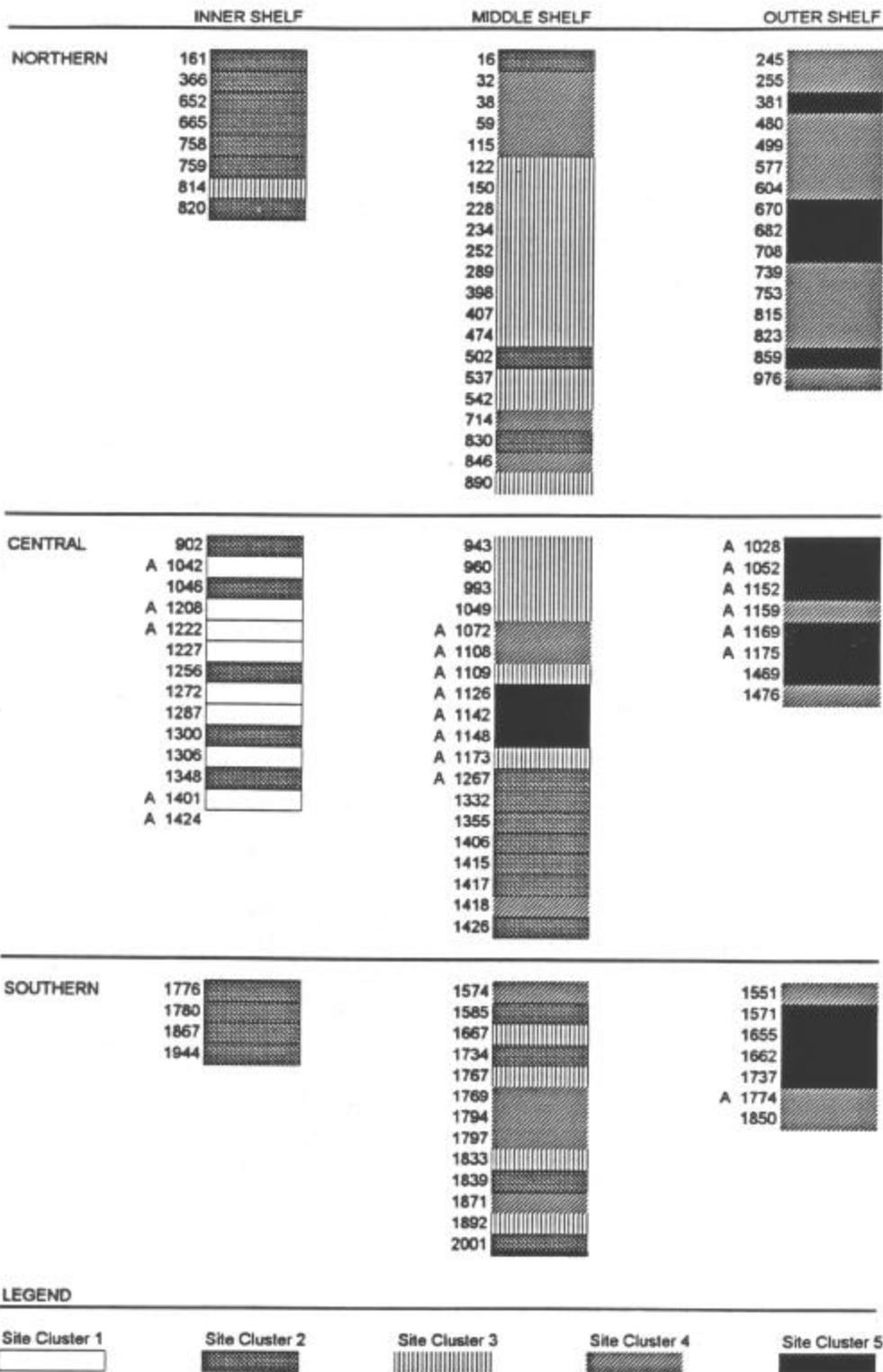
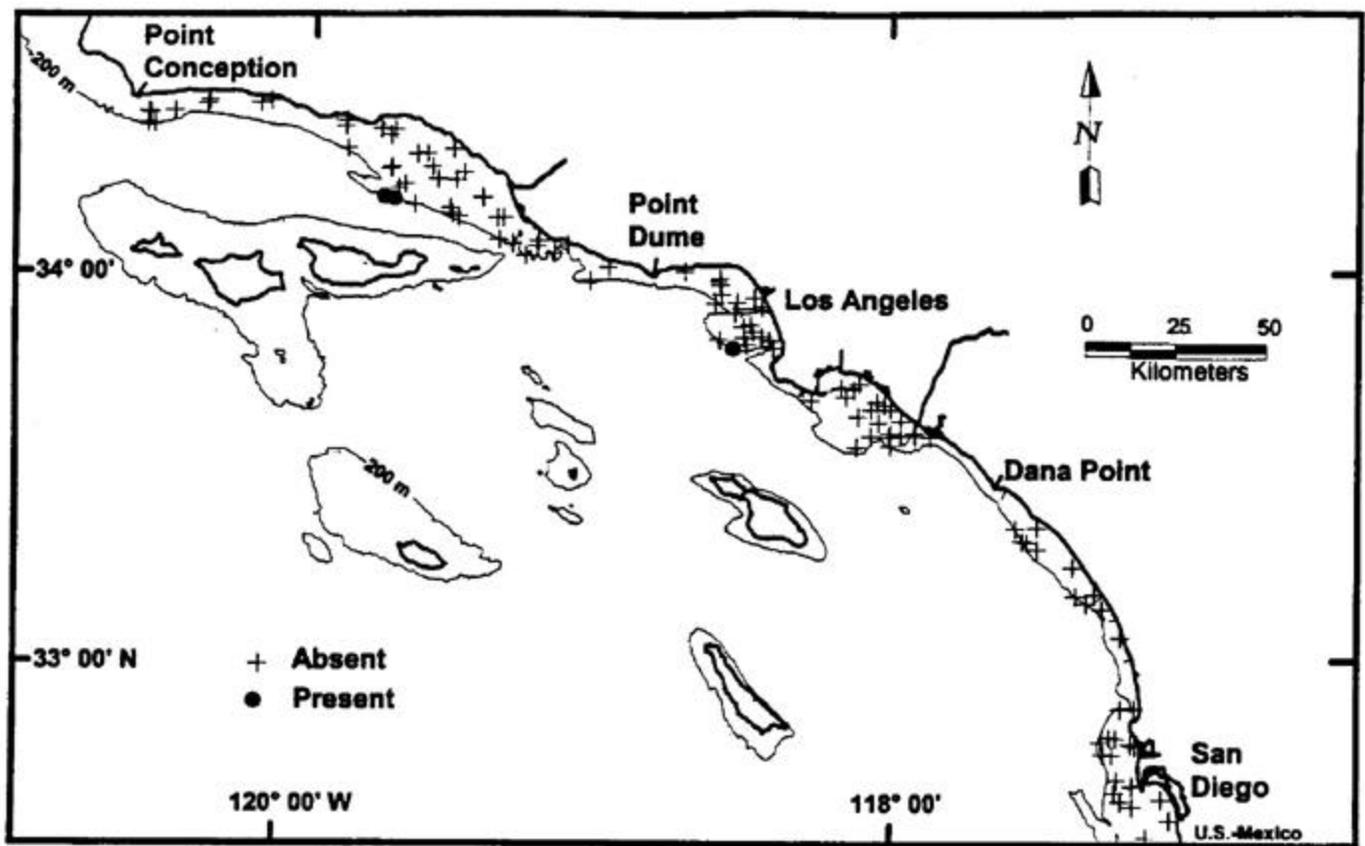


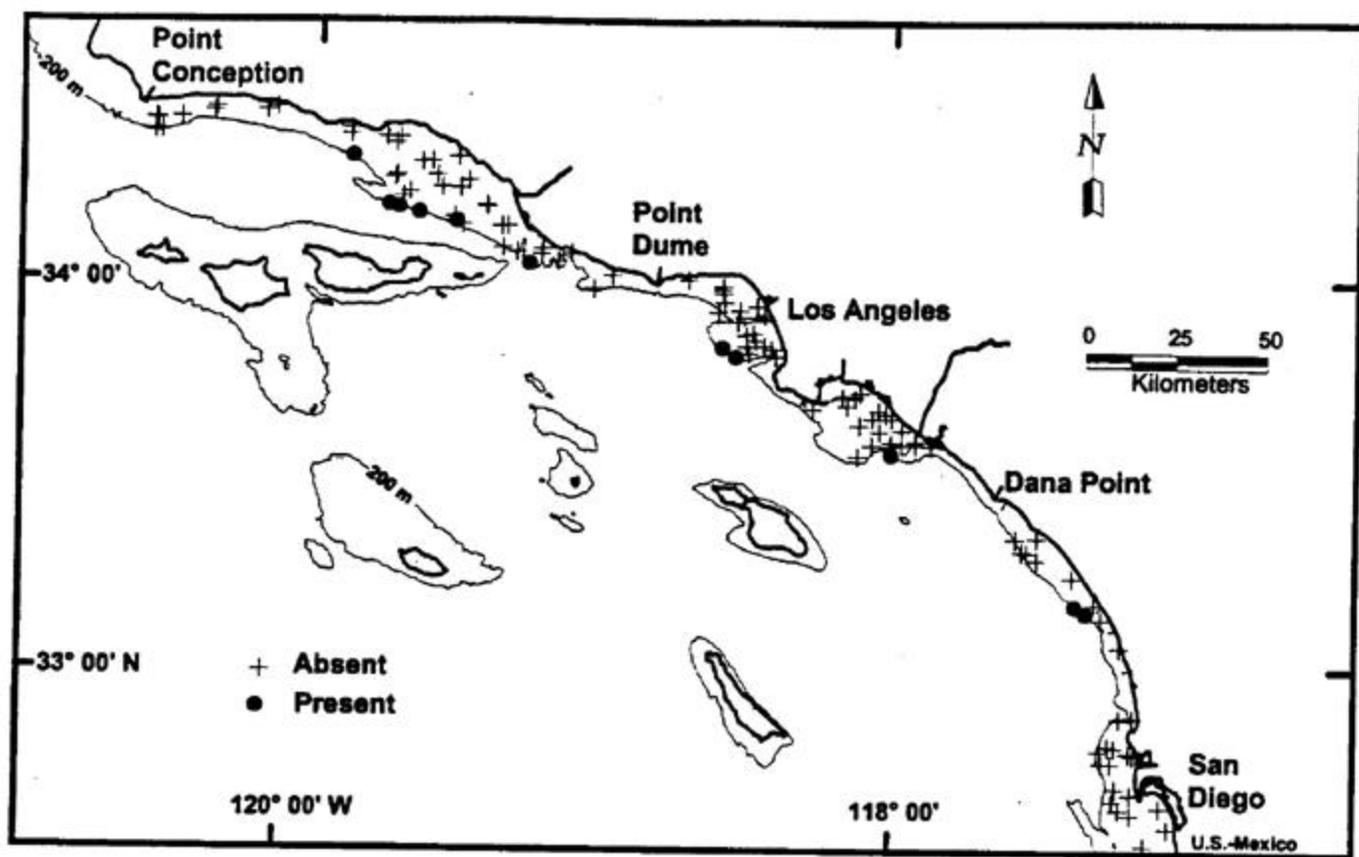
Appendix D1. Invertebrate abundance by subpopulation for the mainland shelf of southern California, July-August 1994: a) median and b) percent of area above Bight median.



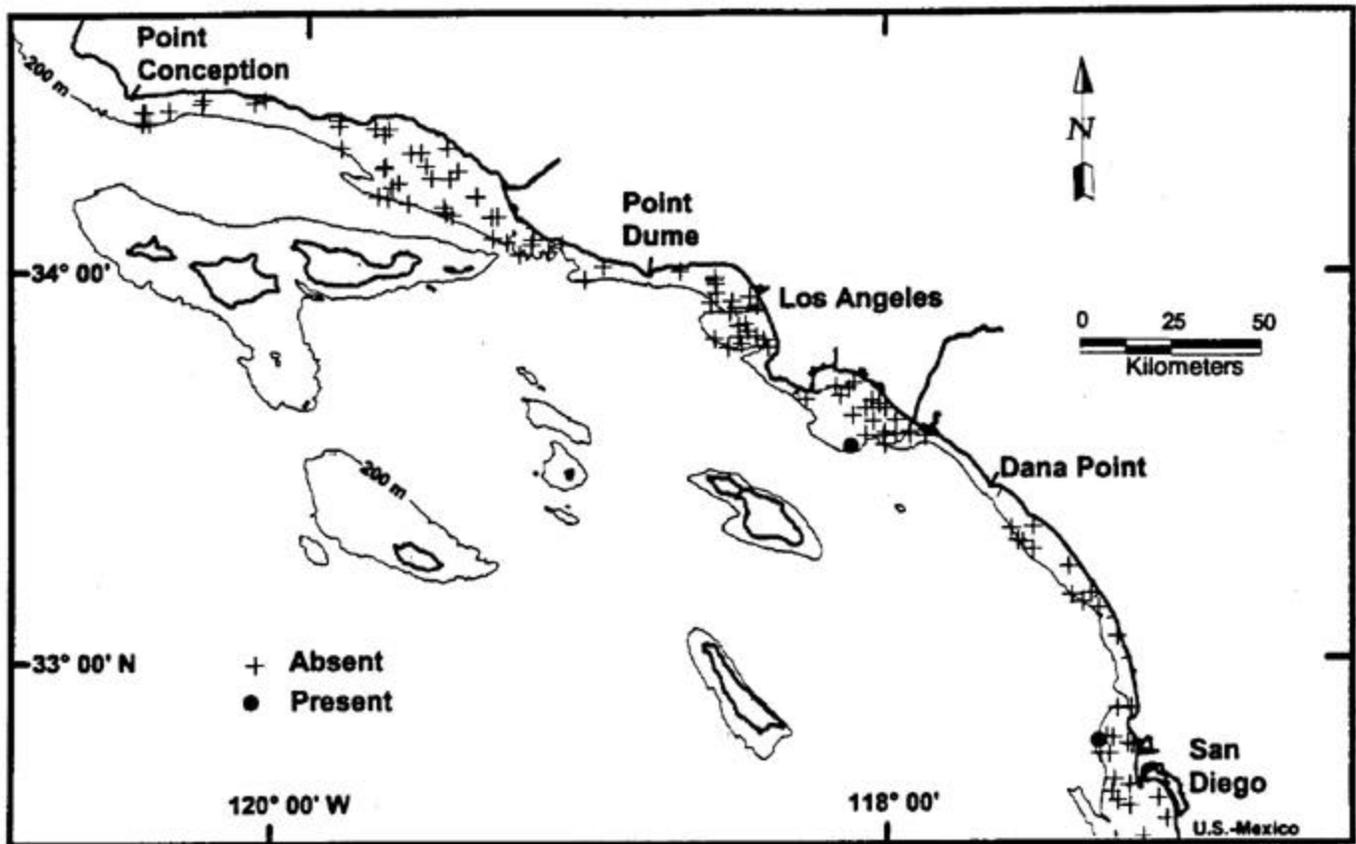
Appendix D30. Relationship of megabenthic invertebrate site clusters on the mainland shelf of southern California to depth and regional subpopulation categories, July-August 1994. A = Near potentially anthropogenic inputs. Numbers next to boxes represent station numbers.



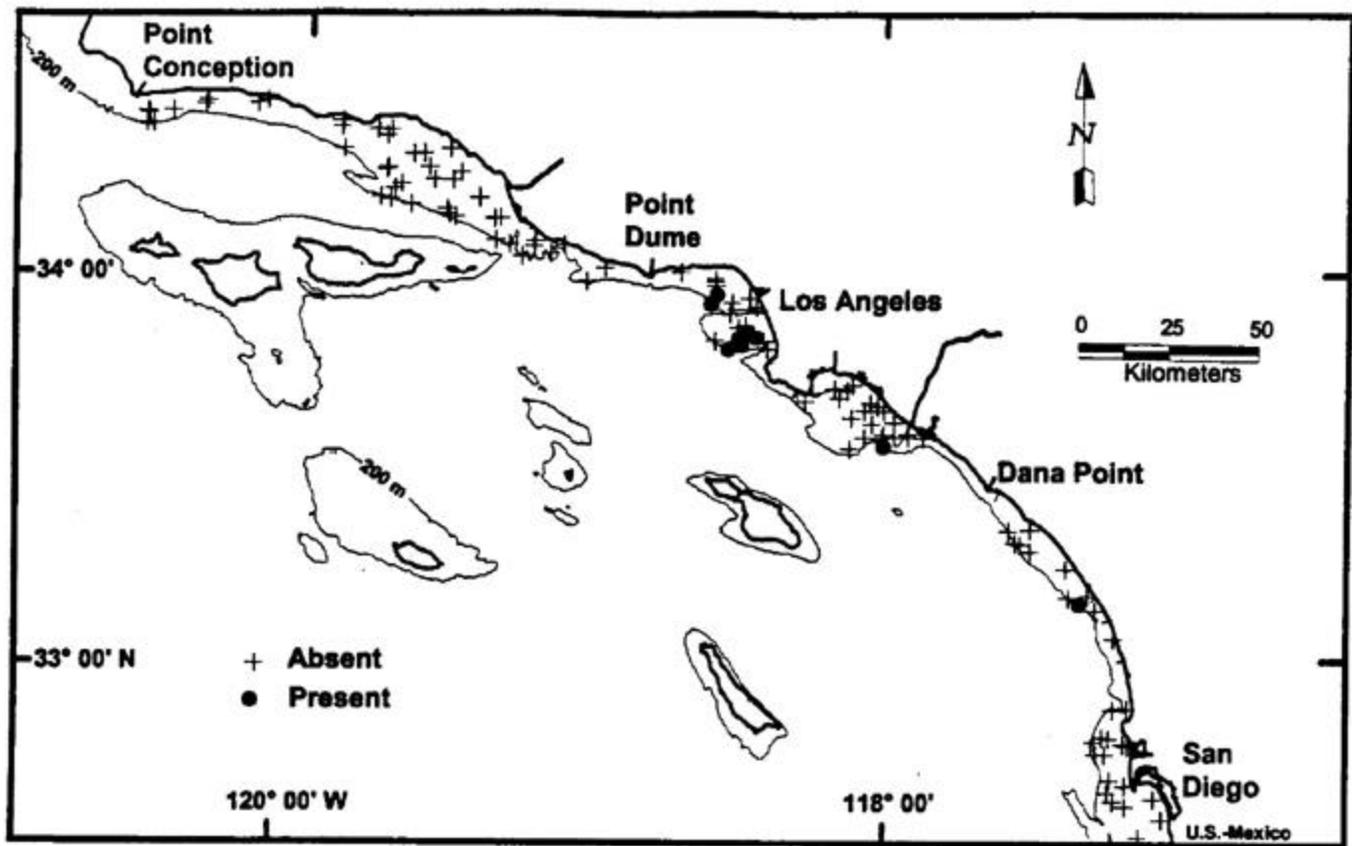
Appendix D29. Distribution of the Upper Slope Recurrent Group (Group 7) of megabenthic invertebrates on the mainland shelf of southern California at depths of 10-200 m, July-August 1994.



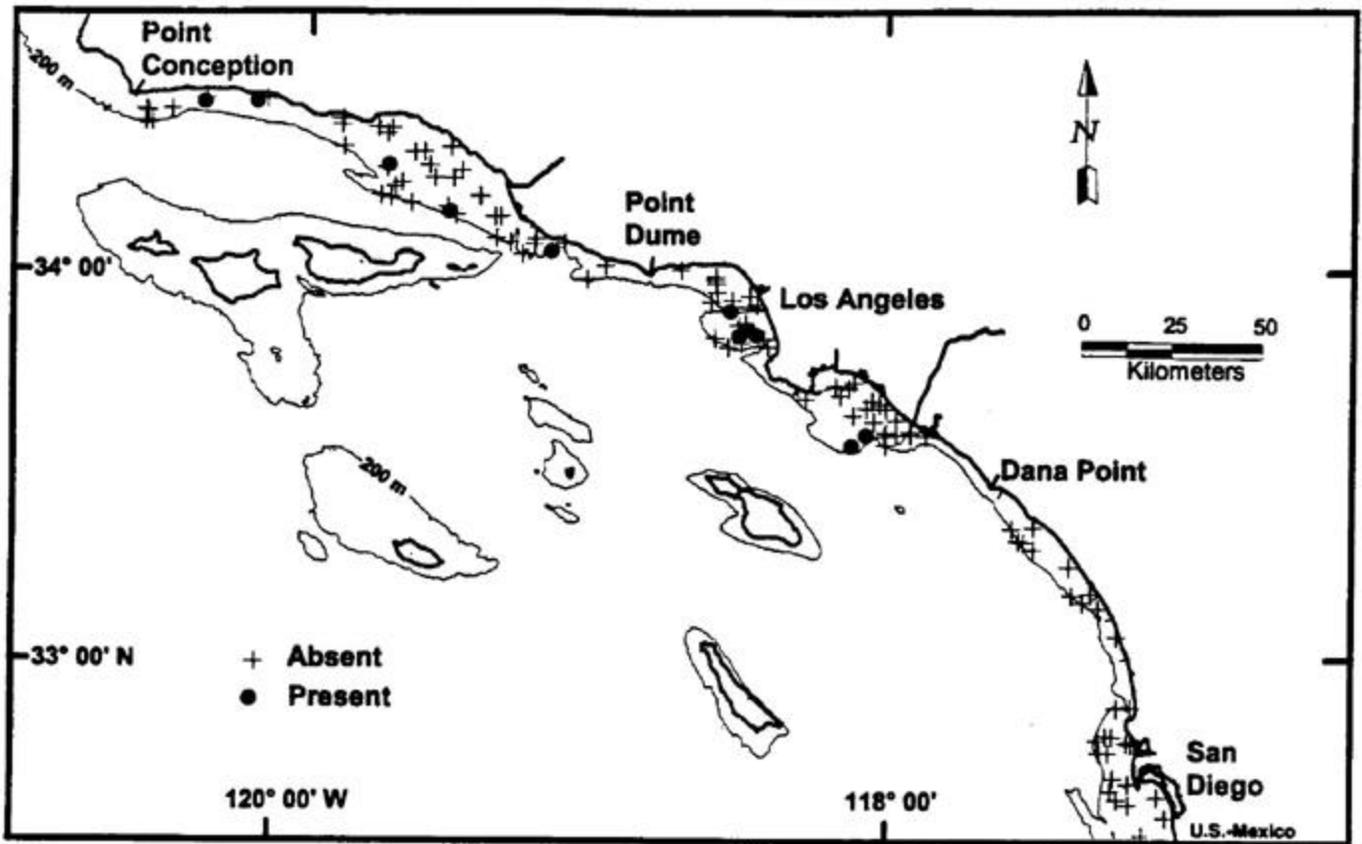
Appendix D28. Distribution of the Outer Shelf Recurrent Group (Group 6) of megabenthic invertebrates on the mainland shelf of southern California at depths of 10-200 m, July-August 1994.



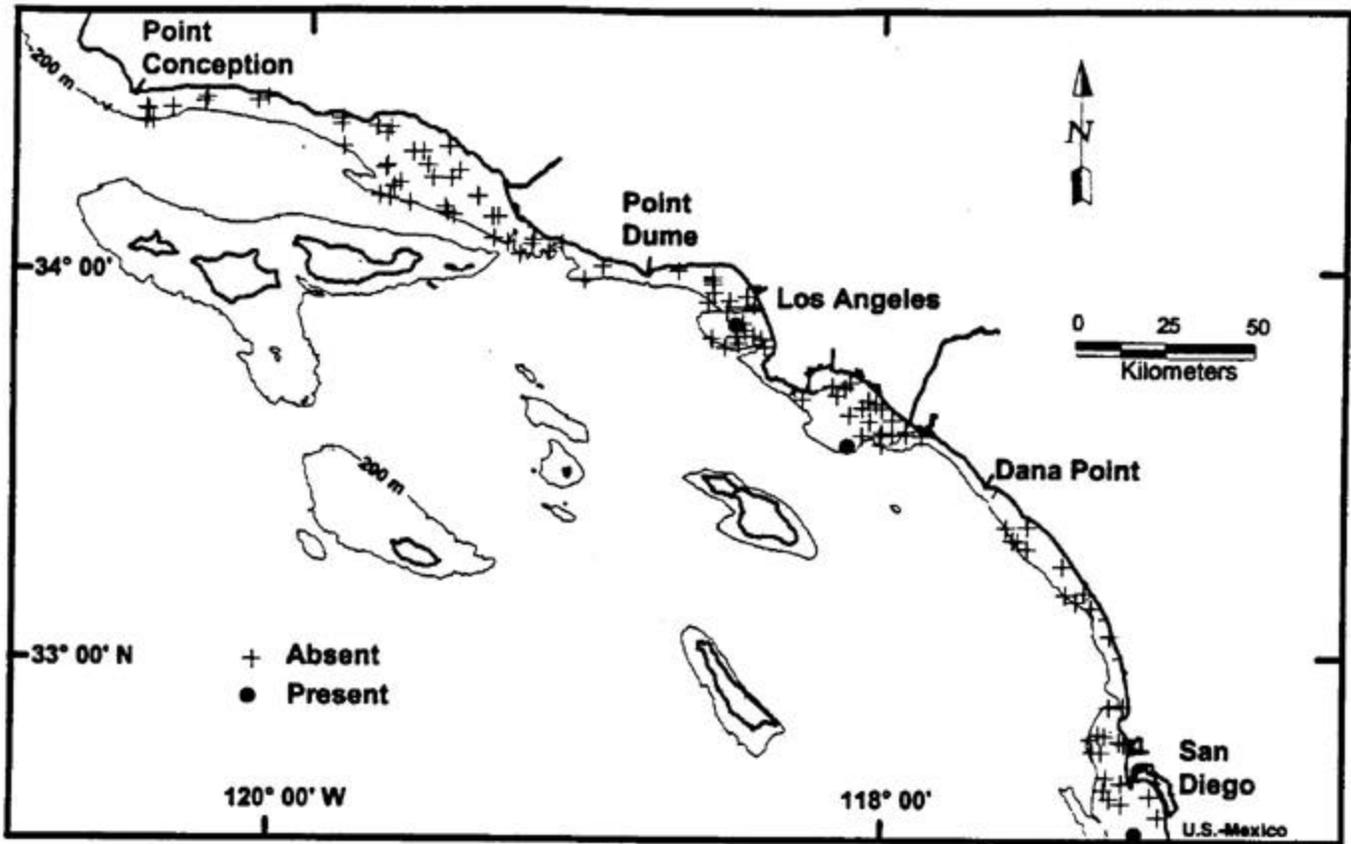
Appendix D27. Distribution of the Shelf Break Recurrent Group (Group 5) of megabenthic invertebrates on the mainland shelf of southern California at depths of 10-200 m, July-August 1994.



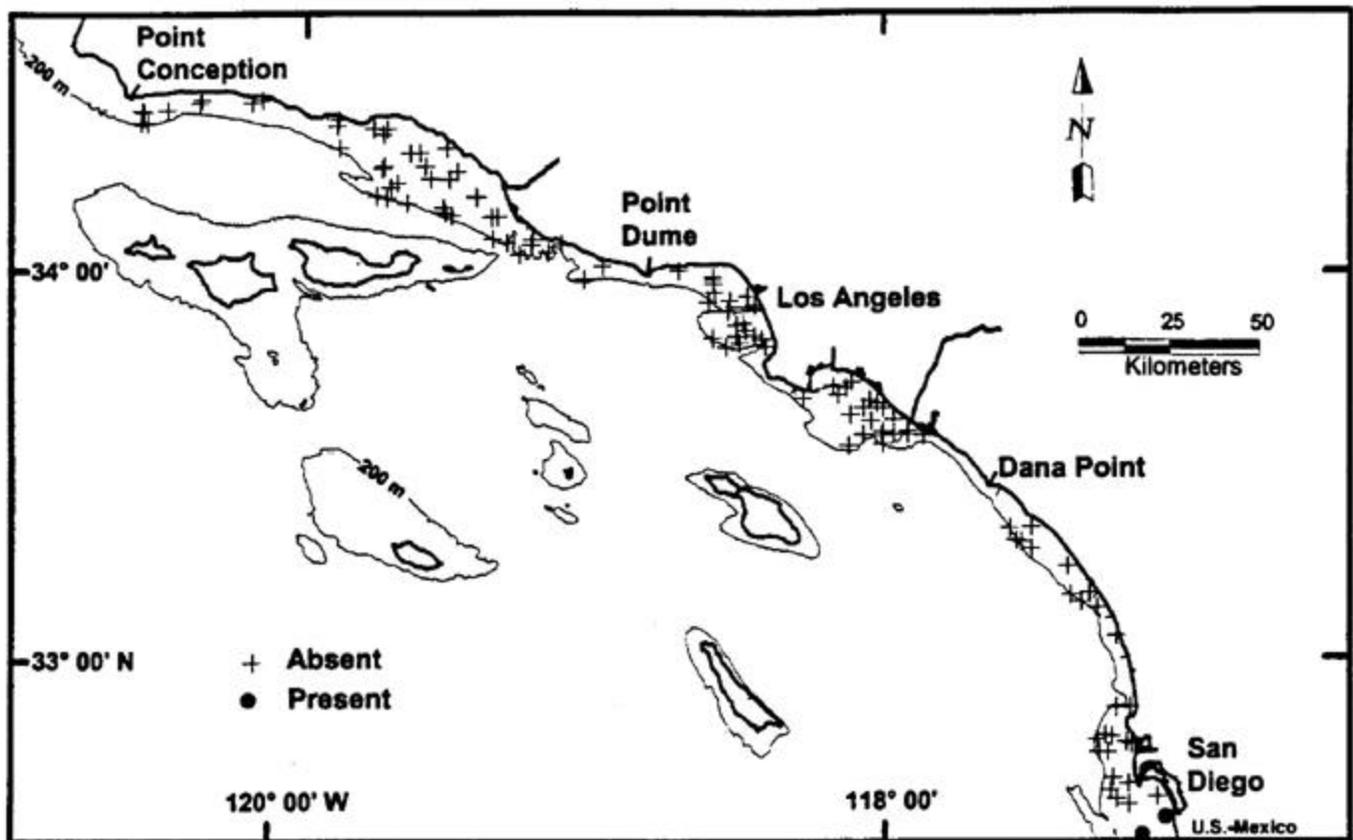
Appendix D26. Distribution of the Submarine Canyon Recurrent Group (Group 4) of megabenthic invertebrates on the mainland shelf of southern California at depths of 10-200 m, July-August 1994.



Appendix D25. Distribution of the Middle/Outer Shelf Recurrent Group (Group 3) of megabenthic invertebrates on the mainland shelf of southern California at depths of 10-200 m, July-August 1994.

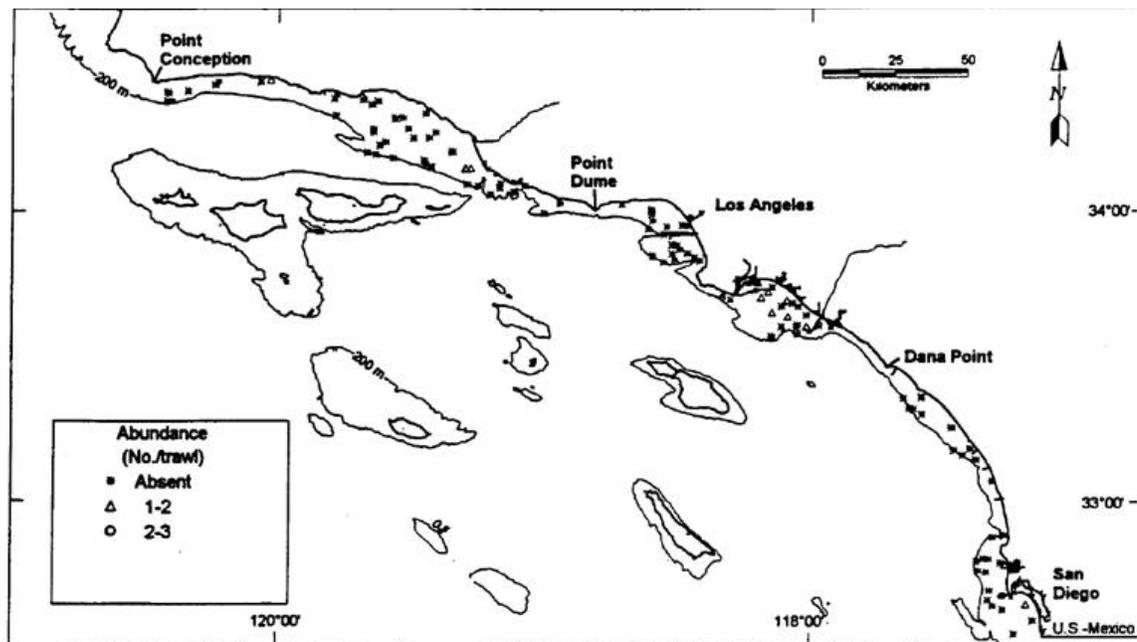


Appendix D24. Distribution of the Middle Shelf Recurrent Group (Group 2) of megabenthic invertebrates on the mainland shelf of southern California at depths of 10-200 m, July-August 1994.

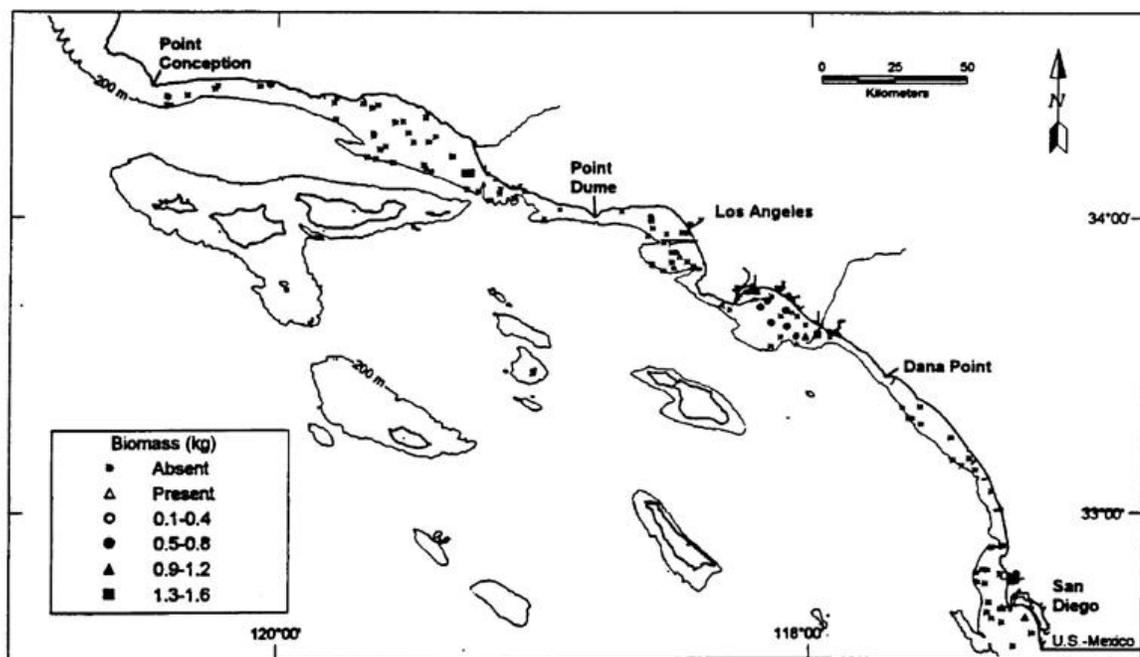


Appendix D23. Distribution of the Inner/Middle Shelf Recurrent Group (Group 1) of megabenthic invertebrates on the mainland shelf of southern California at depths of 10-200 m, July-August 1994.

(a)

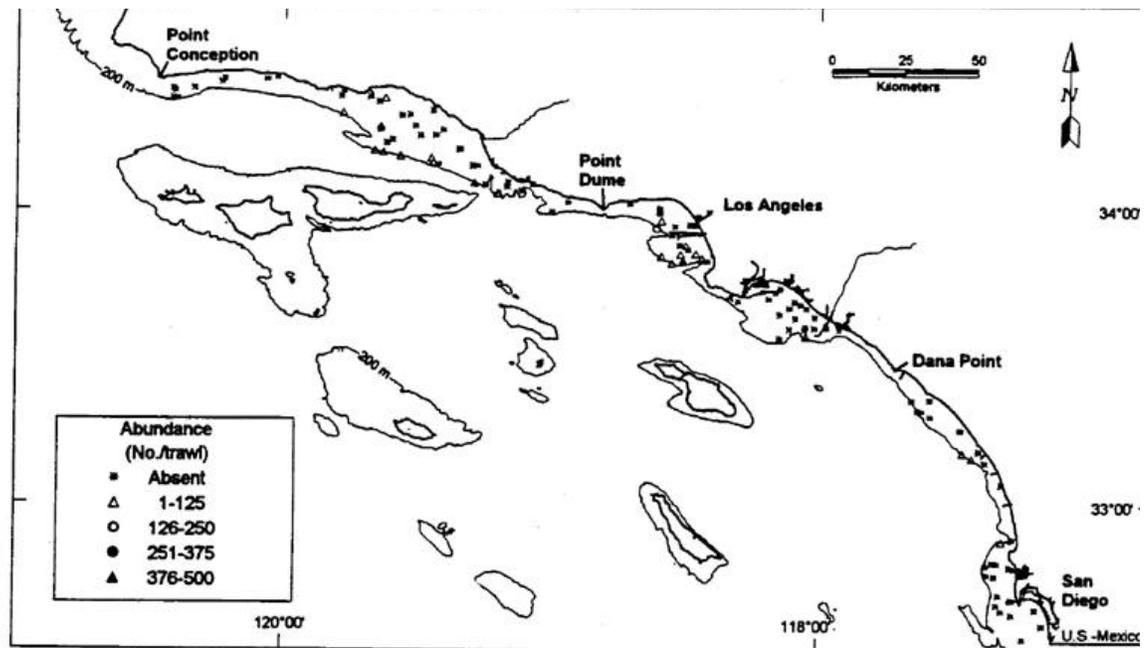


(b)

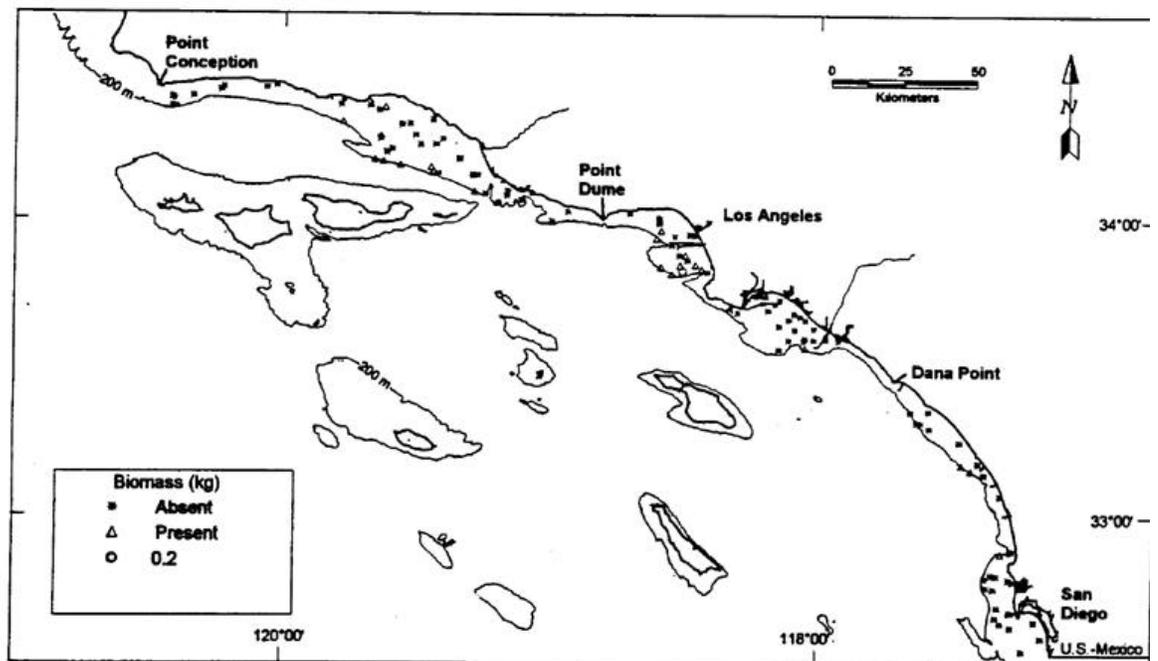


Appendix D22. Distribution of shortspined sea star (*Pisaster brevispinus*) on the mainland shelf of southern California at depths of 10-200 m, July-August 1994: a) number of individuals per trawl and b) biomass per trawl (kg).

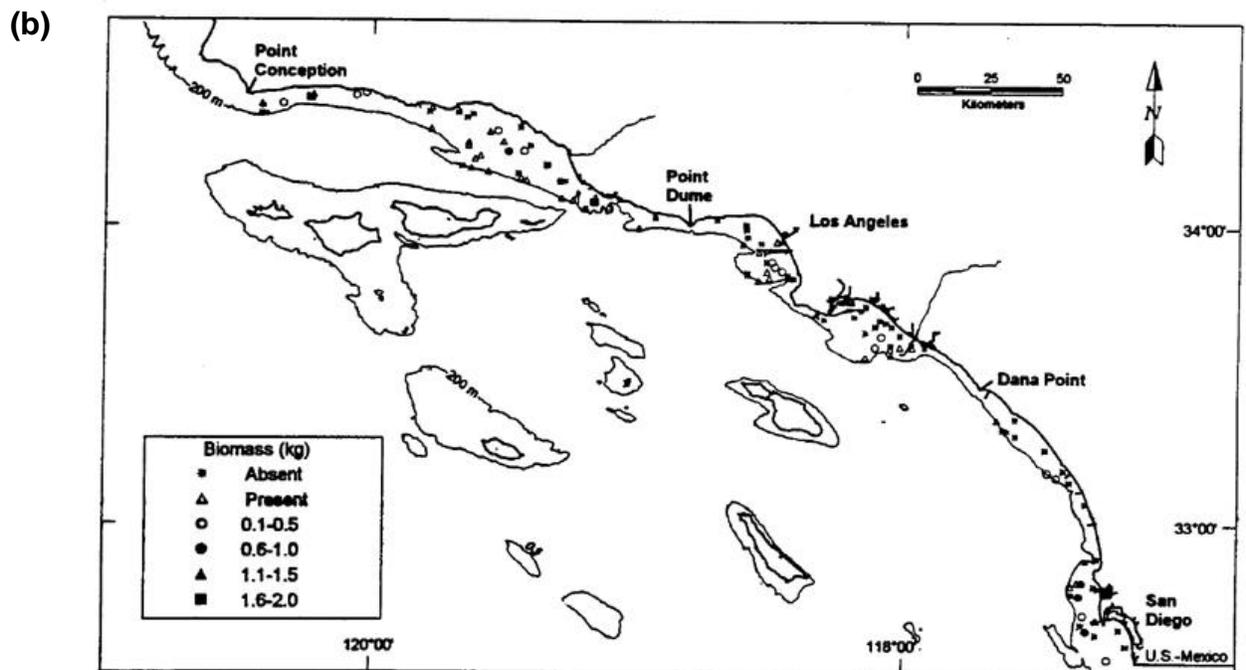
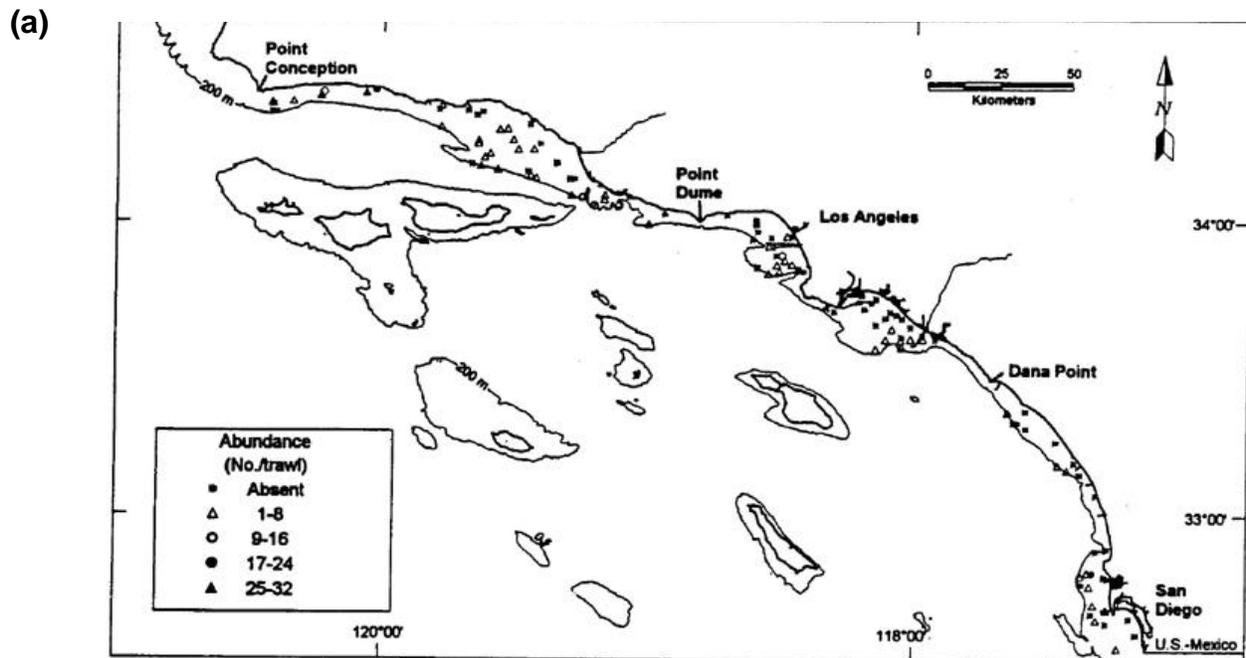
(a)



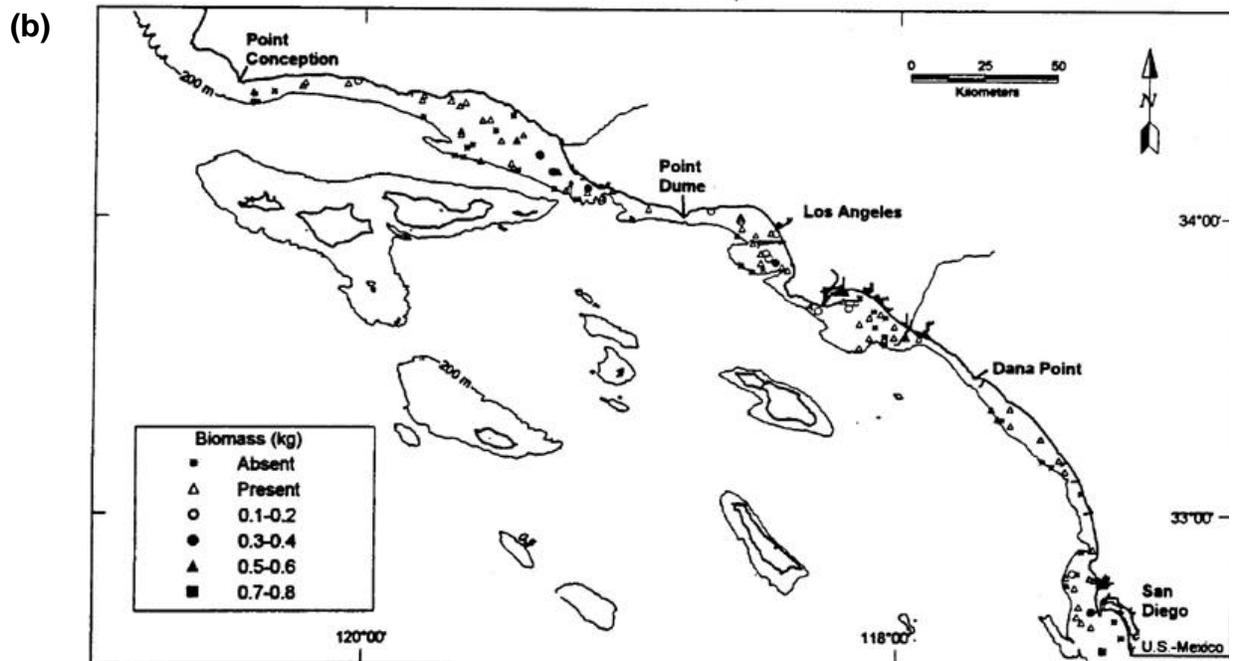
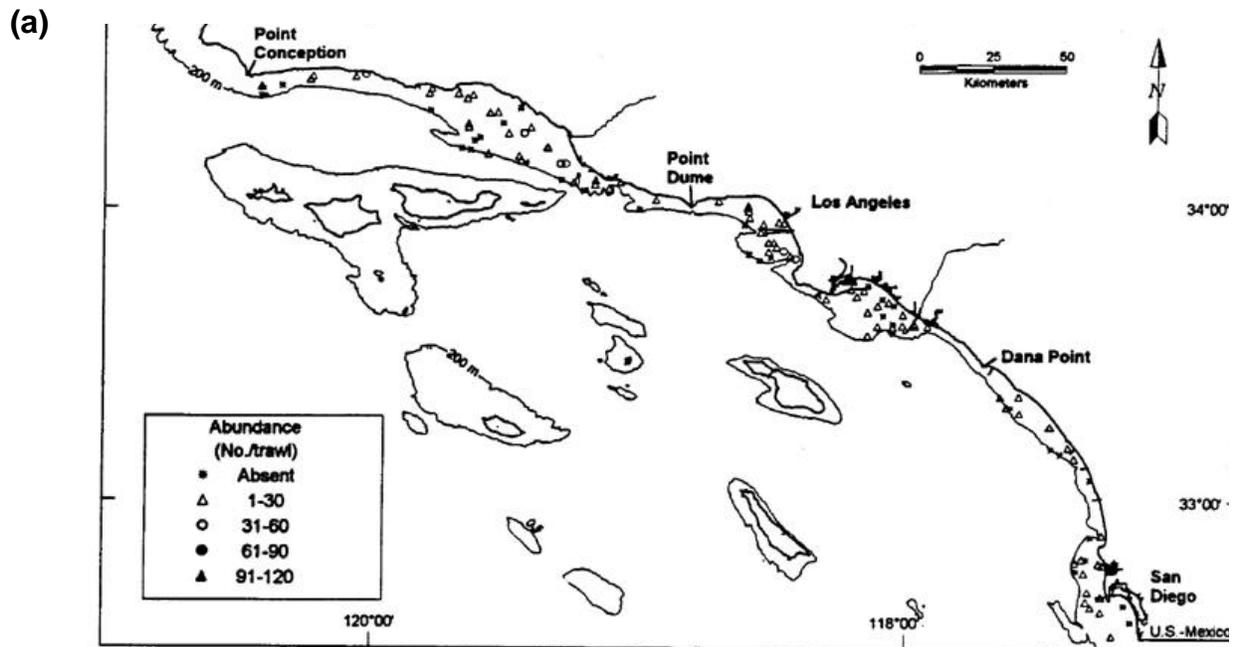
(b)



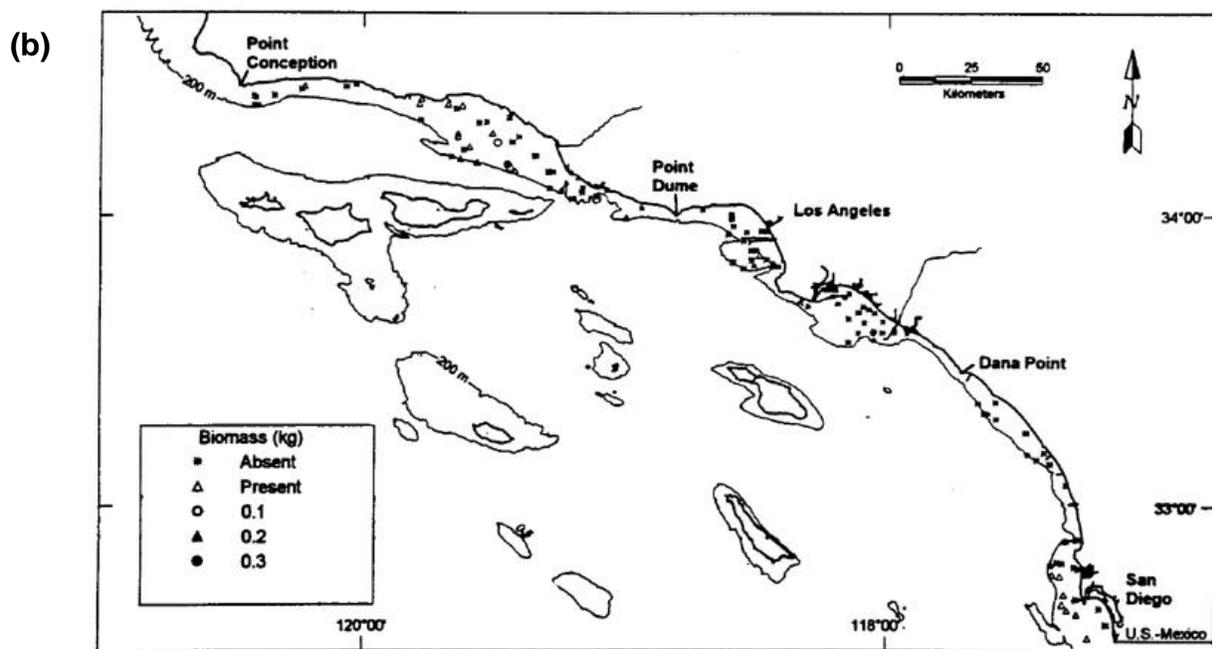
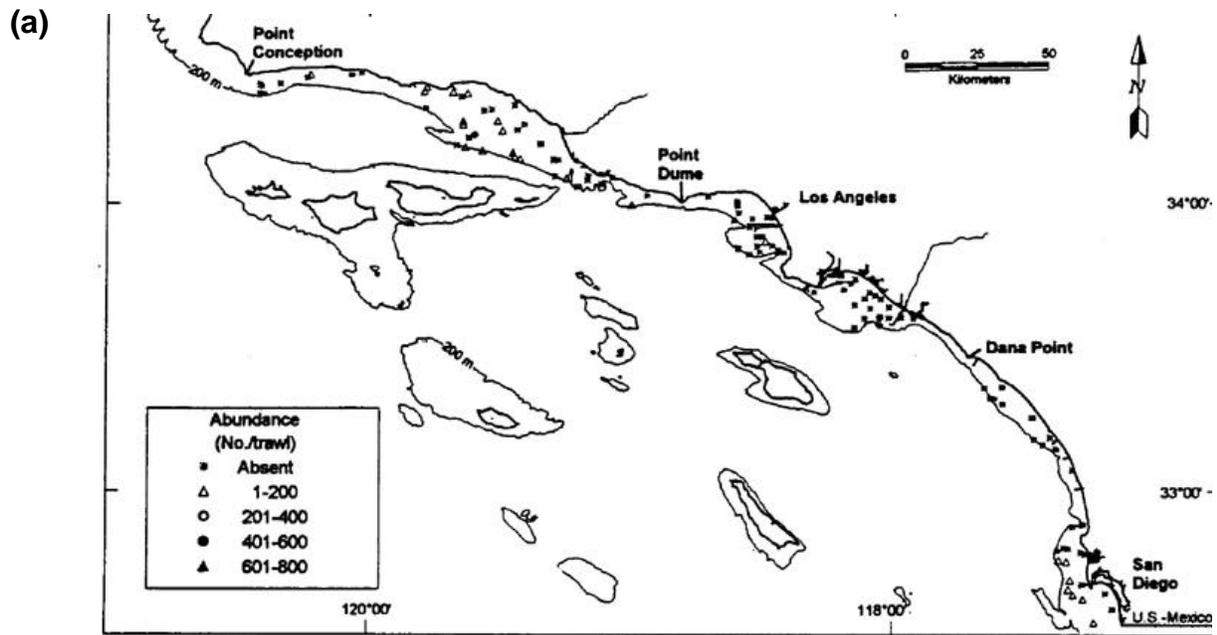
Appendix D21. Distribution of shortkeel bay shrimp (*Neocrangon zacaе*) on the mainland shelf of southern California at depths of 10-200 m, July-August 1994: a) number of individuals per trawl and b) biomass per trawl (kg).



Appendix D20. Distribution of gray sand star (*Luidia foliolata*) on the main-land shelf of southern California at depths of 10-200 m, July-August 1994: a) number of individuals per trawl and b) biomass per trawl (kg).

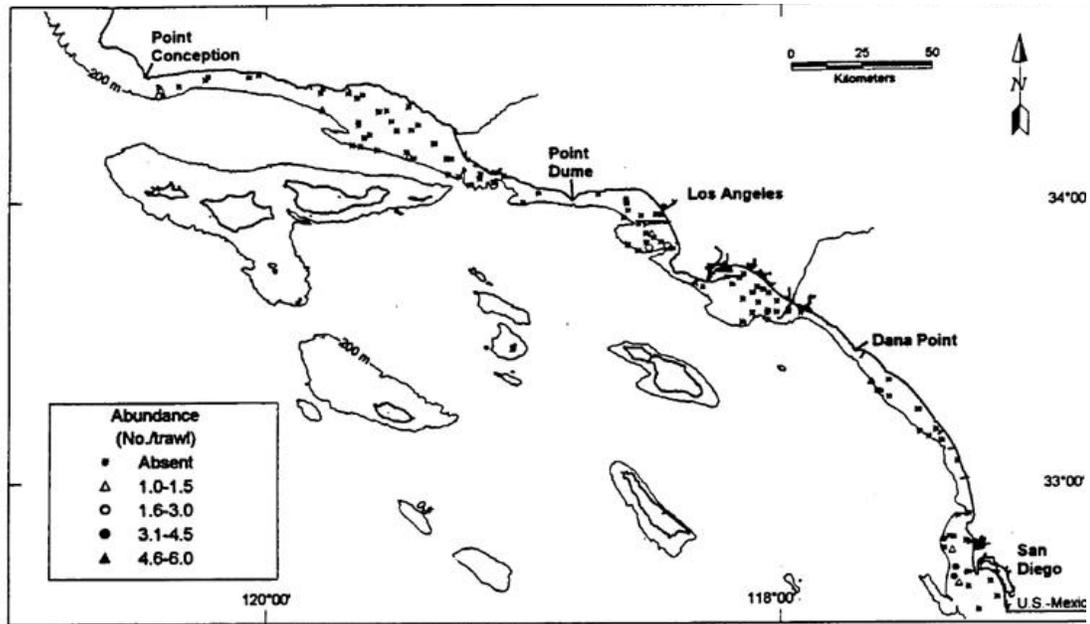


Appendix D19. Distribution of California san star (*Astropecten verilli*) on the mainland shelf of southern California at depths of 10-200 m, July-August 1994: a) number of individuals per trawl and b) biomass per trawl (kg).

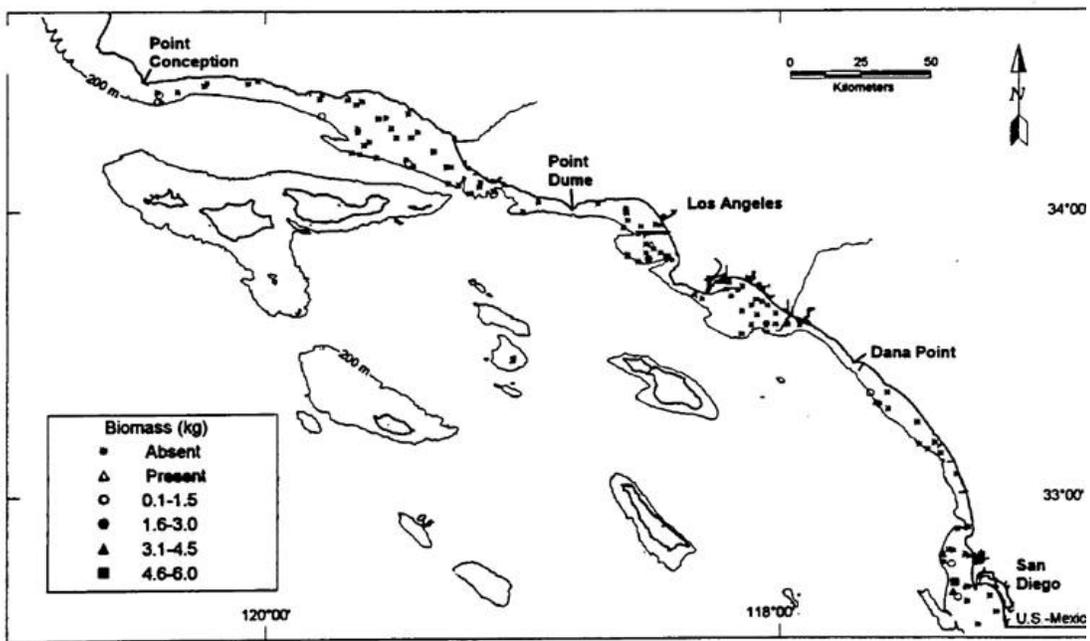


Appendix D18. Distribution of trailtip seapen (*Acanthoptilum* sp.) on the main-land shelf of southern California at depths of 10-200 m, July-August 1994: a) number of individuals per trawl and b) biomass per trawl (kg).

(a)

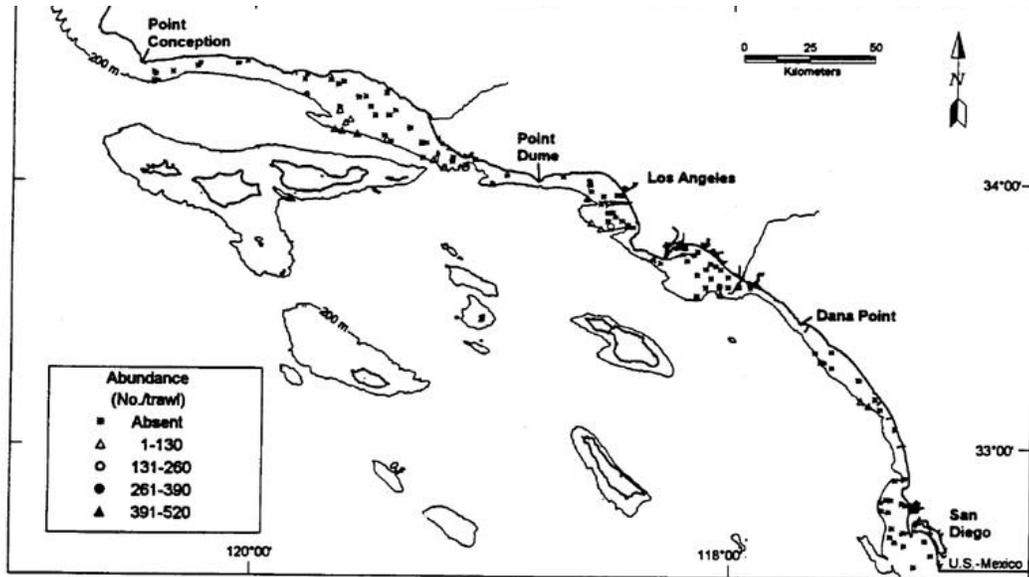


(b)

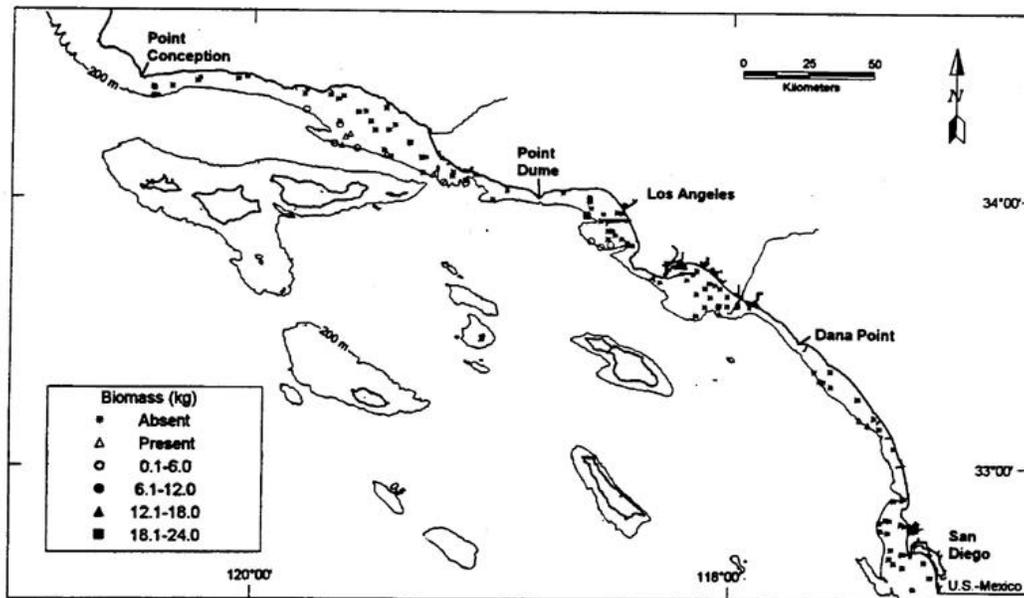


Appendix D17. Distribution of clonal plumose anemone (*Metridium* "senile") on the mainland shelf of southern California at depths of 10-200 m, July-August 1994: a) number of individuals per trawl and b) biomass per trawl (kg).

(a)

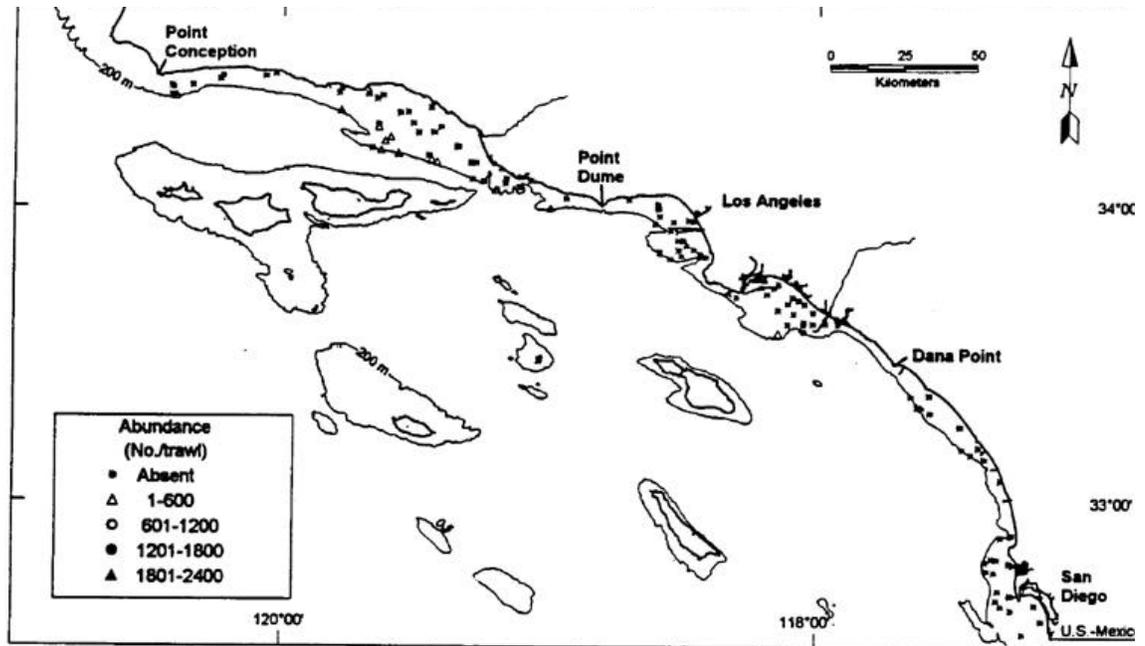


(b)

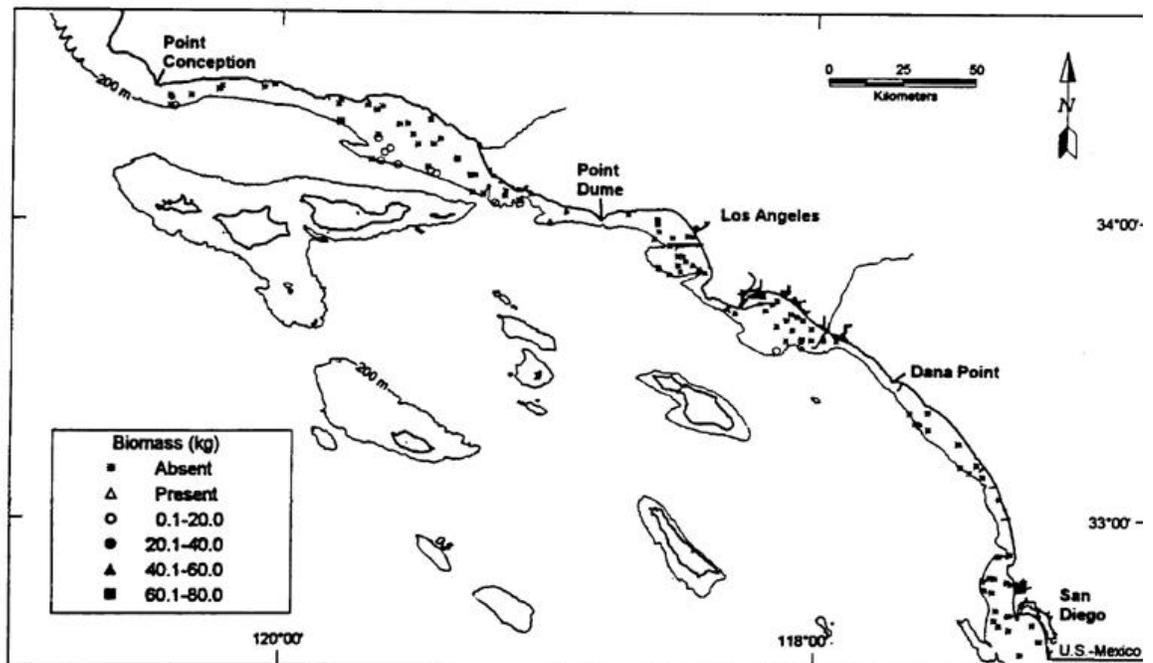


Appendix D16. Distribution of northern harbor urchin (*Brisaster latifrons*) on the mainland shelf of southern California at depths of 10-200 m, July-August 1994: a) number of individuals per trawl and b) biomass per trawl (kg).

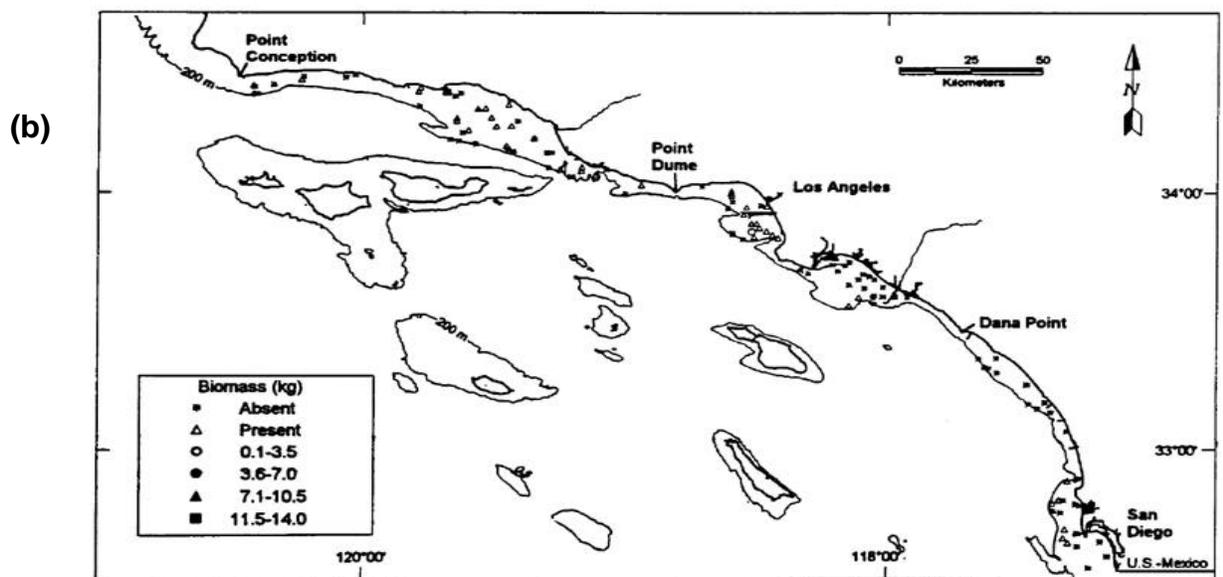
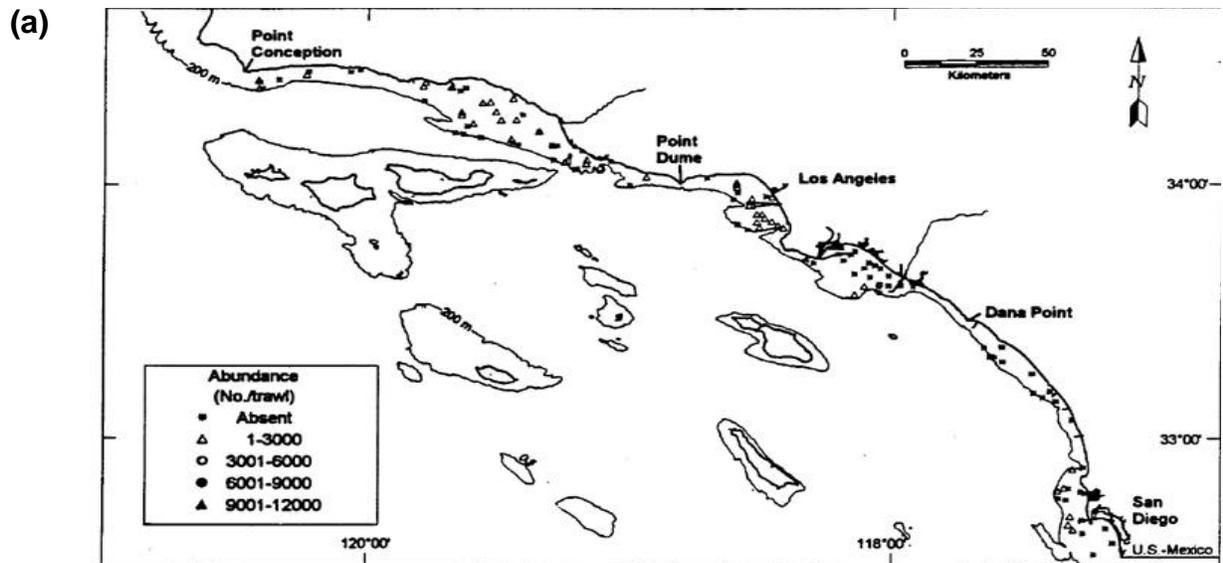
(a)



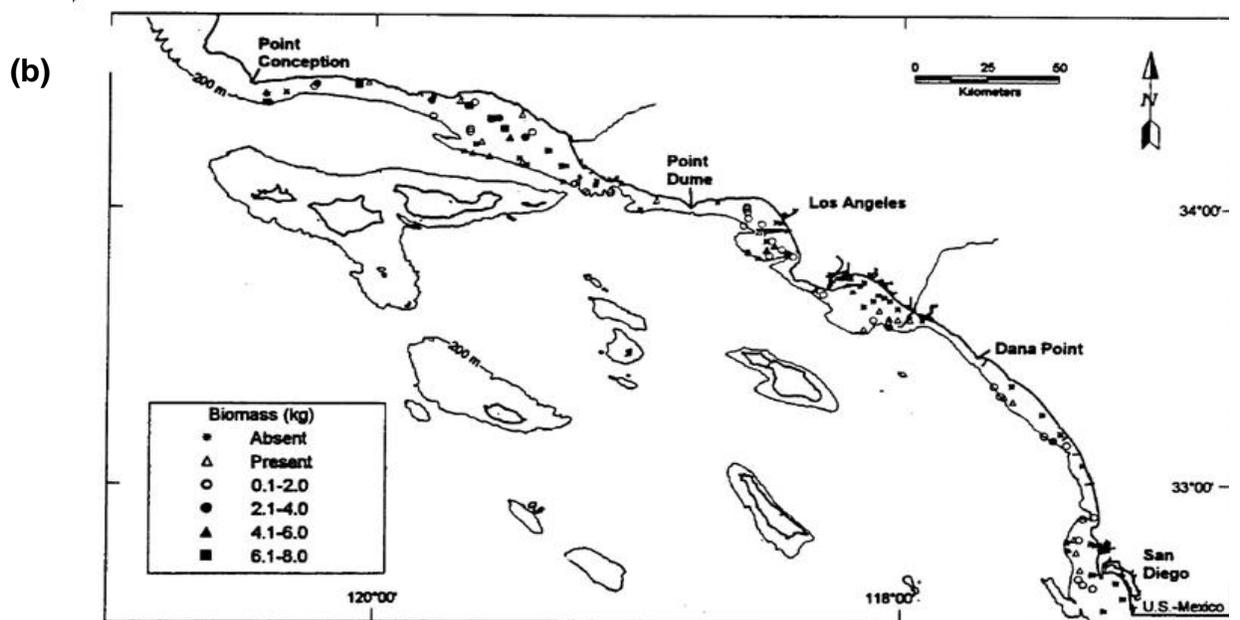
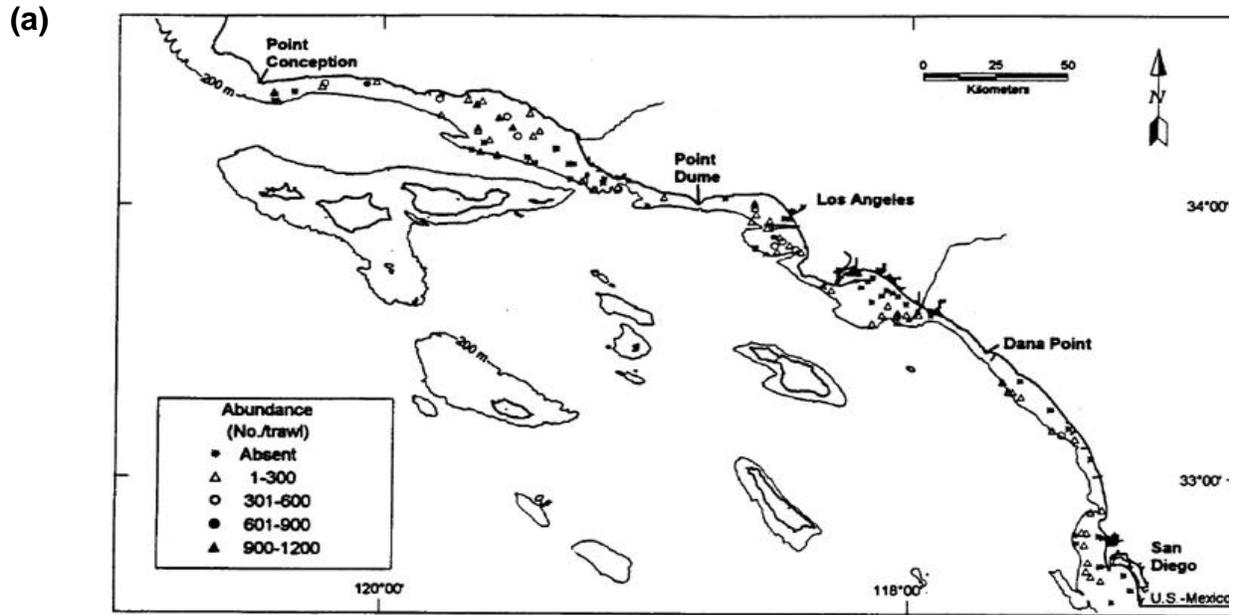
(b)



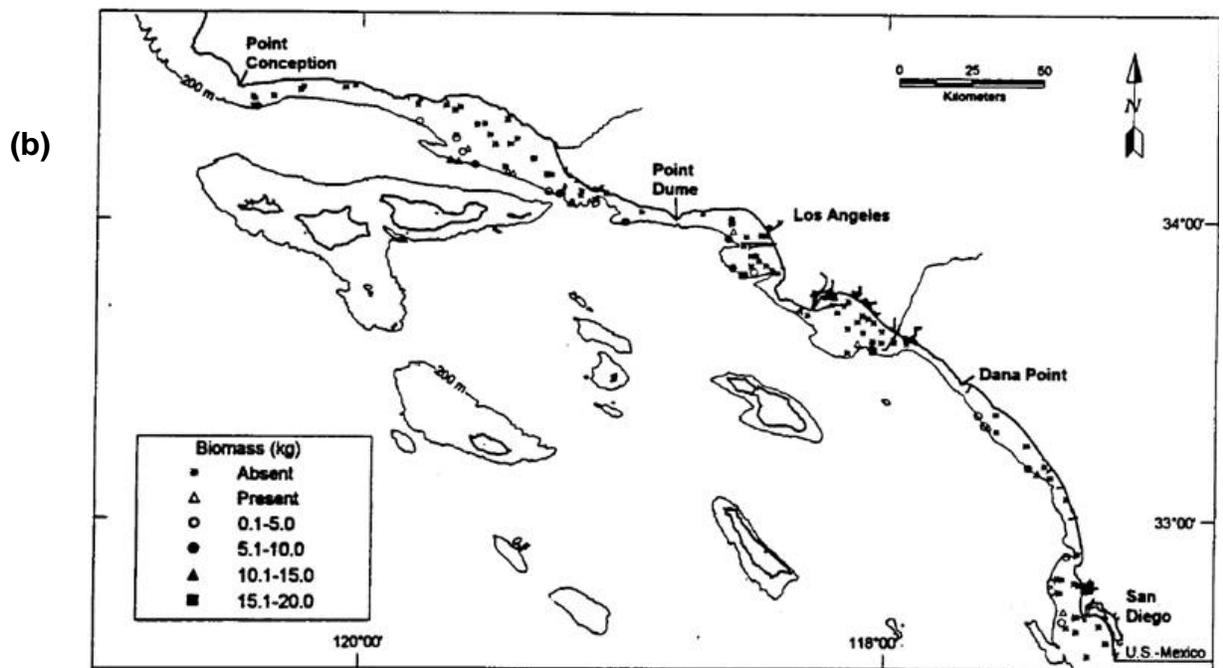
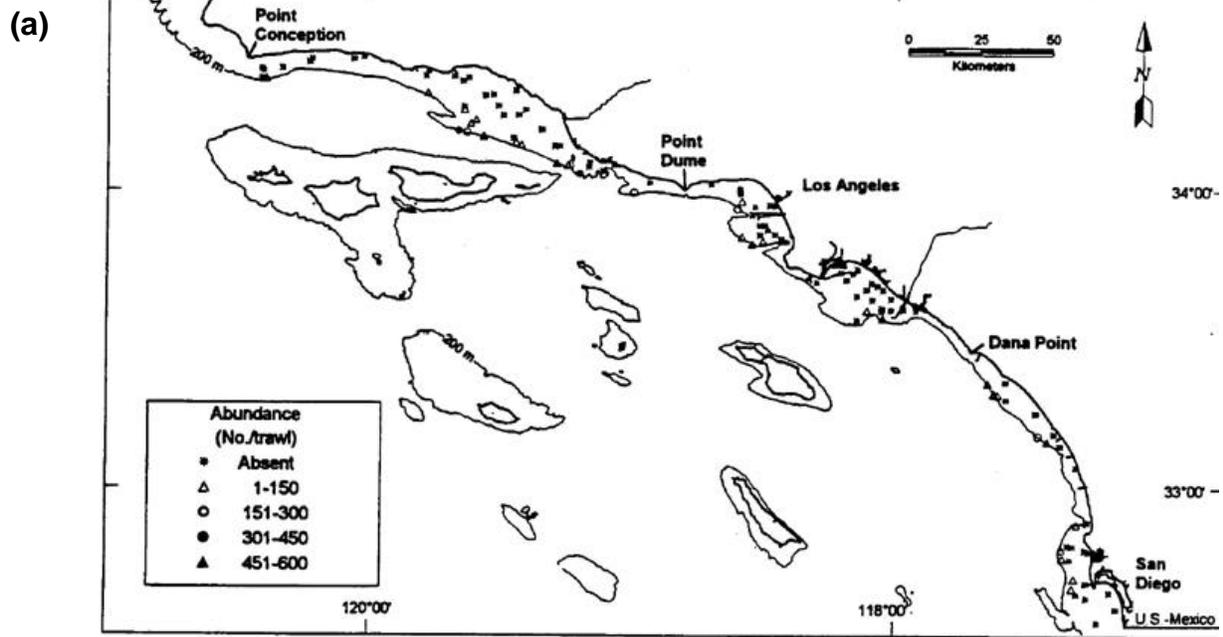
Appendix D15. Distribution of California sea urchin (*Spatangus californicus*) on the mainland shelf of southern California at depths of 10-200 m, July-August 1994: a) number of individuals per trawl and b) biomass per trawl (kg).



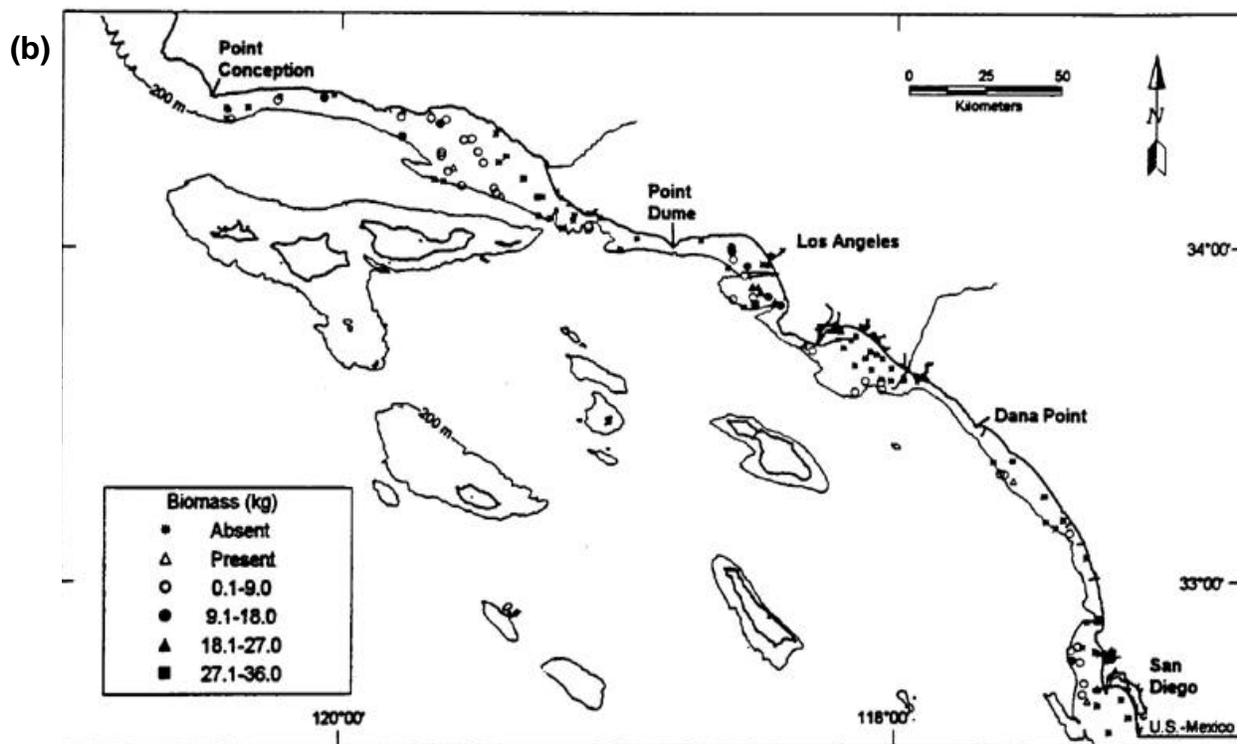
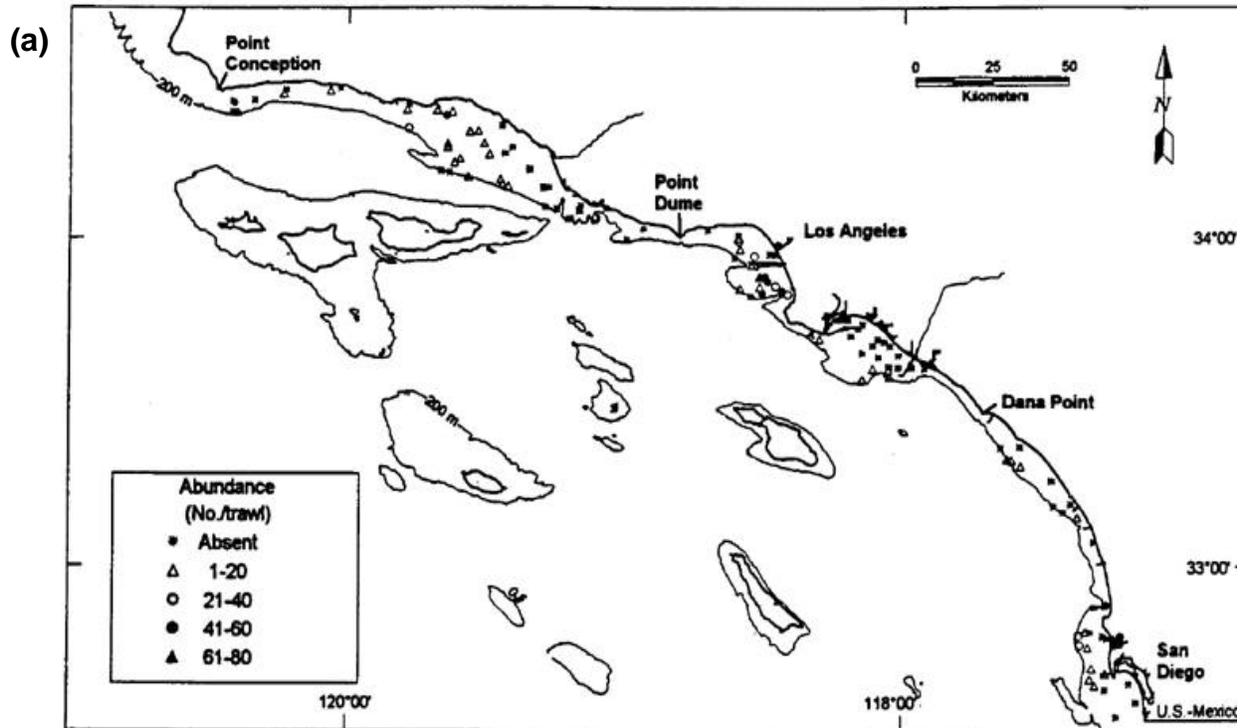
Appendix D14. Distribution of broken-spine brittlestar (*Ophiura luetkeni*) on the mainland shelf of southern California at depths of 10-200 m, July-August 1994: a) number of individuals per trawl and b) biomass per trawl (kg).



Appendix D13. Distribution of ridgeback rock shrimp (*Sicyonia ingentis*) on the mainland shelf of southern California at depths of 10-200 m, July-August 1994: a) number of individuals per trawl and b) biomass per trawl (kg).

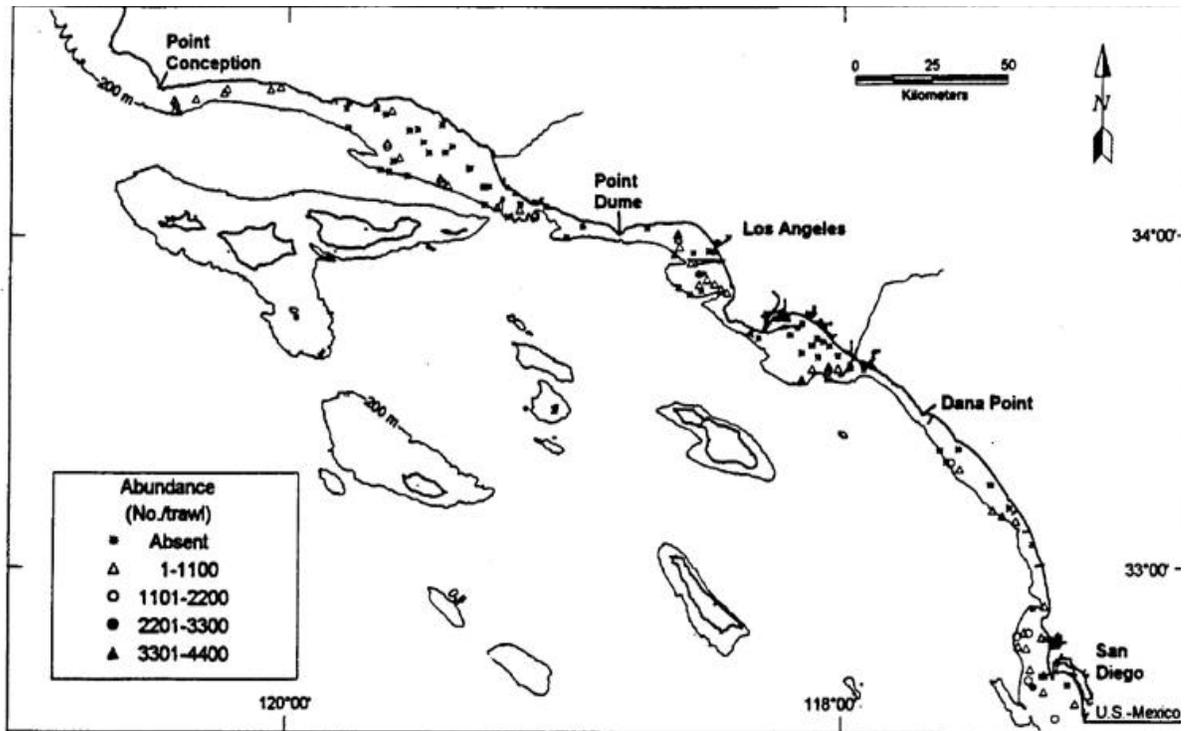


Appendix D12. Distribution of fragile sea urchin (*Allocentrotus fragilis*) on the mainland shelf of southern California at depths of 10-200 m, July-August 1994: a) number of individuals per trawl and b) biomass per trawl (kg).

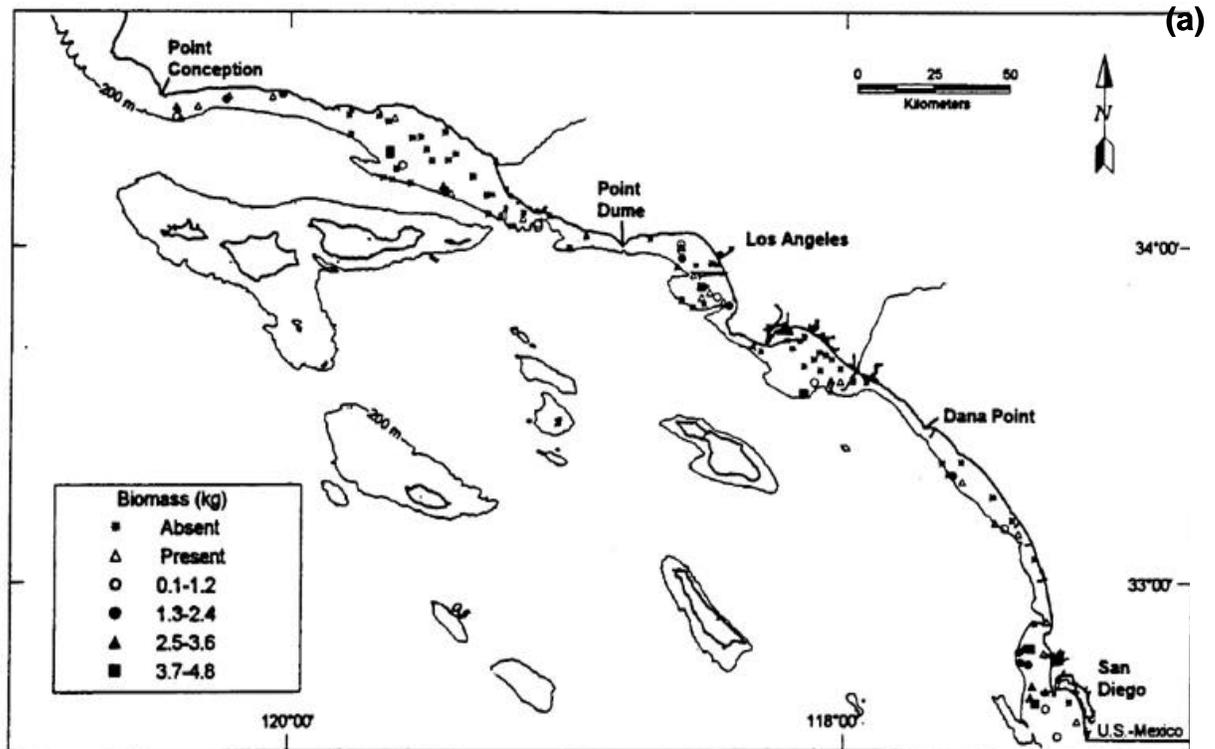


Appendix D11. Distribution of California sea cucumber (*Parastichopus californicus*) on the mainland shelf of southern California at depths of 10-200 m, July-August 1994: a) number of individuals per trawl and b) biomass per trawl (kg).

(a)



(b)



Appendix D10. Distribution of white sea urchin (*Lytechinus pictus*) on the mainland shelf of southern California at depths of 10-200 m, July August 1994: a) number of individuals per trawl and b) biomass per trawl (kg).

Appendix D9. Biomass (kg) by subpopulation for megabenthic invertebrate species collected in the regional survey of the mainland shelf of southern California, July-August 1994.

Scientific Name	Region			Depth Zone			Middle Shelf POTW Status		Overall
	N	C	S	IS	MS	OS	P	NP	
<i>Parastichopus californicus</i>	63.6	209.4	67.6	-	241.7	98.9	158.0	83.7	340.6
<i>Allocentrotus fragilis</i>	78.3	52.6	33.6	-	1.4	163.1	1.4	0.0	164.5
<i>Spatangus californicus</i>	104.8	3.4	-	-	-	108.2	-	-	108.2
<i>Sicyonia ingentis</i>	47.2	18.6	9.4	0.0	58.3	16.9	11.5	46.8	75.2
<i>Lytechinus pictus</i>	19.0	14.6	25.4	0.0	35.6	23.4	25.7	9.9	59.0
<i>Brisaster latifrons</i>	6.8	26.1	0.0	-	-	32.9	-	-	32.9
<i>Metridium "senile"</i>	2.3	7.3	14.1	-	5.9	17.8	5.7	0.2	23.7
<i>Ophiura luetkeni</i>	12.5	0.2	0.0	0.0	12.7	0.0	0.2	12.5	12.7
<i>Luidia foliolata</i>	6.2	0.8	3.6	0.0	10.4	0.2	3.7	6.7	10.6
<i>Pisaster brevispinus</i>	3.2	5.0	2.3	7.2	3.3	-	1.9	1.4	10.5
<i>Pleurobranchaea californica</i>	0.6	4.4	0.4	0.0	4.3	1.1	4.0	0.3	5.4
Hexactinellida unid.	-	4.7	-	-	4.7	-	4.7	-	4.7
<i>Brissopsis pacifica</i>	3.3	0.2	0.6	-	-	4.1	-	-	4.1
<i>Astropecten verrilli</i>	1.7	0.9	0.9	1.5	2.0	0.0	0.9	1.1	3.5
<i>Gorgonocephalus eucnemis</i>	2.5	-	-	-	-	2.5	-	-	2.5
<i>Paralithodes californiensis</i>	1.6	0.8	-	-	-	2.4	-	-	2.4
<i>Luidia armata</i>	0.0	1.4	0.3	0.8	0.9	-	0.6	0.3	1.7
<i>Laqueus californianus</i>	1.4	0.3	0.0	-	-	1.7	-	-	1.7
<i>Lopholithodes foraminatus</i>	1.0	0.5	-	-	-	1.5	-	-	1.5
<i>Pycnopodia helianthoides</i>	-	-	1.4	-	1.4	-	1.4	-	1.4
<i>Rathbunaster californicus</i>	1.0	-	-	-	1.0	-	-	1.0	1.0
<i>Crossata californica</i>	-	0.0	0.9	-	0.9	-	0.0	0.9	0.9
<i>Dromalia alexandri</i>	-	0.0	0.9	-	-	0.9	-	-	0.9
Porifera unid.	0.0	0.0	0.8	-	0.6	0.2	0.0	0.6	0.8
<i>Octopus rubescens</i>	0.4	0.1	0.3	0.0	0.8	0.0	0.4	0.4	0.8
<i>Tritonia diomedea</i>	0.7	0.1	0.0	-	0.8	0.0	0.1	0.7	0.8
<i>Neptunea tabulata</i>	0.7	0.0	-	-	-	0.7	-	-	0.7
<i>Ptilosarcus gurneyi</i>	0.7	0.0	-	-	0.0	0.7	-	0.0	0.7
<i>Kelletia kelletii</i>	-	0.6	0.0	0.6	0.0	-	0.0	0.0	0.6
<i>Cancer productus</i>	0.6	-	-	-	0.6	-	-	0.6	0.6
<i>Paguristes bakeri</i>	-	-	0.6	-	0.6	-	0.6	-	0.6
<i>Lithopoma undosum</i>	-	-	0.5	-	0.5	-	0.5	-	0.5
<i>Acanthoptilum</i> sp.	0.5	0.0	0.0	0.0	0.4	0.1	0.0	0.4	0.5
<i>Loxorhynchus crispatus</i>	0.0	0.0	0.5	-	0.2	0.3	0.2	0.0	0.5
<i>Pandalus platyceros</i>	0.5	-	-	-	-	0.5	-	-	0.5
<i>Hemisquilla ensigera californiensis</i>	0.2	0.1	0.1	0.2	0.2	-	0.2	-	0.4
<i>Octopus californicus</i>	0.0	0.4	0.0	-	-	0.4	-	-	0.4
<i>Platymera gaudichaudii</i>	-	0.3	-	-	0.3	-	0.3	-	0.3
<i>Loxorhynchus grandis</i>	0.0	0.2	0.1	0.3	0.0	-	-	0.0	0.3
<i>Cancer anthonyi</i>	0.3	-	0.0	0.0	0.3	-	-	0.3	0.3
<i>Neocrangon zacaе</i>	0.0	0.2	0.0	-	0.0	0.2	0.0	0.0	0.2
<i>Paracyathus stearnsii</i>	-	0.0	0.2	-	0.0	0.2	0.0	-	0.2
<i>Adelogorgia phyllosclera</i>	-	0.2	0.0	-	0.2	0.0	0.2	0.0	0.2
<i>Paralithodes rathbuni</i>	0.2	-	0.0	-	-	0.2	-	-	0.2

Appendix D9 (Continued)

Scientific Name	Region			Depth Zone			Middle Shelf POTW Status		Overall
	N	C	S	IS	MS	OS	P	NP	
<i>Philine alba</i>	0.0	0.0	0.2	-	0.2	0.0	0.2	0.0	0.2
<i>Calinaticina oldroydii</i>	0.0	0.2	-	-	0.2	0.0	0.2	-	0.2
<i>Cancer</i> sp.	-	0.2	0.0	0.0	0.2	-	0.2	0.0	0.2
<i>Paguristes turgidus</i>	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.2
<i>Asterina miniata</i>	-	-	0.2	0.2	-	-	-	-	0.2
<i>Leucilla nuttingi</i>	-	0.2	-	-	0.2	-	0.2	-	0.2
<i>Sphaciospongia confoederata</i>	0.2	-	-	-	-	0.2	-	-	0.2
<i>Pagurus spilocarpus</i>	-	0.1	0.1	0.0	0.2	-	0.2	0.0	0.2
<i>Terebratulina crosseii</i>	-	0.0	0.1	-	-	0.1	-	-	0.1
<i>Dendraster excentricus</i>	-	-	0.0	0.0	-	-	-	-	0.0
<i>Crangon alba</i>	-	-	0.0	-	0.0	-	-	0.0	0.0
<i>Dougaloplus amphacanthus</i>	-	0.0	-	-	-	0.0	-	-	0.0
<i>Flabellina pricei</i>	-	0.0	-	0.0	-	-	-	-	0.0
<i>Crassispira semiinflata</i>	-	-	0.0	-	0.0	-	-	0.0	0.0
<i>Crangon alaskensis</i>	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0
<i>Epiactis prolifera</i>	0.0	-	-	-	-	0.0	-	-	0.0
<i>Flabellina iodinea</i>	-	0.0	-	-	0.0	-	-	0.0	0.0
<i>Euvola diegensis</i>	0.0	-	-	-	0.0	-	-	0.0	0.0
<i>Erileptus spinosus</i>	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
<i>Corynactis californica</i>	-	0.0	-	-	0.0	-	0.0	-	0.0
<i>Enallopaguropsis guatemoci</i>	0.0	-	-	-	-	0.0	-	-	0.0
<i>Delonovola aequalis vidleri</i>	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0
<i>Halocynthia igaboja</i>	-	0.0	-	-	0.0	-	0.0	-	0.0
<i>Dendronotus iris</i>	0.0	-	-	-	0.0	-	-	0.0	0.0
<i>Desmophyllum dianthus</i>	-	-	0.0	-	-	0.0	-	-	0.0
<i>Eugorgia rubens</i>	-	0.0	0.0	-	0.0	0.0	0.0	-	0.0
<i>Crangon nigromaculata</i>	0.0	0.0	0.0	0.0	-	-	-	-	0.0
<i>Doriopsilla albopunctata</i>	-	-	0.0	-	0.0	-	-	0.0	0.0
<i>Galathea californiensis</i>	-	-	0.0	-	-	0.0	-	-	0.0
<i>Delectopecten vancouverensis</i>	-	0.0	-	-	0.0	-	0.0	-	0.0
<i>Hamatoscalpellum californicum</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Decapoda unid.	-	0.0	-	-	-	0.0	-	-	0.0
<i>Hemectyon hyle</i>	0.0	-	-	-	0.0	-	-	0.0	0.0
<i>Fusinus barbarensis</i>	0.0	0.0	0.0	-	0.0	0.0	0.0	-	0.0
<i>Corella willmeriana</i>	-	-	0.0	-	0.0	-	0.0	-	0.0
<i>Florometra serratissima</i>	0.0	-	0.0	-	-	0.0	-	-	0.0
<i>Diaulula sandiegensis</i>	-	-	0.0	0.0	0.0	-	-	0.0	0.0
<i>Amphiura arcystata</i>	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
<i>Cancer amphioetus</i>	-	0.0	-	0.0	-	-	-	-	0.0
<i>Astrobdella californiana</i>	-	0.0	-	0.0	-	-	-	-	0.0
Asciacea unid.	-	0.0	0.0	-	0.0	0.0	0.0	-	0.0
<i>Armina californica</i>	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
<i>Aphrodita japonica</i>	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0
<i>Aphrodita castanea</i>	-	-	0.0	-	-	0.0	-	-	0.0
<i>Aphrodita armifera</i>	-	-	0.0	-	0.0	-	-	0.0	0.0
<i>Antiplanes perversus</i>	-	0.0	0.0	-	-	0.0	-	-	0.0

Appendix D9 (Continued)

Scientific Name	Region			Depth Zone			Middle Shelf POTW Status		Overall
	N	C	S	IS	MS	OS	P	NP	
<i>Astropecten ornatissimus</i>	0.0	0.0	0.0	-	0.0	0.0	0.0	-	0.0
Amphiuridae unid.	-	0.0	-	-	0.0	-	0.0	-	0.0
<i>Astropecten</i> sp.	0.0	-	0.0	-	0.0	-	-	0.0	0.0
<i>Amphissa versicolor</i>	-	-	0.0	-	0.0	-	-	0.0	0.0
<i>Amphissa undata</i>	0.0	-	-	-	0.0	-	-	0.0	0.0
<i>Amphipholis squamata</i>	-	-	0.0	-	0.0	-	-	0.0	0.0
<i>Amphiodia urtica</i>	-	0.0	-	-	0.0	-	0.0	-	0.0
<i>Amphiodia psara</i>	-	-	0.0	-	0.0	-	-	0.0	0.0
<i>Amphichondrius granulatus</i>	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
<i>Amphianthus</i> sp. OC1	-	-	0.0	-	0.0	-	-	0.0	0.0
<i>Alcyonacea</i> sp. A	-	0.0	-	-	-	0.0	-	-	0.0
<i>Aglaophenia</i> sp.	0.0	0.0	0.0	0.0	0.0	-	-	0.0	0.0
<i>Aegires albopunctatus</i>	-	-	0.0	0.0	-	-	-	-	0.0
<i>Acanthodoris rhodoceras</i>	-	0.0	-	-	0.0	-	0.0	-	0.0
<i>Anomia peruviana</i>	-	0.0	-	-	0.0	-	0.0	-	0.0
<i>Callistochiton palmulatus</i>	-	-	0.0	-	0.0	-	0.0	-	0.0
<i>Cidarina cidaris</i>	0.0	-	0.0	-	-	0.0	-	-	0.0
<i>Chorilia longipes</i>	-	0.0	-	-	-	0.0	-	-	0.0
<i>Chlamys hastata</i>	-	0.0	-	-	0.0	-	0.0	-	0.0
<i>Cancer jordani</i>	-	-	0.0	0.0	-	-	-	-	0.0
<i>Cancer gracilis</i>	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0
<i>Cancer antennarius</i>	0.0	0.0	-	0.0	0.0	-	-	0.0	0.0
<i>Henricia leviuscula</i>	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0
<i>Cancellaria crawfordiana</i>	-	0.0	-	-	0.0	-	0.0	-	0.0
<i>Lophogorgia chilensis</i>	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0
<i>Astropecten armatus</i>	-	0.0	0.0	0.0	-	-	-	-	0.0
<i>Calyptraea fastigiata</i>	-	-	0.0	-	0.0	-	-	0.0	0.0
<i>Conus californicus</i>	0.0	-	-	-	0.0	-	-	0.0	0.0
<i>Calliostoma turbinum</i>	0.0	-	-	-	0.0	0.0	-	0.0	0.0
<i>Calliostoma tricolor</i>	-	0.0	0.0	-	0.0	-	0.0	0.0	0.0
<i>Calliostoma canaliculatum</i>	-	-	0.0	0.0	-	-	-	-	0.0
<i>Cadlina modesta</i>	-	0.0	-	-	0.0	-	0.0	-	0.0
<i>Boreotrophon bentleyi</i>	-	-	0.0	-	-	0.0	-	-	0.0
<i>Boltenia villosa</i>	-	0.0	-	-	0.0	-	0.0	-	0.0
<i>Berthella californica</i>	-	0.0	-	-	-	0.0	-	-	0.0
<i>Balanus</i> sp.	-	0.0	-	0.0	-	-	-	-	0.0
<i>Balanus pacificus</i>	0.0	0.0	-	0.0	0.0	-	0.0	-	0.0
<i>Balanus nubilus</i>	0.0	-	-	-	0.0	0.0	-	0.0	0.0
<i>Babelomurex oldroydi</i>	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
<i>Cancellaria cooperi</i>	-	-	0.0	-	-	0.0	-	-	0.0
<i>Poecillastra tenuilaminaris</i>	-	0.0	-	-	-	0.0	-	-	0.0
<i>Puncturella multistriata</i>	-	-	0.0	-	-	0.0	-	-	0.0
<i>Heptacarpus palpator</i>	-	-	0.0	0.0	-	-	-	0.0	0.0
<i>Pteropurpura vokesae</i>	-	-	0.0	-	0.0	-	-	0.0	0.0
<i>Pteropurpura macroptera</i>	-	0.0	0.0	-	-	0.0	-	-	0.0
<i>Pteropurpura festiva</i>	-	0.0	-	0.0	-	-	-	-	0.0

Appendix D9 (Continued)

Scientific Name	Region			Depth Zone			Middle Shelf POTW Status		Overall
	N	C	S	IS	MS	OS	P	NP	
<i>Psolus chitonoides</i>	0.0	0.0	-	-	-	0.0	-	-	0.0
<i>Pseudocnus</i> sp.	0.0	-	-	-	0.0	0.0	-	0.0	0.0
<i>Protula superba</i>	-	-	0.0	-	-	0.0	-	-	0.0
<i>Parapagurodes makarovi</i>	0.0	-	-	-	-	0.0	-	-	0.0
<i>Polyandrocarpa</i> sp.	-	-	0.0	-	0.0	-	-	0.0	0.0
<i>Pyromaia tuberculata</i>	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0
<i>Pododesmus macroschisma</i>	-	-	0.0	-	0.0	-	-	0.0	0.0
<i>Podochela lobifrons</i>	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0
<i>Podochela hemphillii</i>	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
<i>Platydoris macfarlandi</i>	-	0.0	0.0	-	-	0.0	-	-	0.0
<i>Placiphorella</i> sp. SD1	-	-	0.0	-	0.0	-	-	0.0	0.0
<i>Pinnixa franciscana</i>	0.0	-	-	0.0	-	-	-	-	0.0
<i>Phimochirus californiensis</i>	-	-	0.0	-	0.0	-	-	0.0	0.0
<i>Pennatula phosphorea</i>	-	-	0.0	-	-	0.0	-	-	0.0
<i>Livoneca vulgaris</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Parastichopus</i> sp.	0.0	-	-	-	0.0	-	-	0.0	0.0
Polyplacophora unid.	-	0.0	-	-	0.0	-	0.0	-	0.0
<i>Stylatula elongata</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Virgularia</i> sp.	-	0.0	-	0.0	-	-	-	-	0.0
<i>Virgularia galapagensis</i>	-	0.0	-	0.0	0.0	0.0	0.0	-	0.0
<i>Virgularia bromleyi</i>	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0
<i>Tubularia crocea</i>	-	0.0	-	-	0.0	-	0.0	-	0.0
<i>Tritonia festiva</i>	-	-	0.0	-	-	0.0	-	-	0.0
<i>Triopha maculata</i>	-	-	0.0	-	0.0	-	-	0.0	0.0
<i>Thesea</i> sp. B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Terebratalia occidentalis</i>	0.0	0.0	0.0	-	0.0	0.0	-	0.0	0.0
<i>Pugettia dalli</i>	-	-	0.0	-	0.0	-	-	0.0	0.0
<i>Stylatula</i> sp. A	-	-	0.0	-	-	0.0	-	-	0.0
<i>Randallia ornata</i>	0.0	0.0	-	0.0	0.0	-	-	0.0	0.0
<i>Stylasterias forreri</i>	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0
<i>Styela</i> sp.	-	-	0.0	-	0.0	-	-	0.0	0.0
<i>Styela gibbsii</i>	0.0	0.0	-	-	0.0	-	0.0	0.0	0.0
<i>Strongylocentrotus purpuratus</i>	0.0	-	-	-	0.0	-	-	0.0	0.0
<i>Spirontocaris sica</i>	0.0	-	-	-	-	0.0	-	-	0.0
<i>Spirontocaris holmesi</i>	-	0.0	-	-	-	0.0	-	-	0.0
<i>Scyra acutifrons</i>	0.0	-	-	-	0.0	-	-	0.0	0.0
<i>Sclerasterias heteropaes</i>	-	0.0	-	-	0.0	0.0	0.0	-	0.0
<i>Rossia pacifica</i>	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
<i>Renilla kollikeri</i>	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
<i>Terebra pedroana</i>	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0
<i>Acanthodoris brunnea</i>	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0
<i>Megasurcula stearnsiana</i>	0.0	-	-	-	-	0.0	-	-	0.0
<i>Penaeus californiensis</i>	-	0.0	-	0.0	-	-	-	-	0.0
<i>Mediaster aequalis</i>	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
<i>Luidia</i> sp.	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Luidia asthenosoma</i>	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Appendix D9 (Continued)

Scientific Name	Region			Depth Zone			Middle Shelf POTW Status		Overall
	N	C	S	IS	MS	OS	P	NP	
<i>Loxorhynchus</i> sp.	-	0.0	-	-	0.0	-	-	0.0	0.0
<i>Lovenia cordiformis</i>	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0
<i>Lophopanopeus bellus</i>	-	0.0	-	-	0.0	-	0.0	-	0.0
<i>Parapagurodes laurentae</i>	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0
<i>Loligo opalescens</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Metacrangon spinosissima</i>	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
<i>Livoneca californica</i>	0.0	-	-	0.0	0.0	-	-	0.0	0.0
<i>Leptopecten latiauratus</i>	-	0.0	-	0.0	0.0	-	0.0	0.0	0.0
<i>Leptasterias hexactis</i>	-	0.0	0.0	-	0.0	0.0	0.0	-	0.0
<i>Lepidozona sinudentata</i>	-	-	0.0	-	0.0	-	-	0.0	0.0
<i>Lepidozona mertensii</i>	-	-	0.0	-	0.0	-	0.0	-	0.0
<i>Lamellaria diegoensis</i>	0.0	0.0	-	-	0.0	-	0.0	0.0	0.0
Hirudinea unid.	-	-	0.0	0.0	0.0	-	0.0	0.0	0.0
<i>Heterogorgia tortuosa</i>	-	0.0	-	0.0	0.0	-	0.0	-	0.0
<i>Heterocrypta occidentalis</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Heptacarpus stimpsoni</i>	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0
Xanthidae unid.	-	-	0.0	-	0.0	-	0.0	-	0.0
<i>Ophionereis eurybrachioplax</i>	0.0	0.0	-	-	-	0.0	-	-	0.0
<i>Pandalus danae</i>	-	-	0.0	-	0.0	-	0.0	-	0.0
<i>Pagurus redondoensis</i>	-	-	0.0	0.0	-	-	-	-	0.0
<i>Paguristes ulreyi</i>	-	0.0	-	0.0	-	-	-	-	0.0
<i>Paguristes</i> sp.	-	0.0	-	-	0.0	-	-	0.0	0.0
<i>Pachythyone rubra</i>	0.0	-	-	-	-	0.0	-	-	0.0
<i>Orthopagurus minimus</i>	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ophiuroidea unid.	0.0	-	-	-	0.0	-	-	0.0	0.0
<i>Ophiothrix spiculata</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Megasurcula carpenteriana</i>	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
<i>Ophiopholis bakeri</i>	0.0	0.0	0.0	-	0.0	0.0	0.0	-	0.0
<i>Mitra idae</i>	-	0.0	-	-	-	0.0	-	-	0.0
<i>Ophiodermella cancellata</i>	0.0	-	-	-	0.0	-	-	0.0	0.0
<i>Ophiacantha phragma</i>	-	0.0	-	-	-	0.0	-	-	0.0
<i>Octopus veligero</i>	-	0.0	-	-	-	0.0	-	-	0.0
<i>Neverita reclusiana</i>	0.0	-	-	0.0	0.0	-	-	0.0	0.0
<i>Neocrangon resima</i>	0.0	0.0	0.0	-	0.0	0.0	0.0	-	0.0
<i>Neocrangon communis</i>	-	-	0.0	-	-	0.0	-	-	0.0
<i>Nassarius</i> sp.	-	0.0	-	0.0	-	-	-	-	0.0
<i>Nassarius perpinguis</i>	0.0	-	-	0.0	0.0	-	-	0.0	0.0
<i>Nassarius fossatus</i>	-	0.0	-	0.0	-	-	-	-	0.0
<i>Myxilla incrustans</i>	-	0.0	-	-	0.0	-	-	0.0	0.0
<i>Ophiopteris papillosa</i>	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0
Total	362.0	354.3	165.1	11.0	391.0	479.4	223.2	167.8	881.4

POTW = Publicly owned treatment work monitoring areas.

N = Northern; C = Central; S = Southern; IS = Inner shelf; MS = Middle shelf; OS = Outer shelf;

P = POTW; NP = Non-POTW.

"0.0" indicates species that weight less than 0.1 kg combined.
sp. = Species; unid. = Unidentified.

Appendix D8. Abundance (number of individuals) by subpopulation for megabenthic invertebrate species collected in the regional survey of the mainland shelf of southern California, July-August 1994.

Scientific Name	Region			Depth Zone			Middle Shelf POTW Status		Overall
	N	C	S	IS	MS	OS	P	NP	
<i>Lytechinus pictus</i>	5,182	9,812	13,384	20	15,965	12,393	11,484	4,481	28,378
<i>Ophiura luetkeni</i>	11,887	486	12	35	12,285	65	425	11,860	12,385
<i>Sicyonia ingentis</i>	6,467	2,567	1,044	2	8,341	1,735	1,691	6,650	10,078
<i>Allocentrotus fragilis</i>	1,369	1,393	1,063	-	38	3,787	34	4	3,825
<i>Spatangus californicus</i>	2,730	95	-	-	-	2,825	-	-	2,825
<i>Acanthoptilum</i> sp.	1,593	2	18	1	821	791	16	805	1,613
<i>Brisaster latifrons</i>	547	747	2	-	-	1,296	-	-	1,296
<i>Neocrangon zacaе</i>	54	852	31	-	35	902	33	2	937
<i>Astropecten verrilli</i>	509	336	73	363	520	35	251	269	918
<i>Parastichopus californicus</i>	158	424	160	-	552	190	370	182	742
<i>Luidia foliolata</i>	168	55	53	7	207	62	75	132	276
<i>Ophiothrix spiculata</i>	34	189	52	1	265	9	226	39	275
<i>Brissopsis pacifica</i>	216	6	27	-	-	249	-	-	249
<i>Loligo opalescens</i>	90	33	52	1	103	71	41	62	175
<i>Spirontocaris holmesi</i>	-	162	-	-	-	162	-	-	162
<i>Laqueus californianus</i>	88	39	2	-	-	129	-	-	129
<i>Pleurobranchaea californica</i>	56	38	27	3	96	22	27	69	121
<i>Crangon alaskensis</i>	41	44	34	-	119	-	62	57	119
<i>Paracyathus stearnsii</i>	-	52	60	-	11	101	11	-	112
<i>Neocrangon resima</i>	13	92	5	-	2	108	2	-	110
<i>Luidia armata</i>	39	47	4	3	87	-	45	42	90
<i>Stylatula elongata</i>	83	1	1	2	79	4	1	78	85
<i>Rossia pacifica</i>	4	59	17	-	20	60	13	7	80
<i>Pyromaia tuberculata</i>	8	61	2	48	23	-	11	12	71
<i>Heterocrypta occidentalis</i>	47	13	3	28	34	1	11	23	63
Ophiuroidea unid.	53	-	-	-	53	-	-	53	53
<i>Terebratulina crossei</i>	-	12	32	-	-	44	-	-	44
<i>Crangon nigromaculata</i>	21	19	1	41	-	-	-	-	41
<i>Nassarius perpinguis</i>	37	-	-	35	2	-	-	2	37
<i>Megasurcula carpenteriana</i>	2	25	9	-	27	9	23	4	36
<i>Paguristes turgidus</i>	5	29	1	27	2	6	1	1	35
<i>Dromalia alexandri</i>	-	1	28	-	-	29	-	-	29
<i>Amphichondrius granulatus</i>	3	22	4	-	15	14	10	5	29
<i>Metridium senile</i>	9	5	14	-	8	20	7	1	28
<i>Neocrangon communis</i>	-	-	27	-	-	27	-	-	27
<i>Metacrangon spinosissima</i>	-	24	3	-	9	18	8	1	27
<i>Tritonia diomedea</i>	12	14	1	-	23	4	11	12	27
<i>Octopus rubescens</i>	14	5	8	1	16	10	5	11	27
<i>Cancer gracilis</i>	6	5	14	16	9	-	1	8	25
<i>Delonovola aequalis vidleri</i>	16	8	-	1	18	5	8	10	24
<i>Philine alba</i>	2	1	19	-	10	12	9	1	22
<i>Acanthodoris brunnea</i>	14	6	1	-	21	-	6	15	21
<i>Ophiopholis bakeri</i>	8	7	5	-	1	19	1	-	20
<i>Ptilosarcus gurneyi</i>	18	1	-	-	1	18	-	1	19
<i>Astropecten armatus</i>	-	17	2	19	-	-	-	-	19
<i>Podocheila lobifrons</i>	4	13	2	2	17	-	15	2	19

Appendix D8 (Continued)

Scientific Name	Region			Depth Zone			Middle Shelf POTW Status		Overall
	N	C	S	IS	MS	OS	P	NP	
<i>Lovenia cordiformis</i>	9	2	7	7	11	-	1	10	18
<i>Pagurus spilocarpus</i>	-	16	1	11	6	-	3	3	17
<i>Amphiodia urtica</i>	-	17	-	-	17	-	17	-	17
<i>Leptasterias hexactis</i>	-	16	1	-	2	15	2	-	17
<i>Pisaster brevispinus</i>	3	9	4	10	6	-	3	3	16
<i>Amphianthus</i> sp. OC1	-	-	16	-	16	-	-	16	16
<i>Gorgonocephalus eucnemis</i>	15	-	-	-	-	15	-	-	15
<i>Psolus chitonoides</i>	1	14	-	-	-	15	-	-	15
<i>Randallia ornata</i>	5	9	-	11	3	-	-	3	14
<i>Ophiopteris papillosa</i>	1	-	11	-	12	-	11	1	12
<i>Luidia</i> sp.	-	5	7	2	9	1	8	1	12
<i>Pseudocnus</i> sp.	11	-	-	-	1	10	-	1	11
<i>Erileptus spinosus</i>	-	4	7	-	10	1	4	6	11
<i>Armina californica</i>	2	8	1	-	10	1	6	4	11
<i>Luidia asthenosoma</i>	-	9	2	-	9	2	2	7	11
<i>Calliostoma turbinum</i>	10	-	-	-	6	4	-	6	10
<i>Loxorhynchus grandis</i>	1	5	3	8	1	-	-	1	9
<i>Styela</i> sp.	-	-	9	-	9	-	-	9	9
<i>Astropecten ornatissimus</i>	2	2	5	-	5	4	5	-	9
<i>Kelletia kelletii</i>	-	3	5	3	5	-	1	4	8
<i>Corella willmeriana</i>	-	-	8	-	8	-	8	-	8
<i>Octopus californicus</i>	2	4	2	-	-	8	-	-	8
<i>Neverita reclusiana</i>	8	-	-	7	1	-	-	1	8
<i>Mediaster aequalis</i>	1	3	4	-	6	2	5	1	8
<i>Styela gibbsii</i>	1	7	-	-	8	-	7	1	8
<i>Antiplanes perversus</i>	-	6	1	-	-	7	-	-	7
<i>Renilla kollikeri</i>	-	2	5	5	2	-	-	2	7
<i>Calliostoma canaliculatum</i>	-	-	7	7	-	-	-	-	7
<i>Paguristes bakeri</i>	-	-	7	-	7	-	7	-	7
<i>Virgularia bromleyi</i>	1	3	3	1	6	-	4	2	7
<i>Parapagurodes laurentae</i>	6	1	-	-	2	5	1	1	7
<i>Sclerasterias heteropaes</i>	-	7	-	-	1	6	1	-	7
Ascidacea unid.	-	1	6	-	1	6	1	-	7
Decapoda unid.	-	6	-	-	-	6	-	-	6
<i>Stylasterias forreri</i>	2	4	-	-	5	1	4	1	6
<i>Virgularia galapagensis</i>	-	6	-	1	4	1	4	-	6
<i>Loxorhynchus crispatus</i>	1	2	3	-	4	2	3	1	6
<i>Terebratalia occidentalis</i>	1	3	2	-	1	5	-	1	6
<i>Amphissa undata</i>	6	-	-	-	6	-	-	6	6
<i>Pandalus platyceros</i>	6	-	-	-	-	6	-	-	6
<i>Crossata californica</i>	-	1	5	-	6	-	1	5	6
<i>Ophionereis eurybrachioplax</i>	1	4	-	-	-	5	-	-	5
<i>Aphrodita japonica</i>	1	4	-	-	4	1	3	1	5
<i>Leptopecten latiauratus</i>	-	5	-	1	4	-	1	3	5
<i>Podocheila hemphillii</i>	-	2	2	1	3	-	-	3	4
<i>Neptunea tabulata</i>	3	1	-	-	-	4	-	-	4
<i>Spirontocaris sica</i>	4	-	-	-	-	4	-	-	4
<i>Amphiura arcystata</i>	2	-	2	-	3	1	-	3	4
<i>Fusinus barbarensis</i>	1	2	1	-	2	2	2	-	4

Appendix D8 (Continued)

Scientific Name	Region			Depth Zone			Middle Shelf POTW Status		Overall
	N	C	S	IS	MS	OS	P	NP	
<i>Lopholithodes foraminatus</i>	2	2	-	-	-	4	-	-	4
<i>Crangon alba</i>	-	-	4	-	4	-	-	4	4
<i>Platymera gaudichaudii</i>	-	4	-	-	4	-	4	-	4
<i>Asterina miniata</i>	-	-	4	4	-	-	-	-	4
<i>Astropecten</i> sp.	2	-	1	-	3	-	-	3	3
<i>Pagurus redondoensis</i>	-	-	3	3	-	-	-	-	3
Hexactinellida unid.	-	3	-	-	3	-	3	-	3
<i>Heptacarpus stimpsoni</i>	1	-	2	2	1	-	-	1	3
<i>Calyptrea fastigiata</i>	-	-	3	-	3	-	-	3	3
<i>Conus californicus</i>	3	-	-	-	3	-	-	3	3
<i>Henricia leviuscula</i>	2	1	-	-	2	1	-	2	3
<i>Parapagurodes makarovi</i>	3	-	-	-	-	3	-	-	3
<i>Paralithodes rathbuni</i>	2	-	1	-	-	3	-	-	3
<i>Babelomurex oldroydi</i>	-	1	2	-	2	1	1	1	3
<i>Florometra serratissima</i>	1	-	2	-	-	3	-	-	3
<i>Paralithodes californiensis</i>	2	1	-	-	-	3	-	-	3
<i>Calinaticina oldroydii</i>	1	2	-	-	2	1	2	-	3
<i>Orthopagurus minimus</i>	-	2	1	-	2	1	1	1	3
<i>Cancer anthonyi</i>	1	-	2	2	1	-	-	1	3
<i>Cancer antennarius</i>	2	1	-	2	1	-	-	1	3
<i>Dougaloplus amphacanthus</i>	-	3	-	-	-	3	-	-	3
<i>Cancer</i> sp.	-	2	1	1	2	-	1	1	3
<i>Hemisquilla ensigera californiensis</i>	1	1	1	1	2	-	2	-	3
<i>Nassarius fossatus</i>	-	2	-	2	-	-	-	-	2
<i>Calliostoma tricolor</i>	-	1	1	-	2	-	1	1	2
<i>Octopus veligero</i>	-	2	-	-	-	2	-	-	2
<i>Dendronotus iris</i>	2	-	-	-	2	-	-	2	2
<i>Boreotrophon bentleyi</i>	-	-	2	-	-	2	-	-	2
<i>Cidarina cidaris</i>	1	-	1	-	-	2	-	-	2
<i>Phimochirus californiensis</i>	-	-	2	-	2	-	-	2	2
<i>Terebra pedroana</i>	1	-	1	1	1	-	1	-	2
<i>Heptacarpus palpator</i>	-	-	2	2	-	-	-	-	2
<i>Cancer jordani</i>	-	-	2	2	-	-	-	-	2
<i>Pteropurpura vokesae</i>	-	-	2	-	2	-	-	2	2
<i>Dialula sandiegensis</i>	-	-	2	1	1	-	-	1	2
<i>Aphrodita castanea</i>	-	-	2	-	-	2	-	-	2
<i>Enallopaguropsis guatemoci</i>	2	-	-	-	-	2	-	-	2
<i>Pteropurpura macroptera</i>	-	1	1	-	-	2	-	-	2
<i>Lamellaria diegoensis</i>	1	1	-	-	2	-	1	1	2
<i>Strongylocentrotus purpuratus</i>	2	-	-	-	2	-	-	2	2
<i>Platydoris macfarlandi</i>	-	1	1	-	-	2	-	-	2
<i>Flabellina iodinea</i>	-	1	-	-	1	-	-	1	1
<i>Euvoila diegensis</i>	1	-	-	-	1	-	-	1	1
<i>Puncturella multistriata</i>	-	-	1	-	-	1	-	-	1
<i>Tritonia festiva</i>	-	-	1	-	-	1	-	-	1
<i>Amphipholis squamata</i>	-	-	1	-	1	-	-	1	1
<i>Epiactis prolifera</i>	1	-	-	-	-	1	-	-	1
<i>Doriopsilla albopunctata</i>	-	-	1	-	1	-	-	1	1
<i>Penaeus californiensis</i>	-	1	-	1	-	-	-	-	1

Appendix D8 (Continued)

Scientific Name	Region			Depth Zone			Middle Shelf POTW Status		Overall
	N	C	S	IS	MS	OS	P	NP	
<i>Scyra acutifrons</i>	1	-	-	-	1	-	-	1	1
<i>Protula superba</i>	-	-	1	-	-	1	-	-	1
<i>Pycnopodia helianthoides</i>	-	-	1	-	1	-	1	-	1
<i>Pugettia dalli</i>	-	-	1	-	1	-	-	1	1
<i>Flabellina pricei</i>	-	1	-	1	-	-	-	-	1
<i>Loxorhynchus</i> sp.	-	1	-	-	1	-	-	1	1
<i>Rathbunaster californicus</i>	1	-	-	-	1	-	-	1	1
<i>Lithopoma undosum</i>	-	-	1	-	1	-	1	-	1
<i>Megasurcula stearnsiana</i>	1	-	-	-	-	1	-	-	1
<i>Acanthodoris rhodoceras</i>	-	1	-	-	1	-	1	-	1
<i>Triopha maculata</i>	-	-	1	-	1	-	-	1	1
<i>Aphrodita armifera</i>	-	-	1	-	1	-	-	1	1
<i>Polyandrocarpa</i> sp.	-	-	1	-	1	-	-	1	1
<i>Sphaciospongia confoederata</i>	1	-	-	-	-	1	-	-	1
Xanthidae unid.	-	-	1	-	1	-	1	-	1
<i>Galathea californiensis</i>	-	-	1	-	-	1	-	-	1
<i>Lepidozона sinudentata</i>	-	-	1	-	1	-	-	1	1
<i>Lepidozона mertensii</i>	-	-	1	-	1	-	1	-	1
<i>Mitra idae</i>	-	1	-	-	-	1	-	-	1
<i>Amphiodia psara</i>	-	-	1	-	1	-	-	1	1
<i>Ophiidermella cancellata</i>	1	-	-	-	1	-	-	1	1
<i>Hemectyon hyle</i>	1	-	-	-	1	-	-	1	1
<i>Halocynthia igaboja</i>	-	1	-	-	1	-	1	-	1
<i>Lophopanopeus bellus</i>	-	1	-	-	1	-	1	-	1
<i>Crassispira semiinflata</i>	-	-	1	-	1	-	-	1	1
<i>Boltenia villosa</i>	-	1	-	-	1	-	1	-	1
<i>Chorilia longipes</i>	-	1	-	-	-	1	-	-	1
<i>Chlamys hastata</i>	-	1	-	-	1	-	1	-	1
<i>Virgularia</i> sp.	-	1	-	1	-	-	-	-	1
<i>Amphissa versicolor</i>	-	-	1	-	1	-	-	1	1
Amphiuridae unid.	-	1	-	-	1	-	1	-	1
<i>Cancellaria cooperi</i>	-	-	1	-	-	1	-	-	1
<i>Berthella californica</i>	-	1	-	-	-	1	-	-	1
<i>Delectopecten vancouverensis</i>	-	1	-	-	1	-	1	-	1
<i>Cancellaria crawfordiana</i>	-	1	-	-	1	-	1	-	1
<i>Callistochiton palmulatus</i>	-	-	1	-	1	-	1	-	1
<i>Poecillastra tenuilaminaris</i>	-	1	-	-	-	1	-	-	1
<i>Dendraster excentricus</i>	-	-	1	1	-	-	-	-	1
<i>Pteropurpura festiva</i>	-	1	-	1	-	-	-	-	1
<i>Cancer productus</i>	1	-	-	-	1	-	-	1	1
<i>Aegires albopunctatus</i>	-	-	1	1	-	-	-	-	1
<i>Cadlina modesta</i>	-	1	-	-	1	-	1	-	1
<i>Placiphorella</i> sp. SD1	-	-	1	-	1	-	-	1	1
<i>Cancer amphioetus</i>	-	1	-	1	-	-	-	-	1
<i>Pennatula phosphorea</i>	-	-	1	-	-	1	-	-	1
<i>Pododesmus macroschisma</i>	-	-	1	-	1	-	-	1	1
<i>Parastichopus</i> sp.	1	-	-	-	1	-	-	1	1
<i>Pandalus danae</i>	-	-	1	-	1	-	1	-	1
<i>Paguristes ulreyi</i>	-	1	-	1	-	-	-	-	1

Appendix D8 (Continued)

Scientific Name	Region			Depth Zone			Middle Shelf POTW Status		Overall
	N	C	S	IS	MS	OS	P	NP	
<i>Paguristes</i> sp.	-	1	-	-	1	-	-	1	1
<i>Pachythyone rubra</i>	1	-	-	-	-	1	-	-	1
<i>Stylatula</i> sp. A	-	-	1	-	-	1	-	-	1
<i>Ophiacantha phragma</i>	-	1	-	-	-	1	-	-	1
<i>Desmophyllum dianthus</i>	-	-	1	-	-	1	-	-	1
<i>Pinnixa franciscana</i>	1	-	-	1	-	-	-	-	1
<i>Nassarius</i> sp.	-	1	-	1	-	-	-	-	1
<i>Astrobdella californiana</i>	-	0	-	0	-	-	-	-	0
Hirudinea unid.	-	-	0	0	0	-	0	-	0
<i>Heterogorgia tortuosa</i>	-	0	-	0	0	-	0	-	0
<i>Hamatoscalpellum californicum</i>	0	0	0	0	0	0	0	0	0
<i>Eugorgia rubens</i>	-	0	0	-	0	0	0	-	0
<i>Corynactis californica</i>	-	0	-	-	0	-	0	-	0
<i>Balanus</i> sp.	-	0	-	0	-	-	-	-	0
<i>Balanus nubilus</i>	0	-	-	-	0	0	-	0	0
<i>Leucilla nuttingi</i>	-	0	-	-	0	-	0	-	0
<i>Balanus pacificus</i>	0	0	-	0	0	-	0	-	0
<i>Livoneca californica</i>	0	-	-	0	0	-	-	0	0
<i>Lophogorgia chilensis</i>	-	0	0	0	0	-	0	0	0
<i>Myxilla incrustans</i>	-	0	-	-	0	-	-	0	0
Polyplacophora unid.	-	0	-	-	0	-	0	-	0
Porifera unid.	0	0	0	-	0	0	0	0	0
<i>Tubularia crocea</i>	-	0	-	-	0	-	0	-	0
<i>Anomia peruviana</i>	-	0	-	-	0	-	0	-	0
<i>Alcyonacea</i> sp. A	-	0	-	-	-	0	-	-	0
<i>Adelogorgia phyllosclera</i>	-	0	0	-	0	0	0	0	0
<i>Aglao phenia</i> sp.	0	0	0	0	0	-	-	0	0
<i>Livoneca vulgaris</i>	0	0	0	0	0	0	0	0	0
<i>Thesea</i> sp. B	0	0	0	0	0	0	0	0	0
Total	31,758	18,067	16,508	764	40,143	25,426	15,081	25,062	66,333

POTW = Publicly owned treatment work monitoring areas.

N = Northern; C = Central; S = Southern; IS = Inner shelf; MS = Middle shelf; OS = Outer shelf;

P = POTW; NP = Non-POTW.

"0" indicates species was present but not counted.

sp. =species; unid. = Unidentified.

Appendix D7. Percent of area by subpopulation for megabenthic invertebrate species collected in the regional survey of the mainland shelf of southern California, July-August 1994.

Scientific Name	Region			Depth Zone			Middle Shelf POTW Status		Overall
	N	C	S	IS	MS	OS	P	NP	
<i>Astropecten verrilli</i>	72.7	72.3	69.1	75.5	83.9	38.0	87.0	83.3	71.8
<i>Sicyonia ingentis</i>	68.2	47.9	62.0	3.5	81.2	69.1	87.0	80.0	61.4
<i>Luidia foliolata</i>	62.1	35.6	33.2	10.5	55.4	68.9	65.2	53.3	48.5
<i>Lytechinus pictus</i>	45.5	33.1	70.9	5.4	63.8	50.1	82.6	60.0	47.9
<i>Pleurobranchaea californica</i>	63.6	28.1	27.5	10.5	59.8	46.7	26.1	66.7	46.0
<i>Parastichopus californicus</i>	50.0	37.5	46.8	-	60.3	55.4	78.3	56.7	45.9
<i>Ophiura luetkeni</i>	53.0	32.9	14.1	17.5	49.1	34.6	60.9	46.7	38.9
<i>Ophiothrix spiculata</i>	33.3	24.0	34.5	3.5	49.1	13.7	60.9	46.7	31.1
<i>Loligo opalescens</i>	27.3	19.2	29.3	3.5	29.3	38.0	26.1	30.0	25.6
<i>Acanthoptilum</i> sp.	36.4	1.5	22.7	3.5	28.6	32.7	21.7	30.0	24.0
<i>Allocentrotus fragilis</i>	21.2	19.0	32.7	-	7.0	86.3	8.7	6.7	23.2
<i>Stylatula elongata</i>	39.4	1.5	6.8	7.0	33.9	6.9	4.3	40.0	21.9
<i>Crangon alaskensis</i>	30.3	6.2	10.5	-	34.9	-	26.1	36.7	19.4
<i>Luidia armata</i>	21.2	23.7	8.6	10.5	30.1	-	30.4	30.0	19.0
<i>Thesea</i> sp. B	16.7	19.6	23.0	14.2	17.9	25.9	56.5	10.0	18.9
<i>Octopus rubescens</i>	19.7	10.4	25.9	1.9	20.3	30.9	21.7	20.0	18.6
<i>Rossia pacifica</i>	6.1	36.9	22.3	-	19.0	33.0	30.4	16.7	17.9
<i>Livoneca vulgaris</i>	28.8	7.5	5.2	15.9	18.8	17.2	13.0	20.0	17.8
<i>Neocrangon zaca</i>	18.2	20.8	10.2	-	7.7	57.0	13.0	6.7	17.1
<i>Hamatoscalpellum californicum</i>	15.2	28.5	6.8	7.0	24.0	8.7	43.5	20.0	16.8
<i>Pyromaia tuberculata</i>	7.6	36.7	8.6	38.7	12.7	-	26.1	10.0	15.6
<i>Heterocrypta occidentalis</i>	16.7	13.5	10.2	26.3	14.0	3.4	17.4	13.3	14.4
<i>Acanthodoris brunnea</i>	18.2	11.9	1.8	-	23.1	-	21.7	23.3	12.8
<i>Megasurcula carpenteriana</i>	6.1	21.0	17.3	-	16.2	15.8	30.4	13.3	12.6
<i>Brisaster latifrons</i>	15.2	11.7	6.8	-	-	55.1	-	-	12.4
<i>Calliostoma turbinum</i>	22.7	-	-	-	16.6	10.3	-	20.0	11.5
<i>Pisaster brevispinus</i>	6.1	23.3	7.0	24.7	9.8	-	8.7	10.0	10.9
<i>Brissopsis pacifica</i>	12.1	7.3	10.2	-	-	46.5	-	-	10.4
<i>Neocrangon resima</i>	7.6	19.2	3.4	-	1.5	39.8	8.7	-	9.7
<i>Cancer gracilis</i>	4.5	13.1	17.3	14.2	11.8	-	4.3	13.3	9.7
<i>Spatangus californicus</i>	16.7	2.9	-	-	-	41.2	-	-	9.2
<i>Tritonia diomedea</i>	7.6	16.5	3.4	-	12.0	10.5	21.7	10.0	9.0
<i>Metridium senile</i>	7.6	6.0	14.1	-	5.7	24.3	17.4	3.3	8.6
<i>Delonovolva aequalis vidleri</i>	13.6	4.6	-	3.5	7.7	13.7	13.0	6.7	8.2
<i>Crangon nigromaculata</i>	7.6	11.5	3.4	35.0	-	-	-	-	7.7
<i>Lovenia cordiformis</i>	4.5	2.9	19.1	10.7	9.0	-	4.3	10.0	7.4
<i>Amphichondrius granulatus</i>	6.1	11.9	3.6	-	10.5	5.5	13.0	10.0	7.1
<i>Metacrangon spinosissima</i>	-	17.9	10.2	-	5.0	19.2	13.0	3.3	7.1
<i>Astropecten armatus</i>	-	23.1	3.4	31.5	-	-	-	-	6.9
<i>Randallia ornata</i>	9.1	8.7	-	17.5	5.5	-	-	6.7	6.9
<i>Armina californica</i>	6.1	11.9	1.8	-	11.3	1.8	17.4	10.0	6.7
Porifera unid.	3.0	4.6	17.0	-	10.5	3.4	13.0	10.0	6.6
<i>Pagurus spilocarpus</i>	-	23.3	1.8	17.5	5.0	-	13.0	3.3	6.6

Appendix D7 (Continued)

Scientific Name	Region			Depth Zone			Middle Shelf POTW Status		
	N	C	S	IS	MS	OS	P	NP	Overall
<i>Paguristes turgidus</i>	7.6	7.3	1.8	3.5	3.5	15.6	4.3	3.3	6.2
<i>Nassarius perpinguis</i>	10.6	-	-	17.5	2.8	-	-	3.3	5.4
<i>Ptilosarcus gurneyi</i>	9.1	2.9	-	-	2.8	17.2	-	3.3	5.4
<i>Amphiura arcystata</i>	6.1	-	8.6	-	8.3	1.8	-	10.0	5.0
<i>Kelletia kelletii</i>	-	5.8	15.5	7.0	6.3	-	4.3	6.7	5.0
<i>Luidia</i> sp.	-	13.3	5.2	5.4	5.0	3.4	13.0	3.3	4.7
<i>Octopus californicus</i>	3.0	6.0	6.8	-	-	20.8	-	-	4.7
<i>Renilla kollikeri</i>	-	5.8	13.6	14.0	2.8	-	-	3.3	4.6
<i>Aglaophenia</i> sp.	1.5	11.5	3.4	14.0	2.8	-	-	3.3	4.6
<i>Balanus pacificus</i>	1.5	13.1	-	17.5	0.7	-	4.3	-	4.3
<i>Philine alba</i>	4.5	2.9	5.2	-	3.5	10.3	4.3	3.3	4.3
<i>Adelogorgia phyllosclera</i>	-	4.4	13.6	-	6.3	3.4	4.3	6.7	4.3
<i>Mediaster aequalis</i>	3.0	6.0	3.6	-	5.0	5.3	13.0	3.3	3.9
<i>Lophogorgia chilensis</i>	-	6.0	10.5	3.5	5.7	-	17.4	3.3	3.9
<i>Podochela lobifrons</i>	4.5	4.6	1.8	3.5	5.7	-	17.4	3.3	3.9
<i>Neverita reclusiana</i>	7.6	-	-	10.5	2.8	-	-	3.3	3.8
<i>Podochela hemphillii</i>	-	5.8	10.2	3.5	5.5	-	-	6.7	3.8
<i>Virgularia bromleyi</i>	1.5	3.1	8.6	3.5	5.0	-	13.0	3.3	3.5
<i>Dromalia alexandri</i>	-	1.5	13.6	-	-	15.6	-	-	3.5
<i>Crossata californica</i>	-	1.5	13.6	-	6.3	-	4.3	6.7	3.5
<i>Parapagurodes laurentae</i>	6.1	1.5	-	-	3.5	6.9	4.3	3.3	3.5
<i>Aphrodita japonica</i>	3.0	6.2	-	-	5.0	1.8	13.0	3.3	3.2
<i>Luidia asthenosoma</i>	-	8.8	3.4	-	4.2	3.4	8.7	3.3	3.1
<i>Loxorhynchus crispatus</i>	3.0	1.5	5.2	-	4.2	3.4	8.7	3.3	3.1
<i>Erileptus spinosus</i>	-	4.4	8.6	-	4.2	3.4	8.7	3.3	3.1
<i>Livoneca californica</i>	6.1	-	-	7.0	2.8	-	-	3.3	3.1
<i>Strongylocentrotus purpuratus</i>	6.1	-	-	-	5.5	-	-	6.7	3.1
<i>Loxorhynchus grandis</i>	3.0	2.9	3.4	7.0	2.8	-	-	3.3	3.1
<i>Astropecten</i> sp.	3.0	-	6.8	-	5.5	-	-	6.7	3.1
<i>Lopholithodes foraminatus</i>	3.0	5.8	-	-	-	13.7	-	-	3.1
<i>Pseudocnus</i> sp.	6.1	-	-	-	2.8	6.9	-	3.3	3.1
<i>Neptunea tabulata</i>	4.5	2.9	-	-	-	13.7	-	-	3.1
<i>Terebratalia occidentalis</i>	3.0	2.9	3.4	-	2.8	6.9	-	3.3	3.1
<i>Gorgonocephalus eucnemis</i>	6.1	-	-	-	-	13.7	-	-	3.1
<i>Cancer antennarius</i>	4.5	2.9	-	7.0	2.8	-	-	3.3	3.1
Ophiuroidea unid.	6.1	-	-	-	5.5	-	-	6.7	3.1
<i>Heterogorgia tortuosa</i>	-	10.4	-	7.0	2.2	-	13.0	-	2.8
<i>Styela gibbsii</i>	3.0	4.6	-	-	5.0	-	13.0	3.3	2.8
<i>Ophiopholis bakeri</i>	1.5	2.9	5.2	-	0.7	10.3	4.3	-	2.7
<i>Antiplanes perversus</i>	-	7.3	3.4	-	-	12.1	-	-	2.7
<i>Astropecten ornatissimus</i>	3.0	2.9	1.8	-	0.7	10.3	4.3	-	2.7
<i>Stylasterias forreri</i>	4.5	1.5	-	-	3.5	3.4	4.3	3.3	2.7
<i>Babelomurex oldroydi</i>	-	2.9	8.6	-	3.5	3.4	4.3	3.3	2.7
<i>Orthopagurus minimus</i>	-	4.4	6.8	-	3.5	3.4	4.3	3.3	2.7
<i>Leptopecten latiauratus</i>	-	10.2	-	3.5	3.5	-	4.3	3.3	2.7
<i>Ophiopteris papillosa</i>	3.0	-	3.6	-	4.2	-	8.7	3.3	2.4

Appendix D7 (Continued)

Scientific Name	Region			Depth Zone			Middle Shelf POTW Status		
	N	C	S	IS	MS	OS	P	NP	Overall
<i>Virgularia galapagensis</i>	-	8.8	-	3.5	1.5	3.4	8.7	-	2.4
<i>Cancer</i> sp.	-	3.1	6.8	1.9	3.5	-	4.3	3.3	2.4
<i>Diaulula sandiegensis</i>	-	-	10.2	3.5	2.8	-	-	3.3	2.3
<i>Laqueus californianus</i>	1.5	2.9	3.4	-	-	10.3	-	-	2.3
<i>Henricia leviuscula</i>	3.0	2.9	-	-	2.8	3.4	-	3.3	2.3
<i>Paralithodes californiensis</i>	3.0	2.9	-	-	-	10.3	-	-	2.3
<i>Cancer anthonyi</i>	3.0	-	3.4	3.5	2.8	-	-	3.3	2.3
<i>Balanus nubilus</i>	4.5	-	-	-	2.8	3.4	-	3.3	2.3
<i>Heptacarpus stimpsoni</i>	3.0	-	1.8	1.9	2.8	-	-	3.3	1.9
<i>Lamellaria diegoensis</i>	3.0	1.5	-	-	3.5	-	4.3	3.3	1.9
<i>Calliostoma tricolor</i>	-	1.5	6.8	-	3.5	-	4.3	3.3	1.9
<i>Fusinus barbarensis</i>	1.5	1.5	3.4	-	0.7	6.9	4.3	-	1.9
<i>Leptasterias hexactis</i>	-	4.4	3.4	-	0.7	6.9	4.3	-	1.9
<i>Paracyathus stearnsii</i>	-	4.4	3.4	-	0.7	6.9	4.3	-	1.9
<i>Platymera gaudichaudii</i>	-	6.2	-	-	3.0	-	17.4	-	1.6
<i>Hemisquilla ensigera californiensis</i>	1.5	1.5	1.8	3.5	1.5	-	8.7	-	1.6
<i>Crassispira semiinflata</i>	-	-	6.8	-	2.8	-	-	3.3	1.5
<i>Flabellina iodinea</i>	-	5.8	-	-	2.8	-	-	3.3	1.5
<i>Placiphorella</i> sp. SD1	-	-	6.8	-	2.8	-	-	3.3	1.5
<i>Cancer productus</i>	3.0	-	-	-	2.8	-	-	3.3	1.5
<i>Phimochirus californiensis</i>	-	-	6.8	-	2.8	-	-	3.3	1.5
<i>Cidarina cidaris</i>	1.5	-	3.4	-	-	6.9	-	-	1.5
<i>Calyptrea fastigiata</i>	-	-	6.8	-	2.8	-	-	3.3	1.5
<i>Crangon alba</i>	-	-	6.8	-	2.8	-	-	3.3	1.5
<i>Parastichopus</i> sp.	3.0	-	-	-	2.8	-	-	3.3	1.5
<i>Dendronotus iris</i>	3.0	-	-	-	2.8	-	-	3.3	1.5
<i>Parapagurodes makarovi</i>	3.0	-	-	-	-	6.9	-	-	1.5
<i>Doriopsilla albopunctata</i>	-	-	6.8	-	2.8	-	-	3.3	1.5
<i>Paralithodes rathbuni</i>	1.5	-	3.4	-	-	6.9	-	-	1.5
<i>Euvola diegensis</i>	3.0	-	-	-	2.8	-	-	3.3	1.5
<i>Triopha maculata</i>	-	-	6.8	-	2.8	-	-	3.3	1.5
<i>Aphrodita armifera</i>	-	-	6.8	-	2.8	-	-	3.3	1.5
<i>Spirontocaris holmesi</i>	-	5.8	-	-	-	6.9	-	-	1.5
<i>Scyra acutifrons</i>	3.0	-	-	-	2.8	-	-	3.3	1.5
<i>Amphianthus</i> sp. OC1	-	-	6.8	-	2.8	-	-	3.3	1.5
<i>Amphiodia psara</i>	-	-	6.8	-	2.8	-	-	3.3	1.5
<i>Amphipholis squamata</i>	-	-	6.8	-	2.8	-	-	3.3	1.5
<i>Amphissa undata</i>	3.0	-	-	-	2.8	-	-	3.3	1.5
<i>Platydoris macfarlandi</i>	-	2.9	3.4	-	-	6.9	-	-	1.5
<i>Rathbunaster californicus</i>	3.0	-	-	-	2.8	-	-	3.3	1.5
<i>Conus californicus</i>	3.0	-	-	-	2.8	-	-	3.3	1.5
<i>Pugettia dalli</i>	-	-	6.8	-	2.8	-	-	3.3	1.5
<i>Astrobdella californiana</i>	-	5.8	-	7.0	-	-	-	-	1.5
<i>Pteropurpura vokesae</i>	-	-	6.8	-	2.8	-	-	3.3	1.5
<i>Pteropurpura macroptera</i>	-	2.9	3.4	-	-	6.9	-	-	1.5
<i>Psolus chitonoides</i>	1.5	2.9	-	-	-	6.9	-	-	1.5

Appendix D7 (Continued)

Scientific Name	Region			Depth Zone			Middle Shelf POTW Status		
	N	C	S	IS	MS	OS	P	NP	Overall
<i>Polyandrocarpa</i> sp.	-	-	6.8	-	2.8	-	-	3.3	1.5
<i>Pododesmus macroschisma</i>	-	-	6.8	-	2.8	-	-	3.3	1.5
<i>Styela</i> sp.	-	-	6.8	-	2.8	-	-	3.3	1.5
<i>Amphissa versicolor</i>	-	-	6.8	-	2.8	-	-	3.3	1.5
<i>Hemectyon hyle</i>	3.0	-	-	-	2.8	-	-	3.3	1.5
<i>Florometra serratissima</i>	1.5	-	3.4	-	-	6.9	-	-	1.5
<i>Ophionereis eurybrachioplax</i>	1.5	2.9	-	-	-	6.9	-	-	1.5
<i>Spirontocaris sica</i>	3.0	-	-	-	-	6.9	-	-	1.5
<i>Terebratulina crossei</i>	-	2.9	3.4	-	-	6.9	-	-	1.5
<i>Lepidozona sinudentata</i>	-	-	6.8	-	2.8	-	-	3.3	1.5
<i>Neocrangon communis</i>	-	-	6.8	-	-	6.9	-	-	1.5
<i>Ophiidermella cancellata</i>	3.0	-	-	-	2.8	-	-	3.3	1.5
<i>Loxorhynchus</i> sp.	-	5.8	-	-	2.8	-	-	3.3	1.5
<i>Paguristes</i> sp.	-	5.8	-	-	2.8	-	-	3.3	1.5
<i>Myxilla incrustans</i>	-	5.8	-	-	2.8	-	-	3.3	1.5
<i>Amphiodia urtica</i>	-	4.6	-	-	2.2	-	13.0	-	1.2
<i>Octopus veligero</i>	-	4.4	-	-	-	5.3	-	-	1.2
<i>Calinaticina oldroydii</i>	1.5	1.5	-	-	0.7	3.4	4.3	-	1.2
<i>Sclerasterias heteropaes</i>	-	4.4	-	-	0.7	3.4	4.3	-	1.2
Hirudinea unid.	-	-	5.2	3.5	0.7	-	4.3	-	1.2
<i>Terebra pedroana</i>	1.5	-	1.8	3.5	0.7	-	4.3	-	1.2
<i>Eugorgia rubens</i>	-	2.9	1.8	-	0.7	3.4	4.3	-	1.2
Ascidiacea unid.	-	1.5	1.8	-	0.7	1.8	4.3	-	0.8
<i>Leucilla nuttingi</i>	-	3.1	-	-	1.5	-	8.7	-	0.8
<i>Megasurcula stearnsiana</i>	1.5	-	-	-	-	3.4	-	-	0.8
<i>Virgularia</i> sp.	-	2.9	-	3.5	-	-	-	-	0.8
<i>Aegires albopunctatus</i>	-	-	3.4	3.5	-	-	-	-	0.8
<i>Flabellina pricei</i>	-	2.9	-	3.5	-	-	-	-	0.8
<i>Calliostoma canaliculatum</i>	-	-	3.4	3.5	-	-	-	-	0.8
<i>Sphaciospongia confoederata</i>	1.5	-	-	-	-	3.4	-	-	0.8
<i>Alcyonacea</i> sp. A	-	2.9	-	-	-	3.4	-	-	0.8
<i>Tritonia festiva</i>	-	-	3.4	-	-	3.4	-	-	0.8
<i>Boreotrophon bentleyi</i>	-	-	3.4	-	-	3.4	-	-	0.8
<i>Puncturella multistriata</i>	-	-	3.4	-	-	3.4	-	-	0.8
<i>Berthella californica</i>	-	2.9	-	-	-	3.4	-	-	0.8
<i>Balanus</i> sp.	-	2.9	-	3.5	-	-	-	-	0.8
<i>Protula superba</i>	-	-	3.4	-	-	3.4	-	-	0.8
<i>Mitra idae</i>	-	2.9	-	-	-	3.4	-	-	0.8
<i>Pteropurpura festiva</i>	-	2.9	-	3.5	-	-	-	-	0.8
<i>Nassarius fossatus</i>	-	2.9	-	3.5	-	-	-	-	0.8
<i>Nassarius</i> sp.	-	2.9	-	3.5	-	-	-	-	0.8
<i>Aphrodita castanea</i>	-	-	3.4	-	-	3.4	-	-	0.8
<i>Poecillastra tenuilaminaris</i>	-	2.9	-	-	-	3.4	-	-	0.8
<i>Heptacarpus palpator</i>	-	-	3.4	3.5	-	-	-	-	0.8
<i>Pandalus platyceros</i>	1.5	-	-	-	-	3.4	-	-	0.8
<i>Epiactis prolifera</i>	1.5	-	-	-	-	3.4	-	-	0.8

Appendix D7 (Continued)

Scientific Name	Region			Depth Zone			Middle Shelf POTW Status		Overall
	N	C	S	IS	MS	OS	P	NP	
<i>Enallopaguropsis guatemoci</i>	1.5	-	-	-	-	3.4	-	-	0.8
<i>Pagurus redondoensis</i>	-	-	3.4	3.5	-	-	-	-	0.8
<i>Paguristes ulreyi</i>	-	2.9	-	3.5	-	-	-	-	0.8
Decapoda unid.	-	2.9	-	-	-	3.4	-	-	0.8
<i>Penaeus californiensis</i>	-	2.9	-	3.5	-	-	-	-	0.8
<i>Pachythyone rubra</i>	1.5	-	-	-	-	3.4	-	-	0.8
<i>Cancer jordani</i>	-	-	3.4	3.5	-	-	-	-	0.8
<i>Cancer amphioetus</i>	-	2.9	-	3.5	-	-	-	-	0.8
<i>Stylatula</i> sp. A	-	-	3.4	-	-	3.4	-	-	0.8
<i>Pinnixa franciscana</i>	1.5	-	-	3.5	-	-	-	-	0.8
<i>Corella willmeriana</i>	-	-	1.8	-	0.7	-	4.3	-	0.4
Xanthidae unid.	-	-	1.8	-	0.7	-	4.3	-	0.4
<i>Lophopanopeus bellus</i>	-	1.5	-	-	0.7	-	4.3	-	0.4
<i>Delectopecten vancouverensis</i>	-	1.5	-	-	0.7	-	4.3	-	0.4
<i>Anomia peruviana</i>	-	1.5	-	-	0.7	-	4.3	-	0.4
<i>Desmophyllum dianthus</i>	-	-	1.8	-	-	1.8	-	-	0.4
<i>Halocynthia igaboja</i>	-	1.5	-	-	0.7	-	4.3	-	0.4
<i>Dougaloplus amphacanthus</i>	-	1.5	-	-	-	1.8	-	-	0.4
<i>Pandalus danae</i>	-	-	1.8	-	0.7	-	4.3	-	0.4
<i>Cancellaria crawfordiana</i>	-	1.5	-	-	0.7	-	4.3	-	0.4
<i>Galathea californiensis</i>	-	-	1.8	-	-	1.8	-	-	0.4
<i>Cancellaria cooperi</i>	-	-	1.8	-	-	1.8	-	-	0.4
<i>Acanthodoris rhodoceras</i>	-	1.5	-	-	0.7	-	4.3	-	0.4
<i>Dendroaster excentricus</i>	-	-	1.8	1.9	-	-	-	-	0.4
<i>Paguristes bakeri</i>	-	-	1.8	-	0.7	-	4.3	-	0.4
<i>Chlamys hastata</i>	-	1.5	-	-	0.7	-	4.3	-	0.4
<i>Ophiacantha phragma</i>	-	1.5	-	-	-	1.8	-	-	0.4
Polyplacophora unid.	-	1.5	-	-	0.7	-	4.3	-	0.4
<i>Chorilia longipes</i>	-	1.5	-	-	-	1.8	-	-	0.4
<i>Lepidozona mertensii</i>	-	-	1.8	-	0.7	-	4.3	-	0.4
Amphiuridae unid.	-	1.5	-	-	0.7	-	4.3	-	0.4
<i>Lithopoma undosum</i>	-	-	1.8	-	0.7	-	4.3	-	0.4
Hexactinellida unid.	-	1.5	-	-	0.7	-	4.3	-	0.4
<i>Corynactis californica</i>	-	1.5	-	-	0.7	-	4.3	-	0.4
<i>Asterina miniata</i>	-	-	1.8	1.9	-	-	-	-	0.4
<i>Tubularia crocea</i>	-	1.5	-	-	0.7	-	4.3	-	0.4
<i>Pennatula phosphorea</i>	-	-	1.8	-	-	1.8	-	-	0.4
<i>Callistoichiton palmulatus</i>	-	-	1.8	-	0.7	-	4.3	-	0.4
<i>Cadlina modesta</i>	-	1.5	-	-	0.7	-	4.3	-	0.4
<i>Pycnopodia helianthoides</i>	-	-	1.8	-	0.7	-	4.3	-	0.4
<i>Boltenia villosa</i>	-	1.5	-	-	0.7	-	4.3	-	0.4

POTW = Publicly owned treatment work monitoring areas.

N = Northern; C = Central; S = Southern; IS = Inner shelf; MS = Middle shelf; OS = Outer shelf;

P = POTW; NP = Non-POTW.

sp. = Species; unid. = Unidentified.

Appendix D6. Taxonomic list of megabenthic invertebrate species collected in the regional survey of the mainland shelf of southern California at depths of 10-200 m, July-August 1994.

Taxon/Species	Author	Common Name
PORIFERA		
CALCAREA		
--SCYCETTIDA		
Amphoriscidae		
<i>Leucilla nuttingi</i>	(Urban 1902)	urn sponge
HEXACTINELLIDA		
Hexactinellida unid.		glass sponge
DEMOSPONGIAE		
--CHORISTIDA		
Pachastrellidae		
<i>Poecillastra tenuilaminaris</i>	(Sollas 1886)	"sponge"
--HADROMERIDA		
Spirastrellidae		
<i>Sphaciospongia confoederata</i>	de Laubenfels 1930	gray moonsponge
--AXINELLIDA		
Raspailiidae		
<i>Hemectyon hyle</i>	de Laubenfels 1932	bushy sponge
--POECILOSCLERIDA		
Myxillidae		
<i>Myxilla incrustans</i>	(Esper 1805-1814)	scallop sponge
CNIDARIA		
HYDROZOA		
--ATHECATAE		
Tubulariidae		
<i>Tubularia crocea</i>	(L. Agassiz 1862)	pink-mouth hydroid
--THECATAE		
Aglaopheniidae		
<i>Aglaophenia</i> sp.		feather hydroid, unid.
--SIPHONOPHORA		
Rhodaliidae		
<i>Dromalia alexandri</i>	Bigelow 1911	sea strawberry
ANTHOZOA		
--ALCYONACEA		
Alcyonacea sp. A		"soft coral"
Gorgoniidae		
<i>Adelogorgia phyllosclera</i>	Bayer 1958	orange gorgonian
<i>Eugorgia rubens</i>	Verrill 1868	purple gorgonian
<i>Heterogorgia tortuosa</i>	Verrill 1868	"gorgonian"
<i>Lophogorgia chilensis</i>	(Verrill 1868)	pink sea whip
Muriceidae		
<i>Thesea</i> sp. B	Ljubenkov 1986	yellow sea twig
--PENNATULACEA		
Renillidae		
<i>Renilla koellikeri</i>	Pfeffer 1886	purple sea pansy

Appendix D6 (Continued)

Taxon/Species	Author	Common Name
Virgulariidae		
<i>Acanthoptilum</i> sp.		trailtip sea pen, unid.
<i>Stylatula elongata</i>	(Gabb 1862)	slender sea pen
<i>Stylatula</i> sp. A	Ljubenkov 1991	"sea pen"
<i>Virgularia bromleyi</i>	Kölliker 1880	"sea pen"
<i>Virgularia galapagensis</i>	Hickson 1930	Galapagos sea pen
Pennatulidae		
<i>Pennatula phosphorea</i>	Linnaeus 1758	"sea pen"
<i>Ptilosarcus gurneyi</i>	(Gray 1860)	fleshy sea pen
--SCLERACTINIA		
Caryophylliidae		
<i>Desmophyllum dianthus</i>	(Esper 1794)	"cup coral"
<i>Paracyathus stearnsii</i>	Verrill 1869	brown cup coral
--ACTINIARIA		
Actiniidae		
<i>Epiactis prolifera</i>	Verrill 1869	brooding anemone
Hormathiidae		
<i>Amphianthus</i> sp. OC1		"anemone"
Metridiidae		
<i>Metridium "senile"</i>		"clonal plumose anemone"
--CORALLIMORPHARIA		
Corallimorphidae		
<i>Corynactis californica</i>	Carlgren 1936	strawberry corallimorpharian
MOLLUSCA		
POLYPLACOPHORA		
--NEOLORICATA		
Ischnochitonidae		
<i>Callistoichiton palmulatus</i>	Carpenter in Dall 1879	big-end chiton
<i>Lepidozona mertensii</i>	(Middendorff 1847)	Merten chiton
<i>Lepidozona sinudentata</i>	(Carpenter in Pilsbry 1892)	whitestripe chiton
Mopaliidae		
<i>Placiphorella</i> sp SD1		"veiled chiton"
GASTROPODA		
--ARCHAEOGASTROPODA		
Fissurellidae		
<i>Puncturella multistriata</i>	Dall 1914	many-rib puncturella
Turbinidae		
<i>Lithopoma undosum</i>	(Wood 1828)	wavy turban
Trochidae		
<i>Calliostoma canaliculatum</i>	(Lightfoot 1786)	channeled topsnail
<i>Calliostoma tricolor</i>	Gabb 1865	tricolor topsnail
<i>Calliostoma turbinum</i>	Dall 1895	spindle topsnail
<i>Cidarina cidaris</i>	(Carpenter 1864)	Adam spiny margarite
--MESOGASTROPODA		
Calyptraeidae		
<i>Calyptraea fastigiata</i>	Gould 1856	Pacific Chinese-hat

Appendix D6 (Continued)

Taxon/Species	Author	Common Name
Naticidae		
<i>Calinaticina oldroydii</i>	(Dall 1897)	delicate moonsnail
<i>Neverita reclusiana</i>	(Deshayes 1839)	southern moonsnail
Lamellariidae		
<i>Lamellaria diegoensis</i>	Dall in Orcutt 1885	San Diego lamellaria
Ovulidae		
<i>Delonovolva aequalis vidleri</i>	(G. B. Sowerby II 1881)	Vidler simnia
Bursidae		
<i>Crossata californica</i>	(Hinds 1843)	California frogsnail
--NEOGASTROPODA		
Muricidae		
<i>Boreotrophon bentleyi</i>	(Dall 1908)	"trophon"
<i>Pteropurpura festiva</i>	(Hinds 1844)	festive murex
<i>Pteropurpura macroptera</i>	(DeShayes 1839)	frill-wing murex
<i>Pteropurpura vokesae</i>	Emerson 1964	wrinkle-wing murex
Coralliophilidae		
<i>Babelomurex oldroydi</i>	(I. S. Oldroyd 1929)	Olyroyd coralsnail
Columbellidae		
<i>Amphissa undata</i>	(Carpenter 1864)	Carpenter amphissa
<i>Amphissa versicolor</i>	Dall 1871	variagate amphissa
Buccinidae		
<i>Kelletia kelletii</i> (=kelletti)	(Forbes 1850)	Kellet whelk
<i>Neptunea tabulata</i>	(Baird 1863)	tabled whelk
Nassariidae		
<i>Nassarius fossatus</i>	(Gould 1849)	channeled nassa
<i>Nassarius perpinguis</i>	(Hinds 1844)	fat western nassa
Fasciolaridae		
<i>Fusinus barborensis</i>	(Trask 1855)	Santa Barbara spindle
Mitridae		
<i>Mitra idae</i>	Melville 1893	half-pitted miter
Cancellariidae		
<i>Cancellaria cooperi</i>	Gabb 1865	Cooper nutmeg
<i>Cancellaria crawfordiana</i>	(Dall 1891)	Crawford nutmeg
Conidae		
<i>Conus californicus</i>	Hinds 1844	California cone
Terebridae		
<i>Terebra pedroana</i>	Dall 1908	San Pedro auger
Turridae		
<i>Antiplanes perversus</i>	(Gabb 1865)	"turrid"
<i>Crassispira semiinflata</i>	(Grant & Gale 1931)	California drillia
<i>Megasurcula carpenteriana</i>	(Gabb 1865)	tower snail
<i>Megasurcula stearnsiana</i>	(Raymond 1904)	Stearns turrid
<i>Ophiodermella cancellata</i>	(Carpenter 1864)	cancellate snakeskin-snail
--CEPHALASPIDEA		
Philinidae		
<i>Philine alba</i>	Mattox 1958	white paperbubble

Appendix D6 (Continued)

Taxon/Species	Author	Common Name
--NOTASPIDEA		
Pleurobranchaeidae		
<i>Berthella californica</i>	(Dall 1900)	California sidegill slug
<i>Pleurobranchaea californica</i>	MacFarland 1966	California sea slug
--NUDIBRANCHIA		
Cadlinidae		
<i>Cadlina modesta</i>	MacFarland 1966	modest cadlina
Discodorididae		
<i>Diaulula sandiegensis</i>	(J. G. Cooper 1863)	ringed doris
Platydorididae		
<i>Platydoris macfarlandi</i>	Hanna 1951	California flat doris
Onchidorididae		
<i>Acanthodoris brunnea</i>	MacFarland 1905	brown spiny doris
<i>Acanthodoris rhodoceras</i>	Cockerell in Cockerell & Elliot 1905	black-tipped spiny doris
Notodorididae		
<i>Aegires albopunctatus</i>	MacFarland 1905	salt-and-pepper doris
Polyceratidae		
<i>Triopha maculata</i>	MacFarland 1905	maculated triopha
--NUDIBRANCHIA		
Dendrodorididae		
<i>Doriopsilla albopunctata</i>	(J. G. Cooper 1863)	salted yellow doris
Tritoniidae		
<i>Tritonia diomedea</i>	Bergh 1894	rosy tritonia
<i>Tritonia festiva</i>	(Stearns 1873)	diamondback tritonia
Dendronotidae		
<i>Dendronotus iris</i>	J. G. Cooper 1863	giant frond-aeolis
Arminidae		
<i>Armina californica</i>	(J. G. Cooper 1863)	California armina
Flabellinidae		
<i>Flabellina iodinea</i>	J. G. Cooper 1863	purple aeolis
<i>Flabellina pricei</i>	(MacFarland 1966)	smooth-tooth aeolis
BIVALVIA		
--OSTREOIDA		
Pectinidae		
<i>Chlamys hastata</i>	(G. B. Sowerby II 1843)	spiny scallop
<i>Delectopecten vancouverensis</i>	(Whiteaves 1893)	Vancouver scallop
<i>Euvola diegensis</i>	(Dall 1898)	San Diego scallop
<i>Leptopecten latiauratus</i>	(Conrad 1837)	kelp scallop
Anomiidae		
<i>Anomia peruviana</i>	d'Orbigny 1846	Peruvian jingle
<i>Pododesmus macroschisma</i>	(Deshayes 1839)	Alaska falsejingle
CEPHALOPODA		
--SEPIOIDEA		
Sepiolidae		
<i>Rossia pacifica</i>	Berry 1911	eastern Pacific bobtail

Appendix D6 (Continued)

Taxon/Species	Author	Common Name
--TEUTHOIDEA		
Loliginiidae		
<i>Loligo opalescens</i>	Berry 1911	California market squid
--OCTOPODA		
Octopodidae		
<i>Octopus californicus</i>	Berry 1911	orange bigeye octopus
<i>Octopus rubescens</i>	Berry 1953	red octopus
<i>Octopus veligero</i>	Berry 1953	short arm octopus
ANNELIDA		
POLYCHAETA		
--PHYLLODOCIDA		
Aphroditidae		
<i>Aphrodita armifera</i>	Moore 1910	copper sea mouse
<i>Aphrodita castanea</i>	Moore 1910	chestnut sea mouse
<i>Aphrodita japonica</i>	Marenzeller 1879	black sea mouse
--SABELLIDA		
Serpulidae		
<i>Protula superba</i>	Moore 1909	chalktube worm
HIRUDINEA		
<i>Astrobdella californiana</i>	Burreson 1977	striped leech
ARTHROPODA		
CIRRIPEDIA		
--THORACICA		
Scalpellidae		
<i>Hamatoscalpellum californicum</i>	(Pilsbry 1907)	California blade barnacle
Balanidae		
<i>Balanus nubilus</i>	Darwin 1854	giant acorn barnacle
<i>Balanus pacificus</i>	Pilsbry 1916	Pacific acorn barnacle
MALACOSTRACA		
--STOMATOPODA		
Hemisquillidae		
<i>Hemisquilla ensigera californiensis</i>	Stephenson 1967	blueleg mantis shrimp
--ISOPODA		
Cymothoidae		
<i>Livoneca californica</i>	Schioedte and Meinert 1881	California fish louse
<i>Livoneca vulgaris</i>	Stimpson 1857	Pacific fish louse
--DECAPODA		
Penaeidae		
<i>Penaeus californiensis</i>	Holmes 1900	yellowleg shrimp
Sicyoniidae		
<i>Sicyonia ingentis</i>	(Burkenroad 1938)	ridgeback rock shrimp
Pandalidae		
<i>Pandalus danae</i>	Stimpson 1857	dock shrimp
<i>Pandalus platyceros</i>	Brandt 1851	spot shrimp

Appendix D6 (Continued)

Taxon/Species	Author	Common Name
Hippolytidae		
<i>Heptacarpus palpator</i>	(Owen 1839)	intertidal coastal shrimp
<i>Heptacarpus stimpsoni</i>	Holthuis 1947	Stimpson coastal shrimp
<i>Spirontocaris holmesi</i>	Holthuis 1947	slender blade shrimp
<i>Spirontocaris sica</i>	Rathbun 1902	offshore blade shrimp
Crangonidae		
<i>Crangon alaskensis</i>	Lockington 1877	Alaska bay shrimp
<i>Crangon alba</i>	Holmes 1900	stout crangon
<i>Crangon nigromaculata</i>	Lockington 1877	blackspotted bay shrimp
<i>Metacrangon spinosissima</i>	(Rathbun 1902)	southern spinyhead
<i>Neocrangon communis</i>	(Rathbun 1899)	gray shrimp
<i>Neocrangon resima</i>	(Rathbun 1902)	flagnose bay shrimp
<i>Neocrangon zacaе</i>	(Chace 1937)	shortkeel bay shrimp
Diogenidae		
<i>Paguristes bakeri</i>	Holmes 1900	digger hermit
<i>Paguristes turgidus</i>	(Stimpson 1857)	slenderclaw hermit
<i>Paguristes ulreyi</i>	Schmitt 1921	furry hermit
Paguridae		
<i>Enallopaguroopsis guatemoci</i>	(Glassell 1937)	"hermit"
<i>Orthopagurus minimus</i>	(Holmes 1900)	tubicolous hermit
<i>Parapagurodes laurentae</i>	McLaughlin & Haig 1973	spiny palm hermit
<i>Parapagurodes makarovi</i>	McLaughlin & Haig 1973	smooth palm hermit
<i>Pagurus redondoensis</i>	Wicksten 1982	bandclaw hermit
<i>Pagurus spilocarpus</i>	Haig 1977	spotwrist hermit
<i>Phimochirus californiensis</i>	(Benedict 1892)	California hermit
Lithodidae		
<i>Lopholithodes foraminatus</i>	(Stimpson 1859)	brown box crab
<i>Paralithodes californiensis</i>	(Benedict 1894)	California king crab
<i>Paralithodes rathbuni</i>	(Benedict 1894)	forknose king crab
Galatheidae		
<i>Galathea californiensis</i>	(Benedict 1902)	California squat lobster
Calappidae		
<i>Platymera gaudichaudii</i>	Milne Edwards 1837	armed box crab
Leucosiidae		
<i>Randallia ornata</i>	(Randall 1839)	globose sand crab
Majidae		
<i>Chorilia longipes</i>	Dana 1851	longhorn decorator crab
<i>Erileptus spinosus</i>	Rathbun 1893	shortneck pear crab
<i>Loxorhynchus crispatus</i>	Stimpson 1857	moss crab
<i>Loxorhynchus grandis</i>	Stimpson 1857	sheep crab
<i>Podochela hemphillii</i>	(Lockington 1877)	Hemphill kelp crab
<i>Podochela lobifrons</i>	Rathbun 1925	thinbeak neck crab
<i>Pugettia dalli</i>	Rathbun 1893	spined kelp crab
<i>Pyromaia tuberculata</i>	(Lockington 1877)	tuberculate pear crab
<i>Scyra acutifrons</i>	Dana 1851	sharpnose crab
Parthenopidae		
<i>Heterocrypta occidentalis</i>	(Dana 1854)	sandflat elbow crab

Appendix D6 (Continued)

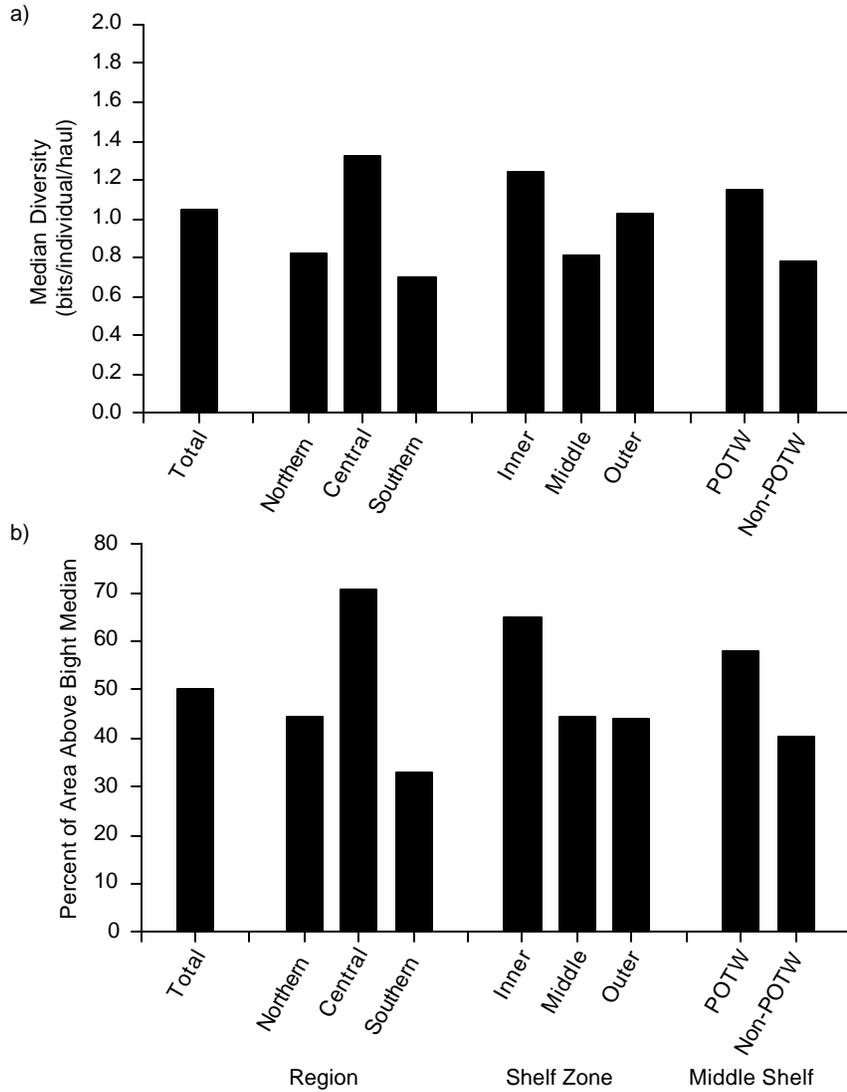
Taxon/Species	Author	Common Name
Cancridae		
<i>Cancer amphioetus</i>	Rathbun 1898	bigtooth rock crab
<i>Cancer antennarius</i>	Stimpson 1856	Pacific rock crab
<i>Cancer anthonyi</i>	Rathbun 1879	yellow rock crab
<i>Cancer gracilis</i>	Dana 1852	graceful rock crab
<i>Cancer jordani</i>	Rathbun 1900	hairy rock crab
<i>Cancer productus</i>	Randall 1839	red rock crab
Xanthidae		
<i>Lophopanopeus bellus</i>	(Stimpson 1860)	blackclaw crestleg crab
Pinnotheridae		
<i>Pinnixa franciscana</i>	Rathbun 1918	innkeeper pea crab
ECHINODERMATA		
CRINOIDEA		
--COMATULIDA		
Antedonidae		
<i>Florometra serratissima</i>	(A. H. Clark 1907)	feather star
ASTEROIDEA		
--PAXILLOSIDA		
Luidiidae		
<i>Luidia armata</i>	Ludwig 1905	mosaic sand star
<i>Luidia asthenosoma</i>	Fisher 1906	fringed sand star
<i>Luidia foliolata</i>	Grube 1866	gray sand star
Astropectinidae		
<i>Astropecten armatus</i>	Gray 1840	spiny sand star
<i>Astropecten ornatissimus</i>	Fisher 1906	orange sand star
<i>Astropecten verrilli</i>	de Loriol 1899	California sand star
--VALVATIDA		
Goniasteridae		
<i>Mediaster aequalis</i>	Stimpson 1857	red sea star
Asterinidae		
<i>Asterina miniata</i>	(Brandt 1835)	bat star
--SPINULOSIDA		
Echinasteridae		
<i>Henricia leviuscula</i>	(Stimpson 1857)	blood star
--FORCIPULATIDA		
Asteriidae		
<i>Leptasterias hexactis</i>	(Stimpson 1853)	knobless six-rayed sea star
<i>Pisaster brevispinus</i>	(Stimpson 1857)	shortspined sea star
<i>Pycnopodia helianthoides</i>	(Brandt 1835)	sunflower star
<i>Rathbunaster californicus</i>	Fisher 1906	sun star
<i>Sclerasterias heteropaes</i>	Fisher 1924	banded sea star
<i>Stylasterias forreri</i>	(de Loriol 1887)	fish-eating sea star
OPHIUROIDEA		
--PHRYNOPHIURIDA		
Gorgonocephalidae		
<i>Gorgonocephalus eucnemis</i>	(J. Müller & Troschel 1842)	basket star

Appendix D6 (Continued)

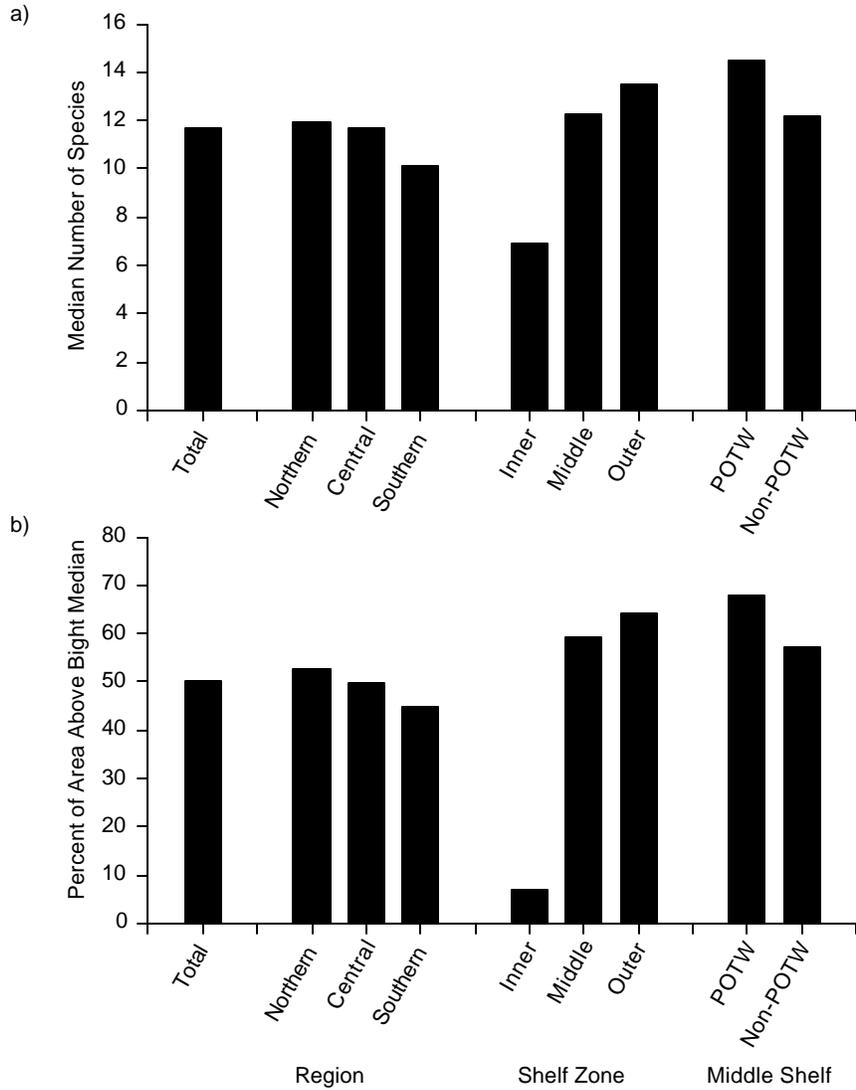
Taxon/Species	Author	Common Name
--OPHIURIDA		
Ophiacanthidae		
<i>Ophiacantha phragma</i>	Ziesenhene 1940	fragile spinyarm brittlestar
Ophiactidae		
<i>Ophiopholis bakeri</i>	McClendon 1909	roughspine brittlestar
Amphiuridae		
<i>Amphichondrius granulosus</i>	Nielsen 1932	roughdisk brittlestar
<i>Amphiodia psara</i>	H. L. Clark 1935	"brittlestar"
<i>Amphiodia urtica</i>	(Lyman 1860)	red brittlestar
<i>Amphipholis squamata</i>	(Delle Chiaje 1828)	holdfast brittlestar
<i>Amphiura arcystata</i>	H. L. Clark 1911	"brittlestar"
<i>Dougaloplus amphacanthus</i>	(McClendon 1909)	"brittlestar"
Ophiotricidae		
<i>Ophiothrix spiculata</i>	Le Conte 1851	Pacific spiny brittlestar
Ophiocomidae		
<i>Ophiopteris papillosa</i>	(Lyman 1875)	flatspine brittlestar
Ophionereidae		
<i>Ophionereis eurybrachiplax</i>	H. L. Clark 1911	"brittlestar"
Ophiuridae		
<i>Ophiura luetkeni</i>	(Lyman 1860)	brokenspine brittlestar
ECHINOIDEA		
--TEMNOPLEUROIDA		
Toxopneustidae		
<i>Lytechinus pictus</i>	(Verrill 1867)	white sea urchin
--ECHINOIDA		
Strongylocentrotidae		
<i>Alloccentrotus fragilis</i>	(Jackson 1912)	fragile sea urchin
<i>Strongylocentrotus purpuratus</i>	(Stimpson 1857)	Pacific purple urchin
--CLYPEASTEROIDA		
Dendrasteridae		
<i>Dendraster excentricus</i>	(Eschscholtz 1831)	Pacific sand dollar
--SPATANGOIDA		
Schizasteridae		
<i>Brisaster latifrons</i>	(A. Agassiz 1898)	northern heart urchin
Brissidae		
<i>Brissopsis pacifica</i>	(A. Agassiz 1898)	Pacific heart urchin
Spatangidae		
<i>Spatangus californicus</i>	H. L. Clark 1917	California heart urchin
Loveniidae		
<i>Lovenia cordiformis</i>	A. Agassiz 1872	sea porcupine
HOLOTHUROIDEA		
--DENDROCHIROTIDA		
Psolidae		
<i>Psolus chitonoides</i>	H. L. Clark 1901	slipper sea cucumber
Sclerodactylidae		
<i>Pachythyone rubra</i>	(H. L. Clark 1901)	redback sea cucumber

Appendix D6 (Continued)

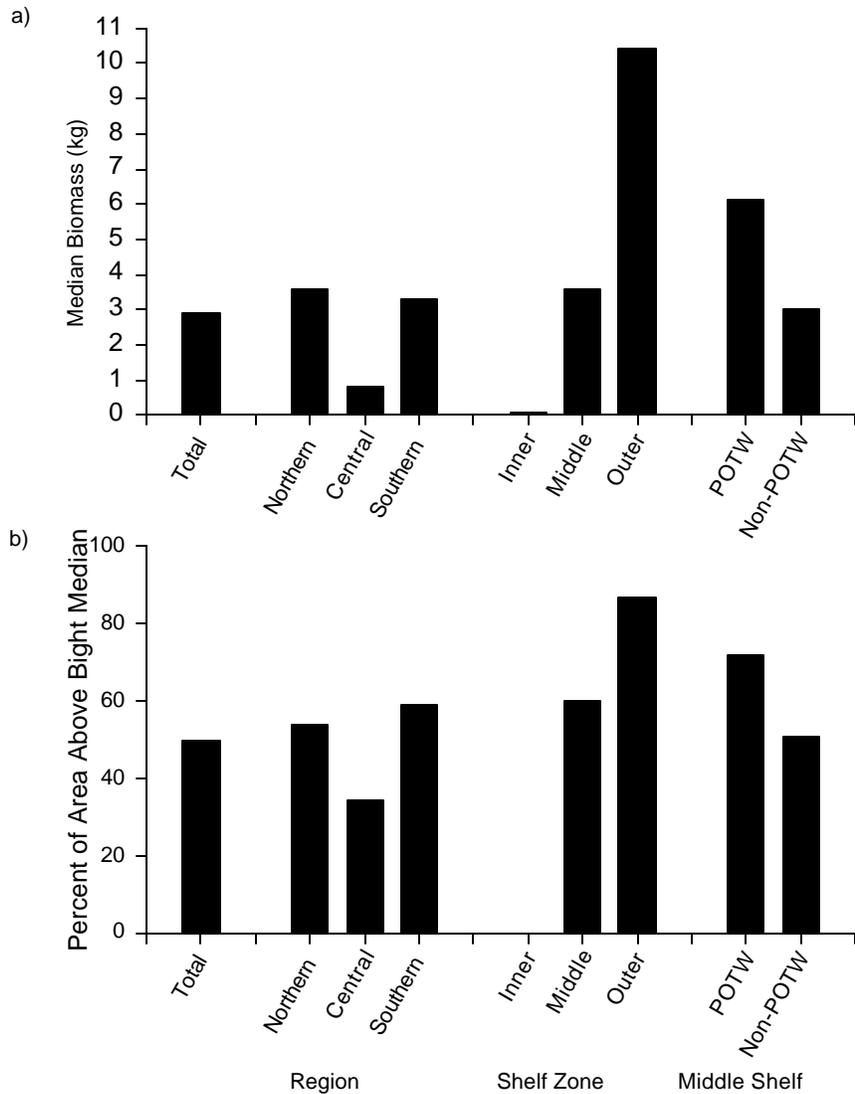
Taxon/Species	Author	Common Name
Cucumariidae		
<i>Pseudocnus</i> sp.		"sea cucumber"
--ASPIDOCHIROTIDA		
Stichopodidae		
<i>Parastichopus californicus</i>	(Stimpson 1857)	California sea cucumber
BRACHIOPODA		
ARTICULATA		
--TEREBRATULIDA		
Cancellothyrididae		
<i>Terebratulina crossei</i>	Davidson 1882	white lamp shell
Laqueidae		
<i>Laqueus californianus</i>	Koch 1847	California lamp shell
<i>Terebratalia occidentalis</i>	(Dall 1871)	ribbed lamp shell
CHORDATA		
ASCIDIACEA		
--PHLEBOBRANCHIATA		
Corellidae		
<i>Corella willmeriana</i>	Herdman 1898	icy tunicate
--STOLIDOBRANCHIATA		
Styelidae		
<i>Polyandrocarpa</i> sp.		"sea squirt"
<i>Styela gibbsii</i>	(Stimpson 1864)	wrinkled sea squirt
Pyuridae		
<i>Boltenia villosa</i>	(Stimpson 1864)	spiny-headed tunicate
<i>Halocynthia igaboja</i>	Oka 1906	spiny sea peach



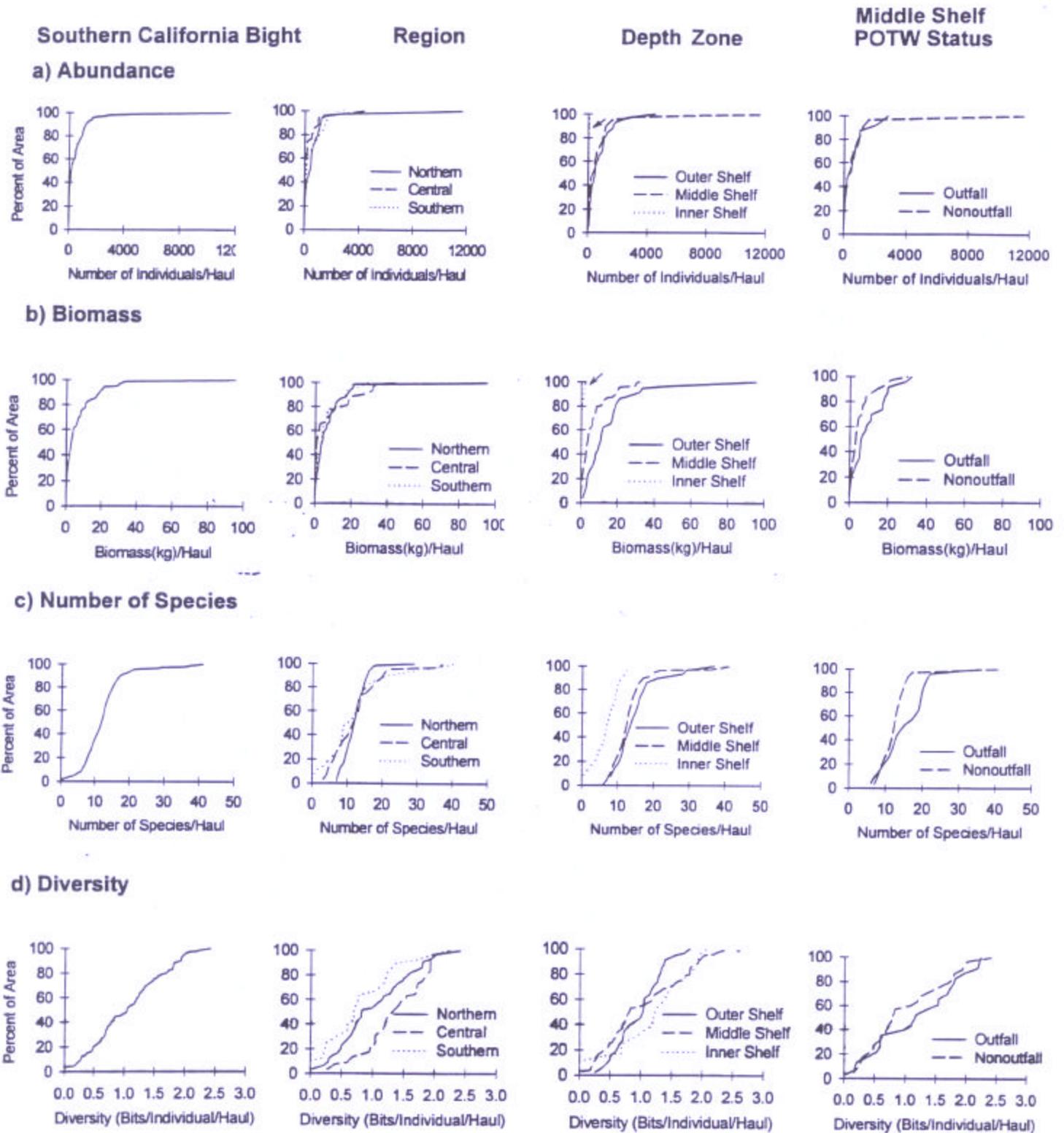
Appendix D5. Invertebrate diversity (Shannon-Wiener) per haul by subpopulation for the mainland shelf of southern California, July-August 1994: a) median and b) percent of area above Bight median.



Appendix D4. Number of invertebrate species per haul by subpopulation for the mainland shelf of southern California, July-August 1994: a) median and b) percent of area above Bight median.



Appendix D3. Invertebrate biomass per haul by subpopulation for the mainland shelf of southern California, July-August 1994: a) median and b) percent of area above Bight median.



Appendix D2. Cumulative distribution functions (CDFs) for invertebrate abundance, biomass, number of species, and diversity per haul by subpopulation in the regional survey of the mainland shelf of southern California, July-August 1994. Arrows show location of inner shelf CDF.

Appendix D31. Abundance of megabenthic invertebrate species occurring in 50% or more of the stations in site clusters on the mainland shelf of southern California, July-August 1994.

Scientific Name	Common Name	No. of Individuals in Site Clusters				
		1 (n=8)	2 (n=30)	3 (n=23)	4 (n=30)	5 (n=18)
<i>Astropecten armatus</i>	spiny sand star	17	-	-	-	-
<i>Astropecten verrilli</i>	California sand star	13	369	322	129	-
<i>Sicyonia ingentis</i>	ridgeback rock shrimp	-	-	5,555	1,966	2385
<i>Ophiura luetkeni</i>	brokenspine brittlestar	-	-	11,844	94	-
<i>Parastichopus californicus</i>	California sea cucumber	-	-	254	259	163
<i>Ophiothrix spiculata</i>	Pacific spiny brittlestar	-	-	213	-	-
<i>Crangon alaskensis</i>	Alaska bay shrimp	-	-	90	-	-
<i>Lytechinus pictus</i>	white sea urchin	-	-	5,068	20,082	-
<i>Luidia foliolata</i>	gray sand star	-	-	-	157	46
<i>Pleurobranchaea californica</i>	California sea slug	-	-	-	53	-
<i>Allocentrotus fragilis</i>	fragile sea urchin	-	-	-	484	3340
<i>Neocrangon zaca</i>	shortkeel bay shrimp	-	-	-	-	901
<i>Neocrangon resima</i>	flagnose bay shrimp	-	-	-	-	106
<i>Rossia pacifica</i>	eastern Pacific bobtail	-	-	-	-	46
<i>Brisaster latifrons</i>	northern heart urchin	-	-	-	-	1282
<i>Brissopsis pacifica</i>	Pacific heart urchin	-	-	-	-	232
<i>Metacrangon spinosissima</i>	southern spinyhead	-	-	-	-	26

n = Number of stations.