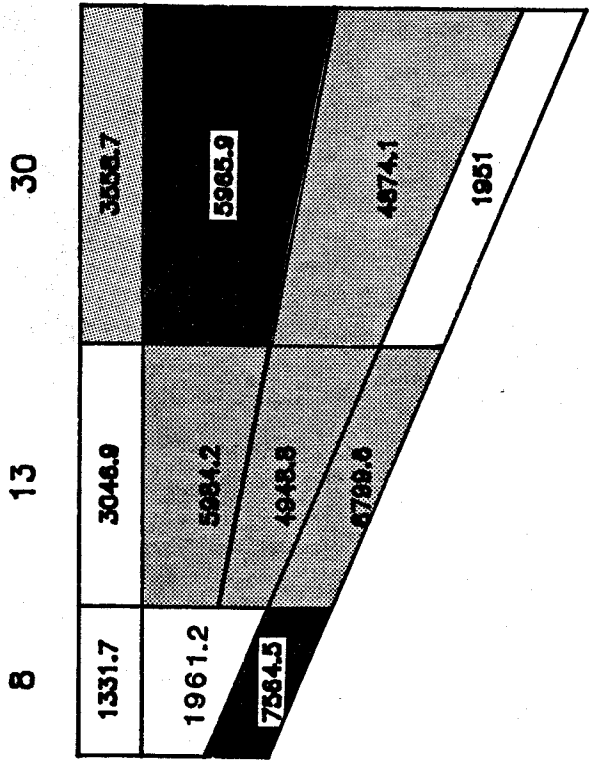
P=0.11

30L 30I 30H 30e 13H 30E 13I 13h 30s 13L 13E 13e 13s 30S 13s 8H 8e 8E 8s 8S 8h

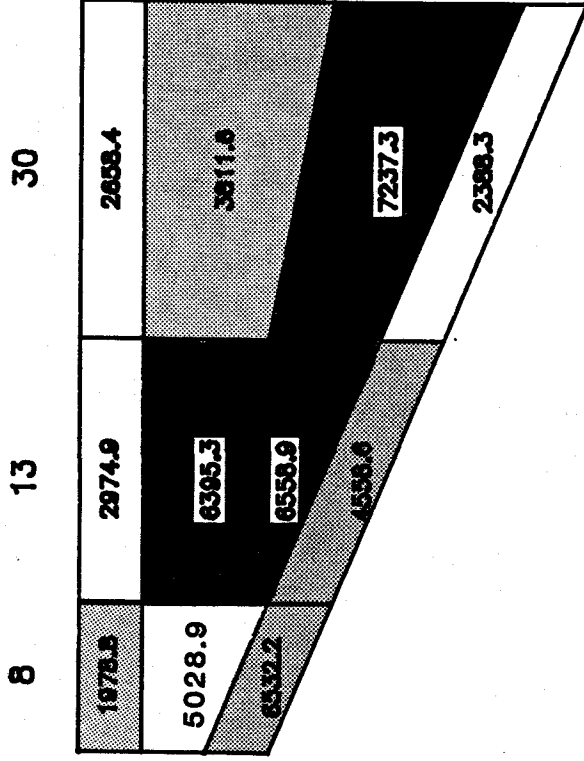
Figure D-460. Cross-shelf distributional patterns for *Calanus pacificus*. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., 8E = 8 m epibenthos) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods. Only strata in which larvae occurred were tested. The results of the MANOVA are also shown. D-461

# Total zooplankton

BEFORE OR CONTROL



AFTER SONGS



P=0.01

13L 13H 30L 8e 13h 30I 13I 13e 30H 13E 8E 30s 8H 13S 13s 30S 30E 8h 30e 8S 8s

Figure D-466. Cross-shelf distributional patterns for Total zooplankton. Shading denotes strata groupings based on the results of the Bonferroni t-test. Strata designations are ordered from highest to lowest mean rank abundance. Strata not significantly separable are underlined. Upper case strata designations (e.g., 8E = 8 m epilimnion) are for SONGS in the After data set, lower case are strata in the Before-Control data set (SONGS in the Before period and Control in both periods. Only strata in which larvae occurred were tested. The results of the MANOVA are also shown. D-467