Polychaete Biodiversity over Time:

A Compilation of Species Reported From Bodega Harbor and Adjacent Areas

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A Report Prepared for the Bodega Marine Reserve

INTRODUCTION

The Bodega Reserve is a unique study area with large tidal exchanges, which means that the intertidal zone is never exposed to high levels of fresh water. Additionally, the orientation of the headland protects Bodega Harbor from prevailing northwest winds and allows large levels of sediment to accrue. These factors create an environment where a wide range of organisms are able to thrive. Due to the particularly high biodiversity found in Bodega Reserve there have been many studies completed and several leading polychaete researchers (e.g. Olga Hartman, Marian Pettibone) conducted work in Bodega Harbor. By comparing specific polychaete reports and polychaete lists from faunal surveys ranging from 1932- present, we gain knowledge of biodiversity and how it has changed over time.

Since the reports were done over seven decades, comparisons can be made between early and later species lists, raising the issues of when and why species have arrived or disappeared. Introduced species, pollution, or global warming may lead to species migration or extinction, which would appear as a change of species numbers. These changes can lead to a better understanding of changes in biodiversity. Species that remained constant over time can also be monitored for future studies. This report thus lays the groundwork for future studies of global climate change.

This report includes a list of all known polychaete species in the Bodega Reserve, although the problem of synonymies, misidentifications and or partial identifications, and reports from surrounding areas can create fluctuations. Measures have been taken to eliminate some of these possible problems, which will be shown in a series of

spreadsheets and graphs. This data can be used to assist with future identification, and can become the foundation for future research.

METHODS

In order to find all polychaete species that had been recorded in the Bodega Bay area, the online catalog of student reports from the Cadet Hand library at the Bodega Marine Lab was searched for content. The reports chosen were typically either single/multi species polychaete reports or multi-phylum surveys that included polychaetes. A list of these reports can be found in Appendix 1. Reports were entered by author as column headings, and species were tabulated by report in each column. These reports were entered into one of two spreadsheets. The first includes the authors that identified 6 or more species. Report authors were assigned to columns that were arranged by the date of their study, which introduces a temporal component. The species count in each column was checked against a count made from each report. The second spreadsheet includes the authors that identified 5 or less species.

All species that were entered into Spreadsheets 2-5 were either verified as valid species per Integrated Taxonomic Information System (ITIS), Light's Manual (2007), or Hartman (1969). Due to the span of time over which the reports were done, many of the reported species have changed names since being reported. If the name given in the report was found to be an old synonym, the currently valid name in ITIS, Light's (2007) or Hartman (1969) was recorded in the checklist with a note to see Appendix 1. Under the author's name in Appendix 1, changes were given with the sources used. Most synonymies were from either Light's (2007), Hartman (1969), or ITIS. Other sources

used were: Berkeley and Berkeley (1935), Kozloff (1996), SCAMIT (2001), University Biological Indexer Organizer (uBIO), and Animal Diversity Web (http://animaldiversity.ummz.umich.edu/site/index.html).

Although the process of finding synonymies can be tedious, it ensures a more accurate species list that does not account for the same species more than once. The importance of finding the valid synonymies becomes apparent with the final species count. Without correct nomenclature changes, the final count is exaggerated and inaccurate. Other factors that contribute to an exaggerated list are polychaetes that have only been identified to family or genus, and identifications that either could not be verified as a species (ITIS) or for which there were no other records from temperate latitudes in the eastern north Pacific.

Spreadsheet 1 includes all the species names that were listed in a student report or recent names for the same species. A species list for use in Spreadsheets 2-5 was edited from Spreadsheet 1 for one of the following reasons:

- Species were not recognized as valid per ITIS and could not be validated by Light's (1975) or Hartman (1968, 1969)
- Species could not be found by another reference source
- Identification was only made to genus level

The species that were removed from Spreadsheets 2-5 are highlighted red in Spreadsheet 1. If these had not been omitted from the lists, it would appear that 357 different species were found, although many of those in red are synonymous with other species on the list.

Polychaetes that were not identified to species were left out of Spreadsheets 2-5. Any polychaetes' names that could not be found in a reliable source were placed at the end of the reference notes for one author in Appendix 1. Species that had valid names but were not found in any published work on polychaetes in the eastern North Pacific at mid latitudes (Tropic of Cancer to Seattle) were rejected and therefore only appear in Spreadsheet 1.

Spreadsheet 1 was then compared to the species list in a preprint of the fourth edition of Lights Manual (Lights 2007) kindly supplied by Dr. Jim Carleton. Table 1, prepared by a visiting scientist at the Bodega lab (D. Schneider), includes name change in Lights 2007 and shows the logic to prepare Spreadsheet 1.

RESULTS

All the student reports that were found on polychaetes in the Cadet Hand online catalog (with the exception of about a dozen reports missing from the shelves) were included in a series of figures. Spreadsheet 1 lists all 359 names, of which only 235 were considered valid.

Spreadsheets 2 and 3 are a "smaller scale diversity" list (smaller scale diversity meaning found within a confined area). Spreadsheets 2 and 3 contain valid species that were found specifically within the Bodega Reserve. The smaller scale diversity was 235 species. There are two parts to the smaller scale diversity list. The first part contains reports that studied 6 or more species of polychaetes (Spreadsheet 2), and the second part contains reports that studied 5 or less species of polychaetes (Spreadsheet 3). Spreadsheets 4 and 5 are "larger scale diversity" lists (larger scale diversity meaning a larger area containing several habitats) divided the same way as Spreadsheets 2 and 3. Spreadsheets 4 and 5

contain valid species found throughout central California. Even though the larger scale diversity list includes a larger area than the smaller scale diversity list, it also had 235 species.

The smaller scale diversity lists (Spreadsheets 2 and 3) are valuable to the Bodega Marine Lab, in giving species identity and total species number that have been found (over time) in and near the Bodega Reserve. At present there are 235 species and 36 different families. In comparison, Light's manual (1975) has 275 species and 44 families for all of central California, while Light's (2007) lists over 410 species in 52 families. Graphs (Figures 2 and 3) were made from both cumulative totals and species per report.

Figure 1.

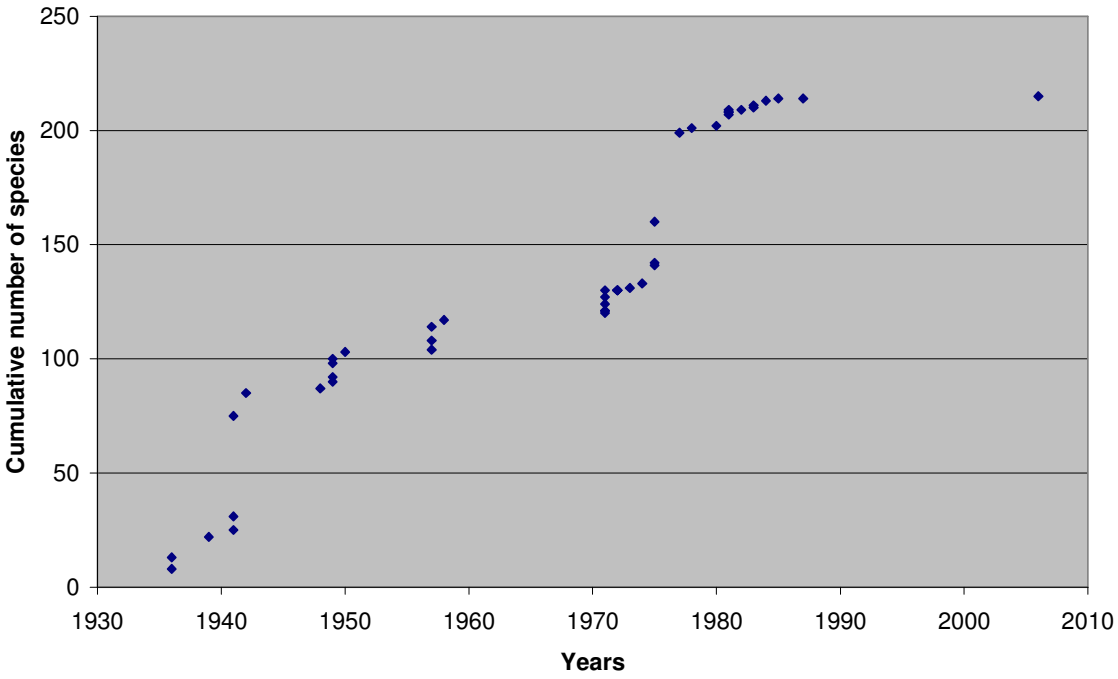
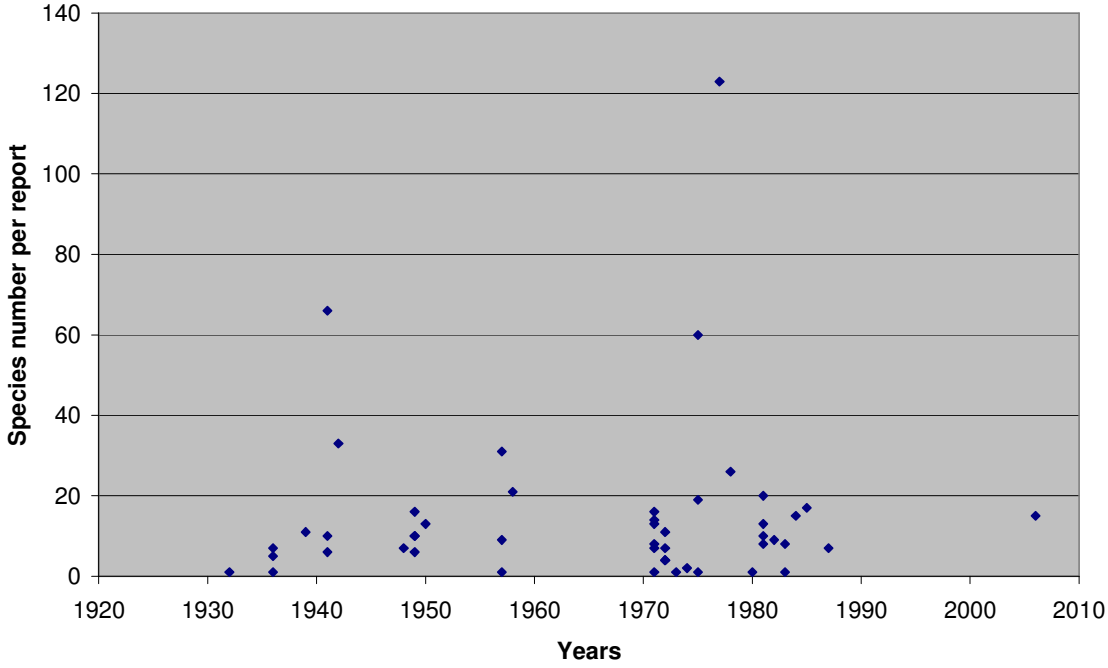


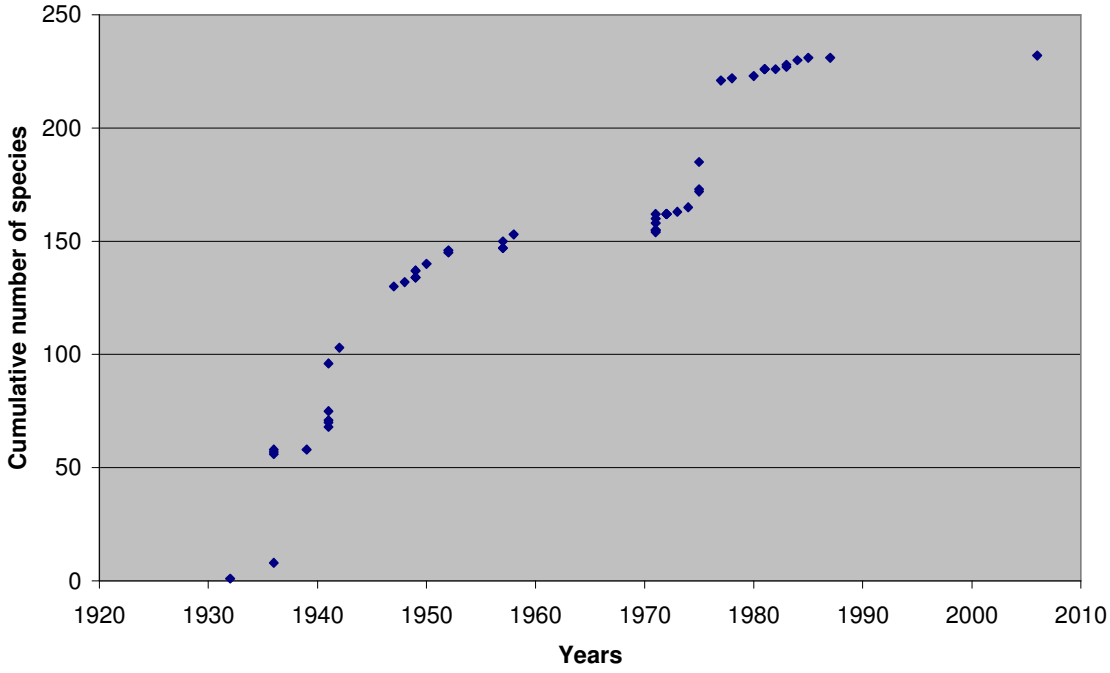
Figure 2.



The cumulative graph (Figure 1) is unusual compared to normal collector's curves. The collector's curve usually involves a sharp increase in the beginning because each species found is counted as a new one. The graph then begins to level out because the most common species have been found and the curve only increases with the occasional addition of a less common species. Figure 1 has some unexpected jumps. In Figure 2, associations can be made between those jumps and two reports. There was a jump in 1941 due to Pettibone's report, which had 66 species. There was another major jump in 1977 due to the Pacific Marine Station Staff report, which had 123 species.

The larger scale diversity list (Spreadsheets 4 and 5) is a complete list of all polychaete-related reports at the Bodega Marine Lab library, including those found outside of Bodega Bay. The accompanying graph (Figure 3) is similar to Figure 1, with jumps in the same places due to the Pettibone and the Pacific Marine Station Staff reports. However, there were jumps associated with Hartman's report from Dillon Beach and Tomales Bay (1936), which found 53 species and Parker's report from Monterey Peninsula (1947), which found 77 species. These two reports account for a much steeper initial curve on Figure 4 as compared with Figure 2. The same number of species and families were found in the larger scale diversity and smaller scale diversity lists although the collector's curves vary substantially.

Figure 3.



DISCUSSION

A complete species list of the polychaetes at Bodega Harbor provides a look at the historical findings and also allows for future and continued studies that will lead to a greater understanding of what is happening to polychaete biodiversity (introduction of invasive species, migration, extinction, die-off, etc.). It also provides an valuable resource to visiting students and researchers.

The temporal data used in this report is unique in its length. More than 70 years of research are combined into a comprehensive view of what has been studied and collected. Such a time scale provides the opportunity to take a look at what the common species are, and how they have changed. This could be done by looking for species that appear early in the list but not later. The disappearance of a species suggests that it is no longer

present. On the other hand, an appearance of a species could either indicate that a new species had arrived, or that it had merely been missed in previous studies.

Finding synonymies to the reported species was challenging at best. A complete synonymy reference resource does not exist, so many different sources had to be used. Sometimes the source itself was not credible, and it was a matter of judgment what to do with the species name. At times it was difficult to tell which the currently accepted synonymy was, and a number of species had their names changed to nomenclature that was previously unaccepted. Additionally, some new species were created, only to be rejected later. Some researchers had grouped differing species together, while others had split one species into many based on traits that they found significant. For example, one student seems to have split a genus into a number of species for which there was no name, nor any evidence. In many cases students would only identify to genus.

The spatial dynamics of this project were interesting as well. Due to the presence of the Bodega Marine Lab, a lot of the studies used in this report were done within the Bodega Reserve. These studies represent the smaller scale diversity data surrounding the lab. Other studies were conducted from nearby areas like Dillon Beach, Campbell's Cove, or from farther away, such as Monterey Harbor. These study sites share the same geographical region with Bodega Harbor, but may vary in species distribution. They represent the larger scale data taken from the student reports. It was somewhat surprising to find that the smaller scale diversity and larger scale diversity lists had the same number of species. It was also surprising to find that the species list was close to Light's (1975) for all of central California. However, the more recent version of Light's (2007) has expanded to more than 400 species.

REFERENCES

Banse K. 1977. Gymnonereidinae new subfamily: the Nereididae (Polychaeta) with bifid parapodial neurocirri. Journal of Natural History 11: 609-628.

Berkeley, E. and C. 1935. Some Notes on the Polychaetous Annelids of Elkhorn Slough, Monterey Bay, California. American Midland Naturalist 16: 766-775.

Carlton, J.T. 1979. History, Biogeography, and Ecology of the Introduced Marine and Estuarine Invertebrates of the Pacific Coast of North America. Ph. D. thesis. University of California, Davis.

Cowles, D. Retrieved Nov., 2006 from Key to Invertebrates Found At or Near The Walla Walla College Marine Station (Rosario) Fidalgo Island, Anacortes, WA. http://www.rosario.wwc.edu/inverts/index.html.

Fauchald, K. 1969, A revision of six species of the Flavus-Bidentatus Group of Eunice (Eunicidae:Polychaeta). Smithsonian Contrib. Zoology: 1-15.

Fauchald, K. 1977. The Polychaete Worms. Natural History Museum of Los Angeles County Science Series 28: 1-190.

Hartman, O. 1936. Polychaetous Annelids of the Littoral Zone of California. PhD Thesis University of California at Berkeley.

Hartman, O. 1936b. Nomenclatural changes involving California polychaete worms. Journal of the Washington Academy of Sciences 26: 31-32.

Hartman, O. 1959. Catalogue of the Polychaetous annelids of the world. Parts I and II. Allan Hancock Foundation Publications Occasional Paper 23: 1–628.

Hartman, O. 1968. Atlas of the Errantiate Polychaetous Annelids from California. Allan Hancock Foundation, University of Southern California, Los Angeles. 90007.

Hartman, O. 1969. Atlas of the Sedentariate Polychaetous Annelids from California. Allan Hancock Foundation, University of Southern California, Los Angeles. 90007.

ITIS. Retrieved Nov., 2006, from the Integrated Taxonomic Information System on-line database, http://www.itis.gov.

Kozloff, E.N., 1996. Marine Invertebrates of the Pacific Northwest. University of Washington Press, Seattle.

Light, S.F., 1954. Intertidal Invertebrates, second edition. University of California Press.

Light's Manual. 1975. Polychaete (J.A. Blake). In: Intertidal Invertebrates of the Central California Coast, third edition. Smith, R.I., Carlton, J.T., editors. University of California Press, Berkeley. Pp. 151-243.

Light's Manual. 2007. Polychaeta (Blake, J.A., Ruff, E.R.). In: Intertidal Invertebrates of the Central California Coast, fourth edition. Carlton, J.T., editor. University of California Press.

MARBEF. Retrieved Nov., 2006, from the Marine Biodiversity and Ecosystem Functioning on-line database, http://www.marbef.org/data/aphia.php?p=search. Web site hosted and maintained by Flanders Marine Institute (VLIZ).

PMS (Pacific Marine Station, Staff). 1977. A Biological and Chemical Monitoring Study of Bodega Harbor, California. Research Report Number 14, University of the Pacific, Presented to the Sonoma County Board of Supervisors.

Parker, T., Tunnicliffe, V., 1994. Dispersal Strategies of the Biota on an Oceanic Seamount: Implications for Ecology and Biogeography. Biological Bulletin 187: 336-345.

Pettibone, M. 1963. Marine polychaete worms of the New England Region. 1. Aphroditidae through Trochochaetidae. U.S. National Museum Bulletin 227: 1-356.

Salazar-Vallejo,S.I., M.H. Londono-Mesa. 2004. Lista de especies y bibliografía de poliquetos (Polychaeta) del Pacífico Oriental Tropical. Anales del Instituto de Biología, Universidad Nacional Autónoma de México, Serie Zoología 75: 9-97.

SCAMIT, 2001. A Taxonomic Listing of Soft Bottom Macro- and Megainvertebrates from Infaunal & Epibenthic Monitoring Programs in the Southern California Bight, fourth edition. Issued by The Southern California Association of Marine Invertebrate Taxonomists 3720 Stephen White Drive San Pedro, California 90731.

uBio. 2006. Retrieved November, 2006 from Universal Biological Index and Organizer. MBL WHOI Library. Online: http://names.mbl.edu/clients/tools/compare2.php Takes names or a name-annotated URL and matches against Species 2000, ITIS, ERMS or other taxonomies indexed by uBio. The application provides a report on the validity (in the zoological sense), homonymy, lexical form, etc. of the names in the list.

Wolfowitz de Weiss, Dr. V.S., 1995. Atlas de Anélidos Poliquetos de la Plataforma Continental del Golfo de California, México. Cuidad Universitaria, México.

Spreadsheet 1. A list of all species names encountered in the reports.
Names in red are invalid species names, synonyms, have only been identified to genus level, or for which there was no record.

Family	Genus	Species	Auth
Polynoidae	Arctonoe	fragilis	(Baird, 1863)
Polynoidae	Arctonoe	pulchra	(Johnson, 1897)
Polynoidae	Acholoe	vittata	n/a
Polynoidae	Arctonoe	vittata	(Grube, 1855)
Polynoidae	Eunoe	barbata	Moore, 1910
Polynoidae	Halosydna	johnsoni	(Darboux, 1899)
Polynoidae	Halosydna	brevisetosa	Kinberg, 1855
Polynoidae	Harmothoe	hirsuta	Johnson,1897
Polynoidae	Harmothoe	imbricata	(Linnaeus,1767)
Polynoidae	Harmothoe	lunulata	(delle Chiaje, 1841)
Polynoidae	Harmothoe	sp.	n/a
Polynoidae	Hesperonoe	adventor	(Skogsberg, 1928)
Polynoidae	Hesperonoe	complanata	(Johnson, 1901)
Polynoidae	Lepidonotus	caelorus	Moore, 1903
Polynoidae	Lepidonotus	squamatus	(Linnaeus, 1767)
Peisidicidae	Peisidice	aspera	Johnson, 1897
Peisidicidae	Pholoides	aspera	(Johnson, 1897)
Serpulidae	Spirorbis	sp.	n/a
Sigalionidae	Pholoe	minuta	(Fabricius, 1780)
Sigalionidae	Sthenelais	fusca	Johnson, 1897
Chrysopetalidae	Chrysopetalum	sp.	n/a
Chrysopetalidae	Chrysopetalum	occidentale	Johnson, 1897
Chrysopetalidae	Paleanotus	chrysolepis	Schmarda, 1861
Chrysopetalidae	Paleanotus	bellis	(Johnson, 1897)
Amphinomidea	Pareurythoe	californica	(Johnson, 1897)
Phyllodocidae	Phyllodoce	madeirensis	Langerhans, 1880
Phyllodocidae	Anaitides	madeirensis	Langerhans, 1880
Phyllodocidae	Anaitides	mediapapillata	Moore, 1909
Phyllodocidae	Anaitides	williamsi	Hartman, 1936
Phyllodocidae	Clavadoce	splendida	Hartman, 1936
Phyllodocidae	Eteone	longa	(Fabricius, 1780)
Phyllodocidae	Eteone	californica	Hartman, 1936
Phyllodocidae	Eteone	dilatae	Hartman, 1936
Phyllodocidae	Eteone	lighti	Hartman, 1936
Phyllodocidae	Eteone	sp.	n/a
Phyllodocidae	Eteone	pacifica	Hartman, 1936
Phyllodocidae	Eulalia	parasteggoa	n/a
Phyllodocidae	Eulalia	sp.	n/a
Phyllodocidae	Eulalia	aviculiseta	Hartman, 1936
Phyllodocidae	Eulalia	bilineata	(Johnston, 1840)
Phyllodocidae	Eulalia	viridis	(Linnaeus, 1767)
Phyllodocidae	Eumida	bifoliata	(Moore, 1909)
Phyllodocidae	Eumida	sp.	n/a
Phyllodocidae	Eumida	sanguinea	(Oersted, 1843)

Phyllodocidae	Genetyllis	castanea	(Marenzeller, 1879)
Phyllodocidae	Hesionura	sp.	n/a
Phyllodocidae	Phyllodoce	ferruginea	Moore, 1909
Hesionidae	Gyptis	brevipalpa	(Hartmann-Schroeder, 1959)
Hesionidae	Podarke	pugettensis	Johnson, 1901
Hesionidae	Ophiodromus	pugettensis	(Johnson, 1901)
Pilargiidae	Pilargis	berkeleyi	Monro, 1933
Pilargiidae	Pilargis	maculata	Hartman, 1947
Pilargiidae	Sigambra	bassi	(Hartman, 1945)
Syllidae	Autolytus	varius	Treadwell, 1914
Syllidae	Autolytus	sp.	n/a
Syllidae	Brania	limbata	(Claparede, 1868)
Syllidae	Exogone	sp.	n/a
Syllidae	Exogone	lourei	Berkeley & Berkeley, 1938
Syllidae	Haplosyllis	spongicola	(Grube, 1855)
Syllidae	Hesperalia	californiensis	Chamberlin ?
Syllidae	Odontosyllis	sp.	n/a
Syllidae	Odontosyllis	phosphorea	Moore, 1909
Syllidae	Pionosyllis	gigantea	Moore, 1908
Syllidae	Sphaerosyllis	californiensis	Hartman, 1966
Syllidae	Syllis	elongata	(Johnson, 1901)
Syllidae	Trypanosyllis	gemmipara	Johnson, 1901
Syllidae	Haplosyllis	sp.	n/a
Syllidae	Trypanosyllis	ingens	Johnson, 1902
Syllidae	Trypanosyllis	zebra	(Grube, 1860)
Syllidae	Typosyllis	aciculata	Treadwell, 1945
Syllidae	Syllis	sp.	n/a
Syllidae	Trypanosyllis	adamanteus	n/a
Syllidae	Typosyllis	adamanteus	(Treadwell, 1914)
Syllidae	Syllis	alternata	Moore, 1908
Syllidae	Typosyllis	alternata	(Moore, 1908)
Syllidae	Typosyllis	armillaris	(Muller, 1771)
Syllidae	Syllis	fasciata	Malmgren, 1867
Syllidae	Typosyllis	fasciata	(Malmgren, 1867)
Syllidae	Typosyllis	pulchra	(Berkeley & Berkeley, 1938)
Nereidae	Eunereis	sp.	n/a
Nereidae	Eunereis	longipes	Hartman, 1936
Nereidae	Phyllodocella	bodegae	Fauchald & Belman, 1972
Nereidae	Micronereis	bodegae	Fauchald & Belman, 1972
Nereidae	Neanthes	brandti	(Malmgren, 1866)
Nereidae	Neanthes	lighti	Hartman, 1938
Nereidae	Neanthes	limnicola	(Johnson, 1901)
Nereidae	Neanthes	succinea	(Frey & Leuckart, 1849)
Nereidae	Nereis	callaona	(Grube, 1857)
Nereidae	Nereis	virens	Sars, 1835
Nereidae	Neanthes	virens	(Sars, 1835)
Nereidae	Nereis	eakini	Hartman, 1936
Nereidae	Nereis	grubei	(Kinberg, 1866)
Nereidae	Nereis	latescens	Chamberlin, 1919
Nereidae	Nereis	eucapitis	Hartman (?)

Nereidae	Nereis	mediator	Chamberlin, 1918
Nereidae	Nereis	natans	Hartman, 1936
Nereidae	Nereis	pelagica	Linnaeus, 1758
Nereidae	Nereis	pelagica neonigripes	Hartman, 1936
Nereidae	Nereis	procera	Ehlers, 1868
Nereidae	Nereis	vexillosa	Grube, 1851
Nereidae	Nereis	sp.	n/a
Nereidae	Nereis	zonata	Malmgren, 1867
Nereidae	Perinereis	monterea	(Chamberlin, 1918)
Nereidae	Neanthes	transcendens	Hartman, 1936
Nereidae	Platynereis	agassizi	Okuda & Yamada, 1954
Nereidae	Uncinereis	agassizi	Chamberlin (1919B)
Nereidae	Platynereis	bicanaliculata	(Baird, 1863)
Goniadidae	Goniada	brunnea	Treadwell, 1906
Goniadidae	Goniada	maculata	Oersted, 1843
Goniadidae	Glycinde	multidens	Hartman, 1940
Goniadidae	Glycinde	armigera	Moore, 1911
Goniadidae	Glycinde	picta	Berkeley, 1927
Glyceridae	Glycera	rugosa	Johnson 1901
Glyceridae	Glycera	americana	Leidy, 1855
Glyceridae	Glycera	capitata	Oersted, 1843
Glyceridae	Glycera	convoluta	Keferstein, 1862
Glyceridae	Glycera	robusta	Ehlers, 1868
Glyceridae	Glycera	tenuis	Hartman, 1944
Glyceridae	Glycera	tesselata	Grube, 1863
Glyceridae	Hemipodus	roseus	Hartman, 1950
Glyceridae	Hemipodus	borealis	Johnson, 1901
Glyceridae	Hemipodius	californiensis	n/a
Glyceridae	Hemipodia	californiensis	Hartman, 1938
Glyceridae	Glycera	sp.	n/a
Glyceridae	Hemipodius	simplex	n/a
Glyceridae	Hemipodia	simplex	(Grube, 1857)
Nephtyidae	Nephtys	caeca	(Fabricius, 1780)
Nephtyidae	Nephtys	sp.	n/a
Nephtyidae	Nephtys	caecoides	Hartman, 1938
Nephtyidae	Nephtys	californiensis	Hartman, 1938
Nephtyidae	Nephtys	ciliata	(Muller, 1789)
Onuphidae	Diopatra	ornata	Moore, 1911
Onuphidae	Onuphis	sp.	n/a
Onuphidae	Onuphis	eremita	Audouin & Milne Edwards, 1833
Onuphidae	Nothria	elegans	(Johnson, 1901)
Onuphidae	Nothria	geophiliformis	(Moore, 1903)
Onuphidae	Nothria	iridescens	(Johnson, 1901)
Eunicidae	Eunice	antennata	(Savigny, 1820)
Eunicidae	Eunice	biannulata	Moore, 1904
Eunicidae	Eunice	sp.	n/a
Eunicidae	Eunice	longicirrata	Webster, 1884
Eunicidae	Eunice	kobiensis	McIntosh, 1885
Eunicidae	Eunice	valens	(Chamberlin, 1919)
Eunicidae	Marphysa	stylobranchiata	Moore, 1909

Dorvilleidae	Stauronereis	articulatus	Hartman, 1938
Dorvilleidae	Dorvillea	longicornis	(delle Chiaje, 1828)
Dorvilleidae	Dorvillea	sp.	n/a
Dorvilleidae	Stauronereis	minor	Hartman, 1936
Dorvilleidae	Stauronereis	moniloceras	(Moore, 1909)
Dorvilleidae	Dorvillea	moniloceras	(Moore, 1909)
Dorvilleidae	Dorvillea	rudolphi	(delle Chiaje, 1828)
Dorvilleidae	Protodorvillea	gracilis	(Hartman, 1938)
Lumbrineridea	Lumbrineris	erecta	(Moore, 1904)
Lumbrineridea	Lumbrineris	japonica	(Marenzeller, 1879)
Lumbrineridea	Lumbrineris	latreilli	Audouin & Milne Edwards, 1834
Lumbrineridea	Lumbrineris	tetraura	(Schmarda, 1861)
Lumbrineridea	Lumbrineris	sarsi	(Kinberg, 1865)
Lumbrineridea	Lumbrineris	zonata	(Johnson, 1901)
Arabellidea	Arabella	sp.	n/a
Arabellidea	Arabella	iricolor	(Montagu, 1804)
Orbiniidae	Haploscoloplos	elongatus	(Johnson, 1901)
Arabellidea	Arabella	semimaculata	(Moore, 1911)
Orbiniidae	Protoaricia	sp.	n/a
Orbiniidae	Naineris	laevigata	(Grube, 1855)
Orbiniidae	Naineris	dendritica	(Kinberg, 1867)
Arabellidea	Drilonereis	nuda	Moore , 1909
Orbiniidae	Orbinia	johnsoni	(Moore, 1909)
Orbiniidae	Scoloplos	acmeceps	Chamberlin, 1919
Paraonidae	Aricidea	sp.	n/a
Paraonidae	Paraonides	platybranchia	(Hartman, 1961)
Spionidae	Boccardia	berkeleyorum	Blake & Woodwick, 1971
Spionidae	Boccardia	uncata	Berkeley, 1927
Spionidae	Boccardia	hamata	(Webster, 1879)
Spionidae	Boccardia	natrix	(Soderstrom, 1920)
Spionidae	Boccardia	proboscidea	Hartman, 1940
Spionidae	Nerinides	sp.	n/a
Spionidae	Boccardia	tricuspa	(Hartman, 1939)
Spionidae	Boccardia	truncata	Hartman, 1936
Spionidae	Nerine	cirratulus	(delle Chiaje, 1828)
Spionidae	Paraprionospio	pinnata	(Ehlers, 1901)
Spionidae	Polydora	brachycephala	Hartman, 1936
Spionidae	Polydora	convexa	Blake & Woodwick, 1972
Spionidae	Polydora	elegantissima	Blake and Woodwick, 1972
Spionidae	Polydora	giardi	Mesnil, 1896
Spionidae	Polydora	ciliata	(Johnston, 1838)
Spionidae	Polydora	limicola	Annenkova, 1934
Spionidae	Polydora	ligni	Webster, 1879
Spionidae	Polydora	socialis	(Schmarda, 1861)
Spionidae	Prionospio	cirrifera	Wiren, 1883
Spionidae	Prionospio	pygmaeus	Hartman, 1961
Spionidae	Prionospio	steenstrupi	Malmgren, 1867
Spionidae	Pseudopolydora	kempi	(Southern, 1921)
Spionidae	Pseudopolydora	paucibranchiata	(Okuda, 1937)
Spionidae	Pygospio	californica	Hartman, 1936

Spionidae	Pygospio	elegans	Claparede, 1863
Spionidae	Rhynchospio	arenincola	Hartman, 1936
Spionidae	Scolelepis	squamatus	(Muller, 1806)
Spionidae	Scolelepis	tridentata	Southern, 1914
Spionidae	Spiophanes	berkeleyorum	Pettibone, 1962
Spionidae	Spiophanes	bombyx	(Claparede, 1870)
Spionidae	Spio	sp.	n/a
Spionidae	Spiophanes	fimbriata	Moore, 1923
Spionidae	Spiophanes	missionensis	Hartman, 1941
Spionidae	Streblospio	lutincola	Hartman, 1936
Spionidae	Streblospio	benedicti	Webster, 1879
Magelonidae	Magelona	longicornis	Johnson, 1901
Lumbrineridea	Lumbrineris	sp.	n/a
Magelonidae	Magelona	sp.	n/a
Magelonidae	Magelona	pitelkai	Hartman, 1944
Magelonidae	Magelona	sacculata	Hartman, 1961
Chaetopteridae	Phyllochaetopterus	prolifica	Potts, 1914
Chaetopteridae	Spiochaetopterus	costarum	(Claparede, 1870)
Cirratulidae	Cirratulus	cirratus	(Müller, 1776)
Cirratulidae	Chaetozone	sp.	n/a
Cirratulidae	Cirratulus	sp.	n/a
Cirratulidae	Cirratulus	robustus	Johnson, 1901
Cirratulidae	Cirratulus	cirratus spectabilis	(Kinberg, 1866)
Cirratulidae	Cirriformia	luxuriosa	(Moore, 1904)
Cirratulidae	Cirriformia	spirabrancha	(Moore, 1904)
Cirratulidae	Dodecaceria	pacifica	(Fewkes ?)
Cirratulidae	Dodecaceria	fistulicola	Ehlers, 1901
Cirratulidae	Dodecaceria	fewkesi	Berkeley & Berkeley, 1954
Cirratulidae	Tharyx	monilaris	Hartman, 1960
Cirratulidae	Tharyx	sp.	n/a
Cirratulidae	Tharyx	multifilis	Moore, 1909
Cirratulidae	Tharyx	parvus	Berkeley, 1929
Cirratulidae	Ambo	perbranchiata	n/a
Cirratulidae	Timarete	perbranchiata	(Chamberlin, 1918)
Cossuridae	Cossura	pygodactylata	Jones, 1956
Flabelligeridae	Stylaroides	dismissus	Hartman, 1936
Flabelligeridae	Stylaroides	flabellata	n/a
Flabelligeridae	Stylaroides	papillosa	Essenberg, 1922
Flabelligeridae	Flabelliderma	essenbergae	Hartman, 1961
Flabelligeridae	Flabelligera	sp.	n/a
Flabelligeridae	Pherusa	papillata	(Johnson, 1901)
Opheliidae	Armandia	sp.	n/a
Opheliidae	Armandia	bioculata	Hartman, 1938
Opheliidae	Armandia	brevis	(Moore, 1906)
Opheliidae	Pectinophelia	californiensis	Hartman, 1936
Opheliidae	Pectinophelia	dillonensis	Hartman, 1938
Opheliidae	Euzonus	dillonensis	(Hartman, 1938)
Opheliidae	Thoracophelia	mucronata	(Treadwell, 1914)
Opheliidae	Euzonus	mucronata	(Treadwell, 1914)
Opheliidae	Pectinophelia	williamsi	n/a

Opheliidae	Euzonus	williamsi	(Hartman, 1938)
Opheliidae	Ammotrypane	aulogaster	Rathke, 1843
Opheliidae	Ophelina	acuminata	Oersted, 1843
Opheliidae	Ophelia	sp.	n/a
Opheliidae	Ophelia	assimilis	Tebble, 1953
Opheliidae	Ophelia	limacina	(Rathke, 1843)
Opheliidae	Ophelia	pulchella	Tebble, 1953
Opheliidae	Travisia	gigas	Hartman, 1938
Capitellidae	Capitella	capitata	(Fabricius, 1780)
Capitellidae	Dasybranchus	caducus	(Grube, 1846)
Capitellidae	Heteromastus	filobranchus	Berkeley & Berkeley, 1932
Capitellidae	Mediomastus	sp.	n/a
Capitellidae	Mediomastus	californiensis	Hartman, 1944
Capitellidae	Notomastus	sp.	n/a
Capitellidae	Dasybranchus	giganteus	Moore, 1909
Capitellidae	Notomastus	giganteus	(Moore, 1906)
Capitellidae	Notomastus	magnus	Hartman, 1947
Capitellidae	Notomastus	iricolor	n/a
Capitellidae	Notomastus	latericeus	Sars, 1851
Capitellidae	Notomastus	angulatus	Chamberlin, 1919
Capitellidae	Notomastus	tenuis	Moore, 1909
Arenicolidae	Arenicola	cristata	Stimpson, 1856
Arenicolidae	Arenicola	claparedii	(Okuda, 1933)
Arenicolidae	Abarenicola	pacifica	Healy & Wells, 1959
Oweniidae	Owenia	collaris	Hartman, 1955
Maldanidae	Asychis	disparidentata	(Moore, 1904)
Maldanidae	Asychis	elongata	(Verrill, 1873)
Maldanidae	Clymenella	rubrocincta	Johnson 1901
Maldanidae	Axiothella	rubrocincta	(Johnson, 1901)
Maldanidae	Clymenella	californica	Blake & Kudenov, 1974
Maldanidae	Praxillella	affinis pacifica	Berkeley, 1929
Sabellariidae	Sabellaria	sp.	n/a
Sabellariidae	Idanthyrsus	armatus	Kinberg, 1867
Sabellariidae	Phragmatopoma	californica	(Fewkes, 1889)
Sabellariidae	Sabellaria	cementarium	Moore, 1906
Pectinariidae	Pectinaria	brevicoma	n/a
Pectinariidae	Cistenides	brevicoma	(Johnson, 1901)
Pectinariidae	Pectinaria	californiensis	Hartman, 1941
Ampharetidae	Ampharete	labrops	Hartman, 1961
Ampharetidae	Schistocomus	hiltoni	Chamberlin, 1919
Terebellidae	Amaeana	sp.	n/a
Terebellidae	Amaeana	occidentalis	(Hartman, 1944)
Terebellidae	Eupolymnia	crescentis	Chamberlin, 1919
Terebellidae	Eupolymnia	heterobranchia	(Johnson, 1901)
Terebellidae	Loimia	sp.	n/a
Terebellidae	Loimia	medusa	(Savigny, 1818)
Terebellidae	Terebella	californica	Moore, 1904
Terebellidae	Neoleprea	californica	Moore, 1904
Terebellidae	Amphitrite	robusta	Johnson 1901
Terebellidae	Neoamphitrite	robusta	(Johnson, 1901)

Terebellidae	Pista	brevibranchiata	Moore, 1923
Terebellidae	Pista	sp.	n/a
Terebellidae	Pista	elongata	Moore, 1909
Terebellidae	Pista	pacifica	Berkeley & Berkeley, 1942
Terebellidae	Polycirrus	sp.	n/a
Terebellidae	Polycirrus	californicus	Moore, 1909
Terebellidae	Ramex	californiensis	Hartman, 1944
Terebellidae	Streblosoma	crassibranchia	Treadwell, 1914
Terebellidae	Thelepus	plagiostoma	(Schmarda, 1861)
Terebellidae	Thelepus	crispus	Johnson, 1901
Terebellidae	Thelepus	sp.	n/a
Terebellidae	Thelepus	setosus	(Quatrefages, 1865)
Sabellidae	Chone	sp.	n/a
Sabellidae	Chone	ecaudata	(Moore, 1923)
Sabellidae	Chone	infundibuliformis	Kroyer, 1856
Sabellidae	Chone	gracilis	Moore, 1906
Sabellidae	Chone	minuta	Hartman, 1944
Sabellidae	Metachone	mollis	n/a
Sabellidae	Chone	mollis	(Bush, 1904)
Sabellidae	Eudistylia	sp.	n/a
Sabellidae	Eudistylia	polymorpha	(Johnson, 1901)
Sabellidae	Eudistylia	vancouveri	(Kinberg, 1867)
Sabellidae	Fabricia	berkeleyi	(Banse, 1956)
Sabellidae	Myxicola	sp.	n/a
Sabellidae	Myxicola	infundibulum	(Renier, 1804)
Sabellidae	Pseudopotamilla	intermedia	Moore, 1905
Sabellidae	Fabricia	sp.	n/a
Sabellidae	Pseudopotamilla	brevibranchiata	n/a
Sabellidae	Pseudopotamilla	sp.	n/a
Sabellidae	Pseudopotamilla	occelata	Moore, 1905
Sabellidae	Pseudopotamilla	socialis	Hartman, 1944
Sabellidae	Sabella	sp.	n/a
Sabellidae	Sabella	crassicornis	Sars, 1851
Sabellidae	Sabella	media	(Bush, 1904)
Sabellidae	Schizobranchia	sp.	n/a
Sabellidae	Schizobranchia	insignis	Bush, 1904
Serpulidae	Spirorbis	spirillum	(Linnaeus, 1758)
Serpulidae	Spirorbis	spirillum	(Linnaeus, 1758)
Serpulidae	Dexiospira	spirillum	(Linnaeus, 1758)
Serpulidae	Eupomatus	gracilis	n/a
Serpulidae	Hydroides	gracilis	(Bush, 1905)
Serpulidae	Eupomatus	sp.	n/a
Serpulidae	Hydroides	uncinatus	Fauvel, 1927
Serpulidae	Leodora	abnormis	*see ref. list
Serpulidae	Paradexiospira	sp.	n/a
Serpulidae	Paradexiospira	vitrea	(Fabricius, 1780)
Saccocirridae	Saccocirrus	sp.	n/a
Serpulidae	Eulaeospira	sp.	n/a
Serpulidae	Spirorbella	sp.	n/a
Serpulidae	Paralaeospira	sp	n/a

Serpulidae	Protolaeospira	sp.	n/a
Serpulidae	Protolaeospira	eximia	(Bush, 1905)
Serpulidae	Leodora	sp.	n/a
Serpulidae	Vermilopsis	sp.	n/a
Serpulidae	Salmacina	sp.	n/a
Serpulidae	Filograna	sp.	n/a
Serpulidae	Salmacina	tribranchiata	(Moore, 1923)
Serpulidae	Serpula	columbiana	Johnson, 1901
Serpulidae	Serpula	vermicularis	Linnaeus, 1767
Serpulidae	Spirobranchus	sp.	n/a
Serpulidae	Spirobranchus	spinosus	Moore, 1923
Serpulidae	Laeospira	borealis	Daudin, 1800
Serpulidae	Spirorbis	borealis	Daudin, 1800
n/a	Fabricia	dubia	n/a