

## **APPENDIX D:**

Frequency of Occurrence and Average Abundance  
of Species in the Southern California Bight

**Table D1. Frequency of occurrence of species in the geographic regions of the Southern California Bight. Species with frequency of at least 30% and average abundance greater than 20 / m<sup>2</sup> are shown.**

Species	Taxonomic Group	Frequency (Percent)		
		North	Central	South
<i>Spiophanes missionensis</i>	Annelida	91.3	95.7	94.5
<i>Lumbrineris</i> spp.	Annelida	87.5	81.9	63.6
<i>Paraprionospio pinnata</i>	Annelida	85.0	91.4	72.7
Maldanidae	Annelida	83.8	73.3	70.9
<i>Mediomastus</i> spp.	Annelida	81.3	65.5	56.4
<i>Pectinaria californiensis</i>	Annelida	78.8	72.4	63.6
<i>Amphiodia urtica</i>	Ophiuroidea	72.5	64.7	58.2
<i>Ampelisca brevisimulata</i>	Arthropoda	63.8	69.8	
<i>Cossura</i> spp.	Annelida	58.8		
<i>Sternaspis fossor</i>	Annelida	58.8		47.3
<i>Prionospio</i> sp. A	Annelida	58.8	69.0	61.8
<i>Phoronis</i> sp.	Phoronida	55.0	68.1	56.4
<i>Gnathia crenulatifrons</i>	Arthropoda	55.0	58.6	
<i>Pholoe glabra</i>	Annelida	53.8		
<i>Parvilucina tenuisculpta</i>	Mollusca	52.5	72.4	52.7
<i>Ampelisca careyi</i>	Arthropoda	51.3		
<i>Euphilomedes carcharodonta</i>	Arthropoda	51.3	51.7	
<i>Sthenelanella uniformis</i>	Annelida	50.0	60.3	
<i>Euclymeninae</i> sp. A	Annelida	48.8	51.7	
<i>Leptochelia dubia</i>	Arthropoda	48.8	55.2	41.8
<i>Paramage scutata</i>	Annelida	48.8		32.7
<i>Prionospio lighti</i>	Annelida	48.8		
<i>Spiophanes fimbriata</i>	Annelida	47.5		38.2
<i>Amphideutopus oculus</i>	Arthropoda	45.0	61.2	
<i>Rhepoxynius bicuspidatus</i>	Arthropoda	43.8		
<i>Chloeia pinnata</i>	Annelida	41.3	39.7	40.0
<i>Amphiodia digitata</i>	Ophiuroidea	41.3		43.6
<i>Heterophoxus oculus</i>	Arthropoda	40.0		
<i>Nemocardium centifilosum</i>	Mollusca	40.0		
<i>Euphilomedes producta</i>	Arthropoda	38.8		36.4
<i>Lanassa</i> sp. D	Annelida	38.8		
Lineidae	Nemertea		62.1	
<i>Tellina carpenteri</i>	Mollusca		62.1	
<i>Axinopsida serricata</i>	Mollusca		56.9	
<i>Tubulanus polymorphus</i>	Nemertea		56.0	
<i>Glottidia albida</i>	Brachiopoda		55.2	
<i>Owenia collaris</i>	Annelida		51.7	
<i>Compsomyx subdiaphana</i>	Mollusca		43.1	
<i>Melinna oculata</i>	Annelida		38.8	
<i>Macoma yoldiformis</i>	Mollusca		38.8	

**Table D1 continued.**

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Species	Taxonomic Group	Frequency (Percent)		
		North	Central	South
<i>Modiolus spp.</i>	Mollusca		37.1	
<i>Ampelisca cristata</i>	Arthropoda		37.1	
<i>Spiophanes bombyx</i>	Annelida		36.2	41.8
<i>Chone veleronis</i>	Annelida		31.0	
<i>Tellina modesta</i>	Mollusca		30.2	32.7
<i>Myriochele sp. M</i>	Annelida			40.0
<i>Myriochele gracilis</i>	Annelida			40.0
<i>Proclea sp. A</i>	Annelida			30.9

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**Table D2. Average abundance of species in the geographic regions of the Southern California Bight. Species with frequency of at least 30% and average abundance greater than 20 / m<sup>2</sup> are shown.**

Species	Taxonomic Group	Average Abundance (Number / m <sup>2</sup> )		
		North	Central	South
<i>Spiophanes missionensis</i>	Annelida	359.3	409.9	310.5
<i>Lumbrineris</i> spp.	Annelida	45.3	73.4	52.1
<i>Paraprionospio pinnata</i>	Annelida	39.9	123.1	30.3
Maldanidae	Annelida	108.0	97.7	52.8
<i>Mediomastus</i> spp.	Annelida	116.2	60.5	64.6
<i>Pectinaria californiensis</i>	Annelida	60.9	58.3	66.4
<i>Amphiodia urtica</i>	Ophiuroidea	301.4	142.3	230.7
<i>Ampelisca brevisimulata</i>	Arthropoda	34.7	44.1	
<i>Cossura</i> spp.	Annelida	53.7		
<i>Sternaspis fossor</i>	Annelida	23.1		25.3
<i>Prionospio</i> sp. A	Annelida	51.2	43.9	38.6
<i>Phoronis</i> sp.	Phoronida	47.2	64.1	25.5
<i>Gnathia crenulatifrons</i>	Arthropoda	22.5	24.8	
<i>Pholoe glabra</i>	Annelida	25.3		
<i>Parvilucina tenuisculpta</i>	Mollusca	39.5	60.1	21.3
<i>Ampelisca careyi</i>	Arthropoda	22.8		
<i>Euphilomedes carcharodonta</i>	Arthropoda	50.3	33.3	
<i>Sthenelanelia uniformis</i>	Annelida	46.7	61.2	
<i>Euclymeninae</i> sp. A	Annelida	25.6	25.0	
<i>Leptochelia dubia</i>	Arthropoda	32.9	37.0	22.5
<i>Paramage scutata</i>	Annelida	32.9		20.9
<i>Prionospio lighti</i>	Annelida	22.7		
<i>Spiophanes fimbriata</i>	Annelida	46.4		30.1
<i>Amphideutopus oculus</i>	Arthropoda	44.1	103.4	
<i>Rhepoxynius bicuspidatus</i>	Arthropoda	32.9		
<i>Chloeia pinnata</i>	Annelida	35.2	35.8	58.9
<i>Amphiodia digitata</i>	Ophiuroidea	50.8		22.2
<i>Heterophoxus oculus</i>	Arthropoda	23.9		
<i>Nemocardium centifilosum</i>	Mollusca	26.3		
<i>Euphilomedes producta</i>	Arthropoda	77.8		39.9
<i>Lanassa</i> sp. D	Annelida	23.9		
Lineidae	Nemertea		22.0	
<i>Tellina carpenteri</i>	Mollusca		31.2	
<i>Axinopsida serricata</i>	Mollusca		65.4	
<i>Tubulanus polymorphus</i>	Nemertea		33.6	
<i>Glottidia albida</i>	Brachiopoda		113.1	
<i>Owenia collaris</i>	Annelida		46.8	
<i>Compsomyax subdiaphana</i>	Mollusca		20.2	
<i>Melinna oculata</i>	Annelida		110.0	
<i>Macoma yoldiformis</i>	Mollusca		42.7	
<i>Modiolus</i> spp.	Mollusca		22.6	

**Table D2 continued.**

Species	Taxonomic Group	Average Abundance (Number / m <sup>2</sup> )		
		North	Central	South
<i>Ampelisca cristata</i>	Arthropoda		39.6	
<i>Spiophanes bombyx</i>	Annelida		56.8	23.3
<i>Chone veleronis</i>	Annelida		64.2	
<i>Tellina modesta</i>	Mollusca		22.3	26.0
<i>Myriochele</i> sp. M	Annelida			194.3
<i>Myriochele gracilis</i>	Annelida			58.9
<i>Proclea</i> sp. A	Annelida			20.3

**Table D3. Frequency of occurrence of species on the inner, middle, and outer shelves of the Southern California Bight. Species with frequency of at least 30% and average abundance greater than 20 / m<sup>2</sup> are shown.**

Species	Taxonomic Group	Frequency (Percent)		
		Inner	Middle	Outer
<i>Paraprionospio pinnata</i>	Annelida	93.4	82.2	83.6
<i>Spiophanes missionensis</i>	Annelida	85.2	100.0	89.1
<i>Tellina modesta</i>	Mollusca	80.3		
<i>Spiophanes bombyx</i>	Annelida	77.0		
<i>Apoprionospio pygmaea</i>	Annelida	77.0		
<i>Glottidia albida</i>	Brachiopoda	75.4	49.6	
<i>Lumbrineris</i> spp.	Annelida	73.8	82.2	80.0
<i>Ampelisca cristata</i>	Arthropoda	70.5		
<i>Ampharete labrops</i>	Annelida	70.5		
<i>Owenia collaris</i>	Annelida	70.5		
<i>Amphideutopus oculatus</i>	Arthropoda	68.9	55.6	
<i>Carinoma mutabilis</i>	Nemertea	68.9		
Maldanidae	Annelida	68.9	80.0	74.5
<i>Macoma yoldiformis</i>	Mollusca	68.9		
<i>Ampelisca brevisimulata</i>	Arthropoda	63.9	82.2	
<i>Chaetozone corona</i>	Annelida	60.7		
<i>Mediomastus</i> spp.	Annelida	60.7	73.3	65.5
<i>Amphicteis scaphobranchiata</i>	Annelida	60.7		
<i>Tubulanus polymorphus</i>	Nemertea	57.4	63.0	
<i>Cooperella subdiaphana</i>	Mollusca	57.4		
<i>Phoronis</i> sp.	Phoronida	55.7	83.7	
<i>Rhepoxynius menziesi</i>	Arthropoda	52.5		
<i>Melinna oculata</i>	Annelida	49.2	34.8	
<i>Monticellina tessellata</i>	Annelida	47.5		
<i>Chone veleronis</i>	Annelida	47.5		
<i>Nereis procera</i>	Annelida	45.9		
<i>Nassarius perpinguis</i>	Mollusca	45.9		
<i>Chaetozone setosa</i>	Annelida	44.3		
<i>Olivella baetica</i>	Mollusca	39.3		
<i>Photis brevipes</i>	Arthropoda	36.1		
<i>Amphiodia urtica</i>	Ophiuroidea		87.4	69.1
<i>Pectinaria californiensis</i>	Annelida		85.2	89.1
<i>Prionospio</i> sp. A	Annelida		82.2	63.6
<i>Sthenelanella uniformis</i>	Annelida		76.3	
<i>Gnathia crenulatifrons</i>	Arthropoda		69.6	
<i>Parvilucina tenuisculpta</i>	Mollusca		67.4	72.7
<i>Leptochelia dubia</i>	Arthropoda		66.7	
<i>Glycera nana</i>	Annelida		65.2	
<i>Euclymeninae</i> sp. A	Annelida		63.0	
<i>Heterophoxus oculatus</i>	Arthropoda		62.2	

Table D3 continued.

Species	Taxonomic Group	Frequency (Percent)		
		Inner	Middle	Outer
<i>Euphilomedes carcharodonta</i>	Arthropoda		60.7	
<i>Tellina carpenteri</i>	Mollusca		60.0	
<i>Monticellina dorsobranchialis</i>	Annelida		55.6	
<i>Cossura</i> spp.	Annelida		51.9	
<i>Paramage scutata</i>	Annelida		51.9	
<i>Rhepoxynius bicuspidatus</i>	Arthropoda		48.1	34.5
<i>Nemocardium centifilosum</i>	Mollusca		46.7	
<i>Lanassa</i> sp. D	Annelida		45.9	
<i>Chloeia pinnata</i>	Annelida		45.2	72.7
<i>Euchone incolor</i>	Annelida		41.5	
<i>Sternaspis fossor</i>	Annelida		39.3	
<i>Amphiodia digitata</i>	Ophiuroidea		39.3	50.9
<i>Prionospio lighti</i>	Annelida		37.0	
<i>Myriochele</i> sp. M	Annelida		37.0	
<i>Gymnonereis crosslandi</i>	Annelida		34.8	
<i>Euphilomedes producta</i>	Arthropoda		34.1	60.0
<i>Myriochele gracilis</i>	Annelida		33.3	
<i>Ampelisca careyi</i>	Arthropoda			80.0
<i>Spiophanes fimbriata</i>	Annelida			78.2
<i>Axinopsida serricata</i>	Arthropoda			67.3
<i>Photis</i> spp.	Mollusca			36.4

**Table D4. Average abundance of species on the inner, middle, and outer shelves of the Southern California Bight. Species with frequency of at least 30% and average abundance greater than 20 / m<sup>2</sup> are shown.**

Species	Taxonomic Group	Average Abundance (Number / m <sup>2</sup> )		
		Inner	Middle	Outer
<i>Paraprionospio pinnata</i>	Annelida	119.7	50.9	37.0
<i>Spiophanes missionensis</i>	Annelida	93.4	483.5	290.0
<i>Tellina modesta</i>	Mollusca	60.4		
<i>Spiophanes bombyx</i>	Annelida	84.6		
<i>Apoprionospio pygmaea</i>	Annelida	62.2		
<i>Glottidia albida</i>	Brachiopoda	63.0	55.6	
<i>Lumbrineris</i> spp.	Annelida	62.6	50.3	59.0
<i>Ampelisca cristata</i>	Arthropoda	49.1		
<i>Ampharete labrops</i>	Annelida	35.1		
<i>Owenia collaris</i>	Annelida	64.8		
<i>Amphideutopus oculatus</i>	Arthropoda	93.1	66.1	
<i>Carinoma mutabilis</i>	Nemertea	30.1		
Maldanidae	Annelida	110.8	92.7	73.0
<i>Macoma yoldiformis</i>	Mollusca	67.7		
<i>Ampelisca brevisimulata</i>	Arthropoda	24.2	46.0	
<i>Chaetozone corona</i>	Annelida	38.2		
<i>Mediomastus</i> spp.	Annelida	82.9	88.7	89.0
<i>Amphicteis scaphobranchiata</i>	Annelida	25.7		
<i>Tubulanus polymorphus</i>	Nemertea	32.0	24.6	
<i>Cooperella subdiaphana</i>	Mollusca	21.2		
<i>Phoronis</i> sp.	Phoronida	32.8	70.0	
<i>Rhepoxynius menziesi</i>	Arthropoda	22.3		
<i>Melinna oculata</i>	Annelida	38.2	60.6	
<i>Monticellina tessellata</i>	Annelida	32.3		
<i>Chone veleronis</i>	Annelida	33.1		
<i>Nereis procera</i>	Annelida	25.6		
<i>Nassarius perpinguis</i>	Mollusca	21.8		
<i>Chaetozone setosa</i>	Annelida	22.7		
<i>Olivella baetica</i>	Mollusca	22.9		
<i>Photis brevipes</i>	Arthropoda	27.5		
<i>Amphiodia urtica</i>	Ophiuroidea		357.9	150.0
<i>Pectinaria californiensis</i>	Annelida		71.3	82.0
<i>Prionospio</i> sp. A	Annelida		63.8	26.0
<i>Sthenelanella uniformis</i>	Annelida		73.1	
<i>Gnathia crenulatifrons</i>	Arthropoda		25.8	
<i>Parvilucina tenuisculpta</i>	Mollusca		36.4	76.0
<i>Leptochelia dubia</i>	Arthropoda		43.0	
<i>Glycera nana</i>	Annelida		20.8	
<i>Euclymeninae</i> sp. A	Annelida		27.7	

Table D4 continued.

Species	Taxonomic Group	Average Abundance (Number / m <sup>2</sup> )		
		Inner	Middle	Outer
<i>Heterophoxus oculatus</i>	Arthropoda		32.9	
<i>Euphilomedes carcharodonta</i>	Arthropoda		49.6	
<i>Tellina carpenteri</i>	Mollusca		25.9	
<i>Monticellina dorsobranchialis</i>	Annelida		21.5	
<i>Cossura</i> spp.	Annelida		45.5	
<i>Paramage scutata</i>	Annelida		37.5	
<i>Rhepoxynius bicuspidatus</i>	Arthropoda		29.2	28.0
<i>Nemocardium centifilosum</i>	Mollusca		25.1	
<i>Lanassa</i> sp. D	Annelida		23.2	
<i>Chloeia pinnata</i>	Annelida		44.3	67.0
<i>Euchone incolor</i>	Annelida		34.1	
<i>Sternaspis fossor</i>	Annelida		23.5	
<i>Amphiodia digitata</i>	Ophiuroidea		23.3	81.0
<i>Prionospio lighti</i>	Annelida		21.0	
<i>Myriochele</i> sp. M	Annelida		93.1	
<i>Gymnonereis crosslandi</i>	Annelida		21.2	
<i>Euphilomedes producta</i>	Arthropoda		44.5	107.0
<i>Myriochele gracilis</i>	Annelida		39.5	
<i>Ampelisca careyi</i>	Arthropoda			37.0
<i>Spiophanes fimbriata</i>	Annelida			104.0
<i>Axinopsida serricata</i>	Arthropoda			62.0
<i>Photis</i> spp.	Mollusca			30.0