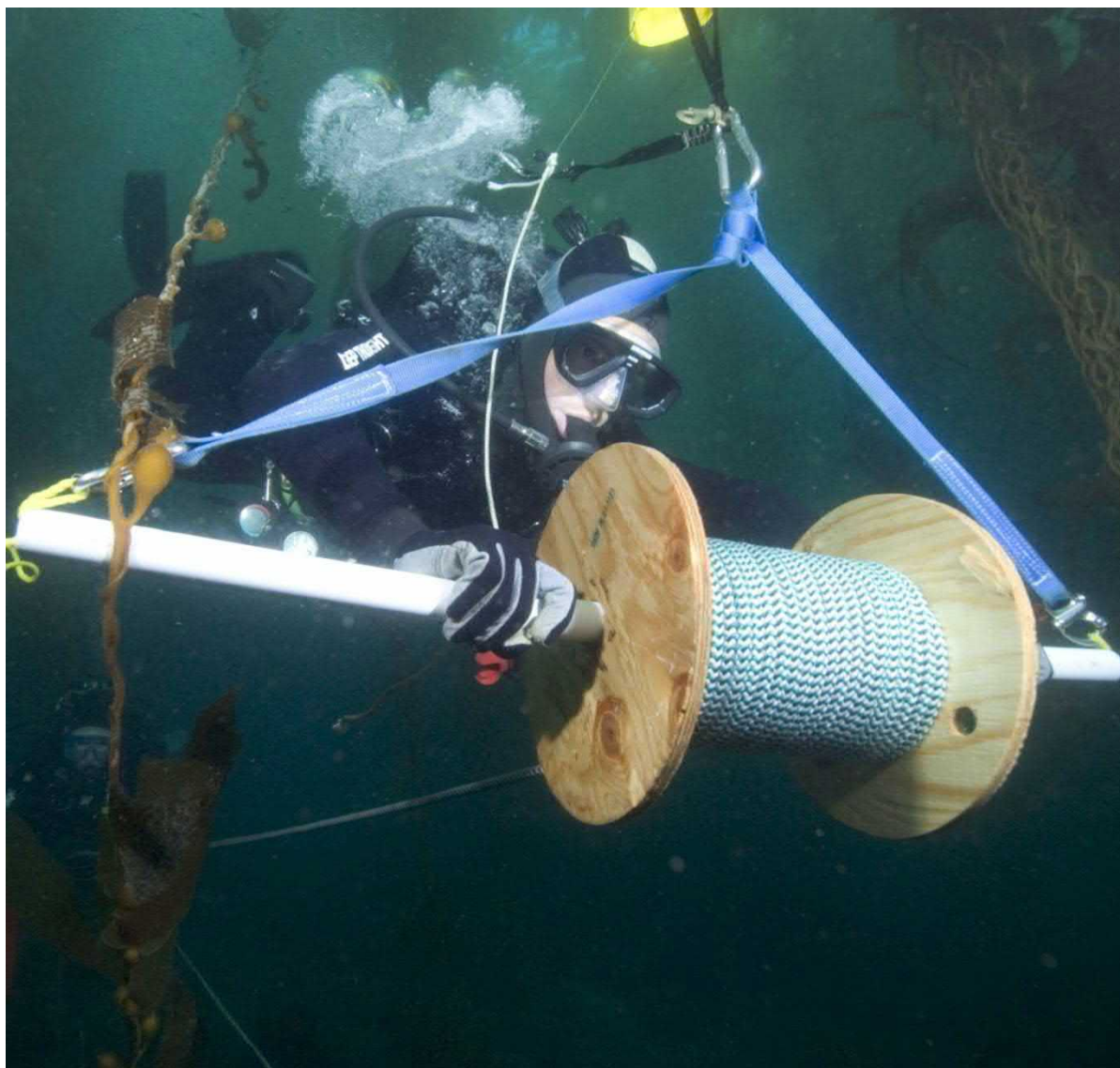




Channel Islands National Park Kelp Forest Monitoring Program

Annual Report 2005

Natural Resource Data Series NPS/MEDN/NRDS—2012/376



ON THE COVER

Diver laying lead line at one of the new KFM sites established in 2005

Photograph by: Kelp Forest Monitoring Program

Channel Islands National Park Kelp Forest Monitoring Program

Annual Report 2005

Natural Resource Data Series NPS/MEDN/NRDS—2012/376

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The National Park Service, Natural Resource Stewardship and Science office in Fort Collins, Colorado publishes a range of reports that address natural resource topics of interest and applicability to a broad audience in the National Park Service and others in natural resource management, including scientists, conservation and environmental constituencies, and the public.

The Natural Resource Data Series is intended for the timely release of basic data sets and data summaries. Care has been taken to assure accuracy of raw data values, but a thorough analysis and interpretation of the data has not been completed. Consequently, the initial analyses of data in this report are provisional and subject to change.

All manuscripts in the series receive the appropriate level of peer review to ensure that the information is scientifically credible, technically accurate, appropriately written for the intended audience, and designed and published in a professional manner.

This report received informal peer review by subject-matter experts who were not directly involved in the collection, analysis, or reporting of the data. Data in this report were collected and analyzed using methods based on established protocols and were analyzed and interpreted within the guidelines of the protocols.

Views, statements, findings, conclusions, recommendations, and data in this report do not necessarily reflect views and policies of the National Park Service, U.S. Department of the Interior. Mention of trade names or commercial products does not constitute endorsement or recommendation for use by the U.S. Government.

This report is available from the Mediterranean Coast Network's Inventory and Monitoring website <http://science.nature.nps.gov/im/units/medn/reports/index.cfm>, the Mediterranean Coast Network's website <http://www.mednscience.org/>, and the Natural Resource Publications Management website <http://www.nature.nps.gov/publications/nrpm/>.

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Executive Summary

Kelp forests are considered a “Vital Sign” of ecosystem health and are one of 12 Vital Signs identified for long-term monitoring through the Mediterranean Coast Network of the NPS Inventory and Monitoring Program (Davis and Halvorson 1988, Cameron et al. 2005). Channel Islands National Park (CINP) has conducted long-term ecological monitoring of the kelp forests around San Miguel, Santa Rosa, Santa Cruz, Anacapa and Santa Barbara Islands since 1982. The Kelp Forest Monitoring (KFM) Program established 16 permanent transects between 1981 and 1986 with the first sampling beginning in 1982. An additional site, Miracle Mile, was established at San Miguel Island in 2001 by a commercial fisherman with assistance from the park and has been intermittently monitored since. This year, 16 additional permanent sites were established to collect baseline data from inside and adjacent to four newly established marine reserves. These 16 new sites were established under the KFM proposal “Establish Baseline Ecological Conditions of Newly Established Marine Reserves at the Channel Islands” that was funded this year and for three years (2005-2007) by the National Park Service’s Natural Resources Preservation Program (NRPP).

Observations and results of the 2005 CINP Kelp Forest Monitoring Program are described in this report. Population dynamics of 70 taxa or categories, of algae, fish and invertebrates were measured at all 33 permanent sites in 2005. These 33 sites consisted of the original 16 kelp forest monitoring sites at the five park islands, one additional site on San Miguel Island added in 2001, and the 16 new sites that were established this year at Santa Barbara, Anacapa, Santa Cruz and Santa Rosa Islands. Survey techniques follow the Channel Islands National Park’s Kelp Forest Monitoring Protocol Handbook Vol. 1 (Davis et al. 1997). The techniques utilize SCUBA and surface-supplied air to perform 1 m quadrats, 5 m quadrats, band transects, random point contacts, fish transects, roving diver fish counts, video transects, size frequency measurements and artificial recruitment modules. Temperature data were collected using remote temperature loggers at 32 sites, the exception being Miracle Mile where there is no temperature logger installed. In addition to the KFM protocol, the Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO) fish abundance and size monitoring protocol was conducted at 24 of the monitoring sites involved in the fine scale marine protected area (MPA) evaluation designed by the park. PISCO conducted this monitoring for the park under a Cooperative Agreement with the University of California at Santa Barbara (UCSB) and the funding was from NRPP funded project mentioned above.

The 2005 monitoring efforts utilized 71 days of vessel time to conduct 1,177 dives totaling 1,085 hours of bottom time. This does not include the dives or bottom time that UCSB’s Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO) incurred to conduct the visual fish transects, nor does it include the contractor’s time to install the 16 new permanent monitoring transects. All of the proposed monitoring was completed in 2005. This annual report contains a summary of the methods used to conduct the monitoring in 2005 and a brief description of the sites along with the results. All of the data collected during 2005 can be found summarized in the Appendices A-M in this report.

In 2005, 15 sites had mature *Macrocystis pyrifera* (giant kelp) forests, one site had a developing kelp forest, one site was in a state of transition, 15 sites were dominated by echinoderms, and one site was about half mature kelp forest and half dominated by echinoderms. Of the 15 sites

dominated by echinoderms, five were dominated by *Strongylocentrotus purpuratus* (purple sea urchin), five by *S. purpuratus* and *S. franciscanus* (red sea urchin), one by *Ophiothrix spiculata* (brittle star) and *S. purpuratus*, one by *O. spiculata*, and three were dominated by *Strongylocentrotus purpuratus*, *S. franciscanus* and *O. spiculata*. At the one site that was half kelp forest and half echinoderms, the echinoderm half was dominated by *S. purpuratus*.

At Santa Barbara Island, the three original KFM sites remained nearly devoid of macroalgae and were dominated by echinoderms similar to 2004. However, there were some noticeable increases in kelp in scattered areas around the Island. Most notable were the kelp forests around Webster's Arch, Sutil Island, and some near shore areas around the Island. All three original sites (Southeast Sea Lion, Arch Point and Cat Canyon) were dominated by *Strongylocentrotus purpuratus* and *S. franciscanus*. In addition, Southeast Sea Lion continued to have a high abundance of *Ophiothrix spiculata*. Of the three newly established sites, Webster's Arch was dominated by *S. franciscanus* and *S. purpuratus*, Graveyard Canyon was dominated by *O. spiculata*, *S. franciscanus* and *S. purpuratus*, and Southeast Reef was half mature kelp forest and half dominated by *S. purpuratus*. There was a continued increase of both *S. purpuratus* and *S. franciscanus* at the original sites. In general we feel that the six KFM sites well represent the overall condition of the kelp forests at Santa Barbara Island.

Anacapa Island has changed little from last year and there were few changes at the three original KFM sites. Overall, the abundance of *Macrocystis pyrifera* was similar to last year, and *Strongylocentrotus purpuratus* and *S. franciscanus* densities remained similar or declined slightly at all three sites. Of the three original sites, both Cathedral Cove and Landing Cove continued to develop into a mature kelp forest with noticeably more algae, and Admiral's Reef remained dominated by *Ophiothrix spiculata* and *S. purpuratus*. Of the three newly established sites, Lighthouse was a mature kelp forest and was closest to Cathedral Cove and Landing Cove. Keyhole was a developing kelp forest, Black Sea Bass Reef was dominated by *O. spiculata* and East Fish Camp was dominated by *S. purpuratus*, *S. franciscanus* and *O. spiculata*. There were notably more algae in other inshore areas around Anacapa. However, *S. purpuratus* and *O. spiculata* still appear to dominate many areas along the south side of East Anacapa, and as well at both the south and north sides of middle and west Anacapa Island, which was consistent at our new sites Black Sea Bass Reef and East Fish Camp. Overall, we feel these seven KFM sites well represent the state of kelp forests at Anacapa Island.

The kelp forests at Santa Cruz Island continue to expand. *Strongylocentrotus* spp. densities decreased over the past several years and continued to do so this year, but at a slower rate. *S. purpuratus* densities continued to decline at three sites and remained the same at the two sites where they have recently become relatively rare. *Strongylocentrotus franciscanus* densities remained about the same at all five original monitoring sites. Similar to 2004, Pelican Bay and Scorpion Anchorage were dominated by *S. purpuratus*. There were noticeably more *Macrocystis pyrifera* at the northwest end of Scorpion Anchorage. Gull Island South remained a mature kelp forest and Yellow Banks was a mature kelp forest also. Echinoderms have notably decreased at Fry's Harbor, and this site still was in a state of transition, possibly to a kelp forest. Five new KFM sites were installed at this island this year. These were placed around the Scorpion Anchorage marine reserve and several of the sites were similar to the state of the original Scorpion Anchorage site. Of the five new sites, three were dominated by *S. purpuratus*, and two by both *S. purpuratus* and *S. franciscanus*. The western third of the Island is under represented

by our monitoring program as we don't have any sites west of Gull Island South. The kelp forests at this end of the Island have been increasing in recent years.

Kelp forests continued to be abundant and continued to increase in abundance and density around Santa Rosa and San Miguel Islands. In 2005, mature kelp forests were present at all five of the original kelp forest monitoring sites at these Islands, same as 2004. In addition, the relatively new monitoring site, Miracle Mile, remained a mature kelp forest and the four new KFM sites installed this year at Santa Rosa Island were all mature kelp forests. Overall, *Strongylocentrotus* spp. densities decreased at these Islands. *S. purpuratus* densities decreased at two sites and remained the about the same at three. *Strongylocentrotus franciscanus* densities decreased at two and remained about the same at three sites.

Acknowledgments

This ecological monitoring program was supported by the U.S. National Park Service in cooperation with CDFG and the U.S. Department of Commerce and the NOAA's Marine Sanctuary Program. Additional funding through the NPS NRPP funded the establishment of 16 new sites that were added to the KFMP in 2005.

We are deeply indebted to the many divers who have participated in this project in 2005 (Table 5). All of our volunteer divers are trained and/or certified with other agencies such as NOAA, CDFG, Aquariums and Universities. Without this volunteer base of well-trained and qualified divers it would be impossible to conduct this program at its current funding level. We greatly appreciate the efforts of our captains Keith Duran, Diane Brooks, Terrance Shiff, Lou Moody, Mark Kibby and Ray Michalski for supporting us on the boats and our Diving Safety Officer, Dave Stoltz, for ensuring that all our operations run safely and successfully. We also like to thank the many well qualified PISCO divers from UCSB who conducted additional fish monitoring at the newly established sites as well as our contractor Jim Marshall who installed the transects for us at these new locations.

We thank L. Grace for assistance with formatting.

Information Requests

The kelp forest monitoring handbooks and annual reports are available in PDF format on the web at: <http://science.nature.nps.gov/im/units/medn/reports/index.cfm>.

To obtain raw data collected by the KFMP, please write to the address below:

Superintendent
Channel Islands National Park
1901 Spinnaker Drive
Ventura, CA 93001

List of Acronyms

ARM.....	Artificial Recruitment Module
CDFG.....	California Department of Fish and Game
CINP.....	Channel Islands National Park
CINMS.....	Channel Islands National Marine Sanctuary
KFM.....	Kelp Forest Monitoring
KGB.....	Kelp/Gopher/Copper/Black and Yellow Rockfish Complex young of the year
MPA.....	Marine Protected Area
NOAA.....	National Oceanic and Atmospheric Administration
NPS.....	National Park Service
NRPP.....	Natural Resources Preservation Program
PISCO.....	Partnership for Interdisciplinary Studies of Coastal Oceans
RPC.....	Random Point Contact
UCSB.....	University of California, Santa Barbara

Introduction

The waters of Channel Islands National Park (CINP) and Channel Islands National Marine Sanctuary (CINMS) contain one-third of southern California's kelp forests (Davies, 1968). Giant kelp, *Macrocystis pyrifera*, is the primary constituent of the southern California kelp forest, and over 1,000 species of macro flora and fauna live in this community (Woodhouse 1981, Engle pers. comm.). The kelp forest serves as food, shelter, substrate, and nursery to resident, as well as migratory, species. Many species, while not residents of the kelp forest, are dependent upon its existence and productivity as detrital flux from kelp forests provides an important source of nutrients to nearby rocky shore, sandy beach and estuary communities. Additionally, kelp forests are essential to California's commercial and sport fisheries as well as the recreation and tourism industries.

The CINP consists of five of the eight California Channel Islands (San Miguel, Santa Rosa, Santa Cruz, Anacapa, and Santa Barbara) and the submerged lands and waters within one nautical mile of each of the islands. The CINMS overlaps the subtidal portions of the park, and its boundary extends six miles seaward from the park islands. The CINP also bears the designation of International Biosphere Reserve and that of the State of California Area of Special Biological Significance. The State of California maintains jurisdiction over the living marine resources within the park and manages them through CDFG.

The KFM Program is part of the long-term ecological monitoring conducted by the Mediterranean Coast Network of the NPS Inventory and Monitoring Program (I&M), which is designed to measure the health of the Park's ecosystems (Davis and Halvorson 1988; Cameron 2006). The objectives of the KFM Program are as follows:

- Identify trends in ecosystem health
- Determine limits of variability
- Diagnose abnormal conditions
- Suggest potential remedial treatments

Following a five-year design study that began in 1982, the KFMP was implemented in 1987 by the park's resource management division using the protocol established during the design phase (Davis and Halvorson 1988). Preliminary results and specific design considerations can be found in reports written by Davis (1985, 1986). Richards et al. (1997), describe monitoring efforts and results for 1982-1989. Richards et al. (1993a), Richards et al. (1993b), Richards and Kushner (1994), Kushner et al. (1995a), Kushner et al., (1995b), Kushner et al. (1997a), Kushner et al. (1997b), Kushner et al. (1998), Kushner et al. (2000), Kushner et al. (2001a), Kushner et al. (2001b) and Kushner et al. (2004) describe the 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, and 2004 monitoring efforts and results respectively. A review of the KFMP was conducted in 1995 (Davis et al. 1996).

Though the KFM Program was fully implemented as an Inventory & Monitoring Program prototype "vital sign" in 1987 (Davis and Halvorson 1988), monitoring began at 14 sites in 1982 and two additional sites in 1986. An additional site, Miracle Mile, was established at San Miguel

Island in 2001 by a commercial fisherman with assistance from the park and has been at least partially monitored since.

In 2005, the park was awarded three years of funding from the NPS's NRPP to Establish Baseline Ecological Conditions of Newly Established Marine Reserves at the Channel Islands. This project began this year with the addition and monitoring of 16 new sites. These sites were located inside or adjacent to the following four newly established MPAs: Santa Barbara Island, Anacapa Island, Scorpion Anchorage MPA at Santa Cruz Island, and the South Point MPA at Santa Rosa Island. Only four of the 11 newly established MPAs were selected because of limited funding and the logistical constraints conducting this type of monitoring. These four MPAs were chosen for all or some of the following reasons: accessibility, to make the best use of the KFMPs existing base line data, and fishing impact. New sites were established to complement existing sites so that at least three sites were inside and three adjacent to each of the four MPAs.

This report summarizes the monitoring efforts and results from 2005, our 24th year of monitoring. It is hoped that these reports will provide some insight into kelp forest dynamics and stimulate further research into the long-term trends and changes in this near-shore ecosystem. We have highlighted some of the most important observations, and tried to provide a characterization for each site. Organisms are referred to by genus and species, except when non-indicator species are mentioned where both scientific and common names are used. Common names for the indicator species are cross-referenced to their scientific names in Table 1. Since the design of the KFMP, several genera and species names have been changed. These new names are cross-referenced in Table 2.

Table 1. Regularly monitored species and associated monitoring technique(s).

Taxa/Common Name	Scientific Name	Technique
Algae		
Miscellaneous green algae		R
Miscellaneous red algae		R
Articulated coralline algae		R
Encrusting coralline algae		R
Agar weed	<i>Gelidium</i> spp.	R
Sea tongue	<i>Gigartina</i> spp.	R
Miscellaneous brown algae		R
Acid weed	<i>Desmarestia</i> spp.	R
Oar weed	<i>Laminaria farlowii</i>	R, Q
Bladder chain kelp	<i>Cystoseira</i> spp.	R
Giant kelp	<i>Macrocystis pyrifera</i>	R, Q, M
California sea palm	<i>Pterygophora californica</i>	R, Q
Southern sea palm	<i>Eisenia arborea</i>	R, Q
Miscellaneous plants		R
Invertebrates		
Miscellaneous sponges		R
Orange puffball sponge	<i>Tethya aurantia</i>	B, S
Southern staghorn bryozoan	<i>Diaperoecia californica</i>	R
Miscellaneous bryozoans		R
California hydrocoral	<i>Stylaster californica</i>	B, S
White-spotted rose anemone	<i>Tealia lofotensis</i>	B
Red gorgonian	<i>Lophogorgia chilensis</i>	B, S
Brown gorgonian	<i>Muricea fruticosa</i>	B, S
Californian golden gorgonian	<i>Muricea californica</i>	B, S
Strawberry anemone	<i>Corynactis californica</i>	R
Orange cup coral	<i>Balanophyllia elegans</i>	R
Cup coral	<i>Astrangia lajollaensis</i>	R
Ornate tube worm	<i>Diopatra ornata</i>	R
Colonial sand-tube worm	<i>Phragmatopoma californica</i>	R
Scaled-tube snail	<i>Serpulorbis squamigerus</i>	R
Chestnut cowrie	<i>Cypraea spadicea</i>	Q
Wavy turban snail	<i>Megastraea undosa</i>	Q, S
Red turban snail	<i>Lithopoma gibberosa</i>	Q, S
Bat star	<i>Patiria miniata</i>	Q, S
Giant-spined sea star	<i>Pisaster giganteus</i>	Q, S, M
Sunflower star	<i>Pycnopodia helianthoides</i>	B, S

Table 1. Regularly monitored species and associated monitoring technique(s) (continued).

Invertebrates		
White sea urchin	<i>Lytechinus anamesus</i>	B, S
Red sea urchin	<i>Strongylocentrotus franciscanus</i>	Q, S
Purple sea urchin	<i>Strongylocentrotus purpuratus</i>	Q, S
Warty sea cucumber	<i>Parastichopus parvimensis</i>	Q
Aggregated red sea cucumber	<i>Pachythyone rubra</i>	R
Red abalone	<i>Haliotis rufescens</i>	B, S
Pink abalone	<i>Haliotis corrugata</i>	B, S
Green abalone	<i>Haliotis fulgens</i>	B, S
Kellett's whelk	<i>Kelletia kelletii</i>	B, S
Giant keyhole limpet	<i>Megathura crenulata</i>	B, S
California brown sea hare	<i>Aplysia californica</i>	B
Rock scallop	<i>Crassidoma giganteum</i>	B, S
California spiny lobster	<i>Panulirus interruptus</i>	B
Tunicates		R
Stalked tunicate	<i>Styela montereyensis</i>	Q
Miscellaneous invertebrates		R
Fish		
Bluebanded goby	<i>Lythrypnus dalli</i>	Q, F
Blackeye goby	<i>Coryphopterus nicholsii</i>	Q, F
Island kelpfish	<i>Alloclinus holderi</i>	Q, F
Blacksmith	<i>Chromis punctipinnis</i>	V, F
Señorita	<i>Oxyjulis californica</i>	V, F
Blue rockfish	<i>Sebastes mystinus</i>	V, F
Olive rockfish	<i>Sebastes serranoides</i>	V, F
Kelp rockfish	<i>Sebastes atrovirens</i>	V, F
Kelp bass	<i>Paralabrax clathratus</i>	V, F
California sheephead	<i>Semicossyphus pulcher</i>	V, F
Black surfperch	<i>Embiotoca jacksoni</i>	V, F
Striped surfperch	<i>Embiotoca lateralis</i>	V, F
Pile perch	<i>Rhacochilus vacca</i>	V, F
Garibaldi	<i>Hypsypops rubicundus</i>	V, F
Opaleye	<i>Girella nigricans</i>	V, F
Painted greenling**	<i>Oxylebius pictus</i>	F
Rock Wrasse	<i>Halichoeres semicinctus</i>	V, F
Tree Rockfish	<i>Sebastes serriceps</i>	F
Substrate		
Bare substrate		R
Substrate types: Rock		R
Cobble		R
Sand		R

*Technique codes: Q= 1 m Quadrats, M= 5 m Quadrats, B= Band Transects, R= Random Point Contacts, S= Size Frequency Measurements, F= Roving Diver Fish Count, V= Visual Fish Transect.

**Not an indicator species, but observed so frequently that we include this species on our datasheets.

Table 2. Changes in scientific nomenclature.

Current Name	Former Name
<i>Patiria miniata</i>	<i>Asterina miniata</i>
<i>Megastraea undosa</i>	<i>Lithopoma undosum</i> / <i>Astraea undosa</i>
<i>Lithopoma gibberosa</i>	<i>Astraea gibberosa</i>
<i>Crassedoma giganteum</i>	<i>Hinnites giganteum</i>
<i>Stylaster californica</i>	<i>Allopora californica</i>
<i>Telia lofotensis</i>	<i>Urticina lofotensis</i>
<i>Coryphopterus nicholsii</i>	<i>Rhinogobiops nicholsii</i>
<i>Rhacochilus vacca</i>	<i>Damalychthys vacca</i>

Methods

Abundances, and in some cases size structure, of 70 taxa or categories of algae, fish, and invertebrates (Table 1) were measured at 33 permanent sites (Table 3) around the five park islands (Figure 1). Site and species selection criteria and sampling protocol are described in the Kelp Forest Monitoring Handbook Volume I (Davis et al., 1997) available online at http://www.nature.nps.gov/im/units/chis/Reports_PDF/Marine/KFM-HandbookVol1.pdf. Sites were monitored between May 16th and October 28th 2005, using the NPS vessel “Pacific Ranger”, CDFG vessel “Garibaldi” and NOAA vessel “Shearwater”. Data management and entry procedures are described in the Kelp Forest Monitoring Handbook Volume II (Kushner et al. 1997c).

Table 3. Site information.

Island	Site Location	Site Abbreviation	Depth Meters	Year Established
San Miguel	Wyckoff Ledge	SMWL	13-15	1981
San Miguel	Hare Rock	SMHR	6-9	1981
San Miguel	Miracle Mile	SMMM	7-10	2001
Santa Rosa	Johnson’s Lee North	SRJLNO	9-11	1981
Santa Rosa	Johnson’s Lee South	SRJLSO	14-16	1981
Santa Rosa	Rodes Reef	SRRR	13-15	1983
Santa Rosa	Cluster Point	SRCP	12-15	2005
Santa Rosa	Trancion Canyon	SRTC	9-15	2005
Santa Rosa	Chickasaw	SRCSAW	10-13	2005
Santa Rosa	South Point	SRSP	11-13	2005
Santa Cruz	Gull Island South	SCGI	14-16	1981
Santa Cruz	Fry’s Harbor	SCFH	12-13	1981
Santa Cruz	Pelican Bay	SCPB	6-8	1981
Santa Cruz	Scorpion Anchorage	SCSA	5-6	1981
Santa Cruz	Yellowbanks	SCYB	14-15	1986
Santa Cruz	Devil’s Peak Member	SCDPM	10-13	2005
Santa Cruz	Potato Pasture	SCPP	9-12	2005
Santa Cruz	Cavern Point	SCCVP	12-13	2005
Santa Cruz	Little Scorpion	SCLS	9-14	2005
Santa Cruz	Pedro Reef	SCPRF	7-10	2005
Anacapa	Admiral’s Reef	ANAR	13-15	1981
Anacapa	Cathedral Cove	ANCC	6-11	1981
Anacapa	Landing Cove	ANLC	5-12	1981
Anacapa	Keyhole	ANKH	7-10	2005
Anacapa	East Fish Camp	ANEFC	9-14	2005
Anacapa	Black Sea Bass Reef	ANBSBR	15-16	2005
Anacapa	Lighthouse	ANLH	7-9	2005
Santa Barbara	Southeast Sea Lion Rookery	SBSESL	12-14	1981
Santa Barbara	Arch Point	SBAR	7-8	1981
Santa Barbara	Cat Canyon	SBCAT	7-9	1986
Santa Barbara	Webster’s Arch	SBWA	14-16	2005
Santa Barbara	Graveyard Canyon	SBGC	10-12	2005
Santa Barbara	Southeast Reef	SBSER	10-15	2005

Each site is marked by a 100 m long transect line affixed to the seabed. The sampling techniques employed to gather patterns of abundance and age structure are summarized in Table 4. At each station, 24 paired 1 m x 1 m quadrats were systematically arranged along the transect with a random start, 40 continuous and adjacent 1m x 5m quadrats, and 24 paired 3 m x 10 m band transects were systematically arranged along the transect with a random start were used to determine densities and distribution of discrete benthic organisms; 600 random non-adjacent random point contacts (RPCs) were used to determine percent cover of encrusting invertebrates, algae, and substrate composition; four 2m x 3m x 50m fixed transects were used to determine fish abundance; roving diver fish counts with a time component and estimated abundance were used to determine an index of abundance and diversity; video-taped transects provide a record of the site appearance; and size frequency measurements were collected to determine age structure and recruitment cohorts (Table 5). All animals measured for the natural habitat size frequency distributions were located using a band transect type search method. A general species list was established for each site, noting presence/absence and relative abundance for all positively identified species. Artificial recruitment modules (ARMs) were in place at 11 of the sites to measure recruitment and population structure of indicator species within the ARMs. A complete description of the monitoring protocols can be found in Davis et al. (1997).

Table 4. Summary of sampling techniques.

Technique	Area or Time Sampled	# of Replicates (per site)
1 m Quadrat	1 m x 2 m	12
5 m Quadrat	1 m x 5 m	40
Band Transect	3 m x 20 m	12
Random Point Contact	40 points (0.5 x 3)	15
Visual Fish Transect	2 m(w) x 3 m(h) x 50 m (l)	4
Fish Size Frequency	30 minutes	1 (minimum)
Roving Diver Fish Count	30 minutes	4-8
Video Transect	100 m, 5 minutes	2
Video Plot	360° pan of bolt, 360° pan of water column	3 (0 m, 50 m, and 100 m marks)
Natural Habitat Size Frequency	individual	30-200 per species
Artificial Recruitment Module	module, time variable	7-20
Species Checklist	30-90 minutes	1
Temperature	hourly	all sites

Table 5. Size frequency measurement dimensions.

Scientific Name	Sample Size	Measurement
<i>Macrocystis pyrifera</i>	100	Stipe count (1 m above bottom), max. holdfast diameter, mm
<i>Tethya aurantia</i>	60	Max. diameter, mm
<i>Stylaster (Allopora) californica</i>	60	Max. height and width, mm
<i>Lophogorgia chilensis</i>	60	Max. height and width, mm
<i>Muricea californica</i>	60	Max. height and width, mm
<i>Megathura crenulata</i>	60	Max. shell length, mm
<i>Haliotis</i> spp.	60	Max. shell length, mm
<i>Megastraea (Lithopoma/Astraea)</i> spp.	60	Max. shell diameter, mm
<i>Kelletia kelletia</i>	60	Max. shell length, mm
<i>Crassedoma (Hinnites) giganteum</i>	60	Max. shell length, mm
<i>Tegula regina</i>	60	Max. shell length, mm
<i>Strongylocentrotus</i> spp.	200	Max. shell diameter, mm
<i>Lytechinus anamesus</i>	200	Max. shell diameter, mm
<i>Pycnopodia helianthoides</i>	60	Length of longest ray, mm
<i>Asterina (Patiria) miniata</i>	60	Length of longest ray, mm
<i>Pisaster giganteus</i>	60	Length of longest ray, mm

Remote temperature loggers, TIDBIT™, made by Onset Computer Corporation were deployed at each site. Loggers were encased in underwater housings and attached to stainless steel thread rods cemented to the bottom at each site. In 2005, we began using a new type of housing that is made from ABS plastic that is not waterproof and is described in detail in the Protocol Changes section of the discussion. In 2005 both the new housing, which is not waterproof, and old waterproof housing were used. New O-rings were installed in the old waterproof housings in 2005. At most sites, two temperature loggers were placed in the underwater housing. At these sites, a comparison of several temperatures from both loggers was made to see if the loggers were recording within their specifications ($\pm 0.2^{\circ}\text{C}$).

In past years, sampling at the kelp forest monitoring sites typically occurred over at least two separate dates, ranging from two weeks to several months apart during the sampling season. Separate sampling dates enabled us to conduct fish transects and roving diver fish counts two times at each site at least two weeks apart. Due to the addition of 16 new monitoring sites, effectively doubling the size of the KFM Program, logistical constraints enabled us to only conduct fish transect and roving diver fish counts once per site this year. In addition to the kelp forest monitoring program fish protocol, we initiated and incorporated an additional visual fish transect protocol this year as part of the three year Marine Reserve baseline study funded by NRPP. This additional protocol for KFM Program was conducted under a cooperative agreement with UCSB/PISCO. The methods for this protocol can be located at: <http://piscoweb.org/research>. PISCO's fish transect protocol was implemented because the KFMP fish monitoring protocol is unlikely to adequately evaluate the effectiveness of the Marine Reserves over a short period of time since the KFM protocol has high variation with low sample size and does not collect size frequency information.

In past years, and this year, we attempt to complete all of the abundance estimate techniques (1 m quadrats, 5 m quadrats, size frequencies for *Macrocystis pyrifera*, band transects, random point contacts, fish transects, and roving diver fish count) during the same visit. During the

second and/or the remaining sampling visits we will often conduct size frequency sampling, transect line repair, and fish protocol for a second time if time allows. On rare occasions the abundance techniques are not completed during our first visit and are completed at subsequent visits as soon as possible. If this happens, it is documented under the site information in this Results section below. If there appears to be large changes in abundance between visits within a sampling season, an additional sampling may be conducted to document these changes. Differences are reported in the site results in Appendix A. In the text we report numbers to two significant digits.



Figure 1. Kelp Forest Monitoring locations at the Channel Islands National Park.

Results

Sampling was completed at all 33 monitoring sites in 2005 and a summary of the status at each site is presented in Table 6. Twenty divers (Table 7) collected data on eight five-day cruises, one four-day cruise, and nine two-day cruise between May and October (Table 8). The divers logged 1175 dives with over 1085 hours of bottom time. This does not include the dives that UCSB/PISCO incurred to conduct the fish monitoring nor the contractor to install the 16 new permanent monitoring transects. All prescribed monitoring data were collected in 2005.

However, fish transects and roving diver fish counts were only performed once per site this year due to logistical constraints created by the additional monitoring sites. In lieu of only sampling fish once at each site, UCSB/PISCO conducted their fish transect protocol as established by the park's cooperative agreement with University of California at Santa Barbara.

Table 6. 2005 Kelp Forest Monitoring site status with 2004 status for comparison.

Island/Site	2005 Status	2004 Status
San Miguel Island		
Wyckoff Ledge	Mature kelp forest	Mature kelp forest
Hare Rock	Mature kelp forest	Mature kelp forest
Miracle Mile**	Mature kelp forest	Mature kelp forest
Santa Rosa Island		
Johnson's Lee North	Mature kelp forest	Mature kelp forest
Johnson's Lee South	Mature kelp forest	Mature kelp forest
Rodes Reef	Mature kelp forest	Mature kelp forest
Cluster Point*	Mature kelp forest	NA
Trancion Canyon*	Mature kelp forest	NA
Chickasaw*	Mature kelp forest	NA
South Point*	Mature kelp forest	NA
Santa Cruz Island		
Gull Island South	Mature kelp forest	Mature kelp forest
Fry's Harbor	State of transition	In transition, possibly to kelp forest
Pelican Bay	Dominated by <i>S. purpuratus</i>	Dominated by <i>S. purpuratus</i>
Scorpion Anchorage	Dominated by <i>S. purpuratus</i>	Dominated by <i>S. purpuratus</i>
Yellow banks	Mature kelp forest	Kelp forest
Devil's Peak Member*	Dominated by <i>S. purpuratus</i>	NA
Potato Pasture*	Dominated by <i>S. purpuratus</i> and <i>S. franciscanus</i>	NA
Cavern Point*	Dominated by <i>S. purpuratus</i>	NA
Little Scorpion*	Dominated by <i>S. purpuratus</i> and <i>S. franciscanus</i>	NA
Pedro Reef*	Dominated by <i>S. purpuratus</i>	NA
Anacapa Island		
Admiral's Reef	Dominated by <i>Ophiothrix spiculata</i> and in some areas <i>S. purpuratus</i> .	Dominated by <i>O. spiculata</i> and in some areas <i>S. purpuratus</i> .
Cathedral Cove	Mature kelp forest	Kelp forest
Landing Cove	Mature kelp forest	Kelp forest
Keyhole Reef*	Developing kelp forest	NA
East Fish Camp*	Dominated by <i>S. purpuratus</i> , <i>S. franciscanus</i> and <i>O. spiculata</i> .	NA
Black Sea Bass Reef*	Dominated by <i>O. spiculata</i>	NA
Lighthouse*	Mature kelp forest	NA
Santa Barbara Island		
Southeast Sea Lion Rookery	Dominated by <i>O. spiculata</i> , <i>S. purpuratus</i> and <i>S. franciscanus</i>	Dominated by <i>O. spiculata</i> , <i>S. purpuratus</i> , and <i>S. franciscanus</i>
Arch Point	Dominated by <i>S. purpuratus</i> and <i>S. franciscanus</i>	Dominated by <i>S. purpuratus</i> and <i>S. franciscanus</i>
Cat Canyon	Dominated by <i>S. purpuratus</i> and <i>S. franciscanus</i>	Dominated by <i>S. purpuratus</i> and <i>S. franciscanus</i>
Webster's Arch*	Dominated by <i>S. purpuratus</i> and <i>S. franciscanus</i>	NA
Graveyard Canyon*	Dominated by <i>O. spiculata</i> , <i>S. purpuratus</i> and <i>S. franciscanus</i>	NA
Southeast Reef*	Mature kelp forest on half the transect and the other half is dominated by <i>S. purpuratus</i>	NA

Table 7. 2005 Kelp Forest Monitoring Program participant list.

Participants	Affiliation	Cruises Participated
Aamodt, Kjeld	UC San Diego	7
Alstatt, Jessie	Santa Barbara Channel Keepers	11
Conti, John	Channel Islands National Park VIP	1,14
Conway, Mike	Monterey Bay Research Institute	14
Donahue, Megan	Cal State Fullerton	17,19
Donnellan, Mike	Moss Landing Marine Laboratories	16
Guardino, Michael	Monterey Bay Aquarium	5,10
Gravem, Sean	University California at Davis	12
Haaker, Peter	California Department of Fish and Game	1,18
Kushner, David	Channel Islands National Park	1,2,3,4,5,6,7,8,9,10,11,12, 13,14,15,16,17,19,20,21
Erin Maloney	Moss Landing Marine Laboratories	16
Martin, Dan	Channel Islands National Park VIP	14,16
Moore, Kelly	Student Conservation Association	4,5,6,7,8,9,10,11,12,13,14,16, 17, 18,19, 20,21
Moss, Michael	Channel Islands National Park	1,2,4,5,6,7,8,9,12,13,14,15,16, 17,18,19,20,21
Owens, Penny	Santa Barbara Channel Keepers	11
Parsons, Avery	University California at Santa Barbara	13
Sprague, Joshua	National Park Service	1,3,4,5,6,7,8,9,10,11,12,13,14, 15,16,17,18,19,20,21 8,10,11,18
Taniguchi, Ian	California Department of Fish and Game	1,2,3,4,5,6,7,8,9,10,11,12, 13,14,15,16,17,18,19,20,21
Trone, John	National Park Service	4,19
Witting, Dave	Rutgers University	

Table 8. 2005 Kelp Forest Monitoring Program cruise list.

Cruise Number	2005 Cruise Dates	KFM Sites Visited
Cruise #1	5/16 – 5/20	SBAP, SBCC,SBSESL
Cruise #2	NA	NA
Cruise #3	5/25-5/26	NA
Cruise #4	6/13-6/17	SCPB, SRCSAW, SRCP, SMHR,SRTC,SRSP
Cruise #5	6/27-7/1	ANCC, SCFH, SCGI, ANAR
Cruise #6	7/6-7/7	SCDPM, SCCVP, SCLS, SCPP,
Cruise #7	7/11-7/15	SCYB,SRJLNO, SRJLSO, SCGI, ANLC
Cruise #8	7/25 – 7/29	SBSE, SBWA, SBSE, SBGC,SBWA
Cruise #9	8/3-8/4	SCDPM, ANBSBR
Cruise #10	8/8-8/12	SRRR, SMWL,SMMM, SRCP, SRTC, SRCSAW
Cruise #11	8/17 -8/18	ANLH, ANEFC, SCCVP
Cruise #12	8/22 – 8/26	ANAR, ANLH, SCYB, SRCP, SRCSAW,SCPP
Cruise #13	8/31-9/1	SCLS, SCPP
Cruise #14	9/5 – 9/9	ANLC, ANAR, SCSA, ANEFC
Cruise #15	9/14-9/15	ANKH
Cruise #16	9/19-9/23	SRJLSO, SRSP, SRJLNO, ANBSBR
Cruise #17	9/28-9/29	ANLH, ANEFC
Cruise #18	10/3-10/6	ANLH, ANEFC, SCYB
Cruise #19	10/12-10/13	ANBSBR, SCLS, SCYB
Cruise #20	10/20-10/21	ANBSBR, ANKG, SCCVP, SCYB
Cruise #21	10/24-10/28	SCYB, SCGI, SRJLSO, SRSP

A brief description of each site is included with the station results (Appendix A). Complete updated site location descriptions were added to this year's report (Appendix N) and will be added to the next edition of the Kelp Forest Monitoring Protocol Handbook Volume I.

Complete data summaries from the sampling protocol are listed in the appendices. Mean densities for 1 m quadrats are in Appendix B and represent average counts obtained from 24 paired 1 m x 1 m quadrats or otherwise described as 12-2 m² quadrats. Mean densities for 5 m-quadrats in Appendix C represent average counts obtained from 40 continuous and adjacent 1 m x 5 m quadrats. Note that when adult, subadult, and juvenile densities for *Macrocystis pyrifera* are listed in the station descriptions, the adult and subadult densities are derived from the 5m-quadrats, and the juvenile densities from the 1m quadrats unless otherwise noted. Mean densities for band transects in Appendix D represent average counts obtained from 24 paired 3m X 10m transects or otherwise described as 12 3 m x 20 m transects. Mean percent cover for random point contacts in Appendix E represent average percent cover for a given organism, group of taxa, or substrate for the 600 points systematically taken along the transect. Percent cover for all categories combined may total more than 100% due to layering (Davis et al. 1997).

Mean densities for fish transects in Appendix F represent the average of four adjacent and continuous 2 m x 3 m x 50 m transects along the transect line.

The Roving Diver Fish Count data are presented in Appendix G. The first page of this Appendix contains the number of observers that sampled for each site, the date that the fish count was conducted, and the total number of species observed. The following pages in Appendix G contain the average timed Score, the average Abundance score, and an average Count for each sampling date and site. The score field is the average score of all observers. Score fields range between 5-10 for all observed fish species, but non-present indicator species will receive a score of zero. As a result, it is possible for indicator species to have an average score of less than 5, but not possible for non-indicator (write-in) species. The Abundance field is the number assigned to the abundance categories: single (1 fish), few (2-10 fish), common (11-100 fish), or many (>100 fish). This field is summarized numerically where 1 = single, 2 = few, 3 = common and 4 = many. The Count field is the average number of fish counted by an observer during the 30 minute Roving Diver Fish Count and is presented as the average count for all observers for each species listed. All fish transects and fish counts were conducted between 0900 and 1500 hours unless otherwise noted.

In the site descriptions below, we began using the whole counts in 2003 to describe the abundance of fish as they are better and more consistent at describing fish abundance than descriptive words like common or rare. However, different observers count different numbers of the same species at a site for a number of reasons. We mostly describe fish below with the highest number of fish observed at a site, which is why we use the wording of "up to" or "as many as" XX number of fish were observed.

For each site, it will be noted if and when the UCSB/PISCO fish protocol was conducted. It is important to note that the data collected by the UCSB/PISCO method should not be compared with the KFM fish data as the methodology and location of transects are considerably different. Rather, the data should be used as a separate information source about fish abundances and size

at the location. The data collected under the cooperative agreement with UCSB/PISCO is not included in this report, though the park does have a copy of the raw data.

Natural habitat size frequency distributions for invertebrates other than gorgonians and *Stylaster (Allopora) californica* are in Appendix H. *Macrocytis pyrifera* size frequency distributions are in Appendix I. Gorgonian and *Stylaster (Allopora) californica* size frequency distributions are in Appendix J. Size frequency measurements taken from the Artificial Recruitment Modules were kept separate from the natural habitat measurements and their distributions are in Appendix K. Species lists for all locations are in Appendix L. Video transects were completed for all locations, and the videotapes are stored at the park's headquarters in Ventura.

Temperature data were collected at 16 sites using TIDBITTM temperature loggers. The temperature loggers are retrieved and deployed during our regular sampling season of May - October. To expedite report writing we will present 12 months of temperature data from May 30th 2004 – June 1st 2005 (Appendix M). In 2005, temperature data were collected from all 16 sites where loggers were installed. Temperature loggers were installed at each of the new 16 permanent sites established this year, but no data will be available until they are retrieved in 2006.

Discussion

General trends and observations are described in this section. We would like to emphasize that these are only general trends and observations. A statistical trend analysis for each of the indicator species is required to look at long term trends, but this is beyond the scope of this annual report.

In 2005, the KFMP's effort greatly increased with the addition of 16 new permanent sites to facilitate the evaluation of the State of California MPAs established at the Channel Islands in 2003. When we refer to changes from last year in this section and throughout the report we are referring to the original 16 KFM sites since no comparisons can be made for the new sites established this year.

All of the proposed kelp forest monitoring was conducted in 2005. This year a total of 33 sites were monitored - the 16 original sites, one site that was established in 2001 and the 16 new sites established this year. Of the 33 sites, 15 had mature *Macrocystis pyrifera* forests, one had a developing kelp forest, one was in a state of transition, and one was half mature kelp forest and the other half was dominated by *Strongylocentrotus purpuratus*. The remaining 15 sites were dominated by echinoderms. Of these 15 sites, five were dominated by *S. purpuratus*, five were dominated by *S. purpuratus* and *S. franciscanus*, one by *Ophiothrix spiculata*, one by *O. spiculata* and *S. purpuratus*, and three by *O. spiculata*, *S. purpuratus* and *S. franciscanus*. Table 6 includes this information and comparisons to the 2004 site status.

Algae

At Santa Barbara Island, the three original KFM sites remained nearly devoid of macroalgae and were dominated by echinoderms similar to 2004. However, there were some noticeable increases in kelp in scattered areas around the Island. Most notable were the kelp forests around Webster's Arch, Sutil Island, and some near shore areas around the Island. All three original sites (Southeast Sea Lion, Arch Point and Cat Canyon) were dominated by *Strongylocentrotus purpuratus* and *Strongylocentrotus franciscanus*. In addition, Southeast Sea Lion continued to have a high abundance of *Ophiothrix spiculata*. Of the three newly established sites Webster's Arch was dominated by *S. franciscanus* and *S. purpuratus*, Graveyard Canyon by *O. spiculata*, *S. franciscanus* and *S. purpuratus* and Southeast Reef was half mature kelp forest and half dominated by *S. purpuratus*. There was a continued increase of both *Strongylocentrotus purpuratus* and *Strongylocentrotus franciscanus* at the original sites. In general we feel that the six KFM sites well represent the overall condition of the kelp forests at Santa Barbara Island.

Anacapa Island has changed little from last year, but there were a few small notable changes at the three original KFM sites that are mentioned in the site summaries. Overall, the abundance of *Macrocystis pyrifera* was similar to last year, and *Strongylocentrotus purpuratus* and *Strongylocentrotus franciscanus* densities remained similar or declined slightly at all three sites. Of the three original sites, both Cathedral Cove and Landing Cove continued to develop into a mature kelp forest with noticeably more algae, and Admiral's Reef remained dominated by *Ophiothrix spiculata* and *S. purpuratus*. Of the three newly established sites, Lighthouse was a mature kelp forest and was closest to Cathedral Cove and Landing Cove. Keyhole was a developing kelp forest, Black Sea Bass Reef was dominated by *O. spiculata*, and East Fish Camp was dominated by *S. purpuratus*, *S. franciscanus* and *O. spiculata*. There were notably more

algae in other inshore areas around Anacapa. However, *S. purpuratus* and *O. spiculata* still appear to dominate many areas along the south side of East Anacapa, and as well at both the south and north sides of middle and west Anacapa Island, which was consistent at our new sites Black Sea Bass Reef and East Fish Camp. Overall, we feel these seven KFM sites well represent the state of kelp forests at Anacapa Island.

The kelp forests at Santa Cruz Island continue to expand. *Strongylocentrotus* spp. densities decreased over the past several years and continued to do so this year, but at a slower rate. *Strongylocentrotus purpuratus* densities continued to decline at three sites and remained the same at the two sites where they have recently become relatively rare. *Strongylocentrotus franciscanus* densities remained about the same at all five original monitoring sites. Similar to 2004, Pelican Bay and Scorpion Anchorage were dominated by *S. purpuratus*. There were noticeably more *Macrocystis pyrifera* at the northwest end of Scorpion Anchorage. Gull Island South remained a mature kelp forest and Yellow Banks was a mature kelp forest also. Echinoderms have notably decreased at Fry's Harbor, and this site still was in a state of transition, possibly to a kelp forest. Five new KFM sites were installed at this island this year. These were placed around the Scorpion Anchorage MPA and several of the sites were similar to state of the original Scorpion Anchorage site. Of the five new sites, three were dominated by *S. purpuratus*, and two by both *S. purpuratus* and *S. franciscanus*. The western third of the Island is under represented by our monitoring program as we don't have any sites west of Gull Island. The kelp forests at this end of the Island have been increasing in recent years.

Kelp forests were abundant and continued to increase in abundance and density around Santa Rosa and San Miguel Islands. In 2005, mature kelp forests were present at all five of the original kelp forest monitoring sites at these Islands, same as 2004. In addition, the relatively new monitoring site, Miracle Mile, remained a mature kelp forest and the four new KFM sites installed this year at Santa Rosa Island were all mature kelp forests. Overall, *Strongylocentrotus* spp. densities decreased at these Islands. *Strongylocentrotus purpuratus* densities decreased at two sites and remained the about the same at three. *Strongylocentrotus franciscanus* densities decreased at two and remained about the same at three sites.

With the exception of Santa Barbara Island, *Macrocystis pyrifera* were noticeably more abundant this year. This increase in abundance was also observed along the adjacent mainland coast. All of the original KFM sites with *M. pyrifera* last year had *M. pyrifera* this year that was typically equal or higher in abundance. We noted that some of the sites this year had a thick canopy with noticeably less understory algae which was most likely the result of low light conditions on the bottom created by the canopy. The "Miscellaneous Plants" category on RPCs that consist almost entirely of brown filamentous diatoms were noticeably less abundant than last year. The red alga, *Laurencia pacifica*, which is often moderately abundant at the sites that are dominated by *Strongylocentrotus* spp., was also notably less abundant than last year.

InvertebratesSea urchins continued a slow overall gradual decline similar to last year. Similar to last year, the only notable increases were at Santa Barbara Island. *Strongylocentrotus franciscanus* densities decreased at three sites and remained about the same at 13 sites. *Strongylocentrotus purpuratus* densities increased at two sites, decreased at six sites, and remained about the same at eight sites. *Lytechinus anamesus* densities remained about the same at all 16 sites this year again. *Centrostephanus coronatus* were mostly present at Santa Barbara,

Anacapa and the east end of Santa Cruz Islands. At these sites they remained at low densities or declined slightly.

Overall, *Strongylocentrotus purpuratus* and *Strongylocentrotus franciscanus* recruitment remained low for the fourth consecutive year. Small *Centrostephanus coronatus* recruits were notably more common at the sites where this species is prevalent. This is a warm water species that often recruits only during warm water events. There was a short but significant warm water event in 2004 and this recruitment may have been a result of that event, similar to what we think may have been a factor in *Semicossyphus pulcher* recruitment we observed this year. We observed a small increase in *C. coronatus* recruits in the ARMs this year.

Sea urchin wasting disease (Lafferty and Kushner, 1999, and Richards and Kushner, 1994) prevalence remained relatively low in 2005 (Table 9). The disease was observed at four of the original 16 KFM sites one more than in 2004. Diseased *Strongylocentrotus franciscanus* were observed at three sites: Pelican Bay, Southeast Sea Lion, and Cat Canyon. At Cat Canyon on Santa Barbara Island it was estimated that 10% of the *S. franciscanus* were observed with the disease. *Strongylocentrotus purpuratus* were observed with the disease at only one original site, Admiral's reef. At the new 16 monitoring sites prevalence was a bit higher with disease observations at seven sites.

Table 9. 2005 Echinoderm wasting disease/syndrome observations.

Island/Site	Sea Star Wasting Syndrome		Sea Urchin Wasting Syndrome	
	Species observed	Date(s)	Species observed	Date(s)
San Miguel Island				
Wyckoff Ledge	None		None	
Hare Rock	None		None	
Miracle Mile	None		None	
Santa Rosa Island				
Johnson's Lee North	None		None	
Johnson's Lee South	None		None	
Rodes Reef	None		None	
Cluster Point	None		None	
Trancion Canyon	None		None	
Chickasaw	None		None	
South Point	None		None	
Santa Cruz Island				
Gull Island South	None		None	
Fry's Harbor	None		None	
Pelican Bay	None		6	6/13
Scorpion Anchorage	None		None	
Yellow banks	None		None	
Devil's Peak Member	None		None	
Potato Pasture	None		2, 3, 6	9/1
Cavern Point	None		2, 6	8/18
Little Scorpion	None		2, 6	8/31, 10/13
Pedro Reef	1	9/15	2	9/15

Table 9. 2005 Echinoderm wasting disease/syndrome observations (continued).

Island/Site	Sea Star Wasting Syndrome Species observed	Date(s)	Sea Urchin Wasting Syndrome Species observed	Date(s)
Anacapa Island				
Admiral's Reef	1	9/6	2, 6	8/22, 9/6
Cathedral Cove	None		None	
Landing Cove	None		None	
Keyhole Reef	1	9/14	None	
East Fish Camp	1	9/9	2, 3, 6	9/9, 9/29
Black Sea Bass Reef	None		None	
Lighthouse	1	9/28, 10/6	None	
Santa Barbara Island				
SE Sea Lion Rookery	None		6	5/19
Arch Point	None		None	
Cat Canyon	None		6	5/18
Webster's Arch	None		6	7/27
Graveyard Canyon	None		6	7/28
Southeast Reef	None		None	

none = not observed at this site during our visits in 2005.

date = date(s) disease/syndrome was observed.

Note: urchins appearing to have black spot disease were not included in table. See site write-up for these observations.

Species Legend	
1 = <i>Asterina (Patiria) miniata</i>	7 = <i>Parastichopus parvimensis</i>
2 = <i>Strongylocentrotus purpuratus</i>	8 = <i>Dermasterias imbricata</i>
3 = <i>Lytechinus anamesus</i>	9 = <i>Mediaster aequalis</i>
4 = <i>Pisaster giganteus</i>	10 = <i>Pycnopodia helianthoides</i>
5 = <i>Astrometis sertulifera</i>	11 = <i>Pisaster ochraceus</i>
6 = <i>Strongylocentrotus franciscanus</i>	

At Landing Cove, Anacapa Island there was no wasting disease observed, however *S. franciscanus* with black spot disease were common and several large *S. purpuratus* were also observed with this disease. Black spot disease was observed at this site last year but it was noticeably less prevalent then. In Landing Cove we observed an unusually high mortality of large *S. franciscanus* and *S. purpuratus* as evident by whole test, including several whole tests that still had spines attached. Not all the tests, but we estimated over 70% had lesions on them that looked like black spot disease and suspect this may have been involved with their death. Most of the *S. franciscanus* that were affected were large (over 100 mm) and this disease appears as if it could have a significant impact on this group of long-lived animals. David Kushner was concerned that these black spots/lesions could be a result of damage caused by handling of the sea urchins in past years. David swam well over 100 m east of the transect at Landing Cove and found that *S. franciscanus* with these black spots were common off the transect as well, suggesting that these lesions were not human induced damage to the tests caused by measuring or prying off the sea urchins with calipers.

Pycnopodia helianthoides densities were similar to the last few years and continued to be relatively high at sites where they are typically observed. In 2005, the densities remained similar at nine sites, increased at four sites, and decreased at three sites. *Pycnopodia helianthoides*

continued to appear be the top predator controlling echinoderm northern Channel Islands and other sites where they are relatively abundant such as Fry's Harbor and Yellowbanks on Santa Cruz Island. *Pycnopodia helianthoides* recruitment was noticeably high at Hare Rock and Rodes Reef.

Patiria miniata densities were similar to 2004. Densities increased at one site, decreased at two sites, and remained about the same at 13 sites. Overall, *Pisaster giganteus* densities decreased with decreases at six sites, increases at one site, and similar densities at nine sites. In 2005 sea star wasting disease was notably less prevalent than in 2004 (Table 9). This year we only observed one species, *Patiria miniata*, with wasting disease at five sites. Two of these sites were original KFM sites and this is in contrast to observing wasting disease in three species at nine of the original KFM sites in 2004. Wasting disease was very prevalent in 2004 due to a warm water event that occurred in late August that year.

Overall, *Ophiothrix spiculata* abundance remained similar to last year and did not appear to be increasing or decreasing. At the three sites where they have recently been abundant, their cover increased at one, decreased at one and remained about the same at the remaining 14 sites. Of the 16 new KFM sites added to the monitoring program this year, four have moderate to high abundances of *O. spiculata*. Two of these are at Anacapa Island, East Fish Camp and Black Sea Bass Reef, and two are at Santa Barbara Island, Webster's Arch and Graveyard Canyon.

Corynactis californica cover was similar to last year with no overall change at the original KFM sites.

Miscellaneous bryozoans cover changed less this year than the past three years with no noticeable trends. Similarly, *Diaperoecia californica* cover also remained about the same.

We did not identify any notable trends in *Panulirus interruptus* densities since last year.

Megastraea undosa densities remained low for the third consecutive year. Their densities decreased at one site and remained about the same at 15 sites. *Megastraea undosa* (*Megastraea undosa*) recruitment and survival is strongly correlated with El Niño events (Zacharias and Kushner, 2006).

Megathura crenulata densities have notably declined during the past several years. This year remained at relatively low densities and continued to decline at three sites, while remaining about the same at 13 of the original 16 KFM sites.

Similar to recent years, *Haliotis* spp. continued to be rare at most of the monitoring sites. There have been no signs of increases of *Haliotis corrugata*, *H. fulgens*, or *H. assimilis*. However, we had observed a relatively high density of *H. rufescens* at Wyckoff Ledge at San Miguel Island in recent years, and have observed a few more of this species scattered around Santa Rosa and Santa Cruz Islands during survey dives. In addition, the Miracle Mile site near Wyckoff Ledge that was installed to monitor *H. rufescens* continued to have a relatively high density. Two of the new 16 KFM sites added this year had moderate densities of *H. rufescens*. These sites are South Point and Chickasaw at Santa Rosa Island. At Wyckoff Ledge, the density of *H. rufescens* declined slightly from a high level last year and at Miracle Mile, the density was about the same. *Haliotis rufescens* remained rare at Johnson's Lee North and South, which have good *H.*

rufescens habitat. *Haliotis rufescens* recruitment was slightly higher overall at the 10 kelp forest monitoring sites with ARMs. This year there were four *H. rufescens* less than 51 mm in the ARMs compared to none in 2004. In addition recruitment in the ARMs at Miracle Mile was slightly higher with 17 less than 51 mm observed, compared to 13 in 2004. There was notably higher recruitment in the ARMs at this site and this correlates well with the high adult density. During natural habitat size frequencies we measured two *H. rufescens* less than 51 mm at Johnson's Lee North and one less than 51 mm at Hare Rock, similar to last year.

Similar to recent years, *Haliotis corrugata* continued to be extremely rare at all of the five park Islands. During natural habitat size frequency measurements, only one adult was observed at Landing Cove. In addition, one juvenile at Cat Canyon and one other at Yellow Banks were observed, indicating a small amount of recruitment. Only one *H. corrugata* was observed on band transect and that was at Cathedral Cove, this one was not located again for size frequency measurements. In the ARMs, *H. corrugata* abundance remained low with five less than 51 mm observed this year, compared to four in 2004. At the 16 new KFM sites, we did not see any live *H. corrugata*.

Haliotis fulgens sightings continue to be rare and none were observed at the monitoring sites this year.

No *Haliotis sorenseni* were observed this year and *Haliotis assimilis* were noticeably less abundant in the ARMs only one observed, one less than in 2004. One *H. assimilis* was also observed during size frequencies at Yellow Banks, Santa Cruz Island.

Overall, *Tethya aurantia* densities continued to increase at the original monitoring sites. There were increases at four sites while the remaining 12 sites experienced little or no change. Three of the sites with increases were at Santa Cruz Island at Fry's Harbor, Pelican Bay, and Scorpion Anchorage, similar to 2004.

In 2004 tunicate cover decreased, however this year that decline subsided and there was a slight increase. This year tunicate cover was higher at four and remained about the same at 12 of the original KFM sites. *Pycnoclavella stanleyi* were noticeably more abundant at several of the sites. *Styela montereyensis* densities increased at three, decreased at one and remained about the same at two of the six sites where they are most common.

Fish

Most of the comments below and in the site descriptions section under results are from the roving diver fish count protocol. In addition, unless otherwise noted we are referring to the original 16 KFM sites when comparing changes in abundance to last year. Like last year, *Brachyistius frenatus*, kelp surfperch, were commonly observed in the *Macrocystis pyrifera* canopy. As part of the roving diver fish count protocol we make an effort to spend about five minutes in the kelp canopy counting fish. Juvenile *Sebastes* spp. were relatively uncommon and less abundant than last year. Juvenile *Sebastes mystinus* were rare this year and only observed at two sites, compared to six in 2004. *Sebasteserranoides/flavidus juveniles* (Olive/Yellowtail rockfish complex (OYT)) were also rare and were only observed at Johnson's Lee North this year, they were observed at seven sites in 2004. Juvenile *Sebastes miniatus*, vermillion rockfish, were rare this year and observed at one site, during the roving diver fish count, similar to the last

five years. There were less juvenile *Sebastes atrovirens* than last year with observations made at five sites. Juvenile *Sebastes paucispinis*, bocaccio, were rare with a single observation made at Hare Rock, San Miguel Island. Juvenile *Sebastes serriceps* were common, but noticeably less abundant than last year. They were observed at eight sites compared to 10 in 2004, and they were noticeably less abundant at most of the sites where they were present both years. Juvenile *Chromis punctipinnis* were rare with only one observation made at Fry's Harbor this year. Only one juvenile was observed this year and it was during a survey dive at Lighthouse at Anacapa Island. Juvenile *Paralabrax clathratus* were relatively common and were observed at four sites this year. Although *Paralabrax clathratus* tend to recruit towards the end or after our field season, as this was observed from the recruitment pulse of 2004 documented by other monitoring groups in the Southern California Bight. Juvenile *Semicossyphus pulcher* were notably more abundant than last year and observed at eleven sites compared to seven in 2004. Juvenile *Oxyjulis californica* were noticeably less abundant this year and only observed at three sites compared to 11 sites last year. Juvenile *Halichoeres semicinctus* were present the second consecutive year. They had been absent since 1996, and were observed at three sites this year. *Ophiodon elongates*, lingcod, remained relatively common and were observed at seven sites, similar to the past three years. *Scorpaenichthys marmoratus*, cabezon, were at four sites compared to eight in 2004. *Stereolepis gigas*, giant black sea bass, were not observed during the Roving Diver Fish counts this year but they were observed on several other occasions. They were notably abundant at one of our new sites and we appropriately named this site, Black Sea Bass Reef for that reason. The area of this reef is a known aggregation area for this species. We made several other observations of this species at Admiral's Reef and on Santa Barbara Island this year.

Overall, densities of *Coryphopterus nicholsii* remained similar to last with increases at three sites, decreases at two sites and little to no change at the remaining 11 original KFM sites. *Lythrypnus dalli* continued to be rare at all 16 monitoring sites and remain at some of their lowest densities since monitoring began for this species in 1985. *Lythrypnus dalli* were observed at Fry's Harbor, where they have been observed in years past. Fry's Harbor and Pelican Bay at Santa Cruz Island are two sites which typically have the highest abundance of *L. dalli*. *Alloclinus holderi* densities decreased at three sites and with little or no change at the remaining 13 sites. Both *L. dalli* and *A. holderi* are warm water species that increase in abundance during years of anomalously warm water such as El Niño events.

As part of the proposal "Establish Baseline Ecological Conditions of Newly Established Marine Reserves at the Channel Islands" that was funded for 2005-2007 by the NPS NRPP, the PISCO fish abundance and size monitoring was implemented at 24 of monitoring sites this year. This protocol will be conducted under a cooperative agreement with UCSB for the three years of this project and the PISCO methodology can be found online at <http://piscoweb.org/research>. This additional monitoring will provide us with better estimates of fish density and sizes in a larger area than our permanent transects. This more rigorous sampling protocol will likely prove important in monitoring changes in fish populations at the monitoring sites.

Artificial Recruitment Modules (ARMs)

ARMs were present and monitored at 10 of the 16 original kelp forest monitoring sites in 2005. In addition, there are ARMs at the Miracle Mile site at San Miguel Island that were also

monitored. In the descriptions of general trends below, we are referring to the original KFM sites with ARMs unless otherwise noted.

Haliotis spp. in the ARMs were discussed previously in this discussion section where we discussed abalone. Overall, *Cypraea spadicea* abundance changed little from last year with increases at two sites, decreases at two sites and little or no change at six sites. Similarly there was little overall change in *Megathura crenulata* densities with increases at two sites, decreases at two sites and little or no change at six sites. However, similar to past years, most are small indicating some recruitment. *Crassidoma giganteum* densities continued to increase overall, with increases at five sites, decreases at one site and little or no change at four sites.

Patiria miniata densities notably decreased this year in the ARMs with decreases at eight sites and little or no change at two sites. *Pisaster giganteus* densities also decreased, but to a lesser extent. Their densities increased at two sites, decreased at four sites and had little or no change at four sites. Overall, there was little change in *Pycnopodia helianthoides* abundance in the ARMs this year. *Strongylocentrotus franciscanus* density in the ARMs decreased at more sites this year. Their densities increased at three sites, decreased at five sites, and had little or no change at two sites. Similarly, densities of *Strongylocentrotus purpuratus* in the ARMs decreased at more sites. Their density increased at two sites, decreased at four sites and had little or no change at four sites. *Centrostephanus coronatus* remained in low abundance in the ARMs this year, however there were several small ones found indicating some recent recruitment that we think may have occurred during the short lives warm water event in 2004.

Unusual Species / Non-Indicator Species

There was a large amount of wood debris on the bottom from storm events this year. Most of the debris appeared to come from the mainland and much consisted of the giant reed, *Arundo donax*, as well as a few large trees that were observed at several of the monitoring sites.

Temperature

In 2005 two Tidbit loggers were deployed at most sites. In previous years, a combination of StowAway™ and Tidbit temperature loggers were deployed, and the data were cross-referenced. We experienced several failures with the StowAway™ loggers, while the Tidbit™ loggers have proven to be more reliable. Data were successfully downloaded from all sites in 2005.

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Appendix A. Results by Individual Site

Location: Wyckoff Ledge, San Miguel Island

Site #1 SMWL

2005 sampling dates: 8/9.

2005 status: Mature kelp forest.

This site remained a mature *Macrocystis pyrifera* forest with widely spaced adult plants and thick canopy that covered 100% of the transect. The *M. pyrifera* were healthy with few epiphytes. Adult *M. pyrifera* densities declined to 0.12/m², while subadult and juvenile densities increased to 0.14/m² and 4.33/m², respectively. *Macrocystis pyrifera* cover increased to 18.7%. Understory algae were thick and diverse, and increased from last year. *Eisenia arborea* were common on the tops of large rocks near the edge of the kelp forest, but were rare along the transect with an adult density of 0.083/m² and no juveniles. Adult and juvenile *Pterygophora californica* were common with densities of 0.25/m² and 0.63/m², respectively, and a cover of 1.8%, an increase in all categories. No *Laminaria farlowii* were observed on quadrats, however they were present in low abundance at the site. *Dictyoneuropsis reticulata* were common and were counted on quadrats with an adult density of 1.58/m². Miscellaneous brown algae increased to a cover of 12.3%, the highest recorded value since 1983. *Desmarestia* spp. were notably more abundant than the past three years with a cover of 17.5%. *Cystoseira* spp. were present at the site, but most plants were small, and none were observed on RPCs (0.0%), the lowest on record for this site, but similar to last year. Green algae cover was 0.17%, similar to past years. Miscellaneous red algae increased to 27.8%, notably higher than last year, but this remained a relatively low cover for this site since monitoring began. *Gigartina* spp. cover was 0.5%. Articulated coralline algae cover was 13.2%, higher than last year but similar to recent years. Encrusting coralline algae also increased in cover to 41.7%, similar to previous years. Bare substrate decreased to 13.5%, relatively low for this site since 1992. The bottom consisted of 77.7% rock, 1.5% cobble, and 20.8% sand.

Miscellaneous invertebrates excluding *Ophiothrix spiculata* cover notably declined to 3.5%. The most common invertebrate in this category were hydroids. There was a noticeably decrease in amphipod tube mats and hydroids which made up most of this category last year.

Phragmatopoma californica notably declined from 14.2% to 0.0% this year. This species is susceptible to high annual variation. Sponge cover was 0.8%. *Tethya aurantia* were abundant with a density of 0.13/m², similar to past years. Miscellaneous bryozoan cover continued to decrease to 9.2%, but was similar to past years. *Heteropora magna*, staghorn bryozoan, were common along the eastern end of the transect. This bryozoan species is typically rare at our monitoring sites but appeared at several of the cooler water sites last year. Tunicate cover was 1.5%, similar to past years. *Styela montereyensis* density was 0.17/m², similar to last year. Cover of *Corynactis californica*, *Balanophyllia elegans* and *Astrangia lajollaensis* were 0.67%, 1.3%, and 0.5% respectively, similar to past years. *Tealia lofotensis* were abundant on the tops and sides of rocks, with a density of 0.24/m², similar to past years. *Diopatra ornata* were moderately abundant with a cover of 14.2%, similar to past years.

Strongylocentrotus franciscanus and *Strongylocentrotus purpuratus* densities declined to 0.33/m² and 0.0/m², respectively. Both densities were the lowest recorded since 1996. *Strongylocentrotus*

spp. tend to be patchy and densely distributed at this site. This is noteworthy because the decline of *Strongylocentrotus* spp. densities this year could be in part due to an artifact of patchiness. No sea urchin wasting disease was observed.

Patiria miniata density was $2.4/\text{m}^2$, similar to last year. As usual for this site, *Pisaster giganteus* were common on the rocky outcrops within the transect area, but there were few sea stars directly along the transect where they are counted in quadrats. Their densities on 1 m quadrats and 5 m quadrats were $0.042/\text{m}^2$ and $0.01/\text{m}^2$, respectively. *Pycnopodia helianthoides* density was $0.032/\text{m}^2$, the highest recorded since 1991. Both large and small individuals were present. *Dermasterias imbricata*, leather star, were common. *Parastichopus parvimensis* density was $0.17/\text{m}^2$. Most of the individuals were large, similar to past years. No sea star wasting disease was observed.

Haliotis rufescens density remained high, but was lower than the past three years at $0.036/\text{m}^2$. The lower density is possibly a sampling artifact of this aggregated species. Overall, we felt that the abundance of *H. rufescens* was similar to recent years. Fresh *H. rufescens* shells were uncommon indicating little recent mortality similar to recent years. A total of 82 *H. rufescens* were located for size frequency measurements, similar to the number found last year. David Kushner has consistently been the observer for size frequency measurements the past several years and the entire transect area (approximately $2000/\text{m}^2$) has been covered for size frequency measurements. Few small *H. rufescens* were found with only two less than 100mm measured during size frequencies which may indicate little recent recruitment. *Crassedoma giganteum* were present at a density of $0.013/\text{m}^2$, similar to previous years. *Kelletia kelletii* were abundant as usual for this site and counted on both quadrats and band transects with densities of $0.79/\text{m}^2$ and $0.11/\text{m}^2$ respectively, similar to recent years. *Kelletia kelletii* egg masses were common, similar to last year. *Lithopoma gibberosa* were common with a density of $0.29/\text{m}^2$, similar to last year. *Cancer* spp. were common and there were several crab traps at the edge of the reef where the transect is, similar to recent years. *Idotea resecata* were common on *Macrocystis pyrifera* stipes, but noticeably less abundant than last year.

As usual, fish were more abundant on the high relief area at western end of the transect. *Coryphopterus nicholsii* density was $0.417/\text{m}^2$ with up to 12 observed during the fish count, similar to recent years. *Oxylebius pictus* were abundant with up to 28 adults observed. Several juvenile *C. nicholsii* and *O. pictus* were observed. *Oxyjulis californica* were relatively uncommon with 11 adults observed, similar to last year. Four female and two male *Semicossyphus pulcher* were observed. One male and several of the female *S. pulcher* were notably large fish. One adult *Paralabrax clathratus* was observed. Embiotocidae and *Sebastes* spp. were abundant at this site, similar to past years. *Embiotoca jacksoni* were rare with one juvenile observed. Three adult *Rhacochilus vacca* were observed. *Embiotoca lateralis* were abundant with up to 25 adults and eight juveniles observed. *Phanerodon furcatus*, white surfperch, were the most abundant of the surfperch, with a school of approximately 80 fish observed. Eleven *Brachyistius frenatus*, kelp surfperch, were observed in the canopy. Six adult *Hypsurus caryi*, rainbow surfperch, were observed. Two adult *Rhacochilus toxotes*, rubberlip surfperch, were observed. Nineteen adult *Sebastes mystinus* were observed. Eight adult and two juvenile *Sebastes atrovirens* were observed. Three adult *Sebastes serranoides* were observed. Two adult and one juvenile *Sebastes serriceps* were observed. *Sebastes chrysomelas*, black and yellow rockfish, were moderately abundant with up to six adults observed. *Sebastes caurinus*,

copper rockfish, were present with up to four adults observed. These fish are more common at our western sites. One *Sebastes carnatus*, gopher rockfish, was observed. Three kelp/gopher/black&yellow/copper rockfish (KGB) young of the year were observed. One large, adult *Sebastes miniatus*, vermilion rockfish, was observed at the western end of the transect, but not during fish counts. In past years we have often seen at least one of these and this one may be the same fish that has been observed for many years. One *Ophiodon elongatus*, lingcod, was observed. Three *Orthonopias triacis*, snubnose sculpin, were observed. One *Leiocottus hirundo*, lavender sculpin, was observed. One *Citharichthys stigmaeus*, speckled sanddab, was observed. A small school of 10 *Aulorhynchus flavidus*, tubesnout, were observed. Roving diver fish counts were conducted on August 9th by five divers observing 25 species.

The temperature loggers were retrieved and deployed and data were successfully downloaded. Both loggers were recording within specifications of each other.

Location: Hare Rock, San Miguel Island

Site #2 SMHR

2005 sampling dates: 6/16.

2005 status: Mature kelp forest.

This site continued to mature as a kelp forest though there are still high density patches of *Strongylocentrotus franciscanus* and *Strongylocentrotus purpuratus*. The *Macrocystis pyrifera* canopy covered 100% of the transect and was thick with mostly healthy plants.

Adult and subadult *M. pyrifera* densities were 0.47/m² and 0.85/m², similar to last year. Juvenile *M. pyrifera* density was 0.88/m², and cover was 17.7%, both similar to last year. All the *M. pyrifera* densities remained relatively high for this site compared to years prior to 2003. Green algae, consisting entirely of *Ulva* sp., increased to 6.8%. *Desmarestia* spp. remained relatively abundant with a cover of 8.0%, similar to recent years. No adult or juvenile *Eisenia arborea*, *Pterygophora californica* or *Laminaria farlowii* were observed on quadrats or RPCs. *Cystoseira* spp. were present at the site but none were observed during RPCs. Miscellaneous red algae cover was 10.8%, higher than the past three years. *Gigartina* spp. increased in cover to 7.2%, the highest cover recorded at this site. *Laurencia* sp. were common. Articulated coralline algae cover was 1.3%, higher than recent years. Encrusting coralline algae cover was 47.7%, similar to previous years. Miscellaneous plants cover, primarily filamentous diatoms, was low at 0.17%, similar to other sites. Bare substrate cover was 13.8%, similar to recent years. The substrate consisted of 80.7% rock, 17.7% cobble, and 1.7% sand.

Miscellaneous invertebrates excluding *Ophiothrix spiculata* covered 6.3% of the bottom, similar to last year. The most common miscellaneous invertebrates on RPCs were hydroids. *Corynactis californica* cover was 4.3%. *Balanophyllia elegans* and *Astrangia lajollaensis* covers were 1.2% and 1.8%, respectively, similar to past years. *Tethya aurantia* density was 0.028/m², similar to recent years. Miscellaneous bryozoan cover decreased but remained high for this site at 8.0%, and consisted mostly of *Membranipora* sp. *Diaperoecia californica* cover was 0.17%, similar to past years. *Diopatra ornata* cover remained relatively high at 1.5%. There was a notable recruitment event last year in the low-lying cobble areas of the transect for this species. Tunicate cover was 0.33%. *Styela montereyensis* density remained relatively high for this site at 0.13/m², the highest recorded at this site.

Strongylocentrotus franciscanus remained in high density patches similar to recent years. *Strongylocentrotus purpuratus* were scattered among the *S. franciscanus* spine canopy. *Strongylocentrotus franciscanus* density was similar to last year at 7.46/m². *Strongylocentrotus purpuratus* density decreased to 0.5/m², the lowest recorded since 1997. Juvenile *Strongylocentrotus* spp. were present. No sea urchin wasting disease was observed.

Pisaster giganteus were counted on 1 m quadrats and 5 m quadrats with densities of 0.29/m² and 0.18/m², respectively, both declines from last year. *Patiria miniata* were abundant at a density of 3.58/m², higher than recent years and the highest recorded since 1983. *Pycnopodia helianthoides* were abundant with a density of 0.18/m², the highest density recorded since 1983. There was a wide size range of *P. helianthoides* observed. *Parastichopus parvimensis* were not observed in quadrats. Low densities of this species are common at this site, though the ones that are present are notably large. No sea star wasting disease was observed.

Small, fresh *Haliotis rufescens* shells remained relatively uncommon, similar to the previous four years indicating low recruitment. No *H. rufescens* were observed on band transects, similar to recent years. *Kelletia kelletii* density remained low at 0.0042/m². *Crassidoma giganteus* and *Aplysia californica* were not present on band transects. *Cypraea spadicea* density was 0.21/m². *Megathura crenulata* density was 0.0014/m², similar to recent years.

Similar to last year, fish were abundant and diverse. *Coryphopterus nicholsii* density was 0.13/m² and up to 25 observed during the fish count. *Oxylebius pictus* were common with up to 18 observed. The most abundant fish was *Oxyjulis californica* with up to 310 observed. One male and six female *Semicossyphus pulcher* were observed. *Chromis punctipinnis* were present with up to seven adults and no juveniles observed. *Embiotoca jacksoni* were present with up to two adults and no juveniles observed. *Embiotoca lateralis* were the most abundant surfperch with up to 34 adults and three juveniles observed. *Rhacochilus vacca* were present with up to seven adults observed. *Brachyistius frenatus*, kelp surfperch, were present with up to 12 observed. *Sebastes mystinus* were the most common rockfish at this site with up to 98 observed. *Sebastes atrovirens* were present with up to nine adults and two juveniles observed. *Sebastes serranoides* were also common with up to 11 adults and no juveniles observed. Two adult and no juvenile *Sebastes serripes* were observed. Six adult *Sebastes chrysomelas*, black and yellow rockfish, were observed. One adult *Sebastes carnatus*, gopher rockfish, one adult *Sebastes melanops*, black rockfish, and one adult *Sebastes caurinus*, copper rockfish, were observed. Two juvenile *Sebastes paucispinis*, bocaccio, were observed. Two KGB rockfish young of year were observed. Two *Scorpaenichthys marmoratus*, cabezon, and one *Ophiodon elongatus*, lingcod, were observed. *Orthonopias triacis*, snubnose sculpin, were present with up to four observed. Two *Artedius corallines*, coralline sculpin, were observed. A school of small *Aulorhynchus flavidus*, tubesnout, was present with up to 23 observed. Roving diver fish counts were conducted on June 16th with four divers observing 24 species.

The temperature loggers were retrieved and deployed and data were successfully downloaded. Both loggers were reading within specifications of each other.

Location: Johnson's Lee North, Santa Rosa Island

Site #3 SRJLNO

2005 sampling dates: 7/12, 9/21.

2005 status: Mature kelp forest.

This site remained a mature kelp forest and was similar to last year. Many of the increases and decreases in the abundances of species at this site are similar to the nearby site Johnson's Lee South. *Macrocystis pyrifera* canopy cover was estimated at 100%, and was thicker than usual for this site. Adult and subadult *M. pyrifera* densities both increased to 0.5/m² and 0.275/m², respectively. Juvenile *M. pyrifera* density was 3.04/m², similar to last year. Cover of *M. pyrifera* increased to 25.3%. Understory macroalgae were notably more abundant than in recent years. However, most *Cystoseira* sp., *Laminaria farlowii*, *Eisenia arborea*, and *Pterygophora californica* were present more than a meter off the transect where our density data are collected. As a result, these densities may be underestimates of their abundance in the area. Adult *Eisenia arborea* were moderately abundant on the upper edge of the ledge that runs just inshore of some of the transect line, but densities were low directly along the transect with no adults or juvenile observed on quadrats, and none observed on RPCs. Adult *Pterygophora californica* density increased to 0.29/m². No juveniles were observed. Cover was 3.5%. Adult *Laminaria farlowii* were rare directly along the transect with a density of 0.042/m² with no juveniles observed and a cover of 0.0%, similar to last year. *Cystoseira* spp. were present with a cover of 9.8%, higher than the past three years. *Desmarestia* spp. were present with 0.33% cover. Miscellaneous red algae cover was 20.2% and *Gigartina* spp. cover was 1.5%, similar to recent years. Articulated and encrusting coralline algae cover were 5.2% and 14.0% respectively, both increases from last year. Bare substrate decreased to 4.8% and was possibly due to a decrease in sand. Sand cover decreased from abnormally high cover last year to 1.3%.

Miscellaneous invertebrates excluding *Ophiothrix spiculata* cover was 13.2% and consisted mostly of hydroids, similar to last year. *Styela montereyensis* density increased to 5.87/m² similar to 2003 and the second highest density recorded at this site. Tunicate cover also increased to 10.7%, relatively high for this site. *Pycnoclavella* sp. were abundant in the flat, low lying areas, similar to other sites this year. Sponges were abundant and increased in cover to 9.2%, the highest recorded since 1992. *Tethya aurantia* remained abundant at 0.16/m², the highest density recorded at this site since we began monitoring them in 1983. *Phragmatopoma californica* were less abundant than the past several years with a cover of 0.33%. Miscellaneous bryozoans were present with a cover of 21.0%, similar to past years. *Diaperoecia californica* cover was 2.0%, higher than average for this site. *Tealia lofotensis* density continued to be relatively abundant and increased to 0.024/m², the highest recorded at this site. *Corynactis californica* were common with a cover of 2.2%, similar to past years. *Balanophyllia elegans* and *Astrangia lajollaensis* covered 2.5% and 1.2% of the bottom, respectively.

Strongylocentrotus franciscanus and *Strongylocentrotus purpuratus* densities remained low at 0.625/m² and 0.0/m², respectively, and similar to last year. *Strongylocentrotus* spp. were patchy and the few *S. purpuratus* present were typically in small depressions on the tops of rocky reef areas. Only 63 *S. purpuratus* could be found for size frequency measurements with a moderate amount of search effort. In some areas, juvenile *Strongylocentrotus* spp. were moderately abundant under the spine canopy of large *S. franciscanus*. No sea urchin wasting disease was observed.

Pycnopodia helianthoides density remained high at 0.13/m², similar to the past four years. Both small and large *P. helianthoides* were present. *Patiria miniata* density was 0.38/m², similar to the

past three years. *Pisaster giganteus* densities continued to gradually decline. They were counted on 1 m quadrats and 5 m quadrats with densities of $0.083/\text{m}^2$ and $0.15/\text{m}^2$, respectively, and similar to last year. *Parastichopus parvimensis* density was $0.17/\text{m}^2$, similar to previous years. No sea star wasting disease was observed.

Cypraea spadicea density decreased to $0.25/\text{m}^2$, relatively low for this site. No *Megastraea undosa* were observed along the transect. In the early 1990s, very large *M. undosa* were common, but they have gradually declined in abundance since then and are rare in this area now. *Kelletia kelletii* density was $0.0042/\text{m}^2$, similar to previous years. *Megathura crenulata* density continued to decline for the fourth consecutive year and was $0.0014/\text{m}^2$, the lowest recorded at this site. No *Aplysia californica* were observed along the transect, similar to Johnson's Lee South.

Haliotis rufescens density noticeably increased to $0.013/\text{m}^2$, the highest recorded since 1996. Sixteen *H. rufescens* were found along the transect and measured for size frequencies. *Haliotis rufescens* covered a large size distribution and were found in the same cracks and crevices as they were observed last year. David Kushner remembers that some of these cracks and crevices that were utilized by *H. rufescens* in the early 1990s before they disappeared from the site are now being utilized again. In addition, approximately four *H. rufescens* were observed under the spine canopy of *Strongylocentrotus* spp. These were not measured but estimated to be around 50 mm, indicating recent recruitment.

Fish had lower diversity and abundance this year. This could be in part because the fish count was conducted earlier in the field season than in 2004. *Coryphopterus nicholsii* habitat is poor along the transect where density data are collected. These are typically uncommon at this site, and none were observed in quadrats and up to eight were observed during fish counts. Up to 13 *Oxylebius pictus* were observed. Adult *Chromis punctipinnis* were common with up to 55 observed. *Oxyjulis californica* were abundant with up to 71 adults observed. Up to four female and two male *Semicossyphus pulcher* were observed. No *Halichoeres semicinctus* were observed. Two adult *Hypsypops rubicundus* were observed. The male with the nest at meter 72 was present as he has been since about 1990. No *Paralabrax clathratus* or *Girella nigricans* were observed. *Embiotoca jacksoni* and *Embiotoca lateralis* were some of the most abundant fish at the site. Sixteen adult and eight juvenile *E. jacksoni* were observed. Twenty three adult and four juvenile *E. lateralis* were observed. *Rhacochilus vacca* were also abundant with up to 13 adults and no juveniles observed. *Brachyistius frenatus*, kelp surfperch, were present in the canopy with up to 19 observed. One adult *Hypsurus caryi*, rainbow surfperch, and *Rhacochilus toxotes*, rubberlip surfperch, were observed. *Sebastes mystinus* were present with up to seven adults observed. *Sebastes atrovirens* were present with up to eight adults and no juveniles observed. One juvenile and one adult *Sebastes serranoides* were observed. No *Sebastes serriceps* were observed during the roving diver fish count, but adults and juveniles were observed on a subsequent visit. *Sebastes chrysomelas*, black and yellow rockfish, were abundant with up to six adults observed. Two *Ophiodon elongates*, lingcod, were observed. Roving diver fish count was conducted on July 12th with four divers observing 18 species.

This is one of the 24 sites where visual fish transects, including size, are conducted by UCSB/PISCO. Data summaries for these are included in Appendix M. The UCSB/PISCO fish sampling method was started August 22nd and completed September 7th.

All nine ARMs were present, two in the north group, three in the middle group and four in the south group. ARM #2398 in the middle group was on its side, had many broken bricks and was not sampled this year. The eight intact ARMs were monitored for all indicator species. ARM #2398 was rebuilt with existing bricks at the site and moved to the south of ARM #2414. In addition, two cages were replaced.

Similar to past years, two *Octopus* spp. were observed. No notes were taken on what was encrusting the bricks this year. In previous years the bricks were often covered by encrusting colonial tunicates (mostly *Cystodytes lobatus* and *Trididemnum* sp.) and sponges. However, there were noticeably less of these encrusting tunicates this year. Two *Phyllolithodes papillosus*, heart crabs, were observed in two of the middle group ARMs. This is the first time these have been observed at this site. They have been observed frequently in the ARMs at Johnson's Lee South since 1997 and we believe this is a range extension for this northern species.

Three *Haliotis rufescens* were found for a density of 0.38/ARM, similar to last year. The *H. rufescens* sizes were 87, 99, and 117 mm. The sizes are similar to the abalone that were found on natural habitat size frequencies at this site. *Cypraea spadicea* density continued to increase for the fourth consecutive year and they were relatively abundant with 11.6/ARM, the highest recorded at this site since ARMs were placed here in 1992. *Crassidoma giganteum* were more abundant than in recent years with 2.1/ARM.

Patiria miniata decreased to a density of 2.3/ARM, ending a five year steady increase. Their mean size decreased to 27 mm, indicative of recent recruitment. *Pisaster giganteus* density continued to gradually decline since 2002 and was slightly lower than last year at 1.9/ARM, the lowest density recorded since 1999. *Pycnopodia helianthoides* increased to a density of 0.75/ARM. *Strongylocentrotus franciscanus* density increased to 29.9/ARM, the highest recorded at this site since we began monitoring the ARMs in 1992. Their mean size was lower than last year at 46 mm. *Strongylocentrotus purpuratus* abundance remained low at 3.6/ARM and mean size was similar to last year at 25.7 mm. No *Parastichopus parvimensis* were observed in the ARMs for the second consecutive year.

The temperature loggers were retrieved and deployed and all temperature data were collected successfully.

Location: Johnson's Lee South, Santa Rosa Island

Site #4 SRJLSO

2005 sampling dates: 7/13, 9/19, 9/21.

2005 status: Mature kelp forest.

Similar to Johnson's Lee North, this kelp forest continued to mature and is typical of a mature forest with large, widely spaced *Macrocystis pyrifera*. Some of the *M. pyrifera* measured were the largest on record for this monitoring program with holdfast diameters of over 100 cm. Many of the trends in abundance of species at this site are similar to Johnson's Lee North. *Macrocystis pyrifera* canopy cover was estimated at 65% but appeared thicker than last year. Adult, subadult and juvenile *M. pyrifera* densities were 0.19/m², 0.13/m² and 2.79/m² respectively and cover was 6.0%. These densities were all similar to recent years. There was a dense algae understory in some areas. Though there were few *Eisenia arborea* directly along the transect where quadrats

are conducted, adults and juveniles were common overall and noticeably abundant on the tops of high relief areas. Adult and juvenile densities were $0.083/\text{m}^2$ and $0.0/\text{m}^2$, respectively. Cover was 0.8%, similar to last year. Adult *Pterygophora californica* density decreased to $0.0/\text{m}^2$ while juvenile density increased to $0.042/\text{m}^2$. Cover of *P. californica* remained low at 0.33%. Adult and juvenile *Laminaria farlowii* densities were $0.29/\text{m}^2$ and $0.13/\text{m}^2$, respectively, with a cover of 1.2%. Miscellaneous brown algae cover was 0.17%. *Dictyoneuropsis* sp. were common. *Desmarestia* sp. were present at a cover of 0.5%, same as last year. Small *Cystoseira* sp. were common and had a cover of 0.33%. Cover of miscellaneous red algae were 27.7%, similar to recent years. *Gigartina* spp. (*G. corymbifera*) were present at 5.0% cover, a decrease from last year. Most of this was present along northern half of the transect. Articulated coralline and encrusting coralline algae cover were 4.8%, and 11.8% respectively, and similar to recent years. Bare substrate decreased to 18.3%. The substrate consisted of 81.2% rock, 5.0% cobble, and 13.8% sand.

Miscellaneous invertebrates excluding *Ophiothrix spiculata* covered 26.2% of the substrate, an increase from last year. This category consisted mostly of *Cucumaria* spp. and hydroids. *Styela montereyensis* increased in density to $1.0/\text{m}^2$, similar to Johnson's Lee North. Tunicates covered 5.0% of the bottom, similar to last year. Bryozoans remained abundant with a cover of 18.3%. *Diaperoecia californica* decreased to 0.67% cover. Similar to past years, *D. californica* were abundant on the steep parts of high relief rocks and were uncommon directly along the transect. *Tethya aurantia* density remained high at $0.33/\text{m}^2$, the highest recorded at this site. *Astrangia lajollaensis* cover was 0.5%, lower than the past several years, but similar to previous years. *Corynactis californica* and *Balanophyllia elegans* covers were 3.0% and 2.8%, respectively, and similar to previous years. *Diopatra ornata* cover was 7.2%, lower than the past several years. Dead (empty tubes) *D. ornata* were observed in the low lying areas. *Lophogorgia chilensis* density was $0.060/\text{m}^2$, similar to recent years. *Tealia lofotensis* density remained relatively high at $0.16/\text{m}^2$.

Strongylocentrotus franciscanus continued to decline in abundance and were absent on quadrats, $0.0/\text{m}^2$. Most of *S. franciscanus* were found off the main transect in crevice habitat with many large individuals present. *Strongylocentrotus purpuratus* density remained low at $0.13/\text{m}^2$, similar to the past three years. This was the lowest density recorded for this species at this site. Juvenile *Strongylocentrotus* spp. were common. No sea urchin wasting disease was observed.

Sea stars remained abundant at this site. *Pycnopodia helianthoides* density remained high at $0.10/\text{m}^2$, similar to last year. *Patiria miniata* density remained high at $3.13/\text{m}^2$. *Pisaster giganteus* were counted on both 1 m quadrats and 5 m quadrats with densities of $0.008/\text{m}^2$ and $0.15/\text{m}^2$, respectively, and similar to last year. *Parastichopus parvimensis* density remained low at $0.042/\text{m}^2$, similar to recent years. *Ophiothrix spiculata* were absent along the main transect and were recorded at 0% cover. No sea star wasting disease was observed.

Cypraea spadicea density was $0.29/\text{m}^2$, similar to past years. *Kelletia kelletii* density was $0.021/\text{m}^2$, similar to past years. *Crassedoma giganteum* density was $0.004/\text{m}^2$, relatively low for this site. *Megathura crenulata* density remained low at $0.0056/\text{m}^2$. This species has declined in abundance considerably since 2001. Unlike Johnson's Lee North, *Haliotis rufescens* density decreased to $0.0028/\text{m}^2$. Four *H. rufescens* were measured for size frequencies, all of which were

large adults between 199-237 mm. indicating no recent recruitment has occurred. No fresh *H. rufescens* shells were present.

Five *Phyllolithodes papillosus*, heart crabs, were observed in the ARMs this year. These are rare this far south, but have been observed in the ARMs at this site in recent years. As mentioned several years ago, this is likely a range extension for this species. Several large and small individuals were present indicating possible recent recruitment. More notes about this species are in the ARMs section below. Several *P. papillosus* were observed at Johnson's Lee North for the first time.

Fish were abundant and diverse at this site, similar to past years. *Coryphopterus nicholsii* were present with a density of 0.38/m² and up to 20 observed, similar to past years. *Oxylebius pictus* were abundant with up to 24 counted. Adult *Oxyjulis californica* were the most abundant fish at this site with up to 268 observed. Adult *Chromis punctipinnis* were relatively abundant with up to 61 observed. Fifteen female, no juveniles, and 5 male *Semicossyphus pulcher* were observed. No *Halichoeres semicinctus* were observed. One large *Paralabrax clathratus* was observed. *Girella nigricans* were abundant with up to 30 observed. Adult *Medialuna californiensis*, halfmoon, were common but were not observed during the fish count. One large adult *Caulolatilus princeps*, ocean whitefish, was observed. Similar to the north site, *Embiotoca jacksoni* and *Embiotoca lateralis* were very abundant. Twenty nine adult and two juvenile *E. jacksoni* were observed. Twenty three adult and four juvenile *E. lateralis* were observed. *Rhacochilus vacca* were relatively abundant with up to 18 adults and no juveniles observed. *Brachyistius frenatus*, kelp surfperch, were abundant in the canopy with up to 26 observed, similar to Johnson's Lee North. Another abundant Embiotocidae species was *Hypsurus caryi*, rainbow surfperch, with up to 28 observed. *Phanerodon furcatus*, white surfperch, were present with up to 5 observed. Eight adult *Rhacochilus toxotes*, rubberlip surfperch, were observed. There were high numbers of several rockfish species at this site. These species were mostly found in the large cracks often filled with *Strongylocentrotus* spp. Adult *Sebastes atrovirens* were abundant with 25 observed. Up to eight *Sebastes serranoides* were observed. *Sebastes mystinus* were present with up to 19 adults and four juveniles observed. Five juvenile and one adult *Sebastes serripes* were present. Adult *Sebastes chrysomelas*, black and yellow rockfish, were relatively abundant with up to seven observed. Two adult *Sebastes carnatus*, gopher rockfish, were observed. There were some KGB young of year present but none were observed during the roving diver fish count. During the Sept 21st visit, the KGB young of year that were observed appeared to be either gopher, black and yellow, or copper rockfish. One adult *Ophiodon elongatus*, lingcod, and *Scorpaenichthys marmoratus*, cabezon, were observed. One *Orthonopias triacis*, snubnose sculpin, was observed. Roving diver fish count was conducted on July 13th by four divers observing 25 species.

This is one of the 24 sites where visual fish transects, including size, are conducted by UCSB/PISCO. Data summaries for these are included in Appendix M. The UCSB/PISCO fish transects were performed on October 26th.

All seven ARMs were monitored for all indicator species. Two ARMs cages were replaced. Five *Phyllolithodes papillosus*, heart crabs, were found in the ARMs this year. Two were found in ARM #2417 and three in ARM #2453. We have observed this species in the ARMs at this site in 1997, 2002, 2003, 2004 and 2005 and believe this may be a range extension for this species. No

Haliotis rufescens were observed in ARMs this year for the first time since 1998. Similarly there were noticeably fewer *H. rufescens* observed along the main transect. *Cypraea spadicea* density was 4.0/ARM, similar to last year. Two *Kelletia kelletii* were observed in the ARMs, 0.29/ARM. Two small *Megathura crenulata* were observed for density of 0.29/ARM, similar to past years. *Crassidoma giganteus* density was 1.3/ARM, relatively high for this site. *Patiria miniata* density continued to decline for the second consecutive year to 6.1/ARM, and mean size was 37.4 mm, similar to past years. *Pisaster giganteus* density increased to 3.6/ARM and mean size was similar to last year at 39 mm. *Pycnopodia helianthoides* density decreased to 0.43/ARM, similar to previous years. *Strongylocentrotus franciscanus* density and mean size were 34.3/ARM and 58 mm, similar to last year. *Strongylocentrotus purpuratus* density and mean size were 9.3/ARM and 34 mm, similar to last year. Overall there was little recruitment for all species, except for a few *Strongylocentrotus* spp. recruits. *Parastichopus parvimensis* <10 cm and >10 cm were observed at densities of 0.43/ARM and 1.0/ARM, respectively, an overall increase from last year and indicative of a recent recruitment.

The temperature loggers were retrieved and deployed and both temperature loggers were within manufacturers specifications of each other. All of the temperature data were successfully downloaded.

Location: Rodes Reef, Santa Rosa Island

Site #5 SRRR

2005 sampling dates: 6/14, 8/8.

2005 status: Mature kelp forest.

The site is a mature kelp forest with large, widely spaced, canopy forming adult *Macrocystis pyrifera* plants, and no subadult and juvenile plants. The canopy covered 100% of the transect and was dense, creating low light conditions on the bottom. The low light conditions are unfavorable for understory algal growth and as a result, no large indicator macroalgae werespecies were observed. Adult *M. pyrifera* density increased to 0.23/m², the highest recorded since at least 1991. No *Eisenia arborea*, *Pterygophora californica*, *Cystoseira* spp., *Laminaria farlowii* or *Desmarestia* sp. were observed along the transect, similar to last year. Miscellaneous red algae cover notably decreased to 2.2%, the lowest recorded since 2000. This site typically has an abundance of understory red algae, but this year red algae were relatively uncommon. Similar to last year and at other sites this year, no miscellaneous plants, filamentous diatoms, were observed on RPCs. Articulated coralline algae were uncommon and were not observed on RPCs this year. Encrusting coralline algae covered 33% of the bottom, a decrease from last year and the lowest value recorded since 1995. Bare substrate covered 1.5% of the bottom, the lowest recorded at this site since this category was added to RPCs in 1985. The bottom consisted of 88.8% rock, 7.3% cobble, and 3.8% sand.

Miscellaneous invertebrates excluding *Ophiothrix spiculata* cover decreased to 7.7%, relatively low for this site. The most common miscellaneous invertebrates were barnacles. *Diopatra ornata* noticeably increased on the low-lying eastern 50 m of the transect and covered 11.3% of the bottom, the highest recorded at this site. Most of the newly settled *D. ornata* from last year had grown to full size and this growth is probably mostly responsible for the increased cover, and not necessarily an increase in abundance. *Astrangia lajollaensis* remained abundant with a cover of 9.8%, similar to past years. *Balanophyllia elegans* were abundant with a cover of 2.8%, similar

to past years. Miscellaneous bryozoan cover remained high and increased to 29.5%, the highest recorded at this site. This category consisted mostly of *Membranipora* sp. *Diaperoecia californica* were common on the steep sides of rocky relief, and had a cover of 1.3%, similar to last year. *Tealia lofotensis* density was 0.031/m², similar to previous years. *Tealia coriacea* and *Tealia colombiana* remained common, which is typical for this site. *Lophogorgia chilensis* were rare with only several seen along the transect and none were observed on band transects. Sponges covered 1.7% of the bottom, similar to the past two years. *Leucosolenia eleanor* were abundant and notably large. *Tethya aurantia* were moderately abundant at 0.15/m², higher than the past several years, but similar to previous years. *Tetilla arb* were common. *Styela montereyensis* were common, but none were observed on quadrats this year, a decrease from last year. The spiny-headed tunicate, *Boltenia villosa*, were common. The bright orange encrusting tunicate that has been present at this site for the past several years remained in low abundance for the third year. Tunicate cover was 2.7%.

Strongylocentrotus franciscanus density was 2.46/m², relatively low for this site and similar to the past two years. *Strongylocentrotus purpuratus* density also remained low at 0.33/m², similar to the past four years. Juvenile *Strongylocentrotus* spp. were rare, indicating little recruitment. No *Lytechinus anamesus* were observed on band transects, similar to the last several years. No sea urchin wasting disease was observed.

No *Ophiothrix spiculata* were observed on RPCs, similar to last year. *Patiria miniata* density remained high at 3.9/m², the highest density recorded at this site. *Pisaster giganteus* were counted on both 1 m quadrats and 5 m quadrats, with densities of 0.25/m² and 0.13/m², respectively, both decreases, and relatively low for this site. *Pycnopodia helianthoides* density was relatively high, and similar to last year, at 0.107/m². Large *Parastichopus parvimensis* were present in low abundance on the western/rocky half of the transect, but none were observed in quadrats this year, similar to past years. These continued to be some of the largest *P. parvimensis* we have observed anywhere at the Islands. No sea star wasting disease was observed.

No live *Haliotis* spp. were observed, but three fresh *Haliotis rufescens* shells were found measuring 25 mm, 46 mm, and 47 mm, indicating recent recruitment. *Kelletia kelletii* density was 0.011/m², similar to past years. No *Megastraea undosa* or *Lithopoma gibberosa* were observed. *Megathura crenulata* were common on the western/rocky end of the transect with a density of 0.0097/m², relatively low for this site. *Aplysia californica* were rare, and none were observed on band transects. *Cypraea spadicea* were absent along the transect. Mysids were abundant in the water column.

Fish diversity was similar to last year. There were not many juvenile species recorded indicating little recent recruitment. Similar to previous years, fish were concentrated at the western/rocky end of the transect. *Coryphopterus nicholsii* decreased in abundance with none observed on quadrats and three counted on roving diver fish counts. One *Alloclinus holderi* was counted on the first fish count. *Oxylebius pictus* were present with up to 23 counted. Several *O. pictus* juveniles were observed, similar to other sites this year. Only two adult *Chromis punctipinnis* were observed. Adult *Oxyjulis californica* were abundant with up to 155 observed. Five female and two male *Semicossyphus pulcher* were observed. Up to three adult *Paralabrax clathratus* were counted. Fourteen adult and two juvenile *Embiotoca jacksoni* were observed, similar to the last two years. Eighteen adult and five juvenile *Embiotoca lateralis* were observed, similar to the

last two years as well. Eight adult and thirteen juvenile *Rhacochilus vacca* were observed. *Sebastes mystinus* were common with up to 30 adults observed. *Sebastes atrovirens* were present with up to seven adults observed. Four adult *Sebastes serranoides* were observed. No adult and one juvenile *Sebastes serriceps* was observed. One young of the year *Sebastes Miniatus*, vermillion rockfish, was observed on the June 14th roving diver fish count. *Sebastes Melanops*, black rockfish, were present with up to seven adults observed. One adult *Sebastes Caurinus*, copper rockfish, was observed. There were some KGB young of year present with up to eight observed. The KGBs were observed in the *Macrocystis pyrifera* canopy on the first fish count and had settled out to the bottom on the latter fish count. One adult *Sebastes Chrysomelas*, black and yellow rockfish, was observed. Two adult *Caulolatilus princeps*, ocean whitefish, were observed. One adult, *Ophiodon elongatus*, lingcod, and one adult *Scorpaenichthys marmoratus*, cabezon, were observed. *Brachyistius frenatus*, kelp surfperch, were common with up to 17 observed. *Hypsurus caryi*, rainbow surfperch, were common with up to 11 observed. One *Rhacochilus toxotes*, rubberlip surfperch, was observed. A school of *Aulorhynchus flavidus*, tubesnout, was observed with up to 165 counted. One *Artedius corallinus*, coralline sculpin, and one *Leiocottus hirundo*, lavender sculpin, were observed. One *Ornithopias triacis*, snubnose sculpin, was observed. Two *Ronquil* spp. were observed. Two *Gibbonsia* spp. were counted. Roving diver fish counts were conducted on June 14th with four divers and August 8th with three divers observing 22 and 27 species respectively. Visibility was poor on June 14th.

The temperature loggers were retrieved, deployed, and all of the data were successfully downloaded.

Several new stainless steel eyebolts were installed and line repair was also conducted on September 27th. However, this site still needs at least four new thread rods installed for the transect.

Location: Gull Island, Santa Cruz Island

Site #6 SCGI

2005 sampling dates: 6/30, 7/14, 10/25.

2005 status: Mature kelp forest.

This site continued to mature as a kelp forest with large, widely spaced *Macrocystis pyrifera* plants and a thick canopy that was estimated to cover 100% of the transect. Thick canopy created low light conditions on the bottom, which likely resulted in the low juvenile and understory algae abundance. Most of the macroalgae appeared healthy and had relatively few epiphytes growing on the blades. Adult *M. pyrifera* densities increased while subadult and juvenile densities decreased, which is typical of a maturing kelp forest and is the same scenario we observed at Rodes Reef this year. Adult, subadult and juvenile *M. pyrifera* densities were 0.23/m², 0.19/m², and 0.292/m², respectively. Cover was recorded at 13.7%, a decrease from last year. Adult *Eisenia arborea* density increased to 0.29/m², while juvenile density decreased to 0.083/m². Cover was 2.3%, a small decrease from last year. No adult or juvenile *Pterygophora californica* were observed on quadrats. *Pterygophora californica* cover was 0.67% similar to last year. No *Laminaria farlowii* were observed this year. A small number of *Cystoseira* sp. were present for a cover of 0.67%. *Desmarestia* sp. cover was 0.17%, the time this species has been recorded on RPCs at this site. Miscellaneous red algae cover decreased to 13.7%, still relatively abundant for this site. Miscellaneous plants, mostly consisting of filamentous diatoms, were rare

and none were observed on RPCs, similar to last year. Articulated coralline algae cover was similar to the last several years at 1.2%. Encrusting coralline algae cover was 27.7% similar to last year, but relatively low compared to most years. Bare substrate cover was 2.5%, similar to recent years.

The most common miscellaneous invertebrates on RPCs were hydroids, amphipod tube mats, and *Pista elongata*. Miscellaneous invertebrates excluding *Ophiothrix spiculata* cover increased to 38.2%, the highest cover recorded for this category. *Corynactis californica* and *Balanophyllia elegans* cover were 2.3% and 2.8% respectively. *Astrangia lajollaensis* cover was 0.5%, the lowest recorded since 1984 but similar to the past two years. Similar to past years, *Diopatra ornata* were common in the low-lying sandy areas of the transect, but were rare directly along the transect where they are monitored on RPCs for a cover of 2.5%. Miscellaneous bryozoans cover was 20.0%, similar to the past two years. Similar to last year, the most common bryozoans were *Membranipora* sp., *Diaperoecia californica*, *Phidolopora pacifica*, and *Costazia castazi*. *Diaperoecia californica* cover was 5.0%, similar to the past two years. Tunicate cover was 2.5%. *Lophogorgia chilensis* density remained relatively low for this site at 0.026/m². *Stylaster californica* density decreased to 0.049/m². There was no noticeable change in abundance and this is most likely a sampling artifact due to the patchiness of this species. Both large and small colonies of *S. californica* were common. *Tethya aurantia* increased to a density of 0.18/m², the highest recorded density at this site. Sponge cover also increased to 3.2%, which is high for this site and the highest recorded since this category was added in 1985. The bottom consisted of 96.2% rock, 0.5% cobble, and 3.3% sand.

Strongylocentrotus franciscanus and *S. purpuratus* remained rare with densities of 0.375/m² and 0.33/m², respectively. For the fourth consecutive year, these densities remained the lowest recorded at this site. Juvenile *Strongylocentrotus* spp. were rare, similar to last year. Similar to recent years, *Strongylocentrotus* spp. were difficult to locate for size frequencies and only 28 *S. franciscanus* and four *S. purpuratus* were found. No *Centrostephanus coronatus* or *Lytechinus anamesus* were observed on quadrats or band transects. No sea urchin wasting disease was observed.

Patiria miniata density remained high for the third consecutive year at 2.58/m², the highest density recorded at this site. *Pisaster giganteus* were counted on both 1 m quadrats and 5 m quadrats at densities of 0.17/m², and 0.24/m², respectively, and similar to last year. *Pycnopodia helianthoides* remained relatively abundant with a density of 0.029/m², similar to last year. *Ophiothrix spiculata* cover was 0.33%. No *Pachythyone rubra* were observed on RPCs. *Parastichopus parvimensis* were present with a density of 0.167/m². No sea star wasting disease was observed.

Cypraea spadicea density remained relatively low for the third consecutive year at 0.083/m². *Megastrea undosa* remained rare with none observed on quadrats for the third consecutive year, and none found during size frequency measurements. *Megathura crenulata* remained rare and their density declined for the sixth consecutive year. None were observed on band transects for a density of 0.0/m², the lowest density recorded at this site. *Kelletia kelletii* density was 0.015/m². Similar to the last two years, *Aplysia californica* were rare and none were observed on band transects (0.0/m²). *Crassidoma giganteum* density remained relatively low for this site at

0.015/m². *Tegula regina* were common and appeared to be the most abundant large snail at this site, similar to last year.

Similar to previous years, fish were diverse but not abundant. *Coryphopterus nicholsii* density was 0.5/m² similar to past years, and up to seven were observed during the roving diver fish count. *Alloclinus holderi* were not observed for the fourth consecutive year on quadrats and none were observed during the roving diver fish count. *Oxylebius pictus* were present with up to 35 observed. Adult *Chromis punctipinnis* were the most abundant fish with up to 350 observed. Adult *Oxyjulis californicus* were present with up to nine observed. No *Halichoeres semicinctus* were observed. Eight female, four juvenile, and six male *Semicossyphus pulcher* were observed. One adult *Paralabrax clathratus* and one adult *Hypsypops rubicundus* were observed. Two adult *Girella nigricans* were observed. *Embiotoca jacksoni* were abundant with up to 20 adults and no juveniles observed. *Rhacochilus vacca* were present with up to six observed. *Embiotoca lateralis* were abundant with up to 12 adults and no juveniles observed. *Sebastes mystinus* were present with up to four adults and one juvenile observed. *Sebastes atrovirens* were the most abundant rockfish with up to 11 adults and no juveniles observed. *Sebastes serranoides* was present with up to three adults observed. Two adult and no juvenile *Sebastes serripes* were observed. Three *Sebastes carnatus*, gopher rockfish, were observed. Up to five *Sebastes chrysomelas*, black and yellow rockfish, were observed. One *Sebastes miniatus*, vermillion rockfish, and one *Sebastes caurinus*, copper rockfish, were observed. Not observed during fish counts, but definitely notable, were the 30 YOY *Sebastes paucispinis*, bocaccio, which were observed in the canopy. One adult *Ophiodon elongatus*, lingcod, was observed. One *Orthonopias triacis*, snubnose sculpin, was observed. One adult *Medialuna californiensis*, halfmoon, was observed. *Brachyistius frenatus*, kelp surferperch, were present with two observed. Roving diver fish counts were conducted on June 30th with five divers observing up to 24 species.

All 14 ARMs were monitored for all indicator species. Overall, the ARMs were in good condition but one ARM lid was replaced this year. One *Octopus* sp. was observed. *Tegula regina* were relatively common and were measured at 17, 21, 21, 33, 39, 42, and 42 mm each. This species has not been added as an indicator species yet, but we have been trying to keep track of these in the notes.

Two *Haliotis rufescens* were observed for a density of 0.14/ARM and were measure at 16 mm and 38 mm, indicative of a recent recruitment. No *Haliotis assimilis* were observed. *Cypraea spadicea* density was 10.3/ARM, similar to the past three years. Two *C. spadicea* had egg masses. Two *Kelletia kelletii* were observed for a density of 0.14/ARM, similar to past years. One small 22 mm *Megastrea undosa* was observed in ARM's, a first record since 2001. This is notable because no other *M. undosa* were observed along the transect, and indicated recent recruitment. Two *Megathura crenulata* were observed for a density of 0.14/ARM, relatively low for this site. *Crassidoma giganteum* density was relatively high for this site at 2.4/ARM and a decrease in mean size to 30.7 mm, both indicating recent recruitment. *Patiria miniata*, *Pisaster giganteus*, and *Pycnopodia helianthoides* densities and mean sizes were similar to last year. *Patiria miniata* density and mean size were 5.4/ARM and 27.4 mm, respectively. *Pisaster giganteus* density and mean size were 1.4/ARM and 48.9 mm, respectively. *Pycnopodia helianthoides* density and mean size were 0.29/ARM and 120 mm, respectively. *Strongylocentrotus franciscanus* density continued to increase for the second consecutive year to 35.6/ARM and mean size was 23.4 mm, similar to recent years. Similarly, *Strongylocentrotus*

purpuratus density increased for the second consecutive year to 14.8/ARM and sized increased slightly to 18.1 mm, higher than the past two years. These small increases in *Strongylocentrotus* spp. density and mean size indicate possible immigration into the ARMs rather than recent recruitment. We expect this is the case due to seemingly high urchin predation rates by *P. helianthoides* and that urchins tend to reside in crevice habitat in a mature kelp forest. No *Centrostephanus coronatus* were observed in the ARMs for the fourth consecutive year. *Parastichopus parvimensis* <10 cm had a mean of 0.21/ARM, and the mean density of >10 cm was 0.07/ARM, relatively low densities but higher than the previous four years.

The temperature loggers were retrieved and deployed. A new temperature logger thread rod was installed this year as the other was finally corroded beyond use after 20 years of service. The new thread rod/temperature logger was moved about 10 m to the zero end of the transect. We do not think this will have any effect on temperature as it is within a few feet depth of the old location. However, temperature loggers will be kept in both the original and new location to confirm that there is little difference. If there is a difference we will move the logger back to its original location. In addition to the logger thread rod, a new 0 m end eye bolt was installed as the transect line has been tied off to a rock for well over the past 15 years.

Location: Fry's Harbor, Santa Cruz Island

Site #7 SCFH

2005 sampling dates: 6/29.

2005 status: State of transition.

This site continues to change with a decline in echinoderms and an increase in algae being the most notable changes. Many of the indicator species of algae were at their highest abundances recorded at this site. However, no kelp forest or any particular type of algae can yet characterize the site. The decline in *Pachythyone rubra* last year continued and none were observed on RPCs this year. Only one small patch of *P. rubra* was observed at the site. In addition, *Strongylocentrotus purpuratus* continued to decline and were almost entirely absent from the site.

Macroalgae were common and notably more abundant for the first time since the early 1980s. The algae consisted mostly of juvenile and adult *Eisenia arborea* and foliose red algae. *Macrocystis pyrifera* adults were absent but several subadult and juveniles were present with densities of 0.005/m² and 0.083/m², respectively. Though low, these were some of the highest densities recorded at this site. Adult *Eisenia arborea* increased in density to 0.71/m², while juvenile density was similar to last year at 0.88/m², and cover was recorded at 3.7%. All of these abundances were the highest recorded since monitoring began at this site. *Cystoseira* sp. were common along the transect and were observed on RPCs at a cover of 0.8%, the highest cover recorded for this site. Miscellaneous red algae cover was 28.2%, the highest recorded at this site. Most of the red algae consisted of a *Rhodymenia* sp. like algae. Green algae were present and consisted of *Codium fragile* and *Codium* sp., but none were counted on RPCs. Miscellaneous brown algae cover was 1.7%. Miscellaneous plants consisting of diatoms, increased to 35.7%. Encrusting coralline algae cover was similar to past years at 39.0%. Articulated coralline algae cover was 0.17%, similar to last year. Bare substrate cover decreased to 6.2%. The bottom consisted of 82.0% rock, 9.5% cobble, and 8.5% sand.

Miscellaneous invertebrates *Ophiothrix spiculata* cover was 11.5%, similar to last year. The most common miscellaneous invertebrates in this category were *Cucumaria salma* and *Hydractinia milleri*, respectively. *Balanophyllia elegans* cover increased to 5.7%, the highest cover recorded at this site. In contrast, *Astrangia lajollaensis* decreased to 1.2%, the lowest recorded for this site. Typically *A. lajollaensis* covers well above 10% of the bottom. No *Corynactis californica* were observed on RPCs for the second year in a row, the lowest recorded at this site. Miscellaneous bryozoan cover continued to decline to 6.2%, but this was still relatively high for this site. *Diaperoecia californica* have declined over the past two years and were recorded at 2.5%. *Diaperoecia californica* were noticeably abundant on the sides of large boulders, but less abundant directly along the transect line, similar to past years. *Lophogorgia chilensis* were abundant on the offshore/deep side of the transect and had a density of 0.23/m², similar to recent years. *Eugorgia rubens* were common on this side of the transect. *Tethya aurantia* density was 0.042/m², similar to recent years. Sponges covered 0.3% of the bottom.

Strongylocentrotus purpuratus density remained low for the second consecutive year at 0.083/m². This was the lowest recorded density at this site, but similar to the early 1980s. *Strongylocentrotus franciscanus* density also remained low for the second consecutive year at 0.13/m², one of the lowest densities recorded at this site. *Centrostephanus coronatus* density remained low with none observed on quadrats for the second consecutive year (0.0/m²). *Lytechinus anamesus* densities continued to decline for the fifth consecutive year with none observed on band transects (0.0/m²), the lowest density recorded since 1984. No sea urchin wasting disease was observed.

Ophiothrix spiculata were noticeably rare along the transect and none were observed on RPCs, the lowest cover recorded since 1999. *Pachythyone rubra* remained relatively rare at this site and none were observed on RPCs for the first time since monitoring began at this site. Only one small dense patch of *P. rubra* was observed this year. These were on top of a large boulder on the inshore side of the transect at meter 40. We believe the decline in *P. rubra* was the result of predation by *Pycnopodia helianthoides*. *Pycnopodia helianthoides* were observed feeding on *P. rubra* at locations near Fry's Harbor in 2003 and their density has dramatically increased at this site during this time. *Pycnopodia helianthoides* remained abundant at 0.028/m². *Pisaster giganteus* density declined on both 1 m quadrats and 5 m quadrats to 0.25/m² and 0.27/m², respectively. *Patiria miniata* density remained high and was similar to last year at 1.29/m². *Parastichopus parvimensis* density increased from last year to 0.25/m², similar to previous years. No sea star wasting disease was observed.

Cypraea spadicea density was 0.88/m², similar to the past decade. *Megastraea undosa* remained rare with a density of 0.042/m², similar to the past three years. Only one *M. undosa* was found for size frequencies this year. *Kelletia kelletii* density was 0.021/m², similar to last year. *Aplysia californica* density was 0.013/m², which is relatively high for this site. *Megathura crenulata* density remained at its lowest density recorded at this site at 0.017/m². *Crassidoma giganteum* density was 0.025/m², similar to past years.

Diversity of fish was lower than last year. This may be due to sampling only once this year and the sampling was earlier in the field season. However, this site remains to have a relatively high diversity. Adult *Coryphopterus nicholsii* were very abundant with a density of 3.96/m², the highest density recorded for this species since 1985. Up to 120 *C. nicholsii* were observed.

Juvenile *C. nicholsii* were common. *Alloclinus holderi* were present with a density of 0.17/m² and up to six observed, similar to last year. *Lythrypnus dalli* were observed on quadrats with a density of 0.13/m², the first time these have been observed on quadrats since 2000. One *L. dalli* was observed during the roving diver fish count, similar to last year. *Oxylebius pictus* were common with up to 15 observed. *Chromis punctipinnis* were the most abundant fish with up to 600 adults and one juvenile observed. *Oxyjulis californica* were prevalent with up to 54 observed. No *Halichoeres semicinctus* were observed. Three female, two males and one juvenile *Semicossyphus pulcher* were observed. *Hypsypops rubicundus* were abundant with up to five observed. *Paralabrax clathratus* were moderately abundant with up to nine adults and no juveniles observed. *Paralabrax clathratus* traditionally recruit later in the season. *Girella nigricans* were present with up to four adults observed. Three adult *Embiotoca jacksoni* and no juveniles were observed. *Rhacochilus vacca* were moderately abundant with up to eight adults and no juveniles observed. No *Embiotoca lateralis* were observed at this site, similar to previous years. Two adult *Rhacochilus toxotes*, rubberlip surfperch, were observed. *Sebastes* spp. had a lower relative abundance this year. No *Sebastes mystinus* were observed. One adult *Sebastes atrovirens* was observed. *Sebastes serranoides* were moderately abundant with up to four adults observed. *Sebastes serripes* were abundant with up to 11 adults and no juveniles observed. One *Sebastes carnatus*, gopher rockfish, and two *Sebastes caurinus*, copper rockfish, adults were observed. Two KGBs were observed. One *Ophiodon elongatus*, lingcod, was observed. One *Orthonopias triacis* and one *Lythrypnus zebra* were observed. One moray eel, *Gymnothorax mordax* was observed. Roving diver fish counts were conducted on June 29th with five divers observing 24 species.

All five ARMs were intact and monitored for all indicator species. No *Haliotis* spp. were found in the ARMs this year. *Cypraea spadicea* density was 8.2/ARM, similar to previous years. *Megathura crenulata* density remained low with only one small one observed, 0.2/ARM. *Crassidoma giganteum* density increased to 3.2/ARM, higher than last two years. *Patiria miniata* density decreased to 11.6/ARM and mean size was similar to past years at 36 mm. *Pisaster giganteus* density continued to gradually decline for the fourth consecutive year to 1.2/ARM and mean size continued to increase for the fourth consecutive year to 68.3 mm. This density decrease and size increase suggests a significant recruitment event occurred for *P. giganteus* in 2001.

Strongylocentrotus spp. continued their gradual decline since 1999/2000 and were at the lowest recorded density at this site since we began monitoring the ARMs at this site in 1993. These low densities are parallel to what we have observed in the quadrat data. *Strongylocentrotus franciscanus* density decreased for the sixth consecutive year to a record low of 8.2/ARM, and the mean size increased to 39 mm, the largest increase on record, indicating little recruitment. *Strongylocentrotus purpuratus* density decreased to 3.4/ARM, similar to the past two years, and mean size increased to 25 mm, the largest recorded at this site, also indicating little recruitment. No *Centrostephanus coronatus* were observed in the ARMs for the third consecutive year. No *Parastichopus parvimensis* were observed in the ARMs for the second consecutive year.

The temperature loggers were retrieved, deployed, and all of the data were successfully downloaded.

Location: Pelican Bay, Santa Cruz Island

Site #8 SCPB

2005 sampling dates: 6/13.

2005 status: Dominated by *Strongylocentrotus purpuratus*.

This site has changed little in recent years. The site remained dominated by *Strongylocentrotus purpuratus* and was mostly devoid of macroalgae. Some macroalgae were present in small patches and consisted of juvenile and subadult *Macrocystis pyrifera* off the northern end of the transect, as well as *Sargassum* sp. and *Dictyota/Pachydictyon*. On the tops of large rocks there appeared to be more algae than last year. These algae consisted mostly of *Colpomenia* sp., *Gelidium robustum*, *Rhodomenia* sp and articulated coralline algae. Most of these large rocks are just inshore of the transect line and are not sampled. There were also *Eisenia arborea* on top of rocks but they appeared to have been grazed. *Macrocystis pyrifera*, *Pterygophora californica*, *Eisenia arborea*, *Laminaria farlowii*, *Cystoseira* spp., *Desmarestia* spp., and *Gigartina* spp. were not observed during sampling. Similar to last year, the most common foliose algae were the red alga, *Laurencia pacifica*, and the brown alga, *Colpomenia* sp. Miscellaneous red algae cover was 0.83%. Miscellaneous plants, consisting mostly of filamentous diatoms, were present at 10.7% cover. Articulated coralline algae were rare with a cover of 0.0%, similar to last year. Encrusting coralline algae cover was 32.8%, similar to last year. Bare substrate cover was 41.8%, similar to past years. Rock, cobble and sand covers were 56.3% and 15.5%, and 28.2%, respectively, all similar to past years.

Miscellaneous invertebrates excluding *Ophiothrix spiculata* cover decreased to 7.5% of the bottom. Similar to past years, the most common miscellaneous invertebrates were *Spirobranchus spinosus*, as well as sabellid worms and barnacles. *Balanophyllia elegans* were uncommon and had a cover of 0.17%. *Corynactis californica* were uncommon directly along the transect with none observed on RPCs. *Astrangia lajollaensis* covered 6.7% of the bottom, which is a slight decrease from last year, but similar to previous years. *Serpulorbis squamigerus* were relatively abundant on the tops of large rocks, however they are typically rare directly along the transect and none were observed on RPCs, similar to past years. *Diaperoecia californica* were relatively common on the steep sides of large rocks on the inshore side of the line, but similar to previous years were relatively rare directly along the transect with a cover of 0.17%. Other bryozoans were relatively rare with a cover of 0.5%. *Tethya aurantia* continued to be relatively abundant with a density of 0.028/m², similar to last year. *Muricea californica* were uncommon with none observed on band transects. *Lophogorgia chilensis* density was 0.12/m², similar to the past six years, continuing its trend of relative high abundance for this site.

Strongylocentrotus purpuratus density was similar to last year at 21.4/m², ending its gradual decline over the previous four years. *Strongylocentrotus franciscanus* density was 1.96/m², similar to recent years. *Lytechinus anamesus* density was 1.75/m², similar to recent years. Most of the *L. anamesus* were large. *Centrostephanus coronatus* decreased in abundance and were absent on quadrats for the first time since 1997. Four *S. franciscanus* were observed with sea urchin wasting disease on June 13th.

Patiria miniata declined for the second year and were recorded at 0.29/m², still relatively high for this site. *Pisaster giganteus* remained relatively abundant. They were counted on both 1 m quadrats and 5 m quadrats, with densities of 0.042/m² and 0.045/m², respectively, similar to last

year. Only a few *Ophiothrix spiculata* were observed along the transect and none were observed on RPCs. No *Pycnopodia helianthoides* were observed. *Parastichopus parvimensis* density remained low and was similar to recent years at 0.08/m². *Pachythyone rubra* were noticeably more abundant than in recent years with a cover of 1.8%, the highest recorded at this site. No sea star wasting disease was observed.

Crassedoma giganteum density was 0.039/m², similar to recent years. *Aplysia californica* density was 0.028/m², the highest recorded since 1993. *Megastraea undosa* density continued to be very low for this site at 0.083/m², similar to the previous two years. *Kelletia kelletii* density was 0.015/m², similar to past years. One fresh *Haliotis rufescens* shell at 28 mm was found indicating recent recruitment.

For a site that is dominated by *Strongylocentrotus purpuratus*, it continues to have a relatively abundant fish population with moderate diversity. *Coryphopterus nicholsii* continued to be the most abundant fish at this site. Their density remained high at 6.3/m² with up to 285 observed during the roving diver fish count. Three *Lythrypnus dalli* were observed during the fish count, but none were recorded on quadrats, similar to the past three years. *Alloclinus holderi* density remained low at 0.0/m², similar to the past four years. One *A. holderi* was counted during the roving diver fish count and none were observed on quadrats. Up to seven *Oxylebius pictus* were counted. *Chromis punctipinnis* were abundant with up to 178 counted. *Oxyjulis californicus* adults were present with eight observed. Two juvenile *Halichoeres semicinctus* were observed, but no male or females. One juvenile *Semicossyphus pulcher* was observed. One female and one male *S. pulcher* were observed at the site, but not during the roving diver fish count. Similar to past years, *Paralabrax clathratus* were notably abundant with up to 23 adults and two juveniles counted. Large proportions of the *P. clathratus* were near the 10 cm juvenile size cutoff and were counted as adults. Those *P. clathratus* were from last year's recruitment cohort observed on the 9/30/2004 roving diver fish count. Between five and nine adult *Hypsypops rubicundus* were observed. No *H. rubicundus* nests were observed. No *Girella nigricans* were observed. *Embiotoca jacksoni* and *Rhacochilus vacca* were both common with up to 17 observed of each species. No *Embiotoca lateralis* were observed. *Rhacochilus toxotes* were observed but not during the roving diver fish count. This site was somewhat devoid of *Sebastes* spp. with only two adult *Sebastes atrovirens* observed. *Sebastes mystinus*, *Sebastes serranoides*, and *Sebastes serripes* were not observed. One *Medialuna californiensis*, halfmoon, was observed. One *Neoclinus uninotatus* and one *Neoclinus stephensae*, fringehead, were observed. *Caulolatilus princeps*, ocean whitefish, were common with up to 11 observed. *Pleuronichthys coenosus*, C-O turbot, were common with up to three counted. Two *Lythrypnus zebra*, zebra goby, were observed. Roving diver fish counts took place on June 13th by 3 divers counting up to 19 species.

All six ARMs were intact and sampled for all indicator species. Two *Octopus* sp. were observed and one had a clutch of eggs. No *Haliotis* spp. have been found in the ARMs since 1999. *Cypraea spadicea* density increased, but was similar to past years at 7.7/ARM. No *Megastraea undosa* were observed in the ARMs for the fourth consecutive year. One small *Megathura crenulata* was observed in the ARMs this year, 0.17/ARM. *Crassedoma giganteum* density was 2.2/ARM, similar to last year. *Patiria miniata* density and size were 4.17/ARM and 28.5 mm, both lower than recent years. *Pisaster giganteus* density was low at 0.17/ARM and mean size decreased to 24.0 mm. This was the lowest *P. giganteus* density and mean size since this species was first recorded in the ARMs at this site. No *Lytechinus anamesus* were observed in the ARMs

this year. *Strongylocentrotus franciscanus* density was similar to the past two years at 10.0/ARM and mean density increased slightly to 40.6 mm. *Strongylocentrotus purpuratus* density continued its overall gradual decline since we began monitoring ARMs here in 1994. Their density was 12.8/ARM, the lowest recorded at this site. Mean size increased slightly to 30.4 mm, the highest recorded at this site, indicating little recent recruitment. No *Centrostephanus coronatus* have been observed in the ARMs since 2000. *Parastichopus parvimensis* density <10 cm was 0.33/ARM and density >10 cm increased to 0.67/ARM, similar to last year and still relatively low for this site.

The temperature loggers were retrieved, deployed, and all of the data were successfully downloaded.

Location: Scorpion Anchorage, Santa Cruz Island

Site #9 SCSA

2005 sampling dates: 9/8.

2005 status: Dominated by *Strongylocentrotus purpuratus*.

This site remained dominated by *Strongylocentrotus purpuratus*, but some *Macrocystis pyrifera* were observed this year. Although there was a notable increase in algae abundance, the site remained mostly devoid of macroalgae. There was a small area of *M. pyrifera* approximately 7 individuals located on the offshore side near the 100 meter end of the transect as well as several other plants scattered around the transect. Subadult *M. pyrifera* were observed at 0.02/m², this was the first time any have been recorded since 1996. No juveniles or adults were observed on quadrats. We found 27 *M. pyrifera* >1m tall (all were subadults) within the site area for size frequency measurements, the most found since 1986. No *Eisenia arborea*, *Pterygophora californica*, *Laminaria farlowii*, or *Cystoseira* spp. were present, similar to recent years. Green algae increased to a cover of 5.3%, the highest recorded since 1992, and consisted mainly of *Ulva* spp. Miscellaneous brown algae increased to 2.7%, the highest recorded since 1995. Miscellaneous red algae cover was 4.8%, similar to recent years and consisted mostly of *Laurencia pacifica*. *Gelidium* sp. were observed on RPCs at 3.7% cover, the first time since 1985 and the second highest cover recorded since monitoring of this species began in 1982. Miscellaneous plants, consisting mostly of filamentous diatoms, slightly decreased in cover to 12.2%, similar to other sites. These diatoms were in several large patches mostly in low lying areas. Articulated coralline algae were rare with a cover of 0.8%. Encrusting coralline algae were abundant with a cover of 62.8%, similar to recent years. Bare substrate cover was 19.8%, similar to recent years. The bottom consisted of 73.7% rock, 5.5% cobble, and 20.8% sand.

Similar to past years the most common miscellaneous invertebrate on RPCs was *Spirobranchus spinosus*. Miscellaneous invertebrates excluding *Ophiothrix spiculata*, covered 22.2% of the bottom, similar to recent years. *Serpulorbis squamigerus* continued to be relatively uncommon for this site and none were observed on RPCs for the fourth consecutive year. Bryozoans were uncommon with a cover of 0.33%, similar to past years. There were some *Diaperoecia californica* present on the steep sides of the largest boulders around the transect. Cover was 0.3%, similar to past years. Several *Lophogorgia chilensis* were observed along the transect and had a density of 0.0014/m², similar to recent years. *Muricea fruticosa* were observed on band transects at a density of 0.0028/m², the first time this species were recorded on band transects at this site. *Tethya aurantia* density remained relatively high for this site at 0.036/m².

Strongylocentrotus franciscanus density was $3.04/\text{m}^2$, similar to the past several years. *Strongylocentrotus purpuratus* continued to dominate this site with a density of $38.6/\text{m}^2$, a slight decline from last year and the lowest density recorded since 1999. Two *Centrostephanus coronatus* were observed on quadrats for a density of $0.083/\text{m}^2$, the highest recorded since 2001. All of the *C. coronatus* were adults. The increase in density is likely due to sampling variability rather than an increase in abundance since no juveniles have been recorded at this site in several years. *Lytechinus anamesus* were rare and were counted in quadrats with a density of $0.042/\text{m}^2$ similar to last year. *Lytechinus anamesus* were not observed on band transects this year ($0.0/\text{m}^2$). No sea urchin wasting disease was observed.

Pisaster giganteus were counted on 1 m quadrats and 5 m quadrats with densities of $0.083/\text{m}^2$ and $0.055/\text{m}^2$, respectively, similar to recent years. *Patiria miniata* density decreased from its relatively high density for this site over the past four years to $0.13/\text{m}^2$. Most of the *A. miniata* were noticeably large, similar to last year. No *Pycnopodia helianthoides* were observed along the transect, a decrease from last year. *Parastichopus parvimensis* density was $0.17/\text{m}^2$, similar to recent years. No sea star wasting disease was observed.

Aplysia californica density remained the lowest recorded since 1990 and was the same as last year at $0.0042/\text{m}^2$. *Megastrea undosa* density remained very low for this site and was similar to last year at $0.13/\text{m}^2$. *Megathura crenulata* density was $0.075/\text{m}^2$, similar to last year. *Cypraea spadicea* were present at a density of $0.38/\text{m}^2$, similar to past years. *Crassidoma giganteum* density increased to $0.094/\text{m}^2$, similar to past years. Several *Panulirus interruptus* were observed on band transects with a density of $0.004/\text{m}^2$, more common than in recent years.

Similar to recent years, fish were moderately diverse but had relatively low abundances. *Coryphopterus nicholsii* were the most abundant with up to 294 observed. *Coryphopterus nicholsii* remained relatively abundant along the main transect with an increase in density to $3.7/\text{m}^2$, the highest recorded at this site. *Alloclinus holderi* were relatively uncommon with a density of $0.083/\text{m}^2$ and up to three observed during the fish count, similar to recent years. No *Lythrypnus dalli* were observed. Painted greenlings, *Oxylebius pictus* were moderately abundant with up to 12 observed. *Chromis punctipinnis* were abundant with up to 155 adults and no juveniles observed. *Oxyjulis californica* were also very abundant with up to 110 adults and 50 juveniles observed, similar to last year. This was one of the first recruitment pulses we have observed for *O. californica* this year. Three females, three juveniles, and one male *Semicossyphus pulcher* were observed. Fourteen female and two male *Halichoeres semicinctus* were observed. Eleven adult *Hypsypops rubicundus* were observed. *Paralabrax clathratus* were abundant with up to 18 adults and seven juveniles observed. This was the first recruitment pulse we have observed for *P. clathratus* this year. The juveniles were all observed near *M. pyrifera* holdfasts at the rock/sand interface. Up to 12 adult *Girella nigricans* were observed. One adult *Medialuna californiensis* was observed. *Embiotoca jacksoni* were relatively abundant with up to 38 adults and 23 juveniles observed. Fourteen *Rhacochilus vacca* adults were observed with no juveniles observed. One adult and three juvenile *Sebastes atrovirens* were observed. Four adult *Sebastes serranoides* were observed. Two adult and one juvenile *Sebastes serripes* were observed, similar to other sites this year. Two adult *Sebastes chrysomelas* were observed. One juvenile *Heterostichus rostratus*, giant kelpfish, was observed. Two adult *Rhacochilus toxotes*, rubberlip surfperch, and two adult *Heterodontus francisci*, horn shark, were observed. One

Myliobatis californica, California bat ray, was observed settled in the sand. Roving diver fish counts were conducted on September 8th by five divers observing 21 species.

This is one of the 24 sites where visual fish transects, including size, are conducted by UCSB/PISCO. Data summaries for these are included in Appendix M. The UCSB/PISCO fish transects were performed on September 22nd.

All seven ARMs were monitored for all indicator species. Cages for five ARMs were replaced on #2422, #2423, #2424, #2425, and #2426. All of these ARMs lower layer of bricks were buried in sediment and the anoxic environment was present as indicated by the black sediment and discoloration of the bricks. However, there remained an abundance of indicator species, especially *Strongylocentrotus* spp., on the lower layer of bricks. One *Octopus* sp. was observed in the ARMs this year.

Similar to past years, the ARMs had barer surface than most of the ARMs at other sites. No *Haliotis* spp. were observed in the ARMs, similar to past years. *Cypraea spadicea* were abundant as usual with a density of 14.4/ARM. *Megastrea undosa* density was higher than last year at 1.4/ARM, but similar to past years. *Crassidoma giganteum* density was 1.7/ARM, similar to past years. *Patiria miniata* density was 0.43/ARM, lower than last year. *Pisaster giganteus* density remained low at 0.14/ARMs, with one 180 mm individual observed. *Strongylocentrotus franciscanus* density increased to 10.0/ARM and the mean size decreased to 27.7 mm. Fifty percent of the *S. franciscanus* were less than 14 mm, indicative of a recent recruitment event. One 17 mm *Centrostephanus coronatus* was observed in the ARMs. We have seen several of these this year and think they may have been result of recruitment last year, perhaps during the two weeks of unusually warm water in 2004. *Parastichopus parvimensis* <10 cm were uncommon with 0.29/ARM, similar to last year. *Parastichopus parvimensis* >10 cm were 4.0/ARM, similar to recent years, but relatively high for this site.

The temperature loggers were retrieved, deployed, and all of the data were successfully downloaded.

Location: Yellow Banks, Santa Cruz Island
Site#10 SCYB

2005 sampling dates: 7/11, 8/23, 10/4, 10/13.

2005 status: Mature kelp forest.

The kelp forest at this site continued to mature since last year and is now a thick kelp forest with an estimated canopy cover of 90% on July 12th. The canopy was thick and created low light conditions on the bottom, which appeared to be a limiting factor for understory algae. The kelp canopy in this area was expansive and extended offshore of the site about 300 meters, to the west 100 meters and to the east many hundreds of meters. This was the most extensive canopy cover observed in many years (early 1980s) in this area.

Adult *Macrocystis pyrifera* density increased to 0.39/m², the highest recorded on 5 m quadrats since this protocol was implemented in 1996, and the highest at the site since at least 1994. The *M. pyrifera* individuals were large and widely spaced, indicative of a mature kelp forest. Subadult *M. pyrifera* density decreased to 0.015/m² as did the percent cover to 11.0%. Juvenile

M. pyrifera density remained low at 0.042/m². Excluding adult *Eisenia arborea*, brown macroalgae were absent directly along the transect line where quadrats and RPCs are conducted. One *E. arborea* was observed on quadrats for a density of 0.042/m². Adult and juvenile *Laminaria farlowii* and *Pterygophora californica* all decreased or remained at 0.0/m². These subsequent algae were present at the site but not very abundant and appeared to decrease from last year. Several small *Cystoseira* sp. were present but this species remained rare, and none were on RPCs this year. Miscellaneous brown algae were uncommon with a cover of 0.0%, similar to last year. Miscellaneous red algae increased slightly to a cover of 1.3%. Encrusting coralline algae were abundant with a cover of 48.0%, similar to past years. Articulate coralline algae were more abundant than recent years with a cover of 6.7%, the highest recorded since 1997. Bare substrate cover continued to decline for the fifth consecutive year and was 15.2%, the lowest recorded since 1991. The bottom consisted of 76.5% rock, 18.2% cobble, and 5.3% sand.

Miscellaneous invertebrates excluding *Ophiothrix spiculata* cover notably decreased from last year to a cover of 12.2%. Similar to last year, the most dominant miscellaneous invertebrates in this category were hydroids and consisted mostly of *Obelia* sp. Bryozoans were abundant and diverse this year. Miscellaneous Bryozoan cover dramatically increased to 24.8%, the highest cover recorded at this site. *Diaperoecia californica* cover was 1.0%, relatively high for the past decade. Sponges increased in cover to 2.0%, the highest recorded since 1992. *Tethya aurantia* were relatively abundant and their density continued to increase for the second consecutive year to 0.063/m², the highest recorded since 1999. *Lophogorgia chilensis* continued to decline for the third consecutive year from its highest density recorded in 2002 to 0.067/m². Similarly, *Muricea californica* also continued to decline for the same period to 0.0097/m². *Muricea fruticosa* remained in low abundance, but also continued to decline for the second year to 0.0014/m². *Corynactis californica* cover was 1.3%, higher than the previous five years. *Balanophyllia elegans* cover was 0.67%. *Astrangia lajollaensis* cover was 0.17%. Small *Pachycerianthus fimbriatus* were abundant on the bottom, a notable recruitment event.

Strongylocentrotus purpuratus and *Strongylocentrotus franciscanus* densities remained near their lowest densities recorded at this site at 2.58/m² and 0.04/m², respectively. The *S. franciscanus* density was the lowest recorded at this site. Both *S. purpuratus* and *S. franciscanus* were confined to crevice habitat, similar to last year. Both were very difficult to remove from the crevices for size frequency measurements making it difficult to sample the smaller individuals located under the spine canopy of the larger urchins. Only 36 *S. franciscanus* were located for measurements this year. *Lytechinus anamesus* remained rare with a density of 0.064/m², the lowest recorded since 1992. No *Centrostephanus coronatus* were observed on quadrats for the third consecutive year. Some juvenile *S. purpuratus* and *S. franciscanus* were observed, but were uncommon indicating little recruitment. Whole intact urchin tests were present in small numbers, often near *Pycnopodia helianthoides*, suggesting recent predation. No sea urchin wasting disease was observed.

Pisaster giganteus were counted on 1 m quadrats and 5 m quadrats with densities of 0.015/m² and 0.17/m², respectively, and similar to past years. *Patiria miniata* remained relatively abundant for this site at 1.08/m², similar to last year. *Pycnopodia helianthoides* remained relatively abundant for this site, and were large and mostly observed in crevices with a density of 0.017/m². *Ophiothrix spiculata* remained rare with none observed on RPCs, similar to last year.

Parastichopus parvimensis remained at low densities with none observed on quadrats this year. No sea star wasting disease was observed.

Megastrea undosa density remained low for the third year at $0.042/\text{m}^2$, however they were still common at the site, and most were large with a mean size of 93.1 mm. *Kelletia kelletii* density was $0.044/\text{m}^2$, similar to the last two years. *Megathura crenulata* declined to a density of $0.0/\text{m}^2$, the lowest recorded density at this site, but they were present at the site. *Crassedoma giganteum* density was $0.0028/\text{m}^2$, similar to the last few years. No *Aplysia californica* were observed on band transects for the second consecutive year. One 139 mm *Haliotis rufescens* was observed outside the ARMs this year. One 33 mm *Haliotis corrugata* was observed while conducting *Strongylocentrotus* spp. size frequencies, the first one found outside of the ARMs since we began monitoring this site. However, they have been relatively common in the ARMs the past several years.

Fish diversity was high but abundance was low, similar to previous years. *Coryphopterus nicholsii* were common with up to 61 observed and a density of $1.5/\text{m}^2$. *Alloclinus holderi* were rare with one adult observed during fish counts and none observed on 1 m quadrats. *Oxylebius pictus* were relatively abundant with up to 27 observed. No *Chromis punctipinnis* were observed during the fish counts. *Oxyjulis californica* were the most abundant fish with up to 70 adults observed. One *Halichoeres semicinctus* male was observed; neither juveniles nor females were observed. Three female and five juvenile *Semicossyphus pulcher* were observed. Six adult *Paralabrax clathratus* were observed. *Girella nigricans* were rare one adult observed. One adult and juvenile *Embiotoca jacksoni* were observed. Two adult and one juvenile *Sebastes atrovirens* were observed. One juvenile and adult *Sebastes serriceps* were observed, similar to other sites this year. One adult *Sebastes carnatus*, gopher rockfish, was observed. Two adult and one juvenile *Sebastes caurinus*, copper rockfish, were observed. One KGB young of year was observed. Schooling fishes were common at this site with approximately 25 *Atherinops affinis*, topsmelt, 41 *Trachurus symmetricus*, Pacific mackerel, and 10 *Engraulis mordax*, northern anchovy, observed. One *Cephaloscyllium ventriosum*, swell shark, was observed. One *Ornithopias triacis*, snubnose sculpin, was observed. Two *Artedius corallinus*, coralline sculpin, were observed. One *Pleuronichthys coenosus*, CO turbot, was observed. Five adult *Hypsurus caryi*, rainbow surfperch, were observed. Twenty one adult *Brachyistius frenatus*, kelp surfperch, were observed in the canopy, this was the most abundant Embiotocidae. Two adult *Heterostichus rostratus*, giant kelpfish, were observed. Roving diver fish counts were conducted on August 23rd with four divers observing 25 species of fish.

There are three groups of five ARMs, one group at each end of the transect and one group in the middle of the transect. Because of the large number of *Strongylocentrotus* spp. in the ARMs and the large amount of bottom time to collect them we did not sample all of the ARMs for *Strongylocentrotus* spp. this year. A total of 10 ARMs were monitored for all indicator species and the remaining five ARMs were sampled for all indicator species excluding *Strongylocentrotus* spp. However, one of the slates was inadvertently cleaned before the data were transferred. Therefore we only have data for four ARMs from the middle group with the data lost from ARM #2368. A total of 14 ARMs were sampled in 2005, 10 for all indicator species and four for all but *Strongylocentrotus* spp.

Octopus spp. were less abundant than last year with only one observed in the ARMs. Three *Tegula regina* were observed in the ARMs and were measured at 15, 23, and 24 mm each. *Tegula regina* were common at most sites and should be considered to be added as an indicator species.

There were few *Haliotis* spp. Similar to last year, one *Haliotis assimilis* was found in the ARMs and it measured 112 mm, relatively large compared to previous *H. assimilis* found here. This *H. assimilis* was observed on the top of the top layer of bricks and was not observed several weeks later in August or later on in December. Two *Haliotis rufescens* were observed in the ARMs and measured at 18 mm and 20 mm, the most found in the ARMs since 2001. This was the fourth consecutive year that no *Haliotis corrugata* were observed although one 30 mm *H. corrugata* was observed outside the ARMs, indicative of recent recruitment.

Cypraea spadicea decreased to 5.4/ARM, but were still relatively abundant compared to prior years. *Kelletia kelletii* were relatively common for the third consecutive year with a density of 0.79/ARM. *Megastrea undosa* density was 0.07/ARM. *Megathura crenulata* density decreased to 0.07/ARM. *Crassidoma giganteum* density was 1.07/ARM, similar to past years.

Patiria miniata density was 6.6/ARM, similar to recent years and still relatively high for this site. Mean size was 21.2 mm, similar to recent years. There was a notable recruitment event of *Pisaster giganteus* for the second consecutive year with many small sea stars observed on *Macrocystis pyrifera* blades, around the site and the ARMs. *Pisaster giganteus* were relatively abundant with a density of 7.8/ARM and a mean size of 17.6 mm, both similar to last year. This is the smallest mean size of *P. giganteus* we have observed in the ARMs, since monitoring began in 1992, indicative of recent recruitment.

Strongylocentrotus franciscanus density decreased from a high density last year to 79.4/ARM, but was similar to 2003. Mean size for *S. franciscanus* was 35 mm, similar to last year, but still relatively high for this site compared to recent years. This suggests that the increase in *S. franciscanus* in the ARMs is not a result of recruitment, but rather emigration possibly for the purpose of refuge. *Strongylocentrotus purpuratus* density was high and similar to last year at 141.0/ARM, the highest since 1999. Mean size continued to increase for the third consecutive year to 34.0 mm the highest since 1998, indicating little recruitment. Over the last several years that this site has become a mature kelp forest we have noticed a large decline in *Strongylocentrotus* spp. densities in quadrats and a shift from the sea urchins being out in the open to the utilization of crevice habitat. The ARMs act as crevices so we suspect greater use of the ARMs as preferred habitat, which is what has been observed. Greater usage of crevices often suggests an increased abundance of food for the sea urchins. No *Lytechinus anamesus* were observed in the ARMs for the second consecutive year. One *Centrostephanus coronatus* was observed and measured at 11.0 mm, an increase from none observed last year, and indicating some recruitment. *Parastichopus parvimensis* <10 cm and >10 cm densities were 0.86/ARM and 0.4/ARM, respectively, and similar to recent years.

The temperature loggers were working properly and all temperature data were successfully downloaded. Both loggers were recording temperatures within specifications of each other.

Location: Admirals Reef, Anacapa Island

Site#11 ANAR

2005 sampling dates: 7/1, 8/22, 9/6.

2005 status: Dominated by *Ophiothrix spiculata*.

There were noticeably more macroalgae this year. Even though the site remained dominated by *Ophiothrix spiculata*, there was a decline. *Ophiothrix spiculata* carpeted the bottom along most of the low lying areas but appeared less abundant in the areas where *Macrocystis pyrifera* were present. In the high relief areas there tended to be a higher abundance of *Strongylocentrotus purpuratus* and the highest abundance of algae present at the site was on the top of these high relief areas where fewer *S. purpuratus* were present.

There was a notable increase in *Macrocystis pyrifera*. Adult, subadult, and juvenile densities all increased to 0.025/m², 0.43/m², and 1.0/m², respectively, and cover was 4.0%, all the highest recorded since at least 1997 when the different categories of *M. pyrifera* were separated. Juvenile *M. pyrifera* were common on top of large rocks/reef. Eighty five adult and subadult *Macrocystis pyrifera* plants were recorded for size frequency measurements. *Eisenia arborea* adults were rare with a density of 0.042/m² and juveniles were more abundant than in recent years at 0.29/m², the highest recorded since we began monitoring juveniles separately in 1996. The *E. arborea* juveniles were present on the tops of rocks. *Pterogophora californica*, *Agarum fimbriatum*, and *Laminaria farlowii* were absent from the transect, similar to recent years. *Desmarestia* spp. were present at 0.3%, only the second time these algae have been observed on RPCs at this site. The first time was in 1990. *Cystoseira* sp. were present at 1.7% cover, the highest recorded since 1994. Miscellaneous red algae cover increased to 34.7%. *Laurencia pacifica* and filamentous red algae were the most abundant in this category. *Gigartina* spp. cover was 0.17%. Green algae cover was 3.8%, the highest recorded since 1992. Articulated and encrusting coralline algae covers were similar to last year at 0.5% and 42.5%, respectively. Bare substrate cover was 12.7%, relatively low for this site. The substrate categories were as follows: rock 87.2%, cobble 5.2%, and sand at 7.7% similar to previous years.

Miscellaneous invertebrates excluding *Ophiothrix spiculata* covered 24.5% of the bottom, higher than the past two years, but similar to past years. Most of this category consisted of hydroids, specifically *Obelia* sp. which were growing epiphytically on miscellaneous red algae and rock substrate. *Lophogorgia chilensis* density was 0.076/m², similar to past years. *Muricea fruticosa* and *Muricea californica* densities were similar to previous years at 0.0028/m² and 0.032/m², respectively. *Eugorgia rubens* were relatively abundant along the transect, and their abundance appeared similar to last year; however, we do not monitor this species. *Corynactis californica* were present with a cover of 1.5%, relatively low compared to the past five years. *Astrangia lajollaensis* cover remained low for the fourth consecutive year at 0.7%. *Balanophyllia elegans* remained uncommon and none were observed on RPCs for the sixth consecutive year. Sponges were present at 0.3%. *Tethya aurantia* density was 0.0069/m², and 22 were found for size frequencies, similar to past years. Miscellaneous bryozoans remained low with a cover of 1.0%. *Diaperoecia californica* were common on the steep sides of large rocks/reef at the west end of the transect and had a cover of 0.3%, similar to recent years. Tunicate cover remained relatively low at 0.5%. Bare substrate cover was 12.7%, similar to recent years. The substrate cover was as follows: bare rock 12.7%, rock 87.2%, cobble 5.2%, and sand at 7.7%, similar to past years.

Sea urchin densities remained similar to last year. *Strongylocentrotus franciscanus* was similar to previous years at 6.1/m². *Strongylocentrotus purpuratus* density was similar to last year at 5.5/m². This density was very low compared to 1994-2002, but similar to the densities recorded from 1982-1993. *Strongylocentrotus franciscanus* and *S. purpuratus* juveniles were common under the spine canopy indicating a recent recruitment event. Juvenile sea urchins appeared more common here than at most of our other sites (excluding Landing Cove and Cathedral Cove), but this recruitment did not appear in the ARMs. This may be because the ARMs were completely dominated by *O. spiculata*. No *Lytechinus anamesus* were observed on quadrats nor band transects, and only two could be found for size frequencies, similar to last year. *Centrostephanus coronatus* density remained relatively high at 0.63/m², similar to the past four years. At most sites where *C. coronatus* recruited during the 1997/1998 El Niño we have observed declines. However, at this site the density has remained stable over the last several years. There has been no indication of much recent recruitment and most of these urchins were large, so there may be higher survivorship here compared to other sites. Several *S. franciscanus* were observed with wasting disease on August 22nd. One *S. purpuratus* was observed with wasting disease on September 6th.

Echinoderms remained abundant with *Ophiothrix spiculata* being the most abundant and covering 30.2% of the bottom, a decrease of about 10% from 2003 and 2004. *Pisaster giganteus* were counted on both 1 m quadrats and 5 m quadrats with densities of 0.035/m² and 0.047/m², respectively and 25 were found for size frequencies. *Patiria miniata* remained relatively abundant for the second consecutive year with their highest recorded density of 2.0/m². Similar to the previous five years, *Parastichopus parvimensis* density remained relatively low at 0.46/m². One *Patiria miniata* was observed with wasting disease on September 6th.

No *Haliotis corrugata* were observed on band transects for the sixth consecutive year. *Crassidoma giganteum* density had gradually declined for the past five years to 0.015/m², the lowest density recorded at this site. Sixteen *C. giganteum* were found for size frequencies. *Megathura crenulata* density was 0.013/m², notably lower than the past five years. Fifteen were found for size frequencies and most were small, for a mean size of 59.3 mm. *Aplysia californica* density was 0.007/m², the lowest recorded since 1997. *Kelletia kelletii* density was also relatively low at 0.004/m², the lowest recorded since 1997. *Panulirus interruptus* were notably more abundant than in recent years with a density of 0.005/m².

Fish were noticeably more abundant than the past several years. *Coryphopterus nicholsii* were abundant 3.3/m² and up to 193 were counted. *Alloclinus holderi* were present at 0.46/m² with up to 13 counted. No *Lythrypnus dalli* were observed, most of their preferred low lying habitat was completely dominated by *Ophiothrix spiculata*. *Oxylebius pictus* were abundant with up to 95 counted. Two *Semicossyphus pulcher* females and no males were counted. *Semicossyphus pulcher* juveniles were abundant with up to nine counted. The most abundant fish were adult *Chromis punctipinnis* with up to 750 counted. Adult *Oxyjulis californica* were also abundant with up to 105 observed. Two male and two female *Halichoeres semicinctus* were observed. Compared to recent years, *Paralabrax clathratus* were relatively abundant with up to four counted and were notably hanging around the *M. pyrifera* plants. *Girella nigricans* were common with up to 24 observed. *Medialuna californiensis*, halfmoon, were present in the midwater with up to 11 observed. *Hypsypops rubicundus* were present with up to nine observed, similar to last year. Adult *Embiotoca jacksoni* were present with up to eight observed. No

Rhacochilus vacca or *Embiotoca lateralis* were observed. One *Sebastes atrovirens* was observed. No *Sebastes mystinus* were observed. No *Sebastes serranoides* were observed. *Sebastes serriceps* were noticeably more abundant than last year with up to eight adults and three juveniles observed. One *Sebastes carnatus*, gopher rockfish, was observed. One *Sebastes chrysomelas*, black and yellow rockfish, was observed. One *Scorpaenichthys marmoratus*, cabezon, was observed. One *Scorpaena guttata*, California scorpionfish, was observed. One KGB young of year was observed. One *Gymnothorax mordax*, California moral eel, was observed as was one *Myliobatis californica*, California bat ray. One large, dead *Atractoscion nobilis*, white sea bass, with a spear hole in it was on the bottom near the west end of the transect. There was one very large *Stereolepis gigas* (Black Sea Bass) observed but not during roving diver fish counts. Roving diver fish count was conducted on August 22nd by five divers counting up to 23 species.

This is one of the 24 sites where visual fish transects, including size, are conducted by UCSB/PISCO. Data summaries for these are included in Appendix M. The UCSB/PISCO fish transects were performed on September 9th.

All six ARMs at this site were monitored for all indicator species. The ARMs were in good condition, but nearly completely covered by *Ophiothrix spiculata* inside and outside, similar to recent years.

No *Haliotis* spp. were observed in the ARMs, similar to past years. *Cypraea spadicea* density was 0.67/ARM, similar to recent years. *Megathura crenulata* density was 0.33/ARM, similar to past years. *Crassedoma giganteum* density was 1.3/ARM, similar to recent years but low compared to the 1990s. *Patiria miniata* density remained high and similar to last year at 18.8/ARM. Mean size was similar to the past five years at 22.9 mm. *Pisaster giganteus* remained rare with none observed in the ARMs for the fourth consecutive year. *Lytechinus anamesus* remained rare with none observed in the ARMs for the third consecutive year.

Strongylocentrotus franciscanus density was similar to the last several years at 15.2/ARM, but relatively low for this site. Their mean size was slightly lower than last year at 31.1 mm. *Strongylocentrotus purpuratus* density remained relatively low with the lowest density recorded in the ARMs here at 7.7/ARM. Mean size had gradually increased over the past six years to 25.9 mm. This species has decreased in density over the past six years, which suggests little recruitment. *Centrostephanus coronatus* were not observed in the ARM's for the second consecutive year. One *Parastichopus parvimensis* >10 cm was observed for a density of 0.17/ARM, the first time any have been observed in the ARMs since 1999. *Parastichopus parvimensis* <10 cm density was 0.33/ARM, similar to last year. No *Arbacia incisa* were found in the ARMs, for the second consecutive year. These recruited during the 1997/1998 El Niño and disappeared from the ARMs in 2004. No *Octopus* sp. were found in the ARMs, similar to recent years.

The temperature loggers were retrieved and deployed and all data were successfully downloaded.

Location: Cathedral Cove, Anacapa Island

Site #12 ANCC

2005 sampling dates: 6/27, 6/28.

2005 status: Mature kelp forest.

There continued to be an increase in macroalgae along the transect this year. *Macrocystis pyrifera* canopy was notably higher than in recent years with a cover estimated at 80%, which spanned the entire transect. *Macrocystis pyrifera* were abundant along the entire transect. Adult, subadult, and juvenile *M. pyrifera* densities were 0.3/m², 0.86/m², and 25.2/m² respectively and cover was 43.3%, all increases from last year. Adult and subadult densities were the highest since at least 1992 and juvenile density was the highest since monitoring began in 1983. Several adult and juvenile *Eisenia arborea* were observed on the tops of rocks, and adult and juvenile plants were abundant in the shallow areas on the North side of the transect. Adult and juvenile *E. arborea* densities were 0.083/m² and 0.042/m², respectively, and cover was recorded at 2.0%. *Laminaria farlowii* were notably more abundant than last year. Adult and juvenile *L. farlowii* densities increased to 0.25/m² and 8.04/m², respectively, and cover increased to 7.0%. This was the highest density of *L. farlowii* juveniles since the category was separated out on quadrats in 1996. Small *Cystoseira* spp. plants were more abundant than in recent years with a cover of 20.5%, the highest recorded since 1992. Miscellaneous brown algae cover was 24.2%, higher than the last several years, and consisted mostly of *Dictyota/Pachydictyon* sp. *Dictyota* sp. were abundant. Miscellaneous red algae cover was 5.5% similar to past years. Articulated coralline algae cover was 12.5%, similar to the last two years, and still relatively low for this site. Encrusting coralline algae cover was 33.3%, similar to last year and relatively low for this site. Bare substrate cover was 20.8%, similar to last year. The bottom consisted of 63.8% rock, 17.2% cobble, and 19.0% sand.

There was a large amount of wood debris on the bottom from this year's storm events. Most of it appeared to come from the mainland and consisted of the giant reed, *Arundo donax*. An entire tree was present on the transect with many juvenile *M. pyrifera* growing on it. *Arundo donax* were present on the bottom of many of the sites this year.

Miscellaneous invertebrates excluding *Ophiothrix spiculata* covered 13.2% of the bottom, an increase from last year but similar to previous years. The most common miscellaneous invertebrates were hydroids. Miscellaneous bryozoan cover remained relatively high at 11.5%, similar to last year. *Diaperoecia californica* cover was 0.5%. *Diopatra ornata* were rare with a cover of 0.17%, similar to previous years. *Phragmatopoma californica* were rare at a cover of 0.17%, similar to previous years. No sponges were recorded on RPCs. *Tethya aurantia* were present at a density of 0.0014/m², similar to past years. *Astrangia lajollaensis* were present with a cover of 0.33%. No *Balanophyllia elegans* or *Corynactis californica* were recorded on RPCs. No *Lophogorgia chilensis*, *Muricea californica*, or *Muricea fruticosa* were observed. Tunicate cover was similar to previous years at 3.7%.

Strongylocentrotus franciscanus and *S. purpuratus* densities were similar to the last several years at 3.2/m² and 0.46/m² respectively. Both of these densities were relatively low and possibly due to patchiness, but *S. purpuratus* density was the lowest since monitoring began in 1982. Similar to recent years, high density patches of *S. franciscanus* were scattered around the transect. Overall there were few *S. purpuratus* directly along the transect and those present were confined

to crevice habitat. The larger *S. franciscanus* were mostly out in the open while the smaller ones were often in crevices. There were no *Centrostephanus coronatus* observed on quadrats. No sea urchin wasting disease was observed.

Patiria miniata density remained low, but normal for this site at 0.083/m². No *Pisaster giganteus* were observed on either 1 m quadrats or 5 m quadrats, similar to previous years. *Parastichopus parvimensis* density was 1.8/m², similar to last year. No sea star wasting disease was observed at this site this year.

Megastraea undosa density was 2.25/m², similar to the previous two years. *Crassidoma giganteum* density continued to decline for the fourth consecutive year and was recorded at 0.018/m², the lowest recorded at this site. *Aplysia californica* density was 0.007/m². One *Haliotis corrugata* (~160 mm) was observed on band transects for a density of 0.0014/m². This was the first *H. corrugata* observed on band transects since 2000. One fresh *H. corrugata* (~44 mm) shell was found indicating some recent recruitment. *Serpulorbis squamigerus* abundance remained low with none observed on RPCs for the third consecutive year and only the third time since monitoring began in 1982. *Panulirus interruptus* were moderately abundant with a density of 0.0069/m², similar to the last several years. *Megathura crenulata* density remained relatively high, similar to last year at 0.032/m². *Cypraea spadicea* density was 0.042/m², similar to previous years. *Kelletia kelletii* were rare with none observed on band transects for the third consecutive year.

Similar to past years, fish were abundant. *Coryphopterus nicholsii* and *Alloclinus holderi* densities were 0.21/m² and 0.25/m², respectively, similar to previous years. Up to 24 *C. nicholsii* and six *A. holderi* were observed. There were no *Lythrypnus dalli* observed this year. There were up to three *Oxylebius pictus* observed. Five female, eight juvenile, and two male *Semicossyphus pulcher* were observed. This was an unusually high number of juveniles. *Chromis punctipinnis* were the most abundant fish at this site. Up to 632 adult and two juvenile *C. punctipinnis* were observed. Twenty seven adult and one juvenile *Oxyjulis californica* were observed. Two *Halichoeres semicinctus* females and no males were observed. Five *H. semicinctus* juveniles were observed. *Embiotoca jacksoni* were present with up to 16 adults and two juveniles observed. One adult and two juvenile *Rhacochilus vacca* were observed. Eleven adult *Girella nigricans* were observed. There were up to eight adult and no juvenile *Hypsypops rubicundus* observed. Up to sixteen adults and six juvenile *Paralabrax clathratus* were observed. Many of *P. clathratus* were close to 10 cm in length and were probably from last year's recruitment cohort. No *Sebastes mystinus* were observed. Up to three adult *Sebastes atrovirens* were observed. One adult and one juvenile *Sebastes serripes* were observed. One adult *Sebastes chrysomelas*, black and yellow rockfish, was observed. One *Lythrypnus zebra*, zebra goby, was observed. One *Hypsurus caryi*, rainbow surfperch, was observed. *Brachyistius frenatus*, kelp surfperch, were abundant in the areas with thicker kelp canopy with 60 observed. Up to 10 juvenile and one adult *Heterostichus rostratus*, giant kelpfish, were observed. The Roving Diver Fish Count was conducted on June 27th with seven divers counting 23 species.

This is one of the 24 sites where visual fish transects including size is conducted by UCSB/PISCO. Data summaries are included in Appendix M. However, since this site and Cathedral Cove are very close these are the same sites for this methodology. UCSB/PISCO fish transects were performed on September 9th.

Five ARMs were monitored for all indicator species and two for all indicator species except *Strongylocentrotus* spp. *Octopus* sp. were abundant with seven found in ARMs this year. Two were observed with eggs.

Three *Haliotis corrugata* were observed in the ARMs for a density of 0.43/ARM, higher than the last several years. *Haliotis corrugata* were measured at 24, 33, and 38 mm, indicative of recent recruitment. *Cypraea spadicea* density remained high at 14.7/ARM, relatively abundant compared to other sites. *Megastraea undosa* density was 1.6/ARM, similar to the past four years. *Crassidoma giganteum* density was 3.4/ARM, similar to past years. *Patiria miniata* density remained high at 11.4/ARM. Mean size of *A. miniata* was 23 mm, lower than last year. *Pisaster giganteus* density increased to 5.9/ARM and mean size decreased to 30.1 mm, similar to recent years. *Strongylocentrotus franciscanus* were abundant, but density decreased to 84.0/ARM and mean sized increased to 30.5 mm, indicating less recruitment than last year. *Strongylocentrotus purpuratus* density continued to gradually decline for the third consecutive year to 73.9/ARM. Mean size was similar to the past four years at 38.2 mm. No *Centrostephanus coronatus* were observed for the third consecutive year. *Parastichopus parvimensis* notably declined in the ARMs. Small <10 cm and large >10 cm *P. parvimensis* densities were 1.7/ARM and 2.29/ARM, respectively, both at or near the lowest densities recorded in the ARMs at this site since we began monitoring ARMs in 1996.

The temperature loggers were working properly and all temperature data were successfully downloaded.

Location: Landing Cove, Anacapa Island

Site #13 ANLC

2005 sampling dates: 7/15, 9/5, 9/7.

2005 status: Mature kelp forest.

Canopy cover of *Macrocystis pyrifera* over the transect was a little thicker than usual and was estimated at 60%. Similar to past years, canopy was thickest on the eastern end of the transect above the shallow reef where large mature plants were common. The deeper portion of the transect with cobble bottom had mostly juvenile and subadult plants. This is in part due to the small rocks in this area. When kelp plants get large enough to float the rock substrate they move. All of the *M. pyrifera* appeared to be healthy with few epiphytes growing on the blades. Similar to previous years, the top of the reef at the east end of the transect had an abundance of red algae.

Adult, subadult, and juvenile *M. pyrifera* densities were 0.14/m², 1.57/m², and 5.17/m², respectively, and cover was recorded at 14.2%. These are all similar or lower than last year, but similar to the previous several years. Juvenile *M. pyrifera* density has remained notably high since 1998 compared to the previous 16 years. There was a notable increase in brown macroalgae understory. Adult and juvenile *Eisenia arborea* densities were 0.6/m² and 0.8/m², respectively, and cover was 14.8%, similar to recent years. Adult and juvenile *Pterygophora californica* densities increased to 0.63/m² and 1.54/m², respectively, and cover was 1.8%, similar to recent years. *Pterygophora californica* adult and juvenile densities separated were the highest since we began counting adult and juveniles separately in 1996 and combined were the highest on record for this site. *Laminaria farlowii* adult and juvenile densities remained high at 2.8/m² and 27.2/m², respectively. Similar to *P. californica*, these were the highest since we began

counting adult and juveniles separately in 1996 and combined were the highest on record for this site. *Laminaria farlowii* cover increased for the fifth consecutive year to 23.3%, the highest cover recorded since 1995. Miscellaneous brown algae cover declined to 0.67%, the lowest cover recorded at this site. *Cystoseira* sp. cover was 3.8%, similar to previous years. Miscellaneous red algae cover declined to 7.3%, the lowest recorded since 1992, and relatively low for this site. *Gelidium* spp. cover was 15.0%, similar to the past 16 years. All of the *Gelidium* spp. were present on top of the reef at the eastern end of the transect, similar to previous years. No green algae were observed on RPCs this year. Miscellaneous plant cover was 0.8%, similar to past years. Articulated and encrusting coralline algae covered 11.7% and 42.0% of the bottom respectively, similar to previous years. Bare substrate cover decreased to 8.3% from this category's highest cover (30.8%) in 2004. This is possibly a result of an increase in algal cover and/or a decrease in sand. Sand cover decreased to 0.8%, the lowest cover recorded at this site. Rock cover increased to 73.2%, but was similar to previous years. Cobble cover remained similar to past years at 26.0%.

Miscellaneous invertebrates excluding *Ophiothrix spiculata* cover increased to 15.0%, notably higher than the last two years. The most common invertebrates in this category were hydroids. Sponge cover was lower than the past five years at 1.0%. *Tethya aurantia* were present at 0.007/m², similar to past years. *Corynactis californica*, *Balanophyllia elegans*, and *Astrangia lajollaensis* cover were similar to past years at 1.5%, 0.0%, and 0.5%, respectively. Miscellaneous bryozoans cover remained high at 16.5%. Most of the miscellaneous bryozoans were *Membranipora* spp. growing epiphytically on *Gelidium robustum* at the eastern end of the transect. *Diaperoecia californica* cover was lower than the past several years but similar to previous years at 1.3%. *Diopatra ornata* were present at 0.17%. *Phragmatopoma californica* were rare with none observed on RPCs. Tunicates were present at 3.0% cover, similar to past years. Overall, gorgonians were rare with few at the site. *Lophogorgia chilensis* and *Muricea fruticosa* densities were 0.008/m² and 0.001/m², respectively, and similar to past years.

Strongylocentrotus franciscanus density was 2.8/m², similar to past years. *Strongylocentrotus purpuratus* continued to gradually decline for the fourth consecutive year to 1.3/m², the lowest recorded density since 1990. Approximately 40% of the large *S. franciscanus* were too difficult to remove, for obtaining size frequencies of smaller urchins under the spine canopy, without damaging them. Similar to past years juvenile *S. franciscanus* and *S. purpuratus* were common under the spine canopy of large *S. franciscanus*. Juvenile *Strongylocentrotus* spp. were more abundant here than at most of the other monitoring sites this year. *Centrostephanus coronatus* were present at a density of 0.04/m², similar to past years. *Centrostephanus coronatus* were more common at the shallow eastern section of the site. No sea urchin wasting disease was observed, however *S. franciscanus* with Black Spot disease were common and several *S. purpuratus* were observed with this disease as well. This disease was present in 2004 but was noticeably less prevalent. This year there was an unusually high mortality of large *S. franciscanus* and *S. purpuratus* at Landing Cove, as evident by whole tests including several that still had spines attached. We estimated that over 70% of the tests present at this site had lesions on them that looked like Black Spot disease and may have been the cause death. Most of the *S. franciscanus* that were affected were large (over 100 mm) and this disease appears as if it could have a significant impact on this group of long-lived animals. David Kushner was concerned that these black spots/lesions could be the result of damage caused by the removal of urchins from the substrate to obtain size frequency measurements in past years. David swam over 100 m east of

the site and found that *S. franciscanus* with these black spots were common off of the site as well, suggesting that these lesions were not human induced damage to the tests.

Emergent *Patiria miniata* were rare as usual, but did show up on the quadrats at 0.08/m² for the first time since 1996. Juvenile *P. miniata* were common under the spine canopy of *S. franciscanus* and in the ARMs. *Pisaster giganteus* were counted on 1 m quadrats and 5 m quadrats with densities of 0.04/m² and 0.0/m², respectively. *Linkia columbiae* were relatively common on the vertical walls of the site. No sea star wasting disease was observed.

Haliotis corrugata remained rare with none observed on band transects for the third time since monitoring began for this species in 1983. Only one adult *H. corrugata* was observed, measuring 164 mm, and was the same one observed for many years. This animal was several meters onshore of the 40 m mark, below the wall and on a small rock. *Megastrea undosa* density declined to 0.3/m², notably lower than recent years and the lowest recorded since 1991. The mean size of *M. undosa* increased to 71 mm, up from 62 mm in 2004 indicating less recent recruitment. *Crassidoma giganteum* were abundant along the vertical walls and were counted on both band transects and quadrats with densities of 0.57/m² and 1.0/m², respectively, both similar to last year. For the past several years we have added *C. giganteum* to quadrats at this site since they were abundant directly along the transect for the first 40 meters. *Aplysia californica* were rare and were not observed on band transects. *Cypraea spadicea* density was 0.13/m². *Megathura crenulata* density was 0.036/m², the highest recorded since 1989. *Panulirus interruptus* increased to a density of 0.082/m², the highest density recorded at this site. A cohort recruitment of small (~15 cm) individuals was observed throughout the site with 11 observed. It is unusual for us to observe small *P. interruptus* at any of our sites.

It should be noted that on July 2nd, 2005, three scuba divers were caught spear fishing at this site. They were caught in possession of five *Crassidoma giganteum*, nine *Semicossyphus pulcher*, (two males, one with a UCSB research tag and seven females, three with UCSB research tags), one *Embiotoca jacksoni*, one *Paralabrax clathratus* and two *Girella nigricans*. The fish were tagged by Dr. Jenn Caselle at UCSB at an earlier date as part of a fish range study. The fishers' vessel was conveniently tied up to the National Park Service mooring just below the sign that reads Ecological Reserve. These fishers were cited and later fined for their offence. We had performed Roving Diver Fish Counts before and after this event occurred. The counts prior to the event for *Semicossyphus pulcher* were as follow: 10 females, three juveniles and two males. The counts after the event for *S. pulcher* were five females, three juveniles and two males. We conducted several extra fish counts at this site because of this illegal take. However, with such low sample size it is unlikely to have a significant change in fish abundance.

Coryphopterus nicholsii density was 0.2/m², relatively low, but similar to past years. The decline could be due to displacement by the increased algal abundance (especially *Laminaria farlowii*) altering their preferred habitat. Up to 33 *C. nicholsii* were observed during the fish count. *Alloclinus holderi* density was 0.25/m² with up to 11 observed, similar to past years. One *Lythrypnus dalli* and one *Lythrypnus zebra* were observed this year. Up to seven *Oxylebius pictus* were counted. There were up to 700 *Chromis punctipinnis* adults observed this year. No *C. punctipinnis* juveniles were observed. *Oxyjulis californica* were common with up to 90 adults observed. *Halichoeres semicinctus* were common with two males, three females, and six juveniles observed. There were up to 13 adult and three juvenile *Embiotoca jacksoni* observed.

Three *Rhacochilus vacca* were counted. One *Embiotoca lateralis* was observed again this year. Up to 21 adult and two juvenile *Paralabrax clathratus* were counted. Adult *Hypsypops rubicundus* were prevalent with up to 13 observed. *Girella nigricans* were present with 26 counted. There were five adult *Sebastes atrovirens* observed during the fish count. No *Sebastes mystinus* were observed. There were two adult and one juvenile *Sebastes serriceps* observed. One young of year was observed. Two *Sebastes Chrysomelas* were observed. One *Sebastes rastrelliger* was counted. *Brachyistius frenatus*, kelp surfperch, were common in the kelp canopy with up to 58 counted. *Medialuna californiensis*, halfmoon, were present with up to eight observed. *Heterostichus rostratus* adults were common with up to three adults and one juvenile observed. Roving Diver Fish Counts were performed on May 12th, July 15th, and September 5th with five divers tallying 21, 19, and 25 species, respectively.

This is one of the 24 sites where visual fish transects including size is conducted by UCSB/PISCO. Data summaries are included in Appendix M. However, since this site and Cathedral Cove are very close these are the same sites for this methodology. The UCSB/PISCO fish transects were performed on September 9th.

All seven ARMs were intact and monitored for all indicator species. One *Octopus bimaculoides*, one *Octopus rubescens*, and two unidentified *Octopus* spp. were observed. We did not monitor *Tegula regina* this year as it is not yet one of our indicator species. Gammarid amphipods were notably abundant on the *Strongylocentrotus* spp. in the ARMs. Upon bringing the *Strongylocentrotus* spp. to the surface, thousands of light purple gammarids were at the bottom of the holding container and wiggling off the sea urchins. David Kushner noted that he had never observed so many gammarids anywhere before.

Three *Haliotis corrugata* were observed in the ARMs for a density of 0.43/ARM, one less than last year, but more than other locations where we have ARMs. Their sizes were 23, 43, and 54 mm, indicative of recent recruitment. *Cypraea spadicea* density was 5.43/ARM, similar to the past several years. *Megastrea undosa* slightly decreased to a density of 0.57/ARM, but was similar to past years. *Kelletia kelletii* density was 0.57/ARM. *Megathura crenulata* density increased to 0.57/ARM, the highest recorded at this site. *Crassidoma giganteum* slightly increased to 4.29/ARM, similar to what we have observed in ARMs at other sites this year.

Patiria miniata density declined notably to 3.0/ARM from 12.6/ARM in 2004, and was the lowest recorded since 1998. The mean size of *P. miniata* was 21.3 mm, similar to last year. *Pisaster giganteus* density was 1.43/ARM, similar to recent years and mean size was similar to last year at 23.4 mm.

Strongylocentrotus franciscanus density notably decreased to 93.9/ARM, down from last year's record high of 174.1/ARM. The mean size of *S. franciscanus* slightly increased to 29.4 mm, indicative of less recruitment than last year. *Strongylocentrotus purpuratus* density also declined to 114.0/ARM with a mean size of 27.7 mm, similar to last year. Similar to the previous four years, no *Centrostephanus coronatus* were observed in the ARMs. *Parastichopus parvimensis* density <10 cm decreased to 2.6/ARM, and *P. parvimensis* >10 cm declined slightly but remained relatively high at 3.9/ARM.

The temperature loggers were retrieved, deployed, and all data were successfully downloaded.

Location: Southeast Sea Lion, Santa Barbara Island

Site #14 SBSESL

2005 sampling dates: 5/19.

2005 status: Dominated by *Ophiothrix spiculata*, *Strongylocentrotus purpuratus*, and *Strongylocentrotus franciscanus*.

Similar to the Arch Point and Cat Canyon sites at this Island, this site remained dominated by echinoderms and there were no signs of kelp forest recovery. The site was dominated by *Ophiothrix spiculata*, *Strongylocentrotus purpuratus*, and *S. franciscanus*.

With the exception of encrusting coralline algae, all other algae remained in low diversity and abundance. No algae were present in the quadrats, similar to last year. Several juvenile *Macrocystis pyrifera* plants were observed growing epiphytically on *Muricea californica*. We commonly observe this phenomenon at this site and we presume they are growing on the gorgonians because they act as a refuge from *Strongylocentrotus* spp. grazing. *Macrocystis pyrifera* cover was recorded at 0.33%. There were no *Eisenia arborea*, *Desmarestia* spp., *Laminaria farlowii*, *Pterygophora californica* or *Cystoseira* spp. observed this year. In addition, miscellaneous brown algae were rare with a cover of 0.17%. Miscellaneous red algae, and consisting mostly of *Laurencia pacifica*, were noticeably less abundant than the past two years with a cover of 2.2%. No *Gigartina corymbifera* were observed growing epiphytically on gorgonians which has been observed in recent years. Filamentous diatoms, recorded as miscellaneous plants, were noticeably more abundant than last year with a cover of 7.8%, the highest since 2002 but similar to other sites this year. There were noticeably less green algae than the past several years. Green algae cover was 0.5%, the lowest recorded since 2000. Articulated coralline algae were rare and none were recorded on RPCs. Encrusting coralline algae were abundant with a cover of 59.8%, similar to the past decade. Bare substrate covered 23.5% of the bottom, similar to recent years. The bottom consisted of 84.8% rock, 3.3% cobble, and 11.8% sand.

Encrusting invertebrates remained at low abundance. The most common miscellaneous invertebrates excluding *Ophiothrix spiculata*, were hydroids and gorgonians. Miscellaneous invertebrate cover was 9.2%. *Astrangia lajollaensis* and *Balanophyllia elegans* continued to have low cover at 0.83% and 0.17% respectively. Prior to 2000, both of these species were more abundant. *Corynactis californica* cover was 2.2%, similar to past years. Miscellaneous bryozoans, consisting mostly of *Membranipora* sp., remained in low abundance with a cover of 0.83%. *Tethya aurantia* density was 0.09/m², similar to recent years. Tunicate cover remained unusually low at 0.67%. *Lophogorgia chilensis* were abundant with a density of 0.17/m², similar to past years. *Muricea californica* were common with a density of 0.036/m², relatively high for this site. *Muricea fruticosa* were rare with a density of 0.0028/m², similar to past years.

Strongylocentrotus purpuratus density decreased to 6.13/m², after a large increase in 2004. This was the only site of the three original sites at this Island where *S. purpuratus* decreased. *Strongylocentrotus franciscanus* density was 14.04/m², slightly higher than last year the highest recorded at this site. *Strongylocentrotus franciscanus* and *S. purpuratus* juveniles were rare. *Lytechinus anamesus* density remained low at 0.0014/m², similar to last year. *Centrostephanus*

coronatus ended a three year decline and was recorded at 0.38/m². Overall, adult *C. coronatus* were present in moderate numbers, but there was little sign of recent recruitment. Five *S. franciscanus* were observed with sea urchin wasting disease on May 19th, 2005.

Ophiothrix spiculata continued to increase in abundance for the second consecutive year to a cover of 41.5%, almost twice the cover recorded in 2003. *Ophiothrix spiculata* were mostly present along the northern 60 meters of the transect and were rare along the remaining southern 40 meters where there tends to be more relief. *Patiria miniata* density was 0.54/m², similar to the last several years and still relatively high compared to the past 24 years. *Pisaster giganteus* were counted on 1 m quadrats and 5 m quadrats with densities of 0.17/m² and 0.035/m², respectively, similar to last year. *Pycnopodia helianthoides* density was 0.004/m², higher than last year and relatively high for this site. *Parastichopus parvimensis* remained at a low density of 0.33/m². No sea star wasting disease was observed.

Megastrea undosa density was 0.38/m², similar to the previous three years. *Megathura crenulata* density was higher than the last several years at 0.012/m². No live *Haliotis* spp. were found for the 11th consecutive year. We did find one fresh *Haliotis rufescens* 21 mm shell and one fresh *H. corrugata* 31 mm shell indicating recent recruitment. We know of no adults nearby for both of these species, no live adult *H. rufescens* have been observed at Santa Barbara Island for many years and adult *H. corrugata* are extremely rare. *Aplysia californica* density was 0.015/m², still relatively low compared to previous years. *Crassidoma giganteus* density was 0.0056/m², similar to previous years. No *Pteria sterna*, pencil oysters, were observed for the third consecutive year. *Pteria sterna* are a warm water species that recruited here during the 1997/1998 El Niño and have since declined in abundance.

Fish abundance and diversity were notably lower than last year. The decline in diversity appears correlated with a decline in algal abundance. *Coryphopterus nicholsii* ended a three year density decline with a slight increase to 0.33/m². *Coryphopterus nicholsii* were the most abundant fish at this site with up to 36 observed. Up to 13 *Alloclinus holderi* were observed and their density decreased to 0.042/m², the lowest recorded density at this site. Three *Oxylebius pictus* were observed, a decrease from last year. *Chromis punctipinnis* were present with up to 15 adults observed. Three juvenile and no adult *Semicossyphus pulcher* were observed. Four adult *Hypsypops rubicundus* were observed, similar to last year. No *Halichoeres semicinctus* were observed. No Embiotocidae or *Sebastes* spp. were observed. One adult *Scorpaena guttata*, California scorpionfish, was observed. In addition, we observed one *Squatina californica*, Pacific angel shark. Roving diver fish counts were conducted on May 19th by three divers counting only seven species.

This is one of the 24 sites where visual fish transects including size is conducted by UCSB/PISCO. Data summaries are included in Appendix M. UCSB/PISCO fish transects were conducted on July 18th and 19th.

The temperature loggers were retrieved and deployed successfully and all data were successfully downloaded.

Location: Arch Point, Santa Barbara Island

Site #15 SBAP

2005 sampling dates: 5/19.

2005 status: Dominated by *Strongylocentrotus purpuratus* and *Strongylocentrotus franciscanus*.

Strongylocentrotus spp. density remained high and increased slightly while algae decreased in abundance, a continuing trend from last year. There were notably fewer algae than last year. Other than a few juvenile *Macrocystis pyrifera* growing epiphytically on *Sargassum* sp. at the southern end of the transect, no other *M. pyrifera* were observed. No *M. pyrifera* were observed on 1 m quadrats, 5 m quadrats, or RPCs. There were a few juvenile and adult *Eisenia arborea* present, but none along the main transect, for a decrease in density to 0.0/m². Adult *Laminaria farlowii* also decreased to a density of 0.0/m², with no adults or juveniles observed. One small *Egria menziesii* was observed. No *Desmarestia* spp. were observed this year. Green algae decreased to 0.0% cover. Miscellaneous brown algae also decreased to 0.33%, the lowest recorded cover since 2001. Miscellaneous red algae decreased to 14.7% cover, and consisted mainly of *Laurencia pacifica*. *Gelidium* spp. were present on the tops of large boulders, but none was observed on RPCs. Articulated coralline algae decreased to 0.67% cover, a low level similar to 2002. Encrusting coralline algae were present at 48.3% cover, similar to last year. Cover of miscellaneous plants was 1.0% and this category consisted of filamentous diatoms, similar to last year. Bare substrate cover increased to 27.7%. The bottom consisted of 79.0% rock, 17.8% cobble, and 3.2% sand.

The most common miscellaneous invertebrates excluding *Ophiothrix spiculata*, was the hydroid *Obelia* sp., similar to last year. This category had a cover of 8.5%, similar to last year. *Corynactis californica* cover was 3.3%, similar to last year. *Astrangia lajollaensis* were common, but patchy, and none were observed on RPCs. Tunicate cover was 0.33%, similar to last year. Miscellaneous bryozoans cover was 1.0%, still relatively low for this site. Similar to previous years, no *Diaperoecia californica* were observed on RPCs, but some were present on the sides of the large rocks along the transect. *Lophogorgia chilensis*, *Muricea fruticosa*, and *Muricea californica* were all present, but rare as usual. Their densities were 0.0028/m², 0.0014/m², and 0.0000/m², respectively.

Strongylocentrotus purpuratus density continued to increase and was recorded at 68.1/m², up from last year's density of 46.1/m². *Strongylocentrotus franciscanus* density remained high, but declined to 21.8/m². Juvenile *Strongylocentrotus* spp. were relatively uncommon, similar to last year. *Lytechinus anamesus* density remained low at 0.0056/m², similar to previous years. *Centrostephanus coronatus* density remained low and none were observed on quadrats for the first time since we began monitoring this species in 1996. No sea urchin wasting disease was observed.

All monitored species of sea stars declined. However, one should note that these sea stars all had relatively high densities last year. *Pisaster giganteus* decreased on both 1 m quadrats and 5 m quadrats with densities of 0.0/m² and 0.06/m², respectively. *Patiria miniata* density decreased to 0.71/m², lower than the past two years but still relatively high for this site. No *Pycnopodia helianthoides* were observed on band transects. No *Ophiothrix spiculata* were observed on RPCs.

Parastichopus parvimensis density was 0.13/m², similar to recent years. No sea star wasting disease was observed.

Megastrea undosa density decreased to 0.33/m², relatively low for this site. There seems to be much annual variability at this site. Medium sized *M. undosa* were most common and there was no indication of recent recruitment. No *Megathura crenulata* were observed on band transects. No live *Haliotis* spp. were observed. *Aplysia californica* were present with a density of 0.051/m². *Crassidoma giganteum* density was 0.014/m², an increase and the end of a gradual decline since 1999.

Fish abundance and diversity were moderately low, but similar to recent years. *Coryphopterus nicholsii* were common in the sandy areas on the offshore side of the transect, but few were present in quadrats, for a density of 0.042/m². Up to 26 *C. nicholsii* were observed. *Alloclinus holderi* were uncommon with only up to five observed, and none were observed on quadrats for the first time since monitoring began for this species in 1985. *Oxylebius pictus* were present with up to eight observed. *Chromis punctipinnis* were the most abundant fish with up to 400 adults and no juveniles observed. *Oxyjulis californica* were rare, which is unusual for this site, with up to 18 adults and no juveniles. Up to six juvenile and six female *Semicossyphus pulcher* were observed, but no males. Two juvenile *Halichoeres semicinctus* were observed. *Hypsypops rubicundus* were abundant with up to 31 adults observed. Five adult *Paralabrax clathratus* were observed. *Girella nigricans* were moderately abundant with up to 20 adults observed. Up to 14 adult *Medialuna californiensis*, halfmoon, were observed. No Embiotocidae were observed. One *Sebastes rastrelliger*, grass rockfish, was observed near the south end of the transect. It is possible that this is the same fish that has been observed in previous years. No *Sebastes sericeus* were observed. One *Scorpaena guttata*, California scorpionfish, was observed. Two *Rathbunella hypoplecta*, striped ronquils, were observed. One *Paralichthys californicus*, California halibut, was observed. A school of 250 *Atherinops affinis*, topsmelt, was observed. Roving diver fish counts were conducted on May 17th by six divers counting 17 species.

This is one of the 24 sites where visual fish transects including size is conducted by UCSB/PISCO. Data summaries are included in Appendix M. The UCSB/PISCO fish transects methods were performed on July 19th.

The temperature loggers were retrieved and deployed and all data were successfully downloaded.

Location: Cat Canyon, Santa Barbara Island

Site #16 SBCAT

2005 sampling dates: 5/18.

2005 status: Dominated by *Strongylocentrotus purpuratus* and *Strongylocentrotus franciscanus*.

Similar to the other two original sites at this Island, this site maintained abundant echinoderm populations with declining algal coverage. Overall species diversity was low. *Strongylocentrotus purpuratus* continued to increase in density while macroalgae noticeably decreased in abundance. No macroalgae were observed on 1 m quadrats or 5 m quadrats. This site was completely devoid of brown macroalgae and none was observed on quadrats, 5-m quadrats, or RPCs. No *M. pyrifera*, *Eisenia arborea*, *Pterygophora californica*, *Laminaria farlowii*,

Cystoseira spp., or *Desmarestia* spp. were observed along the transect. Miscellaneous brown algae cover was not observed on RPCs. Miscellaneous red algae cover decreased to 3.5%, and mainly consisting of *Laurencia pacifica*. Articulate coralline algae cover also decreased to 0.33%, the lowest recorded for this category. Encrusting coralline algae remained abundant and cover was 61.0%, similar to past eight years. Miscellaneous plants, mostly consisting of brown filamentous diatoms, declined to a cover of 0.33%, similar to other sites on this island. Bare substrate cover was recorded at 30.0%, similar to past years. The bottom consisted of 85.8% rock, 5.2% cobble, and 9.0% sand.

The most common miscellaneous invertebrates excluding *Ophiothrix spiculata*, encountered on RPCs were *Spirobranchus spinosus*, followed by hydroids. This category covered 5.8% of the bottom, similar to recent years. The hydroids mainly consisted of *Obelia* sp. and *Plumaria* sp. Tunicate abundance remained low and none were observed on RPCs. The tunicate *Pycnoclavella stanleyi* were notably less abundant than last year. Miscellaneous bryozoan cover also decreased to 0.0%, the lowest recorded at this site. Similar to past years, a small amount of *Diaperoecia californica* was observed on the steep sides of rocks, and was recorded at a cover of 0.17%, the first time it was observed on RPCs since 1997. No sponges were observed on RPCs. *Tethya aurantia* remained rare at a density of 0.0014/m². *Astrangia lajollaensis* cover was 1.3%, similar to previous years. *Corynactis californica* were rare with a cover of 0.33%. No *Balanophyllia elegans* were observed on RPCs. One *Muricea californica* was observed on band transects for a density of 0.0014/m².

Similar to the other two sites at this Island, *Strongylocentrotus purpuratus* continued to increase in density and were recorded at 57.8/m², the highest density recorded at this site. *Strongylocentrotus franciscanus* density remained high at 16.0/m², similar to last year. Juvenile *Strongylocentrotus* spp. were common, indicating a recent recruitment event. No *Centrostephanus coronatus* were observed on quadrats for the second consecutive year. No *Lytechinus anamesus* were observed on band transects (0.0/m²). We estimated that 10% of the *S. franciscanus* showed signs of sea urchin wasting disease.

Pisaster giganteus densities remained relatively high for this site and were counted on both 1 m quadrats and 5 m quadrats for densities of 0.13/m² and 0.15/m², respectively. *Patiria miniata* density remained relatively high for this site at 0.25/m², similar to the last two years. One *Pycnopodia helianthoides* were observed on band transects for a density of 0.0014/m², the highest density recorded at this site. *Parastichopus parvimensis* density was 0.54/m², similar to recent years. No *Ophiothrix spiculata* were observed on RPCs. No sea star wasting disease was observed.

Megastraea undosa density was 0.33/m², similar to last year. Both large and small individuals were common. No *Cypraea spadicea* were observed on quadrats (0.0/m²), which is lower than recent years, but not unusual for this site. *Megathura crenulata* density was 0.0028/m², similar to recent years. One live 28 mm *Haliotis corrugata* was observed at the site, but none were observed on band transects. *Aplysia californica* density was 0.013/m². *Crassidoma giganteum* density increased to 0.014/m², similar to other sites on this Island.

Fish were low in diversity and abundance this year. Similar to past years, *Coryphopterus nicholsii* density was 0.042/m² and up to 10 were observed during the fish count. *Alloclinus*

holderi density decreased to 0.125/m², relatively low for this site and similar to other sites on this Island. Up to twelve *A. holderi* were observed. *Oxylebius pictus* were uncommon with up to seven observed. No *Lythrypnus dalli* were observed. *Chromis punctipinnis* were the most abundant fish with up to 262 adults observed. *Oxyjulis californica* were common with up to 31 observed. Two female and two juvenile *Semicossyphus pulcher* were observed. No *Halichoeres semicinctus* were observed. Up to nine adult *Hypsypops rubicundus* were observed. One adult *Paralabrax clathratus* was observed. No *Girella nigricans* were observed. No Embiotocidae or *Sebastes* spp. were observed. One *Ornithopias triacis*, snubnose sculpin, was observed. One *Gymnothorax mordax*, California moray eel, was observed. Roving diver fish counts were conducted on May 18th by four divers observing 10 species.

This is one of the 24 sites where visual fish transects including size are conducted by UCSB/PISCO. Data summaries are included in Appendix M. The UCSB/PISCO fish transect methods were conducted on July 21st.

The temperature loggers were retrieved and deployed and all temperature data were successfully downloaded.

Location: Miracle Mile, San Miguel Island

Site #21 SMMM

2005 sampling dates: 8/10.

2005 status: Mature kelp forest.

Note: this is not one of the original kelp forest monitoring sites. This site was set up by Jim Marshall, a commercial abalone and sea urchin fisherman, in conjunction with the County of Santa Barbara, and with the assistance of CINP. The monitoring site was set up to specifically look at a *Haliotis rufescens* population in an area of high density. The site was specifically selected for its high density of *H. rufescens*.

In past years we have only conducted some of the monitoring protocols at this site due to lack of time. This year we were able to complete video transects, 1 m quadrats, 5 m quadrats, random point contacts, and size frequencies for *Macrocystis pyrifera*, *Haliotis rufescens*, *Strongylocentrotus franciscanus*, *Patiria miniata*, *Pisaster giganteus*, *Pycnopodia helianthoides*, and *Megathura crenulata*. The seven intact ARMs were monitored for all indicator species. It should be noted that RPCs were not conducted in 2004 and most comparisons are made relative to 2003 or from observational notes from 2004.

Similar to the other sites on San Miguel Island, *Macrocystis pyrifera* formed a thick mature canopy that was estimated to cover 100% of the transect. The kelp forest had notably matured and had widely spaced very large mature *M. pyrifera* plants, especially in the deeper areas along the transect. Notably the *M. pyrifera* individual blades and stipes were thicker than observed in prior years and had few epiphytes. Adult and subadult *M. pyrifera* densities both declined to 0.15/m² and 0.02/m², respectively, meanwhile juvenile density increased to 0.67/m², relatively low for this site. A decrease in *M. pyrifera* density is common in a maturing kelp forest. *Macrocystis pyrifera* cover was 14.2%, a decrease from 2003. Overall, there were less understory algae, but still similar to last year. Adult and juvenile *Eisenia arborea* densities were 1.0/m² and 0.17/m², respectively, and similar to last year. *Eisenia arborea* cover increased to

36.5%. Adult and juvenile *Pterygophora californica* densities were 1.33/m² and 0.13/m², respectively, and similar to last year. *Pterygophora californica* cover was 9.3%, a decline from 2003. *Cystoseira* spp. were common with a cover of 1.0%. *Desmarestia* spp. declined from 23.7% in 2003 to 0.0% this year. This type of seasonal fluctuation is typical for this Genera. Miscellaneous red algae were abundant and were a large component of the understory algae with a cover of 49.2%. This category mainly consisted of *Callophyllis* spp. *Gigartina* spp. were also present and covered 4.8% of the bottom. Articulated coralline algae were moderately abundant with a cover of 24.5%, similar to 2003. Encrusting coralline algae cover was 36.5%, lower than in 2003. Bare substrate covered 8.3% of the bottom. The bottom consisted of 88.2% rock, 3.8% cobble, and 8.0% sand.

Miscellaneous invertebrates excluding *Ophiothrix spiculat* cover was 8.8%. The most common miscellaneous invertebrates in this category were sea anemones, sea cucumbers, and hydroids. *Phragmatopoma californica* dramatically declined since 2004 and had a cover of 2.8%. Unfortunately, we did not conduct RPCs in 2004 and do not have the data to show this increase and then subsequent decline. However, the decline was notable and we estimated cover to be 25% in 2004. Note that *P. californica* is highly variable from year to year. Sponges were relatively abundant with a cover of 6.8%, similar to 2003. *Tethya aurantia* density was 0.19/m², similar to past years. Miscellaneous bryozoans covered 7.5% of the bottom. Tunicates were moderately abundant with a cover of 9.5%, similar to 2003. *Styela montereyensis* density was 0.083/m², similar to past years. *Urticina lofotensis* were common with a density of 0.17/m², similar to past years. *Corynactis californica* and *Balanophyllia elegans* cover were 0.17% and 1.2% respectively.

Strongylocentrotus franciscanus remained moderately abundant at a density of 5.9/m². *Strongylocentrotus purpuratus* remained rare with a density of 0.67/m², and only 21 were found for size frequency measurements. *Strongylocentrotus franciscanus* were large and mainly located in the crevice habitat along with *S. purpuratus*. *Patiria miniata* density decreased to 1.9/m², ending a three year increase and the lowest recorded density since 2001 when we began monitoring at this site. *Pisaster giganteus* were counted on both 1 m quadrats and 5 m quadrats with densities of 0.63/m² and 0.44/m², respectively, similar to recent years. There was an abundance of very small (less than 50mm) *P. giganteus* present this year, indicative of a recent recruitment. *Pycnopodia helianthoides* density was notably lower than last year at 0.024/m², but similar to years prior. *Parastichopus parvimensis* density was 0.208/m², similar to 2003. No sea star or urchin wasting disease was observed this year.

Haliotis rufescens were counted on both band transects and quadrats and their densities were 0.55/m² and 0.42/m², respectively. These densities were both similar to last year, and indicate an end to the decline that had been observed since this site was established in 2001. This decline was not unexpected since the transect was intentionally placed by Jim Marshall in an area of notably high density. Few small *H. rufescens* were found during size frequencies, a total of 182 were measured for a mean size of 184 mm. Similar to last year, only a few fresh *H. rufescens* shells were present and older shells were moderately abundant, but do not appear to be abnormally abundant for an area with such a high density of live animals. Similar to last year, it appears that the *H. rufescens* originally along the transect have moved towards the northeastern side of the transect and were in deeper water (10+ meters) at the sand-rock interface. As noted above, much of the western end of the transect was now dominated by *Phragmatopoma*

californica. It may be interesting to map out the abalone found on band transects over the past four years to see if they appear to have moved.

No *Megastrea undosa* or *Lithopoma gibberosa* were observed along the transect. *Kelletia kelletii* remained relatively abundant at a density of 0.026/m², higher than the last several years. *Megathura crenulata* density continued to decline for the second year and were recorded at 0.021/m². Most of the *M. crenulata* were notably large. *Cancer productus* and *Cancer antennarius* were common and at the time of sampling a crab trapper was working around the vicinity of the site. *Cryptochiton stelleri* were common and counted during band transects, however this is not an indicator species and is not entered in the data base. Seven were observed on band transect for a density of 0.0097/m².

No fish transects or roving diver fish counts were conducted due to lack of time. *Coryphopterus nicholsii* were uncommon along most of the transect with a density of 0.042/m², similar to previous years. Fish were moderately abundant and diverse, but we did not take detailed notes on fish.

All seven ARMs were intact, in good condition, and all were monitored for all indicator species. Similar to past years, the ARMs had sand in them covering some of the bricks, especially the bottom layer of bricks. There was noticeably less *Phragmatopoma californica* covering the ARMs though they were still common. Twenty four *Haliotis rufescens* were found in the ARMs for a density of 3.43/ARM, slightly higher than last year and the highest density recorded since we began monitoring the ARMs in 2002. In contrast to the natural habitat size frequencies, most of the abalone found in the ARMs were small with a mean size of 50.8 mm. Over 68% of the abalone found were less than 45 mm. *Crassostoma giganteum* density was 1.29/ARM, higher than in recent years. *Patiria miniata* density was 8.71/ARM similar to last year, and their mean size decreased to 29.07 mm. *Pisaster giganteus* density was 1.29/ARM and mean size was 31.9 mm, similar to last year. *Pycnopodia helianthoides* density was 0.14/ARM, with only one 52.0 mm individual observed. *Strongylocentrotus franciscanus* density was similar to last year at 6.43/ARM and the mean size increased to 62.4 mm, with five less than 14 mm, indicative of some recruitment. *Strongylocentrotus purpuratus* density continued to decline and were rare at 0.43/ARM, the lowest density recorded since we began monitoring the ARMs in 2002. Their density in 2003 and 2004 were 7.33/ARM and 1.14/ARM, respectively. Similar to previous years, no *Parastichopus parvimensis* were observed in the ARMs.

No temperature loggers are deployed at this site, the nearest logger is at Wyckoff Ledge.

Location: Cluster Point, Santa Rosa Island

Site #22 SRCP

2005 sampling dates: 8/11, 8/24.

2005 status: Mature kelp forest.

This is a new site that was established in 2005. This site is mostly bedrock and very rugose. The transect runs east to west with the south side being offshore and the north side being onshore. It has many high points with peaks, ridges, caves, cracks, ledges, and canyons. There is a large ridge that runs through the transect at the 70 meter mark with a preceding sand channel. The peaks tended to have more biota as opposed to the flat lying areas that appeared more barren.

This site is part of a very extensive/large reef system off of Cluster Point. All of our other new sites in the South Point MPA tend to be located on much smaller reefs.

This site is a mature kelp forest with large, mature, and widely spaced *Macrocystis pyrifera* individuals with some understory algae present. *Macrocystis pyrifera* canopy cover was estimated at 100% and was thick in some areas. Adult, subadult and juvenile *M. pyrifera* densities were 0.13/m², 0.005/m², and 0.13/m², respectively, and cover was 5.2%. These densities represented the site well. Notably large, old dead *M. pyrifera* holdfasts were common on the bottom. Most of brown understory macroalgae were observed on top of rocks. *Eisinia arborea* adults were present at a density of 0.042/m², and several juveniles were observed at the site, but none on quadrats. No *E. arborea* were observed on RPCs. Adult and juvenile *Pterogophora californica* were present at densities of 0.58/m² and 0.38/m², respectively, and had a cover of 7.8%. *Laminaria farlowii* were not observed but several *Laminaria setchelli* were observed. *Cystoseira* spp. were uncommon at a cover of 0.17%. Miscellaneous brown algae were present at 0.17% cover. Most of the understory consisted of miscellaneous red algae at 12.8% cover. Encrusting coralline algae cover was 24.7% and articulated coralline cover was 2.7%. Bare substrate covered 14.8% of the bottom. Most of the flat, low lying rock areas were bare substrate. There was a moderately high amount of silt present. The bottom consisted of 85.3% rock, 8.7% cobble and 6.0% sand.

Miscellaneous invertebrates excluding *Ophiothrix spiculata*, were abundant with 27.0% cover. The most abundant miscellaneous invertebrates in this category were hydroids, mainly *Obelia* sp, but other hydroid were common as well. Most of the *Obelia* sp. were covered with silt. Encrusting tunicates were abundant and diverse with a cover of 6.0%. The most common tunicates were *Cystodytes* sp., *Pycnoclavella* sp., *Aplidium* sp., and *Distaplia* sp. *Styela montereyensis* were present at a density of 0.21/m². Sponges were moderately abundant at 4.3% cover and mainly consisted of *Hymenamphiastra cyanocrypta* (cobalt blue sponge), an unidentified orange encrusting species, and *Tethya aurantia*. *Tethya aurantia* were abundant with a density of 0.39/m², and all sizes were present. Miscellaneous bryozoans were abundant at 11.7% cover, with *Membranipora* sp. and *Bugula* sp. being the most common in that category. No *Diaperoecia californica* were observed on RPCs, and were uncommon at the site. *Diopatra ornata* were common in the low lying areas but few were directly along the transect for a cover of 0.33%. *Phragmatopoma californica* were common at 6.3% cover, and were mostly found on *M. pyrifera* holdfasts. *Balanophyllia elegans* were moderately abundant and *Astrangia lajollaensis* were common with covers of 2.8% and 1.0%, respectively. *Corynactis californica* were common, but had a low cover of 0.17%. *Telia lofotensis* were common on the steep rocky areas with a density of 0.079/m². Similar to Chickasaw, *Lophogorgia chilensis*, *Muricea californica*, and *Muricea fruticosa* were all absent.

Most of the *Strongylocentrotus* spp. were utilizing crevice habitat. *Strongylocentrotus franciscanus* and *Strongylocentrotus purpuratus* were common in patches and were recorded at densities of 0.46/m², and 0.54/m², respectively. These densities were slightly lower than but still similar to other sites on Santa Rosa Island. Juvenile *S. franciscanus* were common in the spine canopy of conspecifics and only a few juvenile *S. purpuratus* were observed. Similar to Chickasaw, which is inside the Marine Protected Area, *S. franciscanus* were notably large with more than half of the ones measured over the commercial legal size of 83mm; their mean size was 82mm. No sea urchin wasting disease was observed.

Pisaster giganteus were recorded on 1 m quadrats and 5 m quadrats with densities of 0.17/m² and 0.13/m², respectively. *Patiria miniata* were moderately abundant at a density of 1.54/m². *Pycnopodia helianthoides* were common with a density of 0.032/m² and consisted of mostly medium and small stars. *Henricia leviuscula* were abundant throughout the site. *Parastichopus parvimensis* were present at a density of 0.13/m². No sea star wasting disease was observed.

Cypraea spadicea were common, but not along the main transect, for a density of 0.0/m². Three large *Megastraea undosa* were observed but none were recorded on quadrats. *Megathura crenulata* were common and comprised mostly of large individuals with a density of 0.038/m². *Crassedoma giganteum* were common with a density of 0.028/m² and most were small. No *Aplysia californica* were observed. *Haliotis rufescens* were present at a density of 0.0028/m² and eight were measured for size frequencies. All of the live *H. rufescens* were relatively small at less than 103 mm and similarly the fresh *H. rufescens* shells that were found measured 40, 52, 89, and 100 mm. These small shells and live animals indicate some recruitment over the past four years or so. One fresh *Haliotis assimilis* shell was found and measured 64 mm.

Fish were abundant and diverse at this site. *Sebastes spp.* were especially diverse with these species noted: *Sebastes caurinus*, *S. miniatus*, *S. melanops*, *S. paucispinis*, *S. atrovirens*, *S. serranoides*, *S. mystinus*, *S. serripes*, *S. chrysomelas*, and *S. carnatus*. There were a few young of the year and juvenile rockfish observed notably a *S. paucispinis*, bocaccio. *Coryphopterus nicholsii* were rare with only up to three observed during the fish count and none on quadrats, similar to other sites on Santa Rosa Island. *Oxylebius pictus* were abundant with up to 38 observed. *Chromis punctipinnis* were present with up to 24 observed. *Oxyjulis californica* were abundant with up to 58 adults observed. Seven female and three male *Semicossyphus pulcher* were observed. Two *Paralabrax clathratus* adults were observed. Eleven adult and one juvenile *Embiotoca jacksoni* were observed. *Rhacochilus vacca* were moderately abundant with up to 15 adults and one juvenile observed. *Embiotoca lateralis* were relatively abundant for this species with up to 25 adults and one juvenile observed. Twenty four adult and one juvenile *Sebastes mystinus* were observed. Six adult and one juvenile *Sebastes atrovirens* was observed. Three adult *Sebastes serranoides* were observed. One *Sebastes melanops*, black rockfish, was observed in the midwater. One adult and two juvenile *Sebastes serripes* were observed, similar to other sites this year. Three adult *Sebastes carnatus*, gopher rockfish, were observed. One *Sebastes miniatus*, vermillion rockfish, and one *Sebastes caurinus*, copper rockfish, adults were observed. Up to eight adult *Sebastes chrysomelas*, black and yellow rockfish, were observed. One KGB young of year was observed. One *Sebastes rastrelliger*, grass rockfish, was observed. One juvenile *Sebastes paucispinis*, bocaccio, was observed, but not during the roving diver fish count. Cottidae were moderately abundant with four *Orthonopias triacis*, snubnose sculpin, and one *Artedius corallinus*, coralline sculpin, observed. One *Anarrhichthys ocellatus*, wolf eel, was observed. These are a cold water species that are rare on the Northern Channel Islands. One adult *Scorpaenichthys marmoratus*, cabezon, and one adult *Ophiodon elongatus*, lingcod, were observed. One adult *Heterodontus rostratus*, horn shark, was observed. A school of medium sized *Aulorhynchus flavidus*, tubesnout, were observed with up to 21 counted. *Brachyistius frenatus*, kelp surfperch, were abundant in the canopy with up to 27 observed. Three adult *Hypsurus caryi*, rainbow surfperch, were observed. The roving diver fish count was conducted on August 24th with five divers observing 32 species of fish. This site had the highest diversity of all of our sites monitored this year, but is similar to most of the other sites on the south side of Santa Rosa Island.

This is one of the 24 sites where visual fish transects including size is conducted by UCSB/PISCO. Data summaries are included in Appendix M. The UCSB/PISCO fish transects were performed on November 1st.

The temperature logger was deployed successfully at a depth of 12.2 meters.

Location: Trancion Canyon, Santa Rosa Island

Site #23 SRTC

2005 sampling dates: 8/11, 9/20.

2005 status: Mature kelp forest.

This is a new site that was established in 2005. This transect runs east to west and is a dynamic bedrock reef and is very rugose. There are many cracks, ledges, pinnacles, sand flats, and canyons. Overall, this site has a large amount of relief and structure, possibly more than any other KFM site. The zero meter eyebolt is at the top of a big drop off sitting at 7.9 m and the base of the drop off is 12 m to the east. There is a large rock that comes up into 6.1 meters of depth on the offshore side at approximately 85 meter mark. This site is located east of Cluster Point and West of Chickasaw and is the western side of the South Point MPA. It is offshore from Trancion Canyon and there is a shoal rock pile in between the site and the shore line. The rock shoal is actually exposed at low tide and going between the site and the shoreline in a vessel is not recommended.

This site is a mature kelp forest with healthy *Macrocystis pyrifera* and a thick canopy estimated to cover 90% of the transect. *Macrocystis pyrifera* densities for adults, subadults, and juveniles were 0.22/m, 0.025/m², and 0.63/m², respectively, and cover was 11.7%. Understory algae were abundant and diverse. Adult and juvenile *Pterygophora californica* were moderately abundant in the appropriate habitat and had densities of 0.42/m² and 0.17/m², respectively, and had a cover of 1.3%. *Eisenia arborea* and *Laminaria farlowii* were both common, just not along the main transect where quadrats and RPCs are conducted. Neither of these were observed during 1 m quadrats and RPCs. Miscellaneous brown algae cover was 0.67%. Miscellaneous red algae were abundant and diverse with a cover of 25.8%. The most abundant algae in this group were *Callophyllis* sp. *Gigartina* sp. was moderately abundant, but patchy with a cover of 2.8%. Articulated coralline algae were moderately abundant with a cover of 12.8%. Encrusting coralline algae cover was 15.0%. Bare substrate cover was 11.3%. The bottom consisted of 72.8% rock, 0.17% cobble and 27.0% sand.

Encrusting invertebrates including tunicates, sponges, and bryozoans were abundant and diverse. Miscellaneous invertebrates excluding *Ophiothrix spiculata* cover was 13.3%, with amphipod tube mats and hydroids being the most abundant invertebrates in this category. Sponges were abundant and diverse with a cover of 6.2%. *Tethya aurantia* were common with a density of 0.199/m² and notably large with a mean size of 77 mm. *Corynactis californica*, *Balanophyllia elegans*, and *Astrangia lajollaensis* were all present with covers of 1.0%, 2.0%, and 0.17%, respectively. Gorgonians were rare and only several *Lophogorgia chilensis* were observed along the transect for a density of 0.0014/m². Tunicates were relatively abundant and diverse with a cover of 7.7%. *Styela montereyensis* were common at a density of 0.79/m². Bryozoans were abundant and diverse at 12.7% cover. *Diaperoecia californica* were present at a cover of 1.7%.

Diopatra ornata were abundant in the low lying areas at the west end of the transect with a cover of 17.0%. *Phragmatopoma californica* was present with a cover of 2.3%.

Strongylocentrotus franciscanus were moderately abundant with a density of 6.0/m² and were large with a mean size of 82mm. *Strongylocentrotus purpuratus* were common with a density of 1.2/m². *Strongylocentrotus* spp. were mostly found in crevice habitat. Juvenile *Strongylocentrotus* spp. were rare. No sea urchin wasting disease was observed.

Pisaster giganteus were counted on both 1 m quadrats and 5 m quadrats at densities of 0.5/m² and 0.37/m², respectively. *Patiria miniata* density was 1.3/m², similar to other nearby sites on Santa Rosa Island. *Pycnopodia helianthoides* were moderately abundant at 0.11/m² and mostly comprised of larger individuals. No *Ophiothrix spiculata* were observed. *Parastichopus parvimensis* density was 0.25/m². No sea star wasting disease was observed.

Cypraea spadicea were noticeably abundant and observed out in the open feeding, their density was 0.6/m². Neither *Megastraea undosa* nor *Lithopoma gibberosa* were observed on quadrats or during size frequencies. *Kelletia kelletii* were relatively uncommon at a density of 0.006/m². Large and small *Crassidoma giganteum* were moderately abundant with a density of 0.021/m². No *Aplysia californica* were observed on band transects. *Haliotis rufescens* were rare with only two observed about four meters apart on the North side of the transect. Their density was recorded at 0.003/m².

Fish were very abundant and diverse with plenty of excellent fish habitat present. *Coryphopterus nicholsii* were relatively uncommon with a density of 0.17/m² and up to 5 observed during the fish count, similar to other sites on Santa Rosa Island. Adult and juvenile *Oxylebius pictus* were very abundant with up to 47 observed. *Chromis punctipinnis* were moderately abundant with up to 61 adults and no juveniles observed. *Oxyjulis californica* were the most abundant fish with up to 98 adults observed. Eight female, six male, and no juvenile *Semicossyphus pulcher* were observed. The *S. pulcher* males were notably large individuals. Five *Paralabrax clathratus* adults were observed briefly. *Girella nigricans* were abundant with up to 14 observed. Many Embiotocidae species were present. Up to 19 adult and three juvenile *Embiotoca jacksoni* were observed. *Rhacochilus vacca* were very abundant with up to 47 adults and eight juveniles observed. Two adult *Rhacochilus toxotes* were observed. *Sebastes* spp. were relatively abundant. Twenty adult and four juvenile *Sebastes mystinus* were observed. Most of the adult *S. mystinus* were observed in the midwater while the juvenile were on the bottom. *Sebastes atrovirens* were abundant and quite large with up to 28 adults observed. One adult and one juvenile *Sebastes serriceps* was observed. Six adult *S. serranoides* were observed. Four adult *Sebastes chrysomelas*, black and yellow rockfish, were observed. Two kelp/gopher/black&yellow/copper rockfish (KGB) young of the year were observed. One adult *Sebastes melanops*, black rockfish, was observed. *Brachyistius frenatus*, kelp surfperch, were abundant in the canopy and midwater with up to 60 observed. Four adult *Hypsurus caryi*, rainbow surfperch, were observed. Two adult *Ophiodon elongates*, lingcod, were observed. Three adult *Scorpaenichthys marmoratus*, cabezon, were observed. Two adult *Artedius corallinus*, coralline sculpin, and one adult *Orthonopias triacis*, snubnose sculpin, were observed. One *Heterodontus rostratus*, giant kelpfish, was observed. A school of 10 small *Aulorhynchus flavidus*, tubesnouts, were observed. Roving diver fish counts were conducted on September 20th by four divers counting 28 species.

This is one of the 24 sites where visual fish transects including size is conducted by UCSB/PISCO. Data summaries are included in Appendix M. The UCSB/PISCO visual fish transects were performed on November 2nd.

The temperature logger was deployed successfully at the east end of the transect near the zero end bolt at a depth of 8.5m.

Location: Chickasaw, Santa Rosa Island

Site#24 SRCSAW

2005 sampling dates: 8/12, 8/25.

2005 status: Mature kelp forest.

This is a new site that was established in 2005. This site is mainly comprised of bedrock and has several key features such as the large ridge at the 50 meter mark that has about a 2.3 meter rise in difference. This transect runs from east to west with the south side being the offshore side. Just past the 100 meter end is a sand plain that wraps around and on the rock interface there is a *Pterygophora californica* forest. The sand section comes in from the offshore side and goes until about the 80 meter mark. There are a series of ridges and canyons that run through the site. The sand area is the only area that is devoid of canopy and marks the end of the transect.

This site had a healthy mature kelp forest with widely spaced *Macrocystis pyrifera* plants. The *M. pyrifera* canopy cover was estimated at 85% with healthy plants, minimal epiphytic growth, and only a few senescing plants. Adult, subadult, and juvenile *M. pyrifera* plants were all moderately abundant with respective densities of 0.13/m², 0.01/m², and 0.83/m², and a cover of 8.7%. Understory algae were abundant, with a *Pterygophora californica* forest at the southwest end of the site. Adult *P. californica* were recorded at a density of 0.13/m² and had a cover of 0.67%. Adult and juvenile *Eisenia arborea* were common on top of large rocks but none were recorded along the main transect. No *Laminaria* spp. were observed. *Cystoseira* spp. were small and uncommon with a cover of 0.33%. *Desmarestia* spp. were present with a few small plants observed and a cover of 0.17%. Miscellaneous red algae were abundant and covered 28.2% of the bottom. Encrusting coralline algae cover was 20.5% and articulated coralline algae cover was 11.3%. Bare substrate covered 7.8% of the bottom. The bottom consisted of 91.8% rock, 0.5% cobble, and 7.7% sand.

Miscellaneous invertebrates excluding *Ophiothrix spiculata* were abundant covering 14.2% of the bottom. The most dominant miscellaneous invertebrate in this category was the hydroid, *Obelia* sp. and these were often covered in silt. Bryozoans were abundant and diverse with a cover of 25.8%, similar to other sites. *Diaperoecia californica* were common on the steep rock faces, but few were along the main transect, for a cover of 0.0%. Tunicates were moderately abundant and covered 8.7% of the bottom. *Styela montereyensis* were common with a density of 1.3/m². Sponges were common with a cover of 5.0%. *Tethya aurantia* were recorded at a density of 0.17/m². *Balanophyllia elegans* were common with a cover of 1.5%. *Astrangia lajollaensis* were rare with a cover of 0.17%. *Corynactis californica* had a low abundance and cover was recorded at 0.17%. *Telia lofotensis* were common with a density of 0.12/m². Similar to Cluster Point, no *Lophogorgia chilensis*, *Muricea californica* or *Muricea fruticosa* were observed at this site.

Similar to other Santa Rosa Island sites, *Strongylocentrotus* spp. were mainly found in crevice habitat. *Strongylocentrotus franciscanus* were moderately abundant in patches but had a low density along the transect at 0.38/m². *Strongylocentrotus purpuratus* were common, but were mostly under the *S. franciscanus* spine canopy in crevices. Consequently *S. purpuratus* had a density of 0.0/m² and only 37 were located for size frequency measurements. Similar to Cluster point which is outside the MPA, *S. franciscanus* were notably large at this site with more than half of the ones measured over the commercial legal size of 83 mm; their mean size was 82 mm. No *Centrostephanus coronatus* or *Lytechinus anamesus* were observed. Juvenile *Strongylocentrotus* spp. were rare. No sea urchin wasting disease was observed.

Pisaster giganteus were recorded on 1 m quadrats and 5 m quadrats with densities of 0.33/m² and 0.15/m², respectively. *Patiria miniata* were common with a density of 1.3/m². *Pycnopodia helianthoides* were moderately abundant with a density of 0.083/m². No *Parastichopus parvimensis* were observed. No sea star wasting disease was observed.

Haliotis rufescens were common in many of the large cracks and crevices at a density of 0.031/m². Thirty seven *H. rufescens* were measured for size frequencies. There was a wide range of sizes, but most were large, for a mean size of 164 mm. Fresh *H. rufescens* shells were common and were collected and measured at 43, 62, 70, 70, 95, 116, 133, 141, 144, 150, and 219 mm each. One old *Haliotis corrugata* and one old *Haliotis assimilis* shell was found and measured at 69 mm and 60 mm, respectively. *Cypraea spadicea* were present at a density of 0.08/m². *Megathura crenulata*, consisting mostly of larger individuals, had a density of 0.01/m². Large *Cancer antennarius* were abundant in the crevice habitat and were recorded on band transects at 0.028/m², but these were not included in the database since they are not one of our indicator species.

Fish were moderately abundant with high diversity. *Coryphopterus nicholsii* were rare with a density of 0.08/m² and up to eight observed during the fish count, similar to other sites on Santa Rosa Island. *Oxylebius pictus* were abundant with up to 46 observed with juveniles observed. One adult *Hexagrammus decagrammus*, kelp greenling, was observed. These are cold water species that are rare at the Channel Islands. Adult *Chromis punctipinnis* were the most abundant fish with up to 124 observed. Adult *Oxyjulis californica* were present with up to 27 adults observed. Four female and two male *Semicossyphus pulcher* were observed. One adult and two juvenile *Paralabrax clathratus* were observed. One adult *Girella nigricans* was observed. Embiotocidae adults and juveniles were common. Eleven adult and six juvenile *Embiotoca jacksoni* were observed. Five adult and three juvenile *Rhacochilus vacca* were observed. *Embiotocalateralis* were relatively abundant with up to 16 adults and six juveniles observed. One adult *Rhacochilus toxotes* was observed. Rockfish, *Sebastes* spp. were relatively abundant at this site with several juveniles noted. *Sebastes mystinus* were present with up to 15 adults and two juveniles observed. *Sebastes serranoides* were the most abundant in this genus with up to 30 adults and three juveniles observed. There was a large aggregation of *S. serranoides* observed in the water column with very large adults approximately 40 to 50 centimeters in length. This was probably a mating aggregation that has rarely been sighted in the last 20 years (Oral communication with Dr. Milton Love). Dr. Love was elated to hear that the “Honkers” had returned from the depths. *Sebastes atrovirens* were also abundant with up to 22 adults observed. Two adult and four juvenile *Sebastes serripes* were observed, similar to other sites this year. *Sebastes chrysomelas*, black and yellow rockfish, were relatively abundant with up to nine adults

and two juveniles observed. Four adult *Sebastes carnatus*, gopher rockfish, were observed. One adult *Sebastes melanops*, black rockfish, was observed. Eight KGB young of year were observed. Three adult *Scorpaenichthys marmoratus*, cabezon, and two adult *Ophiodon elongatus*, lingcod, were observed. Two *Orthonopias triacis*, snubnose sculpin, were observed. One *Gibbonsia* spp. was observed as well, probably *Gibbonsia elegans* the two spotted kelpfish. *Brachyistius frenatus*, kelp surfperch, were present in the midwater and canopy with up to 17 observed. Three adult and one juvenile *Hypsurus caryi*, rainbow surfperch, were observed. Twenty five *Atherinops affinis* were observed in the upper water column. The roving diver fish count was conducted on August 25th with five divers observing 31 species of fish. This site had the second highest diversity of all of our sites monitored this year, but is similar to most of the other sites on the south side of Santa Rosa Island.

This is one of the 24 sites where visual fish transects including size is conducted by UCSB/PISCO. Data summaries are included in Appendix M. The UCSB/PISCO fish transects were performed on August 23rd and 24th.

The temperature logger was deployed successfully at a depth of 9.8 meters.

Location: South Point, Santa Rosa Island

Site #25 SRSP

2005 sampling dates: 9/20, 9/22.

2005 status: Mature kelp forest.

This is a new site that was established in 2005. This transect runs east to west. Though there is a moderate amount of crevice habitat within the transect area, very little exists directly along the transect. As a result of this, we expect that animals that prefer crevice habitat such as *Strongylocentrotus* spp. that are counted on quadrats may have low recorded density estimates than the overall site. If the transect was set up in parallel just inshore or offshore 5-10 meters, much more crevice habitat would have been covered by transect line. However, with the exception of *Strongylocentrotus* spp. and possibly other crevice species such as *Cypraea spadicea*, this site represents most of the indicator species habitat well, by the protocol that is used to estimate their abundance.

Similar to the other sites on the south side of this Island, this site is a mature kelp forest with widely spaced, mature adult *Macrocystis pyrifera* individuals with approximately 75% canopy cover over the transect. *Macrocystis pyrifera* adult, subadult, and juveniles densities were 0.11/m², 0.06/m², and 7.08/m², respectively and cover was 24.5%. The juvenile *M. pyrifera* were notably abundant compared to other nearby sites. Adult and juvenile *Pterygophora californica* were moderately abundant with densities of 0.5/m² and 0.54/m², respectively, and cover was 11.8%. Adult *Eisenia arborea* were present but relatively uncommon with none observed on quadrats or RPCs. Adult and juvenile *Laminaria farlowii* were both common with respective densities of 0.25/m² and 0.042/m², and a cover of 5.7%. *Cystoseira* spp. were common with a cover of 2.7%. *Desmarestia* spp. were rare with a cover of 0.17%. Miscellaneous red algae were abundant with a cover of 47.3%. *Gelidium* spp. were rare with a cover of 0.8%. *Gigartina* spp., mostly or entirely *Gigartina corymbifera*, were common with a cover of 4.7%. Articulated coralline algae were abundant with a cover of 30.2%. Encrusting coralline algae covered 11.3%

of the bottom. Bare substrate was relatively uncommon with a cover of 3.3%. The bottom consisted of 91.8% rock, 1.7% cobble and 6.5% sand.

Miscellaneous invertebrates excluding *Ophiothrix spiculata* cover was 9.3% and consisted mainly of hydroids, similar to the other nearby sites. Sponges were very abundant with a cover of 10.3%. *Polymastia pachymastia* was the most dominate sponge. *Tethya aurantia* were moderately abundant at a density of 0.16/m². Tunicate cover was 4.2%. The most abundant tunicates were *Polyclinum planum* and *Styela montereyensis*. The density of *S. montereyensis* was 1.5/m². Bryozoans were present with a cover of 2.5%; these were mainly present on rocky faces. No *Astrangia lajollaensis* or *Corynactis californica* were observed on RPCs.

Balanophyllia elegans were present with a cover of 0.5%. *Diopatra ornata* were present in the low lying areas with a cover of 5.5%. *Phragmatopoma californica* were moderately abundant and mostly associated with *M. pyrifera* holdfasts with a cover of 5.8%. Similar to other nearby sites, no *Lophogorgia chilensis*, *Muricea californica*, or *Muricea fruticosa* were observed.

Strongylocentrotus franciscanus and *Strongylocentrotus purpuratus* were abundant in crevice habitat, but there is little of this habitat directly along the transect where quadrats are conducted. As a result, neither *S. franciscanus* nor *S. purpuratus* were observed on quadrats.

Strongylocentrotus purpuratus were mainly present under the spine canopy of *S. franciscanus*. We don't expect that urchins will increase much in density at this site unless sea urchin behavior changes and they move out of their crevice habitat, which they often do when they have high densities. *Strongylocentrotus franciscanus* were large, similar to our other sites on the south side of Santa Rosa, with a mean size of 82 mm. Over 60% of the *S. franciscanus* were above the commercial legal size of 83 mm. *S. purpuratus* were less common and only 102 were found for size frequency measurements. No sea urchin wasting disease was observed.

Patiria miniata were common with a density of 2.2/m². *Pisaster giganteus* were common and counted on both 1 m quadrats and 5 m quadrats with densities of 0.03/m² and 0.03/ m², respectively. *Pycnopodia helianthoides* were common with a density of 0.051/m², and were mostly small to medium sized. No sea star wasting disease was observed.

Haliotis rufescens were moderately abundant with a density of 0.06/m², and consisted of mostly large individuals. Several large groups of *H. rufescens* were observed under ledges and one of the band transects went directly over a ledge with 14 abalone. A total of 43 *H. rufescens* were observed on band transects this year, while we found 58 during size frequencies. This suggests that the density estimate for this species may be a little high this year and it is likely there will be a decline attributed to sampling variability in future years. Juvenile *H. rufescens* were rare with only one observed under the spine canopy of *S. franciscanus*. *Megathura crenulata* were rare with a density of 0.0042/m². *Crassedoma giganteum* density was 0.015/m². Both *M. crenulata* and *C. giganteum* were mostly present on the rocky outcrops. *Kelletia kelletii* were rare with a density of 0.021/m². Several very large *Megastrea undosa* were observed, but overall were rare with none observed on quadrats. *Urticina lofotensis* were common on the rocky outcrops with a density of 0.035/m². *Aplysia californica* were present at a density of 0.003/m². *Cypraea spadicea* were common, but none were observed in quadrats.

Fish were moderately abundant and diverse. *Coryphopterus nicholsii* density was 0.042/m² with up to eight observed during the fish count, similar to other nearby sites. *Oxylebius pictus* were

moderately abundant with up to 25 observed. *Chromis punctipinnis* were the most abundant fish with up to 62 adults and no juveniles observed. Adult *Oxyjulis californica* were relatively abundant with up to 38 adults observed. Nine female and four male *Semicossyphus pulcher* were observed. Three adult *Girella nigricans* were observed. *Embiotoca jacksoni* were present with up to 16 adults and four juveniles observed. *Rhacochilus vacca* were present with up to six adults and one juvenile observed. *Embiotoca lateralis* were present with up to 10 adults and seven juveniles observed. Six adult and no juvenile *Sebastes mystinus* were observed. Eleven adult and one juvenile *Sebastes atrovirens* were observed. One adult *Sebastes serriceps* was present. Three adult *Sebastes serranoides* were observed. Two *Sebastes carnatus*, gopher rockfish, were observed. *Sebastes chrysomelas*, black and yellow rockfish, were relatively abundant with up to eight observed, and consisted mostly of medium sized fish. One KGB young of year was observed. One unidentified *Sebastes* spp. juvenile was observed as well. *Brachyistius frenatus*, kelp surfperch, were present with up to 16 adults observed. One adult *Rhacochilus toxotes*, rubberlip surfperch, was observed. Four adult *Hypsurus caryi*, rainbow surfperch, were observed. One *Ophiodon elongates*, lingcod, and one *Scorpaenichthys marmoratus*, cabezon, were observed. One *Leiocottus hirundo*, lavender sculpin, was observed. One *Citharichthys stigmaeus*, speckled sanddab, was observed. *Atherinops affinis*, topsmelt, were abundant in the midwater and canopy with up to 40 observed. A small school of *Aulorhynchus flavidus*, tubesnout, was observed. Roving diver fish counts were conducted on September 20th by four divers observing 27 species.

This is one of the 24 sites where visual fish transects including size is conducted by UCSB/PISCO. Data summaries are included in Appendix M. The UCSB/PISCO visual fish transects were conducted on October 27th.

The temperature logger was deployed successfully at a depth of 12.8 meters.

Location: Devil's Peak Member, Santa Cruz Island

Site #26 SCDPM

2005 Sampling dates: 8/3, 9/15.

2005 Status: Dominated by *Strongylocentrotus purpuratus*.

This is a new site that was established in 2005. This site is outside and to the west of the Scorpion Marine Reserve. The site is mostly a boulder field with very large boulders and some intermixed bedrock. The transect runs from the northeast to southwest parallel to shore, and the 50 meter mark lies directly offshore of a pronounced point. This point lies west of Potato Harbor and east of Coche Point. The name Devil's Peak Member refers to the rock type that the point is comprised of, which was formed during the Miocene period. Along the transect, there is a large submerged rock that comes up to 5.5 M in depth located at the 5-10 meter mark on the offshore side. This site is very exposed to northwest swell and wind-generated wave events. This site is very similar to the exposure and substrate of the new Cavern Point site that is inside the Scorpion MPA. These two sites will make for a good comparison with regards to exposure and substrate with one inside and the other outside the MPA. There are several foul areas just to the northeast of the site that are exposed at mean tide and moderate swell. However, they would be difficult to observe during a high tide, so caution on the approach to this site is highly recommended. In addition, the water at this location is often very green so seeing underwater hazards is often difficult.

This site is dominated by *Strongylocentrotus purpuratus*, but still has a high diversity of invertebrates, fish, and some macroalgae. One subadult and several *Macrocystis pyrifera* were observed on top of large rocks. No *M. pyrifera* was recorded on 1 m quadrats or 5 m quadrats and cover was recorded at 0.5%. Adult and juvenile *Eisenia arborea* were present on top of rocks, but mostly off the main transect line, with none observed on quadrats or RPCs. *Eisenia arborea* were noticeably more common inshore or in the shallower areas around the transect. There were several small patches of *Cystoseira* spp. and *Sargassum* sp. within the transect, but none were observed on RPCs. No *Pterygophora californica*, *Laminaria farlowii*, or *Desmarestia* spp. were observed. Miscellaneous red algae were common at 10.0% cover and mainly consisted of *Rhodomenia* spp. *Gelidium* spp. were present in small patches on the tops of very large boulders, but not along the main transect. Encrusting coralline algae were the most abundant algae with a cover of 58.8%. Articulate coralline algae were rare with 0.17% cover. Miscellaneous plants cover, consisting mostly of filamentous diatoms, was 0.17%, similar to other sites. Bare substrate cover was 11.3%. The bottom consisted of 84.8% rock, 5.5% cobble and 9.7% sand.

Miscellaneous invertebrate excluding *Ophiothrix spiculata* cover was 15.8%. The most dominant miscellaneous invertebrates in this category were *Spirobranchus spinosus*. *Dodecaceria fewkesi* were common on top of rocks. *Diopatra ornata* were common in the few low lying areas with sand, but were rare along the main transect with a cover of 0.83%. Sponges covered 0.33% of the bottom. *Tethya aurantia* were present in relatively low abundance, and had a cover of 0.015/m². *Corynactis californica* and *Astrangia lajollaensis* were both present at 0.33% and 7.3% cover, respectively. *Lophogorgia chilensis* were abundant with a density of 0.15/m². Several high density patches were observed during band transects with 53 counted on one transect. Small *L. chilensis* were common. Large *Muricea californica* were common and several *M. fruticosa* were observed with densities of 0.004/m² and 0.0/m², respectively. Miscellaneous bryozoans cover was 2.3%. *Diaperoecia californica* cover was 0.67%, and were mainly in high relief areas along the transect.

Strongylocentrotus purpuratus dominated this site with a density of 26.2/m². *Strongylocentrotus franciscanus* were common at a density of 1.5/m². *Strongylocentrotus* spp. juveniles were present, but uncommon indicating little recent recruitment. *Centrostephanus coronatus* were moderately abundant in the crevice habitat, but had a relatively low density of 0.083/m². *Centrostephanus coronatus* juveniles were observed, and we think this recruitment may have occurred during the short warm water event in 2004. Very small, mostly less than 20 mm, *Lytechinus anamesus* were present in the low lying areas with a density of 0.05/m². No sea urchin wasting disease was observed.

Pisaster giganteus were counted on quadrats and 5 m quadrats with densities of 0.0/m² and 0.13/m² respectively. *Patiria miniata* were common at a density of 0.58/m². *Pycnopodia helianthoides* were present at 0.0056/m²; these were large and found mostly in deep crevices. *Pachythyone rubra* were patchy and present over much of the center of the transect at a cover of 8.0%. *Parastichopus parvimensis* density was 0.17/m². No sea star wasting disease was observed.

Megathura crenulata were relatively abundant with a density of 0.17/m², and all sizes were present indicating a healthy population. However, fresh shells were unusually common

indicating recent mortality. The shells were often found in small groups, possibly indicating predation. Several large *Kelletia kelletii* were observed but none were recorded on band transects. *Megastrea undosa* were common with a density of 0.13/m². Most of the *M. undosa* were large, but several small juveniles were also observed. *Crassedoma giganteum* were abundant at 0.1/m², with all sizes present. *Aplysia californica* density was 0.021/m². *Cypraea spadicea* density was 0.17/m², and mostly found in crevices.

This site had high diversity and abundance of fish. *Coryphopterus nicholsii* were moderately abundant with a density of 2.13/m² and up to 92 observed during the fish count. *Alloclinus holderi* were common with a density of 0.21/m² and up to 12 observed; this population consisted mostly of larger individuals. No *Lythrypnus dalli* were observed. *Oxylebius pictus* were abundant with up to 28 observed. Adult *Chromis punctipinnis* were the second most abundant fish with up to 256 observed. Adult *Oxyjulis californica* were also very abundant with up to 110 observed. Four female, three juvenile, and one male *Semicossyphus pulcher* were observed. Four adult male and one juvenile *Halichoeres semicinctus* were observed. *Hypsypops rubicundus* were abundant with up to 18 adults observed. *H. rubicundus* turf nests were common. Large adult *Paralabrax clathratus* were observed with up to 11 counted. Up to six adult *Girella nigricans* were observed. *Embiotoca jacksoni* were relatively abundant with up to 14 adults and three juveniles observed. Adult *Rhacochilus vacca* were abundant with up to nine observed. *Sebastes* spp. were common, but most the individuals were small. One adult *Sebastes mystinus* was observed. Eight adult *Sebastes atrovirens* were observed, and were mostly found in crevices. Three adult *Sebastes serranoides* were observed. Two adult *Sebastes chrysomelas*, black and yellow rockfish, and *Sebastes carnatus*, gopher rockfish, were observed. Six adult *Rhacochilus toxotes*, rubberlip surfperch, were observed. Two adult *Medialuna californiensis*, halfmoon, were observed. One adult *Scorpaenichthys marmoratus*, cabezon, was observed. A school of approximately 300 *Trachurus symmetricus*, jack mackerel, was observed. One *Cephaloscyllium ventriosum*, swell shark, was observed. One *Myliobatis californicus*, California bat ray, was observed. Roving diver fish counts were conducted on August 3rd by five divers observing 26 species.

This is one of the 24 sites where visual fish transects including size is conducted by UCSB/PISCO. Data summaries are included in Appendix M. The UCSB/PISCO visual fish transects were performed on September 21st.

The temperature logger was deployed successfully at the northeast/zero end of the transect at a depth of 13.4 m.

Location: Potato Pasture, Santa Cruz Island

Site #27 SCPP

2005 sampling dates: 9/1.

2005 status: Dominated by *Strongylocentrotus purpuratus* and *Strongylocentrotus franciscanus*.

This is a new site that was established in 2005. This transect runs east to west with the south side onshore and the north side offshore. This site is mainly bedrock and is very rugose. This site has a large outcropping of bedrock with large caves underneath. The bulk of this reef starts at the 15 m mark with some high ridges up until about 60 m along the transect. After the 60 m mark there

is still bedrock, however it is less rugose. There are large caves and ledges present in the main part of the reef. The east end starts at the rock/sand interface and runs west. The onshore side of the transect between 95-100 m turns into a wall 10 m inshore from the transect, but the remainder of the transect has adequate space for sampling.

This site was dominated by *Strongylocentrotus purpuratus* and *Strongylocentrotus franciscanus* and was almost entirely devoid of brown macroalgae except on top of a few taller rocks. No *Macrocystis pyrifera*, *Pterygophora californica*, *Laminaria farlowii*, *Cystoseira* spp., or *Desmarestia* spp. were observed at this site. Similar to other sites encompassed in the Scorpion marine reserve area, *Eisenia arborea* adults and juveniles were the only brown macroalgae observed. *Eisenia arborea* were located on top of few rocks just off of the main transect and none were recorded on quadrats. Green algae were relatively abundant with a cover of 5.2%, and mainly consisted of *Codium fragile*. Brown algae were rare, were not observed on RPCs and mainly consisted of *Colpomenia* spp. Miscellaneous red algae were present at 18.3% cover. These were primarily located on top to large rocks and consisted mostly of *Rhodomenia* spp. and *Laurencia pacifica*. Miscellaneous plants, consisting mostly of filamentous diatoms, had a cover of 7.5%, similar to other sites this year. The most abundant algae, usually in low relief areas, were encrusting coralline at a cover of 47.5%, similar to other urchin dominated areas. Articulated coralline algae were present at a cover of 1.0%. Bare substrate cover was 17.0%. The bottom consisted of 79.8% rock, 9.3%, cobble and 10.8% sand.

Encrusting invertebrates were abundant in the high relief areas. Miscellaneous invertebrates excluding *Ophiothrix spiculata* were relatively abundant with a cover of 23.8%. The most dominant miscellaneous invertebrate in this category was *Spirobranchus spinosus*, although various sea cucumber species and hydroids were abundant as well. Sponges were present at a cover of 0.17%. *Tethya aurantia* were common at a density of 0.031/m². *Tethya aurantia* were mostly small, with a mean size of 52 mm, and many were covered with detritus, making them difficult to observe. Miscellaneous bryozoans were present at a cover of 1.7%, similar to other sites. *Diaperoecia californica* were common, but mostly small, with a cover of 0.3%. Tunicates cover was 1.0%. *Corynactis californica* were common with a cover of 2.7%. *Astrangia lajollaensis* were moderately abundant with a cover of 4.0%. *Balanophyllia elegans* were not recorded on RPCs but were present in the low lying areas. *Lophogorgia chilensis* were abundant in small patches at a density of 0.17/m² and all sizes were common. *Muricea californica* were rare at a density of 0.0014/m², and no *M. fruticosa* were observed. *Pachythyone rubra* were abundant in the first five meters of the transect but were not recorded on RPCs. This species nearly completely covered the rock at the zero meter end.

Strongylocentrotus purpuratus dominated this site at a density of 22.2/m², and most were small with a mean size of 24 mm. *Strongylocentrotus franciscanus* were moderately abundant at 5.71/m² and were also relatively small with a mean size of 43 mm. *Lytechinus anamesus* were also moderately abundant in the low lying areas and were recorded at a density of 0.57/m². *Lytechinus anamesus* were mainly present at the east end of the transect in the first 20 meters. *Centrostephanus coronatus* were present in small numbers with a density of 0.13/m². We estimated 2% of *L. anamesus*, *S. purpuratus*, and *S. franciscanus* had sea urchin wasting disease on September 1st.

Pisaster giganteus were counted on 1 m quadrats and 5 m quadrats at densities of 0.083/m² and 0.065/m², respectively. The *P. giganteus* were notably large with 36 found for size frequencies and a mean size of 152 mm. *Patiria miniata* were common at a density of 0.5/m². No *Pycnopodia helianthoides* were observed. *Parastichopus parvimensis* were moderately abundant at a density of 0.42/m². No sea star wasting disease was observed.

Crassedoma giganteum were notably abundant at 0.26/m² with all sizes present. Large individuals were notably common. *Megathura crenulata* were present at 0.032/m² with all sizes observed. *Megastraea undosa* were relatively rare, but notably patchy with a density of 0.083/m². A total of 38 were observed and overall they were small with a mean size of 41 mm. *Kelletia kelletii* were rare with a density of 0.0014/m², and only three were observed for size frequencies, two were small less than 60 mm. *Aplysia californica* were moderately abundant at a density of 0.029/m², with several mating aggregations noted.

Fish were moderately abundant and diverse. *Coryphopterus nicholsii* were very abundant at a density of 1.71/m² and up to 180 observed during the fish count. Most of the *C. nicholsii* were located in the low lying areas off the main transect. *Alloclinus holderi* were present at a density of 0.083/m² with up to 13 observed. One *Lythrypnus dalli* was observed during the roving diver fish count, but none were observed on quadrats. *Oxylebius pictus* were moderately abundant with up to 33 observed. Similar to other sites, *Chromis punctipinnis* were the most abundant fish with up to 390 adults and 15 juveniles observed. *Oxyjulis californica* were present with up to 33 adults observed. Five female, one juvenile, and no male *Semicossyphus pulcher* were observed. *Halichoeres semicinctus* were common with up to eight females and three males observed. *Hypsypops rubicundus* were abundant with up to 23 adults observed. *Paralabrax clathratus* were abundant with up to 17 adults observed. There were large *P. clathratus* present at this site with mating colors. Also the *P. clathratus* seemed to be under the ledges and in the caves. *Girella nigricans* were abundant with up to 24 observed. One *Gibbonsia* spp., kelpfish, and one *Neoclinus uninotatus*, onespots fringehead, were observed. *Embiotoca jacksoni* were present with up to seven adults and no juveniles observed. *Rhacochilus vacca* were moderately abundant with up to 33 adults and one juvenile observed. For the number of large caves at appropriate habitat at this site there was a lack of abundance of rockfish. *Sebastes mystinus* were present with up to six adults and no juveniles observed. No *Sebastes atrovirens* were observed. Four adult *Sebastes serranoides* were observed. Two adult and juvenile *Sebastes serriceps* were observed. Three adult *Sebastes chrysomelas*, black and yellow rockfish, were observed. One *Sebastes carnatus*, gopher rockfish, was observed. One *Heterodontus francisci*, horn shark, was observed. One *Phanerodon furcatus*, white surfperch, was observed. Five adult *Medialuna californiensis*, halfmoon, were observed. One *Caulolatilus princeps*, ocean whitefish, was observed. One *Gymnothorax mordax*, California moray eel, was observed, but not during fish count. Roving diver fish counts were conducted on September 1st by five divers observing 26 species.

This is one of the 24 sites where visual fish transects including size is conducted by UCSB/PISCO. Data summaries are included in Appendix M. The UCSB/PISCO visual fish transects were conducted on November 15th.

The temperature logger was deployed successfully at a depth of 11.0 meters.

Location: Cavern Point, Santa Cruz Island

Site #28 SCCVP

2005 sampling dates: 8/18, 10/20.

2005 status: Dominated by *Strongylocentrotus purpuratus*.

This is a new site that was established in 2005. This site is located southwest of Cavern Point inside of the Scorpion Marine Reserve, between two exposed wash rocks. This site is very exposed to northwest and west wind and swell and should be monitored in calm conditions. This transect runs northeast to southwest. This site is partially a boulder field with some large bedrock formations towards the 0-50 m end. The large rock formations create many overhangs and crevices. The lead line weaves in and out of the bedrock and crevices on the first half of the transect. The substrate is similar to both Potato Pasture and Devil's Peak Member, but the exposure and biology are most comparable to Devil's Peak Member.

This site was dominated by *Strongylocentrotus purpuratus* and was nearly devoid of macroalgae. Overall, algae were in low abundance and diversity. With the exception of encrusting coralline, miscellaneous red algae were the most abundant algae. No macroalgae were observed on quadrats. No *Macrocystis pyrifera* was observed or recorded at this site. The only Phaeophyta present was *Colpomenia* spp. which consisted of encrusting and bulbous types, but these did not appear on RPCs and were mostly on the tops of large boulders. Green algae cover was present at 1.8%, consisting mostly of encrusting *Codium* sp. and *Codium fragile*. *Gigartina* sp. were present but was not recorded on the RPCs. Miscellaneous red algae were one of the more abundant algal categories at a cover of 25.7%, and consisted mainly filamentous reds. Encrusting coralline algae were the most abundant algae with a cover 59.8%. Articulated coralline algae were present on the tops of rocks with a cover of 1.7%. Miscellaneous plants, consisting of filamentous diatoms, were present at a cover of 6.3%, similar to other sites. Bare substrate cover was 13.0%. The bottom consisted of 82% rock, 10.2% cobble and 7.8% sand.

Miscellaneous invertebrates excluding *Ophiothrix spiculata* covered 16.5% of the bottom. The most dominant miscellaneous invertebrate in this category was *Spirobranchus spinosus*. *Cucumaria salma* were moderately abundant especially from 50 to 100 m along the transect. Sponge cover was 0.7%. *Tethya aurantia* were common with a density of 0.049/m². Tunicates had a cover of 2.2% and no *Styela montereyensis* were observed during quadrats. Miscellaneous bryozoan cover was 1.2%. *Diaperoecia californica* cover was 0.33%, although they were more abundant off the main transect on the steep faces of rocks. *Corynactis californica* and *Balanophyllia elegans* were both present at a cover of 0.83% and 0.17%, respectively. *Astrangia lajollaensis* were abundant with a cover of 2.3%. *Lophogorgia chilensis* had a relatively uniform distribution throughout the site with a density of 0.28/m². *Muricea californica* were relatively uncommon at a density of 0.0028/m² and *M. fruticosa* were rare with none observed on band transects.

Strongylocentrotus purpuratus were the most abundant echinoderm and dominated the site with a density of 32.8/m². Most of the *S. purpuratus* were small with a mean size of 25 mm. *Strongylocentrotus franciscanus* were moderately abundant, but remained in the crevice habitat as opposed to *S. purpuratus* which were out in the open. *Strongylocentrotus franciscanus* density was 3.5/m². *Centrostephanus coronatus* were relatively abundant in the crevice habitat, with a density of 0.29/m². *Lytechinus anamesus* were rare overall, but small ones were present in the

low lying sandy areas with a density of 0.018/m². A total of 18 *L. anamesus* were found for size frequency measurements and had a mean size of 14 mm. Five *S. franciscanus* and five *S. purpuratus* were observed with sea urchin wasting disease.

Pisaster giganteus were common, but had low densities. They were counted on 1 m quadrats and 5 m quadrats with a density of 0.025/m² and 0.0/m², respectively. Twenty nine were observed for size frequencies and they were large with a mean size of 127 mm. *Patiria miniata* were present at a density of 0.21/m² and were large with a mean size of 66 mm. There were no *Ophiothrix spiculata* observed on RPCs, but *Ophiothrix spiculata* were present on the offshore side of the transect. *Linkia columbiae* were very abundant at this site, indicating a warm water influence. No *Pycnopodia helianthoides* were observed. *Parastichopus parvimensis* were moderately abundant at a density of 1.13/m². No sea star wasting disease was observed.

Megastraea undosa were uncommon with a density of 0.13/m², and only 18 could be found for size frequency measurements. *Cypraea spadicea* were present at a density of 0.042/m². *Crassidoma giganteum* were moderately abundant at 0.35/m², and large ones were abundant. Over 32% measured for size frequencies were over 100 mm and the mean size was 87 mm. *Panulirus interruptus* were uncommon along the main transect with a density of 0.0014/m²; they were present in small aggregations underneath large crevices and ledges. *Kelletia kelletii* were rare with a density of 0.0014/m². *Aplysia californica* were present at a density of 0.028/m².

For a site with low diversity of algae and invertebrates, fish were diverse and abundant with some larger fishes present. *Coryphopterus nicholsii* were abundant with up to 305 observed during the fish count and a density of 3.1/m² in quadrats. *Alloclinus holderi* were moderately abundant at a density of 0.5/m² and up to 29 observed. No *Lythrypnus dalli* were observed. *Oxylebius pictus* were abundant with up to 46 observed. *Chromis punctipinnis* were the most abundant fish with up to 432 adults and one juvenile observed. *Oxyjulis californica* were also abundant with up to 125 adults observed. Seven female, three juvenile, and four male *Semicossyphus pulcher* were observed. *Halichoeres semicinctus* had a high relative abundance with up to 22 females and 20 males observed; most of the males were small and in one school. *Hypsypops rubicundus* were very abundant with up to 14 adults observed. *Paralabrax clathratus* were present with one juvenile and nine adults observed. Six adult *Girella nigricans* were observed. Seventeen adult *Embiotoca jacksoni* were observed with no juveniles. *Rhacochilus vacca* were moderately abundant with up to 25 adults observed. One adult *Sebastes atrovirens* was observed. Two adult *Sebastes serranoides* were observed. Four adult and one juvenile *Sebastes serriceps* were observed. Four adult *Sebastes carnatus*, gopher rockfish, were observed. One *Pleuronichthys coenosus*, CO turbot, was observed. One *Lythrypnus zebra*, zebra goby, was observed. Two *Caulolatilus princeps*, ocean whitefish, were observed. Six *Medialuna californiensis*, halfmoon, were observed. *Rhacochilus toxotes*, rubberlip surfperch, were moderately abundant with up to eleven adults observed. Roving diver fish counts were conducted on August 18th by five divers observing 21 species.

This is one of the 24 sites where visual fish transects including size is conducted by UCSB/PISCO. Data summaries are included in Appendix M. The UCSB/PISCO visual transects were conducted on November 15th.

A temperature logger was deployed at a depth of 12.5 m at the 0 m end.

Location: Little Scorpion, Santa Cruz Island

Site #29 SCLS

2005 sampling dates: 8/31, 10/13.

2005 status: Dominated by *Strongylocentrotus purpuratus* and *Strongylocentrotus franciscanus*.

This is a new site that was established in 2005. This site is a steep boulder field intermixed with bedrock. The transect runs east to west with the south side being the onshore side and the north side being the offshore side. The onshore side is notably shallower than the offshore side and the end of some band transects were approximately at a depth of 5 m as opposed to some areas of the site that were up to 16 m deep.

This site was dominated by *Strongylocentrotus* spp. and was almost entirely devoid of macroalgae except on top of a few taller rocks and some filamentous red algae. No *Macrocystis pyrifera*, *Pterygophora californica*, *Laminaria farlowii* or *Cystoseira* spp. were present. Several adult and juvenile *Eisenia arborea* were observed, but they were located on top of few rocks off of the main transect with none observed on quadrats or RPCs. Miscellaneous brown algae covered 1.0% of the bottom. Excluding encrusting coralline, miscellaneous red algae were the most abundant algae with a cover at 26.2%. This category consisted mostly of filamentous red algae that were abundant on the tops of rocks. Green algae were present with a cover of 0.7%. Miscellaneous plants covered 5.2% of the bottom and consisted entirely of filamentous diatoms. Encrusting coralline algae cover was 41.2%. Articulated coralline algae were rare and none were observed on RPCs. Bare substrate cover was 16.2%. The bottom consisted of 84.5% rock, 10.8% cobble and 4.7% sand.

Miscellaneous invertebrates excluding *Ophiothrix spiculata* were abundant with a cover of 26.2%. The most dominant miscellaneous invertebrates were *Spirobranchus spinosus*. Hydroids were notably abundant on the tops of rocks as well. *Diopatra ornata* were rare with a cover of 0.17%. Sponges were present at 1.2%. *Tethya aurantia* were present at a density of 0.008/m². Tunicates were present at a cover of 0.5%. Miscellaneous bryozoans covered 5.8% of the bottom. *Diaperoecia californica* were common in small patches off the main transect and had a cover of 0.8%. *Astrangia lajollaensis* and *Balanophyllia elegans* were both common and their covers were 1.8% and 2.2%, respectively. *Corynactis californica* were common at the site, but rare along the main transect with none recorded on RPCs. *Lophogorgia chilensis* were abundant on the offshore side and their density was 0.12/m². One *Muricea californica* was observed at the site but was not recorded on band transects. No *Muricea fruticosa* were observed.

Strongylocentrotus franciscanus and *Strongylocentrotus purpuratus* were both moderately abundant in the crevices and cracks and were recorded at densities of 6.3/m² and 12.0/m², respectively. Most the *S. purpuratus* and *S. franciscanus* were notably large relative to other nearby sites; their mean sizes were 46 mm and 65 mm, respectively. We have noted during several visits to this site that drift algae appears to accumulate here more so than nearby areas. It appears that this area behind little Scorpion Rock acts as an eddy that may entrap more drift algae. This increased food supply could result in the larger sea urchins we observe here compared to nearby sites. *Lytechinus anamesus* were rare and none were observed on band transects, however we found 23 for size frequency measurements in the low-lying offshore areas. *Centrostephanus coronatus* were moderately abundant and had a density of 0.042/m². Approximately 10% of *S.*

Franciscanus and *S. purpuratus* were observed with sea urchin wasting disease on August 31st, but only an estimated 5% of each species were observed with the disease on October 13th. Whole sea urchin tests were common, indicative of recent mortality.

Patiria miniata were moderately abundant, but had a low density of 0.42/m². *Pisaster giganteus* were less abundant and were recorded on 1 m quadrats and 5 m quadrats with densities of 0.13/m² and 0.05/m², respectively. *Pycnopodia helianthoides* were observed with a density of 0.002/m². *Linkia columbiae* were relatively abundant. *Parastichopus parvimensis* were relatively uncommon with a density of 0.46/m². No sea star wasting disease was observed.

Crassedoma giganteum were abundant at a density of 0.24/m², with some large individuals present. *Megathura crenulata* were notably abundant with a density of 0.22/m². *Cypraea spadicea* were common at a density of 0.13/m². *Megastraea undosa* were uncommon with a density of 0.083/m². Eleven were found for size frequencies and most were large with a mean size of 83 mm. *Kelletia kelletii* were common with a density of 0.033/m². Forty one were found for size frequencies with a mean size of 109 mm and many of these were notably large and appeared to be very old. *Aplysia californica* were present at 0.029/m². *Panulirus interruptus* had a density of 0.0014/m², but appeared more abundant during our second visit later in the season.

This site was surprisingly high in fish diversity and abundance for an urchin dominated area. *Coryphopterus nicholsii* were very abundant with a density of 3.42/m² and up to 193 observed during the fish count. *Alloclinus holderi* were relatively abundant with a density of 0.25/m² and up to seven observed. One *Lythrypnus dalli* was observed. *Oxylebius pictus* were moderately abundant with up to 30 observed. *Chromis punctipinnis* were the most abundant fish with up to 400 adults and five juveniles observed. There were *C. punctipinnis* present at this site in the 8-9 cm range. Michael Moss seems to believe these are second year fish with a slow growth rate. *Oxyjulis californica* were relatively abundant with up to 60 adults observed. Six female, two juvenile, and no male *Semicossyphus pulcher* were observed. Up to five females and no male *Halichoeres semicinctus* were observed. *Hypsypops rubicundus* were abundant with up to 21 adults observed. Several *H. rubicundus* turf nests were observed. Three adult *Girella nigricans* were observed. *Embiotoca jacksoni* were abundant with up to 30 adults observed. Seven adult *Rhacochilus vacca* were observed. Rockfish were relatively abundant. Most of the adult rockfish were smaller in size, in the 15-20 cm category with few larger fish present. Up to 20 adult *Sebastes mystinus* were observed. Fourteen adult *Sebastes atrovirens* were observed. One adult *Sebastes serranoides* was observed. Four adult and two juvenile *Sebastes serriceps* were observed. Two adult *Sebastes Carnatus*, gopher rockfish, were observed. Four adult *Sebastes Chrysomelas*, black and yellow rockfish, were observed. One *Sebastes melanops*, black rockfish, was observed, which is rare at this location. Ten adult *Caulolatilus princeps*, ocean whitefish, were observed. Five adult *Medialuna californiensis*, halfmoon, were observed. One *Artedius corallinus*, coralline sculpin, was observed. One *Citharichthys stigmaeus*, speckled sanddab, was observed in the sand flat. One *Pleuronichthys coenosus*, CO turbot, was observed. Roving diver fish counts were conducted on August 31st by five divers observing 28 species.

This is one of the 24 sites where visual fish transects including size are conducted by UCSB/PISCO. Data summaries are included in Appendix M. The UCSB/PISCO visual fish transects were conducted on October 26th and November 3rd.

The temperature logger was successfully deployed and is at the east/zero end at a depth of 11.3 meters.

Location: Pedro Reef, Santa Cruz Island

Site#30 SCPR

2005 sampling dates: 8/26, 9/15.

2005 status: Dominated by *Strongylocentrotus purpuratus*.

This is a new site that was established in 2005. This site runs from southeast to northwest and is basically one reef with two sand channels just off of both ends of the transect. The first 35 meters is on an incline with a 6 meter depth gradient from offshore to onshore. There is a large rock outcropping onshore with a big depression in the middle of it. Then there is a large sand and boulder channel that is separated by a large ridge that runs perpendicular to the transect at the 50 meter mark. From there on out it is a low lying bedrock reef with low laying ridges. Overall, the site is mostly bedrock and has relatively low crevice habitat. This site is subject to surge from swells from all angles and preferably should be monitored in low swell conditions. Fishing weights were common, (over 11 were found during the two visits) indicating significant fishing pressure on this reef.

This site was devoid of brown macroalgae and had a high abundance of *Strongylocentrotus purpuratus*. No *Macrocystis pyrifera*, *Eisenia arborea*, *Pterygophora californica*, *Laminaria farlowii*, *Cystoseira* spp. or *Desmarestia* spp. were observed. The most abundant algae were filamentous red algae and *Laurencia pacifica*. These algae are counted under the category of miscellaneous red algae which had a cover of 10.3%. Miscellaneous green algae were present at 0.3% cover. Articulated coralline algae were rare with a cover of 0.17%. Encrusting coralline algae cover was 31.0%. Miscellaneous plants, consisting mostly of filamentous diatoms, were present with a cover of 2.3%, similar to other sites. Bare substrate was relatively abundant at 41.3%. The substrate consisted of 88.2% rock (mostly bedrock), 2.5% cobble and 9.3% sand.

Miscellaneous invertebrates excluding *Ophiothrix spiculata* cover was 15.5%. The most dominant miscellaneous invertebrates were *Spirobranchus spinosus*, similar to other sites in and around the Scorpion area. Sponges were present with a cover of 0.17%. *Tethya aurantia* were common at a density of 0.064/m². *Corynactis californica* were moderately abundant with a cover of 5.2% and they were notably patchy along the transect. *Astrangia lajollaensis* were common with a cover of 0.3%. *Balanophyllia elegans* were common, but none were observed on RPCs. *Diopatra ornata* were present in the low lying areas with a cover of 0.67%. Miscellaneous bryozoans were present with a cover of 0.17%. *Diaperoecia californica* were rare and colonies were small with none recorded on RPCs. *Lophogorgia californiensis* were abundant at a density of 0.39/m², with few small juveniles present. Five *Muricea californica* were observed for a density of 0.006/m². No *Muricea fruticosa* were observed.

Strongylocentrotus purpuratus were abundant with a density of 48.0/m², and they were mostly small with a mean size of 22 mm. *Strongylocentrotus franciscanus* were moderately abundant at a density of 5.9/m², and were also small with a mean size of 35 mm. *Strongylocentrotus* spp. were out in the open and not confined to crevice habitat. *Centrostephanus coronatus* were relatively common with a density of 0.25/m². *Lytechinus anamesus* were common in the low-lying sandy area, with an overall density of 0.11/m². Most of these were present on the offshore

side of the transect .Seventy were found for size frequency measurements. Five *S. purpuratus* were observed with sea urchin wasting disease on September 15th.

Pisaster giganteus were recorded on 1 m quadrats and 5 m quadrats with densities of 0.042/m² and 0.035/m², respectively. *Patiria miniata* were present at a density of 0.25/m². No *Pycnopodia helianthoides* were observed. *Parastichopus parvimensis* were present at a density of 0.13/m². One *A. miniata* was observed with sea star wasting disease on September 15th.

Large *Megastrea undosa* were common and small and juveniles were abundant over most of the transect. Their density was 1.29/m². Over 30% of the *M. undosa* were less than 30 mm, indicating recent recruitment. The *Crassedoma giganteum* at this site were notably large and with an even distribution throughout the site for a density of 0.089/m². *Kelletia kelletii* were abundant with a density of 0.38/m². Small to medium sized *K. kelletii* were relatively abundant, indicative of a recent recruitment event. *Megathura crenulata* were common in the high relief rocky areas with a density of 0.026/m², similar to other sites. *Cypraea spadicea* density was 0.13/m². *Bursa californica* were relatively common with at least five observed.

Fish at this site had low diversity, but moderate abundance. *Coryphopterus nicholsii* were very abundant with up to 560 observed during the fish count and a density of 2.04/m² on quadrats. *Alloclinus holderi* were rare with only one observed inside of an empty *Crassedoma giganteum* shell. Two *Lythrypnus dalli* were observed, but were not present on quadrats. *Oxylebius pictus* were moderately abundant with up to 16 observed. *Chromis punctipinnis* were the most abundant fish with up to 590 adults observed. *Oxyjulis californica* were abundant as well with up to 115 adults observed. *Semicossyphus pulcher* were moderately abundant with seven females, three juveniles, and three males observed. Ten female and two male *Halichoeres semicinctus* were observed. Twenty six adult *Paralabrax clathratus* were observed. *Girella nigricans* were common with up to 17 observed. Two adult *Embiotoca jacksoni* were observed. One adult *Rhacochilus vacca* was observed. One *Hypsurus caryi*, rainbow surfperch, was observed. One adult *Sebastes mystinus* and one adult *Sebastes serriceps* were observed. One *Artedius corallinus*, corraline sculpin, was observed. Eleven adult *Medialuna californiensis*, halfmoon, were observed. One *Myliobatis californica*, California bat ray, was observed. One *Heterodontus francisci*, horn shark, and one egg case were observed. Roving diver fish counts were conducted on August 26th by six divers observing 18 species.

This is one of the 24 sites where visual fish transects including size are conducted by UCSB/PISCO. Data summaries are included in Appendix M. The UCSB/PISCO visual fish transects were performed on October 26th.

The temperature logger was deployed successfully at the southeast/zero end at a depth of 9.1 meters.

Location: Keyhole Reef, Anacapa Island

Site #31 ANKH

2005 sampling dates: 9/14, 10/20.

2005 status: Developing kelp forest.

This is a new site that was established in 2005. This site is within a California Marine Conservation Area which allows for take of a very specific list of living marine resources. The transect runs east to west with the south side the onshore side and north the offshore side. Two bedrock ridges and shelves run north-south at the beginning of the transect line. This site sits on the slope of the island with most of the bottom consisting of boulders. The south side of the transect is considerably shallower than the north side (5-7 m). The north or offshore side is mainly composed of smaller boulders and sand. This site is located within the eastern province of the Channel Islands and seemed to represent warm water biota with *Centrostephanus coronatus*, *Linkia columbiae*, and *Eugorgia rubens* all being common. There were also signs of a recent warm water recruitment as juvenile *Centrostephanus coronatus*, *Alloclinus holderi*, and *Gymnothorax mordax* were observed. *Eugorgia rubens* were more abundant than the three monitored gorgonian species combined, similar to Admiral's Reef. The habitat and biota at this reef appeared to be like a combination of Cathedral Cove and Admiral's Reef.

Though some *Macrocystis pyrifera* was present, all were small and none formed a canopy. No adult *M. pyrifera* were observed, and subadult and juvenile densities were low at 0.005/m² and 0.042/m², respectively and cover was recorded at 0.0%. The subadults seemed unhealthy with only a few stipes on each plant. *Macrocystis pyrifera* juveniles were present over much of the site and all appeared to be healthy. Juvenile and adult *Eisenia arborea* densities were 0.42/m² and 0.0/m² respectively and a cover of 2.2%. Adult *E. arborea* were mainly present on top of rocks and juveniles were abundant throughout the site. None appeared to be reproductive. Neither *Pterygophora californica* nor *Laminaria farlowii* were observed. Miscellaneous brown algae were abundant at a cover of 24.2%, and consisted mainly of *Sargassum muticum*, which were covered with hydroids. There were many *Sargassum muticum* juveniles present, indicative of a recent recruitment event. *Dictyota/Pachydictyon* were common. *Colpomenia* spp. were common on top of rocks. Several small unhealthy *Cystoseira* spp. were observed, but none on RPCs. Green algae were also present at 2.2%. Miscellaneous red Algae were abundant at 38.8% cover. Miscellaneous plants, consisting mainly of filamentous diatoms, were more abundant than at other sites this year at 26.2% cover. Encrusting coralline algae cover was 33.8%. Articulated coralline algae cover was 0.17%. Bare substrate was recorded at 11.7% cover. The bottom consisted of 77.7% rock, 9.3% cobble and 13.0% sand. During our last visit to this site on October 20th, there was still an entire dead tree with juvenile and subadult *M. pyrifera* and sticks of *Arundo donax* along the transect. This debris probably washed out to the Islands from the mainland during the heavy rains in early 2005.

Miscellaneous invertebrates excluding *Ophiothrix spiculata* were abundant with a cover of 30%, and this category consisted mainly of *Obelia* sp. followed by *Sertularella/Sertularia* sp. Miscellaneous bryozoans were common at 8.0% cover. *Diaperoecia californica* were common with a cover of 0.5%. Sponge cover was 0.17%. *Tethya aurantia* were rare at a density of 0.0014/m². *Corynactis californica* were common but none were observed on RPCs. *Astrangia lajollaensis* were patchy and had a cover of 0.33%. *Balanophyllia elegans* were rare and were

not recorded on RPCs. *Diopatra ornata* cover was 0.67% and were located in the low-lying areas. *Phragmatopoma californica* cover was 0.17%. Tunicate cover was 0.17%. A colony of *Parazoanthus lucificum* was observed on a gorgonian skeleton on the side of a ledge towards the east end of the transect.

Strongylocentrotus franciscanus and *Strongylocentrotus purpuratus* were similar in distribution and density. *Strongylocentrotus franciscanus* and *S. purpuratus* densities were 3.6/m² and 3.04/m² respectively. *Centrostephanus coronatus* were moderately abundant at 0.63/m². Similar to several other sites this year, *C. coronatus* juveniles were present and possibly recruited during the short warm water event in 2004. No *Lytechinus anamesus* were observed. There was a noticeable amount of recent sea urchin predation that was indicated by the presence of fresh tests with spines still attached. These were most likely predated upon by *Semicossyphus pulcher* or possibly *Panulirus interruptus*. No sea urchin wasting disease was observed.

Patiria miniata were common with a density of 0.58/m². *Pisaster giganteus* were rare and were counted on 1 m quadrats and 5 m quadrats with densities of 0.042/m² and 0.015/m², respectively. Only six *P. giganteus* were found for size frequencies and most were notably large with a mean size of 204 mm. There were no *Pycnopodia helianthoides* noted at this site. *Linkia columbiae* were moderately abundant. *Parastichopus parvimensis* were common at 0.46/m². Three *A. miniata* appeared to have sea star wasting disease on September 14th.

Kelletia kelletii were in low abundance at 0.007/m², and consisted mainly of large adults, but one recent recruit was observed. Nineteen *K. kelletii* were found for size frequencies with a mean size of 111 mm. *Megathura crenulata* were rare with a density of 0.0028/m², and were more common at the west end. Eleven were found for size frequency measurements with a mean size of 69 mm. *Crassidoma giganteum* were moderately abundant with both large individuals and recent recruits present for a density of 0.082/m². Freshly cleaned *C. giganteum* shells were common and appeared that they were harvested by a human since the shells were pried off and were laying out in open away from their preferred habitat; this area is closed to harvest of this species. *Panulirus interruptus* were common with a density of 0.006/m², though this density seems low for the number of lobsters we observed at the site. Most of the *P. interruptus* were small (less than legal size), but several legal sized ones were also observed and they were all mostly found in the boulder habitat, similar to Landing Cove. *Cypraea spadicea* were common but none were observed on quadrats. Adult *Megastrea undosa* were common and juveniles were moderately abundant with a density of 0.75/m². Over 64% of the 95 found for size frequencies were less than 40 mm. *Aplysia californica* had a uniform distribution throughout the site and were recorded at a density of 0.047/m². Several *A. californica* mating aggregations were noted. All three Gorgonian species *Lophogorgia chilensis* at 0.26/m², *Muricea fruticosa* at 0.004/m², and *Muricea californica* at 0.029/m², were present. *Lophogorgia chilensis* had small and large individuals present. Most of the *M. californica* individuals were small and on the offshore side. *Octopus* sp. were common throughout the site and apparent signs of their predation were noted with numerous freshly cleaned bivalve shells. These bivalve shells consisted mostly of small *Gari californica* and *Ventricolaria fordii*.

Fish abundance was moderately high and diversity was similar to the other sites at this Island. *Coryphopterus nicholsii* were abundant at 3.1/m² and up to 230 counted during the fish count. *Alloclinus holderi* were abundant compared to other sites this year with a density of 1.2/m² and

up to 102 observed. Small *A. holderi* juveniles were noted and likely from a recent recruitment event. No *Lythrypnus dalli* were observed. *Oxylebius pictus* were moderately abundant with up to 18 counted. Up to six female, eight juveniles and one male *Semicossyphus pulcher* were observed. Up to 78 *Oxyjulis californica* adults were observed. Seventeen *Halichoeres semicinctus* females and six males were observed. *Chromis punctipinnis* were very abundant throughout the site with up to 485 adults and 17 juveniles observed. *Embiotoca jacksoni* were common with up to 17 adults and two juveniles present. Only one *Rhacochilus vacca* was observed. *Hypsypops rubicundus* were prevalent with up to 14 adults observed, several with nests. Three *Girella nigricans* were counted. *Paralabrax clathratus* were abundant with up to 25 adults counted and several large individuals present. Up to four *Sebastes mystinus* adults were observed. One *Sebastes atrovirens* was counted. *Sebastes sericeus* were common with up to four observed and one juvenile. One KGB young of year was observed. Two *Scorpaena guttata*, California scorpionfish, were observed. *Medialuna californiensis*, halfmoon, were present with up to three counted. Two *Gibbonsia* spp., fringeheads, were observed. One *Lythrypnus zebra*, zebra goby, was observed. A single *Scorpaenichthys marmoratus*, cabezon, was observed. One *Orthonopias triacis*, snubnose sculpin, was observed. One *Pleuronichthys coenosus*, CO turbot, was observed. Roving Diver Fish Count was conducted on September 14th with four observers observing 23 species of fish.

This is one of the 24 sites where visual fish transects including size is conducted by UCSB/PISCO. Data summaries are included in Appendix M. The UCSB/PISCO visual fish transects were conducted on September 12th.

The temperature logger was successfully deployed on September 14th at the zero/east end at a depth of 11 meters.

Location: East Fish Camp, Anacapa Island

Site #32 ANEFC

2005 sampling dates: 9/29, 10/3, 10/6.

2005 status: Dominated by *Strongylocentrotus purpuratus*, *Strongylocentrotus franciscanus* and *Ophiothrix spiculata*.

This is a new site that was established in 2005. This site runs from north to south and runs parallel to the point at east fish camp. The site is mainly composed of bedrock. The reef lies between two areas of more sand to the north and south of the transect. Most of the transect is about 11 m deep but begins to increase at depth near the south end and ends at a depth of 14.0 m. There are 3 to 4 ridges that run perpendicular throughout the site. There is a sand canyon that runs through the site between 30 and 35 m. East Fish Camp is one of the more sheltered sites on Anacapa and should be reserved for inclement weather, although it is exposed to south winds and swell.

This site is dominated by echinoderms, specifically *Strongylocentrotus franciscanus*, *Strongylocentrotus purpuratus*, and *Ophiothrix spiculata*. This site was completely devoid of macroalgae. From what people have told us that dove here prior to the 1980's, this area used to have an abundance of *Macrocystis pyrifera*. However, no *M. pyrifera* were observed this year, and according to historical verbal reports this has most likely been the scenario for most of the past two decades. Miscellaneous brown algae cover was 1.7%. Miscellaneous red algae cover

was high at 19.8%. Most of the red algae in this category were present on the tops of rocks/ridges. There were small patches of filamentous red algae that consisted of one of the three species found in *Hypsypops rubicundus* nests. *Laurencia pacifica* were common in small patches. Miscellaneous plants, consisting mostly of filamentous diatoms, had a cover of 1.7%. Green algae cover was 0.33%. Green algae cover was 0.33% and consisted mainly of *Codium setchelli/hubbsii*. Articulated coralline algae were rare with none observed on RPCs. Encrusting coralline algae cover was 54.8%. Bare substrate covered 18% of the bottom. The bottom consisted of 89.8% rock, 4.7% cobble and 5.5% sand.

Miscellaneous invertebrates excluding *Ophiothrix spiculata* covered 9.5% of the bottom. The most common invertebrates in this category were *Spirobranchus spinosus* and hydroids. *Corynactis californica* were moderately abundant at 7.0% cover. No *Balanophyllia elegans* were observed at the site. *Astrangia lajollaensis* were common but none were observed on RPCs. Bryozoans were present in the higher relief area but were uncommon over much of the site with 0.16% cover. *Diaperoecia californica* were present in small patches and none were observed on RPCs. No tunicates or sponges were observed on RPCs. *Tethya aurantia* were rare with a density of 0.014/m² and only 15 were found for size frequency measurements.

Strongylocentrotus purpuratus were the dominant species with a density of 66.1/m². *Strongylocentrotus franciscanus* were also abundant at 17.9/m². Both juvenile *S. purpuratus* and *S. franciscanus* were common. *Centrostephanus coronatus* were moderately abundant at 1.29/m². Juvenile *C. coronatus* were common that are believed to have recruited during a two week warm water event in August 2004. *Lytechinus anamesus* were moderately abundant in the low lying sandy areas at 0.18/m². A few *S. purpuratus* were noted with sea urchin wasting disease on September 9th. Approximately 5% of the *S. purpuratus*, *L. anamesus*, and *S. franciscanus* had sea urchin wasting disease on September 29th.

Ophiothrix spiculata were abundant but patchy with a cover of 17.2%, and were mostly prevalent on the northern end of the transect. Just north of the north end of the transect, *O. spiculata* were extremely abundant. *Patiria miniata* were common with a density of 0.67/m². *Pisaster giganteum* were common, and notably large with a mean size of 176 mm. They were counted on 1 m quadrats and 5 m quadrats with densities of 0.08/m² and 0.025/m², respectively. *Parastichopus parvimensis* were present at 0.29/m². No *Pycnopodia helianthoides* were observed. One *A. miniata* was observed with sea star wasting disease on September 9th.

Both adult and juvenile *Megastraea undosa* were moderately abundant at 0.58/m². Juvenile *Megastraea undosa* appeared to be within one size cohort, indicating a recent recruitment event. Small and large *Megathura crenulata* were present at a density of 0.071/m². All three monitored species of gorgonians were present with *Lophogorgia chilensis* at 0.015/m², *Muricea fruticosa* at 0.0042/m², and *Muricea californica* at 0.0069/m². Most of the *Muricea* spp. were present at the 80-100 meter end on the onshore side. *Kelletia kelletii* were common with a density of 0.036/m². No live *Haliotis* spp. were found, but one fresh 38 mm *Haliotis corrugata* shell was found. *Crassidoma giganteum* were present at 0.068/m². *Aplysia californica* were moderately abundant at 0.046/m².

Overall, fish had low abundance and diversity. The density for *Coryphopterus nicholsii* was 2.9/m² and up to 670 were observed during the roving diver fish count. Large aggregations of 15-

25 *C. nicholsii* schooling in small sand patches were common. The density for *Alloclinus holderi* was 0.25/m² with up to 17 observed. One *Lythrypnus dalli* was observed, but not during the roving diver fish count. *Chromis punctipinnis* had a count up to 360 adults and two juveniles. *Chromis punctipinnis* usually recruit late in the summer. There were up to 36 adult *Oxyjulis californica* counted. A single female *Halichoeres semicinctus* was observed. Up to two female, six juvenile, and one male *Semicossyphus pulcher* were observed. One adult *Embiotoca jacksoni* and one adult *Rhacochilus vacca* were observed. There were no *Embiotoca lateralis*. Six adult *Paralabrax clathratus* were observed. Up to 17 adult *Hypsypops rubicundus* were observed with no nests observed on September 9th, possibly due to the fact that the fish count was later in the season. One adult and one juvenile *Sebastes mystinus* were counted. There were up to two *Sebastes Chrysomelas*, black and yellow rockfish, counted. No other rockfish were observed this site. One *Gymnothorax mordax*, California moray eel, was observed. Roving diver fish counts were conducted on September 9th with seven divers observing 16 species.

This is one of the 24 sites where visual fish transects including size is conducted by UCSB/PISCO. Data summaries are included in Appendix M. The UCSB/PISCO visual fish transects were conducted on September 6th.

The temperature logger was deployed on September 9th at the north end of the transect next to the zero end bolt at a depth 11 m.

Location: Black Sea Bass Reef, Anacapa Island

Site #33 ANBSBR

2005 sampling dates: 9/23, 10/12, 10/20.

2005 status: Dominated by *Ophiothrix spiculata*.

This is a new site that was established in 2005. This site is approximately 1/3 of a mile offshore of the north side of middle Anacapa Island and is essentially an independent reef. It is a low lying bedrock reef with ridges and some intermittent cobble. The bedrock is notably crumbly and was difficult to drill to install the lead line. The transect runs east to west with the south side being the island side and the north the offshore side. The zero meter mark is just several meters west of the reefs edge. There is one ridge that runs through the transect to the 23 meter mark. The core of this reef runs along the main transect with legs and ridges of the reef running offshore and onshore. This site is notably dominated by *Ophiothrix spiculata* and for the most part, there was more abundance and diversity of invertebrates and algae at the eastern half of the transect where there is more rugosity.

Ophiothrix spiculata dominated the site, but on the tops of large rocks or ridges there was an abundance of invertebrates and some algae. There were no *Macrocystis pyrifera*, *Eisenia arborea*, *Pterygophora californica*, *Laminaria farlowii* or *Desmarestia* spp. present. This site was devoid of macroalgae except one small patch of *Cystoseira* spp. which was not recorded on RPCs. The only other brown macroalgae were *Colpomenia* sp., *Dictyota/Pachydictyon*, and *Sargassum muticum*, which were all rare. Encrusting coralline algae covered much of the bottom underneath the *O. spiculata* and were recorded at a cover of 71.2%. Articulated coralline algae were rare at 0.5%. Miscellaneous red algae cover, mainly on top of rocks, was at 9.8%, and *Laurencia pacifica* was the only red algae that were common. Miscellaneous plants cover, consisting mostly of filamentous diatoms, was 9.8%. Green algae cover was 0.5% and consisted

of *Codium fragile* and *Cladophora* sp. Some *C. fragile* was present on top of rocks. Bare substrate covered 10.0% of the bottom. The substrate consisted of 88.2% rock, 8.2% cobble and 3.7% sand.

There was an abundance of invertebrates found on the tops of rocks, as well as under and on ledges. Miscellaneous invertebrates excluding *Ophiothrix spiculata*, covered 5.0% of the bottom and most of this category consisted of hydroids. Sponges were present at 0.5%. *Tethya aurantia* were common with a density of 0.036/m²; these were difficult to see with all of the *O. spiculata*. Only two were observed for size frequencies, but we did not have much bottom time to search for this species. *Corynactis californica* were common at 1.0%. Bryozoans were present at 2.0%. *Diaperoecia californica* were common on the steep sides of ledges and had a low cover of 0.17% directly along the transect. Tunicate cover was 0.3%. No *Styela montereyensis* were observed.

Strongylocentrotus franciscanus were moderately abundant at 4.6/m². *Strongylocentrotus purpuratus* density was 0.7/m². *Centrostephanus coronatus* were relatively abundant at 0.88/m². *Lytechinus anamesus* were rare with two individuals observed and a density of 0.004/m². No sea urchin wasting disease was observed.

Ophiothrix spiculata carpeted the bottom and was the dominant species with 84.3% cover. Large *Patiria miniata* were common and their overall density was 0.13/m². *Pisaster giganteus* were counted on 1 m quadrats and 5 m quadrats with densities of 0.042/m² and 0.025/m², respectively, and 30 were found for size frequency measurements. No *Pycnopodia helianthoides* were observed. No sea star wasting disease was observed.

Megastraea undosa were rare with a density of 0.08/m². None were measured for size frequencies and only several large and small ones were found near the east end of the transect. *Megathura crenulata* were notably abundant throughout the site with a density of 0.19/m². *Kelletia kelletii* were rare at 0.0014/m². *Panulirus interruptus* were common at 0.01/m² with mostly larger, legal sizes present. This site is within an MPA and lobsters are notably larger than areas outside. *Lophogorgia chilensis* were present at 0.008/m². It appeared as though there used to be more *L. chilensis* at this site as skeletons of old gorgonians were commonly observed and covered with *Ophiothrix spiculata*. *Muricea fruticosa* and *M. californica* were rare at densities of 0.006/m² and 0.001/m², respectively.

This site had low diversity of fish with moderate abundance. *Coryphopterus nicholsii* were the most abundant fish with a density of 1.13/m² and up to 340 counted. *Alloclinus holderi* were relatively abundant at 1.2/m² and up to 33 counted. *Alloclinus holderi* possibly had a higher recorded density than *C. nicholsii* because there is good *A. holderi* habitat directly along the transect where quadrats are conducted. Three *Lythrypnus dalli* were observed but none were sampled on quadrats. Seventeen *Oxylebius pictus* were counted. *Semicossyphus pulcher* were common with three females, three juveniles, and four males observed. *Chromis punctipinnis* were moderately abundant with up to 275 adults and 28 juveniles observed. Adult *Oxyjulis californicus* were rare with five observed. No Embiotocidae were observed. *Paralabrax clathratus* were common with up to 18 adults observed. Four *Girella nigricans* were observed. *Sebastes serriceps* was the only rockfish observed on the day fish counts were conducted with four adults and two juveniles counted. There was one adult *Sebastes mystinus* observed on October 12th. There was one *Scorpaena guttata*, California scorpionfish, observed. There was an

abundance of small to medium sized *Caulolatilus princeps*, ocean whitefish, each of the times we visited this site and these usually displaying schooling behavior and up to 17 were observed. Several *C. princeps* were noted to have holes just below their dorsal fin. *Medialuna californiensis*, halfmoon, were also common with up to 25 observed swimming in the midwater. One *Lythrypnus zebra*, zebra goby, was observed. On several occasions *Stereolepis gigas*, giant black seabass were numerous; once with 15-17 individuals of approximately 80-150 lb present at one time. On another occasion, individuals estimated to be 300 – 375 lbs were observed. However, by the time we performed the roving diver fish count on October 20th none were observed and may have moved offshore for the season. Roving diver fish count was conducted on October 20th with three divers observing 14 species of fish.

This is one of the 24 sites where visual fish transects including size is conducted by UCSB/PISCO. Data summaries are included in Appendix M. The UCSB/PISCO fish transect method was performed on September 13th.

The temperature logger was deployed successfully on October 20th. Unfortunately, the rock at the zero end of this transect crumbles easily and the line installation contractor was unable to install a thread rod for the temperature logger. Instead, the temperature thread rod stake was inset into a formed concrete block with 120 lbs of cement. This was placed about three meters to the north of the zero meter end of the transect at a depth of 17 m. We placed two washers and stainless steel nuts on the thread rod before it was formed into the cement to better secure the thread rod in the cement block and prevent the rod from unscrewing.

Location: Lighthouse, Anacapa Island

Site #34 ANLH

2005 sampling dates: 9/28, 10/5, 10/6.

2005 status: Mature kelp forest.

This is a new site that was established in 2005. Lighthouse reef is a boulder field intermixed with sand and a small amount of bedrock. Most of the site is moderately shallow at 7.6 - 8.5 m. It appears that this site could be affected by sand scouring and movement and is very exposed to southerly swells. It is also noteworthy that currents come up rapidly at this site and can be in excess of two knots. It is important to note that there is a change in bearing (about 45 degrees) of the transect line at the 33 and 50 meter marks to encompass rocky substrate into the site. The zero meter bolt is at the east end of the transect on top of a large boulder, and the temperature logger is at the same location about 30 cm away. Overall, this site is more similar to its nearest neighbors Landing Cove and Cathedral Cove compared to the other three sites at this Island (East Fish Camp, Admiral's Reef and Black Sea Bass Reef.)

A moderately healthy *Macrocystis pyrifera* forest was present with an estimated 70% canopy cover. *Macrocystis pyrifera* adults, subadults, and juveniles were all moderately abundant with densities of 0.5/m², 0.22/m², and 3.25/m², respectively, and a cover of 12.3%. *Eisenia arborea* adult and juvenile densities were present at 0.041/m² and 0.13/m², respectively, and cover was recorded at 0.67%. Most of the *E. arborea* were present on top of large boulders. No *Pterygophora californica* were observed. *Laminaria farlowii* adults were rare with none observed on quadrats and juveniles were present at 0.042/m². Cover was recorded at 0.33%. *Cystoseira* spp. were moderately abundant with a cover of 9.5%. Green algae cover was 0.17%.

Miscellaneous red algae cover was 8.2%. *Laurencia pacifica* were the most common red algae in this category. Miscellaneous brown algae cover was 9.7%. *Dictyota/Pachydictyon* were common. There were also some *Egregia menziesii* present in a small patch on the onshore side. Encrusting coralline algae cover was 38.5%. Articulate coralline algae cover was 6.2%. Bare substrate cover was 10.0%. The bottom consisted of 77.5% rock, 8.5% cobble and 14.0% sand.

This is a dynamic site with a relatively high diversity of invertebrates similar to Landing Cove and Cathedral Cove. Miscellaneous invertebrates excluding *Ophiothrix spiculata* cover was 12.8%. The most abundant invertebrates in this category were hydroids. Tunicate cover was moderately high at 5.8%. The most common tunicates were *Aplidium* sp. and *Pycnoclavella* sp. *Pycnoclavella* sp. have been common at a number of sights this year. Miscellaneous bryozoans covered 13.0% of the bottom and *Bugula* spp. were some of the most abundant in this category. *Diaperoecia californica* were common on the steep sides of large boulders but were rare directly along the transect with none recorded during RPCs. Sponges covered 0.5% of the bottom. *Tethya aurantia* were common at 0.051/m². *Phragmatopoma californica* were more abundant at this site than other sites this year with a cover of 6.8%. *Diopatra ornata* were common in their appropriate habitat and had a cover of 8.7%. *Corynactis californica* cover was 1.0%. *Astrangia lajollaensis* were common, but none were observed on RPCs. *Balanophyllia elegans* cover was 0.5%. All the gorgonian species were notably abundant with *Muricea californica* being the most abundant at 0.32/m², *M. fruticosa* at 0.031/m², and *Lophogorgia chilensis* at 0.14/m². The relatively abundance of gorgonians was one of the most notable differences between this site and Landing Cove and Cathedral Cove.

Strongylocentrotus franciscanus were common with a density of 4.4/m². There was noticeable recruitment of this species with over 30% of the *S. franciscanus* less than 20 mm. *Strongylocentrotus purpuratus* were moderately abundant with a density of 13.3/m². There were also a lot of *S. purpuratus* recruits with over 49% measuring less than 15 mm. *Centrostephanus coronatus* were common at a density of 0.38/m² with smaller juveniles (~20 mm) being relatively abundant and indicative of recent recruitment. No *Lytechinus anamesus* were observed. No sea urchin wasting disease was observed.

Patiria miniata were common at a density of 0.33/m², notably more abundant than at Cathedral Cove and Landing Cove. Most were large with a mean size of 62 mm. *Pisaster giganteus* were counted on both 1 m quadrats and 5 m quadrats with densities of 0.0/m² and 0.02/m², respectively. We were only able to locate 26 *P. giganteus* for size frequency measurements; most were large for a mean size of 152 mm. *Parastichopus parvimensis* were common, but had a low density of 0.083/m². One *P. miniata* was observed to have sea star wasting disease on both September 28th and October 6th.

Megathura crenulata were moderately abundant at a density of 0.096/m². *Crassedoma giganteum* were moderately abundant on the larger rocks, which are good habitat for them and their density was 0.057/m². Some were notably large. *Kelletia kelletii* were common with a density of 0.088/m². *Megastraea undosa* were moderately abundant at 1.5/m². *Cypraea spadicea* were common at 0.17/m². No *Aplysia californica* were observed, but *Aplysia vaccaria* were observed on all three visits. Ten to 15 *Aplysia vaccaria* were observed mating at the 100 meter end of the transect in the same place during all three visits to this site. *Conus californicus* were

abundant with several mating aggregations observed. One fresh *Haliotis corrugata* shell measuring 68 mm was found.

Fish were moderately diverse with low abundance, but there were a few species with high abundance. There were up to 78 *Coryphopterus nicholsii* observed and had a density of 0.42/m²; these were mostly large individuals. There was one *Alloclinus holderi* observed but none were recorded on quadrats. No *Lythrypnus dalli* were observed. There were up to 15 *Oxylebius pictus* observed. Up to 293 adult and one juvenile *Chromis punctipinnis* were observed. *Oxyjulis californica* were abundant with up to 154 adults observed. Up to seven female, nine juvenile, and two male *Semicossyphus pulcher* were observed. This was a notably high number of juvenile *S. pulcher* and similar to what we have observed at other sites this year. Seven female and two male *Halichoeres semicinctus* were observed. There were up to four adult *Embiotoca jacksoni* observed. Three *Rhacochilus vacca* were observed. No *Embiotoca lateralis* were observed. Up to 16 adult *Paralabrax clathratus* were counted. *Hypsypops rubicundus* were prevalent with up to 12 adults observed. One juvenile *H. rubicundus* was observed in shallow outside the transect area; this was the only juvenile of this species we have observed this year at all sites. *Girella nigricans* were present with up to 20 adults counted. There were no adult *Sebastes atrovirens* observed during the fish count, but two juvenile *S. atrovirens* were observed during a later date. There was one adult *Sebastes mystinus* observed. There was one adult and one juvenile *Sebastes serripes* observed. One *Scorpaenichthys marmoratus*, cabezon, and one *Scorpaena guttata*, California scorpionfish, adult were observed. *Brachyistius frenatus*, kelp surfperch, were abundant with up to 166 observed. The Roving Diver Fish Count took place on September 28th with five divers observing 22 species.

This is one of the 24 sites where visual fish transects including size is conducted by UCSB/PISCO. Data summaries are included in Appendix M. The UCSB/PISCO visual fish transects were conducted on September 8th.

The temperature logger was successfully deployed on September 28th at the east end of the transect at a depth of 7.6 m.

Location: Webster's Arch, Santa Barbara Island

Site #35 SBWA

2005 sampling dates: 7/27.

2005 status: Dominated by *Strongylocentrotus purpuratus* and *Strongylocentrotus franciscanus*.

This is a new site that was established in 2005. This site is located offshore of Webster's Point on the west side of the island and is near the famous underwater arch. The depth at this site fluctuates from 11.9 – 15.8 m and the transect runs east to west. The east end of the transect is onshore and the west end is offshore. The north side of this transect is the offshore side and the south side is the onshore side. Just east of the transect the depth drops off at least ten feet and this year there was an *Eisenia arborea* forest. The eastern half of the transect is notably different than the western half. The western half is more rugose with a series of ridges (3 to 4) running north to south with intermittent cobble beds in between. The first ridge just past the 50 meter mark is about 14.3 m deep at the top of the ridge then there is a series of ridges here leading up to a depth of 11.9 m and then back down to the western end which sits in 14 m. The eastern half is much

more of a flat lying reef with a series of low lying ridges. There is a ridge starting at the 15 m mark on the north side and runs approximately to the 25 m mark. At the 15 m mark on the south side of the transect there is a notably large boulder.

This site was dominated by *Strongylocentrotus purpuratus* and *Strongylocentrotus franciscanus* and was almost completely devoid of macroalgae except for on the tops of large rocks. In July most of the areas outside and around the transect area had notable patches of *Macrocystis pyrifera*. An *Eisenia arborea* forest was present to the east of the transect. However, there were few plants of either of these species directly along the transect. No *M. pyrifera* were observed on quadrats or RPCs. Only one adult *M. pyrifera* plant was observed within the transect. The abundance of *M. pyrifera* noticeably increased in the area towards the end of summer, but most was located just outside of the site. At the 15 meter mark on the south side of the transect there is a large boulder that was covered with a small *Eisenia arborea* forest, however there were few directly along the transect with none observed in quadrats, and a cover of 1.7%. The only other macroalgae present were *Codium setchelli*, which were abundant on the high relief rocks at the western half of the site. Green algae cover was 4.0%. Miscellaneous red algae cover was 8.2%. Encrusting coralline algae were the most abundant algae with a cover of 60.3%. Articulate coralline algae were present with a cover of 1.3%. Bare substrate cover was 16.7%. The bottom consisted of 88.8% rock, 9.3% cobble and 1.8% sand.

Miscellaneous invertebrates excluding *Ophiothrix spiculata* cover was 6.8% with *Spirobranchus spinosus* being the most dominant invertebrate in that category, similar to other sites at this Island. Sponges were present at a cover of 0.5%. *Tethya aurantia* were uncommon with a density of 0.001/m². Tunicate cover was 2.0%, which were moderately abundant in the high relief areas. Miscellaneous bryozoan cover was 2.2%. *Diaperoecia californica* were present mostly in the high relief areas with a cover of 0.17%. *Corynactis californica* were moderately abundant and present over most of the site with a cover of 4.8%. *Balanophyllia elegans* cover was 0.33%. *Astrangia lajollaensis* were uncommon with a cover of 0.17%. *Serpulorbis squamigerus* were present with cover of 0.17%. *Lophogorgia chilensis* and *Muricea californica* were both uncommon with densities of 0.006/m² and 0.004/m², respectively.

This site was dominated by *Strongylocentrotus purpuratus* and *Strongylocentrotus franciscanus*. *Strongylocentrotus purpuratus* were abundant with a density of 68.0/m² and dominated the entire site except on top of large rocks. *Strongylocentrotus franciscanus* were also abundant with a density of 11.3/m². *Centrostephanus coronatus* were common with a density of 0.63/m². *Lytechinus anamesus* were present with a density of 0.006/m² and all observed were large. Approximately 5% of *S. franciscanus* were observed with sea urchin wasting disease and whole tests and near dead individuals were common, especially along the western end of the transect. No *S. purpuratus* were observed with sea urchin wasting disease.

Ophiothrix spiculata were only abundant on the first 10 m of the transect with an overall cover of 1.8%. They were also abundant just east of the east end of the transect. *Patiria miniata* were moderately abundant with a density of 2.0/m². *Pisaster giganteus* were also moderately abundant and counted on both 1 m quadrats and 5 m quadrats with densities of 0.13/m² and 0.12/m², respectively. Most of the *A. miniata* and *P. giganteus* were large individuals. One *Pycnopodia helianthoides* was observed during band transects for a density of 0.0014/m², similar to other

sites on Santa Barbara Island. *Parastichopus parvimensis* were present at a density of 0.417/m². No sea star wasting disease was observed.

Cypraea spadicea were moderately abundant at a density of 1.04/m². *Megastrea undosa* density was 0.33/m². *Megathura crenulata* were common with a density of 0.04/m². *Crassedoma giganteum* were present mainly on the ridges running through the site, was and had a density of 0.01/m². *Aplysia californica* were moderately abundant with a density of 0.073/m². *Panulirus interruptus* were uncommon at a density of 0.0014/m².

The fish were of moderate diversity and abundance. *Coryphopterus nicholsii* density was 0.17/m² and up to 16 were observed during the fish count. *Alloclinus holderi* density was 0.13/m² and up to five were observed. Several *A. holderi* were observed with egg clutches in empty *Crassedoma giganteum* shells. No *Lythrypnus dalli* were observed. *Oxylebius pictus* were common with up to 21 observed, and young of year were common. *Chromis punctipinnis* were the most abundant fish with up to 345 adults observed. *Oxyjulis californica* were common with up to 84 observed. Up to ten female, two juvenile, and five male *Semicossyphus pulcher* were observed. Overall, this species was notably abundant, but most of the individuals were small. *Hypsypops rubicundus* were also abundant with up to 19 adults observed. Adult *Paralabrax clathratus* were observed, but not during the roving diver fish count. Three adult *Girella nigricans* were observed. Embiotocidae were rare, with only five *Brachyistius frenatus* observed. Juvenile *Sebastes sericeus* were common with up to five observed, but no adults were present, similar to other sites at this Island. Three adult *Sebastes chrysomelas*, black and yellow rockfish, were observed. One adult *Caulolatilus princeps*, ocean whitefish, was observed. Eight *Medialuna californiensis*, halfmoon, were observed. One *Scorpaenichthys marmoratus*, cabezon, and one *Pleuronichthys coenosus*, C-O turbot, were observed. *Orthonopias triacis*, snubnose sculpin, were common with up to eight observed. Roving diver fish counts were conducted on July 27th by four divers observing 17 species.

This is one of the 24 sites where visual fish transects including size is conducted by UCSB/PISCO. Data summaries are included in Appendix M. The UCSB/PISCO visual fish transects were performed on July 20th.

The temperature logger was deployed at the east end of the transect at a depth of 14m.

Location: Graveyard Canyon, Santa Barbara Island

Site #36 SBGC

2005 sampling dates: 7/28.

2005 status: Dominated by *Ophiothrix spiculata*, *Strongylocentrotus purpuratus* and *Strongylocentrotus franciscanus*.

This is a new site that was established in 2005. This site runs southeast to northwest. This site is basically two low lying reefs separated by a sand channel. The first section of reef starts at the zero end and runs to the 17 m mark. The sand channel runs from the 17-36 m mark where the second reef begins and extends to the 100 m mark. The reef is surrounded by sand at both ends and both sides. We searched this area extensively and this was one of the largest near continuous patches of reef we could locate. The depth ranges from 10.9 to 12.8 m.

Overall, the site has low diversity and is dominated by echinoderms. This site was nearly devoid of macroalgae. No indicator species of macroalgae were observed except for one *Gigartina corymbifera* growing epiphytically on a gorgonian. Miscellaneous red algae cover was 6.9% and consisted mainly of filamentous and red algae. Green algae cover was 3.5%. Miscellaneous brown algae cover was 3.5%. The most abundant algae were encrusting coralline algae with a cover of 37.0%. Encrusting coralline algae were common at many parts of the reef that were sand covered, so it appears as though the sand moves around this area on a regular basis. Bare substrate cover was high at 45.7%. The bottom cover was 60.5% rock, 2.8% cobble and 36.7% sand. This is the highest cover of sand of all our monitoring sites.

Miscellaneous invertebrates excluding *Ophiothrix spiculata* cover was 2.8% and hydroids were the most dominant invertebrate in this category. Sponges were rare with a cover of 0.33%. *Tethya aurantia* were common with a density of 0.051/m². *Balanophyllia elegans* were uncommon with a cover of 0.17%, and *Astrangia lajollaensis* were common with a cover of 2.7%. *Lophogorgia chilensis* and *Muricea californica* densities were 0.051/m² and 0.026/m², respectively.

Strongylocentrotus franciscanus and *Strongylocentrotus purpuratus* were moderately abundant throughout this site with densities of 6.04/m² and 14.7/m², respectively. Juvenile *Strongylocentrotus* spp. were common, similar to other sites on Santa Barbara Island this year. *Strongylocentrotus* spp. were moderately abundant in areas that had high densities of *Ophiothrix spiculata*. *Centrostephanus coronatus* were present in low numbers with a density of 0.042/m². Very small *Lytechinus anamesus* were common in the sandy areas and had a density of 0.022/m². The presence of small *L. anamesus* is indicative of a recent recruitment event. Approximately 5% of the *S. franciscanus* appeared to have sea urchin wasting disease on July 28th.

Ophiothrix spiculata was the most abundant invertebrate with a cover of 17.7%. *Pisaster giganteus* were rare and were counted on 1 m quadrats and 5 m quadrats with densities of 0.0/ m² and 0.02/m², respectively. *Patiria miniata* were moderately abundant at a density of 0.58/m². Three *Pycnopodia helianthoides* were observed at this site and all three were counted on band transects for a density of 0.0042/m². *Parastichopus parvimensis* were present with a density of 0.042/m². No sea star wasting disease was observed.

Megathura crenulata density was 0.011/m² and 18 were measured for size frequencies. *Megastrea undosa* were relatively uncommon with a density of 0.042/m² and only 11 were found for size frequencies. *Cypraea spadicea* density was 0.042/m². *Aplysia californica* were observed with a density of 0.058/m². There were a few large *Crassidoma giganteum* and *Kellettia kelletii* present but they were rare and none were observed on band transects.

Similar to invertebrates and algae, fish diversity and abundance were also low at this site. *Coryphopterus nicholsii* were the most abundant fish at 1.58/m² and up to 181 observed. *Alloclinus holderi* were present at a density of 0.08/m² with up to five counted. No *Lythrypnus dalli* were observed. Up to eight *Oxylebius pictus* were observed. *Chromis punctipinnis* were rare with only up to five adults and no juveniles observed. Up to 23 adults and five juvenile *Oxyjulis californica* were observed. One *Halichoeres semicinctus* female was observed. Four female, two male, and no juvenile *Semicossyphus pulcher* were observed. Two adult *Hypsypops rubicundus* were observed. No *H. rubicundus* nests were present. Two adult *Paralabrax clathratus* were observed. One adult *Girella nigricans* was observed. *Medialuna californiensis*, halfmoon, were

present with up to two observed. *Caulolatilus princeps*, ocean whitefish, were common with up to eight observed. There were no Embiotocidae present during roving diver fish count. *Sebastes* spp. were almost entirely absent except for one juvenile *Sebastes serripes*. *Citharichthys stigmaeus*, speckled sanddab, were common in the sand channel with up to 10 observed. Roving diver fish counts were conducted on July 28th with four divers observing 15 species.

This is one of the 24 sites where visual fish transects including size is conducted by UCSB/PISCO. Data summaries are included in Appendix M. UCSB/PISCO visual fish transects were performed on July 19th.

The temperature logger was deployed successfully at the southeast end of the transect at a depth of 12.8 m.

Location: Southeast Reef, Santa Barbara Island

Site #37, SBSER

2005 sampling dates: 7/26.

2005 status: Mature kelp forest on half the transect and the other half dominated by *Strongylocentrotus purpuratus*.

This is a new site that was established in 2005. This transect runs east to west with the east end shallower (11.3 m) and the west deeper (14.6 m). The north side is onshore and the south is offshore. The zero meter bolt sits due west of a large ledge that is about 3-4.5 m. The entire site has a series of small ridges (1-2 m in height) that run from north to south (perpendicular to the transect). There is a sand channel that runs perpendicular to the transect on the offshore side; then, runs northeast on the onshore side through the transect from 23 to 27 m mark. At the 44 m mark there is a ridge on the north side. Around 55-58 m there is a depression on the north side. From this area on there is a series of ridges running north to south and the remainder of the transect. Most of the transect is bed rock with an occasional large boulder or small groups of boulders and some sand in the channels.

Most *Macrocystis pyrifera* were on the south side of the transect from 0 to 77 m. The north side of the transect was mostly devoid of *M. pyrifera*. From the 77-100 m mark there were a high abundance of sea urchins and virtually no macroalgae. The biota varies greatly from a mature kelp forest community on one half to sea urchin dominated area over the remainder of the transect. Where *M. pyrifera* were present they were representative of a mature kelp forest with widely spaced adults and a diverse understory of algae and invertebrates. Patches of juvenile *M. pyrifera* were present where there were fewer adult plants and few *Strongylocentrotus* spp. The adult, subadult, and juvenile *M. pyrifera* densities were 0.17/m², 0.06/m², and 1.04/m², respectively, and cover was 11.0%. Adult and juvenile *Eisenia arborea* densities were 0.21/m² and 0.25/m² respectively and cover was 0.17%. Juvenile *Laminaria farlowii* were present at 0.29/m² with no adults observed. *Cystoseira* spp. were rare with one small patch observed off the main transect, but none were observed on RPCs for a cover of 0.0%. Green algae cover was 4.7% and consisted mainly of *Codium setchelli* and *Codium fragile*. Miscellaneous brown algae cover, mainly *Dictyota* sp. / *Pacydictyon* sp., was 2.0%. There was a small patch of *Desmarestia* spp. observed but it was not recorded on RPCs. Miscellaneous red algae cover was 13.2% and consisted mainly of *Rhodomenia* spp. The most abundant algae at this site were encrusting coralline algae with 40.0% cover, similar to other sites on Santa Barbara Island. Articulated

coralline algae were common in the kelp forest and had a cover of 5.3%. Bare substrate cover was 13.0%. The bottom consisted of 83.2% rock, 7.3% cobble and 9.5% sand.

Miscellaneous invertebrates excluding *Ophiothrix spiculata* were abundant with a cover of 20%. This category consisted mainly of Amphipod tube mats followed by hydroids. A small unidentified anemone that looked like a cross between *Sagartia* sp. / *Cactosoma* sp. and *Phyllactis* sp. was also common. This site had a diverse mix of tunicates and sponges. Tunicate cover was 12.2%, a relatively high abundance, and was mainly composed of *Aplidium* sp. and *Didemnum/Tridenum* spp. Sponge cover was 2.7%. *Leucetta losangelensis* was common as well as other sponges. *Tethya aurantia* density was 0.006/m². Miscellaneous bryozoans cover was 5.7% and consisted mostly of *Bugula* sp. and *Membranipora* sp. *Corynactis californica* and *Balanophyllia elegans* were rare and neither was observed on RPCs this year. *Astrangia lajollaensis* were common and had a cover of 0.17%. *Muricea fruticosa* and *Muricea californica* were present in small numbers with densities of 0.0014/m² and 0.008/m² respectively. *Lophogorgia chilensis* were abundant with a density of 0.011/m². *Diopatra ornata* were common in the low lying areas with a cover of 1.2%.

Strongylocentrotus franciscanus were abundant with a density of 11.3/m² and were present along the entire transect, but more abundant along the western half. *Strongylocentrotus purpuratus* were common along the eastern end of the transect and abundant along the western end with an overall density of 12.9/m². Juvenile *S. franciscanus* were more abundant than juvenile *S. purpuratus* and were mainly present under the spine canopy of other sea urchins. *Centrostephanus coronatus* were common with a density of 0.83/m². *Lytechinus anamesus* were rare and none were observed on band transects. No sea urchin wasting disease was observed.

Pisaster giganteus were moderately abundant and were recorded on 1 m quadrats and 5 m quadrats with densities of 0.17/m² and 0.1/m², respectively. *Patiria miniata* were moderately abundant on the deeper side of the transect and common elsewhere with a density of 0.083/m². Several small/juvenile *A. miniata* were observed in crevices. Several *Pycnopodia helianthoides* were observed for a density of 0.0014/m². *Parastichopus parvimensis* were relatively abundant at 1.79/m². Several *Linkia columbiae* were observed. No sea star wasting disease was observed.

Megastraea undosa density was 0.042/m², and both large and small individuals were present with about 36 totals found for size frequency measurements. Juvenile and large adult *M. undosa* were common. *Cypraea spadicea* density was 0.21/m². *Megathura crenulata* and *Aplysia californica* were uncommon both with the same density of 0.004/m². *Panulirus interruptus* were present with a density of 0.003/m² and were noticeably common on the reef to the south just off of the site.

Fish were abundant and diverse compared to other sites at this island. *Coryphopterus nicholsii* were common with a density 0.083/m² and up to 27 were observed during the roving diver fish count. *Alloclinus holderi* were common relatively abundant with a density of 0.29/m² and up to 17 observed. No *Lythrypnus dalli* were observed. *Oxylebius pictus* were moderately abundant with up to 20 observed. *Chromis punctipinnis* were the most abundant fish with up to 434 adults and no juveniles observed. *Oxyjulis californica* were the second most abundant fish with up to 190 adults and 64 juveniles observed. *Halichoeres semicinctus* were present with up to three females, two males, and one juvenile observed. Three female, six juvenile, and three male

Semicossyphus pulcher were observed. This is a relatively high number of juveniles for any site. Adult *Hypsypops rubicundus* were abundant with up to 30 counted. A large proportion of the *H. rubicundus* were males guarding the turf nests. Up to 10 adult *Paralabrax clathratus* were observed. Eleven adult *Girella nigricans* were observed. Up to seven adults and two juvenile *Embiotoca jacksoni* were observed. Two adult *Rhacochilus vacca* were observed. Juvenile *Sebastes serripes* were abundant with up to 10 observed and no adults. Two adult *Sebastes chrysomelas*, black and yellow rockfish, were observed. One adult *Sebastes carnatus*, gopher rockfish, was observed. *Brachyistius frenatus*, kelp surfperch, were present with up to six observed. Up to three adult and one juvenile *Heterostichus rostratus*, giant kelpfish, were observed. Roving diver fish count was conducted on July 26th with four divers observing 19 species.

This is one of the 24 sites where visual fish transects including size is conducted by UCSB/PISCO. Data summaries are included in Appendix M. The UCSB/PISCO visual fish transects were conducted on July 18th.

The temperature logger was deployed at the zero/east end at a depth of 11 m.

Appendix B. 1 Meter quadrat data.

2005 1 - METER QUADRAT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
San Miguel Island - Wyckoff Ledge			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.3333	0.2462	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	4.3333	3.2146	12
<i>Eisenia arborea</i> adult	0.0833	0.1946	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.2500	0.4523	12
<i>Pterygophora californica</i> juvenile	0.6250	1.1506	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Dictyoneuropsis reticulata</i> /Agarum	1.5833	1.5643	12
<i>Cypraea spadicea</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.7917	0.4502	12
<i>Megastrea undosa</i>	0.0000	0.0000	12
<i>Lithopoma gibberosa</i>	0.2917	0.5418	12
<i>Patiria miniata</i>	2.3750	1.7205	12
<i>Pisaster giganteus</i>	0.0417	0.1443	12
<i>Strongylocentrotus franciscanus</i>	0.3333	1.1547	12
<i>Strongylocentrotus purpuratus</i>	0.0000	0.0000	12
<i>Parastichopus parvimensis</i>	0.1667	0.3257	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	0.1667	0.2462	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	0.4167	0.6686	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12
San Miguel Island - Hare Rock			
<i>Macrocystis pyrifera</i> Ad.(>1m)	1.4167	1.4434	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.8750	1.4322	12
<i>Eisenia arborea</i> adult	0.0000	0.0000	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.2083	0.3965	12
<i>Megastrea undosa</i>	0.0000	0.0000	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	3.5833	1.3456	12
<i>Pisaster giganteus</i>	0.2917	0.3965	12
<i>Pycnopodia helianthoides</i>	0.3333	0.3257	12
<i>Strongylocentrotus franciscanus</i>	7.4583	11.2704	12
<i>Strongylocentrotus purpuratus</i>	0.5000	0.9045	12
<i>Parastichopus parvimensis</i>	0.0000	0.0000	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	0.1250	0.4330	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	0.1250	0.3108	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12

2005 1 - METER QUADRAT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Rosa Island - Johnson's Lee North			
<i>Macrocystis pyrifera</i> Ad. (>1m)	1.1667	0.8072	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	3.0417	5.5900	12
<i>Eisenia arborea</i> adult	0.0000	0.0000	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.2917	0.6201	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0417	0.1443	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.2500	0.3989	12
<i>Megastrea undosa</i>	0.0000	0.0000	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.3750	0.2261	12
<i>Pisaster giganteus</i>	0.0833	0.1946	12
<i>Strongylocentrotus franciscanus</i>	0.6250	1.1894	12
<i>Strongylocentrotus purpuratus</i>	0.0000	0.0000	12
<i>Parastichopus parvimensis</i>	0.1667	0.3257	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	5.8750	2.7063	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	0.0000	0.0000	12
<i>Alloclinis holderi</i>	0.0000	0.0000	12
Santa Rosa Island - Johnson's Lee South			
<i>Macrocystis pyrifera</i> Ad. (>1m)	0.2500	0.7230	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	2.7917	3.9165	12
<i>Eisenia arborea</i> adult	0.0833	0.1946	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0417	0.1443	12
<i>Laminaria farlowii</i> adult	0.2917	0.4981	12
<i>Laminaria farlowii</i> juvenile	0.1250	0.3108	12
<i>Cypraea spadicea</i>	0.2917	0.6201	12
<i>Megastrea undosa</i>	0.0000	0.0000	12
<i>Lithopoma gibberosa</i>	0.0417	0.1443	12
<i>Patiria miniata</i>	3.1250	1.6939	12
<i>Pisaster giganteus</i>	0.0417	0.1443	12
<i>Strongylocentrotus franciscanus</i>	0.0000	0.0000	12
<i>Strongylocentrotus purpuratus</i>	0.1250	0.4330	12
<i>Parastichopus parvimensis</i>	0.0417	0.1443	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	1.0000	0.9770	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	0.3750	0.4827	12
<i>Alloclinis holderi</i>	0.0000	0.0000	12

2005 1 - METER QUADRAT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Rosa Island - Rodes Reef			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.2083	0.3965	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.0000	0.0000	12
<i>Eisenia arborea</i> adult	0.0000	0.0000	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.0000	0.0000	12
<i>Megastrea undosa</i>	0.0000	0.0000	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	3.9167	2.2242	12
<i>Pisaster giganteus</i>	0.2500	0.3371	12
<i>Strongylocentrotus franciscanus</i>	2.4583	4.0758	12
<i>Strongylocentrotus purpuratus</i>	0.3333	0.6853	12
<i>Parastichopus parvimensis</i>	0.0000	0.0000	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	0.0000	0.0000	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12
Santa Cruz Island - Gull Island South			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.5000	0.6742	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.2917	0.4502	12
<i>Eisenia arborea</i> adult	0.2917	0.4502	12
<i>Eisenia arborea</i> juvenile	0.0833	0.1946	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.0833	0.1946	12
<i>Megastrea undosa</i>	0.0000	0.0000	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	2.5833	1.8809	12
<i>Pisaster giganteus</i>	0.1667	0.3257	12
<i>Strongylocentrotus franciscanus</i>	0.3750	0.6440	12
<i>Strongylocentrotus purpuratus</i>	0.3333	0.5365	12
<i>Parastichopus parvimensis</i>	0.1667	0.2462	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	0.1667	0.3892	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	0.5000	0.7071	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12

2005 1 - METER QUADRAT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Cruz Island - Fry's Harbor			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.0833	0.1946	12
<i>Eisenia arborea</i> adult	0.7083	1.3049	12
<i>Eisenia arborea</i> juvenile	0.8750	0.9324	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.8750	1.4943	12
<i>Megastrea undosa</i>	0.0417	0.1443	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	1.2917	0.8908	12
<i>Pisaster giganteus</i>	0.2500	0.3989	12
<i>Strongylocentrotus franciscanus</i>	0.1250	0.2261	12
<i>Strongylocentrotus purpuratus</i>	0.0833	0.1946	12
<i>Parastichopus parvimensis</i>	0.2500	0.3371	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.1250	0.4330	12
<i>Coryphopterus nicholsii</i>	3.9583	1.6984	12
<i>Alloclinus holderi</i>	0.1667	0.3257	12
Santa Cruz Island - Pelican Bay			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.0000	0.0000	12
<i>Eisenia arborea</i> adult	0.0000	0.0000	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.0000	0.0000	12
<i>Megastrea undosa</i>	0.0833	0.1946	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.2917	0.3343	12
<i>Pisaster giganteus</i>	0.0417	0.1443	12
<i>Lytechinus anamesus</i>	2.4167	1.8070	12
<i>Strongylocentrotus franciscanus</i>	1.9583	1.7896	12
<i>Strongylocentrotus purpuratus</i>	21.4167	10.7150	12
<i>Parastichopus parvimensis</i>	0.0833	0.1946	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	6.2917	4.3769	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12

2005 1 - METER QUADRAT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Cruz Island - Scorpion Anchorage			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.0000	0.0000	12
<i>Eisenia arborea</i> adult	0.0000	0.0000	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.3750	0.6440	12
<i>Megastrea undosa</i>	0.1250	0.2261	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Crassidoma giganteum</i>	0.0417	0.1443	12
<i>Patiria miniata</i>	0.1250	0.3108	12
<i>Pisaster giganteus</i>	0.0833	0.1946	12
<i>Lytechinus anamesus</i>	0.0417	0.1443	12
<i>Strongylocentrotus franciscanus</i>	3.0417	2.4445	12
<i>Strongylocentrotus purpuratus</i>	38.6250	17.6238	12
<i>Parastichopus parvimensis</i>	0.1667	0.3257	12
<i>Centrostephanus coronatus</i>	0.0833	0.1946	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	3.6667	1.0075	12
<i>Alloclinis holderi</i>	0.0833	0.1946	12
Santa Cruz Island - Yellow Banks			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.4583	0.3343	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.0417	0.1443	12
<i>Eisenia arborea</i> adult	0.0417	0.1443	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.0000	0.0000	12
<i>Megastrea undosa</i>	0.0417	0.1443	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	1.0833	0.8747	12
<i>Pisaster giganteus</i>	0.1667	0.3257	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12
<i>Strongylocentrotus franciscanus</i>	0.0417	0.1443	12
<i>Strongylocentrotus purpuratus</i>	2.5833	3.2322	12
<i>Parastichopus parvimensis</i>	0.0000	0.0000	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	1.5000	0.9293	12
<i>Alloclinis holderi</i>	0.0000	0.0000	12

2005 1 - METER QUADRAT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Anacapa Island - Admiral's Reef			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.4167	0.5573	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	1.0000	0.9045	12
<i>Eisenia arborea</i> adult	0.0417	0.1443	12
<i>Eisenia arborea</i> juvenile	0.2917	0.6201	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.0417	0.1443	12
<i>Megastrea undosa</i>	0.0000	0.0000	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	2.0000	1.1078	12
<i>Pisaster giganteus</i>	0.0417	0.1443	12
<i>Strongylocentrotus franciscanus</i>	6.1250	2.8294	12
<i>Strongylocentrotus purpuratus</i>	5.5000	5.0990	12
<i>Parastichopus parvimensis</i>	0.4583	0.6201	12
<i>Centrostephanus coronatus</i>	0.6250	0.7111	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	3.2500	0.8394	12
<i>Alloclinus holderi</i>	0.4583	0.5823	12
Anacapa Island - Cathedral Cove			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.7083	0.8908	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	25.2083	33.0980	12
<i>Eisenia arborea</i> adult	0.0833	0.1946	12
<i>Eisenia arborea</i> juvenile	0.0417	0.1443	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.2500	0.5839	12
<i>Laminaria farlowii</i> juvenile	8.0417	5.5081	12
<i>Cypraea spadicea</i>	0.0417	0.1443	12
<i>Megastrea undosa</i>	2.2500	2.0057	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.0833	0.2887	12
<i>Pisaster giganteus</i>	0.0000	0.0000	12
<i>Strongylocentrotus franciscanus</i>	3.2083	2.9959	12
<i>Strongylocentrotus purpuratus</i>	0.4583	0.7525	12
<i>Parastichopus parvimensis</i>	1.7917	1.2147	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	0.2083	0.2575	12
<i>Alloclinus holderi</i>	0.2500	0.3989	12

2005 1 - METER QUADRAT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Anacapa Island - Landing Cove			
<i>Macrocystis pyrifera</i> Ad.(>1m)	1.2917	2.1262	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	5.1667	6.5655	12
<i>Eisenia arborea</i> adult	0.6250	1.0897	12
<i>Eisenia arborea</i> juvenile	0.8333	1.3200	12
<i>Pterygophora californica</i> adult	0.6250	0.8292	12
<i>Pterygophora californica</i> juvenile	1.5417	3.7140	12
<i>Laminaria farlowii</i> adult	2.7500	2.1690	12
<i>Laminaria farlowii</i> juvenile	27.1667	26.1476	12
<i>Cypraea spadicea</i>	0.1250	0.3108	12
<i>Megastraea undosa</i>	0.3333	0.6513	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Crassedoma giganteum</i>	1.0000	1.4924	12
<i>Patiria miniata</i>	0.0833	0.2887	12
<i>Pisaster giganteus</i>	0.0417	0.1443	12
<i>Strongylocentrotus franciscanus</i>	2.7500	2.3012	12
<i>Strongylocentrotus purpuratus</i>	1.3333	2.0597	12
<i>Parastichopus parvimensis</i>	0.1250	0.4330	12
<i>Centrostephanus coronatus</i>	0.0417	0.1443	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	0.2083	0.3343	12
<i>Alloclinus holderi</i>	0.2500	0.4523	12
Santa Barbara Island - SE Sea Lion Rookery			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.0000	0.0000	12
<i>Eisenia arborea</i> adult	0.0000	0.0000	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.0833	0.2887	12
<i>Megastraea undosa</i>	0.3750	0.6077	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.5417	1.0104	12
<i>Pisaster giganteus</i>	0.1667	0.3257	12
<i>Lytechinus anamesus</i>	0.1250	0.3108	12
<i>Strongylocentrotus franciscanus</i>	14.0417	9.3065	12
<i>Strongylocentrotus purpuratus</i>	6.1250	6.3858	12
<i>Parastichopus parvimensis</i>	0.3333	0.4924	12
<i>Centrostephanus coronatus</i>	0.3750	0.6440	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	0.3333	0.5774	12
<i>Alloclinus holderi</i>	0.0417	0.1443	12

2005 1 - METER QUADRAT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Barbara Island - Arch Point			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.0000	0.0000	12
<i>Eisenia arborea</i> adult	0.0000	0.0000	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.0000	0.0000	12
<i>Megastraea undosa</i>	0.3333	0.8876	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.7083	0.6201	12
<i>Pisaster giganteus</i>	0.0000	0.0000	12
<i>Lytechinus anamesus</i>	0.0833	0.2887	12
<i>Strongylocentrotus franciscanus</i>	21.7500	6.7572	12
<i>Strongylocentrotus purpuratus</i>	68.0833	32.9337	12
<i>Parastichopus parvimensis</i>	0.1250	0.4330	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	0.0417	0.1443	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12
Santa Barbara Island - Cat Canyon			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.0000	0.0000	12
<i>Eisenia arborea</i> adult	0.0000	0.0000	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.0000	0.0000	12
<i>Megastraea undosa</i>	0.3333	0.5774	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.2500	0.3989	12
<i>Pisaster giganteus</i>	0.1250	0.3108	12
<i>Strongylocentrotus franciscanus</i>	16.0000	6.8191	12
<i>Strongylocentrotus purpuratus</i>	57.7500	22.1806	12
<i>Parastichopus parvimensis</i>	0.5417	0.3965	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	0.0417	0.1443	12
<i>Alloclinus holderi</i>	0.1250	0.2261	12

2005 1 - METER QUADRAT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
San Miguel Island - Miracle Mile			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.1667	0.3257	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.6667	1.6002	12
<i>Eisenia arborea</i> adult	1.0000	0.8528	12
<i>Eisenia arborea</i> juvenile	0.1667	0.3257	12
<i>Pterygophora californica</i> adult	1.3333	1.5275	12
<i>Pterygophora californica</i> juvenile	0.1250	0.4330	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.4583	0.8107	12
<i>Cypraea spadicea</i>	0.0417	0.1443	12
<i>Megastraea undosa</i>	0.0000	0.0000	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	1.8750	1.0687	12
<i>Pisaster giganteus</i>	0.6250	0.8823	12
<i>Strongylocentrotus franciscanus</i>	5.8750	8.7831	12
<i>Strongylocentrotus purpuratus</i>	0.6667	1.0941	12
<i>Parastichopus parvimensis</i>	0.2083	0.3965	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	0.0833	0.1946	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	0.0417	0.1443	12
<i>Alloclinis holderi</i>	0.0000	0.0000	12
Santa Rosa Island - Cluster Point			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.2500	0.3989	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.1250	0.3108	12
<i>Eisenia arborea</i> adult	0.0417	0.1443	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.5833	0.6686	12
<i>Pterygophora californica</i> juvenile	0.3750	0.8013	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.0000	0.0000	12
<i>Megastraea undosa</i>	0.0000	0.0000	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	1.5417	1.3049	12
<i>Pisaster giganteus</i>	0.1667	0.3257	12
<i>Strongylocentrotus franciscanus</i>	0.4583	0.9643	12
<i>Strongylocentrotus purpuratus</i>	0.5417	1.1572	12
<i>Parastichopus parvimensis</i>	0.1250	0.2261	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	0.2083	0.3343	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	0.0000	0.0000	12
<i>Alloclinis holderi</i>	0.0000	0.0000	12

2005 1 - METER QUADRAT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Rosa Island - Trancion Canyon			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.4167	0.7017	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.6250	1.1702	12
<i>Eisenia arborea</i> adult	0.0000	0.0000	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.4167	0.7334	12
<i>Pterygophora californica</i> juvenile	0.1667	0.3257	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.6250	0.9799	12
<i>Megastrea undosa</i>	0.0000	0.0000	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	1.3333	0.8876	12
<i>Pisaster giganteus</i>	0.5000	0.9293	12
<i>Strongylocentrotus franciscanus</i>	6.0000	7.5679	12
<i>Strongylocentrotus purpuratus</i>	1.2083	1.5145	12
<i>Parastichopus parvimensis</i>	0.2500	0.3989	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	0.7917	0.7525	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	0.1667	0.3257	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12
Santa Rosa Island - Chickasaw			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.2917	0.4981	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.8333	1.3707	12
<i>Eisenia arborea</i> adult	0.0000	0.0000	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.1250	0.2261	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.0833	0.1946	12
<i>Megastrea undosa</i>	0.0000	0.0000	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	1.2500	1.2703	12
<i>Pisaster giganteus</i>	0.3333	0.6155	12
<i>Strongylocentrotus franciscanus</i>	0.3750	0.6440	12
<i>Strongylocentrotus purpuratus</i>	0.0000	0.0000	12
<i>Parastichopus parvimensis</i>	0.0000	0.0000	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	1.3333	0.9374	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	0.0833	0.1946	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12

2005 1 - METER QUADRAT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Rosa Island - South Point			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.5000	0.3693	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	7.0833	7.6332	12
<i>Eisenia arborea</i> adult	0.0000	0.0000	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.5000	0.6742	12
<i>Pterygophora californica</i> juvenile	0.5417	1.0544	12
<i>Laminaria farlowii</i> adult	0.2500	0.3371	12
<i>Laminaria farlowii</i> juvenile	0.0417	0.1443	12
<i>Cypraea spadicea</i>	0.0000	0.0000	12
<i>Megastraea undosa</i>	0.0000	0.0000	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	2.2083	1.7896	12
<i>Pisaster giganteus</i>	0.0000	0.0000	12
<i>Strongylocentrotus franciscanus</i>	0.0000	0.0000	12
<i>Strongylocentrotus purpuratus</i>	0.0000	0.0000	12
<i>Parastichopus parvimensis</i>	0.0000	0.0000	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	1.5000	0.6742	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	0.0417	0.1443	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12
Santa Cruz Island - Devil's Peak Member			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.0000	0.0000	12
<i>Eisenia arborea</i> adult	0.0000	0.0000	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.1667	0.4438	12
<i>Megastraea undosa</i>	0.1250	0.2261	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.5833	0.5149	12
<i>Pisaster giganteus</i>	0.0000	0.0000	12
<i>Lytechinus anamesus</i>	0.4167	0.4174	12
<i>Strongylocentrotus franciscanus</i>	1.5417	0.9160	12
<i>Strongylocentrotus purpuratus</i>	26.1667	10.8279	12
<i>Parastichopus parvimensis</i>	0.1667	0.2462	12
<i>Centrostephanus coronatus</i>	0.0833	0.1946	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	2.1250	1.2454	12
<i>Alloclinus holderi</i>	0.2083	0.2575	12

2005 1 - METER QUADRAT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Cruz Island - Potato Pasture			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.0000	0.0000	12
<i>Eisenia arborea</i> adult	0.0000	0.0000	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.2500	0.5839	12
<i>Megastrea undosa</i>	0.0833	0.1946	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.5000	0.9293	12
<i>Pisaster giganteus</i>	0.0833	0.1946	12
<i>Lytechinus anamesus</i>	2.0000	3.4902	12
<i>Strongylocentrotus franciscanus</i>	5.7083	3.9741	12
<i>Strongylocentrotus purpuratus</i>	22.1667	10.2322	12
<i>Parastichopus parvimensis</i>	0.4167	0.4174	12
<i>Centrostephanus coronatus</i>	0.1250	0.2261	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	1.7083	1.2332	12
<i>Alloclinis holderi</i>	0.0833	0.1946	12
Santa Cruz Island - Cavern Point			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.0000	0.0000	12
<i>Eisenia arborea</i> adult	0.0000	0.0000	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.0417	0.1443	12
<i>Megastrea undosa</i>	0.1250	0.2261	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.2083	0.5823	12
<i>Pisaster giganteus</i>	0.0000	0.0000	12
<i>Strongylocentrotus franciscanus</i>	3.5000	2.2361	12
<i>Strongylocentrotus purpuratus</i>	32.8333	14.7376	12
<i>Parastichopus parvimensis</i>	1.1250	0.7424	12
<i>Centrostephanus coronatus</i>	0.2917	0.4981	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	3.1250	1.1104	12
<i>Alloclinis holderi</i>	0.5000	0.3693	12

2005 1 - METER QUADRAT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Cruz Island - Little Scorpion			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.0000	0.0000	12
<i>Eisenia arborea</i> adult	0.0000	0.0000	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.1250	0.3108	12
<i>Megastraea undosa</i>	0.0833	0.1946	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.4167	0.5573	12
<i>Pisaster giganteus</i>	0.1250	0.2261	12
<i>Strongylocentrotus franciscanus</i>	6.2917	2.1686	12
<i>Strongylocentrotus purpuratus</i>	12.0417	7.8116	12
<i>Parastichopus parvimensis</i>	0.4583	0.9160	12
<i>Centrostephanus coronatus</i>	0.0417	0.1443	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	3.4167	2.4199	12
<i>Alloclinus holderi</i>	0.2500	0.3371	12
Santa Cruz Island - Pedro Reef			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.0000	0.0000	12
<i>Eisenia arborea</i> adult	0.0000	0.0000	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.1250	0.2261	12
<i>Kelletia kelletii</i>	0.3750	0.7724	12
<i>Megastraea undosa</i>	1.2917	1.4055	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.2500	0.3989	12
<i>Pisaster giganteus</i>	0.0417	0.1443	12
<i>Strongylocentrotus franciscanus</i>	5.8750	2.9397	12
<i>Strongylocentrotus purpuratus</i>	47.9583	28.3336	12
<i>Parastichopus parvimensis</i>	0.1250	0.2261	12
<i>Centrostephanus coronatus</i>	0.2500	0.3371	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	2.0417	1.3392	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12

2005 1 - METER QUADRAT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Anacapa Island - Keyhole			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.0417	0.1443	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.0417	0.1443	12
<i>Eisenia arborea</i> adult	0.0000	0.0000	12
<i>Eisenia arborea</i> juvenile	0.4167	0.5149	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.0000	0.0000	12
<i>Megastrea undosa</i>	0.7500	1.0975	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.5833	0.5573	12
<i>Pisaster giganteus</i>	0.0417	0.1443	12
<i>Strongylocentrotus franciscanus</i>	3.5833	2.9064	12
<i>Strongylocentrotus purpuratus</i>	3.0417	2.1475	12
<i>Parastichopus parvimensis</i>	0.4583	0.5823	12
<i>Centrostephanus coronatus</i>	0.6250	0.8561	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	3.0833	1.7034	12
<i>Alloclinus holderi</i>	1.2083	0.7525	12
Anacapa Island - East Fish Camp			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.0000	0.0000	12
<i>Eisenia arborea</i> adult	0.0000	0.0000	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.2083	0.4502	12
<i>Megastrea undosa</i>	0.5833	0.4174	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.6667	0.5365	12
<i>Pisaster giganteus</i>	0.0833	0.2887	12
<i>Lytechinus anamesus</i>	0.9583	1.4055	12
<i>Strongylocentrotus franciscanus</i>	17.9167	10.7425	12
<i>Strongylocentrotus purpuratus</i>	66.0833	27.6363	12
<i>Parastichopus parvimensis</i>	0.2917	0.4502	12
<i>Centrostephanus coronatus</i>	1.2917	0.9876	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	2.8750	1.5094	12
<i>Alloclinus holderi</i>	0.2500	0.3371	12

2005 1 - METER QUADRAT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Anacapa Island - Black Sea Bass Reef			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.0000	0.0000	12
<i>Eisenia arborea</i> adult	0.0000	0.0000	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.1250	0.3108	12
<i>Megastrea undosa</i>	0.0833	0.1946	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.1250	0.2261	12
<i>Pisaster giganteus</i>	0.0417	0.1443	12
<i>Strongylocentrotus franciscanus</i>	4.6250	3.0236	12
<i>Strongylocentrotus purpuratus</i>	0.6667	1.0517	12
<i>Parastichopus parvimensis</i>	0.2917	0.3343	12
<i>Centrostephanus coronatus</i>	0.8750	0.8292	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	1.1250	1.0472	12
<i>Alloclinus holderi</i>	1.2083	0.7821	12
Anacapa Island - Lighthouse			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.5000	0.5222	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	3.2500	4.0424	12
<i>Eisenia arborea</i> adult	0.0417	0.1443	12
<i>Eisenia arborea</i> juvenile	0.1250	0.3108	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0417	0.1443	12
<i>Cypraea spadicea</i>	0.1667	0.3257	12
<i>Megastrea undosa</i>	1.4583	2.1998	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.3333	0.3892	12
<i>Pisaster giganteus</i>	0.0000	0.0000	12
<i>Strongylocentrotus franciscanus</i>	4.4167	4.6065	12
<i>Strongylocentrotus purpuratus</i>	13.2500	13.7403	12
<i>Parastichopus parvimensis</i>	0.0833	0.1946	12
<i>Centrostephanus coronatus</i>	0.3750	0.5276	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	0.4167	0.4687	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12

2005 1 - METER QUADRAT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Barbara Island - Webster's Arch			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.0000	0.0000	12
<i>Eisenia arborea</i> adult	0.0000	0.0000	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	1.0417	1.1572	12
<i>Megastrea undosa</i>	0.3333	0.4438	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	2.0000	1.1282	12
<i>Pisaster giganteus</i>	0.1250	0.3108	12
<i>Lytechinus anamesus</i>	0.1667	0.3257	12
<i>Strongylocentrotus franciscanus</i>	11.2917	3.0110	12
<i>Strongylocentrotus purpuratus</i>	68.6250	35.5516	12
<i>Parastichopus parvimensis</i>	0.4167	0.4687	12
<i>Centrostephanus coronatus</i>	0.6250	0.9077	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	0.1667	0.3257	12
<i>Alloclinis holderi</i>	0.1250	0.2261	12
Santa Barbara Island - Graveyard Canyon			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	0.0000	0.0000	12
<i>Eisenia arborea</i> adult	0.0000	0.0000	12
<i>Eisenia arborea</i> juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.0417	0.1443	12
<i>Megastrea undosa</i>	0.0417	0.1443	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.5833	0.5967	12
<i>Pisaster giganteus</i>	0.0000	0.0000	12
<i>Lytechinus anamesus</i>	0.3750	0.7424	12
<i>Strongylocentrotus franciscanus</i>	6.0417	5.4957	12
<i>Strongylocentrotus purpuratus</i>	14.7083	20.7172	12
<i>Parastichopus parvimensis</i>	0.0417	0.1443	12
<i>Centrostephanus coronatus</i>	0.0417	0.1443	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	1.5833	1.2401	12
<i>Alloclinis holderi</i>	0.0833	0.2887	12

2005 1 - METER QUADRAT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Barbara Island - Southeast Reef			
<i>Macrocystis pyrifera</i> Ad.(>1m)	0.2500	0.3989	12
<i>Macrocystis pyrifera</i> Juvenile (<1m)	1.0417	1.6849	12
<i>Eisenia arborea</i> adult	0.2083	0.3965	12
<i>Eisenia arborea</i> juvenile	0.2500	0.8660	12
<i>Pterygophora californica</i> adult	0.0000	0.0000	12
<i>Pterygophora californica</i> juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> adult	0.0000	0.0000	12
<i>Laminaria farlowii</i> juvenile	0.2917	0.3965	12
<i>Cypraea spadicea</i>	0.2083	0.3343	12
<i>Megastrea undosa</i>	0.0417	0.1443	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.0833	0.2887	12
<i>Pisaster giganteus</i>	0.1667	0.3257	12
<i>Strongylocentrotus franciscanus</i>	11.2917	8.3133	12
<i>Strongylocentrotus purpuratus</i>	12.9167	15.2507	12
<i>Parastichopus parvimensis</i>	1.7917	1.7381	12
<i>Centrostephanus coronatus</i>	0.8333	0.6853	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsii</i>	0.0833	0.1946	12
<i>Alloclinus holderi</i>	0.2917	0.4502	12

Appendix C. 5 Meter quadrat data.

2005 5 - METER QUADRAT DATA: MEAN NUMBER PER M²

NOTE: *Macrocystis pyrifera* Adult = >1m and haptera above the primary dicotomy

Macrocystis pyrifera Subadult = >1m and NO haptera above the primary

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
San Miguel Island - Wyckoff Ledge			
<i>Macrocystis pyrifera</i> Adult	0.1200	0.1682	40
<i>Macrocystis pyrifera</i> Subadult	0.1400	0.2489	40
<i>Pisaster giganteus</i>	0.0100	0.0441	40
San Miguel Island - Hare Rock			
<i>Macrocystis pyrifera</i> Adult	0.4650	0.5132	40
<i>Macrocystis pyrifera</i> Subadult	0.8450	0.8659	40
<i>Pisaster giganteus</i>	0.1750	0.2725	40
Santa Rosa Island - Johnson's Lee North			
<i>Macrocystis pyrifera</i> Adult	0.5000	0.4815	40
<i>Macrocystis pyrifera</i> Subadult	0.2750	0.2924	40
<i>Pisaster giganteus</i>	0.1450	0.2171	40
Santa Rosa Island - Johnson's Lee South			
<i>Macrocystis pyrifera</i> Adult	0.1850	0.2370	40
<i>Macrocystis pyrifera</i> Subadult	0.1300	0.2544	40
<i>Pisaster giganteus</i>	0.1200	0.2472	40
Santa Rosa Island - Rodes Reef			
<i>Macrocystis pyrifera</i> Adult	0.2250	0.2762	40
<i>Macrocystis pyrifera</i> Subadult	0.0000	0.0000	40
<i>Pisaster giganteus</i>	0.1300	0.1843	40
Santa Cruz Island - Gull Island South			
<i>Macrocystis pyrifera</i> Adult	0.2250	0.2273	40
<i>Macrocystis pyrifera</i> Subadult	0.1850	0.2413	40
<i>Pisaster giganteus</i>	0.2350	0.2966	40
Santa Cruz Island - Fry's Harbor			
<i>Macrocystis pyrifera</i> Adult	0.0000	0.0000	40
<i>Macrocystis pyrifera</i> Subadult	0.0050	0.0316	40
<i>Pisaster giganteus</i>	0.2700	0.3988	40
Santa Cruz Island - Pelican Bay			
<i>Macrocystis pyrifera</i> Adult	0.0000	0.0000	40
<i>Macrocystis pyrifera</i> Subadult	0.0000	0.0000	40
<i>Pisaster giganteus</i>	0.0450	0.0846	40
Santa Cruz Island - Scorpion Anchorage			
<i>Macrocystis pyrifera</i> Adult	0.0000	0.0000	40
<i>Macrocystis pyrifera</i> Subadult	0.0200	0.0883	40
<i>Pisaster giganteus</i>	0.0550	0.1011	40
Santa Cruz Island - Yellow Banks			
<i>Macrocystis pyrifera</i> Adult	0.3850	0.3278	40
<i>Macrocystis pyrifera</i> Subadult	0.0150	0.0700	40
<i>Pisaster giganteus</i>	0.0150	0.0533	40

2005 5 - METER QUADRAT DATA: MEAN NUMBER PER M²

NOTE: *Macrocystis pyrifera* Adult = >1m and haptera above the primary dicotomy

Macrocystis pyrifera Subadult = >1m and NO haptera above the primary

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Anacapa Island - Admiral's Reef			
<i>Macrocystis pyrifera</i> Adult	0.0250	0.0670	40
<i>Macrocystis pyrifera</i> Subadult	0.4250	0.5856	40
<i>Pisaster giganteus</i>	0.0350	0.0893	40
Anacapa Island - Cathedral Cove			
<i>Macrocystis pyrifera</i> Adult	0.2950	0.3105	40
<i>Macrocystis pyrifera</i> Subadult	0.8550	1.2051	40
<i>Pisaster giganteus</i>	0.0000	0.0000	40
Anacapa Island - Landing Cove			
<i>Macrocystis pyrifera</i> Adult	0.1350	0.1994	40
<i>Macrocystis pyrifera</i> Subadult	1.5650	1.7317	40
<i>Pisaster giganteus</i>	0.0000	0.0000	40
Santa Barbara Island - SE Sea Lion Rookery			
<i>Macrocystis pyrifera</i> Adult	0.0000	0.0000	40
<i>Macrocystis pyrifera</i> Subadult	0.0000	0.0000	40
<i>Pisaster giganteus</i>	0.0350	0.0893	40
Santa Barbara Island - Arch Point			
<i>Macrocystis pyrifera</i> Adult	0.0000	0.0000	40
<i>Macrocystis pyrifera</i> Subadult	0.0000	0.0000	40
<i>Pisaster giganteus</i>	0.0600	0.0928	40
Santa Barbara Island - Cat Canyon			
<i>Macrocystis pyrifera</i> Adult	0.0000	0.0000	40
<i>Macrocystis pyrifera</i> Subadult	0.0000	0.0000	40
<i>Pisaster giganteus</i>	0.1450	0.1694	40
San Miguel Island - Miracle Mile			
<i>Macrocystis pyrifera</i> Adult	0.1450	0.2396	40
<i>Macrocystis pyrifera</i> Subadult	0.0200	0.0992	40
<i>Pisaster giganteus</i>	0.4350	0.6837	40
Santa Rosa Island - Cluster Point			
<i>Macrocystis pyrifera</i> Adult	0.1300	0.2289	40
<i>Macrocystis pyrifera</i> Subadult	0.0050	0.0316	40
<i>Pisaster giganteus</i>	0.1250	0.2250	40
Santa Rosa Island - Trancion Canyon			
<i>Macrocystis pyrifera</i> Adult	0.2150	0.3490	40
<i>Macrocystis pyrifera</i> Subadult	0.0250	0.0809	40
<i>Pisaster giganteus</i>	0.3700	0.4993	40
Santa Rosa Island - Chickasaw			
<i>Macrocystis pyrifera</i> Adult	0.1250	0.1905	40
<i>Macrocystis pyrifera</i> Subadult	0.0100	0.0441	40
<i>Pisaster giganteus</i>	0.1500	0.3162	40

2005 5 - METER QUADRAT DATA: MEAN NUMBER PER M²

NOTE: *Macrocystis pyrifera* Adult = >1m and haptera above the primary dicotomy

Macrocystis pyrifera Subadult = >1m and NO haptera above the primary

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Rosa Island - South Point			
<i>Macrocystis pyrifera</i> Adult	0.1100	0.1692	40
<i>Macrocystis pyrifera</i> Subadult	0.0600	0.1707	40
<i>Pisaster giganteus</i>	0.0300	0.0853	40
Santa Cruz Island - Devil's Peak Member			
<i>Macrocystis pyrifera</i> Adult	0.0000	0.0000	40
<i>Macrocystis pyrifera</i> Subadult	0.0000	0.0000	40
<i>Pisaster giganteus</i>	0.1250	0.1794	40
Santa Cruz Island - Potato Pasture			
<i>Macrocystis pyrifera</i> Adult	0.0000	0.0000	40
<i>Macrocystis pyrifera</i> Subadult	0.0000	0.0000	40
<i>Pisaster giganteus</i>	0.0650	0.1312	40
Santa Cruz Island - Cavern Point			
<i>Macrocystis pyrifera</i> Adult	0.0000	0.0000	40
<i>Macrocystis pyrifera</i> Subadult	0.0000	0.0000	40
<i>Pisaster giganteus</i>	0.0250	0.0670	40
Santa Cruz Island - Little Scorpion			
<i>Macrocystis pyrifera</i> Adult	0.0000	0.0000	40
<i>Macrocystis pyrifera</i> Subadult	0.0000	0.0000	40
<i>Pisaster giganteus</i>	0.0500	0.0987	40
Santa Cruz Island - Pedro Reef			
<i>Macrocystis pyrifera</i> Adult	0.0000	0.0000	40
<i>Macrocystis pyrifera</i> Subadult	0.0000	0.0000	40
<i>Pisaster giganteus</i>	0.0350	0.0893	40
Anacapa Island - Keyhole			
<i>Macrocystis pyrifera</i> Adult	0.0000	0.0000	40
<i>Macrocystis pyrifera</i> Subadult	0.0050	0.0316	40
<i>Pisaster giganteus</i>	0.0150	0.0533	40
Anacapa Island - East Fish Camp			
<i>Macrocystis pyrifera</i> Adult	0.0000	0.0000	40
<i>Macrocystis pyrifera</i> Subadult	0.0000	0.0000	40
<i>Pisaster giganteus</i>	0.0250	0.0670	40
Anacapa Island - Black Sea Bass Reef			
<i>Macrocystis pyrifera</i> Adult	0.0000	0.0000	40
<i>Macrocystis pyrifera</i> Subadult	0.0000	0.0000	40
<i>Pisaster giganteus</i>	0.0250	0.0670	40
Anacapa Island - Lighthouse			
<i>Macrocystis pyrifera</i> Adult	0.2150	0.2617	40
<i>Macrocystis pyrifera</i> Subadult	0.2150	0.3880	40
<i>Pisaster giganteus</i>	0.0200	0.0608	40

2005 5 - METER QUADRAT DATA: MEAN NUMBER PER M²

NOTE: *Macrocystis pyrifera* Adult = >1m and haptera above the primary dicotomy

Macrocystis pyrifera Subadult = >1m and NO haptera above the primary

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Barbara Island - Webster's Arch			
<i>Macrocystis pyrifera</i> Adult	0.0000	0.0000	40
<i>Macrocystis pyrifera</i> Subadult	0.0000	0.0000	40
<i>Pisaster giganteus</i>	0.1150	0.1350	40
Santa Barbara Island - Graveyard Canyon			
<i>Macrocystis pyrifera</i> Adult	0.0000	0.0000	40
<i>Macrocystis pyrifera</i> Subadult	0.0000	0.0000	40
<i>Pisaster giganteus</i>	0.0200	0.0608	40
Santa Barbara Island - Southeast Reef			
<i>Macrocystis pyrifera</i> Adult	0.1700	0.2289	40
<i>Macrocystis pyrifera</i> Subadult	0.0600	0.1446	40
<i>Pisaster giganteus</i>	0.1000	0.1812	40

Appendix D. Band transect data.

2005 BAND TRANSECT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
San Miguel Island - Wyckoff Ledge			
<i>Tethya aurantia</i>	0.1250	0.0957	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.2417	0.1046	12
<i>Lophogorgia chilensis</i>	0.0000	0.0000	12
<i>Muricea fruticosa</i>	0.0000	0.0000	12
<i>Muricea californica</i>	0.0000	0.0000	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.0361	0.0324	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.1111	0.0705	12
<i>Megathura crenulata</i>	0.0014	0.0048	12
<i>Crassedoma giganteum</i>	0.0125	0.0161	12
<i>Aplysia californica</i>	0.0000	0.0000	12
<i>Pycnopodia helianthoides</i>	0.0319	0.0241	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12
San Miguel Island - Hare Rock			
<i>Tethya aurantia</i>	0.0278	0.0278	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0139	0.0264	12
<i>Lophogorgia chilensis</i>	0.0000	0.0000	12
<i>Muricea fruticosa</i>	0.0000	0.0000	12
<i>Muricea californica</i>	0.0000	0.0000	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0042	0.0144	12
<i>Megathura crenulata</i>	0.0014	0.0048	12
<i>Crassedoma giganteum</i>	0.0000	0.0000	12
<i>Aplysia californica</i>	0.0000	0.0000	12
<i>Pycnopodia helianthoides</i>	0.1819	0.0857	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12
Santa Rosa Island - Johnson's Lee North			
<i>Tethya aurantia</i>	0.1611	0.0587	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0236	0.0305	12
<i>Lophogorgia chilensis</i>	0.0000	0.0000	12
<i>Muricea fruticosa</i>	0.0000	0.0000	12
<i>Muricea californica</i>	0.0000	0.0000	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.0125	0.0257	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0042	0.0075	12
<i>Megathura crenulata</i>	0.0014	0.0048	12
<i>Crassedoma giganteum</i>	0.0125	0.0176	12
<i>Aplysia californica</i>	0.0000	0.0000	12
<i>Pycnopodia helianthoides</i>	0.1306	0.0517	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12

2005 BAND TRANSECT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Rosa Island - Johnson's Lee South			
<i>Tethya aurantia</i>	0.3306	0.1403	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.1569	0.1164	12
<i>Lophogorgia chilensis</i>	0.0597	0.0270	12
<i>Muricea fruticosa</i>	0.0000	0.0000	12
<i>Muricea californica</i>	0.0000	0.0000	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.0028	0.0065	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0208	0.0276	12
<i>Megathura crenulata</i>	0.0056	0.0192	12
<i>Crassedoma giganteum</i>	0.0042	0.0075	12
<i>Aplysia californica</i>	0.0000	0.0000	12
<i>Pycnopodia helianthoides</i>	0.1042	0.0756	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12
Santa Rosa Island - Rodes Reef			
<i>Tethya aurantia</i>	0.1486	0.0723	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0306	0.0120	12
<i>Lophogorgia chilensis</i>	0.0000	0.0000	12
<i>Muricea fruticosa</i>	0.0000	0.0000	12
<i>Muricea californica</i>	0.0000	0.0000	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0111	0.0192	12
<i>Megathura crenulata</i>	0.0097	0.0194	12
<i>Crassedoma giganteum</i>	0.0014	0.0048	12
<i>Aplysia californica</i>	0.0000	0.0000	12
<i>Pycnopodia helianthoides</i>	0.1069	0.0649	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12
Santa Cruz Island - Gull Island South			
<i>Tethya aurantia</i>	0.1806	0.0987	12
<i>Stylaster californica</i>	0.0486	0.0597	12
<i>Tealia lofotensis</i>	0.0014	0.0048	12
<i>Lophogorgia chilensis</i>	0.0264	0.0279	12
<i>Muricea fruticosa</i>	0.0000	0.0000	12
<i>Muricea californica</i>	0.0000	0.0000	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0153	0.0111	12
<i>Megathura crenulata</i>	0.0000	0.0000	12
<i>Crassedoma giganteum</i>	0.0153	0.0132	12
<i>Aplysia californica</i>	0.0000	0.0000	12
<i>Pycnopodia helianthoides</i>	0.0292	0.0267	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12

2005 BAND TRANSECT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Cruz Island - Fry's Harbor			
<i>Tethya aurantia</i>	0.0042	0.0104	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0014	0.0048	12
<i>Lophogorgia chilensis</i>	0.2347	0.1944	12
<i>Muricea fruticosa</i>	0.0014	0.0048	12
<i>Muricea californica</i>	0.0000	0.0000	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0208	0.0176	12
<i>Megathura crenulata</i>	0.0167	0.0201	12
<i>Crassedoma giganteum</i>	0.0250	0.0261	12
<i>Aplysia californica</i>	0.0125	0.0237	12
<i>Pycnopodia helianthoides</i>	0.0278	0.0239	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12
Santa Cruz Island - Pelican Bay			
<i>Tethya aurantia</i>	0.0278	0.0378	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0000	0.0000	12
<i>Lophogorgia chilensis</i>	0.1222	0.1021	12
<i>Muricea fruticosa</i>	0.0000	0.0000	12
<i>Muricea californica</i>	0.0000	0.0000	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0153	0.0132	12
<i>Megathura crenulata</i>	0.0014	0.0048	12
<i>Crassedoma giganteum</i>	0.0389	0.0736	12
<i>Aplysia californica</i>	0.0278	0.0228	12
<i>Pycnopodia helianthoides</i>	0.0000	0.0000	12
<i>Lytechinus anamesus</i>	1.7542	0.7574	12
Santa Cruz Island - Scorpion Anchorage			
<i>Tethya aurantia</i>	0.0361	0.0382	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0000	0.0000	12
<i>Lophogorgia chilensis</i>	0.0014	0.0048	12
<i>Muricea fruticosa</i>	0.0028	0.0065	12
<i>Muricea californica</i>	0.0000	0.0000	12
<i>Panulirus interruptus</i>	0.0042	0.0104	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0000	0.0000	12
<i>Megathura crenulata</i>	0.0750	0.0386	12
<i>Crassedoma giganteum</i>	0.0944	0.0533	12
<i>Aplysia californica</i>	0.0042	0.0075	12
<i>Pycnopodia helianthoides</i>	0.0000	0.0000	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12

2005 BAND TRANSECT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Cruz Island - Yellow Banks			
<i>Tethya aurantia</i>	0.0625	0.0421	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0000	0.0000	12
<i>Lophogorgia chilensis</i>	0.0667	0.0546	12
<i>Muricea fruticosa</i>	0.0014	0.0048	12
<i>Muricea californica</i>	0.0097	0.0111	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0444	0.0552	12
<i>Megathura crenulata</i>	0.0000	0.0000	12
<i>Crassedoma giganteum</i>	0.0028	0.0096	12
<i>Aplysia californica</i>	0.0000	0.0000	12
<i>Pycnopodia helianthoides</i>	0.0167	0.0159	12
<i>Lytechinus anamesus</i>	0.0639	0.0536	12
Anacapa Island - Admiral's Reef			
<i>Tethya aurantia</i>	0.0069	0.0111	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0000	0.0000	12
<i>Lophogorgia chilensis</i>	0.0764	0.0479	12
<i>Muricea fruticosa</i>	0.0028	0.0096	12
<i>Muricea californica</i>	0.0319	0.0241	12
<i>Panulirus interruptus</i>	0.0056	0.0082	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0042	0.0104	12
<i>Megathura crenulata</i>	0.0125	0.0126	12
<i>Crassedoma giganteum</i>	0.0153	0.0166	12
<i>Aplysia californica</i>	0.0069	0.0086	12
<i>Pycnopodia helianthoides</i>	0.0000	0.0000	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12
Anacapa Island - Cathedral Cove			
<i>Tethya aurantia</i>	0.0014	0.0048	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0000	0.0000	12
<i>Lophogorgia chilensis</i>	0.0000	0.0000	12
<i>Muricea fruticosa</i>	0.0000	0.0000	12
<i>Muricea californica</i>	0.0000	0.0000	12
<i>Panulirus interruptus</i>	0.0069	0.0166	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0014	0.0048	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0000	0.0000	12
<i>Megathura crenulata</i>	0.0319	0.0366	12
<i>Crassedoma giganteum</i>	0.0181	0.0219	12
<i>Aplysia californica</i>	0.0069	0.0194	12
<i>Pycnopodia helianthoides</i>	0.0000	0.0000	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12

2005 BAND TRANSECT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Anacapa Island - Landing Cove			
<i>Tethya aurantia</i>	0.0069	0.0132	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0000	0.0000	12
<i>Lophogorgia chilensis</i>	0.0083	0.0112	12
<i>Muricea fruticosa</i>	0.0014	0.0048	12
<i>Muricea californica</i>	0.0000	0.0000	12
<i>Panulirus interruptus</i>	0.0819	0.1050	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0083	0.0167	12
<i>Megathura crenulata</i>	0.0361	0.0497	12
<i>Crassedoma giganteum</i>	0.5681	0.6738	12
<i>Aplysia californica</i>	0.0000	0.0000	12
<i>Pycnopodia helianthoides</i>	0.0000	0.0000	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12
Santa Barbara Island - SE Sea Lion Rookery			
<i>Tethya aurantia</i>	0.0903	0.0672	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0000	0.0000	12
<i>Lophogorgia chilensis</i>	0.1653	0.0780	12
<i>Muricea fruticosa</i>	0.0028	0.0096	12
<i>Muricea californica</i>	0.0361	0.0244	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0000	0.0000	12
<i>Megathura crenulata</i>	0.0125	0.0237	12
<i>Crassedoma giganteum</i>	0.0056	0.0148	12
<i>Aplysia californica</i>	0.0125	0.0126	12
<i>Pycnopodia helianthoides</i>	0.0042	0.0075	12
<i>Lytechinus anamesus</i>	0.0014	0.0048	12
Santa Barbara Island - Arch Point			
<i>Tethya aurantia</i>	0.0000	0.0000	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0000	0.0000	12
<i>Lophogorgia chilensis</i>	0.0028	0.0065	12
<i>Muricea fruticosa</i>	0.0014	0.0048	12
<i>Muricea californica</i>	0.0000	0.0000	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0000	0.0000	12
<i>Megathura crenulata</i>	0.0000	0.0000	12
<i>Crassedoma giganteum</i>	0.0139	0.0156	12
<i>Aplysia californica</i>	0.0514	0.0321	12
<i>Pycnopodia helianthoides</i>	0.0000	0.0000	12
<i>Lytechinus anamesus</i>	0.0056	0.0109	12

2005 BAND TRANSECT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Barbara Island - Cat Canyon			
<i>Tethya aurantia</i>	0.0014	0.0048	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0000	0.0000	12
<i>Lophogorgia chilensis</i>	0.0000	0.0000	12
<i>Muricea fruticosa</i>	0.0000	0.0000	12
<i>Muricea californica</i>	0.0014	0.0048	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0000	0.0000	12
<i>Megathura crenulata</i>	0.0028	0.0065	12
<i>Crassedoma giganteum</i>	0.0139	0.0156	12
<i>Aplysia californica</i>	0.0125	0.0126	12
<i>Pycnopodia helianthoides</i>	0.0014	0.0048	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12
San Miguel Island - Miracle Mile			
<i>Tethya aurantia</i>	0.1903	0.0866	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.1722	0.0839	12
<i>Lophogorgia chilensis</i>	0.0000	0.0000	12
<i>Muricea fruticosa</i>	0.0000	0.0000	12
<i>Muricea californica</i>	0.0000	0.0000	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.5069	0.5220	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0264	0.0379	12
<i>Megathura crenulata</i>	0.0208	0.0226	12
<i>Crassedoma giganteum</i>	0.0056	0.0148	12
<i>Aplysia californica</i>	0.0000	0.0000	12
<i>Pycnopodia helianthoides</i>	0.0236	0.0219	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12
Santa Rosa Island - Cluster Point			
<i>Tethya aurantia</i>	0.3903	0.1466	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0792	0.0294	12
<i>Lophogorgia chilensis</i>	0.0000	0.0000	12
<i>Muricea fruticosa</i>	0.0000	0.0000	12
<i>Muricea californica</i>	0.0000	0.0000	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.0028	0.0096	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0292	0.0247	12
<i>Megathura crenulata</i>	0.0375	0.0370	12
<i>Crassedoma giganteum</i>	0.0278	0.0343	12
<i>Aplysia californica</i>	0.0000	0.0000	12
<i>Pycnopodia helianthoides</i>	0.0319	0.0270	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12

2005 BAND TRANSECT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Rosa Island - Trancion Canyon			
<i>Tethya aurantia</i>	0.1986	0.0854	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0972	0.0492	12
<i>Lophogorgia chilensis</i>	0.0014	0.0048	12
<i>Muricea fruticosa</i>	0.0000	0.0000	12
<i>Muricea californica</i>	0.0000	0.0000	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.0028	0.0096	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0056	0.0109	12
<i>Megathura crenulata</i>	0.0319	0.0270	12
<i>Crassedoma giganteum</i>	0.0208	0.0176	12
<i>Aplysia californica</i>	0.0000	0.0000	12
<i>Pycnopodia helianthoides</i>	0.1097	0.0379	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12
Santa Rosa Island - Chickasaw			
<i>Tethya aurantia</i>	0.1722	0.0687	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.1222	0.0726	12
<i>Lophogorgia chilensis</i>	0.0000	0.0000	12
<i>Muricea fruticosa</i>	0.0000	0.0000	12
<i>Muricea californica</i>	0.0000	0.0000	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.0306	0.0234	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0000	0.0000	12
<i>Megathura crenulata</i>	0.0097	0.0150	12
<i>Crassedoma giganteum</i>	0.0139	0.0120	12
<i>Aplysia californica</i>	0.0000	0.0000	12
<i>Pycnopodia helianthoides</i>	0.0833	0.0376	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12
Santa Rosa Island - South Point			
<i>Tethya aurantia</i>	0.1556	0.0802	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0347	0.0351	12
<i>Lophogorgia chilensis</i>	0.0000	0.0000	12
<i>Muricea fruticosa</i>	0.0000	0.0000	12
<i>Muricea californica</i>	0.0000	0.0000	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.0597	0.0683	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0208	0.0327	12
<i>Megathura crenulata</i>	0.0042	0.0144	12
<i>Crassedoma giganteum</i>	0.0153	0.0207	12
<i>Aplysia californica</i>	0.0028	0.0096	12
<i>Pycnopodia helianthoides</i>	0.0514	0.0452	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12

2005 BAND TRANSECT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Cruz Island - Devil's Peak Member			
<i>Tethya aurantia</i>	0.0153	0.0150	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0000	0.0000	12
<i>Lophogorgia chilensis</i>	0.1542	0.3103	12
<i>Muricea fruticosa</i>	0.0000	0.0000	12
<i>Muricea californica</i>	0.0042	0.0075	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0000	0.0000	12
<i>Megathura crenulata</i>	0.1722	0.0796	12
<i>Crassedoma giganteum</i>	0.1000	0.0595	12
<i>Aplysia californica</i>	0.0208	0.0267	12
<i>Pycnopodia helianthoides</i>	0.0056	0.0082	12
<i>Lytechinus anamesus</i>	0.0500	0.0659	12
Santa Cruz Island - Potato Pasture			
<i>Tethya aurantia</i>	0.0306	0.0300	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0000	0.0000	12
<i>Lophogorgia chilensis</i>	0.1722	0.1028	12
<i>Muricea fruticosa</i>	0.0000	0.0000	12
<i>Muricea californica</i>	0.0014	0.0048	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0014	0.0048	12
<i>Megathura crenulata</i>	0.0319	0.0321	12
<i>Crassedoma giganteum</i>	0.2583	0.2911	12
<i>Aplysia californica</i>	0.0292	0.0349	12
<i>Pycnopodia helianthoides</i>	0.0000	0.0000	12
<i>Lytechinus anamesus</i>	0.5653	0.9760	12
Santa Cruz Island - Cavern Point			
<i>Tethya aurantia</i>	0.0486	0.0429	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0000	0.0000	12
<i>Lophogorgia chilensis</i>	0.2778	0.2514	12
<i>Muricea fruticosa</i>	0.0000	0.0000	12
<i>Muricea californica</i>	0.0028	0.0065	12
<i>Panulirus interruptus</i>	0.0014	0.0048	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0014	0.0048	12
<i>Megathura crenulata</i>	0.0875	0.0700	12
<i>Crassedoma giganteum</i>	0.3486	0.2182	12
<i>Aplysia californica</i>	0.0278	0.0343	12
<i>Pycnopodia helianthoides</i>	0.0000	0.0000	12
<i>Lytechinus anamesus</i>	0.0181	0.0270	12

2005 BAND TRANSECT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Cruz Island - Little Scorpion			
<i>Tethya aurantia</i>	0.0083	0.0133	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0000	0.0000	12
<i>Lophogorgia chilensis</i>	0.1167	0.1312	12
<i>Muricea fruticosa</i>	0.0000	0.0000	12
<i>Muricea californica</i>	0.0000	0.0000	12
<i>Panulirus interruptus</i>	0.0014	0.0048	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0333	0.0555	12
<i>Megathura crenulata</i>	0.2194	0.1683	12
<i>Crassedoma giganteum</i>	0.2361	0.1245	12
<i>Aplysia californica</i>	0.0292	0.0467	12
<i>Pycnopodia helianthoides</i>	0.0014	0.0048	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12
Santa Cruz Island - Pedro Reef			
<i>Tethya aurantia</i>	0.0639	0.0658	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0000	0.0000	12
<i>Lophogorgia chilensis</i>	0.3861	0.2264	12
<i>Muricea fruticosa</i>	0.0000	0.0000	12
<i>Muricea californica</i>	0.0056	0.0109	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.1028	0.1148	12
<i>Megathura crenulata</i>	0.0264	0.0313	12
<i>Crassedoma giganteum</i>	0.0889	0.1380	12
<i>Aplysia californica</i>	0.0306	0.0407	12
<i>Pycnopodia helianthoides</i>	0.0000	0.0000	12
<i>Lytechinus anamesus</i>	0.1056	0.1133	12
Anacapa Island - Keyhole			
<i>Tethya aurantia</i>	0.0014	0.0048	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0000	0.0000	12
<i>Lophogorgia chilensis</i>	0.2639	0.1077	12
<i>Muricea fruticosa</i>	0.0042	0.0104	12
<i>Muricea californica</i>	0.0292	0.0215	12
<i>Panulirus interruptus</i>	0.0056	0.0109	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0069	0.0132	12
<i>Megathura crenulata</i>	0.0028	0.0096	12
<i>Crassedoma giganteum</i>	0.0819	0.0613	12
<i>Aplysia californica</i>	0.0472	0.0443	12
<i>Pycnopodia helianthoides</i>	0.0000	0.0000	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12

2005 BAND TRANSECT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Anacapa Island - East Fish Camp			
<i>Tethya aurantia</i>	0.0139	0.0186	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0000	0.0000	12
<i>Lophogorgia chilensis</i>	0.0153	0.0166	12
<i>Muricea fruticosa</i>	0.0042	0.0075	12
<i>Muricea californica</i>	0.0069	0.0086	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0361	0.0460	12
<i>Megathura crenulata</i>	0.0708	0.0319	12
<i>Crassedoma giganteum</i>	0.0681	0.0543	12
<i>Aplysia californica</i>	0.0458	0.0427	12
<i>Pycnopodia helianthoides</i>	0.0000	0.0000	12
<i>Lytechinus anamesus</i>	0.1792	0.1335	12
Anacapa Island - Black Sea Bass Reef			
<i>Tethya aurantia</i>	0.0361	0.0347	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0000	0.0000	12
<i>Lophogorgia chilensis</i>	0.0083	0.0112	12
<i>Muricea fruticosa</i>	0.0069	0.0086	12
<i>Muricea californica</i>	0.0014	0.0048	12
<i>Panulirus interruptus</i>	0.0097	0.0166	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0014	0.0048	12
<i>Megathura crenulata</i>	0.1917	0.1095	12
<i>Crassedoma giganteum</i>	0.0083	0.0112	12
<i>Aplysia californica</i>	0.0000	0.0000	12
<i>Pycnopodia helianthoides</i>	0.0000	0.0000	12
<i>Lytechinus anamesus</i>	0.0042	0.0144	12
Anacapa Island - Lighthouse			
<i>Tethya aurantia</i>	0.0514	0.0490	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0000	0.0000	12
<i>Lophogorgia chilensis</i>	0.1431	0.0584	12
<i>Muricea fruticosa</i>	0.0306	0.0211	12
<i>Muricea californica</i>	0.3167	0.1049	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0875	0.0472	12
<i>Megathura crenulata</i>	0.0958	0.0421	12
<i>Crassedoma giganteum</i>	0.0569	0.0495	12
<i>Aplysia californica</i>	0.0000	0.0000	12
<i>Pycnopodia helianthoides</i>	0.0000	0.0000	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12

2005 BAND TRANSECT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Barbara Island - Webster's Arch			
<i>Tethya aurantia</i>	0.0014	0.0048	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0000	0.0000	12
<i>Lophogorgia chilensis</i>	0.0056	0.0109	12
<i>Muricea fruticosa</i>	0.0000	0.0000	12
<i>Muricea californica</i>	0.0042	0.0075	12
<i>Panulirus interruptus</i>	0.0014	0.0048	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0056	0.0109	12
<i>Megathura crenulata</i>	0.0403	0.0575	12
<i>Crassedoma giganteum</i>	0.0097	0.0132	12
<i>Aplysia californica</i>	0.0736	0.0344	12
<i>Pycnopodia helianthoides</i>	0.0014	0.0048	12
<i>Lytechinus anamesus</i>	0.0056	0.0109	12
Santa Barbara Island - Graveyard Canyon			
<i>Tethya aurantia</i>	0.0514	0.0435	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0000	0.0000	12
<i>Lophogorgia chilensis</i>	0.0514	0.0605	12
<i>Muricea fruticosa</i>	0.0000	0.0000	12
<i>Muricea californica</i>	0.0264	0.0344	12
<i>Panulirus interruptus</i>	0.0000	0.0000	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0000	0.0000	12
<i>Megathura crenulata</i>	0.0111	0.0130	12
<i>Crassedoma giganteum</i>	0.0000	0.0000	12
<i>Aplysia californica</i>	0.0583	0.0373	12
<i>Pycnopodia helianthoides</i>	0.0042	0.0104	12
<i>Lytechinus anamesus</i>	0.0222	0.0451	12
Santa Barbara Island - Southeast Reef			
<i>Tethya aurantia</i>	0.0056	0.0109	12
<i>Stylaster californica</i>	0.0000	0.0000	12
<i>Tealia lofotensis</i>	0.0000	0.0000	12
<i>Lophogorgia chilensis</i>	0.0111	0.0109	12
<i>Muricea fruticosa</i>	0.0014	0.0048	12
<i>Muricea californica</i>	0.0083	0.0133	12
<i>Panulirus interruptus</i>	0.0028	0.0065	12
<i>Haliotis rufescens</i>	0.0000	0.0000	12
<i>Haliotis corrugata</i>	0.0000	0.0000	12
<i>Haliotis fulgens</i>	0.0000	0.0000	12
<i>Kelletia kelletii</i>	0.0000	0.0000	12
<i>Megathura crenulata</i>	0.0042	0.0075	12
<i>Crassedoma giganteum</i>	0.0069	0.0111	12
<i>Aplysia californica</i>	0.0042	0.0075	12
<i>Pycnopodia helianthoides</i>	0.0014	0.0048	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12

Appendix E. Random point contact data.

2005 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
San Miguel Island - Wyckoff Ledge			
Green Algae	0.167	0.6455	15
Miscellaneous Brown Algae	12.333	10.0653	15
<i>Desmarestia</i> spp.	17.500	14.7600	15
<i>Cystoseira</i> spp.	0.000	0.0000	15
<i>Macrocystis pyrifera</i> All	18.667	9.4428	15
<i>Eisenia arborea</i> All	0.000	0.0000	15
<i>Pterygophora californica</i> All	1.833	3.8344	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	27.833	19.1299	15
Articulated Coralline Algae	13.167	12.1180	15
Encrusting Coralline Algae	41.667	14.9603	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.500	1.4015	15
Miscellaneous Plants (ie: Diatoms)	0.167	0.6455	15
Sponges	0.833	1.5430	15
<i>Corynactis californica</i>	0.667	2.5820	15
<i>Balanophyllia elegans</i>	1.333	2.6502	15
<i>Astrangia lajollaensis</i>	0.500	1.0351	15
<i>Diopatra ornata</i>	14.167	10.8425	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	9.167	4.4987	15
<i>Diaperoecia californica</i>	0.000	0.0000	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	1.500	2.8031	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	3.500	4.0970	15
Bare Substrate	13.500	12.8104	15
Rock	77.667	19.3526	15
Cobble	1.500	3.5102	15
Sand	20.833	18.1921	15

San Miguel Island - Hare Rock

Green Algae	6.833	13.7732	15
Miscellaneous Brown Algae	1.167	1.8581	15
<i>Desmarestia</i> spp.	8.000	12.4355	15
<i>Cystoseira</i> spp.	0.000	0.0000	15
<i>Macrocystis pyrifera</i> All	17.667	20.0327	15
<i>Eisenia arborea</i> All	0.000	0.0000	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	10.833	12.1988	15
Articulated Coralline Algae	1.333	3.1149	15
Encrusting Coralline Algae	47.667	25.6429	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	7.167	8.3915	15
Miscellaneous Plants (ie: Diatoms)	0.167	0.6455	15
Sponges	0.000	0.0000	15
<i>Corynactis californica</i>	4.333	5.3005	15
<i>Balanophyllia elegans</i>	1.167	2.2887	15
<i>Astrangia lajollaensis</i>	1.833	2.7495	15
<i>Diopatra ornata</i>	1.500	2.8031	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	8.000	8.2484	15
<i>Diaperoecia californica</i>	0.167	0.6455	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	0.333	0.8797	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	6.333	4.4186	15
Bare Substrate	13.833	21.2104	15

2005 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
San Miguel Island - Hare Rock (continued)			
Rock	80.667	28.9159	15
Cobble	17.667	26.9998	15
Sand	1.667	3.7401	15

2005 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Rosa Island - Johnson's Lee North			
Green Algae	0.000	0.0000	15
Miscellaneous Brown Algae	0.000	0.0000	15
<i>Desmarestia</i> spp.	0.333	1.2910	15
<i>Cystoseira</i> spp.	9.833	10.2411	15
<i>Macrocystis pyrifera</i> All	25.333	17.6237	15
<i>Eisenia arborea</i> All	0.000	0.0000	15
<i>Pterygophora californica</i> All	3.500	5.7321	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	20.167	13.4452	15
Articulated Coralline Algae	5.167	4.7684	15
Encrusting Coralline Algae	14.000	7.7805	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	1.500	2.6390	15
Miscellaneous Plants (ie: Diatoms)	0.000	0.0000	15
Sponges	9.167	3.9716	15
<i>Corynactis californica</i>	2.167	2.0845	15
<i>Balanophyllia elegans</i>	2.500	2.9881	15
<i>Astrangia lajollaensis</i>	1.167	3.2550	15
<i>Diopatra ornata</i>	0.500	1.9365	15
<i>Phragmatopoma californica</i>	0.333	1.2910	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	21.000	9.7193	15
<i>Diaperoecia californica</i>	2.000	2.1547	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	10.667	7.9881	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	13.167	9.2807	15
Bare Substrate	4.833	5.4663	15
Rock	97.500	4.3301	15
Cobble	1.167	2.6502	15
Sand	1.333	3.2550	15
Santa Rosa Island - Johnson's Lee South			
Green Algae	0.000	0.0000	15
Miscellaneous Brown Algae	0.167	0.6455	15
<i>Desmarestia</i> spp.	0.500	1.4015	15
<i>Cystoseira</i> spp.	0.333	1.2910	15
<i>Macrocystis pyrifera</i> All	6.000	6.6009	15
<i>Eisenia arborea</i> All	0.833	1.5430	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	1.167	2.2887	15
Miscellaneous Red Algae	27.667	11.9697	15
Articulated Coralline Algae	4.833	3.9491	15
Encrusting Coralline Algae	11.833	7.7036	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	5.000	7.5593	15
Miscellaneous Plants (ie: Diatoms)	0.000	0.0000	15
Sponges	0.833	1.5430	15
<i>Corynactis californica</i>	3.000	6.4918	15
<i>Balanophyllia elegans</i>	2.833	2.9681	15
<i>Astrangia lajollaensis</i>	0.500	1.4015	15
<i>Diopatra ornata</i>	7.167	7.9545	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	18.333	8.6946	15
<i>Diaperoecia californica</i>	0.667	1.1443	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	5.000	3.1339	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	26.167	11.5289	15
Bare Substrate	18.333	20.8024	15
Rock	81.167	21.6479	15
Cobble	5.000	11.6496	15
Sand	13.833	17.1096	15

2005 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Rosa Island - Rodes Reef			
Green Algae	0.000	0.0000	15
Miscellaneous Brown Algae	0.000	0.0000	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	0.000	0.0000	15
<i>Macrocystis pyrifera</i> All	4.333	10.1536	15
<i>Eisenia arborea</i> All	0.000	0.0000	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	2.167	3.7639	15
Articulated Coralline Algae	0.000	0.0000	15
Encrusting Coralline Algae	32.667	8.5808	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	0.000	0.0000	15
Sponges	1.667	2.7817	15
<i>Corynactis californica</i>	0.000	0.0000	15
<i>Balanophyllia elegans</i>	2.833	2.0845	15
<i>Astrangia lajollaensis</i>	9.833	10.1536	15
<i>Diopatra ornata</i>	11.333	12.3515	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	29.500	10.1419	15
<i>Diaperoecia californica</i>	1.333	1.8581	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	2.667	2.7495	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	7.667	7.2251	15
Bare Substrate	1.500	3.6351	15
Rock	88.833	11.8723	15
Cobble	7.333	8.2086	15
Sand	3.833	4.5185	15
Santa Cruz Island - Gull Island South			
Green Algae	0.167	0.6455	15
Miscellaneous Brown Algae	0.167	0.6455	15
<i>Desmarestia</i> spp.	0.167	0.6455	15
<i>Cystoseira</i> spp.	0.667	2.5820	15
<i>Macrocystis pyrifera</i> All	13.667	12.8823	15
<i>Eisenia arborea</i> All	2.333	2.9073	15
<i>Pterygophora californica</i> All	0.667	1.4840	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	13.667	9.4900	15
Articulated Coralline Algae	1.167	1.2910	15
Encrusting Coralline Algae	27.667	11.0787	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	0.000	0.0000	15
Sponges	3.167	4.4788	15
<i>Corynactis californica</i>	2.333	4.6739	15
<i>Balanophyllia elegans</i>	2.833	2.6502	15
<i>Astrangia lajollaensis</i>	0.500	1.0351	15
<i>Diopatra ornata</i>	2.500	5.5097	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	20.000	8.3986	15
<i>Diaperoecia californica</i>	5.000	5.1755	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.333	0.8797	15
Tunicates	2.500	3.4069	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	38.167	10.3711	15
Bare Substrate	2.500	3.2733	15
Rock	96.167	6.9991	15
Cobble	0.500	1.0351	15
Sand	3.333	6.5918	15

2005 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Cruz Island - Fry's Harbor			
Green Algae	0.000	0.0000	15
Miscellaneous Brown Algae	1.667	2.4398	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	0.833	3.2275	15
<i>Macrocystis pyrifera</i> All	0.000	0.0000	15
<i>Eisenia arborea</i> All	3.667	4.5185	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	28.167	10.7930	15
Articulated Coralline Algae	0.167	0.6455	15
Encrusting Coralline Algae	39.000	11.9821	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	35.667	25.9544	15
Sponges	0.333	0.8797	15
<i>Corynactis californica</i>	0.000	0.0000	15
<i>Balanophyllia elegans</i>	5.667	4.8612	15
<i>Astrangia lajollaensis</i>	1.167	2.6502	15
<i>Diopatra ornata</i>	0.833	2.6163	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	1.000	1.8420	15
Miscellaneous Bryozoans	6.167	5.1640	15
<i>Diaperoecia californica</i>	2.500	3.8960	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	1.500	2.6390	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	11.500	7.7229	15
Bare Substrate	6.167	9.4900	15
Rock	82.000	13.6015	15
Cobble	9.500	10.1858	15
Sand	8.500	9.2486	15
Santa Cruz Island - Pelican Bay			
Green Algae	0.000	0.0000	15
Miscellaneous Brown Algae	0.000	0.0000	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	0.000	0.0000	15
<i>Macrocystis pyrifera</i> All	0.000	0.0000	15
<i>Eisenia arborea</i> All	0.000	0.0000	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	0.833	1.5430	15
Articulated Coralline Algae	0.000	0.0000	15
Encrusting Coralline Algae	32.833	10.8918	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	10.667	8.6843	15
Sponges	0.000	0.0000	15
<i>Corynactis californica</i>	0.000	0.0000	15
<i>Balanophyllia elegans</i>	0.167	0.6455	15
<i>Astrangia lajollaensis</i>	6.667	4.6930	15
<i>Diopatra ornata</i>	0.000	0.0000	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	0.500	1.4015	15
<i>Diaperoecia californica</i>	0.167	0.6455	15
<i>Pachythyone rubra</i>	1.833	3.8344	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	0.000	0.0000	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	7.500	4.6291	15
Bare Substrate	41.833	13.6430	15
Rock	56.333	20.1083	15
Cobble	15.500	15.2128	15
Sand	28.167	20.6040	15

2005 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Cruz Island - Scorpion Anchorage			
Green Algae	5.333	8.3381	15
Miscellaneous Brown Algae	2.667	3.8344	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	0.000	0.0000	15
<i>Macrocystis pyrifera</i> All	0.000	0.0000	15
<i>Eisenia arborea</i> All	0.000	0.0000	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	4.833	10.6262	15
Articulated Coralline Algae	0.833	1.2199	15
Encrusting Coralline Algae	62.833	29.5935	15
<i>Gelidium</i> spp.	3.667	14.2009	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	12.167	20.7206	15
Sponges	0.000	0.0000	15
<i>Corynactis californica</i>	0.000	0.0000	15
<i>Balanophyllia elegans</i>	0.000	0.0000	15
<i>Astrangia lajollaensis</i>	0.000	0.0000	15
<i>Diopatra ornata</i>	0.000	0.0000	15
<i>Phragmatopoma californica</i>	0.667	1.4840	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	0.333	0.8797	15
<i>Diaperoecia californica</i>	0.333	1.2910	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	0.333	1.2910	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	22.167	15.6943	15
Bare Substrate	19.833	17.9400	15
Rock	73.667	23.9394	15
Cobble	5.500	5.7632	15
Sand	20.833	24.7788	15
Santa Cruz Island - Yellow Banks			
Green Algae	0.000	0.0000	15
Miscellaneous Brown Algae	0.000	0.0000	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	0.000	0.0000	15
<i>Macrocystis pyrifera</i> All	11.000	8.7526	15
<i>Eisenia arborea</i> All	0.000	0.0000	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	1.333	1.8581	15
Articulated Coralline Algae	6.667	6.8574	15
Encrusting Coralline Algae	48.000	15.7605	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	0.000	0.0000	15
Sponges	2.000	3.3004	15
<i>Corynactis californica</i>	1.333	3.3894	15
<i>Balanophyllia elegans</i>	0.667	2.5820	15
<i>Astrangia lajollaensis</i>	0.167	0.6455	15
<i>Diopatra ornata</i>	1.500	2.4640	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	24.833	10.0208	15
<i>Diaperoecia californica</i>	1.000	2.0702	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	1.333	2.6502	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	12.167	7.6103	15
Bare Substrate	15.167	11.3965	15
Rock	76.500	23.8635	15
Cobble	18.167	19.7183	15
Sand	5.333	5.1640	15

2005 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Anacapa Island - Admiral's Reef			
Green Algae	3.833	4.7119	15
Miscellaneous Brown Algae	0.833	1.2199	15
<i>Desmarestia</i> spp.	0.333	1.2910	15
<i>Cystoseira</i> spp.	1.667	6.4550	15
<i>Macrocystis pyrifera</i> All	4.000	5.4935	15
<i>Eisenia arborea</i> All	1.167	1.8581	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	34.667	15.5801	15
Articulated Coralline Algae	0.500	1.0351	15
Encrusting Coralline Algae	42.500	16.5831	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.167	0.6455	15
Miscellaneous Plants (ie: Diatoms)	6.667	6.6592	15
Sponges	0.333	1.2910	15
<i>Corynactis californica</i>	1.500	3.5102	15
<i>Balanophyllia elegans</i>	0.000	0.0000	15
<i>Astrangia lajollaensis</i>	0.667	1.4840	15
<i>Diopatra ornata</i>	0.000	0.0000	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	1.000	1.5811	15
<i>Diaperoecia californica</i>	0.333	1.2910	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	30.167	29.8279	15
Tunicates	0.500	1.4015	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	24.500	13.6670	15
Bare Substrate	12.667	12.9720	15
Rock	87.167	18.1725	15
Cobble	5.167	8.0438	15
Sand	7.667	14.2198	15
Anacapa Island - Cathedral Cove			
Green Algae	0.500	1.4015	15
Miscellaneous Brown Algae	24.167	16.8148	15
<i>Desmarestia</i> spp.	0.167	0.6455	15
<i>Cystoseira</i> spp.	20.500	17.6068	15
<i>Macrocystis pyrifera</i> All	43.333	28.1366	15
<i>Eisenia arborea</i> All	2.000	5.1927	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	7.000	5.7632	15
Miscellaneous Red Algae	5.500	5.7632	15
Articulated Coralline Algae	12.500	9.1124	15
Encrusting Coralline Algae	33.333	14.1316	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	0.000	0.0000	15
Sponges	0.000	0.0000	15
<i>Corynactis californica</i>	0.000	0.0000	15
<i>Balanophyllia elegans</i>	0.000	0.0000	15
<i>Astrangia lajollaensis</i>	0.333	1.2910	15
<i>Diopatra ornata</i>	0.167	0.6455	15
<i>Phragmatopoma californica</i>	0.167	0.6455	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	11.500	8.8034	15
<i>Diaperoecia californica</i>	0.500	1.9365	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	3.667	4.4186	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	13.167	7.5277	15
Bare Substrate	20.833	16.1927	15
Rock	63.833	22.8713	15
Cobble	17.167	15.4072	15
Sand	19.000	15.7491	15

2005 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Anacapa Island - Landing Cove			
Green Algae	0.000	0.0000	15
Miscellaneous Brown Algae	0.667	1.9970	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	3.833	8.2844	15
<i>Macrocystis pyrifera</i> All	14.167	14.4441	15
<i>Eisenia arborea</i> All	14.833	18.7194	15
<i>Pterygophora californica</i> All	1.833	3.4675	15
<i>Laminaria farlowii</i> All	23.333	20.6516	15
Miscellaneous Red Algae	7.333	9.8863	15
Articulated Coralline Algae	11.667	6.6592	15
Encrusting Coralline Algae	42.000	19.4385	15
<i>Gelidium</i> spp.	15.000	29.7159	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	0.833	2.2493	15
Sponges	1.000	1.8420	15
<i>Corynactis californica</i>	1.500	2.9580	15
<i>Balanophyllia elegans</i>	0.000	0.0000	15
<i>Astrangia lajollaensis</i>	0.500	1.4015	15
<i>Diopatra ornata</i>	0.167	0.6455	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	16.500	13.9130	15
<i>Diaperoecia californica</i>	1.333	2.8137	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	3.000	3.3004	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	15.000	8.6603	15
Bare Substrate	8.333	9.3382	15
Rock	73.167	30.5378	15
Cobble	26.000	29.3349	15
Sand	0.833	1.5430	15
Santa Barbara Island - SE Sea Lion Rookery			
Green Algae	0.500	1.0351	15
Miscellaneous Brown Algae	0.167	0.6455	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	0.000	0.0000	15
<i>Macrocystis pyrifera</i> All	0.333	1.2910	15
<i>Eisenia arborea</i> All	0.000	0.0000	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	2.167	2.0845	15
Articulated Coralline Algae	0.000	0.0000	15
Encrusting Coralline Algae	59.833	15.3083	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	7.833	8.3381	15
Sponges	0.667	1.1443	15
<i>Corynactis californica</i>	2.167	4.5185	15
<i>Balanophyllia elegans</i>	0.167	0.6455	15
<i>Astrangia lajollaensis</i>	0.833	1.5430	15
<i>Diopatra ornata</i>	0.000	0.0000	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	0.833	1.2199	15
<i>Diaperoecia californica</i>	0.000	0.0000	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	41.500	35.0484	15
Tunicates	0.667	1.9970	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	9.167	8.2195	15
Bare Substrate	23.500	19.4982	15
Rock	84.833	20.9051	15
Cobble	3.333	6.5918	15
Sand	11.833	18.5035	15

2005 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Barbara Island - Arch Point			
Green Algae	0.000	0.0000	15
Miscellaneous Brown Algae	0.333	0.8797	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	0.000	0.0000	15
<i>Macrocystis pyrifera</i> All	0.000	0.0000	15
<i>Eisenia arborea</i> All	0.000	0.0000	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	14.667	7.2498	15
Articulated Coralline Algae	0.667	1.4840	15
Encrusting Coralline Algae	48.333	9.1937	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	1.000	1.5811	15
Sponges	0.000	0.0000	15
<i>Corynactis californica</i>	3.333	4.2956	15
<i>Balanophyllia elegans</i>	0.000	0.0000	15
<i>Astrangia lajollaensis</i>	0.000	0.0000	15
<i>Diopatra ornata</i>	0.000	0.0000	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	1.000	3.2459	15
<i>Diaperoecia californica</i>	0.167	0.6455	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	0.333	1.2910	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	8.500	5.8095	15
Bare Substrate	27.667	14.4379	15
Rock	79.000	19.1982	15
Cobble	17.833	16.8201	15
Sand	3.167	4.6739	15
Santa Barbara Island - Cat Canyon			
Green Algae	0.167	0.6455	15
Miscellaneous Brown Algae	0.000	0.0000	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	0.000	0.0000	15
<i>Macrocystis pyrifera</i> All	0.000	0.0000	15
<i>Eisenia arborea</i> All	0.000	0.0000	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	3.500	4.7996	15
Articulated Coralline Algae	0.333	0.8797	15
Encrusting Coralline Algae	61.000	14.0089	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	0.333	0.8797	15
Sponges	0.000	0.0000	15
<i>Corynactis californica</i>	0.333	1.2910	15
<i>Balanophyllia elegans</i>	0.000	0.0000	15
<i>Astrangia lajollaensis</i>	1.333	1.8581	15
<i>Diopatra ornata</i>	0.000	0.0000	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	0.000	0.0000	15
<i>Diaperoecia californica</i>	0.167	0.6455	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	0.000	0.0000	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	5.833	4.1904	15
Bare Substrate	30.000	12.7125	15
Rock	85.833	13.8121	15
Cobble	5.167	9.3287	15
Sand	9.000	12.0564	15

2005 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
San Miguel Island - Miracle Mile			
Green Algae	0.167	0.6455	15
Miscellaneous Brown Algae	1.333	2.8137	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	1.000	2.6390	15
<i>Macrocystis pyrifera</i> All	14.167	21.9103	15
<i>Eisenia arborea</i> All	36.500	41.3694	15
<i>Pterygophora californica</i> All	9.333	10.8342	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	49.167	28.9807	15
Articulated Coralline Algae	24.500	16.4262	15
Encrusting Coralline Algae	36.500	12.8799	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	4.833	4.1690	15
Miscellaneous Plants (ie: Diatoms)	0.000	0.0000	15
Sponges	6.833	7.3477	15
<i>Corynactis californica</i>	0.167	0.6455	15
<i>Balanophyllia elegans</i>	1.167	2.2887	15
<i>Astrangia lajollaensis</i>	0.000	0.0000	15
<i>Diopatra ornata</i>	0.167	0.6455	15
<i>Phragmatopoma californica</i>	2.833	5.1640	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	7.500	5.5097	15
<i>Diaperoecia californica</i>	0.000	0.0000	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	9.500	5.2780	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	8.833	6.1866	15
Bare Substrate	8.333	11.9024	15
Rock	88.167	13.9344	15
Cobble	3.833	5.8909	15
Sand	8.000	11.3468	15
Santa Rosa Island - Cluster Point			
Green Algae	0.000	0.0000	15
Miscellaneous Brown Algae	0.167	0.6455	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	0.167	0.6455	15
<i>Macrocystis pyrifera</i> All	5.167	9.2324	15
<i>Eisenia arborea</i> All	0.000	0.0000	15
<i>Pterygophora californica</i> All	7.833	13.9151	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	12.833	9.7223	15
Articulated Coralline Algae	2.667	4.9522	15
Encrusting Coralline Algae	24.667	7.2498	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	0.000	0.0000	15
Sponges	4.333	4.1690	15
<i>Corynactis californica</i>	0.167	0.6455	15
<i>Balanophyllia elegans</i>	2.833	2.8137	15
<i>Astrangia lajollaensis</i>	1.000	2.8031	15
<i>Diopatra ornata</i>	0.333	1.2910	15
<i>Phragmatopoma californica</i>	6.333	7.3719	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	11.667	9.6671	15
<i>Diaperoecia californica</i>	0.000	0.0000	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	6.000	4.4118	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	27.000	13.4031	15
Bare Substrate	14.833	23.5370	15
Rock	85.333	25.8924	15
Cobble	8.667	17.5476	15
Sand	6.000	9.6270	15

2005 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Rosa Island - Trancion Canyon			
Green Algae	0.000	0.0000	15
Miscellaneous Brown Algae	0.667	1.4840	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	0.500	1.9365	15
<i>Macrocystis pyrifera</i> All	11.667	12.0885	15
<i>Eisenia arborea</i> All	0.000	0.0000	15
<i>Pterygophora californica</i> All	1.333	2.4761	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	25.833	18.1183	15
Articulated Coralline Algae	12.833	12.4952	15
Encrusting Coralline Algae	15.000	10.2208	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	2.833	6.1140	15
Miscellaneous Plants (ie: Diatoms)	0.000	0.0000	15
Sponges	6.167	7.4921	15
<i>Corynactis californica</i>	1.000	2.2756	15
<i>Balanophyllia elegans</i>	2.000	1.9365	15
<i>Astrangia lajollaensis</i>	0.167	0.6455	15
<i>Diopatra ornata</i>	17.000	17.4284	15
<i>Phragmatopoma californica</i>	2.333	3.0570	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	12.667	9.6115	15
<i>Diaperoecia californica</i>	1.667	3.6187	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	7.667	5.0415	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	13.333	10.5503	15
Bare Substrate	11.333	14.6953	15
Rock	72.833	23.4114	15
Cobble	0.167	0.6455	15
Sand	27.000	23.4559	15
Santa Rosa Island - Chickasaw			
Green Algae	0.000	0.0000	15
Miscellaneous Brown Algae	0.000	0.0000	15
<i>Desmarestia</i> spp.	0.167	0.6455	15
<i>Cystoseira</i> spp.	0.333	0.8797	15
<i>Macrocystis pyrifera</i> All	8.667	12.4595	15
<i>Eisenia arborea</i> All	0.000	0.0000	15
<i>Pterygophora californica</i> All	0.667	1.4840	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	28.167	22.5489	15
Articulated Coralline Algae	11.333	9.6763	15
Encrusting Coralline Algae	20.500	12.8244	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	0.000	0.0000	15
Sponges	5.000	7.7344	15
<i>Corynactis californica</i>	0.167	0.6455	15
<i>Balanophyllia elegans</i>	1.500	1.8420	15
<i>Astrangia lajollaensis</i>	0.167	0.6455	15
<i>Diopatra ornata</i>	8.000	13.6015	15
<i>Phragmatopoma californica</i>	3.000	5.1060	15
<i>Serpulorbis squamigerus</i>	0.167	0.6455	15
Miscellaneous Bryozoans	25.833	10.0297	15
<i>Diaperoecia californica</i>	0.000	0.0000	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	8.667	5.3341	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	14.167	11.2069	15
Bare Substrate	7.833	6.1866	15
Rock	91.833	13.2782	15
Cobble	0.500	1.4015	15
Sand	7.667	12.2280	15

2005 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Rosa Island - South Point			
Green Algae	0.000	0.0000	15
Miscellaneous Brown Algae	0.333	0.8797	15
<i>Desmarestia</i> spp.	0.167	0.6455	15
<i>Cystoseira</i> spp.	2.667	2.9073	15
<i>Macrocystis pyrifera</i> All	24.500	18.0574	15
<i>Eisenia arborea</i> All	0.000	0.0000	15
<i>Pterygophora californica</i> All	11.833	13.7083	15
<i>Laminaria farlowii</i> All	5.667	6.3010	15
Miscellaneous Red Algae	47.333	13.8701	15
Articulated Coralline Algae	30.167	17.9151	15
Encrusting Coralline Algae	11.333	6.7392	15
<i>Gelidium</i> spp.	0.833	2.2493	15
<i>Gigartina</i> spp.	4.667	4.9881	15
Miscellaneous Plants (ie: Diatoms)	0.000	0.0000	15
Sponges	10.333	4.7119	15
<i>Corynactis californica</i>	0.000	0.0000	15
<i>Balanophyllia elegans</i>	0.500	1.4015	15
<i>Astrangia lajollaensis</i>	0.000	0.0000	15
<i>Diopatra ornata</i>	5.500	8.6189	15
<i>Phragmatopoma californica</i>	5.833	14.7499	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	2.500	3.1339	15
<i>Diaperoecia californica</i>	0.000	0.0000	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	4.167	4.7871	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	9.333	9.9762	15
Bare Substrate	3.333	2.9378	15
Rock	91.833	11.5134	15
Cobble	1.667	5.2327	15
Sand	6.500	9.2486	15
Santa Cruz Island - Devil's Peak Member			
Green Algae	0.000	0.0000	15
Miscellaneous Brown Algae	0.000	0.0000	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	0.000	0.0000	15
<i>Macrocystis pyrifera</i> All	0.500	1.9365	15
<i>Eisenia arborea</i> All	0.000	0.0000	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	10.000	6.4780	15
Articulated Coralline Algae	0.167	0.6455	15
Encrusting Coralline Algae	58.833	14.8464	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	0.167	0.6455	15
Sponges	0.333	1.2910	15
<i>Corynactis californica</i>	0.333	0.8797	15
<i>Balanophyllia elegans</i>	0.000	0.0000	15
<i>Astrangia lajollaensis</i>	7.333	5.3841	15
<i>Diopatra ornata</i>	0.833	2.0412	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	2.333	2.4029	15
<i>Diaperoecia californica</i>	0.667	1.4840	15
<i>Pachythyone rubra</i>	8.000	16.5346	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	1.167	2.6502	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	15.833	7.7152	15
Bare Substrate	11.333	11.2149	15
Rock	84.833	13.1090	15
Cobble	5.500	6.0651	15
Sand	9.667	10.5588	15

2005 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Cruz Island - Potato Pasture			
Green Algae	5.167	5.7838	15
Miscellaneous Brown Algae	0.000	0.0000	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	0.000	0.0000	15
<i>Macrocystis pyrifera</i> All	0.000	0.0000	15
<i>Eisenia arborea</i> All	0.000	0.0000	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	18.333	11.4434	15
Articulated Coralline Algae	1.000	1.5811	15
Encrusting Coralline Algae	47.500	16.0078	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	7.500	8.2375	15
Sponges	0.167	0.6455	15
<i>Corynactis californica</i>	2.667	4.4788	15
<i>Balanophyllia elegans</i>	0.000	0.0000	15
<i>Astrangia lajollaensis</i>	4.000	4.5119	15
<i>Diopatra ornata</i>	0.000	0.0000	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	1.667	2.6163	15
<i>Diaperoecia californica</i>	0.333	0.8797	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	1.000	1.8420	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	23.833	11.5676	15
Bare Substrate	17.000	19.8701	15
Rock	79.833	25.0262	15
Cobble	9.333	10.1975	15
Sand	10.833	16.3572	15
Santa Cruz Island - Cavern Point			
Green Algae	1.833	2.2093	15
Miscellaneous Brown Algae	0.000	0.0000	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	0.000	0.0000	15
<i>Macrocystis pyrifera</i> All	0.000	0.0000	15
<i>Eisenia arborea</i> All	0.000	0.0000	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	25.667	11.0384	15
Articulated Coralline Algae	1.667	2.2493	15
Encrusting Coralline Algae	59.833	10.1536	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	6.333	4.4186	15
Sponges	0.667	1.4840	15
<i>Corynactis californica</i>	0.833	1.5430	15
<i>Balanophyllia elegans</i>	0.167	0.6455	15
<i>Astrangia lajollaensis</i>	2.333	3.3363	15
<i>Diopatra ornata</i>	0.000	0.0000	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	1.167	1.5999	15
<i>Diaperoecia californica</i>	0.333	0.8797	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	2.167	3.2550	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	16.500	8.1723	15
Bare Substrate	13.000	6.4226	15
Rock	82.000	12.0712	15
Cobble	10.167	6.9093	15
Sand	7.833	7.2498	15

2005 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Cruz Island - Little Scorpion			
Green Algae	0.667	1.4840	15
Miscellaneous Brown Algae	1.000	2.8031	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	0.000	0.0000	15
<i>Macrocystis pyrifera</i> All	0.000	0.0000	15
<i>Eisenia arborea</i> All	0.000	0.0000	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	26.167	11.9099	15
Articulated Coralline Algae	0.000	0.0000	15
Encrusting Coralline Algae	41.167	10.1272	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	5.167	4.5774	15
Sponges	1.167	2.0845	15
<i>Corynactis californica</i>	0.000	0.0000	15
<i>Balanophyllia elegans</i>	2.167	3.1149	15
<i>Astrangia lajollaensis</i>	1.833	1.9970	15
<i>Diopatra ornata</i>	0.167	0.6455	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	5.833	5.5635	15
<i>Diaperoecia californica</i>	0.833	1.2199	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	0.500	1.0351	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	26.167	13.2916	15
Bare Substrate	10.333	10.3883	15
Rock	84.500	14.6446	15
Cobble	10.833	8.4339	15
Sand	4.667	11.1350	15
Santa Cruz Island - Pedro Reef			
Green Algae	0.333	0.8797	15
Miscellaneous Brown Algae	0.000	0.0000	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	0.000	0.0000	15
<i>Macrocystis pyrifera</i> All	0.000	0.0000	15
<i>Eisenia arborea</i> All	0.000	0.0000	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	10.333	6.7392	15
Articulated Coralline Algae	0.167	0.6455	15
Encrusting Coralline Algae	31.000	15.0535	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	2.333	4.1690	15
Sponges	0.167	0.6455	15
<i>Corynactis californica</i>	5.167	6.0847	15
<i>Balanophyllia elegans</i>	0.000	0.0000	15
<i>Astrangia lajollaensis</i>	0.333	0.8797	15
<i>Diopatra ornata</i>	0.667	1.9970	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	0.167	0.6455	15
<i>Diaperoecia californica</i>	0.000	0.0000	15
<i>Pachythyone rubra</i>	0.500	1.4015	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	0.000	0.0000	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	15.500	7.2703	15
Bare Substrate	41.333	13.4585	15
Rock	88.167	20.2102	15
Cobble	2.500	5.7477	15
Sand	9.333	17.4864	15

2005 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Anacapa Island - Keyhole			
Green Algae	2.167	2.0845	15
Miscellaneous Brown Algae	24.167	12.0885	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	0.000	0.0000	15
<i>Macrocystis pyrifera</i> All	0.000	0.0000	15
<i>Eisenia arborea</i> All	2.167	5.8146	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	38.833	15.2030	15
Articulated Coralline Algae	0.167	0.6455	15
Encrusting Coralline Algae	33.833	8.8573	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	26.167	12.9514	15
Sponges	0.167	0.6455	15
<i>Corynactis californica</i>	0.000	0.0000	15
<i>Balanophyllia elegans</i>	0.000	0.0000	15
<i>Astrangia lajollaensis</i>	0.333	0.8797	15
<i>Diopatra ornata</i>	0.667	1.1443	15
<i>Phragmatopoma californica</i>	0.167	0.6455	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	8.000	8.4621	15
<i>Diaperoecia californica</i>	0.500	1.4015	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	0.167	0.6455	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	30.000	6.2678	15
Bare Substrate	11.667	8.7966	15
Rock	77.667	15.5111	15
Cobble	9.333	7.7036	15
Sand	13.000	12.6138	15
Anacapa Island - East Fish Camp			
Green Algae	0.333	1.2910	15
Miscellaneous Brown Algae	1.667	4.4987	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	0.000	0.0000	15
<i>Macrocystis pyrifera</i> All	0.000	0.0000	15
<i>Eisenia arborea</i> All	0.000	0.0000	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	19.833	15.5111	15
Articulated Coralline Algae	0.000	0.0000	15
Encrusting Coralline Algae	54.833	25.6951	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	1.667	4.4987	15
Sponges	0.000	0.0000	15
<i>Corynactis californica</i>	7.000	6.0651	15
<i>Balanophyllia elegans</i>	0.000	0.0000	15
<i>Astrangia lajollaensis</i>	0.000	0.0000	15
<i>Diopatra ornata</i>	0.000	0.0000	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	0.167	0.6455	15
<i>Diaperoecia californica</i>	0.000	0.0000	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	17.167	20.8281	15
Tunicates	0.000	0.0000	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	9.500	8.0844	15
Bare Substrate	18.000	18.0822	15
Rock	89.833	18.9092	15
Cobble	4.667	12.6726	15
Sand	5.500	12.4355	15

2005 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Anacapa Island - Black Sea Bass Reef			
Green Algae	0.500	1.0351	15
Miscellaneous Brown Algae	0.000	0.0000	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	0.000	0.0000	15
<i>Macrocystis pyrifera</i> All	0.000	0.0000	15
<i>Eisenia arborea</i> All	0.000	0.0000	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	9.833	10.8342	15
Articulated Coralline Algae	0.500	1.4015	15
Encrusting Coralline Algae	71.167	18.8951	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	9.833	13.2107	15
Sponges	0.500	1.0351	15
<i>Corynactis californica</i>	1.000	1.8420	15
<i>Balanophyllia elegans</i>	0.000	0.0000	15
<i>Astrangia lajollaensis</i>	0.000	0.0000	15
<i>Diopatra ornata</i>	0.000	0.0000	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	2.000	2.8661	15
<i>Diaperoecia californica</i>	0.167	0.6455	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	84.333	24.2470	15
Tunicates	0.333	0.8797	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	5.000	5.6695	15
Bare Substrate	10.000	9.0139	15
Rock	88.167	12.8684	15
Cobble	8.167	10.1975	15
Sand	3.667	5.2497	15
Anacapa Island - Lighthouse			
Green Algae	0.167	0.6455	15
Miscellaneous Brown Algae	9.667	11.7590	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	9.500	5.1927	15
<i>Macrocystis pyrifera</i> All	12.333	12.5167	15
<i>Eisenia arborea</i> All	0.667	1.7593	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	0.333	1.2910	15
Miscellaneous Red Algae	8.167	7.9320	15
Articulated Coralline Algae	6.167	4.1043	15
Encrusting Coralline Algae	38.500	17.7985	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	0.000	0.0000	15
Sponges	0.500	1.0351	15
<i>Corynactis californica</i>	1.000	1.5811	15
<i>Balanophyllia elegans</i>	0.500	1.0351	15
<i>Astrangia lajollaensis</i>	0.000	0.0000	15
<i>Diopatra ornata</i>	8.667	6.8704	15
<i>Phragmatopoma californica</i>	6.833	9.5182	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	13.000	6.8269	15
<i>Diaperoecia californica</i>	0.000	0.0000	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	5.833	6.7259	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	12.833	6.6726	15
Bare Substrate	10.000	5.8248	15
Rock	77.500	12.5712	15
Cobble	8.500	7.7805	15
Sand	14.000	8.2267	15

2005 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Barbara Island - Webster's Arch			
Green Algae	4.000	5.6537	15
Miscellaneous Brown Algae	0.000	0.0000	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	0.000	0.0000	15
<i>Macrocystis pyrifera</i> All	0.000	0.0000	15
<i>Eisenia arborea</i> All	1.667	6.4550	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	8.167	4.8612	15
Articulated Coralline Algae	1.333	1.8581	15
Encrusting Coralline Algae	60.333	12.2426	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	1.333	2.2887	15
Sponges	0.500	1.0351	15
<i>Corynactis californica</i>	4.833	6.5783	15
<i>Balanophyllia elegans</i>	0.333	0.8797	15
<i>Astrangia lajollaensis</i>	0.167	0.6455	15
<i>Diopatra ornata</i>	0.000	0.0000	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	0.167	0.6455	15
Miscellaneous Bryozoans	2.167	2.0845	15
<i>Diaperoecia californica</i>	0.167	0.6455	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	1.833	7.1005	15
Tunicates	2.000	2.1547	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	6.833	5.3005	15
Bare Substrate	16.667	9.3382	15
Rock	88.833	20.9989	15
Cobble	9.333	17.6895	15
Sand	1.833	4.4788	15

Santa Barbara Island - Graveyard Canyon

Green Algae	3.571	6.6299	14
Miscellaneous Brown Algae	3.500	6.6009	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	0.000	0.0000	15
<i>Macrocystis pyrifera</i> All	0.000	0.0000	15
<i>Eisenia arborea</i> All	0.000	0.0000	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	6.833	6.1577	15
Articulated Coralline Algae	0.000	0.0000	15
Encrusting Coralline Algae	37.000	24.8603	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	0.000	0.0000	15
Sponges	0.333	1.2910	15
<i>Corynactis californica</i>	0.000	0.0000	15
<i>Balanophyllia elegans</i>	0.167	0.6455	15
<i>Astrangia lajollaensis</i>	2.667	4.4788	15
<i>Diopatra ornata</i>	0.500	1.0351	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	0.000	0.0000	15
<i>Diaperoecia californica</i>	0.000	0.0000	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	17.667	23.8946	15
Tunicates	0.000	0.0000	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	2.833	3.8807	15
Bare Substrate	45.667	32.1196	15
Rock	60.500	33.0070	15
Cobble	2.833	2.8137	15
Sand	36.667	34.1826	15

2005 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Barbara Island - Southeast Reef			
Green Algae	4.667	5.1640	15
Miscellaneous Brown Algae	2.000	3.6839	15
<i>Desmarestia</i> spp.	0.000	0.0000	15
<i>Cystoseira</i> spp.	0.000	0.0000	15
<i>Macrocystis pyrifera</i> All	11.000	16.2788	15
<i>Eisenia arborea</i> All	0.167	0.6455	15
<i>Pterygophora californica</i> All	0.000	0.0000	15
<i>Laminaria farlowii</i> All	0.000	0.0000	15
Miscellaneous Red Algae	13.167	7.7036	15
Articulated Coralline Algae	5.333	6.6054	15
Encrusting Coralline Algae	40.000	22.4801	15
<i>Gelidium</i> spp.	0.000	0.0000	15
<i>Gigartina</i> spp.	0.000	0.0000	15
Miscellaneous Plants (ie: Diatoms)	0.000	0.0000	15
Sponges	2.667	3.5940	15
<i>Corynactis californica</i>	0.000	0.0000	15
<i>Balanophyllia elegans</i>	0.000	0.0000	15
<i>Astrangia lajollaensis</i>	0.167	0.6455	15
<i>Diopatra ornata</i>	1.167	3.2550	15
<i>Phragmatopoma californica</i>	0.000	0.0000	15
<i>Serpulorbis squamigerus</i>	0.000	0.0000	15
Miscellaneous Bryozoans	5.667	5.3005	15
<i>Diaperoecia californica</i>	0.000	0.0000	15
<i>Pachythyone rubra</i>	0.000	0.0000	15
<i>Ophiothrix spiculata</i>	0.000	0.0000	15
Tunicates	12.167	9.6301	15
Miscellaneous Invertebrates excluding <i>Ophiothrix spiculata</i>	20.000	17.6271	15
Bare Substrate	13.000	14.2428	15
Rock	83.167	19.7635	15
Cobble	7.333	8.7355	15
Sand	9.500	15.0060	15

Appendix F. Fish transect data.

2005 FISH TRANSECT DATA: MEAN NUMBER PER TRANSECT (300 M³)

	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
San Miguel Island - Wyckoff Ledge				
<i>Chromis punctipinnis</i> Adult	8/9/2005	0.0000	0.0000	4
<i>Chromis punctipinnis</i> Juvenile	8/9/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	8/9/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Juvenile	8/9/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	8/9/2005	0.5000	0.5774	4
<i>Sebastes mystinus</i> Juvenile	8/9/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	8/9/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	8/9/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	8/9/2005	0.2500	0.5000	4
<i>Sebastes atrovirens</i> Juvenile	8/9/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	8/9/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Juvenile	8/9/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	8/9/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	8/9/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Juvenile	8/9/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Adult	8/9/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Juvenile	8/9/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	8/9/2005	0.7500	1.5000	4
<i>Embiotoca lateralis</i> Juvenile	8/9/2005	0.5000	0.5774	4
<i>Rhacochilus vacca</i> Adult	8/9/2005	0.2500	0.5000	4
<i>Rhacochilus vacca</i> Juvenile	8/9/2005	3.0000	6.0000	4
<i>Hypsypops rubicundus</i> Adult	8/9/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Juvenile	8/9/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	8/9/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Juvenile	8/9/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	8/9/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	8/9/2005	0.0000	0.0000	4
San Miguel Island - Hare Rock				
<i>Chromis punctipinnis</i> Adult	6/16/2005	0.0000	0.0000	4
<i>Chromis punctipinnis</i> Juvenile	6/16/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	6/16/2005	19.2500	27.9687	4
<i>Oxyjulis californica</i> Juvenile	6/16/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	6/16/2005	4.7500	4.0311	4
<i>Sebastes mystinus</i> Juvenile	6/16/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	6/16/2005	0.2500	0.5000	4
<i>Sebastes serranoides</i> Juvenile	6/16/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	6/16/2005	0.2500	0.5000	4
<i>Sebastes atrovirens</i> Juvenile	6/16/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	6/16/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Juvenile	6/16/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	6/16/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	6/16/2005	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> Juvenile	6/16/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Adult	6/16/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Juvenile	6/16/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	6/16/2005	1.7500	0.9574	4
<i>Embiotoca lateralis</i> Juvenile	6/16/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	6/16/2005	0.2500	0.5000	4
<i>Rhacochilus vacca</i> Juvenile	6/16/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	6/16/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Juvenile	6/16/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	6/16/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Juvenile	6/16/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	6/16/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	6/16/2005	0.0000	0.0000	4

2005 FISH TRANSECT DATA: MEAN NUMBER PER TRANSECT (300 M³)

	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Rosa Island - Johnson's Lee North				
<i>Chromis punctipinnis</i> Adult	7/12/2005	0.5000	1.0000	4
<i>Chromis punctipinnis</i> Juvenile	7/12/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	7/12/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Juvenile	7/12/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	7/12/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Juvenile	7/12/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	7/12/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	7/12/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	7/12/2005	0.2500	0.5000	4
<i>Sebastes atrovirens</i> Juvenile	7/12/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	7/12/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Juvenile	7/12/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	7/12/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	7/12/2005	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> Juvenile	7/12/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Adult	7/12/2005	2.2500	0.9574	4
<i>Embiotoca jacksoni</i> Juvenile	7/12/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	7/12/2005	2.2500	1.2583	4
<i>Embiotoca lateralis</i> Juvenile	7/12/2005	0.5000	0.5774	4
<i>Rhacochilus vacca</i> Adult	7/12/2005	1.2500	0.9574	4
<i>Rhacochilus vacca</i> Juvenile	7/12/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	7/12/2005	0.2500	0.5000	4
<i>Hypsypops rubicundus</i> Juvenile	7/12/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	7/12/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Juvenile	7/12/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	7/12/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	7/12/2005	0.0000	0.0000	4
Santa Rosa Island - Johnson's Lee South				
<i>Chromis punctipinnis</i> Adult	7/13/2005	4.0000	6.7330	4
<i>Chromis punctipinnis</i> Juvenile	7/13/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	7/13/2005	12.2500	3.4034	4
<i>Oxyjulis californica</i> Juvenile	7/13/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	7/13/2005	1.7500	1.7078	4
<i>Sebastes mystinus</i> Juvenile	7/13/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	7/13/2005	0.7500	0.9574	4
<i>Sebastes serranoides</i> Juvenile	7/13/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	7/13/2005	0.7500	0.9574	4
<i>Sebastes atrovirens</i> Juvenile	7/13/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	7/13/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Juvenile	7/13/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	7/13/2005	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> Female	7/13/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Juvenile	7/13/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Adult	7/13/2005	0.2500	0.5000	4
<i>Embiotoca jacksoni</i> Juvenile	7/13/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	7/13/2005	0.2500	0.5000	4
<i>Embiotoca lateralis</i> Juvenile	7/13/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	7/13/2005	0.2500	0.5000	4
<i>Rhacochilus vacca</i> Juvenile	7/13/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	7/13/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Juvenile	7/13/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	7/13/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Juvenile	7/13/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	7/13/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	7/13/2005	0.0000	0.0000	4

2005 FISH TRANSECT DATA: MEAN NUMBER PER TRANSECT (300 M³)

	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Rosa Island - Rodes Reef				
<i>Chromis punctipinnis</i> Adult	6/14/2005	0.0000	0.0000	8
<i>Chromis punctipinnis</i> Adult	8/8/2005	0.0000	0.0000	4
<i>Chromis punctipinnis</i> Juvenile	6/14/2005	0.0000	0.0000	8
<i>Chromis punctipinnis</i> Juvenile	8/8/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	6/14/2005	0.0000	0.0000	8
<i>Oxyjulis californica</i> Adult	8/8/2005	5.0000	6.8799	4
<i>Oxyjulis californica</i> Juvenile	6/14/2005	0.0000	0.0000	8
<i>Oxyjulis californica</i> Juvenile	8/8/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	6/14/2005	1.7500	1.8323	8
<i>Sebastes mystinus</i> Adult	8/8/2005	1.2500	1.5000	4
<i>Sebastes mystinus</i> Juvenile	6/14/2005	0.0000	0.0000	8
<i>Sebastes mystinus</i> Juvenile	8/8/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	6/14/2005	0.1250	0.3536	8
<i>Sebastes serranoides</i> Adult	8/8/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	6/14/2005	0.0000	0.0000	8
<i>Sebastes serranoides</i> Juvenile	8/8/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	6/14/2005	0.0000	0.0000	8
<i>Sebastes atrovirens</i> Adult	8/8/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Juvenile	6/14/2005	0.0000	0.0000	8
<i>Sebastes atrovirens</i> Juvenile	8/8/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	6/14/2005	0.1250	0.3536	8
<i>Paralabrax clathratus</i> Adult	8/8/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Juvenile	6/14/2005	0.0000	0.0000	8
<i>Paralabrax clathratus</i> Juvenile	8/8/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	6/14/2005	0.0000	0.0000	8
<i>Semicossyphus pulcher</i> Male	8/8/2005	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> Female	6/14/2005	0.1250	0.3536	8
<i>Semicossyphus pulcher</i> Female	8/8/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Juvenile	6/14/2005	0.0000	0.0000	8
<i>Semicossyphus pulcher</i> Juvenile	8/8/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Adult	6/14/2005	0.6250	1.1877	8
<i>Embiotoca jacksoni</i> Adult	8/8/2005	1.2500	1.2583	4
<i>Embiotoca jacksoni</i> Juvenile	6/14/2005	0.0000	0.0000	8
<i>Embiotoca jacksoni</i> Juvenile	8/8/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	6/14/2005	1.0000	1.0690	8
<i>Embiotoca lateralis</i> Adult	8/8/2005	0.5000	1.0000	4
<i>Embiotoca lateralis</i> Juvenile	6/14/2005	0.0000	0.0000	8
<i>Embiotoca lateralis</i> Juvenile	8/8/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	6/14/2005	0.2500	0.7071	8
<i>Rhacochilus vacca</i> Adult	8/8/2005	0.2500	0.5000	4
<i>Rhacochilus vacca</i> Juvenile	6/14/2005	0.0000	0.0000	8
<i>Rhacochilus vacca</i> Juvenile	8/8/2005	0.5000	0.5774	4
<i>Hypsypops rubicundus</i> Adult	6/14/2005	0.0000	0.0000	8
<i>Hypsypops rubicundus</i> Adult	8/8/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Juvenile	6/14/2005	0.0000	0.0000	8
<i>Hypsypops rubicundus</i> Juvenile	8/8/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	6/14/2005	0.0000	0.0000	8
<i>Girella nigricans</i> Adult	8/8/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Juvenile	6/14/2005	0.0000	0.0000	8
<i>Girella nigricans</i> Juvenile	8/8/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	6/14/2005	0.0000	0.0000	8
<i>Halichoeres semicinctus</i> Male	8/8/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	6/14/2005	0.0000	0.0000	8
<i>Halichoeres semicinctus</i> Female	8/8/2005	0.0000	0.0000	4

2005 FISH TRANSECT DATA: MEAN NUMBER PER TRANSECT (300 M³)

	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Cruz Island - Gull Island South				
<i>Chromis punctipinnis</i> Adult	6/30/2005	12.7500	24.8378	4
<i>Chromis punctipinnis</i> Juvenile	6/30/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	6/30/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Juvenile	6/30/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	6/30/2005	0.5000	1.0000	4
<i>Sebastes mystinus</i> Juvenile	6/30/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	6/30/2005	0.2500	0.5000	4
<i>Sebastes serranoides</i> Juvenile	6/30/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	6/30/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Juvenile	6/30/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	6/30/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Juvenile	6/30/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	6/30/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	6/30/2005	1.5000	1.0000	4
<i>Semicossyphus pulcher</i> Juvenile	6/30/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Adult	6/30/2005	2.2500	2.6300	4
<i>Embiotoca jacksoni</i> Juvenile	6/30/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	6/30/2005	0.2500	0.5000	4
<i>Embiotoca lateralis</i> Juvenile	6/30/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	6/30/2005	0.5000	0.5774	4
<i>Rhacochilus vacca</i> Juvenile	6/30/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	6/30/2005	0.2500	0.5000	4
<i>Hypsypops rubicundus</i> Juvenile	6/30/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	6/30/2005	0.5000	0.5774	4
<i>Girella nigricans</i> Juvenile	6/30/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	6/30/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	6/30/2005	0.0000	0.0000	4
Santa Cruz Island - Fry's Harbor				
<i>Chromis punctipinnis</i> Adult	6/29/2005	95.5000	57.9454	4
<i>Chromis punctipinnis</i> Juvenile	6/29/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	6/29/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Juvenile	6/29/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	6/29/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Juvenile	6/29/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	6/29/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	6/29/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	6/29/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Juvenile	6/29/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	6/29/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Juvenile	6/29/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	6/29/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	6/29/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Juvenile	6/29/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Adult	6/29/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Juvenile	6/29/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	6/29/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Juvenile	6/29/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	6/29/2005	0.2500	0.5000	4
<i>Rhacochilus vacca</i> Juvenile	6/29/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	6/29/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Juvenile	6/29/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	6/29/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Juvenile	6/29/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	6/29/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	6/29/2005	0.0000	0.0000	4

2005 FISH TRANSECT DATA: MEAN NUMBER PER TRANSECT (300 M³)

	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Cruz Island - Pelican Bay				
<i>Chromis punctipinnis</i> Adult	6/13/2005	23.0000	10.9240	4
<i>Chromis punctipinnis</i> Juvenile	6/13/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	6/13/2005	0.2500	0.5000	4
<i>Oxyjulis californica</i> Juvenile	6/13/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	6/13/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Juvenile	6/13/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	6/13/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	6/13/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	6/13/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Juvenile	6/13/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	6/13/2005	0.5000	0.5774	4
<i>Paralabrax clathratus</i> Juvenile	6/13/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	6/13/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	6/13/2005	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> Juvenile	6/13/2005	0.2500	0.5000	4
<i>Embiotoca jacksoni</i> Adult	6/13/2005	1.2500	0.5000	4
<i>Embiotoca jacksoni</i> Juvenile	6/13/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	6/13/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Juvenile	6/13/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	6/13/2005	0.7500	0.9574	4
<i>Rhacochilus vacca</i> Juvenile	6/13/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	6/13/2005	1.5000	0.5774	4
<i>Hypsypops rubicundus</i> Juvenile	6/13/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	6/13/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Juvenile	6/13/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	6/13/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	6/13/2005	0.0000	0.0000	4
Santa Cruz Island - Scorpion Anchorage				
<i>Chromis punctipinnis</i> Adult	9/8/2005	8.7500	5.6789	4
<i>Chromis punctipinnis</i> Juvenile	9/8/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	9/8/2005	2.7500	0.5000	4
<i>Oxyjulis californica</i> Juvenile	9/8/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	9/8/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Juvenile	9/8/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	9/8/2005	0.5000	1.0000	4
<i>Sebastes serranoides</i> Juvenile	9/8/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	9/8/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Juvenile	9/8/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	9/8/2005	2.0000	1.4142	4
<i>Paralabrax clathratus</i> Juvenile	9/8/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	9/8/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	9/8/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Juvenile	9/8/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Adult	9/8/2005	4.2500	2.0616	4
<i>Embiotoca jacksoni</i> Juvenile	9/8/2005	1.2500	1.8930	4
<i>Embiotoca lateralis</i> Adult	9/8/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Juvenile	9/8/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	9/8/2005	1.5000	1.7321	4
<i>Rhacochilus vacca</i> Juvenile	9/8/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	9/8/2005	1.2500	1.2583	4
<i>Hypsypops rubicundus</i> Juvenile	9/8/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	9/8/2005	0.7500	0.9574	4
<i>Girella nigricans</i> Juvenile	9/8/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	9/8/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	9/8/2005	0.2500	0.5000	4

2005 FISH TRANSECT DATA: MEAN NUMBER PER TRANSECT (300 M³)

	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Cruz Island - Yellow Banks				
<i>Chromis punctipinnis</i> Adult	8/23/2005	0.0000	0.0000	4
<i>Chromis punctipinnis</i> Juvenile	8/23/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	8/23/2005	0.5000	0.5774	4
<i>Oxyjulis californica</i> Juvenile	8/23/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	8/23/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Juvenile	8/23/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	8/23/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	8/23/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	8/23/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Juvenile	8/23/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	8/23/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Juvenile	8/23/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	8/23/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	8/23/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Juvenile	8/23/2005	0.7500	0.9574	4
<i>Embiotoca jacksoni</i> Adult	8/23/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Juvenile	8/23/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	8/23/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Juvenile	8/23/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	8/23/2005	0.5000	0.5774	4
<i>Rhacochilus vacca</i> Juvenile	8/23/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	8/23/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Juvenile	8/23/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	8/23/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Juvenile	8/23/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	8/23/2005	0.2500	0.5000	4
<i>Halichoeres semicinctus</i> Female	8/23/2005	0.0000	0.0000	4
Anacapa Island - Admiral's Reef				
<i>Chromis punctipinnis</i> Adult	8/22/2005	75.2500	23.0994	4
<i>Chromis punctipinnis</i> Juvenile	8/22/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	8/22/2005	13.0000	7.6594	4
<i>Oxyjulis californica</i> Juvenile	8/22/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	8/22/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Juvenile	8/22/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	8/22/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	8/22/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	8/22/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Juvenile	8/22/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	8/22/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Juvenile	8/22/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	8/22/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	8/22/2005	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> Juvenile	8/22/2005	0.7500	0.5000	4
<i>Embiotoca jacksoni</i> Adult	8/22/2005	0.5000	0.5774	4
<i>Embiotoca jacksoni</i> Juvenile	8/22/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	8/22/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Juvenile	8/22/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	8/22/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Juvenile	8/22/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	8/22/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Juvenile	8/22/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	8/22/2005	1.7500	1.7078	4
<i>Girella nigricans</i> Juvenile	8/22/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	8/22/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	8/22/2005	0.2500	0.5000	4

2005 FISH TRANSECT DATA: MEAN NUMBER PER TRANSECT (300 M³)

	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Anacapa Island - Cathedral Cove				
<i>Chromis punctipinnis</i> Adult	6/27/2005	63.0000	94.5657	4
<i>Chromis punctipinnis</i> Juvenile	6/27/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	6/27/2005	0.2500	0.5000	4
<i>Oxyjulis californica</i> Juvenile	6/27/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	6/27/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Juvenile	6/27/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	6/27/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	6/27/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	6/27/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Juvenile	6/27/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	6/27/2005	0.2500	0.5000	4
<i>Paralabrax clathratus</i> Juvenile	6/27/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	6/27/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	6/27/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Juvenile	6/27/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Adult	6/27/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Juvenile	6/27/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	6/27/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Juvenile	6/27/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	6/27/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Juvenile	6/27/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	6/27/2005	1.2500	0.5000	4
<i>Hypsypops rubicundus</i> Juvenile	6/27/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	6/27/2005	0.5000	0.5774	4
<i>Girella nigricans</i> Juvenile	6/27/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	6/27/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	6/27/2005	0.0000	0.0000	4
Anacapa Island - Landing Cove				
<i>Chromis punctipinnis</i> Adult	5/12/2005	31.7500	13.1498	4
<i>Chromis punctipinnis</i> Adult	7/15/2005	0.1250	0.3536	8
<i>Chromis punctipinnis</i> Adult	9/5/2005	24.2500	14.3602	8
<i>Chromis punctipinnis</i> Juvenile	5/12/2005	0.0000	0.0000	4
<i>Chromis punctipinnis</i> Juvenile	7/15/2005	0.0000	0.0000	8
<i>Chromis punctipinnis</i> Juvenile	9/5/2005	0.0000	0.0000	8
<i>Oxyjulis californica</i> Adult	5/12/2005	0.7500	0.9574	4
<i>Oxyjulis californica</i> Adult	7/15/2005	7.3750	6.0223	8
<i>Oxyjulis californica</i> Adult	9/5/2005	4.2500	1.4880	8
<i>Oxyjulis californica</i> Juvenile	5/12/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Juvenile	7/15/2005	0.0000	0.0000	8
<i>Oxyjulis californica</i> Juvenile	9/5/2005	0.0000	0.0000	8
<i>Sebastes mystinus</i> Adult	5/12/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	7/15/2005	0.0000	0.0000	8
<i>Sebastes mystinus</i> Adult	9/5/2005	0.0000	0.0000	8
<i>Sebastes mystinus</i> Juvenile	5/12/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Juvenile	7/15/2005	0.0000	0.0000	8
<i>Sebastes mystinus</i> Juvenile	9/5/2005	0.0000	0.0000	8
<i>Sebastes serranoides</i> Adult	5/12/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	7/15/2005	0.0000	0.0000	8
<i>Sebastes serranoides</i> Adult	9/5/2005	0.0000	0.0000	8
<i>Sebastes serranoides</i> Juvenile	5/12/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	7/15/2005	0.0000	0.0000	8
<i>Sebastes serranoides</i> Juvenile	9/5/2005	0.0000	0.0000	8
<i>Sebastes atrovirens</i> Adult	5/12/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	7/15/2005	0.0000	0.0000	8
<i>Sebastes atrovirens</i> Adult	9/5/2005	0.0000	0.0000	8
<i>Sebastes atrovirens</i> Juvenile	5/12/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Juvenile	7/15/2005	0.0000	0.0000	8

2005 FISH TRANSECT DATA: MEAN NUMBER PER TRANSECT (300 M³)

	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Anacapa Island - Landing Cove continued				
<i>Sebastes atrovirens</i> Juvenile	9/5/2005	0.0000	0.0000	8
<i>Paralabrax clathratus</i> Adult	5/12/2005	1.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	7/15/2005	0.2500	0.4629	8
<i>Paralabrax clathratus</i> Adult	9/5/2005	0.5000	0.5345	8
<i>Paralabrax clathratus</i> Juvenile	5/12/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Juvenile	7/15/2005	0.1250	0.3536	8
<i>Paralabrax clathratus</i> Juvenile	9/5/2005	0.0000	0.0000	8
<i>Semicossyphus pulcher</i> Male	5/12/2005	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> Male	7/15/2005	0.0000	0.0000	8
<i>Semicossyphus pulcher</i> Male	9/5/2005	0.1250	0.3536	8
<i>Semicossyphus pulcher</i> Female	5/12/2005	1.2500	0.5000	4
<i>Semicossyphus pulcher</i> Female	7/15/2005	0.3750	0.5175	8
<i>Semicossyphus pulcher</i> Female	9/5/2005	0.1250	0.3536	8
<i>Semicossyphus pulcher</i> Juvenile	5/12/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Juvenile	7/15/2005	0.0000	0.0000	8
<i>Semicossyphus pulcher</i> Juvenile	9/5/2005	0.0000	0.0000	8
<i>Embiotoca jacksoni</i> Adult	5/12/2005	1.7500	0.9574	4
<i>Embiotoca jacksoni</i> Adult	7/15/2005	0.8750	1.1260	8
<i>Embiotoca jacksoni</i> Adult	9/5/2005	0.8750	0.6409	8
<i>Embiotoca jacksoni</i> Juvenile	5/12/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Juvenile	7/15/2005	0.1250	0.3536	8
<i>Embiotoca jacksoni</i> Juvenile	9/5/2005	0.0000	0.0000	8
<i>Embiotoca lateralis</i> Adult	5/12/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	7/15/2005	0.0000	0.0000	8
<i>Embiotoca lateralis</i> Adult	9/5/2005	0.0000	0.0000	8
<i>Embiotoca lateralis</i> Juvenile	5/12/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Juvenile	7/15/2005	0.0000	0.0000	8
<i>Embiotoca lateralis</i> Juvenile	9/5/2005	0.0000	0.0000	8
<i>Rhacochilus vacca</i> Adult	5/12/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	7/15/2005	0.1250	0.3536	8
<i>Rhacochilus vacca</i> Adult	9/5/2005	0.0000	0.0000	8
<i>Rhacochilus vacca</i> Juvenile	5/12/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Juvenile	7/15/2005	0.0000	0.0000	8
<i>Rhacochilus vacca</i> Juvenile	9/5/2005	0.0000	0.0000	8
<i>Hypsypops rubicundus</i> Adult	5/12/2005	1.2500	1.5000	4
<i>Hypsypops rubicundus</i> Adult	7/15/2005	0.7500	0.8864	8
<i>Hypsypops rubicundus</i> Adult	9/5/2005	1.1250	0.8345	8
<i>Hypsypops rubicundus</i> Juvenile	5/12/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Juvenile	7/15/2005	0.0000	0.0000	8
<i>Hypsypops rubicundus</i> Juvenile	9/5/2005	0.0000	0.0000	8
<i>Girella nigricans</i> Adult	5/12/2005	1.5000	1.7321	4
<i>Girella nigricans</i> Adult	7/15/2005	1.0000	1.1952	8
<i>Girella nigricans</i> Adult	9/5/2005	0.7500	0.8864	8
<i>Girella nigricans</i> Juvenile	5/12/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Juvenile	7/15/2005	0.0000	0.0000	8
<i>Girella nigricans</i> Juvenile	9/5/2005	0.0000	0.0000	8
<i>Halichoeres semicinctus</i> Male	5/12/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	7/15/2005	0.0000	0.0000	8
<i>Halichoeres semicinctus</i> Male	9/5/2005	0.1250	0.3536	8
<i>Halichoeres semicinctus</i> Female	5/12/2005	0.5000	1.0000	4
<i>Halichoeres semicinctus</i> Female	7/15/2005	0.0000	0.0000	8
<i>Halichoeres semicinctus</i> Female	9/5/2005	0.0000	0.0000	8

2005 FISH TRANSECT DATA: MEAN NUMBER PER TRANSECT (300 M³)

	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Barbara Island - SE Sea Lion Rookery				
<i>Chromis punctipinnis</i> Adult	5/19/2005	0.5000	1.0000	4
<i>Chromis punctipinnis</i> Juvenile	5/19/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	5/19/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Juvenile	5/19/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	5/19/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Juvenile	5/19/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	5/19/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	5/19/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	5/19/2005	0.2500	0.5000	4
<i>Sebastes atrovirens</i> Juvenile	5/19/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	5/19/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Juvenile	5/19/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	5/19/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	5/19/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Juvenile	5/19/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Adult	5/19/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Juvenile	5/19/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	5/19/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Juvenile	5/19/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	5/19/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Juvenile	5/19/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	5/19/2005	0.2500	0.5000	4
<i>Hypsypops rubicundus</i> Juvenile	5/19/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	5/19/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Juvenile	5/19/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	5/19/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	5/19/2005	0.0000	0.0000	4
Santa Barbara Island - Arch Point				
<i>Chromis punctipinnis</i> Adult	5/17/2005	69.7500	33.7775	4
<i>Chromis punctipinnis</i> Juvenile	5/17/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	5/17/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Juvenile	5/17/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	5/17/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Juvenile	5/17/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	5/17/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	5/17/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	5/17/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Juvenile	5/17/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	5/17/2005	1.0000	1.4142	4
<i>Paralabrax clathratus</i> Juvenile	5/17/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	5/17/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	5/17/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Juvenile	5/17/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Adult	5/17/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Juvenile	5/17/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	5/17/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Juvenile	5/17/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	5/17/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Juvenile	5/17/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	5/17/2005	2.5000	0.5774	4
<i>Hypsypops rubicundus</i> Juvenile	5/17/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	5/17/2005	3.2500	3.9476	4
<i>Girella nigricans</i> Juvenile	5/17/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	5/17/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	5/17/2005	0.0000	0.0000	4

2005 FISH TRANSECT DATA: MEAN NUMBER PER TRANSECT (300 M³)

	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Barbara Island - Cat Canyon				
<i>Chromis punctipinnis</i> Adult	5/18/2005	0.0000	0.0000	4
<i>Chromis punctipinnis</i> Juvenile	5/18/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	5/18/2005	1.2500	2.5000	4
<i>Oxyjulis californica</i> Juvenile	5/18/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	5/18/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Juvenile	5/18/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	5/18/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	5/18/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	5/18/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Juvenile	5/18/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	5/18/2005	0.5000	0.5774	4
<i>Paralabrax clathratus</i> Juvenile	5/18/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	5/18/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	5/18/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Juvenile	5/18/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Adult	5/18/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Juvenile	5/18/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	5/18/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Juvenile	5/18/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	5/18/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Juvenile	5/18/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	5/18/2005	0.5000	0.5774	4
<i>Hypsypops rubicundus</i> Juvenile	5/18/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	5/18/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Juvenile	5/18/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	5/18/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	5/18/2005	0.0000	0.0000	4
Santa Rosa Island - Cluster Point				
<i>Chromis punctipinnis</i> Adult	8/24/2005	0.0000	0.0000	4
<i>Chromis punctipinnis</i> Juvenile	8/24/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	8/24/2005	2.0000	1.6330	4
<i>Oxyjulis californica</i> Juvenile	8/24/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	8/24/2005	0.5000	1.0000	4
<i>Sebastes mystinus</i> Juvenile	8/24/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	8/24/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	8/24/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	8/24/2005	0.2500	0.5000	4
<i>Sebastes atrovirens</i> Juvenile	8/24/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	8/24/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Juvenile	8/24/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	8/24/2005	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> Female	8/24/2005	0.5000	1.0000	4
<i>Semicossyphus pulcher</i> Juvenile	8/24/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Adult	8/24/2005	1.5000	1.2910	4
<i>Embiotoca jacksoni</i> Juvenile	8/24/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	8/24/2005	1.2500	0.5000	4
<i>Embiotoca lateralis</i> Juvenile	8/24/2005	0.2500	0.5000	4
<i>Rhacochilus vacca</i> Adult	8/24/2005	0.5000	1.0000	4
<i>Rhacochilus vacca</i> Juvenile	8/24/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	8/24/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Juvenile	8/24/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	8/24/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Juvenile	8/24/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	8/24/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	8/24/2005	0.0000	0.0000	4

2005 FISH TRANSECT DATA: MEAN NUMBER PER TRANSECT (300 M³)

	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Rosa Island - Trancion Canyon				
<i>Chromis punctipinnis</i> Adult	9/20/2005	0.0000	0.0000	4
<i>Chromis punctipinnis</i> Juvenile	9/20/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	9/20/2005	5.5000	10.3441	4
<i>Oxyjulis californica</i> Juvenile	9/20/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	9/20/2005	0.5000	0.5774	4
<i>Sebastes mystinus</i> Juvenile	9/20/2005	0.5000	1.0000	4
<i>Sebastes serranoides</i> Adult	9/20/2005	0.2500	0.5000	4
<i>Sebastes serranoides</i> Juvenile	9/20/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	9/20/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Juvenile	9/20/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	9/20/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Juvenile	9/20/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	9/20/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	9/20/2005	0.7500	0.5000	4
<i>Semicossyphus pulcher</i> Juvenile	9/20/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Adult	9/20/2005	0.2500	0.5000	4
<i>Embiotoca jacksoni</i> Juvenile	9/20/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	9/20/2005	4.2500	2.9861	4
<i>Embiotoca lateralis</i> Juvenile	9/20/2005	0.5000	1.0000	4
<i>Rhacochilus vacca</i> Adult	9/20/2005	0.5000	0.5774	4
<i>Rhacochilus vacca</i> Juvenile	9/20/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	9/20/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Juvenile	9/20/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	9/20/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Juvenile	9/20/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	9/20/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	9/20/2005	0.0000	0.0000	4
Santa Rosa Island - Chickasaw				
<i>Chromis punctipinnis</i> Adult	8/25/2005	0.2500	0.5000	4
<i>Chromis punctipinnis</i> Juvenile	8/25/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	8/25/2005	1.0000	1.4142	4
<i>Oxyjulis californica</i> Juvenile	8/25/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	8/25/2005	0.2500	0.5000	4
<i>Sebastes mystinus</i> Juvenile	8/25/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	8/25/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	8/25/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	8/25/2005	0.5000	0.5774	4
<i>Sebastes atrovirens</i> Juvenile	8/25/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	8/25/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Juvenile	8/25/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	8/25/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	8/25/2005	0.5000	0.5774	4
<i>Semicossyphus pulcher</i> Juvenile	8/25/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Adult	8/25/2005	3.0000	2.9439	4
<i>Embiotoca jacksoni</i> Juvenile	8/25/2005	0.7500	0.9574	4
<i>Embiotoca lateralis</i> Adult	8/25/2005	1.2500	1.5000	4
<i>Embiotoca lateralis</i> Juvenile	8/25/2005	0.2500	0.5000	4
<i>Rhacochilus vacca</i> Adult	8/25/2005	0.5000	0.5774	4
<i>Rhacochilus vacca</i> Juvenile	8/25/2005	0.2500	0.5000	4
<i>Hypsypops rubicundus</i> Adult	8/25/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Juvenile	8/25/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	8/25/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Juvenile	8/25/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	8/25/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	8/25/2005	0.0000	0.0000	4

2005 FISH TRANSECT DATA: MEAN NUMBER PER TRANSECT (300 M³)

	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Rosa Island - South Point				
<i>Chromis punctipinnis</i> Adult	9/20/2005	0.0000	0.0000	4
<i>Chromis punctipinnis</i> Juvenile	9/20/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	9/20/2005	0.5000	0.5774	4
<i>Oxyjulis californica</i> Juvenile	9/20/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	9/20/2005	0.2500	0.5000	4
<i>Sebastes mystinus</i> Juvenile	9/20/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	9/20/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	9/20/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	9/20/2005	0.2500	0.5000	4
<i>Sebastes atrovirens</i> Juvenile	9/20/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	9/20/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Juvenile	9/20/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	9/20/2005	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> Female	9/20/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Juvenile	9/20/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Adult	9/20/2005	1.2500	0.5000	4
<i>Embiotoca jacksoni</i> Juvenile	9/20/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	9/20/2005	0.7500	0.5000	4
<i>Embiotoca lateralis</i> Juvenile	9/20/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	9/20/2005	0.2500	0.5000	4
<i>Rhacochilus vacca</i> Juvenile	9/20/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	9/20/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Juvenile	9/20/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	9/20/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Juvenile	9/20/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	9/20/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	9/20/2005	0.0000	0.0000	4
Santa Cruz Island - Devil's Peak Member				
<i>Chromis punctipinnis</i> Adult	8/3/2005	2.2500	3.8622	4
<i>Chromis punctipinnis</i> Juvenile	8/3/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	8/3/2005	3.0000	2.1602	4
<i>Oxyjulis californica</i> Juvenile	8/3/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	8/3/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Juvenile	8/3/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	8/3/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	8/3/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	8/3/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Juvenile	8/3/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	8/3/2005	0.5000	0.5774	4
<i>Paralabrax clathratus</i> Juvenile	8/3/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	8/3/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	8/3/2005	0.5000	0.5774	4
<i>Semicossyphus pulcher</i> Juvenile	8/3/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Adult	8/3/2005	0.7500	0.9574	4
<i>Embiotoca jacksoni</i> Juvenile	8/3/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	8/3/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Juvenile	8/3/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	8/3/2005	1.0000	0.8165	4
<i>Rhacochilus vacca</i> Juvenile	8/3/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	8/3/2005	1.0000	0.8165	4
<i>Hypsypops rubicundus</i> Juvenile	8/3/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	8/3/2005	0.2500	0.5000	4
<i>Girella nigricans</i> Juvenile	8/3/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	8/3/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	8/3/2005	0.0000	0.0000	4

2005 FISH TRANSECT DATA: MEAN NUMBER PER TRANSECT (300 M³)

	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Cruz Island - Potato Pasture				
<i>Chromis punctipinnis</i> Adult	9/1/2005	29.5000	17.0978	4
<i>Chromis punctipinnis</i> Juvenile	9/1/2005	4.2500	8.5000	4
<i>Oxyjulis californica</i> Adult	9/1/2005	1.0000	1.4142	4
<i>Oxyjulis californica</i> Juvenile	9/1/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	9/1/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Juvenile	9/1/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	9/1/2005	0.2500	0.5000	4
<i>Sebastes serranoides</i> Juvenile	9/1/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	9/1/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Juvenile	9/1/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	9/1/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Juvenile	9/1/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	9/1/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	9/1/2005	1.0000	2.0000	4
<i>Semicossyphus pulcher</i> Juvenile	9/1/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Adult	9/1/2005	0.7500	0.9574	4
<i>Embiotoca jacksoni</i> Juvenile	9/1/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	9/1/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Juvenile	9/1/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	9/1/2005	2.7500	3.4034	4
<i>Rhacochilus vacca</i> Juvenile	9/1/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	9/1/2005	0.7500	0.9574	4
<i>Hypsypops rubicundus</i> Juvenile	9/1/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	9/1/2005	0.2500	0.5000	4
<i>Girella nigricans</i> Juvenile	9/1/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	9/1/2005	0.2500	0.5000	4
<i>Halichoeres semicinctus</i> Female	9/1/2005	0.0000	0.0000	4
Santa Cruz Island - Cavern Point				
<i>Chromis punctipinnis</i> Adult	8/18/2005	6.2500	3.3040	4
<i>Chromis punctipinnis</i> Juvenile	8/18/2005	0.5000	0.5774	4
<i>Oxyjulis californica</i> Adult	8/18/2005	3.5000	2.5166	4
<i>Oxyjulis californica</i> Juvenile	8/18/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	8/18/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Juvenile	8/18/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	8/18/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	8/18/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	8/18/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Juvenile	8/18/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	8/18/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Juvenile	8/18/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	8/18/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	8/18/2005	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> Juvenile	8/18/2005	0.2500	0.5000	4
<i>Embiotoca jacksoni</i> Adult	8/18/2005	1.7500	1.7078	4
<i>Embiotoca jacksoni</i> Juvenile	8/18/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	8/18/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Juvenile	8/18/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	8/18/2005	0.7500	0.9574	4
<i>Rhacochilus vacca</i> Juvenile	8/18/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	8/18/2005	1.0000	0.8165	4
<i>Hypsypops rubicundus</i> Juvenile	8/18/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	8/18/2005	0.2500	0.5000	4
<i>Girella nigricans</i> Juvenile	8/18/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	8/18/2005	1.2500	1.8930	4
<i>Halichoeres semicinctus</i> Female	8/18/2005	0.7500	0.5000	4

2005 FISH TRANSECT DATA: MEAN NUMBER PER TRANSECT (300 M³)

	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Cruz Island - Little Scorpion				
<i>Chromis punctipinnis</i> Adult	8/31/2005	14.7500	12.4466	4
<i>Chromis punctipinnis</i> Juvenile	8/31/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	8/31/2005	3.2500	1.2583	4
<i>Oxyjulis californica</i> Juvenile	8/31/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	8/31/2005	1.5000	1.0000	4
<i>Sebastes mystinus</i> Juvenile	8/31/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	8/31/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	8/31/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	8/31/2005	1.5000	1.9149	4
<i>Sebastes atrovirens</i> Juvenile	8/31/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	8/31/2005	0.2500	0.5000	4
<i>Paralabrax clathratus</i> Juvenile	8/31/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	8/31/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	8/31/2005	0.7500	0.5000	4
<i>Semicossyphus pulcher</i> Juvenile	8/31/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Adult	8/31/2005	2.7500	2.0616	4
<i>Embiotoca jacksoni</i> Juvenile	8/31/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	8/31/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Juvenile	8/31/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	8/31/2005	0.7500	0.9574	4
<i>Rhacochilus vacca</i> Juvenile	8/31/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	8/31/2005	1.2500	0.9574	4
<i>Hypsypops rubicundus</i> Juvenile	8/31/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	8/31/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Juvenile	8/31/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	8/31/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	8/31/2005	0.5000	1.0000	4
Santa Cruz Island - Pedro Reef				
<i>Chromis punctipinnis</i> Adult	8/26/2005	59.0000	46.3753	4
<i>Chromis punctipinnis</i> Juvenile	8/26/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	8/26/2005	27.0000	26.7582	4
<i>Oxyjulis californica</i> Juvenile	8/26/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	8/26/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Juvenile	8/26/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	8/26/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	8/26/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	8/26/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Juvenile	8/26/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	8/26/2005	1.0000	0.8165	4
<i>Paralabrax clathratus</i> Juvenile	8/26/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	8/26/2005	0.7500	0.9574	4
<i>Semicossyphus pulcher</i> Female	8/26/2005	1.2500	0.5000	4
<i>Semicossyphus pulcher</i> Juvenile	8/26/2005	0.5000	0.5774	4
<i>Embiotoca jacksoni</i> Adult	8/26/2005	0.2500	0.5000	4
<i>Embiotoca jacksoni</i> Juvenile	8/26/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	8/26/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Juvenile	8/26/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	8/26/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Juvenile	8/26/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	8/26/2005	0.7500	0.9574	4
<i>Hypsypops rubicundus</i> Juvenile	8/26/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	8/26/2005	2.5000	5.0000	4
<i>Girella nigricans</i> Juvenile	8/26/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	8/26/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	8/26/2005	1.0000	2.0000	4

2005 FISH TRANSECT DATA: MEAN NUMBER PER TRANSECT (300 M³)

	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Anacapa Island - Keyhole				
<i>Chromis punctipinnis</i> Adult	9/14/2005	39.0000	36.8872	4
<i>Chromis punctipinnis</i> Juvenile	9/14/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	9/14/2005	6.2500	6.1847	4
<i>Oxyjulis californica</i> Juvenile	9/14/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	9/14/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Juvenile	9/14/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	9/14/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	9/14/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	9/14/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Juvenile	9/14/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	9/14/2005	0.7500	0.9574	4
<i>Paralabrax clathratus</i> Juvenile	9/14/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	9/14/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	9/14/2005	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> Juvenile	9/14/2005	1.0000	0.8165	4
<i>Embiotoca jacksoni</i> Adult	9/14/2005	1.7500	0.9574	4
<i>Embiotoca jacksoni</i> Juvenile	9/14/2005	0.2500	0.5000	4
<i>Embiotoca lateralis</i> Adult	9/14/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Juvenile	9/14/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	9/14/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Juvenile	9/14/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	9/14/2005	1.7500	1.5000	4
<i>Hypsypops rubicundus</i> Juvenile	9/14/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	9/14/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Juvenile	9/14/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	9/14/2005	0.2500	0.5000	4
<i>Halichoeres semicinctus</i> Female	9/14/2005	2.7500	3.2016	4
Anacapa Island - East Fish Camp				
<i>Chromis punctipinnis</i> Adult	9/9/2005	23.0000	13.3417	4
<i>Chromis punctipinnis</i> Juvenile	9/9/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	9/9/2005	0.7500	0.9574	4
<i>Oxyjulis californica</i> Juvenile	9/9/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	9/9/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Juvenile	9/9/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	9/9/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	9/9/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	9/9/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Juvenile	9/9/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	9/9/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Juvenile	9/9/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	9/9/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	9/9/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Juvenile	9/9/2005	0.2500	0.5000	4
<i>Embiotoca jacksoni</i> Adult	9/9/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Juvenile	9/9/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	9/9/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Juvenile	9/9/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	9/9/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Juvenile	9/9/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	9/9/2005	0.5000	0.5774	4
<i>Hypsypops rubicundus</i> Juvenile	9/9/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	9/9/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Juvenile	9/9/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	9/9/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	9/9/2005	0.0000	0.0000	4

2005 FISH TRANSECT DATA: MEAN NUMBER PER TRANSECT (300 M³)

	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Anacapa Island - Black Sea Bass Reef				
<i>Chromis punctipinnis</i> Adult	10/20/2005	37.0000	37.2916	4
<i>Chromis punctipinnis</i> Juvenile	10/20/2005	4.2500	7.2284	4
<i>Oxyjulis californica</i> Adult	10/20/2005	0.5000	1.0000	4
<i>Oxyjulis californica</i> Juvenile	10/20/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	10/20/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Juvenile	10/20/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	10/20/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	10/20/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	10/20/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Juvenile	10/20/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	10/20/2005	0.7500	0.9574	4
<i>Paralabrax clathratus</i> Juvenile	10/20/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	10/20/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	10/20/2005	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> Juvenile	10/20/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Adult	10/20/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Juvenile	10/20/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	10/20/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Juvenile	10/20/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	10/20/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Juvenile	10/20/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	10/20/2005	0.7500	0.5000	4
<i>Hypsypops rubicundus</i> Juvenile	10/20/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	10/20/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Juvenile	10/20/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	10/20/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	10/20/2005	0.2500	0.5000	4
Anacapa Island - Lighthouse				
<i>Chromis punctipinnis</i> Adult	9/28/2005	1.2500	1.5000	4
<i>Chromis punctipinnis</i> Juvenile	9/28/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	9/28/2005	4.2500	2.6300	4
<i>Oxyjulis californica</i> Juvenile	9/28/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	9/28/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Juvenile	9/28/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	9/28/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	9/28/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	9/28/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Juvenile	9/28/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	9/28/2005	0.7500	0.5000	4
<i>Paralabrax clathratus</i> Juvenile	9/28/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	9/28/2005	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> Female	9/28/2005	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> Juvenile	9/28/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Adult	9/28/2005	0.7500	1.5000	4
<i>Embiotoca jacksoni</i> Juvenile	9/28/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	9/28/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Juvenile	9/28/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	9/28/2005	0.2500	0.5000	4
<i>Rhacochilus vacca</i> Juvenile	9/28/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	9/28/2005	0.2500	0.5000	4
<i>Hypsypops rubicundus</i> Juvenile	9/28/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	9/28/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Juvenile	9/28/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	9/28/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	9/28/2005	0.0000	0.0000	4

2005 FISH TRANSECT DATA: MEAN NUMBER PER TRANSECT (300 M³)

	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Barbara Island - Webster's Arch				
<i>Chromis punctipinnis</i> Adult	7/27/2005	14.3750	6.1397	8
<i>Chromis punctipinnis</i> Juvenile	7/27/2005	0.0000	0.0000	8
<i>Oxyjulis californica</i> Adult	7/27/2005	2.2500	1.4880	8
<i>Oxyjulis californica</i> Juvenile	7/27/2005	0.0000	0.0000	8
<i>Sebastes mystinus</i> Adult	7/27/2005	0.0000	0.0000	8
<i>Sebastes mystinus</i> Juvenile	7/27/2005	0.0000	0.0000	8
<i>Sebastes serranoides</i> Adult	7/27/2005	0.0000	0.0000	8
<i>Sebastes serranoides</i> Juvenile	7/27/2005	0.0000	0.0000	8
<i>Sebastes atrovirens</i> Adult	7/27/2005	0.0000	0.0000	8
<i>Sebastes atrovirens</i> Juvenile	7/27/2005	0.0000	0.0000	8
<i>Paralabrax clathratus</i> Adult	7/27/2005	0.0000	0.0000	8
<i>Paralabrax clathratus</i> Juvenile	7/27/2005	0.0000	0.0000	8
<i>Semicossyphus pulcher</i> Male	7/27/2005	0.5000	0.5345	8
<i>Semicossyphus pulcher</i> Female	7/27/2005	1.0000	1.7728	8
<i>Semicossyphus pulcher</i> Juvenile	7/27/2005	0.0000	0.0000	8
<i>Embiotoca jacksoni</i> Adult	7/27/2005	0.0000	0.0000	8
<i>Embiotoca jacksoni</i> Juvenile	7/27/2005	0.0000	0.0000	8
<i>Embiotoca lateralis</i> Adult	7/27/2005	0.0000	0.0000	8
<i>Embiotoca lateralis</i> Juvenile	7/27/2005	0.0000	0.0000	8
<i>Rhacochilus vacca</i> Adult	7/27/2005	0.0000	0.0000	8
<i>Rhacochilus vacca</i> Juvenile	7/27/2005	0.0000	0.0000	8
<i>Hypsypops rubicundus</i> Adult	7/27/2005	0.6250	0.7440	8
<i>Hypsypops rubicundus</i> Juvenile	7/27/2005	0.0000	0.0000	8
<i>Girella nigricans</i> Adult	7/27/2005	0.3750	0.5175	8
<i>Girella nigricans</i> Juvenile	7/27/2005	0.0000	0.0000	8
<i>Halichoeres semicinctus</i> Male	7/27/2005	0.0000	0.0000	8
<i>Halichoeres semicinctus</i> Female	7/27/2005	0.0000	0.0000	8
Santa Barbara Island - Graveyard Canyon				
<i>Chromis punctipinnis</i> Adult	7/28/2005	0.0000	0.0000	4
<i>Chromis punctipinnis</i> Juvenile	7/28/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Adult	7/28/2005	0.0000	0.0000	4
<i>Oxyjulis californica</i> Juvenile	7/28/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Adult	7/28/2005	0.0000	0.0000	4
<i>Sebastes mystinus</i> Juvenile	7/28/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Adult	7/28/2005	0.0000	0.0000	4
<i>Sebastes serranoides</i> Juvenile	7/28/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Adult	7/28/2005	0.0000	0.0000	4
<i>Sebastes atrovirens</i> Juvenile	7/28/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Adult	7/28/2005	0.0000	0.0000	4
<i>Paralabrax clathratus</i> Juvenile	7/28/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Male	7/28/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Female	7/28/2005	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> Juvenile	7/28/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Adult	7/28/2005	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> Juvenile	7/28/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Adult	7/28/2005	0.0000	0.0000	4
<i>Embiotoca lateralis</i> Juvenile	7/28/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Adult	7/28/2005	0.0000	0.0000	4
<i>Rhacochilus vacca</i> Juvenile	7/28/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Adult	7/28/2005	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> Juvenile	7/28/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Adult	7/28/2005	0.0000	0.0000	4
<i>Girella nigricans</i> Juvenile	7/28/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Male	7/28/2005	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> Female	7/28/2005	0.0000	0.0000	4

2005 FISH TRANSECT DATA: MEAN NUMBER PER TRANSECT (300 M³)

	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Barbara Island - Southeast Reef				
<i>Chromis punctipinnis</i> Adult	7/26/2005	32.0000	21.8043	8
<i>Chromis punctipinnis</i> Juvenile	7/26/2005	0.0000	0.0000	8
<i>Oxyjulis californica</i> Adult	7/26/2005	18.7500	20.3943	8
<i>Oxyjulis californica</i> Juvenile	7/26/2005	7.2500	10.8463	8
<i>Sebastes mystinus</i> Adult	7/26/2005	0.0000	0.0000	8
<i>Sebastes mystinus</i> Juvenile	7/26/2005	0.0000	0.0000	8
<i>Sebastes serranoides</i> Adult	7/26/2005	0.0000	0.0000	8
<i>Sebastes serranoides</i> Juvenile	7/26/2005	0.0000	0.0000	8
<i>Sebastes atrovirens</i> Adult	7/26/2005	0.0000	0.0000	8
<i>Sebastes atrovirens</i> Juvenile	7/26/2005	0.0000	0.0000	8
<i>Paralabrax clathratus</i> Adult	7/26/2005	0.0000	0.0000	8
<i>Paralabrax clathratus</i> Juvenile	7/26/2005	0.0000	0.0000	8
<i>Semicossyphus pulcher</i> Male	7/26/2005	0.2500	0.4629	8
<i>Semicossyphus pulcher</i> Female	7/26/2005	0.2500	0.4629	8
<i>Semicossyphus pulcher</i> Juvenile	7/26/2005	0.7500	0.7071	8
<i>Embiotoca jacksoni</i> Adult	7/26/2005	0.5000	0.5345	8
<i>Embiotoca jacksoni</i> Juvenile	7/26/2005	0.1250	0.3536	8
<i>Embiotoca lateralis</i> Adult	7/26/2005	0.0000	0.0000	8
<i>Embiotoca lateralis</i> Juvenile	7/26/2005	0.0000	0.0000	8
<i>Rhacochilus vacca</i> Adult	7/26/2005	0.0000	0.0000	8
<i>Rhacochilus vacca</i> Juvenile	7/26/2005	0.0000	0.0000	8
<i>Hypsypops rubicundus</i> Adult	7/26/2005	2.7500	1.4880	8
<i>Hypsypops rubicundus</i> Juvenile	7/26/2005	0.0000	0.0000	8
<i>Girella nigricans</i> Adult	7/26/2005	0.3750	0.7440	8
<i>Girella nigricans</i> Juvenile	7/26/2005	0.0000	0.0000	8
<i>Halichoeres semicinctus</i> Male	7/26/2005	0.0000	0.0000	8
<i>Halichoeres semicinctus</i> Female	7/26/2005	0.0000	0.0000	8

Appendix G. Roving diver fish count.

2005 ROVING DIVER FISH COUNT

Island	Site Name	Date	Number of observers	Number of species observed
San Miguel	Wyckoff Ledge	8/9/2005	5	27
San Miguel	Hare Rock	6/16/2005	4	24
Santa Rosa	Johnson's Lee North	7/12/2005	4	19
Santa Rosa	Johnson's Lee South	7/13/2005	4	25
Santa Rosa	Rodes Reef	6/14/2005	4	23
Santa Rosa	Rodes Reef	8/8/2005	3	27
Santa Cruz	Gull Island South	6/30/2005	5	23
Santa Cruz	Fry's Harbor	6/29/2005	5	24
Santa Cruz	Pelican Bay	6/13/2005	3	19
Santa Cruz	Scorpion Anchorage	9/8/2005	5	21
Santa Cruz	Yellow Banks	8/23/2005	4	25
Anacapa	Admiral's Reef	8/22/2005	5	23
Anacapa	Cathedral Cove	6/27/2005	7	21
Anacapa	Landing Cove	5/12/2005	5	21
Anacapa	Landing Cove	7/15/2005	5	19
Anacapa	Landing Cove	9/5/2005	5	25
Santa Barbara	SE Sea Lion Rookery	5/19/2005	3	7
Santa Barbara	Arch Point	5/17/2005	6	17
Santa Barbara	Cat Canyon	5/18/2005	4	10
Santa Rosa	Cluster Point	8/24/2005	5	32
Santa Rosa	Trancion Canyon	9/20/2005	5	29
Santa Rosa	Chickasaw	8/25/2005	5	31
Santa Rosa	South Point	9/20/2005	4	27
Santa Cruz	Devil's Peak Member	8/3/2005	5	25
Santa Cruz	Potato Pasture	9/1/2005	6	26
Santa Cruz	Cavern Point	8/18/2005	5	21
Santa Cruz	Little Scorpion	8/31/2005	5	27
Santa Cruz	Pedro Reef	8/26/2005	6	19
Anacapa	Keyhole	9/14/2005	4	23
Anacapa	East Fish Camp	9/9/2005	7	21
Anacapa	Black Sea Bass Reef	10/20/2005	3	15
Anacapa	Lighthouse	9/28/2005	5	22
Santa Barbara	Webster's Arch	7/27/2005	4	17
Santa Barbara	Graveyard Canyon	7/28/2005	4	16
Santa Barbara	Southeast Reef	7/26/2005	4	19

2005 ROVING DIVER FISH COUNT
San Miguel Island - Wyckoff Ledge

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black and yellow rockfish	8/9/2005	5	5	8.20	1.79	2.00	0.00	4.00	1.22
black surfperch, adult	8/9/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
black surfperch, all	8/9/2005	5	5	1.80	4.02	0.20	0.45	0.20	0.45
black surfperch, juv	8/9/2005	5	5	1.80	4.02	0.20	0.45	0.20	0.45
blackeye goby	8/9/2005	5	5	9.00	0.71	2.20	0.45	6.40	3.65
blacksmith, adult	8/9/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blacksmith, all	8/9/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blacksmith, juv	8/9/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	8/9/2005	5	5	9.60	0.55	2.60	0.55	12.20	5.26
blue rockfish, all	8/9/2005	5	5	9.60	0.55	2.60	0.55	12.20	5.26
blue rockfish, juv	8/9/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	8/9/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
California sheephead, female	8/9/2005	5	5	9.20	0.84	1.20	0.45	1.60	1.34
California sheephead, juv	8/9/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
California sheephead, male	8/9/2005	5	5	5.60	3.65	1.20	0.84	1.20	0.84
copper rockfish	8/9/2005	5	5	9.00	2.24	2.00	0.00	2.80	0.84
garibaldi, adult	8/9/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
garibaldi, juv	8/9/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
gopher rockfish	8/9/2005	5	1	8.00		1.00		1.00	
gopher/copper rockfish, juv	8/9/2005	5	2	7.50	2.12	1.50	0.71	2.00	1.41
island kelpfish	8/9/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp bass, adult	8/9/2005	5	5	2.00	4.47	0.20	0.45	0.20	0.45
kelp bass, calico bass, all	8/9/2005	5	5	2.00	4.47	0.20	0.45	0.20	0.45
kelp bass, juv	8/9/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	8/9/2005	5	5	8.60	1.14	2.00	0.00	6.80	2.17
kelp rockfish, all	8/9/2005	5	5	8.80	1.10	2.00	0.00	8.20	2.17
kelp rockfish, juv	8/9/2005	5	5	5.60	3.36	1.40	0.89	1.40	0.89
kelp surfperch	8/9/2005	5	4	7.75	2.63	2.00	0.82	4.25	4.57
lavendar sculpin	8/9/2005	5	1	6.00		1.00		1.00	
lavender sculpin	8/9/2005	5	3	8.00	1.73	1.00	0.00	1.00	0.00
lingcod	8/9/2005	5	2	7.50	3.54	1.00	0.00	1.00	0.00
olive rockfish, adult	8/9/2005	5	5	4.80	4.55	1.00	1.00	1.20	1.30
olive rockfish, all	8/9/2005	5	5	4.80	4.55	1.00	1.00	1.20	1.30
olive/yellowtail rockfish, juv	8/9/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	8/9/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, all	8/9/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, juv	8/9/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	8/9/2005	5	5	10.00	0.00	3.00	0.00	22.40	4.28
pile surfperch, adult	8/9/2005	5	5	6.60	3.85	1.20	0.84	1.40	1.14
pile surfperch, all	8/9/2005	5	5	6.60	3.85	1.20	0.84	1.40	1.14
pile surfperch, juv	8/9/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
rainbow surfperch	8/9/2005	5	4	7.75	1.50	2.00	0.00	4.25	2.06
rock wrasse, female	8/9/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, male	8/9/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
rubberlip surfperch	8/9/2005	5	1	8.00		2.00		2.00	
sailfin sculpin	8/9/2005	5	1	6.00		1.00		1.00	
senorita, adult	8/9/2005	5	5	5.80	5.31	1.40	1.34	4.00	4.53
senorita, all	8/9/2005	5	5	5.80	5.31	1.40	1.34	4.00	4.53
senorita, juv	8/9/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00

2005 ROVING DIVER FISH COUNT
San Miguel Island - Wyckoff Ledge (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
snubnose sculpin	8/9/2005	5	3	10.00	0.00	2.00	0.00	2.67	0.58
speckled sanddab	8/9/2005	5	1	6.00		2.00		7.00	
striped surfperch, adult	8/9/2005	5	5	9.60	0.55	3.00	0.00	20.00	6.63
striped surfperch, all	8/9/2005	5	5	9.60	0.55	3.00	0.00	24.40	5.68
striped surfperch, juv	8/9/2005	5	5	7.40	4.22	1.60	0.89	4.40	3.05
treefish, adult	8/9/2005	5	5	5.00	3.00	1.00	0.71	1.00	0.71
treefish, juv	8/9/2005	5	5	1.00	2.24	0.20	0.45	0.20	0.45
tubesnout	8/9/2005	5	2	7.50	2.12	2.00	0.00	6.00	5.66
white surfperch	8/9/2005	5	2	8.50	2.12	2.50	0.71	41.50	54.45

2005 ROVING DIVER FISH COUNT
San Miguel Island - Hare Rock

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black and yellow rockfish	6/16/2005	4	4	8.75	0.96	2.00	0.00	4.50	1.73
black rockfish	6/16/2005	4	1	9.00		1.00		1.00	
black surfperch, adult	6/16/2005	4	4	8.75	0.96	1.50	0.58	1.50	0.58
black surfperch, all	6/16/2005	4	4	8.75	0.96	1.50	0.58	1.50	0.58
black surfperch, juv	6/16/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blackeye goby	6/16/2005	4	4	9.00	0.82	2.50	0.58	15.50	9.54
blacksmith, adult	6/16/2005	4	4	3.25	3.95	1.00	1.15	2.50	3.32
blacksmith, all	6/16/2005	4	4	3.25	3.95	1.00	1.15	2.50	3.32
blacksmith, juv	6/16/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	6/16/2005	4	4	10.00	0.00	3.00	0.00	55.50	30.88
blue rockfish, all	6/16/2005	4	4	10.00	0.00	3.00	0.00	55.50	30.88
blue rockfish, juv	6/16/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	6/16/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
bocaccio, juv	6/16/2005	4	1	9.00		2.00		2.00	
cabezon	6/16/2005	4	3	8.00	2.65	1.33	0.58	1.33	0.58
California sheephead, female	6/16/2005	4	4	9.25	0.50	2.00	0.00	5.00	0.82
California sheephead, juv	6/16/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
California sheephead, male	6/16/2005	4	4	4.00	4.62	0.50	0.58	0.50	0.58
copper rockfish	6/16/2005	4	2	8.00	0.00	1.00	0.00	1.00	0.00
coralline sculpin	6/16/2005	4	1	7.00		2.00		2.00	
garibaldi, adult	6/16/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
garibaldi, juv	6/16/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
gopher rockfish	6/16/2005	4	1	10.00		1.00		1.00	
gopher/copper rockfish, juv	6/16/2005	4	2	7.00	2.83	1.50	0.71	1.50	0.71
island kelpfish	6/16/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp bass, adult	6/16/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp bass, calico bass, all	6/16/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp bass, juv	6/16/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	6/16/2005	4	4	9.50	0.58	2.00	0.00	5.25	3.77
kelp rockfish, all	6/16/2005	4	4	9.50	0.58	2.25	0.50	5.75	4.50
kelp rockfish, juv	6/16/2005	4	4	2.00	4.00	0.50	1.00	0.50	1.00
kelp surfperch	6/16/2005	4	3	8.33	1.53	2.33	0.58	6.67	5.03
lingcod	6/16/2005	4	4	8.50	1.29	1.50	0.58	1.75	0.96
olive rockfish, adult	6/16/2005	4	4	7.50	5.00	1.75	1.26	5.75	5.56
olive rockfish, all	6/16/2005	4	4	7.50	5.00	1.75	1.26	5.75	5.56
olive/yellowtail rockfish, juv	6/16/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	6/16/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, all	6/16/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, juv	6/16/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	6/16/2005	4	4	7.50	5.00	2.00	1.41	9.00	7.53
pile surfperch, adult	6/16/2005	4	4	8.50	1.73	1.75	0.50	4.00	2.58
pile surfperch, all	6/16/2005	4	4	8.50	1.73	1.75	0.50	4.00	2.58
pile surfperch, juv	6/16/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, female	6/16/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, male	6/16/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
senorita, adult	6/16/2005	4	4	10.00	0.00	3.50	0.58	136.00	134.72
senorita, all	6/16/2005	4	4	10.00	0.00	3.50	0.58	136.00	134.72
senorita, juv	6/16/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
snubnose sculpin	6/16/2005	4	3	8.33	2.89	1.67	0.58	2.33	1.53

2005 ROVING DIVER FISH COUNT
San Miguel Island - Hare Rock (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
striped surfperch, adult	6/16/2005	4	4	10.00	0.00	3.00	0.00	21.25	8.54
striped surfperch, all	6/16/2005	4	4	10.00	0.00	3.00	0.00	22.50	7.77
striped surfperch, juv	6/16/2005	4	4	3.50	4.12	1.00	1.15	1.25	1.50
reef fish, adult	6/16/2005	4	4	6.25	4.19	1.25	0.96	1.25	0.96
reef fish, juv	6/16/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
tubenose	6/16/2005	4	2	10.00	0.00	3.00	0.00	19.00	5.66

2005 ROVING DIVER FISH COUNT
Santa Rosa Island - Johnson's Lee North

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black and yellow rockfish	7/12/2005	4	2	9.50	0.71	2.00	0.00	5.00	1.41
black surfperch, adult	7/12/2005	4	4	9.50	1.00	2.75	0.50	12.75	2.99
black surfperch, all	7/12/2005	4	4	9.50	1.00	3.00	0.00	16.00	1.15
black surfperch, juv	7/12/2005	4	4	7.75	2.22	1.50	0.58	3.25	3.30
blackeye goby	7/12/2005	4	4	5.00	5.77	1.00	1.15	2.75	3.77
blacksmith, adult	7/12/2005	4	4	9.00	1.15	2.75	0.50	29.50	20.37
blacksmith, all	7/12/2005	4	4	9.00	1.15	2.75	0.50	29.50	20.37
blacksmith, juv	7/12/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	7/12/2005	4	4	7.75	2.63	1.75	0.50	4.75	2.87
blue rockfish, all	7/12/2005	4	4	7.75	2.63	1.75	0.50	4.75	2.87
blue rockfish, juv	7/12/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	7/12/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
California sheephead, female	7/12/2005	4	4	9.50	0.58	2.00	0.00	3.50	1.00
California sheephead, juv	7/12/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
California sheephead, male	7/12/2005	4	4	8.75	1.50	1.25	0.50	1.25	0.50
garibaldi, adult	7/12/2005	4	4	5.75	3.95	1.00	0.82	1.00	0.82
garibaldi, juv	7/12/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
island kelpfish	7/12/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp bass, adult	7/12/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp bass, calico bass, all	7/12/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp bass, juv	7/12/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	7/12/2005	4	4	9.00	0.82	1.75	0.50	4.50	3.51
kelp rockfish, all	7/12/2005	4	4	9.00	0.82	1.75	0.50	4.50	3.51
kelp rockfish, juv	7/12/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp surfperch	7/12/2005	4	2	5.50	0.71	2.50	0.71	10.50	12.02
lingcod	7/12/2005	4	1	10.00		2.00		2.00	
olive rockfish, adult	7/12/2005	4	4	4.00	4.69	0.75	0.96	0.75	0.96
olive rockfish, all	7/12/2005	4	4	5.75	3.95	1.00	0.82	1.00	0.82
olive/yellowtail rockfish, juv	7/12/2005	4	4	1.75	3.50	0.25	0.50	0.25	0.50
opaleye, adult	7/12/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, all	7/12/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, juv	7/12/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	7/12/2005	4	4	9.00	0.82	2.25	0.50	9.25	2.87
pile surfperch, adult	7/12/2005	4	4	8.25	1.71	2.00	0.82	5.50	5.20
pile surfperch, all	7/12/2005	4	4	8.25	1.71	2.00	0.82	5.50	5.20
pile surfperch, juv	7/12/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
rainbow surfperch	7/12/2005	4	1	8.00		1.00		1.00	
rock wrasse, female	7/12/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, male	7/12/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
rockfish spp., juv	7/12/2005	4	1	5.00		1.00		1.00	
rubberlip surfperch	7/12/2005	4	1	10.00		1.00		1.00	
senorita, adult	7/12/2005	4	4	7.75	2.63	2.50	0.58	24.75	31.74
senorita, all	7/12/2005	4	4	7.75	2.63	2.50	0.58	24.75	31.74
senorita, juv	7/12/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, adult	7/12/2005	4	4	10.00	0.00	3.00	0.00	18.50	3.87
striped surfperch, all	7/12/2005	4	4	10.00	0.00	3.00	0.00	20.25	4.92
striped surfperch, juv	7/12/2005	4	4	4.50	5.20	1.00	1.15	1.75	2.06
treefish, adult	7/12/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
treefish, juv	7/12/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00

2005 ROVING DIVER FISH COUNT
Santa Rosa Island - Johnson's Lee South

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black and yellow rockfish	7/13/2005	4	3	8.67	2.31	2.00	0.00	5.00	1.73
black surfperch, adult	7/13/2005	4	4	9.00	1.41	2.50	0.58	12.50	11.56
black surfperch, all	7/13/2005	4	4	9.00	1.41	2.50	0.58	13.00	11.58
black surfperch, juv	7/13/2005	4	4	2.25	4.50	0.50	1.00	0.50	1.00
blackeye goby	7/13/2005	4	4	9.25	1.50	2.75	0.50	12.25	5.80
blacksmith, adult	7/13/2005	4	4	10.00	0.00	3.00	0.00	39.00	19.20
blacksmith, all	7/13/2005	4	4	10.00	0.00	3.00	0.00	39.00	19.20
blacksmith, juv	7/13/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	7/13/2005	4	4	9.25	0.96	2.50	0.58	11.75	5.85
blue rockfish, all	7/13/2005	4	4	9.25	0.96	2.50	0.58	13.00	6.06
blue rockfish, juv	7/13/2005	4	4	4.00	4.62	0.75	0.96	1.25	1.89
blue-banded goby	7/13/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
cabezon	7/13/2005	4	2	9.00	1.41	1.00	0.00	1.00	0.00
California sheephead, female	7/13/2005	4	4	9.75	0.50	2.50	0.58	10.50	4.20
California sheephead, juv	7/13/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
California sheephead, male	7/13/2005	4	4	9.50	0.58	2.00	0.00	3.50	1.29
garibaldi, adult	7/13/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
garibaldi, juv	7/13/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
gopher rockfish	7/13/2005	4	3	8.67	1.53	1.67	0.58	2.33	1.53
island kelpfish	7/13/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp bass, adult	7/13/2005	4	4	2.75	3.20	0.50	0.58	0.50	0.58
kelp bass, calico bass, all	7/13/2005	4	4	2.75	3.20	0.50	0.58	0.50	0.58
kelp bass, juv	7/13/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	7/13/2005	4	4	9.50	0.58	3.00	0.00	19.50	4.20
kelp rockfish, all	7/13/2005	4	4	9.50	0.58	3.00	0.00	19.50	4.20
kelp rockfish, juv	7/13/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp surfperch	7/13/2005	4	4	8.50	1.91	2.25	0.50	9.25	11.41
lingcod	7/13/2005	4	4	7.50	2.08	1.00	0.00	1.00	0.00
ocean whitefish	7/13/2005	4	2	7.00	1.41	1.00	0.00	1.00	0.00
olive rockfish, adult	7/13/2005	4	4	9.25	0.96	2.00	0.00	5.50	2.65
olive rockfish, all	7/13/2005	4	4	9.25	0.96	2.00	0.00	5.50	2.65
olive/yellowtail rockfish, juv	7/13/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	7/13/2005	4	4	5.50	3.70	1.75	1.26	9.25	13.99
opaleye, all	7/13/2005	4	4	5.50	3.70	1.75	1.26	9.25	13.99
opaleye, juv	7/13/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	7/13/2005	4	4	10.00	0.00	3.00	0.00	22.50	1.73
pile surfperch, adult	7/13/2005	4	4	10.00	0.00	3.00	0.00	14.50	3.11
pile surfperch, all	7/13/2005	4	4	10.00	0.00	3.00	0.00	14.50	3.11
pile surfperch, juv	7/13/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
rainbow surfperch	7/13/2005	4	3	9.67	0.58	3.00	0.00	25.33	4.62
rock wrasse, female	7/13/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, male	7/13/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
rubberlip surfperch	7/13/2005	4	4	7.25	1.89	1.75	0.50	4.50	3.11
senorita, adult	7/13/2005	4	4	10.00	0.00	3.50	0.58	147.00	84.67
senorita, all	7/13/2005	4	4	10.00	0.00	3.50	0.58	147.00	84.67
senorita, juv	7/13/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00

2005 ROVING DIVER FISH COUNT

Santa Rosa Island - Johnson's Lee South (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
snubnose sculpin	7/13/2005	4	2	6.50	0.71	2.00	0.00	2.00	0.00
striped surfperch, adult	7/13/2005	4	4	10.00	0.00	3.00	0.00	18.00	5.10
striped surfperch, all	7/13/2005	4	4	10.00	0.00	3.00	0.00	19.00	6.58
striped surfperch, juv	7/13/2005	4	4	2.00	4.00	0.50	1.00	1.00	2.00
top smelt	7/13/2005	4	1	5.00		3.00		30.00	
treefish, adult	7/13/2005	4	4	5.00	5.77	0.50	0.58	0.50	0.58
treefish, juv	7/13/2005	4	4	4.50	5.26	0.75	0.96	1.50	2.38
white surfperch	7/13/2005	4	4	9.00	0.82	2.00	0.00	4.00	1.41

2005 ROVING DIVER FISH COUNT
Santa Rosa Island - Rodes Reef

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black and yellow rockfish	8/8/2005	3	2	6.00	1.41	1.00	0.00	1.00	0.00
black rockfish	6/14/2005	4	2	8.50	0.71	2.00	0.00	2.50	0.71
black rockfish	8/8/2005	3	2	7.00	2.83	2.00	0.00	4.50	3.54
black surfperch, adult	6/14/2005	4	4	9.00	1.41	2.25	0.96	7.75	6.70
black surfperch, adult	8/8/2005	3	3	7.33	1.53	1.67	0.58	5.00	3.61
black surfperch, all	6/14/2005	4	4	9.00	1.41	2.25	0.96	7.75	6.70
black surfperch, all	8/8/2005	3	3	7.33	1.53	1.67	0.58	5.67	4.51
black surfperch, juv	6/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
black surfperch, juv	8/8/2005	3	3	2.67	4.62	0.67	1.15	0.67	1.15
blackeye goby	6/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blackeye goby	8/8/2005	3	3	9.00	1.00	2.00	0.00	3.00	0.00
blacksmith, adult	6/14/2005	4	4	2.25	4.50	0.50	1.00	0.50	1.00
blacksmith, adult	8/8/2005	3	3	5.67	4.93	1.00	1.00	1.00	1.00
blacksmith, all	6/14/2005	4	4	2.25	4.50	0.50	1.00	0.50	1.00
blacksmith, all	8/8/2005	3	3	5.67	4.93	1.00	1.00	1.00	1.00
blacksmith, juv	6/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blacksmith, juv	8/8/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	6/14/2005	4	4	9.00	0.00	3.00	0.00	26.00	5.23
blue rockfish, adult	8/8/2005	3	3	8.33	0.58	2.67	0.58	17.33	7.23
blue rockfish, all	6/14/2005	4	4	9.00	0.00	3.00	0.00	26.00	5.23
blue rockfish, all	8/8/2005	3	3	8.33	0.58	2.67	0.58	17.33	7.23
blue rockfish, juv	6/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, juv	8/8/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	6/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	8/8/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
cabezon	8/8/2005	3	1	5.00		1.00		1.00	
California sheephead, female	6/14/2005	4	4	6.75	4.50	1.25	0.96	2.00	2.16
California sheephead, female	8/8/2005	3	3	6.33	1.53	1.67	0.58	2.00	1.00
California sheephead, juv	6/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
California sheephead, juv	8/8/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
California sheephead, male	6/14/2005	4	4	8.75	1.26	1.50	0.58	1.50	0.58
California sheephead, male	8/8/2005	3	3	8.00	1.00	2.00	0.00	2.00	0.00
copper rockfish	6/14/2005	4	2	9.00	0.00	1.50	0.71	1.50	0.71
coralline sculpin	8/8/2005	3	1	7.00		1.00		1.00	
garibaldi, adult	6/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
garibaldi, adult	8/8/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
garibaldi, juv	6/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
garibaldi, juv	8/8/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
gopher/copper rockfish, juv	6/14/2005	4	2	5.50	0.71	2.00	0.00	5.00	1.41
gopher/copper rockfish, juv	8/8/2005	3	3	9.33	0.58	2.00	0.00	4.33	3.21
island kelpfish	6/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
island kelpfish	8/8/2005	3	3	2.33	4.04	0.33	0.58	0.33	0.58
kelp bass, adult	6/14/2005	4	4	7.25	4.86	1.25	0.96	1.50	1.29
kelp bass, adult	8/8/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
kelp bass, calico bass, all	6/14/2005	4	4	7.25	4.86	1.25	0.96	1.50	1.29
kelp bass, calico bass, all	8/8/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
kelp bass, juv	6/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp bass, juv	8/8/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	6/14/2005	4	4	1.75	3.50	0.25	0.50	0.25	0.50

2005 ROVING DIVER FISH COUNT
Santa Rosa Island - Rodes Reef (continued)

Common Name:	Date:	Maximum # of Observers	# of Observations	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
kelp rockfish, adult	8/8/2005	3	3	8.00	0.00	2.00	0.00	5.33	1.53
kelp rockfish, all	6/14/2005	4	4	1.75	3.50	0.25	0.50	0.25	0.50
kelp rockfish, all	8/8/2005	3	3	8.00	0.00	2.00	0.00	5.33	1.53
kelp rockfish, juv	6/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, juv	8/8/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
kelp surfperch	6/14/2005	4	4	7.75	2.63	2.25	0.50	7.00	6.68
kelp surfperch	8/8/2005	3	2	9.00	1.41	2.00	0.00	3.00	1.41
kelpfish spp.	8/8/2005	3	1	8.00		2.00		2.00	
lavender sculpin	8/8/2005	3	1	5.00		1.00		1.00	
lingcod	6/14/2005	4	2	9.00	0.00	1.00	0.00	1.00	0.00
lingcod	8/8/2005	3	1	5.00		1.00		1.00	
ocean whitefish	6/14/2005	4	1	9.00		2.00		2.00	
olive rockfish, adult	6/14/2005	4	4	2.25	4.50	0.25	0.50	0.25	0.50
olive rockfish, adult	8/8/2005	3	3	8.00	0.00	1.67	0.58	2.67	1.53
olive rockfish, all	6/14/2005	4	4	2.25	4.50	0.25	0.50	0.25	0.50
olive rockfish, all	8/8/2005	3	3	8.00	0.00	1.67	0.58	2.67	1.53
olive/yellowtail rockfish, juv	6/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
olive/yellowtail rockfish, juv	8/8/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	6/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	8/8/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, all	6/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, all	8/8/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, juv	6/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, juv	8/8/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	6/14/2005	4	4	9.25	0.50	2.25	0.50	6.75	3.77
painted greenling	8/8/2005	3	3	9.33	0.58	2.67	0.58	15.33	7.51
pile surfperch, adult	6/14/2005	4	4	9.00	1.41	2.00	0.00	4.75	2.75
pile surfperch, adult	8/8/2005	3	3	7.67	1.53	2.00	0.00	6.67	2.31
pile surfperch, all	6/14/2005	4	4	9.00	1.41	2.00	0.00	4.75	2.75
pile surfperch, all	8/8/2005	3	3	8.33	2.08	2.33	0.58	11.67	8.14
pile surfperch, juv	6/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
pile surfperch, juv	8/8/2005	3	3	5.00	5.00	1.67	1.53	5.00	7.00
rainbow surfperch	6/14/2005	4	3	8.67	0.58	2.00	0.00	4.00	3.46
rainbow surfperch	8/8/2005	3	3	8.67	0.58	2.33	0.58	9.00	2.00
rock wrasse, female	6/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, female	8/8/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, male	6/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, male	8/8/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
rockfish spp.	6/14/2005	4	3	9.33	1.15	1.00	0.00	1.00	0.00
ronquil spp.	8/8/2005	3	2	7.00	0.00	1.50	0.71	1.50	0.71
rubberlip surfperch	6/14/2005	4	3	6.67	1.53	1.00	0.00	1.00	0.00
rubberlip surfperch	8/8/2005	3	2	7.50	2.12	1.50	0.71	1.50	0.71
senorita, adult	6/14/2005	4	4	9.50	0.58	2.75	0.50	31.25	22.11
senorita, adult	8/8/2005	3	3	10.00	0.00	4.00	0.00	130.67	26.76
senorita, all	6/14/2005	4	4	9.50	0.58	2.75	0.50	31.25	22.11
senorita, all	8/8/2005	3	3	10.00	0.00	4.00	0.00	130.67	26.76
senorita, juv	6/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
senorita, juv	8/8/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
snubnose sculpin	6/14/2005	4	1	7.00		1.00		1.00	

2005 ROVING DIVER FISH COUNT
Santa Rosa Island - Rodes Reef (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
snubnose sculpin	8/8/2005	3	2	5.50	0.71	1.00	0.00	1.00	0.00
striped surfperch, adult	6/14/2005	4	4	9.25	0.50	2.75	0.50	12.75	4.50
striped surfperch, adult	8/8/2005	3	3	6.67	1.53	2.00	0.00	4.67	2.52
striped surfperch, all	6/14/2005	4	4	9.25	0.50	2.75	0.50	13.50	3.32
striped surfperch, all	8/8/2005	3	3	6.67	1.53	2.33	0.58	6.33	5.13
striped surfperch, juv	6/14/2005	4	4	2.00	4.00	0.50	1.00	0.75	1.50
striped surfperch, juv	8/8/2005	3	3	2.33	4.04	0.67	1.15	1.67	2.89
treefish, adult	6/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
treefish, adult	8/8/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
treefish, juv	6/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
treefish, juv	8/8/2005	3	3	2.33	4.04	0.33	0.58	0.33	0.58
tubesnout	6/14/2005	4	1	9.00		3.00		31.00	
tubesnout	8/8/2005	3	2	7.50	3.54	2.50	2.12	83.00	115.97
vermillion rockfish, juv	6/14/2005	4	2	6.00	0.00	1.00	0.00	1.00	0.00

2005 ROVING DIVER FISH COUNT
Santa Cruz Island - Gull Island South

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black and yellow rockfish	6/30/2005	5	4	8.00	1.41	2.00	0.00	3.50	1.29
black surfperch, adult	6/30/2005	5	5	8.40	1.14	2.40	0.55	10.40	6.66
black surfperch, all	6/30/2005	5	5	8.40	1.14	2.40	0.55	10.40	6.66
black surfperch, juv	6/30/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blackeye goby	6/30/2005	5	5	8.40	0.55	2.00	0.00	5.40	2.07
blacksmith, adult	6/30/2005	5	5	6.80	3.83	2.60	1.67	126.80	162.24
blacksmith, all	6/30/2005	5	5	6.80	3.83	2.60	1.67	126.80	162.24
blacksmith, juv	6/30/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	6/30/2005	5	5	5.20	4.76	1.00	1.00	1.60	1.82
blue rockfish, all	6/30/2005	5	5	6.20	3.83	1.20	0.84	1.80	1.64
blue rockfish, juv	6/30/2005	5	5	1.00	2.24	0.20	0.45	0.20	0.45
blue-banded goby	6/30/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
California sheephead, female	6/30/2005	5	5	9.80	0.45	2.00	0.00	5.80	1.48
California sheephead, juv	6/30/2005	5	5	1.40	3.13	0.40	0.89	0.80	1.79
California sheephead, male	6/30/2005	5	5	6.60	4.22	1.20	0.84	2.80	2.95
copper rockfish	6/30/2005	5	1	9.00		1.00		1.00	
garibaldi, adult	6/30/2005	5	5	2.60	3.58	0.40	0.55	0.40	0.55
garibaldi, juv	6/30/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
gopher rockfish	6/30/2005	5	5	7.60	1.14	1.80	0.45	2.40	0.89
island kelpfish	6/30/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp bass, adult	6/30/2005	5	5	2.00	4.47	0.20	0.45	0.20	0.45
kelp bass, calico bass, all	6/30/2005	5	5	2.00	4.47	0.20	0.45	0.20	0.45
kelp bass, juv	6/30/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	6/30/2005	5	5	8.80	0.84	2.40	0.55	7.80	3.35
kelp rockfish, all	6/30/2005	5	5	8.80	0.84	2.40	0.55	7.80	3.35
kelp rockfish, juv	6/30/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp surfperch	6/30/2005	5	1	6.00		2.00		2.00	
lingcod	6/30/2005	5	5	8.60	0.89	2.00	0.00	2.60	0.89
ocean whitefish	6/30/2005	5	1	10.00		1.00		1.00	
olive rockfish, adult	6/30/2005	5	5	5.40	3.13	1.40	0.89	1.60	1.14
olive rockfish, all	6/30/2005	5	5	5.40	3.13	1.40	0.89	1.60	1.14
olive/yellowtail rockfish, juv	6/30/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	6/30/2005	5	5	2.60	3.58	0.60	0.89	0.60	0.89
opaleye, all	6/30/2005	5	5	2.60	3.58	0.60	0.89	0.60	0.89
opaleye, juv	6/30/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	6/30/2005	5	5	9.60	0.55	3.00	0.00	29.00	5.79
pile surfperch, adult	6/30/2005	5	5	8.80	2.17	2.00	0.00	4.60	1.52
pile surfperch, all	6/30/2005	5	5	8.80	2.17	2.00	0.00	4.60	1.52
pile surfperch, juv	6/30/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, female	6/30/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, male	6/30/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
senorita, adult	6/30/2005	5	5	4.00	4.18	1.20	1.10	2.80	3.70
senorita, all	6/30/2005	5	5	4.00	4.18	1.20	1.10	2.80	3.70
senorita, juv	6/30/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
snubnose sculpin	6/30/2005	5	1	5.00		2.00		2.00	
striped surfperch, adult	6/30/2005	5	5	7.20	4.09	2.00	1.22	6.80	4.97
striped surfperch, all	6/30/2005	5	5	7.20	4.09	2.00	1.22	6.80	4.97
striped surfperch, juv	6/30/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00

2005 ROVING DIVER FISH COUNT
Santa Cruz Island - Gull Island South (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
treefish, adult	6/30/2005	5	5	6.40	1.67	1.40	0.55	1.40	0.55
treefish, juv	6/30/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
vermillion rockfish	6/30/2005	5	1	7.00		1.00		1.00	

2005 ROVING DIVER FISH COUNT
Santa Cruz Island - Fry's Harbor

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black surfperch, adult	6/29/2005	5	5	3.20	4.60	0.60	0.89	0.80	1.30
black surfperch, all	6/29/2005	5	5	3.20	4.60	0.60	0.89	0.80	1.30
black surfperch, juv	6/29/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blackeye goby	6/29/2005	5	5	10.00	0.00	3.40	0.55	70.50	47.05
blacksmith, adult	6/29/2005	5	5	10.00	0.00	4.00	0.00	375.00	197.29
blacksmith, all	6/29/2005	5	5	10.00	0.00	4.00	0.00	375.20	197.58
blacksmith, juv	6/29/2005	5	5	1.60	3.58	0.20	0.45	0.20	0.45
blue rockfish, adult	6/29/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, all	6/29/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, juv	6/29/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	6/29/2005	5	5	5.60	3.44	0.80	0.45	0.80	0.45
California moray	6/29/2005	5	1	6.00		1.00		1.00	
California sheephead, female	6/29/2005	5	5	8.20	1.92	1.80	0.45	2.20	0.84
California sheephead, juv	6/29/2005	5	5	4.60	4.51	0.60	0.55	0.60	0.55
California sheephead, male	6/29/2005	5	5	1.40	3.13	0.40	0.89	0.40	0.89
copper rockfish	6/29/2005	5	1	10.00		2.00		2.00	
garibaldi, adult	6/29/2005	5	5	8.60	1.34	2.00	0.00	3.80	0.84
garibaldi, juv	6/29/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
gopher rockfish	6/29/2005	5	1	6.00		1.00		1.00	
gopher/copper rockfish, juv	6/29/2005	5	1	10.00		2.00		2.00	
halfmoon	6/29/2005	5	1	8.00		1.00		1.00	
island kelpfish	6/29/2005	5	5	5.00	4.80	1.00	1.00	1.80	2.49
kelp bass, adult	6/29/2005	5	5	9.80	0.45	2.00	0.00	6.60	1.82
kelp bass, calico bass, all	6/29/2005	5	5	9.80	0.45	2.00	0.00	6.60	1.82
kelp bass, juv	6/29/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	6/29/2005	5	5	3.60	4.93	0.40	0.55	0.40	0.55
kelp rockfish, all	6/29/2005	5	5	3.60	4.93	0.40	0.55	0.40	0.55
kelp rockfish, juv	6/29/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
lingcod	6/29/2005	5	3	7.33	2.52	1.00	0.00	1.00	0.00
olive rockfish, adult	6/29/2005	5	5	8.80	1.10	1.60	0.55	2.40	1.34
olive rockfish, all	6/29/2005	5	5	8.80	1.10	1.60	0.55	2.40	1.34
olive/yellowtail rockfish, juv	6/29/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	6/29/2005	5	5	2.00	4.47	0.40	0.89	0.80	1.79
opaleye, all	6/29/2005	5	5	2.00	4.47	0.40	0.89	0.80	1.79
opaleye, juv	6/29/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	6/29/2005	5	5	10.00	0.00	2.40	0.55	10.20	3.96
pile surfperch, adult	6/29/2005	5	5	8.60	0.55	2.00	0.00	4.00	2.24
pile surfperch, all	6/29/2005	5	5	8.60	0.55	2.00	0.00	4.00	2.24
pile surfperch, juv	6/29/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, female	6/29/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, male	6/29/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
rubberlip surfperch	6/29/2005	5	1	8.00		2.00		2.00	
senorita, adult	6/29/2005	5	5	8.60	1.52	2.20	0.84	16.40	21.80
senorita, all	6/29/2005	5	5	8.60	1.52	2.20	0.84	16.40	21.80
senorita, juv	6/29/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
snubnose sculpin	6/29/2005	5	3	5.33	0.58	1.00	0.00	1.00	0.00
striped surfperch, adult	6/29/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, all	6/29/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, juv	6/29/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00

2005 ROVING DIVER FISH COUNT
Santa Cruz Island - Fry's Harbor (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
reefsh, adult	6/29/2005	5	5	8.20	1.30	2.00	0.71	4.00	4.06
reefsh, juv	6/29/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
zebra goby	6/29/2005	5	1	9.00		1.00		1.00	

2005 ROVING DIVER FISH COUNT
Santa Cruz Island - Pelican Bay

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black surfperch, adult	6/13/2005	3	3	10.00	0.00	2.33	0.58	11.00	5.20
black surfperch, all	6/13/2005	3	3	10.00	0.00	2.33	0.58	11.00	5.20
black surfperch, juv	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
blackeye goby	6/13/2005	3	3	10.00	0.00	4.00	0.00	166.33	102.79
blacksmith, adult	6/13/2005	3	3	9.00	1.73	4.00	0.00	152.33	22.90
blacksmith, all	6/13/2005	3	3	9.00	1.73	4.00	0.00	152.33	22.90
blacksmith, juv	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, all	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, juv	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	6/13/2005	3	3	6.67	5.77	1.00	1.00	1.33	1.53
California sheephead, female	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
California sheephead, juv	6/13/2005	3	3	3.33	5.77	0.33	0.58	0.33	0.58
California sheephead, male	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
c-o turbot	6/13/2005	3	1	7.00		2.00		3.00	
garibaldi, adult	6/13/2005	3	3	10.00	0.00	2.00	0.00	7.00	2.00
garibaldi, juv	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
halfmoon	6/13/2005	3	1	10.00		1.00		1.00	
island kelpfish	6/13/2005	3	3	2.33	4.04	0.33	0.58	0.33	0.58
kelp bass, adult	6/13/2005	3	3	10.00	0.00	2.67	0.58	17.00	6.56
kelp bass, calico bass, all	6/13/2005	3	3	10.00	0.00	3.00	0.00	18.67	6.11
kelp bass, juv	6/13/2005	3	3	10.00	0.00	1.67	0.58	1.67	0.58
kelp rockfish, adult	6/13/2005	3	3	5.67	4.93	1.00	1.00	1.00	1.00
kelp rockfish, all	6/13/2005	3	3	5.67	4.93	1.00	1.00	1.00	1.00
kelp rockfish, juv	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
ocean whitefish	6/13/2005	3	3	9.00	1.73	2.33	0.58	6.33	4.51
olive rockfish, adult	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, all	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
olive/yellowtail rockfish, juv	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
onespot fringehead	6/13/2005	3	1	8.00		1.00		1.00	
opaleye, adult	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, all	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, juv	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	6/13/2005	3	3	8.00	1.00	2.00	0.00	5.00	1.73
pile surfperch, adult	6/13/2005	3	3	9.67	0.58	2.33	0.58	9.67	6.43
pile surfperch, all	6/13/2005	3	3	9.67	0.58	2.33	0.58	9.67	6.43
pile surfperch, juv	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, female	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, juv	6/13/2005	3	1	8.00		2.00		2.00	
rock wrasse, male	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
senorita, adult	6/13/2005	3	3	9.67	0.58	2.00	0.00	5.00	2.65
senorita, all	6/13/2005	3	3	9.67	0.58	2.00	0.00	5.00	2.65
senorita, juv	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, adult	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, all	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, juv	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
treefish, adult	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
treefish, juv	6/13/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00

2005 ROVING DIVER FISH COUNT
Santa Cruz Island - Pelican Bay (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
yellowfin fringehead	6/13/2005	3	1	6.00		1.00		1.00	
zebra goby	6/13/2005	3	1	8.00		2.00		2.00	

2005 ROVING DIVER FISH COUNT
Santa Cruz Island - Scorpion Anchorage

Common Name:	Date:	Maximum # of Observers	# of Observations	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
bat ray	9/8/2005	5	1	6.00		1.00		1.00	
black and yellow rockfish	9/8/2005	5	1	10.00		2.00		2.00	
black surfperch, adult	9/8/2005	5	5	10.00	0.00	3.00	0.00	31.20	6.76
black surfperch, all	9/8/2005	5	5	10.00	0.00	3.00	0.00	37.20	15.72
black surfperch, juv	9/8/2005	5	5	3.20	4.60	1.00	1.41	6.00	9.97
blackeye goby	9/8/2005	5	5	10.00	0.00	4.00	0.00	224.75	54.70
blacksmith, adult	9/8/2005	5	5	10.00	0.00	3.80	0.45	124.60	43.54
blacksmith, all	9/8/2005	5	5	10.00	0.00	3.80	0.45	124.60	43.54
blacksmith, juv	9/8/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	9/8/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, all	9/8/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, juv	9/8/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	9/8/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
California sheephead, female	9/8/2005	5	5	9.40	0.89	1.80	0.45	2.60	1.14
California sheephead, juv	9/8/2005	5	5	2.00	4.47	0.40	0.89	0.60	1.34
California sheephead, male	9/8/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
garibaldi, adult	9/8/2005	5	5	9.80	0.45	2.20	0.45	7.20	2.59
garibaldi, juv	9/8/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
giant kelpfish, juv	9/8/2005	5	1	5.00		1.00		1.00	
halfmoon	9/8/2005	5	1	10.00		1.00		1.00	
horn shark	9/8/2005	5	1	8.00		2.00		2.00	
island kelpfish	9/8/2005	5	5	5.20	5.02	1.00	1.00	1.20	1.30
kelp bass, adult	9/8/2005	5	5	10.00	0.00	2.80	0.45	12.60	5.81
kelp bass, calico bass, all	9/8/2005	5	5	10.00	0.00	3.00	0.00	17.20	3.70
kelp bass, juv	9/8/2005	5	5	5.20	3.56	1.80	1.10	4.60	4.88
kelp rockfish, adult	9/8/2005	5	5	1.20	2.68	0.20	0.45	0.20	0.45
kelp rockfish, all	9/8/2005	5	5	2.20	3.03	0.60	0.89	0.80	1.30
kelp rockfish, juv	9/8/2005	5	5	1.00	2.24	0.40	0.89	0.60	1.34
olive rockfish, adult	9/8/2005	5	5	6.80	4.09	1.20	0.84	1.60	1.52
olive rockfish, all	9/8/2005	5	5	6.80	4.09	1.20	0.84	1.60	1.52
olive/yellowtail rockfish, juv	9/8/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	9/8/2005	5	5	8.80	1.30	2.40	0.55	9.00	4.12
opaleye, all	9/8/2005	5	5	8.80	1.30	2.40	0.55	9.00	4.12
opaleye, juv	9/8/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	9/8/2005	5	5	10.00	0.00	2.20	0.45	9.40	1.82
pile surfperch, adult	9/8/2005	5	5	8.60	1.67	2.40	0.55	8.20	5.17
pile surfperch, all	9/8/2005	5	5	8.60	1.67	2.40	0.55	8.20	5.17
pile surfperch, juv	9/8/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, female	9/8/2005	5	5	9.20	1.30	2.20	0.45	8.80	3.56
rock wrasse, male	9/8/2005	5	5	6.20	4.15	1.00	0.71	1.00	0.71
rubberlip surfperch	9/8/2005	5	2	6.00	1.41	1.50	0.71	1.50	0.71
senorita, adult	9/8/2005	5	5	10.00	0.00	3.20	0.45	70.60	30.34
senorita, all	9/8/2005	5	5	10.00	0.00	3.20	0.45	86.20	47.27
senorita, juv	9/8/2005	5	5	3.40	3.21	1.80	1.64	15.60	20.48
striped surfperch, adult	9/8/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, all	9/8/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, juv	9/8/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
treefish, adult	9/8/2005	5	5	1.00	2.24	0.40	0.89	0.40	0.89
treefish, juv	9/8/2005	5	5	1.60	3.58	0.20	0.45	0.20	0.45

2005 ROVING DIVER FISH COUNT
Santa Cruz Island - Yellow Banks

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black surfperch, adult	8/23/2005	4	4	2.00	4.00	0.25	0.50	0.25	0.50
black surfperch, all	8/23/2005	4	4	6.50	4.36	1.00	0.82	1.00	0.82
black surfperch, juv	8/23/2005	4	4	6.25	4.27	0.75	0.50	0.75	0.50
blackeye goby	8/23/2005	4	4	10.00	0.00	3.00	0.00	54.00	9.49
blacksmith, adult	8/23/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blacksmith, all	8/23/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blacksmith, juv	8/23/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	8/23/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, all	8/23/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, juv	8/23/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	8/23/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
California sheephead, female	8/23/2005	4	4	8.75	1.50	1.50	0.58	1.75	0.96
California sheephead, juv	8/23/2005	4	4	9.25	0.96	1.75	0.50	3.25	1.71
California sheephead, male	8/23/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
c-o turbot	8/23/2005	4	1	7.00		1.00		1.00	
copper rockfish	8/23/2005	4	1	9.00		2.00		2.00	
copper rockfish, juv	8/23/2005	4	1	5.00		1.00		1.00	
coralline sculpin	8/23/2005	4	2	8.50	0.71	1.50	0.71	1.50	0.71
garibaldi, adult	8/23/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
garibaldi, juv	8/23/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
giant kelpfish	8/23/2005	4	3	7.33	2.08	1.33	0.58	1.33	0.58
gopher rockfish	8/23/2005	4	2	9.00	0.00	1.00	0.00	1.00	0.00
gopher/copper rockfish, juv	8/23/2005	4	2	8.00	2.83	1.00	0.00	1.00	0.00
island kelpfish	8/23/2005	4	4	2.50	5.00	0.25	0.50	0.25	0.50
jack mackerel	8/23/2005	4	2	5.00	0.00	2.00	1.41	21.00	28.28
kelp bass, adult	8/23/2005	4	4	6.25	4.19	1.50	1.00	3.00	2.58
kelp bass, calico bass, all	8/23/2005	4	4	6.25	4.19	1.50	1.00	3.00	2.58
kelp bass, juv	8/23/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	8/23/2005	4	4	5.00	5.77	0.75	0.96	0.75	0.96
kelp rockfish, all	8/23/2005	4	4	5.00	5.77	1.00	1.15	1.00	1.15
kelp rockfish, juv	8/23/2005	4	4	1.25	2.50	0.25	0.50	0.25	0.50
kelp surfperch	8/23/2005	4	4	9.75	0.50	2.50	0.58	13.75	5.91
northern anchovy	8/23/2005	4	1	5.00		2.00		10.00	
olive rockfish, adult	8/23/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, all	8/23/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
olive/yellowtail rockfish, juv	8/23/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	8/23/2005	4	4	1.25	2.50	0.25	0.50	0.25	0.50
opaleye, all	8/23/2005	4	4	1.25	2.50	0.25	0.50	0.25	0.50
opaleye, juv	8/23/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	8/23/2005	4	4	10.00	0.00	3.00	0.00	22.25	5.50
pile surfperch, adult	8/23/2005	4	4	2.00	4.00	0.25	0.50	0.25	0.50
pile surfperch, all	8/23/2005	4	4	2.00	4.00	0.25	0.50	0.25	0.50
pile surfperch, juv	8/23/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
rainbow surfperch	8/23/2005	4	2	8.50	0.71	2.00	0.00	3.50	2.12
rock wrasse, female	8/23/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, male	8/23/2005	4	4	2.25	4.50	0.25	0.50	0.25	0.50
senorita, adult	8/23/2005	4	4	10.00	0.00	3.00	0.00	44.50	18.70
senorita, all	8/23/2005	4	4	10.00	0.00	3.00	0.00	44.50	18.70
senorita, juv	8/23/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00

2005 ROVING DIVER FISH COUNT
Santa Cruz Island - Yellow Banks (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
snubnose sculpin	8/23/2005	4	3	8.00	0.00	1.00	0.00	1.00	0.00
striped surfperch, adult	8/23/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, all	8/23/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, juv	8/23/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
swell shark	8/23/2005	4	1	9.00		1.00		1.00	
top smelt	8/23/2005	4	2	7.50	3.54	3.00	0.00	21.00	5.66
treefish, adult	8/23/2005	4	4	6.25	4.19	0.75	0.50	0.75	0.50
treefish, juv	8/23/2005	4	4	2.25	4.50	0.25	0.50	0.25	0.50

2005 ROVING DIVER FISH COUNT
Anacapa Island - Admiral's Reef

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
bat ray	8/22/2005	5	1	9.00		1.00		1.00	
black and yellow rockfish	8/22/2005	5	4	8.75	1.26	1.50	0.58	2.25	1.50
black surfperch, adult	8/22/2005	5	5	9.80	0.45	2.00	0.00	5.20	1.92
black surfperch, all	8/22/2005	5	5	9.80	0.45	2.00	0.00	5.20	1.92
black surfperch, juv	8/22/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blackeye goby	8/22/2005	5	5	10.00	0.00	3.80	0.45	125.50	50.87
blacksmith, adult	8/22/2005	5	5	10.00	0.00	4.00	0.00	485.75	225.84
blacksmith, all	8/22/2005	5	5	10.00	0.00	4.00	0.00	485.75	225.84
blacksmith, juv	8/22/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	8/22/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, all	8/22/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, juv	8/22/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	8/22/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
cabezon	8/22/2005	5	1	7.00		1.00		1.00	
California moray	8/22/2005	5	2	6.50	0.71	1.00	0.00	1.00	0.00
California scorpionfish	8/22/2005	5	3	7.33	0.58	1.00	0.00	1.00	0.00
California sheephead, female	8/22/2005	5	5	6.40	4.04	1.20	0.84	1.20	0.84
California sheephead, juv	8/22/2005	5	5	8.80	1.79	1.80	0.45	4.40	2.97
California sheephead, male	8/22/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
coralline sculpin	8/22/2005	5	1	7.00		1.00		1.00	
garibaldi, adult	8/22/2005	5	5	9.60	0.55	2.00	0.00	6.20	1.79
garibaldi, juv	8/22/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
gopher rockfish	8/22/2005	5	3	9.00	1.73	1.00	0.00	1.00	0.00
gopher/copper rockfish, juv	8/22/2005	5	3	7.00	2.65	1.33	0.58	2.00	1.73
halfmoon	8/22/2005	5	5	8.80	1.79	2.20	0.45	7.00	3.16
island kelpfish	8/22/2005	5	5	9.40	0.89	2.60	0.55	10.00	3.54
kelp bass, adult	8/22/2005	5	5	9.20	0.84	2.00	0.00	4.00	1.87
kelp bass, calico bass, all	8/22/2005	5	5	9.20	0.84	2.00	0.00	4.00	1.87
kelp bass, juv	8/22/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	8/22/2005	5	5	3.00	4.24	0.40	0.55	0.40	0.55
kelp rockfish, all	8/22/2005	5	5	3.00	4.24	0.40	0.55	0.40	0.55
kelp rockfish, juv	8/22/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
kelpfish spp.	8/22/2005	5	1	6.00		1.00		1.00	
olive rockfish, adult	8/22/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, all	8/22/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
olive/yellowtail rockfish, juv	8/22/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	8/22/2005	5	5	10.00	0.00	2.60	0.55	14.80	6.06
opaleye, all	8/22/2005	5	5	10.00	0.00	2.60	0.55	14.80	6.06
opaleye, juv	8/22/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	8/22/2005	5	5	10.00	0.00	3.00	0.00	63.60	21.82
pile surfperch, adult	8/22/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
pile surfperch, all	8/22/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
pile surfperch, juv	8/22/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, female	8/22/2005	5	5	6.00	3.74	1.20	0.84	1.20	0.84
rock wrasse, male	8/22/2005	5	5	6.40	3.85	1.00	0.71	1.00	0.71
senorita, adult	8/22/2005	5	5	10.00	0.00	3.20	0.45	78.40	22.53
senorita, all	8/22/2005	5	5	10.00	0.00	3.20	0.45	78.40	22.53
senorita, juv	8/22/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, adult	8/22/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00

2005 ROVING DIVER FISH COUNT
Anacapa Island - Admiral's Reef (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
striped surfperch, all	8/22/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, juv	8/22/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
treefish, adult	8/22/2005	5	5	9.60	0.89	2.00	0.00	6.00	1.58
treefish, juv	8/22/2005	5	5	3.40	4.67	0.60	0.89	0.80	1.30

2005 ROVING DIVER FISH COUNT
Anacapa Island - Cathedral Cove

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black and yellow rockfish	6/27/2005	7	1	9.00		1.00		1.00	
black surfperch, adult	6/27/2005	7	7	9.71	0.49	2.57	0.53	11.57	3.51
black surfperch, all	6/27/2005	7	7	9.71	0.49	2.57	0.53	12.00	3.74
black surfperch, juv	6/27/2005	7	7	2.14	3.67	0.43	0.79	0.43	0.79
blackeye goby	6/27/2005	7	7	7.29	3.35	2.00	1.00	7.57	8.40
blacksmith, adult	6/27/2005	7	7	9.71	0.49	4.00	0.00	377.00	177.74
blacksmith, all	6/27/2005	7	7	9.71	0.49	4.00	0.00	377.00	177.74
blacksmith, juv	6/27/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	6/27/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, all	6/27/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, juv	6/27/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	6/27/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
California sheephead, female	6/27/2005	7	7	9.29	0.76	2.00	0.00	3.00	1.29
California sheephead, juv	6/27/2005	7	7	8.14	1.07	1.71	0.49	4.00	2.83
California sheephead, male	6/27/2005	7	7	9.43	0.98	1.29	0.49	1.29	0.49
garibaldi, adult	6/27/2005	7	7	9.43	0.79	2.00	0.00	4.86	2.19
garibaldi, juv	6/27/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
giant kelpfish	6/27/2005	7	2	8.50	2.12	1.00	0.00	1.00	0.00
giant kelpfish, juv	6/27/2005	7	2	10.00	0.00	2.00	0.00	6.50	4.95
island kelpfish	6/27/2005	7	7	5.86	4.22	1.29	0.95	2.14	2.12
kelp bass, adult	6/27/2005	7	7	8.86	1.77	2.43	0.53	9.57	5.62
kelp bass, calico bass, all	6/27/2005	7	7	9.57	0.53	2.43	0.53	12.29	5.25
kelp bass, juv	6/27/2005	7	7	5.00	4.76	1.14	1.07	2.71	2.87
kelp rockfish, adult	6/27/2005	7	7	4.14	5.18	0.71	0.95	0.86	1.21
kelp rockfish, all	6/27/2005	7	7	4.14	5.18	0.71	0.95	0.86	1.21
kelp rockfish, juv	6/27/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
kelp surfperch	6/27/2005	7	6	9.67	0.52	2.50	0.55	23.33	22.27
kelpfish spp.	6/27/2005	7	1	9.00		1.00		1.00	
olive rockfish, adult	6/27/2005	7	7	1.29	3.40	0.14	0.38	0.14	0.38
olive rockfish, all	6/27/2005	7	7	1.29	3.40	0.14	0.38	0.14	0.38
olive/yellowtail rockfish, juv	6/27/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	6/27/2005	7	7	9.14	0.69	2.00	0.58	4.57	3.41
opaleye, all	6/27/2005	7	7	9.14	0.69	2.00	0.58	4.57	3.41
opaleye, juv	6/27/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	6/27/2005	7	7	6.71	3.30	1.29	0.76	1.43	0.98
pile surfperch, adult	6/27/2005	7	7	2.29	3.90	0.29	0.49	0.29	0.49
pile surfperch, all	6/27/2005	7	7	3.29	4.11	0.57	0.79	0.57	0.79
pile surfperch, juv	6/27/2005	7	7	1.00	2.65	0.29	0.76	0.29	0.76
rainbow surfperch	6/27/2005	7	1	7.00		1.00		1.00	
rock wrasse, female	6/27/2005	7	7	2.00	3.46	0.57	0.98	1.14	2.27
rock wrasse, juv	6/27/2005	7	4	8.25	0.50	1.75	0.50	3.25	2.06
rock wrasse, male	6/27/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
senorita, adult	6/27/2005	7	7	9.00	1.29	2.43	0.53	15.14	10.24
senorita, all	6/27/2005	7	7	9.00	1.29	2.43	0.53	15.29	10.42
senorita, juv	6/27/2005	7	7	1.14	3.02	0.14	0.38	0.14	0.38
striped surfperch, adult	6/27/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, all	6/27/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00

2005 ROVING DIVER FISH COUNT
Anacapa Island - Cathedral Cove (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
striped surfperch, juv	6/27/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
treefish, adult	6/27/2005	7	7	2.14	3.76	0.29	0.49	0.29	0.49
treefish, juv	6/27/2005	7	7	1.29	3.40	0.14	0.38	0.14	0.38
zebra goby	6/27/2005	7	1	7.00		2.00		3.00	

2005 ROVING DIVER FISH COUNT
Anacapa Island - Landing Cove

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
bat ray	5/12/2005	5	1	9.00		1.00		1.00	
bat ray	9/5/2005	5	2	5.00	0.00	1.00	0.00	1.00	0.00
black and yellow rockfish	5/12/2005	5	2	7.50	0.71	1.50	0.71	1.50	0.71
black and yellow rockfish	7/15/2005	5	1	7.00		1.00		1.00	
black and yellow rockfish	9/5/2005	5	1	8.00		1.00		1.00	
black surfperch, adult	5/12/2005	5	5	9.40	0.89	2.20	0.45	8.80	3.70
black surfperch, adult	7/15/2005	5	5	9.60	0.89	2.20	0.45	10.00	2.83
black surfperch, adult	9/5/2005	5	4	10.00	0.00	2.50	0.58	10.25	2.22
black surfperch, all	5/12/2005	5	5	9.40	0.89	2.20	0.45	8.80	3.70
black surfperch, all	7/15/2005	5	5	9.60	0.89	2.80	0.45	12.40	2.61
black surfperch, all	9/5/2005	5	5	9.80	0.45	2.40	0.55	10.20	3.96
black surfperch, juv	5/12/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
black surfperch, juv	7/15/2005	5	5	8.40	2.07	1.80	0.45	2.40	0.89
black surfperch, juv	9/5/2005	5	4	3.75	4.50	1.00	1.15	1.25	1.50
blackeye goby	5/12/2005	5	5	8.60	0.89	2.40	0.55	12.20	7.66
blackeye goby	7/15/2005	5	5	9.60	0.55	2.20	0.45	10.80	12.58
blackeye goby	9/5/2005	5	5	6.20	3.77	2.00	1.41	11.80	10.73
blacksmith, adult	5/12/2005	5	5	10.00	0.00	4.00	0.00	387.20	221.71
blacksmith, adult	7/15/2005	5	5	8.00	2.35	3.60	0.55	165.40	87.87
blacksmith, adult	9/5/2005	5	4	10.00	0.00	4.00	0.00	189.50	71.21
blacksmith, all	5/12/2005	5	5	10.00	0.00	4.00	0.00	387.20	221.71
blacksmith, all	7/15/2005	5	5	8.00	2.35	3.60	0.55	165.40	87.87
blacksmith, all	9/5/2005	5	5	10.00	0.00	3.80	0.45	164.20	83.69
blacksmith, juv	5/12/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blacksmith, juv	7/15/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blacksmith, juv	9/5/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	5/12/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	7/15/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	9/5/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, all	5/12/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, all	7/15/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, all	9/5/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, juv	5/12/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, juv	7/15/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, juv	9/5/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	5/12/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	7/15/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	9/5/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
California scorpionfish	9/5/2005	5	1	8.00		1.00		1.00	
California sheephead, female	5/12/2005	5	5	9.40	0.89	2.00	0.00	7.20	2.77
California sheephead, female	7/15/2005	5	5	9.80	0.45	2.00	0.00	3.20	1.30
California sheephead, female	9/5/2005	5	5	8.60	2.19	1.40	0.55	1.60	0.89
California sheephead, juv	5/12/2005	5	5	7.60	1.52	1.80	0.45	2.20	0.84
California sheephead, juv	7/15/2005	5	5	7.40	4.16	1.40	0.89	1.40	0.89
California sheephead, juv	9/5/2005	5	5	1.40	3.13	0.40	0.89	0.60	1.34
California sheephead, male	5/12/2005	5	5	1.80	4.02	0.40	0.89	0.40	0.89
California sheephead, male	7/15/2005	5	5	3.80	3.49	0.60	0.55	0.60	0.55
California sheephead, male	9/5/2005	5	5	9.60	0.89	1.60	0.55	1.60	0.55
garibaldi, adult	5/12/2005	5	5	10.00	0.00	2.40	0.55	9.60	2.07

2005 ROVING DIVER FISH COUNT
Anacapa Island - Landing Cove (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
garibaldi, adult	7/15/2005	5	5	10.00	0.00	2.20	0.45	8.80	2.49
garibaldi, adult	9/5/2005	5	5	10.00	0.00	2.40	0.55	8.20	3.11
garibaldi, juv	5/12/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
garibaldi, juv	7/15/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
garibaldi, juv	9/5/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
giant kelpfish	5/12/2005	5	1	9.00		1.00		1.00	
giant kelpfish	7/15/2005	5	1	10.00		1.00		1.00	
giant kelpfish	9/5/2005	5	3	8.00	2.65	1.67	0.58	2.00	1.00
giant kelpfish, juv	9/5/2005	5	2	8.00	2.83	1.00	0.00	1.00	0.00
gopher/copper rockfish, juv	9/5/2005	5	1	7.00		1.00		1.00	
grass rockfish	9/5/2005	5	1	7.00		1.00		1.00	
halfmoon	5/12/2005	5	5	8.60	1.34	1.40	0.55	1.80	1.30
halfmoon	7/15/2005	5	5	7.20	2.59	2.00	0.00	4.80	2.17
halfmoon	9/5/2005	5	5	6.40	2.07	2.00	0.00	5.80	1.48
island kelpfish	5/12/2005	5	5	8.00	2.00	2.00	0.00	4.20	1.92
island kelpfish	7/15/2005	5	5	9.00	0.71	1.80	0.84	4.80	4.49
island kelpfish	9/5/2005	5	5	7.00	4.00	1.60	0.89	5.00	3.81
kelp bass, adult	5/12/2005	5	5	9.60	0.89	2.80	0.45	13.80	4.97
kelp bass, adult	7/15/2005	5	5	9.80	0.45	2.40	0.55	9.60	3.05
kelp bass, adult	9/5/2005	5	4	10.00	0.00	2.75	0.50	12.75	2.22
kelp bass, calico bass, all	5/12/2005	5	5	9.60	0.89	3.00	0.00	15.80	4.21
kelp bass, calico bass, all	7/15/2005	5	5	9.80	0.45	2.40	0.55	10.60	3.13
kelp bass, calico bass, all	9/5/2005	5	5	9.80	0.45	2.60	0.55	11.20	4.60
kelp bass, juv	5/12/2005	5	5	5.20	3.03	1.40	0.89	2.00	1.58
kelp bass, juv	7/15/2005	5	5	3.60	4.98	0.80	1.10	1.00	1.41
kelp bass, juv	9/5/2005	5	4	2.25	4.50	0.25	0.50	0.25	0.50
kelp rockfish, adult	5/12/2005	5	5	8.60	0.55	1.60	0.55	3.20	2.05
kelp rockfish, adult	7/15/2005	5	5	3.20	4.44	0.60	0.89	0.60	0.89
kelp rockfish, adult	9/5/2005	5	4	4.50	5.26	0.75	0.96	0.75	0.96
kelp rockfish, all	5/12/2005	5	5	8.60	0.55	1.60	0.55	3.20	2.05
kelp rockfish, all	7/15/2005	5	5	3.20	4.44	0.60	0.89	0.60	0.89
kelp rockfish, all	9/5/2005	5	5	3.60	4.98	0.60	0.89	0.80	1.30
kelp rockfish, juv	5/12/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, juv	7/15/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, juv	9/5/2005	5	4	2.50	5.00	0.25	0.50	0.25	0.50
kelp surfperch	5/12/2005	5	4	9.25	1.50	2.50	1.00	19.00	20.85
kelp surfperch	7/15/2005	5	5	9.60	0.89	2.40	0.55	20.80	28.77
kelp surfperch	9/5/2005	5	5	9.80	0.45	2.80	0.45	31.40	24.21
kelpfish spp.	9/5/2005	5	1	6.00		1.00		1.00	
ocean whitefish	9/5/2005	5	1	8.00		1.00		1.00	
olive rockfish, adult	5/12/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, adult	7/15/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, adult	9/5/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, all	5/12/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, all	7/15/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, all	9/5/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
olive/yellowtail rockfish, juv	5/12/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
olive/yellowtail rockfish, juv	7/15/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
olive/yellowtail rockfish, juv	9/5/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00

2005 ROVING DIVER FISH COUNT
Anacapa Island - Landing Cove (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
opaleye, adult	5/12/2005	5	5	9.60	0.55	3.00	0.00	20.00	9.03
opaleye, adult	7/15/2005	5	5	10.00	0.00	2.20	0.45	7.00	2.35
opaleye, adult	9/5/2005	5	4	9.75	0.50	3.00	0.00	15.25	2.87
opaleye, all	5/12/2005	5	5	9.60	0.55	3.00	0.00	20.00	9.03
opaleye, all	7/15/2005	5	5	10.00	0.00	2.20	0.45	7.00	2.35
opaleye, all	9/5/2005	5	5	9.80	0.45	2.80	0.45	12.80	6.02
opaleye, juv	5/12/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, juv	7/15/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, juv	9/5/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	5/12/2005	5	5	9.20	1.10	2.00	0.00	3.80	1.10
painted greenling	7/15/2005	5	5	9.60	0.89	2.00	0.00	7.20	1.79
painted greenling	9/5/2005	5	5	7.20	4.09	1.40	0.89	3.80	3.11
pile surfperch, adult	5/12/2005	5	5	6.00	4.18	1.20	0.84	1.40	1.14
pile surfperch, adult	7/15/2005	5	5	1.40	3.13	0.20	0.45	0.20	0.45
pile surfperch, adult	9/5/2005	5	4	1.25	2.50	0.25	0.50	0.25	0.50
pile surfperch, all	5/12/2005	5	5	6.00	4.18	1.20	0.84	1.40	1.14
pile surfperch, all	7/15/2005	5	5	1.40	3.13	0.20	0.45	0.20	0.45
pile surfperch, all	9/5/2005	5	5	1.00	2.24	0.20	0.45	0.20	0.45
pile surfperch, juv	5/12/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
pile surfperch, juv	7/15/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
pile surfperch, juv	9/5/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, female	5/12/2005	5	5	1.80	4.02	0.40	0.89	0.60	1.34
rock wrasse, female	7/15/2005	5	5	2.60	3.71	0.80	1.10	1.00	1.41
rock wrasse, female	9/5/2005	5	5	3.20	4.38	0.40	0.55	0.40	0.55
rock wrasse, juv	5/12/2005	5	2	7.00	1.41	1.50	0.71	1.50	0.71
rock wrasse, juv	7/15/2005	5	4	8.75	0.50	1.75	0.50	4.00	2.16
rock wrasse, male	5/12/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, male	7/15/2005	5	5	6.40	3.78	1.00	0.71	1.00	0.71
rock wrasse, male	9/5/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
senorita, adult	5/12/2005	5	5	9.40	0.89	2.40	0.55	19.00	23.61
senorita, adult	7/15/2005	5	5	10.00	0.00	3.00	0.00	45.00	18.81
senorita, adult	9/5/2005	5	4	10.00	0.00	3.00	0.00	40.50	33.91
senorita, all	5/12/2005	5	5	9.40	0.89	2.40	0.55	19.80	25.39
senorita, all	7/15/2005	5	5	10.00	0.00	3.00	0.00	53.00	15.12
senorita, all	9/5/2005	5	5	10.00	0.00	3.00	0.00	40.50	33.91
senorita, juv	5/12/2005	5	5	1.80	4.02	0.40	0.89	0.80	1.79
senorita, juv	7/15/2005	5	5	5.20	4.82	1.40	1.34	8.00	10.27
senorita, juv	9/5/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, adult	5/12/2005	5	5	5.00	4.64	0.60	0.55	0.60	0.55
striped surfperch, adult	7/15/2005	5	5	1.20	2.68	0.20	0.45	0.20	0.45
striped surfperch, adult	9/5/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, all	5/12/2005	5	5	5.00	4.64	0.60	0.55	0.60	0.55
striped surfperch, all	7/15/2005	5	5	1.20	2.68	0.20	0.45	0.20	0.45
striped surfperch, all	9/5/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, juv	5/12/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, juv	7/15/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, juv	9/5/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
top smelt	9/5/2005	5	1	5.00		2.00		9.00	

2005 ROVING DIVER FISH COUNT
Anacapa Island - Landing Cove (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
treefish, adult	5/12/2005	5	5	6.60	3.97	1.60	0.89	1.60	0.89
treefish, adult	7/15/2005	5	5	4.80	4.76	0.80	0.84	0.80	0.84
treefish, adult	9/5/2005	5	5	5.80	3.49	1.20	0.84	1.40	1.14
treefish, juv	5/12/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
treefish, juv	7/15/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
treefish, juv	9/5/2005	5	5	4.00	3.67	0.60	0.55	0.60	0.55
zebra goby	5/12/2005	5	1	10.00		1.00		1.00	

2005 ROVING DIVER FISH COUNT
Santa Barbara Island - SE Sea Lion Rookery

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black surfperch, adult	5/19/2005	3	2	0.00	0.00	0.00	0.00	0.00	0.00
black surfperch, all	5/19/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
black surfperch, juv	5/19/2005	3	2	0.00	0.00	0.00	0.00	0.00	0.00
blackeye goby	5/19/2005	3	3	10.00	0.00	3.00	0.00	33.00	3.00
blacksmith, adult	5/19/2005	3	2	8.00	0.00	2.00	0.00	6.00	4.24
blacksmith, all	5/19/2005	3	3	7.67	0.58	2.33	0.58	9.00	6.00
blacksmith, juv	5/19/2005	3	2	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	5/19/2005	3	2	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, all	5/19/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, juv	5/19/2005	3	2	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	5/19/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
California scorpionfish	5/19/2005	3	1	9.00		2.00		3.00	
California sheephead, female	5/19/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
California sheephead, juv	5/19/2005	3	3	7.33	0.58	2.00	0.00	2.33	0.58
California sheephead, male	5/19/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
garibaldi, adult	5/19/2005	3	3	8.33	1.15	1.67	0.58	3.00	1.73
garibaldi, juv	5/19/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
island kelpfish	5/19/2005	3	3	6.00	5.29	1.67	1.53	5.00	7.00
kelp bass, adult	5/19/2005	3	2	0.00	0.00	0.00	0.00	0.00	0.00
kelp bass, calico bass, all	5/19/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
kelp bass, juv	5/19/2005	3	2	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	5/19/2005	3	2	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, all	5/19/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, juv	5/19/2005	3	2	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, adult	5/19/2005	3	2	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, all	5/19/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
olive/yellowtail rockfish, juv	5/19/2005	3	2	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	5/19/2005	3	2	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, all	5/19/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, juv	5/19/2005	3	2	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	5/19/2005	3	3	7.67	0.58	1.33	0.58	1.67	1.15
pile surfperch, adult	5/19/2005	3	2	0.00	0.00	0.00	0.00	0.00	0.00
pile surfperch, all	5/19/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
pile surfperch, juv	5/19/2005	3	2	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, female	5/19/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, male	5/19/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
senorita, adult	5/19/2005	3	2	0.00	0.00	0.00	0.00	0.00	0.00
senorita, all	5/19/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
senorita, juv	5/19/2005	3	2	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, adult	5/19/2005	3	2	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, all	5/19/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, juv	5/19/2005	3	2	0.00	0.00	0.00	0.00	0.00	0.00
treefish, adult	5/19/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
treefish, juv	5/19/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00

2005 ROVING DIVER FISH COUNT
Santa Barbara Island - Arch Point

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black surfperch, adult	5/17/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
black surfperch, all	5/17/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
black surfperch, juv	5/17/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
blackeye goby	5/17/2005	6	6	9.50	0.55	2.00	0.89	10.83	11.37
blacksmith, adult	5/17/2005	6	5	9.80	0.45	3.80	0.45	230.80	131.33
blacksmith, all	5/17/2005	6	6	9.83	0.41	3.83	0.41	245.67	122.98
blacksmith, juv	5/17/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	5/17/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, all	5/17/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, juv	5/17/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	5/17/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
California halibut	5/17/2005	6	1	6.00		1.00		1.00	
California scorpionfish	5/17/2005	6	2	6.50	0.71	1.00	0.00	1.00	0.00
California sheephead, female	5/17/2005	6	6	8.17	4.02	1.67	0.82	3.33	2.16
California sheephead, juv	5/17/2005	6	6	9.33	0.82	2.00	0.00	3.50	1.22
California sheephead, male	5/17/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
garibaldi, adult	5/17/2005	6	6	10.00	0.00	2.83	0.41	22.50	8.31
garibaldi, juv	5/17/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
grass rockfish	5/17/2005	6	3	7.33	0.58	1.00	0.00	1.00	0.00
halfmoon	5/17/2005	6	6	9.33	0.82	2.33	0.52	7.33	4.89
island kelpfish	5/17/2005	6	6	7.67	3.83	1.50	0.84	2.17	1.72
kelp bass, adult	5/17/2005	6	5	5.00	4.80	0.80	0.84	1.40	2.07
kelp bass, calico bass, all	5/17/2005	6	6	5.83	4.75	1.00	0.89	1.50	1.87
kelp bass, juv	5/17/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	5/17/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, all	5/17/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, juv	5/17/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, adult	5/17/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, all	5/17/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
olive/yellowtail rockfish, juv	5/17/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	5/17/2005	6	5	9.80	0.45	2.00	0.71	7.00	6.16
opaleye, all	5/17/2005	6	6	9.83	0.41	2.17	0.75	9.17	7.65
opaleye, juv	5/17/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	5/17/2005	6	6	9.83	0.41	2.00	0.00	5.00	2.45
pile surfperch, adult	5/17/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
pile surfperch, all	5/17/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
pile surfperch, juv	5/17/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, female	5/17/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, juv	5/17/2005	6	3	7.00	1.73	1.67	0.58	2.33	1.53
rock wrasse, male	5/17/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
rockfish spp.	5/17/2005	6	2	9.00	0.00	1.00	0.00	1.00	0.00
senorita, adult	5/17/2005	6	5	3.60	4.98	1.20	1.64	6.60	9.10
senorita, all	5/17/2005	6	6	4.33	4.80	1.33	1.51	6.83	8.16
senorita, juv	5/17/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, adult	5/17/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, all	5/17/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, juv	5/17/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00

2005 ROVING DIVER FISH COUNT
Santa Barbara Island - Arch Point (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
stripedfin ronquil	5/17/2005	6	1	10.00		2.00		2.00	
top smelt	5/17/2005	6	3	10.00	0.00	3.67	0.58	176.67	127.02
treefish, adult	5/17/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
treefish, juv	5/17/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00

2005 ROVING DIVER FISH COUNT
Santa Barbara Island - Cat Canyon

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black surfperch, adult	5/18/2005	4	3	0.00	0.00	0.00	0.00	0.00	0.00
black surfperch, all	5/18/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
black surfperch, juv	5/18/2005	4	3	0.00	0.00	0.00	0.00	0.00	0.00
blackeye goby	5/18/2005	4	4	9.75	0.50	2.00	0.00	5.00	3.46
blacksmith, adult	5/18/2005	4	3	10.00	0.00	4.00	0.00	244.67	8.39
blacksmith, all	5/18/2005	4	4	10.00	0.00	4.00	0.00	249.00	11.05
blacksmith, juv	5/18/2005	4	3	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	5/18/2005	4	3	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, all	5/18/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, juv	5/18/2005	4	3	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	5/18/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
California moray	5/18/2005	4	1	9.00		1.00		1.00	
California sheephead, female	5/18/2005	4	4	9.25	0.96	1.75	0.50	1.75	0.50
California sheephead, juv	5/18/2005	4	4	4.75	5.50	0.75	0.96	0.75	0.96
California sheephead, male	5/18/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
garibaldi, adult	5/18/2005	4	4	10.00	0.00	2.00	0.00	6.75	2.06
garibaldi, juv	5/18/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
island kelpfish	5/18/2005	4	4	7.50	5.00	1.75	1.26	4.50	5.20
kelp bass, adult	5/18/2005	4	3	2.00	3.46	0.33	0.58	0.33	0.58
kelp bass, calico bass, all	5/18/2005	4	4	1.50	3.00	0.25	0.50	0.25	0.50
kelp bass, juv	5/18/2005	4	3	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	5/18/2005	4	3	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, all	5/18/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, juv	5/18/2005	4	3	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, adult	5/18/2005	4	3	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, all	5/18/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
olive/yellowtail rockfish, juv	5/18/2005	4	3	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	5/18/2005	4	3	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, all	5/18/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, juv	5/18/2005	4	3	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	5/18/2005	4	4	9.50	0.58	2.00	0.00	4.00	2.16
pile surfperch, adult	5/18/2005	4	3	0.00	0.00	0.00	0.00	0.00	0.00
pile surfperch, all	5/18/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
pile surfperch, juv	5/18/2005	4	3	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, female	5/18/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, male	5/18/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
senorita, adult	5/18/2005	4	3	10.00	0.00	3.00	0.00	23.00	7.21
senorita, all	5/18/2005	4	4	10.00	0.00	3.00	0.00	21.25	6.85
senorita, juv	5/18/2005	4	3	0.00	0.00	0.00	0.00	0.00	0.00
snubnose sculpin	5/18/2005	4	1	6.00		1.00		1.00	
striped surfperch, adult	5/18/2005	4	3	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, all	5/18/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, juv	5/18/2005	4	3	0.00	0.00	0.00	0.00	0.00	0.00
treefish, adult	5/18/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
treefish, juv	5/18/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00

2005 ROVING DIVER FISH COUNT

Santa Rosa Island - Cluster Point

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black and yellow rockfish	8/24/2005	5	4	8.75	1.50	1.75	0.50	3.75	3.10
black rockfish	8/24/2005	5	3	5.67	1.15	1.00	0.00	1.00	0.00
black surfperch, adult	8/24/2005	5	4	10.00	0.00	2.25	0.50	6.00	3.92
black surfperch, all	8/24/2005	5	5	10.00	0.00	2.20	0.45	7.20	3.96
black surfperch, juv	8/24/2005	5	4	4.75	5.50	0.50	0.58	0.50	0.58
blackeye goby	8/24/2005	5	5	6.80	3.96	1.40	0.89	1.60	1.14
blacksmith, adult	8/24/2005	5	4	7.75	1.71	2.25	0.96	11.25	11.53
blacksmith, all	8/24/2005	5	5	8.00	1.58	2.40	0.89	11.40	9.99
blacksmith, juv	8/24/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	8/24/2005	5	4	10.00	0.00	2.75	0.50	14.25	7.50
blue rockfish, all	8/24/2005	5	5	10.00	0.00	2.80	0.45	15.20	6.61
blue rockfish, juv	8/24/2005	5	4	2.25	4.50	0.25	0.50	0.25	0.50
blue-banded goby	8/24/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
cabezon	8/24/2005	5	3	9.00	1.00	1.00	0.00	1.00	0.00
California sheephead, female	8/24/2005	5	5	9.60	0.55	2.00	0.00	4.40	1.82
California sheephead, juv	8/24/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
California sheephead, male	8/24/2005	5	5	1.60	3.58	0.40	0.89	0.60	1.34
copper rockfish	8/24/2005	5	1	6.00		1.00		1.00	
coralline sculpin	8/24/2005	5	1	10.00		1.00		1.00	
garibaldi, adult	8/24/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
garibaldi, juv	8/24/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
giant kelpfish	8/24/2005	5	1	6.00		1.00		1.00	
gopher rockfish	8/24/2005	5	4	9.00	0.00	1.25	0.50	1.50	1.00
gopher/copper rockfish, juv	8/24/2005	5	1	10.00		1.00		1.00	
grass rockfish	8/24/2005	5	1	8.00		1.00		1.00	
island kelpfish	8/24/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
jack mackerel	8/24/2005	5	2	6.50	0.71	3.00	0.00	60.00	0.00
kelp bass, adult	8/24/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp bass, calico bass, all	8/24/2005	5	5	1.80	4.02	0.40	0.89	0.40	0.89
kelp bass, juv	8/24/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	8/24/2005	5	4	8.25	0.96	1.75	0.50	3.75	2.22
kelp rockfish, all	8/24/2005	5	5	8.00	1.00	1.80	0.45	4.00	2.24
kelp rockfish, juv	8/24/2005	5	4	3.75	4.35	0.50	0.58	0.50	0.58
kelp surfperch	8/24/2005	5	3	8.67	2.31	2.33	1.15	13.33	13.05
lingcod	8/24/2005	5	2	8.00	1.41	1.50	0.71	1.50	0.71
olive rockfish, adult	8/24/2005	5	4	6.75	4.72	1.25	0.96	1.50	1.29
olive rockfish, all	8/24/2005	5	5	5.40	5.08	1.00	1.00	1.20	1.30
olive/yellowtail rockfish, juv	8/24/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	8/24/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, all	8/24/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, juv	8/24/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	8/24/2005	5	5	10.00	0.00	3.00	0.00	31.00	8.22
pile surfperch, adult	8/24/2005	5	4	9.25	0.96	2.25	0.50	9.00	4.55
pile surfperch, all	8/24/2005	5	5	7.40	4.22	1.80	1.10	7.40	5.98
pile surfperch, juv	8/24/2005	5	4	2.25	4.50	0.25	0.50	0.25	0.50
rainbow surfperch	8/24/2005	5	3	7.67	0.58	2.00	0.00	3.00	1.00
rock wrasse, female	8/24/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, male	8/24/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
sculpin spp.	8/24/2005	5	1	10.00		1.00		1.00	

2005 ROVING DIVER FISH COUNT
Santa Rosa Island - Cluster Point (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
senorita, adult	8/24/2005	5	4	10.00	0.00	3.00	0.00	27.75	20.69
senorita, all	8/24/2005	5	5	10.00	0.00	3.00	0.00	26.20	18.25
senorita, juv	8/24/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
snubnose sculpin	8/24/2005	5	4	9.25	0.96	1.75	0.50	2.25	1.26
striped surfperch, adult	8/24/2005	5	4	10.00	0.00	3.00	0.00	19.25	5.68
striped surfperch, all	8/24/2005	5	5	9.80	0.45	2.80	0.45	17.60	6.80
striped surfperch, juv	8/24/2005	5	4	4.25	5.06	0.50	0.58	0.50	0.58
top smelt	8/24/2005	5	3	5.00	0.00	3.00	0.00	21.00	6.93
treefish, adult	8/24/2005	5	5	1.60	3.58	0.20	0.45	0.20	0.45
treefish, juv	8/24/2005	5	5	3.20	4.38	0.60	0.89	0.60	0.89
tubesnout	8/24/2005	5	2	9.00	1.41	2.50	0.71	11.50	13.44
vermillion rockfish	8/24/2005	5	5	8.40	0.89	1.00	0.00	1.00	0.00
wolf eel	8/24/2005	5	1	8.00		1.00		1.00	

2005 ROVING DIVER FISH COUNT
Santa Rosa Island - Trancion Canyon

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black and yellow rockfish	9/20/2005	5	5	8.00	2.00	1.80	0.45	3.20	1.30
black rockfish	9/20/2005	5	2	9.00	0.00	1.50	0.71	1.50	0.71
black surfperch, adult	9/20/2005	5	5	9.40	0.89	2.80	0.45	15.00	5.66
black surfperch, all	9/20/2005	5	5	9.60	0.55	2.80	0.45	17.25	5.12
black surfperch, juv	9/20/2005	5	5	5.60	5.13	1.20	1.10	1.80	1.64
blackeye goby	9/20/2005	5	5	8.40	0.89	2.00	0.00	3.75	1.50
blacksmith, adult	9/20/2005	5	5	9.20	1.10	2.00	0.71	14.80	25.93
blacksmith, all	9/20/2005	5	5	9.20	1.10	2.00	0.71	14.80	25.93
blacksmith, juv	9/20/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	9/20/2005	5	5	10.00	0.00	2.80	0.45	14.25	4.79
blue rockfish, all	9/20/2005	5	5	10.00	0.00	2.80	0.45	15.25	5.62
blue rockfish, juv	9/20/2005	5	5	1.60	3.58	0.40	0.89	0.80	1.79
blue-banded goby	9/20/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
cabezon	9/20/2005	5	4	8.75	0.96	2.00	0.00	2.33	0.58
California sheephead, female	9/20/2005	5	5	10.00	0.00	2.20	0.45	7.00	0.82
California sheephead, juv	9/20/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
California sheephead, male	9/20/2005	5	5	10.00	0.00	2.00	0.00	5.00	1.41
coralline sculpin	9/20/2005	5	2	7.00	1.41	1.50	0.71	1.50	0.71
garibaldi, adult	9/20/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
garibaldi, juv	9/20/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
giant kelpfish	9/20/2005	5	1	7.00		1.00		1.00	
gopher rockfish	9/20/2005	5	1	7.00		1.00		1.00	
gopher/copper rockfish, juv	9/20/2005	5	3	8.00	1.00	1.33	0.58	1.33	0.58
island kelpfish	9/20/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp bass, adult	9/20/2005	5	5	2.00	4.47	0.40	0.89	1.00	2.24
kelp bass, calico bass, all	9/20/2005	5	5	2.00	4.47	0.40	0.89	1.00	2.24
kelp bass, juv	9/20/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	9/20/2005	5	5	10.00	0.00	2.80	0.45	19.50	8.50
kelp rockfish, all	9/20/2005	5	5	10.00	0.00	2.80	0.45	19.50	8.50
kelp rockfish, juv	9/20/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp surfperch	9/20/2005	5	4	9.25	1.50	2.75	0.50	45.33	21.22
kelpfish spp.	9/20/2005	5	1	7.00		1.00		1.00	
lingcod	9/20/2005	5	3	8.33	1.15	1.67	0.58	1.67	0.58
olive rockfish, adult	9/20/2005	5	5	8.80	1.64	2.00	0.00	4.00	2.31
olive rockfish, all	9/20/2005	5	5	8.80	1.64	2.00	0.00	4.00	2.31
olive/yellowtail rockfish, juv	9/20/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	9/20/2005	5	5	8.60	1.67	2.00	0.71	6.00	5.72
opaleye, all	9/20/2005	5	5	8.60	1.67	2.00	0.71	6.00	5.72
opaleye, juv	9/20/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	9/20/2005	5	5	10.00	0.00	3.00	0.00	35.25	12.07
pile surfperch, adult	9/20/2005	5	5	9.60	0.55	2.00	0.00	5.00	2.16
pile surfperch, all	9/20/2005	5	5	9.80	0.45	2.00	0.00	6.25	2.36
pile surfperch, juv	9/20/2005	5	5	3.20	4.60	0.60	0.89	1.00	1.73
rainbow surfperch	9/20/2005	5	1	8.00		2.00		4.00	
rock wrasse, female	9/20/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, male	9/20/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
rubberlip surfperch	9/20/2005	5	3	7.67	1.53	1.67	0.58	1.67	0.58
sculpin spp.	9/20/2005	5	1	9.00		1.00		1.00	

2005 ROVING DIVER FISH COUNT
Santa Rosa Island - Trancion Canyon (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
senorita, adult	9/20/2005	5	5	10.00	0.00	3.20	0.45	79.75	21.82
senorita, all	9/20/2005	5	5	10.00	0.00	3.20	0.45	79.75	21.82
senorita, juv	9/20/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
snubnose sculpin	9/20/2005	5	1	7.00		1.00		1.00	
striped surfperch, adult	9/20/2005	5	5	9.40	1.34	2.80	0.45	14.50	7.55
striped surfperch, all	9/20/2005	5	5	9.40	1.34	2.80	0.45	17.00	9.42
striped surfperch, juv	9/20/2005	5	5	5.60	5.13	1.00	1.00	2.00	2.35
treefish, adult	9/20/2005	5	5	2.60	3.58	0.40	0.55	0.40	0.55
treefish, juv	9/20/2005	5	5	1.40	3.13	0.20	0.45	0.20	0.45
tubesnout	9/20/2005	5	1	6.00		2.00		10.00	

2005 ROVING DIVER FISH COUNT
Santa Rosa Island – Chickasaw

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black and yellow rockfish	8/25/2005	5	5	8.20	1.79	1.60	0.55	3.80	3.56
black and yellow rockfish, juv	8/25/2005	5	2	9.00	0.00	1.50	0.71	1.50	0.71
black rockfish	8/25/2005	5	1	5.00		1.00		1.00	
black surfperch, adult	8/25/2005	5	5	9.60	0.55	2.20	0.45	7.00	2.92
black surfperch, all	8/25/2005	5	5	9.60	0.55	2.40	0.55	10.40	4.04
black surfperch, juv	8/25/2005	5	5	8.20	1.92	2.00	0.00	3.40	1.67
blackeye goby	8/25/2005	5	5	5.60	5.13	1.20	1.10	3.20	3.35
blacksmith, adult	8/25/2005	5	5	7.60	4.34	2.40	1.52	39.40	52.20
blacksmith, all	8/25/2005	5	5	7.60	4.34	2.40	1.52	39.40	52.20
blacksmith, juv	8/25/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	8/25/2005	5	5	9.00	1.41	2.60	0.55	9.20	5.02
blue rockfish, all	8/25/2005	5	5	9.00	1.41	2.60	0.55	10.00	5.10
blue rockfish, juv	8/25/2005	5	5	4.00	3.81	0.80	0.84	0.80	0.84
blue-banded goby	8/25/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
cabezon	8/25/2005	5	4	6.50	1.29	1.50	0.58	1.75	0.96
California sheephead, female	8/25/2005	5	5	8.80	1.30	2.00	0.00	3.40	0.89
California sheephead, juv	8/25/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
California sheephead, male	8/25/2005	5	5	6.20	4.15	1.00	0.71	1.00	0.71
garibaldi, adult	8/25/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
garibaldi, juv	8/25/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
gopher rockfish	8/25/2005	5	3	8.67	0.58	1.67	0.58	2.33	1.53
gopher/copper rockfish, juv	8/25/2005	5	3	7.67	1.53	2.00	0.00	4.33	3.21
island kelpfish	8/25/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp bass, adult	8/25/2005	5	5	1.40	3.13	0.20	0.45	0.20	0.45
kelp bass, calico bass, all	8/25/2005	5	5	2.80	3.83	0.60	0.89	0.60	0.89
kelp bass, juv	8/25/2005	5	5	1.40	3.13	0.40	0.89	0.40	0.89
kelp greenling	8/25/2005	5	2	7.50	3.54	1.00	0.00	1.00	0.00
kelp rockfish, adult	8/25/2005	5	5	9.60	0.55	2.80	0.45	13.80	4.97
kelp rockfish, all	8/25/2005	5	5	9.60	0.55	2.80	0.45	13.80	4.97
kelp rockfish, juv	8/25/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp surfperch	8/25/2005	5	3	10.00	0.00	2.33	0.58	8.33	7.51
kelpfish spp.	8/25/2005	5	1	10.00		1.00		1.00	
lingcod	8/25/2005	5	3	7.67	2.08	1.33	0.58	1.33	0.58
olive rockfish, adult	8/25/2005	5	5	7.00	4.12	1.80	1.30	11.60	14.64
olive rockfish, all	8/25/2005	5	5	7.00	4.12	1.80	1.30	12.20	15.37
olive/yellowtail rockfish, juv	8/25/2005	5	5	1.80	4.02	0.40	0.89	0.60	1.34
opaleye, adult	8/25/2005	5	5	1.00	2.24	0.20	0.45	0.20	0.45
opaleye, all	8/25/2005	5	5	1.00	2.24	0.20	0.45	0.20	0.45
opaleye, juv	8/25/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	8/25/2005	5	5	10.00	0.00	3.00	0.00	31.40	10.67
pile surfperch, adult	8/25/2005	5	5	8.80	1.79	2.00	0.00	3.80	1.30
pile surfperch, all	8/25/2005	5	5	8.80	1.79	2.00	0.00	4.80	1.48
pile surfperch, juv	8/25/2005	5	5	3.20	4.38	0.80	1.10	1.00	1.41
rainbow surfperch	8/25/2005	5	2	7.50	3.54	1.50	0.71	2.00	1.41
rock wrasse, female	8/25/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, male	8/25/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
rubberlip surfperch	8/25/2005	5	2	6.50	2.12	1.00	0.00	1.00	0.00
sculpin spp.	8/25/2005	5	1	6.00		1.00		1.00	

2005 ROVING DIVER FISH COUNT
Santa Rosa Island – Chickasaw (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
senorita, adult	8/25/2005	5	5	9.80	0.45	2.80	0.45	17.40	9.34
senorita, all	8/25/2005	5	5	9.80	0.45	2.80	0.45	19.00	8.86
senorita, juv	8/25/2005	5	5	1.00	2.24	0.40	0.89	1.60	3.58
snubnose sculpin	8/25/2005	5	3	7.33	1.53	1.33	0.58	1.33	0.58
speckled sanddab	8/25/2005	5	1	6.00		2.00		2.00	
striped surfperch, adult	8/25/2005	5	5	9.40	0.89	2.60	0.55	12.40	2.88
striped surfperch, all	8/25/2005	5	5	9.40	0.89	2.80	0.45	15.60	4.10
striped surfperch, juv	8/25/2005	5	5	5.40	4.98	1.20	1.10	3.20	2.95
top smelt	8/25/2005	5	2	10.00	0.00	3.00	0.00	25.00	0.00
treefish, adult	8/25/2005	5	5	6.60	4.10	1.20	0.84	1.20	0.84
treefish, juv	8/25/2005	5	5	5.00	4.69	1.00	1.00	1.40	1.67
tubesnout	8/25/2005	5	1	6.00		2.00		3.00	

2005 ROVING DIVER FISH COUNT
Santa Rosa Island - South Point

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black and yellow rockfish	9/20/2005	4	3	9.33	1.15	2.00	0.00	5.00	2.65
black surfperch, adult	9/20/2005	4	4	9.75	0.50	2.50	0.58	10.50	4.36
black surfperch, all	9/20/2005	4	4	9.75	0.50	2.75	0.50	12.00	4.55
black surfperch, juv	9/20/2005	4	4	3.75	4.50	1.00	1.15	1.50	1.91
blackeye goby	9/20/2005	4	4	7.00	4.76	1.50	1.00	4.75	3.40
blacksmith, adult	9/20/2005	4	4	9.50	1.00	3.00	0.00	48.00	16.63
blacksmith, all	9/20/2005	4	4	9.50	1.00	3.00	0.00	48.00	16.63
blacksmith, juv	9/20/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	9/20/2005	4	4	7.00	4.69	1.50	1.00	3.75	2.63
blue rockfish, all	9/20/2005	4	4	7.00	4.69	1.50	1.00	3.75	2.63
blue rockfish, juv	9/20/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	9/20/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
cabezon	9/20/2005	4	3	7.33	2.08	1.00	0.00	1.00	0.00
California sheephead, female	9/20/2005	4	4	9.75	0.50	2.00	0.00	5.25	2.87
California sheephead, juv	9/20/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
California sheephead, male	9/20/2005	4	4	9.00	1.15	2.00	0.00	3.25	0.96
c-o turbot	9/20/2005	4	1	6.00		1.00		1.00	
garibaldi, adult	9/20/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
garibaldi, juv	9/20/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
gopher rockfish	9/20/2005	4	1	10.00		2.00		2.00	
gopher/copper rockfish, juv	9/20/2005	4	1	6.00		1.00		1.00	
island kelpfish	9/20/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp bass, adult	9/20/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp bass, calico bass, all	9/20/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp bass, juv	9/20/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	9/20/2005	4	4	9.75	0.50	2.25	0.50	8.00	2.94
kelp rockfish, all	9/20/2005	4	4	9.75	0.50	2.25	0.50	8.25	3.30
kelp rockfish, juv	9/20/2005	4	4	1.25	2.50	0.25	0.50	0.25	0.50
kelp surfperch	9/20/2005	4	4	8.50	2.38	2.50	0.58	8.75	6.75
lavender sculpin	9/20/2005	4	1	8.00		1.00		1.00	
lingcod	9/20/2005	4	1	6.00		1.00		1.00	
olive rockfish, adult	9/20/2005	4	4	8.00	2.31	1.75	0.50	2.00	0.82
olive rockfish, all	9/20/2005	4	4	8.00	2.31	1.75	0.50	2.00	0.82
olive/yellowtail rockfish, juv	9/20/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	9/20/2005	4	4	3.00	3.56	0.75	0.96	1.00	1.41
opaleye, all	9/20/2005	4	4	3.00	3.56	0.75	0.96	1.00	1.41
opaleye, juv	9/20/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	9/20/2005	4	4	9.75	0.50	3.00	0.00	16.75	5.74
pile surfperch, adult	9/20/2005	4	4	7.75	0.50	2.00	0.00	4.50	1.29
pile surfperch, all	9/20/2005	4	4	7.75	0.50	2.00	0.00	4.75	1.26
pile surfperch, juv	9/20/2005	4	4	1.75	3.50	0.25	0.50	0.25	0.50
rainbow surfperch	9/20/2005	4	4	9.50	1.00	2.00	0.00	3.50	0.58
rock wrasse, female	9/20/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, male	9/20/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
rockfish spp., juv	9/20/2005	4	1	6.00		1.00		1.00	
rubberlip surfperch	9/20/2005	4	2	6.50	2.12	1.00	0.00	1.00	0.00

2005 ROVING DIVER FISH COUNT
Santa Rosa Island - South Point (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
senorita, adult	9/20/2005	4	4	9.75	0.50	3.00	0.00	24.00	10.23
senorita, all	9/20/2005	4	4	9.75	0.50	3.00	0.00	24.00	10.23
senorita, juv	9/20/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
speckled sanddab	9/20/2005	4	1	9.00		1.00		1.00	
striped surfperch, adult	9/20/2005	4	4	9.50	0.58	2.00	0.00	8.25	1.71
striped surfperch, all	9/20/2005	4	4	9.50	0.58	2.25	0.50	10.00	4.32
striped surfperch, juv	9/20/2005	4	4	2.50	5.00	0.50	1.00	1.75	3.50
top smelt	9/20/2005	4	3	8.67	2.31	2.67	0.58	26.67	18.93
treefish, adult	9/20/2005	4	4	2.25	4.50	0.25	0.50	0.25	0.50
treefish, juv	9/20/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
tubesnout	9/20/2005	4	1	6.00		2.00		10.00	

2005 ROVING DIVER FISH COUNT
Santa Cruz Island - Devil's Peak Member

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
bat ray	8/3/2005	5	1	8.00		1.00		1.00	
black and yellow rockfish	8/3/2005	5	1	7.00		2.00		2.00	
black surfperch, adult	8/3/2005	5	5	10.00	0.00	2.80	0.45	11.60	1.82
black surfperch, all	8/3/2005	5	5	10.00	0.00	2.80	0.45	12.40	2.97
black surfperch, juv	8/3/2005	5	5	3.20	4.38	0.60	0.89	0.80	1.30
blackeye goby	8/3/2005	5	5	9.80	0.45	3.00	0.00	60.20	28.47
blacksmith, adult	8/3/2005	5	5	10.00	0.00	3.80	0.45	172.60	60.86
blacksmith, all	8/3/2005	5	5	10.00	0.00	3.80	0.45	172.60	60.86
blacksmith, juv	8/3/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	8/3/2005	5	5	1.00	2.24	0.20	0.45	0.20	0.45
blue rockfish, all	8/3/2005	5	5	1.00	2.24	0.20	0.45	0.20	0.45
blue rockfish, juv	8/3/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	8/3/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
cabezon	8/3/2005	5	2	9.00	0.00	1.00	0.00	1.00	0.00
California sheephead, female	8/3/2005	5	5	7.40	4.22	1.60	0.89	2.40	1.67
California sheephead, juv	8/3/2005	5	5	6.80	4.32	1.20	0.84	1.40	1.14
California sheephead, male	8/3/2005	5	5	2.80	3.90	0.40	0.55	0.40	0.55
garibaldi, adult	8/3/2005	5	5	10.00	0.00	2.80	0.45	14.80	3.42
garibaldi, juv	8/3/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
gopher rockfish	8/3/2005	5	1	9.00		2.00		2.00	
halfmoon	8/3/2005	5	3	8.33	1.15	2.00	0.00	2.00	0.00
island kelpfish	8/3/2005	5	5	9.20	1.10	2.40	0.55	8.40	4.16
jack mackerel	8/3/2005	5	3	8.00	2.65	4.00	0.00	200.00	86.60
kelp bass, adult	8/3/2005	5	5	10.00	0.00	2.20	0.45	6.00	3.24
kelp bass, calico bass, all	8/3/2005	5	5	10.00	0.00	2.20	0.45	6.00	3.24
kelp bass, juv	8/3/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	8/3/2005	5	5	3.20	4.60	0.80	1.10	2.20	3.49
kelp rockfish, all	8/3/2005	5	5	3.20	4.60	0.80	1.10	2.20	3.49
kelp rockfish, juv	8/3/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
kelpfish spp.	8/3/2005	5	2	9.00	1.41	1.00	0.00	1.00	0.00
olive rockfish, adult	8/3/2005	5	5	4.00	4.18	1.00	1.00	1.20	1.30
olive rockfish, all	8/3/2005	5	5	4.00	4.18	1.00	1.00	1.20	1.30
olive/yellowtail rockfish, juv	8/3/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	8/3/2005	5	5	8.80	2.17	1.80	0.45	4.00	1.87
opaleye, all	8/3/2005	5	5	8.80	2.17	1.80	0.45	4.00	1.87
opaleye, juv	8/3/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	8/3/2005	5	5	9.80	0.45	3.00	0.00	18.00	6.67
pile surfperch, adult	8/3/2005	5	5	10.00	0.00	2.00	0.00	6.40	1.95
pile surfperch, all	8/3/2005	5	5	10.00	0.00	2.00	0.00	6.40	1.95
pile surfperch, juv	8/3/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, female	8/3/2005	5	5	4.80	4.44	1.00	1.00	1.40	1.67
rock wrasse, juv	8/3/2005	5	3	6.67	2.89	1.00	0.00	1.00	0.00
rock wrasse, male	8/3/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
rubberlip surfperch	8/3/2005	5	5	8.80	2.17	1.80	0.45	2.80	1.92
senorita, adult	8/3/2005	5	5	10.00	0.00	3.20	0.45	60.20	29.43
senorita, all	8/3/2005	5	5	10.00	0.00	3.20	0.45	60.20	29.43
senorita, juv	8/3/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00

2005 ROVING DIVER FISH COUNT

Santa Cruz Island - Devil's Peak Member (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
striped surfperch, adult	8/3/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, all	8/3/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, juv	8/3/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
swell shark	8/3/2005	5	1	10.00		1.00		1.00	
treefish, adult	8/3/2005	5	5	8.20	1.10	1.40	0.55	2.00	1.41
treefish, juv	8/3/2005	5	5	3.60	4.98	0.60	0.89	0.60	0.89

2005 ROVING DIVER FISH COUNT
Santa Cruz Island - Potato Pasture

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black and yellow rockfish	9/1/2005	6	2	8.50	0.71	1.50	0.71	2.00	1.41
black surfperch, adult	9/1/2005	6	5	9.20	0.84	2.00	0.00	7.20	1.30
black surfperch, all	9/1/2005	6	6	9.33	0.82	2.17	0.41	8.00	2.28
black surfperch, juv	9/1/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
blackeye goby	9/1/2005	6	6	10.00	0.00	3.83	0.41	121.00	56.44
blacksmith, adult	9/1/2005	6	5	10.00	0.00	4.00	0.00	255.00	120.61
blacksmith, all	9/1/2005	6	6	10.00	0.00	4.00	0.00	242.00	118.30
blacksmith, juv	9/1/2005	6	5	3.20	4.60	1.00	1.41	3.40	6.54
blue rockfish, adult	9/1/2005	6	5	6.60	3.71	1.40	0.89	2.40	2.30
blue rockfish, all	9/1/2005	6	6	7.17	3.60	1.50	0.84	2.67	2.16
blue rockfish, juv	9/1/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	9/1/2005	6	6	0.83	2.04	0.17	0.41	0.17	0.41
cabezon	9/1/2005	6	4	7.25	2.22	1.25	0.50	1.25	0.50
California sheephead, female	9/1/2005	6	6	9.33	0.52	2.00	0.00	4.17	1.60
California sheephead, juv	9/1/2005	6	6	2.67	4.13	0.33	0.52	0.33	0.52
California sheephead, male	9/1/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
garibaldi, adult	9/1/2005	6	6	10.00	0.00	3.00	0.00	15.83	4.54
garibaldi, juv	9/1/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
gopher rockfish	9/1/2005	6	2	8.00	0.00	1.50	0.71	1.50	0.71
halfmoon	9/1/2005	6	5	8.20	0.84	2.00	0.00	2.60	1.34
horn shark	9/1/2005	6	1	7.00		1.00		1.00	
island kelpfish	9/1/2005	6	6	8.00	1.55	2.00	0.63	5.00	4.15
kelp bass, adult	9/1/2005	6	5	10.00	0.00	2.80	0.45	13.80	2.59
kelp bass, calico bass, all	9/1/2005	6	6	9.83	0.41	2.83	0.41	14.00	2.37
kelp bass, juv	9/1/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	9/1/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, all	9/1/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, juv	9/1/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
kelpfish spp.	9/1/2005	6	1	8.00		1.00		1.00	
ocean whitefish	9/1/2005	6	2	8.00	0.00	1.00	0.00	1.00	0.00
olive rockfish, adult	9/1/2005	6	5	9.20	1.79	1.60	0.55	2.40	1.52
olive rockfish, all	9/1/2005	6	6	9.00	1.67	1.50	0.55	2.17	1.47
olive/yellowtail rockfish, juv	9/1/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
onespot fringehead	9/1/2005	6	1	6.00		1.00		1.00	
opaleye, adult	9/1/2005	6	5	9.60	0.89	3.00	0.00	18.00	5.61
opaleye, all	9/1/2005	6	6	9.17	1.33	3.00	0.00	19.33	5.99
opaleye, juv	9/1/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	9/1/2005	6	6	10.00	0.00	3.00	0.00	25.60	8.02
pile surfperch, adult	9/1/2005	6	5	10.00	0.00	2.80	0.45	17.20	9.39
pile surfperch, all	9/1/2005	6	6	10.00	0.00	2.83	0.41	17.83	8.84
pile surfperch, juv	9/1/2005	6	5	1.20	2.68	0.20	0.45	0.20	0.45
rock wrasse, female	9/1/2005	6	6	9.17	0.75	2.00	0.00	6.67	1.03
rock wrasse, male	9/1/2005	6	6	6.83	3.66	1.33	0.82	1.67	1.21
rubberlip surfperch	9/1/2005	6	6	8.33	1.21	1.83	0.41	2.67	1.03
senorita, adult	9/1/2005	6	5	10.00	0.00	3.00	0.00	26.80	5.22
senorita, all	9/1/2005	6	6	10.00	0.00	3.00	0.00	26.00	5.06
senorita, juv	9/1/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00

2005 ROVING DIVER FISH COUNT
Santa Cruz Island - Potato Pasture (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
striped surfperch, adult	9/1/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, all	9/1/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, juv	9/1/2005	6	5	0.00	0.00	0.00	0.00	0.00	0.00
treefish, adult	9/1/2005	6	6	3.67	4.13	0.67	0.82	0.67	0.82
treefish, juv	9/1/2005	6	6	1.67	4.08	0.33	0.82	0.33	0.82
white surfperch	9/1/2005	6	3	6.67	2.08	1.33	0.58	1.33	0.58

2005 ROVING DIVER FISH COUNT
Santa Cruz Island - Cavern Point

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black surfperch, adult	8/18/2005	5	5	9.80	0.45	2.80	0.45	11.80	3.27
black surfperch, all	8/18/2005	5	5	9.80	0.45	2.80	0.45	11.80	3.27
black surfperch, juv	8/18/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blackeye goby	8/18/2005	5	5	10.00	0.00	3.80	0.45	165.67	125.36
blacksmith, adult	8/18/2005	5	5	10.00	0.00	4.00	0.00	281.00	130.77
blacksmith, all	8/18/2005	5	5	10.00	0.00	4.00	0.00	281.00	130.77
blacksmith, juv	8/18/2005	5	5	1.00	2.24	0.20	0.45	0.20	0.45
blue rockfish, adult	8/18/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, all	8/18/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, juv	8/18/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	8/18/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
California sheephead, female	8/18/2005	5	5	9.40	0.89	2.00	0.00	3.80	2.05
California sheephead, juv	8/18/2005	5	5	7.00	4.24	1.20	0.84	1.40	1.14
California sheephead, male	8/18/2005	5	5	1.80	4.02	0.40	0.89	0.80	1.79
c-o turbot	8/18/2005	5	1	7.00		1.00		1.00	
garibaldi, adult	8/18/2005	5	5	10.00	0.00	2.40	0.55	10.40	3.36
garibaldi, juv	8/18/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
gopher rockfish	8/18/2005	5	4	9.25	0.50	2.00	0.00	3.00	0.82
halfmoon	8/18/2005	5	4	8.50	2.38	2.00	0.00	4.25	2.06
island kelpfish	8/18/2005	5	5	9.60	0.55	2.60	0.55	16.40	10.19
kelp bass, adult	8/18/2005	5	5	10.00	0.00	2.00	0.00	7.80	1.10
kelp bass, calico bass, all	8/18/2005	5	5	10.00	0.00	2.00	0.00	8.00	1.22
kelp bass, juv	8/18/2005	5	5	2.00	4.47	0.20	0.45	0.20	0.45
kelp rockfish, adult	8/18/2005	5	5	1.60	3.58	0.20	0.45	0.20	0.45
kelp rockfish, all	8/18/2005	5	5	1.60	3.58	0.20	0.45	0.20	0.45
kelp rockfish, juv	8/18/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
ocean whitefish	8/18/2005	5	4	6.75	0.96	1.50	0.58	1.75	0.96
olive rockfish, adult	8/18/2005	5	5	3.80	5.22	0.60	0.89	0.60	0.89
olive rockfish, all	8/18/2005	5	5	3.80	5.22	0.60	0.89	0.60	0.89
olive/yellowtail rockfish, juv	8/18/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	8/18/2005	5	5	10.00	0.00	2.00	0.00	4.20	1.79
opaleye, all	8/18/2005	5	5	10.00	0.00	2.00	0.00	4.20	1.79
opaleye, juv	8/18/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	8/18/2005	5	5	9.80	0.45	3.00	0.00	30.00	13.93
pile surfperch, adult	8/18/2005	5	5	9.60	0.55	2.40	0.55	13.60	9.29
pile surfperch, all	8/18/2005	5	5	9.60	0.55	2.40	0.55	13.60	9.29
pile surfperch, juv	8/18/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, female	8/18/2005	5	5	6.80	4.15	2.00	1.22	9.00	8.72
rock wrasse, male	8/18/2005	5	5	6.60	3.97	1.60	1.14	7.60	8.08
rubberlip surfperch	8/18/2005	5	5	9.20	0.45	2.20	0.45	5.80	3.56
senorita, adult	8/18/2005	5	5	10.00	0.00	3.60	0.55	99.25	26.94
senorita, all	8/18/2005	5	5	10.00	0.00	3.60	0.55	99.25	26.94
senorita, juv	8/18/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, adult	8/18/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, all	8/18/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, juv	8/18/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
treefish, adult	8/18/2005	5	5	9.00	1.00	1.80	0.45	2.60	1.34
treefish, juv	8/18/2005	5	5	1.60	3.58	0.20	0.45	0.20	0.45
zebra goby	8/18/2005	5	1	8.00		1.00		1.00	

2005 ROVING DIVER FISH COUNT
Santa Cruz Island - Little Scorpion

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black and yellow rockfish	8/31/2005	5	5	8.40	2.30	1.80	0.45	2.40	1.14
black rockfish	8/31/2005	5	2	6.50	0.71	1.00	0.00	1.00	0.00
black surfperch, adult	8/31/2005	5	4	10.00	0.00	3.00	0.00	24.75	4.79
black surfperch, all	8/31/2005	5	5	10.00	0.00	3.00	0.00	23.00	5.70
black surfperch, juv	8/31/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
blackeye goby	8/31/2005	5	5	10.00	0.00	3.40	0.55	97.25	66.39
blacksmith, adult	8/31/2005	5	4	10.00	0.00	4.00	0.00	243.33	136.50
blacksmith, all	8/31/2005	5	5	10.00	0.00	4.00	0.00	245.00	134.81
blacksmith, juv	8/31/2005	5	4	1.25	2.50	0.50	1.00	1.25	2.50
blue rockfish, adult	8/31/2005	5	4	9.75	0.50	2.50	0.58	9.75	8.02
blue rockfish, all	8/31/2005	5	5	9.80	0.45	2.40	0.55	9.40	6.99
blue rockfish, juv	8/31/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	8/31/2005	5	5	1.00	2.24	0.20	0.45	0.20	0.45
California sheephead, female	8/31/2005	5	5	8.80	1.10	2.00	0.00	4.00	1.41
California sheephead, juv	8/31/2005	5	5	3.20	4.44	0.60	0.89	0.60	0.89
California sheephead, male	8/31/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
c-o turbot	8/31/2005	5	1	7.00		1.00		1.00	
coralline sculpin	8/31/2005	5	2	9.00	0.00	1.00	0.00	1.00	0.00
garibaldi, adult	8/31/2005	5	5	10.00	0.00	2.80	0.45	15.40	4.77
garibaldi, juv	8/31/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
gopher rockfish	8/31/2005	5	4	8.50	1.91	1.75	0.50	2.50	1.73
halfmoon	8/31/2005	5	5	8.20	1.64	1.80	0.45	2.60	1.52
horn shark	8/31/2005	5	2	9.00	0.00	1.50	0.71	1.50	0.71
island kelpfish	8/31/2005	5	5	8.00	2.35	1.80	0.45	3.60	2.30
kelp bass, adult	8/31/2005	5	4	9.25	0.96	2.00	0.00	7.25	2.22
kelp bass, calico bass, all	8/31/2005	5	5	9.40	0.89	2.00	0.00	7.20	1.92
kelp bass, juv	8/31/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	8/31/2005	5	4	8.50	1.91	2.75	0.50	12.75	4.27
kelp rockfish, all	8/31/2005	5	5	8.20	1.79	2.60	0.55	10.60	6.07
kelp rockfish, juv	8/31/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
ocean whitefish	8/31/2005	5	2	7.50	0.71	2.00	0.00	7.00	4.24
olive rockfish, adult	8/31/2005	5	4	3.00	3.56	0.50	0.58	0.50	0.58
olive rockfish, all	8/31/2005	5	5	2.40	3.36	0.40	0.55	0.40	0.55
olive/yellowtail rockfish, juv	8/31/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	8/31/2005	5	4	8.50	1.00	2.00	0.00	2.25	0.50
opaleye, all	8/31/2005	5	5	8.40	0.89	1.80	0.45	2.00	0.71
opaleye, juv	8/31/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	8/31/2005	5	5	10.00	0.00	3.00	0.00	28.50	3.42
pile surfperch, adult	8/31/2005	5	4	9.50	0.58	2.00	0.00	4.75	2.22
pile surfperch, all	8/31/2005	5	5	9.60	0.55	2.00	0.00	4.40	2.07
pile surfperch, juv	8/31/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, female	8/31/2005	5	5	8.60	0.55	1.80	0.45	4.40	2.97
rock wrasse, male	8/31/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
sculpin spp.	8/31/2005	5	1	6.00		1.00		1.00	
senorita, adult	8/31/2005	5	4	10.00	0.00	3.00	0.00	33.00	20.17
senorita, all	8/31/2005	5	5	10.00	0.00	3.00	0.00	30.00	18.71
senorita, juv	8/31/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
speckled sanddab	8/31/2005	5	1	8.00		1.00		1.00	

2005 ROVING DIVER FISH COUNT
Santa Cruz Island - Little Scorpion (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
striped surfperch, adult	8/31/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, all	8/31/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, juv	8/31/2005	5	4	0.00	0.00	0.00	0.00	0.00	0.00
reef fish, adult	8/31/2005	5	5	7.80	1.64	1.40	0.55	2.00	1.41
reef fish, juv	8/31/2005	5	5	1.40	3.13	0.40	0.89	0.40	0.89

2005 ROVING DIVER FISH COUNT
Santa Cruz Island - Pedro Reef

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
bat ray	8/26/2005	6	3	7.00	0.00	1.00	0.00	1.00	0.00
black surfperch, adult	8/26/2005	6	6	3.00	3.46	0.67	0.82	0.67	0.82
black surfperch, all	8/26/2005	6	6	3.00	3.46	0.67	0.82	0.67	0.82
black surfperch, juv	8/26/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
blackeye goby	8/26/2005	6	6	10.00	0.00	4.00	0.00	375.67	167.74
blacksmith, adult	8/26/2005	6	6	9.83	0.41	4.00	0.00	404.25	156.59
blacksmith, all	8/26/2005	6	6	9.83	0.41	4.00	0.00	404.25	156.59
blacksmith, juv	8/26/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	8/26/2005	6	6	0.83	2.04	0.17	0.41	0.17	0.41
blue rockfish, all	8/26/2005	6	6	0.83	2.04	0.17	0.41	0.17	0.41
blue rockfish, juv	8/26/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	8/26/2005	6	6	3.83	4.26	0.83	0.98	0.83	0.98
California sheephead, female	8/26/2005	6	6	8.83	1.17	2.00	0.00	4.50	1.87
California sheephead, juv	8/26/2005	6	6	5.50	4.42	1.17	0.98	1.33	1.21
California sheephead, male	8/26/2005	6	6	8.33	4.08	1.33	0.82	1.50	1.05
coralline sculpin	8/26/2005	6	2	8.00	2.83	1.00	0.00	1.00	0.00
garibaldi, adult	8/26/2005	6	6	9.67	0.52	2.00	0.00	7.17	2.32
garibaldi, juv	8/26/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
halfmoon	8/26/2005	6	6	9.67	0.52	2.17	0.41	7.83	2.56
island kelpfish	8/26/2005	6	6	1.67	4.08	0.17	0.41	0.17	0.41
kelp bass, adult	8/26/2005	6	6	10.00	0.00	3.00	0.00	17.17	4.79
kelp bass, calico bass, all	8/26/2005	6	6	10.00	0.00	3.00	0.00	17.17	4.79
kelp bass, juv	8/26/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	8/26/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, all	8/26/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, juv	8/26/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, adult	8/26/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, all	8/26/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
olive/yellowtail rockfish, juv	8/26/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	8/26/2005	6	6	8.00	1.10	2.00	0.63	6.83	5.71
opaleye, all	8/26/2005	6	6	8.00	1.10	2.00	0.63	6.83	5.71
opaleye, juv	8/26/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	8/26/2005	6	6	9.67	0.52	2.33	0.52	9.17	4.22
pile surfperch, adult	8/26/2005	6	6	2.00	3.16	0.33	0.52	0.33	0.52
pile surfperch, all	8/26/2005	6	6	2.00	3.16	0.33	0.52	0.33	0.52
pile surfperch, juv	8/26/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
rainbow surfperch	8/26/2005	6	1	8.00		1.00		1.00	
rock wrasse, female	8/26/2005	6	6	9.67	0.52	2.00	0.00	7.33	1.63
rock wrasse, male	8/26/2005	6	6	6.17	4.83	1.00	0.89	1.00	0.89
senorita, adult	8/26/2005	6	6	10.00	0.00	3.17	0.41	67.50	28.26
senorita, all	8/26/2005	6	6	10.00	0.00	3.17	0.41	67.50	28.26
senorita, juv	8/26/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, adult	8/26/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, all	8/26/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, juv	8/26/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00
treefish, adult	8/26/2005	6	6	4.00	4.56	0.50	0.55	0.50	0.55
treefish, juv	8/26/2005	6	6	0.00	0.00	0.00	0.00	0.00	0.00

2005 ROVING DIVER FISH COUNT

Anacapa Island – Keyhole

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black surfperch, adult	9/14/2005	4	4	10.00	0.00	3.00	0.00	15.25	1.71
black surfperch, all	9/14/2005	4	4	10.00	0.00	3.00	0.00	15.75	2.50
black surfperch, juv	9/14/2005	4	4	1.50	3.00	0.50	1.00	0.50	1.00
blackeye goby	9/14/2005	4	4	10.00	0.00	3.50	0.58	147.25	86.53
blacksmith, adult	9/14/2005	4	4	10.00	0.00	4.00	0.00	382.00	98.52
blacksmith, all	9/14/2005	4	4	10.00	0.00	4.00	0.00	392.25	103.09
blacksmith, juv	9/14/2005	4	4	5.00	3.37	2.25	1.50	10.25	7.23
blue rockfish, adult	9/14/2005	4	4	8.50	1.73	2.00	0.00	2.75	0.96
blue rockfish, all	9/14/2005	4	4	8.50	1.73	2.00	0.00	2.75	0.96
blue rockfish, juv	9/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	9/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
cabezon	9/14/2005	4	2	6.00	1.41	1.00	0.00	1.00	0.00
California scorpionfish	9/14/2005	4	2	7.50	3.54	1.50	0.71	1.50	0.71
California sheephead, female	9/14/2005	4	4	10.00	0.00	2.00	0.00	6.25	2.63
California sheephead, juv	9/14/2005	4	4	9.00	1.41	2.00	0.00	4.75	2.22
California sheephead, male	9/14/2005	4	4	5.00	5.77	0.50	0.58	0.50	0.58
c-o turbot	9/14/2005	4	1	5.00		1.00		1.00	
garibaldi, adult	9/14/2005	4	4	10.00	0.00	3.00	0.00	12.00	1.41
garibaldi, juv	9/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
gopher/copper rockfish, juv	9/14/2005	4	1	10.00		1.00		1.00	
halfmoon	9/14/2005	4	4	9.00	0.82	1.75	0.50	2.00	0.82
island kelpfish	9/14/2005	4	4	10.00	0.00	3.25	0.50	55.75	34.08
kelp bass, adult	9/14/2005	4	4	10.00	0.00	2.75	0.50	19.50	7.19
kelp bass, calico bass, all	9/14/2005	4	4	10.00	0.00	2.75	0.50	19.50	7.19
kelp bass, juv	9/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	9/14/2005	4	4	3.00	3.56	0.50	0.58	0.50	0.58
kelp rockfish, all	9/14/2005	4	4	3.00	3.56	0.50	0.58	0.50	0.58
kelp rockfish, juv	9/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelpfish sp.	9/14/2005	4	1	9.00		2.00		2.00	
olive rockfish, adult	9/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, all	9/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
olive/yellowtail rockfish, juv	9/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	9/14/2005	4	4	4.75	3.69	1.25	0.96	1.50	1.29
opaleye, all	9/14/2005	4	4	4.75	3.69	1.25	0.96	1.50	1.29
opaleye, juv	9/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	9/14/2005	4	4	10.00	0.00	2.75	0.50	12.75	5.12
pile surfperch, adult	9/14/2005	4	4	6.25	4.35	0.75	0.50	0.75	0.50
pile surfperch, all	9/14/2005	4	4	6.25	4.35	0.75	0.50	0.75	0.50
pile surfperch, juv	9/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, female	9/14/2005	4	4	9.50	1.00	2.25	0.50	9.25	5.50
rock wrasse, male	9/14/2005	4	4	8.50	2.38	1.75	0.50	3.75	2.06
senorita, adult	9/14/2005	4	4	10.00	0.00	3.00	0.00	42.50	28.45
senorita, all	9/14/2005	4	4	10.00	0.00	3.00	0.00	42.50	28.45
senorita, juv	9/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
snubnose sculpin	9/14/2005	4	1	8.00		1.00		1.00	
striped surfperch, adult	9/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, all	9/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00

2005 ROVING DIVER FISH COUNT
Anacapa Island – Keyhole (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
striped surfperch, juv	9/14/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
treefish, adult	9/14/2005	4	4	7.50	1.73	2.00	0.00	3.00	0.82
treefish, juv	9/14/2005	4	4	6.50	4.43	0.75	0.50	0.75	0.50
zebra goby	9/14/2005	4	1	7.00		1.00		1.00	

2005 ROVING DIVER FISH COUNT

Anacapa Island - East Fish Camp

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black and yellow rockfish	9/9/2005	7	5	7.40	2.07	1.40	0.55	1.40	0.55
black surfperch, adult	9/9/2005	7	7	5.86	4.34	0.71	0.49	0.71	0.49
black surfperch, all	9/9/2005	7	7	5.86	4.34	0.71	0.49	0.71	0.49
black surfperch, juv	9/9/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
blackeye goby	9/9/2005	7	7	10.00	0.00	4.00	0.00	502.00	134.81
blacksmith, adult	9/9/2005	7	7	10.00	0.00	4.00	0.00	354.43	118.83
blacksmith, all	9/9/2005	7	7	10.00	0.00	4.00	0.00	354.71	118.61
blacksmith, juv	9/9/2005	7	7	0.71	1.89	0.29	0.76	0.29	0.76
blue rockfish, adult	9/9/2005	7	7	0.86	2.27	0.29	0.76	0.29	0.76
blue rockfish, all	9/9/2005	7	7	4.86	3.53	0.86	0.69	1.00	1.00
blue rockfish, juv	9/9/2005	7	7	4.86	3.53	0.71	0.49	0.71	0.49
blue-banded goby	9/9/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
California scorpionfish	9/9/2005	7	1	10.00		1.00		1.00	
California sheephead, female	9/9/2005	7	7	7.86	3.63	1.29	0.76	1.29	0.76
California sheephead, juv	9/9/2005	7	7	7.57	3.60	1.57	0.79	2.43	1.90
California sheephead, male	9/9/2005	7	7	1.29	3.40	0.14	0.38	0.14	0.38
coralline sculpin	9/9/2005	7	2	7.50	0.71	1.00	0.00	1.00	0.00
garibaldi, adult	9/9/2005	7	7	10.00	0.00	2.57	0.53	12.43	4.08
garibaldi, juv	9/9/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
halfmoon	9/9/2005	7	7	9.71	0.76	2.00	0.00	2.86	0.69
island kelpfish	9/9/2005	7	7	9.71	0.49	2.29	0.49	8.29	5.99
kelp bass, adult	9/9/2005	7	7	8.57	1.40	1.86	0.38	2.57	1.62
kelp bass, calico bass, all	9/9/2005	7	7	8.57	1.40	1.86	0.38	2.57	1.62
kelp bass, juv	9/9/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	9/9/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, all	9/9/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, juv	9/9/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
kelpfish spp.	9/9/2005	7	1	8.00		1.00		1.00	
olive rockfish, adult	9/9/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, all	9/9/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
olive/yellowtail rockfish, juv	9/9/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	9/9/2005	7	7	7.14	3.34	1.29	0.76	1.29	0.76
opaleye, all	9/9/2005	7	7	7.14	3.34	1.29	0.76	1.29	0.76
opaleye, juv	9/9/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	9/9/2005	7	7	10.00	0.00	3.00	0.00	31.14	8.15
pile surfperch, adult	9/9/2005	7	7	3.29	4.19	0.43	0.53	0.43	0.53
pile surfperch, all	9/9/2005	7	7	3.29	4.19	0.43	0.53	0.43	0.53
pile surfperch, juv	9/9/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, female	9/9/2005	7	7	5.00	4.69	0.57	0.53	0.57	0.53
rock wrasse, male	9/9/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
sculpin spp.	9/9/2005	7	1	8.00		1.00		1.00	
senorita, adult	9/9/2005	7	7	8.14	1.35	2.57	0.53	14.57	11.86
senorita, all	9/9/2005	7	7	8.14	1.35	2.57	0.53	14.57	11.86
senorita, juv	9/9/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
snubnose sculpin	9/9/2005	7	1	6.00		1.00		1.00	
striped surfperch, adult	9/9/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, all	9/9/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, juv	9/9/2005	7	7	0.00	0.00	0.00	0.00	0.00	0.00

2005 ROVING DIVER FISH COUNT
Anacapa Island - East Fish Camp (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
reefsh, adult	9/9/2005	7	7	1.29	3.40	0.14	0.38	0.14	0.38
reefsh, juv	9/9/2005	7	7	0.71	1.89	0.14	0.38	0.14	0.38

2005 ROVING DIVER FISH COUNT
Anacapa Island - Black Sea Bass Reef

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black surfperch, adult	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
black surfperch, all	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
black surfperch, juv	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
blackeye goby	10/20/2005	3	3	10.00	0.00	4.00	0.00	267.67	125.29
blacksmith, adult	10/20/2005	3	3	10.00	0.00	4.00	0.00	236.67	43.11
blacksmith, all	10/20/2005	3	3	10.00	0.00	4.00	0.00	255.33	47.50
blacksmith, juv	10/20/2005	3	3	8.33	2.08	2.67	0.58	18.67	9.02
blue rockfish, adult	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, all	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, juv	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	10/20/2005	3	3	4.00	3.46	1.00	1.00	1.33	1.53
California scorpionfish	10/20/2005	3	3	9.67	0.58	1.00	0.00	1.00	0.00
California sheephead, female	10/20/2005	3	3	9.33	1.15	2.00	0.00	2.67	0.58
California sheephead, juv	10/20/2005	3	3	3.33	5.77	0.67	1.15	1.00	1.73
California sheephead, male	10/20/2005	3	3	10.00	0.00	2.00	0.00	3.00	1.00
garibaldi, adult	10/20/2005	3	3	10.00	0.00	2.00	0.00	5.67	0.58
garibaldi, juv	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
halfmoon	10/20/2005	3	3	10.00	0.00	3.00	0.00	17.67	6.43
island kelpfish	10/20/2005	3	3	10.00	0.00	3.00	0.00	28.00	4.58
kelp bass, adult	10/20/2005	3	3	10.00	0.00	2.67	0.58	14.00	6.08
kelp bass, calico bass, all	10/20/2005	3	3	10.00	0.00	2.67	0.58	14.00	6.08
kelp bass, juv	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, all	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, juv	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
ocean whitefish	10/20/2005	3	3	10.00	0.00	3.00	0.00	14.33	2.52
olive rockfish, adult	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, all	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
olive/yellowtail rockfish, juv	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	10/20/2005	3	3	10.00	0.00	2.00	0.00	3.00	1.00
opaleye, all	10/20/2005	3	3	10.00	0.00	2.00	0.00	3.00	1.00
opaleye, juv	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	10/20/2005	3	3	9.67	0.58	2.33	0.58	9.67	6.35
pile surfperch, adult	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
pile surfperch, all	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
pile surfperch, juv	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, female	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, male	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
senorita, adult	10/20/2005	3	3	7.33	1.53	2.00	0.00	3.00	1.73
senorita, all	10/20/2005	3	3	7.33	1.53	2.00	0.00	3.00	1.73
senorita, juv	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, adult	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, all	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, juv	10/20/2005	3	3	0.00	0.00	0.00	0.00	0.00	0.00
treefish, adult	10/20/2005	3	3	10.00	0.00	2.00	0.00	3.00	1.00
treefish, juv	10/20/2005	3	3	5.67	4.93	1.33	1.15	1.33	1.15
zebra goby	10/20/2005	3	1	7.00		1.00		1.00	

2005 ROVING DIVER FISH COUNT

Anacapa Island – Lighthouse

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black surfperch, adult	9/28/2005	5	5	8.80	1.30	2.00	0.00	2.80	1.10
black surfperch, all	9/28/2005	5	5	8.80	1.30	2.00	0.00	2.80	1.10
black surfperch, juv	9/28/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blackeye goby	9/28/2005	5	5	10.00	0.00	3.00	0.00	57.00	13.93
blacksmith, adult	9/28/2005	5	5	10.00	0.00	4.00	0.00	217.40	73.62
blacksmith, all	9/28/2005	5	5	10.00	0.00	4.00	0.00	218.00	73.66
blacksmith, juv	9/28/2005	5	5	2.60	3.58	0.60	0.89	0.60	0.89
blue rockfish, adult	9/28/2005	5	5	8.00	1.87	1.20	0.45	1.80	1.79
blue rockfish, all	9/28/2005	5	5	8.00	1.87	1.20	0.45	1.80	1.79
blue rockfish, juv	9/28/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	9/28/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
cabezon	9/28/2005	5	1	6.00		1.00		1.00	
California scorpionfish	9/28/2005	5	5	6.60	2.19	1.00	0.00	1.00	0.00
California sheephead, female	9/28/2005	5	5	9.60	0.55	2.00	0.00	5.60	1.14
California sheephead, juv	9/28/2005	5	5	7.40	4.34	1.40	0.89	3.80	3.56
California sheephead, male	9/28/2005	5	5	8.20	1.92	1.20	0.45	1.20	0.45
garibaldi, adult	9/28/2005	5	5	9.80	0.45	2.40	0.55	8.00	3.39
garibaldi, juv	9/28/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
giant kelpfish	9/28/2005	5	2	7.00	1.41	1.50	0.71	1.50	0.71
halfmoon	9/28/2005	5	5	9.20	1.30	1.80	0.45	3.80	3.11
island kelpfish	9/28/2005	5	5	3.80	5.22	0.40	0.55	0.40	0.55
kelp bass, adult	9/28/2005	5	5	9.80	0.45	2.40	0.55	10.00	4.06
kelp bass, calico bass, all	9/28/2005	5	5	9.80	0.45	2.40	0.55	10.00	4.06
kelp bass, juv	9/28/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	9/28/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, all	9/28/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, juv	9/28/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
kelp surfperch	9/28/2005	5	5	9.40	0.89	3.40	0.55	100.20	54.99
kelpfish spp.	9/28/2005	5	2	6.50	2.12	1.50	0.71	1.50	0.71
ocean whitefish	9/28/2005	5	2	8.00	1.41	1.50	0.71	1.50	0.71
olive rockfish, adult	9/28/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, all	9/28/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
olive/yellowtail rockfish, juv	9/28/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	9/28/2005	5	5	9.00	0.71	2.60	0.55	11.60	5.55
opaleye, all	9/28/2005	5	5	9.00	0.71	2.60	0.55	11.60	5.55
opaleye, juv	9/28/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	9/28/2005	5	5	9.60	0.55	2.60	0.55	10.80	3.03
pile surfperch, adult	9/28/2005	5	5	7.60	1.95	1.20	0.45	1.40	0.89
pile surfperch, all	9/28/2005	5	5	7.60	1.95	1.20	0.45	1.40	0.89
pile surfperch, juv	9/28/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, female	9/28/2005	5	5	9.60	0.55	2.00	0.00	6.00	1.22
rock wrasse, male	9/28/2005	5	5	4.80	4.44	0.80	0.84	0.80	0.84
senorita, adult	9/28/2005	5	5	10.00	0.00	3.20	0.45	84.40	41.67
senorita, all	9/28/2005	5	5	10.00	0.00	3.20	0.45	86.40	41.30
senorita, juv	9/28/2005	5	5	2.00	2.74	0.80	1.10	2.00	2.83
snubnose sculpin	9/28/2005	5	1	6.00		1.00		1.00	
striped surfperch, adult	9/28/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, all	9/28/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00

2005 ROVING DIVER FISH COUNT
Anacapa Island – Lighthouse (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
striped surfperch, juv	9/28/2005	5	5	0.00	0.00	0.00	0.00	0.00	0.00
treefish, adult	9/28/2005	5	5	3.20	4.38	0.40	0.55	0.40	0.55
treefish, juv	9/28/2005	5	5	1.20	2.68	0.20	0.45	0.20	0.45

2005 ROVING DIVER FISH COUNT
Santa Barbara Island - Webster's Arch

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black and yellow rockfish	7/27/2005	4	4	7.25	1.50	1.50	0.58	1.75	0.96
black surfperch, adult	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
black surfperch, all	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
black surfperch, juv	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blackeye goby	7/27/2005	4	4	9.50	0.58	2.50	0.58	11.00	4.69
blacksmith, adult	7/27/2005	4	4	10.00	0.00	4.00	0.00	215.25	91.55
blacksmith, all	7/27/2005	4	4	10.00	0.00	4.00	0.00	215.25	91.55
blacksmith, juv	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, all	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, juv	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
cabezon	7/27/2005	4	3	5.00	0.00	1.00	0.00	1.00	0.00
California sheephead, female	7/27/2005	4	4	10.00	0.00	2.00	0.00	8.50	1.73
California sheephead, juv	7/27/2005	4	4	3.50	4.12	0.75	0.96	0.75	0.96
California sheephead, male	7/27/2005	4	4	7.50	1.73	2.00	0.00	3.00	1.41
c-o turbot	7/27/2005	4	3	5.00	0.00	1.00	0.00	1.00	0.00
coralline sculpin	7/27/2005	4	2	6.00	1.41	1.00	0.00	1.00	0.00
garibaldi, adult	7/27/2005	4	4	10.00	0.00	2.50	0.58	12.00	5.48
garibaldi, juv	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
halfmoon	7/27/2005	4	4	8.50	1.73	1.75	0.50	4.50	2.89
island kelpfish	7/27/2005	4	4	5.75	4.03	1.50	1.00	2.25	2.06
kelp bass, adult	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp bass, calico bass, all	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp bass, juv	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, all	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, juv	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp surfperch	7/27/2005	4	1	7.00		2.00		5.00	
ocean whitefish	7/27/2005	4	1	9.00		1.00		1.00	
olive rockfish, adult	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, all	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
olive/yellowtail rockfish, juv	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	7/27/2005	4	4	6.25	2.50	1.50	0.58	1.75	0.96
opaleye, all	7/27/2005	4	4	6.25	2.50	1.50	0.58	1.75	0.96
opaleye, juv	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	7/27/2005	4	4	10.00	0.00	3.00	0.00	16.75	3.50
pile surfperch, adult	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
pile surfperch, all	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
pile surfperch, juv	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, female	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, male	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
senorita, adult	7/27/2005	4	4	9.75	0.50	3.00	0.00	67.25	25.10
senorita, all	7/27/2005	4	4	9.75	0.50	3.00	0.00	67.25	25.10
senorita, juv	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
snubnose sculpin	7/27/2005	4	3	8.00	2.65	2.00	0.00	5.00	3.00
striped surfperch, adult	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, all	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00

2005 ROVING DIVER FISH COUNT
Santa Barbara Island - Webster's Arch (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
striped surfperch, juv	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
treefish, adult	7/27/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
treefish, juv	7/27/2005	4	4	5.75	4.35	1.25	0.96	2.25	2.22

2005 ROVING DIVER FISH COUNT
Santa Barbara Island - Graveyard Canyon

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black surfperch, adult	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
black surfperch, all	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
black surfperch, juv	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blackeye goby	7/28/2005	4	4	10.00	0.00	3.25	0.50	94.75	57.89
blacksmith, adult	7/28/2005	4	4	9.00	0.00	2.00	0.00	7.00	2.31
blacksmith, all	7/28/2005	4	4	9.00	0.00	2.00	0.00	7.00	2.31
blacksmith, juv	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, all	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, juv	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
California sheephead, female	7/28/2005	4	4	4.50	5.20	1.00	1.15	1.50	1.91
California sheephead, juv	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
California sheephead, male	7/28/2005	4	4	2.25	4.50	0.50	1.00	0.50	1.00
garibaldi, adult	7/28/2005	4	4	9.50	0.58	1.75	0.50	1.75	0.50
garibaldi, juv	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
halfmoon	7/28/2005	4	3	9.00	1.73	1.33	0.58	1.33	0.58
island kelpfish	7/28/2005	4	4	8.50	1.29	1.75	0.50	3.00	1.83
kelp bass, adult	7/28/2005	4	4	9.00	0.00	1.25	0.50	1.25	0.50
kelp bass, calico bass, all	7/28/2005	4	4	9.00	0.00	1.25	0.50	1.25	0.50
kelp bass, juv	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, all	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, juv	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelpfish spp.	7/28/2005	4	1	5.00		1.00		1.00	
ocean whitefish	7/28/2005	4	4	9.50	0.58	1.75	0.50	4.25	3.30
olive rockfish, adult	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, all	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
olive/yellowtail rockfish, juv	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	7/28/2005	4	4	2.25	4.50	0.25	0.50	0.25	0.50
opaleye, all	7/28/2005	4	4	2.25	4.50	0.25	0.50	0.25	0.50
opaleye, juv	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	7/28/2005	4	4	9.25	0.50	1.75	0.50	4.75	2.87
pile surfperch, adult	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
pile surfperch, all	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
pile surfperch, juv	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, female	7/28/2005	4	4	1.50	3.00	0.25	0.50	0.25	0.50
rock wrasse, male	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
senorita, adult	7/28/2005	4	4	10.00	0.00	2.50	0.58	15.00	7.70
senorita, all	7/28/2005	4	4	10.00	0.00	3.00	0.00	17.25	6.85
senorita, juv	7/28/2005	4	4	8.25	2.22	1.50	0.58	2.25	1.89
snubnose sculpin	7/28/2005	4	1	10.00		1.00		1.00	
speckled sanddab	7/28/2005	4	2	7.00	1.41	2.00	0.00	7.00	4.24
striped surfperch, adult	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, all	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, juv	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
treefish, adult	7/28/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
treefish, juv	7/28/2005	4	4	5.75	3.95	0.75	0.50	0.75	0.50

2005 ROVING DIVER FISH COUNT
Santa Barbara Island - Southeast Reef

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
black and yellow rockfish	7/26/2005	4	2	8.00	0.00	2.00	0.00	2.00	0.00
black surfperch, adult	7/26/2005	4	4	9.25	1.50	2.00	0.00	4.75	2.06
black surfperch, all	7/26/2005	4	4	9.25	1.50	2.00	0.00	5.50	2.08
black surfperch, juv	7/26/2005	4	4	4.50	5.20	0.75	0.96	0.75	0.96
blackeye goby	7/26/2005	4	4	8.75	0.96	2.50	0.58	13.75	9.74
blacksmith, adult	7/26/2005	4	4	10.00	0.00	4.00	0.00	307.25	90.50
blacksmith, all	7/26/2005	4	4	10.00	0.00	4.00	0.00	307.25	90.50
blacksmith, juv	7/26/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, adult	7/26/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, all	7/26/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue rockfish, juv	7/26/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
blue-banded goby	7/26/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
California sheephead, female	7/26/2005	4	4	6.00	0.82	2.00	0.00	2.25	0.50
California sheephead, juv	7/26/2005	4	4	9.50	0.58	2.00	0.00	5.25	0.96
California sheephead, male	7/26/2005	4	4	6.75	0.50	1.50	0.58	1.75	0.96
garibaldi, adult	7/26/2005	4	4	10.00	0.00	3.00	0.00	23.75	8.02
garibaldi, juv	7/26/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
giant kelpfish	7/26/2005	4	1	6.00		1.00		1.00	
giant kelpfish, juv	7/26/2005	4	2	8.50	0.71	2.00	0.00	2.50	0.71
gopher rockfish	7/26/2005	4	1	6.00		1.00		1.00	
halfmoon	7/26/2005	4	4	10.00	0.00	3.00	0.00	20.25	4.27
island kelpfish	7/26/2005	4	4	9.25	0.96	2.50	0.58	9.50	6.61
kelp bass, adult	7/26/2005	4	4	5.75	0.50	1.50	0.58	5.00	4.69
kelp bass, calico bass, all	7/26/2005	4	4	5.75	0.50	1.50	0.58	5.00	4.69
kelp bass, juv	7/26/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, adult	7/26/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, all	7/26/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp rockfish, juv	7/26/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
kelp surfperch	7/26/2005	4	3	5.67	1.15	1.67	0.58	3.00	2.65
olive rockfish, adult	7/26/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
olive rockfish, all	7/26/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
olive/yellowtail rockfish, juv	7/26/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
opaleye, adult	7/26/2005	4	4	5.75	3.95	1.75	1.26	7.25	4.99
opaleye, all	7/26/2005	4	4	5.75	3.95	1.75	1.26	7.25	4.99
opaleye, juv	7/26/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
painted greenling	7/26/2005	4	4	9.50	1.00	2.75	0.50	13.75	7.41
pile surfperch, adult	7/26/2005	4	4	2.50	5.00	0.50	1.00	0.50	1.00
pile surfperch, all	7/26/2005	4	4	2.50	5.00	0.50	1.00	0.50	1.00
pile surfperch, juv	7/26/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
rock wrasse, female	7/26/2005	4	4	7.00	4.69	1.25	0.96	1.50	1.29
rock wrasse, juv	7/26/2005	4	1	6.00		1.00		1.00	
rock wrasse, male	7/26/2005	4	4	7.25	4.86	1.25	0.96	1.25	0.96
senorita, adult	7/26/2005	4	4	10.00	0.00	3.75	0.50	134.00	64.48
senorita, all	7/26/2005	4	4	10.00	0.00	4.00	0.00	154.50	42.90
senorita, juv	7/26/2005	4	4	6.75	4.72	1.75	1.26	20.50	29.32
striped surfperch, adult	7/26/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, all	7/26/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
striped surfperch, juv	7/26/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00

2005 ROVING DIVER FISH COUNT
Santa Barbara Island - Southeast Reef (continued)

Common Name:	Date:	Maximum # of Observers	Observations # of	Avg Score	StDev Score	Avg Abundance	StDev Abundance	Avg Count	StDev Count
top smelt	7/26/2005	4	2	10.00	0.00	2.50	0.71	11.50	4.95
treefish, adult	7/26/2005	4	4	0.00	0.00	0.00	0.00	0.00	0.00
treefish, juv	7/26/2005	4	4	7.00	4.76	1.50	1.00	4.75	4.11

Appendix H. Natural habitat size frequencies.

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Wyckoff Ledge

<i>Haliotis rufescens</i>		<i>Kelletia kelletii</i>		<i>Patiria miniata</i>	
<25	0.0%	< 40	0.0%	<10	0.0%
25 - 34	0.0%	40 - 49	0.0%	10 - 19	0.0%
35 - 44	0.0%	50 - 59	2.5%	20 - 29	1.5%
45 - 54	0.0%	60 - 69	0.0%	30 - 39	3.0%
55 - 64	1.2%	70 - 79	10.0%	40 - 49	7.6%
65 - 74	1.2%	80 - 89	42.5%	50 - 59	16.7%
75 - 84	0.0%	90 - 99	22.5%	60 - 69	30.3%
85 - 94	0.0%	100 - 109	20.0%	70 - 79	34.8%
95 - 104	0.0%	110 - 119	2.5%	80 - 89	6.1%
105 - 114	2.4%	120 - 129	0.0%	90 - 99	0.0%
115 - 124	4.9%	130 - 139	0.0%	> 99	0.0%
125 - 134	6.1%	140 - 149	0.0%	(Cases) N=	66
135 - 144	6.1%	> 149	0.0%	mean	65
145 - 154	3.7%	(Cases) N=	40	min size (mm)	28
155 - 164	6.1%	mean	90	max size (mm)	86
165 - 174	13.4%	min size (mm)	59		
175 - 184	12.2%	max size (mm)	110		
				<i>Pisaster giganteus</i>	
185 - 194	19.5%			< 20	2.2%
		<i>Lithopoma gibberosa</i>		20 - 39	0.0%
>195	20.7%	<10	0.0%	40 - 59	34.8%
(Cases) N=	82	10 - 19	0.0%	60 - 79	30.4%
mean	171	20 - 29	0.0%	80 - 99	17.4%
min size (mm)	57	30 - 39	2.1%	100 - 119	13.0%
max size (mm)	220	40 - 49	27.1%	120 - 139	0.0%
		50 - 59	58.3%	140 - 159	0.0%
		60 - 69	12.5%	160 - 179	0.0%
		70 - 79	0.0%	180 - 199	0.0%
		80 - 89	0.0%	200 - 219	0.0%
		90 - 99	0.0%	220 - 239	0.0%
		100 - 109	0.0%	> 239	2.2%
		110 - 119	0.0%	(Cases) N=	46
		> 119	0.0%	mean	76
		(Cases) N=	48	min size (mm)	12
		mean	53	max size (mm)	286
		min size (mm)	33		
		max size (mm)	66		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Wyckoff Ledge (continued)

<i>Pycnopodia helianthoides</i> <i>purpuratus</i>		<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus</i>	
< 20	0.0%	< 5	0.0%	< 5	0.0%
20 - 39	6.3%	5 - 9	0.0%	5 - 9	0.0%
40 - 59	12.5%	10 - 14	1.4%	10 - 14	0.0%
60 - 79	18.8%	15 - 19	0.9%	15 - 19	0.0%
80 - 99	15.6%	20 - 24	3.6%	20 - 24	40.0%
100 - 119	9.4%	25 - 29	6.3%	25 - 29	20.0%
120 - 139	15.6%	30 - 34	5.4%	30 - 34	20.0%
140 - 159	0.0%	35 - 39	5.4%	35 - 39	20.0%
160 - 179	6.3%	40 - 44	2.7%	40 - 44	0.0%
180 - 199	3.1%	45 - 49	5.9%	45 - 49	0.0%
200 - 219	0.0%	50 - 54	2.3%	50 - 54	0.0%
220 - 239	6.3%	55 - 59	0.9%	55 - 59	0.0%
240 - 259	0.0%	60 - 64	4.5%	60 - 64	0.0%
260 - 279	0.0%	65 - 69	3.2%	65 - 69	0.0%
280 - 299	3.1%	70 - 74	5.0%	70 - 74	0.0%
> 299	3.1%	75 - 79	6.3%	75 - 79	0.0%
(Cases) N=	32	80 - 84	6.8%	> 79	0.0%
mean	115	85 - 89	10.8%	(Cases) N=	5
min size (mm)	25	90 - 94	13.1%	mean	27
max size (mm)	320	95 - 99	9.0%	min size (mm)	21
		100 - 104	5.4%	max size (mm)	36
		105 - 109	1.4%		
		> 109	0.0%		
		(Cases) N=	222		
		mean	68		
		min size (mm)	14		
		max size (mm)	108		

San Miguel Island - Hare Rock

237

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Hare Rock (continued)

Strongylocentrotus purpuratus

< 5	1.4%
5 - 9	4.3%
10 - 14	6.6%
15 - 19	4.7%
20 - 24	16.6%
25 - 29	14.7%
30 - 34	24.6%
35 - 39	12.8%
40 - 44	9.0%
45 - 49	3.8%
50 - 54	1.4%
55 - 59	0.0%
60 - 64	0.0%
65 - 69	0.0%
70 - 74	0.0%
75 - 79	0.0%
> 79	0.0%
(Cases) N=	211
mean	28
min size (mm)	4
max size (mm)	52

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee North

<i>Tethya aurantia</i>		<i>Crassedoma giganteum</i>		<i>Pisaster giganteus</i>	
<10	2.8%	<10	0.0%	< 20	0.0%
10 - 19	2.8%	10 - 19	0.0%	20 - 39	0.0%
20 - 29	2.8%	20 - 29	0.0%	40 - 59	10.6%
30 - 39	2.8%	30 - 39	0.0%	60 - 79	29.8%
40 - 49	13.9%	40 - 49	35.7%	80 - 99	27.7%
50 - 59	11.1%	50 - 59	42.9%	100 - 119	21.3%
60 - 69	11.1%	60 - 69	21.4%	120 - 139	6.4%
70 - 79	11.1%	70 - 79	0.0%	140 - 159	2.1%
80 - 89	11.1%	80 - 89	0.0%	160 - 179	0.0%
90 - 99	16.7%	90 - 99	0.0%	180 - 199	2.1%
> 99	13.9%	100 - 109	0.0%	200 - 219	0.0%
(Cases) N=	36	110 - 119	0.0%	220 - 239	0.0%
mean	71	120 - 129	0.0%	> 239	0.0%
min size (mm)	9	130 - 139	0.0%	(Cases) N=	47
max size (mm)	135	> 139	0.0%	mean	90
<i>Haliotis rufescens</i>					
<25	0.0%	(Cases) N=	14	min size (mm)	55
25 - 34	5.9%	mean	52	max size (mm)	186
35 - 44	0.0%	min size (mm)	41		
45 - 54	5.9%	max size (mm)	68		
55 - 64	11.8%	<i>Patiria miniata</i>		<i>Pycnopodia helianthoides</i>	
65 - 74	5.9%	<10	0.0%	< 20	0.0%
75 - 84	11.8%	10 - 19	0.0%	20 - 39	0.0%
85 - 94	11.8%	20 - 29	0.0%	40 - 59	0.0%
95 - 104	11.8%	30 - 39	1.9%	60 - 79	0.0%
105 - 114	5.9%	40 - 49	1.9%	80 - 99	1.6%
115 - 124	0.0%	50 - 59	11.3%	100 - 119	14.1%
125 - 134	17.6%	60 - 69	14.2%	120 - 139	12.5%
135 - 144	5.9%	70 - 79	34.9%	140 - 159	12.5%
145 - 154	0.0%	80 - 89	21.7%	160 - 179	20.3%
155 - 164	0.0%	90 - 99	12.3%	180 - 199	15.6%
165 - 174	0.0%	> 99	1.9%	200 - 219	6.3%
175 - 184	0.0%	(Cases) N=	106	220 - 239	7.8%
185 - 194	5.9%	mean	74	240 - 259	7.8%
>195	0.0%	min size (mm)	30	260 - 279	1.6%
(Cases) N=	17	max size (mm)	101	280 - 299	0.0%
mean	97			> 299	0.0%
min size (mm)	32			(Cases) N=	64
max size (mm)	194			mean	171
				min size (mm)	91
				max size (mm)	260

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee North (continued)

<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus purpuratus</i>	
< 5	0.0%	< 5	0.0%
5 - 9	0.0%	5 - 9	0.0%
10 - 14	1.1%	10 - 14	0.0%
15 - 19	1.1%	15 - 19	6.1%
20 - 24	2.7%	20 - 24	3.0%
25 - 29	5.9%	25 - 29	7.6%
30 - 34	10.1%	30 - 34	15.2%
35 - 39	5.9%	35 - 39	10.6%
40 - 44	1.6%	40 - 44	21.2%
45 - 49	2.7%	45 - 49	16.7%
50 - 54	2.7%	50 - 54	12.1%
55 - 59	2.7%	55 - 59	7.6%
60 - 64	2.1%	60 - 64	0.0%
65 - 69	3.7%	65 - 69	0.0%
70 - 74	2.7%	70 - 74	0.0%
75 - 79	4.3%	75 - 79	0.0%
80 - 84	6.4%	> 79	0.0%
85 - 89	3.2%	(Cases) N=	66
90 - 94	12.8%	mean	40
95 - 99	10.6%	min size (mm)	15
100 - 104	8.5%	max size (mm)	59
105 - 109	4.8%		
> 109	4.8%		
(Cases) N=	188		
mean	71		
min size (mm)	13		
max size (mm)	129		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee South

<i>Tethya aurantia</i>		<i>Kelletia kelletii</i>		<i>Patiria miniata</i>	
<10	0.0%	< 40	0.0%	<10	0.0%
10 - 19	6.6%	40 - 49	0.0%	10 - 19	0.0%
20 - 29	0.0%	50 - 59	0.0%	20 - 29	6.2%
30 - 39	3.9%	60 - 69	0.0%	30 - 39	4.6%
40 - 49	13.2%	70 - 79	0.0%	40 - 49	3.1%
50 - 59	17.1%	80 - 89	0.0%	50 - 59	12.3%
60 - 69	19.7%	90 - 99	0.0%	60 - 69	26.2%
70 - 79	15.8%	100 - 109	20.0%	70 - 79	33.8%
80 - 89	9.2%	110 - 119	60.0%	80 - 89	13.8%
90 - 99	6.6%	120 - 129	20.0%	90 - 99	0.0%
> 99	7.9%	130 - 139	0.0%	> 99	0.0%
(Cases) N=	76	140 - 149	0.0%	(Cases) N=	65
mean	64	> 149	0.0%	mean	65
min size (mm)	10	(Cases) N=	5	min size (mm)	23
max size (mm)	120	mean	115	max size (mm)	88
		min size (mm)	104		
		max size (mm)	127		
<i>Haliotis rufescens</i>		<i>Crassedoma giganteum</i>		<i>Pisaster giganteus</i>	
<25	0.0%	<10	0.0%	< 20	0.0%
25 - 34	0.0%	10 - 19	0.0%	20 - 39	6.6%
35 - 44	0.0%	20 - 29	0.0%	40 - 59	26.2%
45 - 54	0.0%	30 - 39	10.0%	60 - 79	26.2%
55 - 64	0.0%	40 - 49	20.0%	80 - 99	9.8%
65 - 74	0.0%	50 - 59	10.0%	100 - 119	13.1%
75 - 84	0.0%	60 - 69	30.0%	120 - 139	11.5%
85 - 94	0.0%	70 - 79	20.0%	140 - 159	4.9%
95 - 104	0.0%	80 - 89	0.0%	160 - 179	0.0%
105 - 114	0.0%	90 - 99	0.0%	180 - 199	1.6%
115 - 124	0.0%	100 - 109	0.0%	200 - 219	0.0%
125 - 134	0.0%	110 - 119	10.0%	220 - 239	0.0%
135 - 144	0.0%	120 - 129	0.0%	> 239	0.0%
145 - 154	0.0%	130 - 139	0.0%	(Cases) N=	61
155 - 164	0.0%	> 139	0.0%	mean	82
165 - 174	0.0%	(Cases) N=	10	min size (mm)	25
175 - 184	0.0%	mean	61	max size (mm)	186
185 - 194	0.0%	min size (mm)	33		
>195	100.0%	max size (mm)	111		
(Cases) N=	4				
mean	213				
min size (mm)	199				
max size (mm)	237				

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee South (continued)

<i>Pycnopodia helianthoides</i> <i>purpuratus</i>		<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus</i>	
< 20	0.0%	< 5	0.0%	< 5	0.0%
20 - 39	0.0%	5 - 9	1.1%	5 - 9	0.9%
40 - 59	0.0%	10 - 14	1.4%	10 - 14	2.3%
60 - 79	1.9%	15 - 19	6.4%	15 - 19	7.0%
80 - 99	1.9%	20 - 24	8.2%	20 - 24	18.6%
100 - 119	9.3%	25 - 29	4.6%	25 - 29	11.2%
120 - 139	14.8%	30 - 34	6.8%	30 - 34	23.3%
140 - 159	24.1%	35 - 39	7.1%	35 - 39	14.9%
160 - 179	14.8%	40 - 44	3.6%	40 - 44	10.2%
180 - 199	7.4%	45 - 49	3.2%	45 - 49	5.6%
200 - 219	11.1%	50 - 54	5.0%	50 - 54	5.1%
220 - 239	11.1%	55 - 59	1.1%	55 - 59	0.9%
240 - 259	1.9%	60 - 64	1.8%	60 - 64	0.0%
260 - 279	1.9%	65 - 69	2.1%	65 - 69	0.0%
280 - 299	0.0%	70 - 74	3.6%	70 - 74	0.0%
> 299	0.0%	75 - 79	4.6%	75 - 79	0.0%
(Cases) N=	54	80 - 84	6.1%	> 79	0.0%
mean	164	85 - 89	8.6%	(Cases) N=	215
min size (mm)	72	90 - 94	10.4%	mean	32
max size (mm)	275	95 - 99	5.0%	min size (mm)	7
		100 - 104	5.4%	max size (mm)	59
		105 - 109	2.5%		
		> 109	1.4%		
		(Cases) N=	280		
		mean	61		
		min size (mm)	7		
		max size (mm)	115		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Rodes Reef

<i>Tethya aurantia</i>		<i>Megathura crenulata</i>		<i>Patiria miniata</i>	
<10	0.0%	<10	0.0%	<10	0.0%
10 - 19	2.4%	10 - 19	0.0%	10 - 19	1.7%
20 - 29	7.3%	20 - 29	0.0%	20 - 29	13.3%
30 - 39	9.8%	30 - 39	0.0%	30 - 39	20.0%
40 - 49	7.3%	40 - 49	0.0%	40 - 49	18.3%
50 - 59	12.2%	50 - 59	0.0%	50 - 59	25.0%
60 - 69	17.1%	60 - 69	7.7%	60 - 69	16.7%
70 - 79	19.5%	70 - 79	7.7%	70 - 79	5.0%
80 - 89	7.3%	80 - 89	15.4%	80 - 89	0.0%
90 - 99	12.2%	90 - 99	38.5%	90 - 99	0.0%
> 99	4.9%	100 - 109	23.1%	> 99	0.0%
(Cases) N=	41	110 - 119	7.7%	(Cases) N=	60
mean	64	> 119	0.0%	mean	46
min size (mm)	18	(Cases) N=	13	min size (mm)	19
max size (mm)	108	mean	93	max size (mm)	79
		min size (mm)	67		
		max size (mm)	112		
<i>Kelletia kelletii</i>		<i>Crassedoma giganteum</i>		<i>Pisaster giganteus</i>	
< 40	0.0%	<10	0.0%	< 20	1.6%
40 - 49	0.0%	10 - 19	0.0%	20 - 39	6.6%
50 - 59	0.0%	20 - 29	0.0%	40 - 59	47.5%
60 - 69	0.0%	30 - 39	0.0%	60 - 79	31.1%
70 - 79	0.0%	40 - 49	14.3%	80 - 99	8.2%
80 - 89	0.0%	50 - 59	0.0%	100 - 119	1.6%
90 - 99	0.0%	60 - 69	28.6%	120 - 139	3.3%
100 - 109	0.0%	70 - 79	0.0%	140 - 159	0.0%
110 - 119	100.0%	80 - 89	14.3%	160 - 179	0.0%
120 - 129	0.0%	90 - 99	0.0%	180 - 199	0.0%
130 - 139	0.0%	100 - 109	14.3%	200 - 219	0.0%
140 - 149	0.0%	110 - 119	14.3%	220 - 239	0.0%
> 149	0.0%	120 - 129	14.3%	> 239	0.0%
(Cases) N=	1	130 - 139	0.0%	(Cases) N=	61
mean	116	> 139	0.0%	mean	61
min size (mm)	116	(Cases) N=	7	min size (mm)	12
max size (mm)	116	mean	87	max size (mm)	138
		min size (mm)	48		
		max size (mm)	122		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Rodes Reef (continued)

<i>Pycnopodia helianthoides</i> <i>purpuratus</i>		<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus</i>	
< 20	0.0%	< 5	0.0%	< 5	0.0%
20 - 39	0.0%	5 - 9	0.0%	5 - 9	0.0%
40 - 59	16.7%	10 - 14	0.0%	10 - 14	0.0%
60 - 79	8.3%	15 - 19	0.6%	15 - 19	7.1%
80 - 99	18.3%	20 - 24	0.6%	20 - 24	3.6%
100 - 119	8.3%	25 - 29	0.6%	25 - 29	17.9%
120 - 139	5.0%	30 - 34	1.8%	30 - 34	21.4%
140 - 159	11.7%	35 - 39	1.8%	35 - 39	17.9%
160 - 179	8.3%	40 - 44	3.0%	40 - 44	17.9%
180 - 199	10.0%	45 - 49	3.0%	45 - 49	14.3%
200 - 219	10.0%	50 - 54	3.0%	50 - 54	0.0%
220 - 239	3.3%	55 - 59	1.8%	55 - 59	0.0%
240 - 259	0.0%	60 - 64	4.1%	60 - 64	0.0%
260 - 279	0.0%	65 - 69	4.1%	65 - 69	0.0%
280 - 299	0.0%	70 - 74	4.1%	70 - 74	0.0%
> 299	0.0%	75 - 79	8.9%	75 - 79	0.0%
(Cases) N=	60	80 - 84	10.1%	> 79	0.0%
mean	124	85 - 89	10.1%	(Cases) N=	28
min size (mm)	41	90 - 94	7.1%	mean	34
max size (mm)	230	95 - 99	11.8%	min size (mm)	17
		100 - 104	11.8%	max size (mm)	48
		105 - 109	5.9%		
		> 109	5.9%		
		(Cases) N=	169		
		mean	82		
		min size (mm)	15		
		max size (mm)	122		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

<i>Kelletia kelletii</i>		<i>Pisaster giganteus</i>		<i>Strongylocentrotus franciscanus</i>	
< 40	0.0%	< 20	0.0%	< 5	0.0%
40 - 49	0.0%	20 - 39	0.0%	5 - 9	0.0%
50 - 59	0.0%	40 - 59	0.0%	10 - 14	0.0%
60 - 69	0.0%	60 - 79	9.5%	15 - 19	0.0%
70 - 79	0.0%	80 - 99	11.9%	20 - 24	0.0%
80 - 89	50.0%	100 - 119	50.0%	25 - 29	0.0%
90 - 99	0.0%	120 - 139	26.2%	30 - 34	0.0%
100 - 109	50.0%	140 - 159	0.0%	35 - 39	7.1%
110 - 119	0.0%	160 - 179	2.4%	40 - 44	7.1%
120 - 129	0.0%	180 - 199	0.0%	45 - 49	3.6%
130 - 139	0.0%	200 - 219	0.0%	50 - 54	7.1%
140 - 149	0.0%	220 - 239	0.0%	55 - 59	3.6%
> 149	0.0%	> 239	0.0%	60 - 64	7.1%
(Cases) N=	2	(Cases) N=	42	65 - 69	0.0%
mean	95	mean	111	70 - 74	0.0%
min size (mm)	85	min size (mm)	75	75 - 79	3.6%
max size (mm)	105	max size (mm)	166	80 - 84	0.0%
<i>Patiria miniata</i>		<i>Pycnopodia helianthoides</i>		85 - 89	10.7%
<10	0.0%	< 20	30.0%	90 - 94	10.7%
10 - 19	0.0%	20 - 39	10.0%	95 - 99	7.1%
20 - 29	1.1%	40 - 59	0.0%	100 - 104	7.1%
30 - 39	8.5%	60 - 79	0.0%	105 - 109	14.3%
40 - 49	7.4%	80 - 99	0.0%	> 109	10.7%
50 - 59	22.3%	100 - 119	0.0%	(Cases) N=	28
60 - 69	25.5%	120 - 139	10.0%	mean	81
70 - 79	27.7%	140 - 159	0.0%	min size (mm)	38
80 - 89	6.4%	160 - 179	10.0%	max size (mm)	112
90 - 99	1.1%	180 - 199	30.0%		
> 99	0.0%	200 - 219	10.0%		
(Cases) N=	94	220 - 239	0.0%		
mean	62	240 - 259	0.0%		
min size (mm)	27	260 - 279	0.0%		
max size (mm)	93	280 - 299	0.0%		
		> 299	0.0%		
		(Cases) N=	10		
		mean	117		
		min size (mm)	17		
		max size (mm)	210		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS
Santa Cruz Island - Gull Island South (continued)

Strongylocentrotus purpuratus

< 5	0.0%
5 - 9	0.0%
10 - 14	0.0%
15 - 19	0.0%
20 - 24	0.0%
25 - 29	25.0%
30 - 34	0.0%
35 - 39	25.0%
40 - 44	0.0%
45 - 49	50.0%
50 - 54	0.0%
55 - 59	0.0%
60 - 64	0.0%
65 - 69	0.0%
70 - 74	0.0%
75 - 79	0.0%
> 79	0.0%
(Cases) N=	4
mean	41
min size (mm)	29
max size (mm)	49

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Fry's Harbor

<i>Kelletia kelletii</i>		<i>Megathura crenulata</i>		<i>Pisaster giganteus</i>	
< 40	0.0%	<10	0.0%	< 20	0.0%
40 - 49	0.0%	10 - 19	0.0%	20 - 39	0.0%
50 - 59	0.0%	20 - 29	0.0%	40 - 59	1.6%
60 - 69	0.0%	30 - 39	0.0%	60 - 79	10.9%
70 - 79	16.7%	40 - 49	0.0%	80 - 99	20.3%
80 - 89	16.7%	50 - 59	0.0%	100 - 119	43.8%
90 - 99	33.3%	60 - 69	0.0%	120 - 139	14.1%
100 - 109	33.3%	70 - 79	0.0%	140 - 159	0.0%
110 - 119	0.0%	80 - 89	75.0%	160 - 179	6.3%
120 - 129	0.0%	90 - 99	25.0%	180 - 199	3.1%
130 - 139	0.0%	100 - 109	0.0%	200 - 219	0.0%
140 - 149	0.0%	110 - 119	0.0%	220 - 239	0.0%
> 149	0.0%	> 119	0.0%	> 239	0.0%
(Cases) N=	6	(Cases) N=	4	(Cases) N=	64
mean	90	mean	84	mean	110
min size (mm)	74	min size (mm)	80	min size (mm)	59
max size (mm)	103	max size (mm)	90	max size (mm)	197

<i>Megastraea undosa</i>		<i>Patiria miniata</i>		<i>Pycnopodia helianthoides</i>	
<10	0.0%	<10	0.0%	< 20	25.8%
10 - 19	0.0%	10 - 19	0.0%	20 - 39	74.2%
20 - 29	0.0%	20 - 29	0.0%	40 - 59	0.0%
30 - 39	0.0%	30 - 39	0.0%	60 - 79	0.0%
40 - 49	0.0%	40 - 49	1.6%	80 - 99	0.0%
50 - 59	0.0%	50 - 59	17.5%	100 - 119	0.0%
60 - 69	0.0%	60 - 69	28.6%	120 - 139	0.0%
70 - 79	0.0%	70 - 79	36.5%	140 - 159	0.0%
80 - 89	0.0%	80 - 89	15.9%	160 - 179	0.0%
90 - 99	100.0%	90 - 99	0.0%	180 - 199	0.0%
100 - 109	0.0%	> 99	0.0%	200 - 219	0.0%
110 - 119	0.0%	(Cases) N=	63	220 - 239	0.0%
> 119	0.0%	mean	69	240 - 259	0.0%
(Cases) N=	1	min size (mm)	49	260 - 279	0.0%
mean	91	max size (mm)	87	280 - 299	0.0%
min size (mm)	91			> 299	0.0%
max size (mm)	91			(Cases) N=	31
				mean	23
				min size (mm)	14
				max size (mm)	32

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS
Santa Cruz Island - Fry's Harbor (continued)

<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus purpuratus</i>	
< 5	0.0%	< 5	0.0%
5 - 9	0.0%	5 - 9	0.0%
10 - 14	0.0%	10 - 14	0.0%
15 - 19	6.9%	15 - 19	9.1%
20 - 24	3.4%	20 - 24	15.2%
25 - 29	13.8%	25 - 29	12.1%
30 - 34	0.0%	30 - 34	24.2%
35 - 39	6.9%	35 - 39	18.2%
40 - 44	6.9%	40 - 44	18.2%
45 - 49	6.9%	45 - 49	0.0%
50 - 54	13.8%	50 - 54	3.0%
55 - 59	6.9%	55 - 59	0.0%
60 - 64	10.3%	60 - 64	0.0%
65 - 69	13.8%	65 - 69	0.0%
70 - 74	6.9%	70 - 74	0.0%
75 - 79	0.0%	75 - 79	0.0%
80 - 84	0.0%	> 79	0.0%
85 - 89	3.4%	(Cases) N=	33
90 - 94	0.0%	mean	32
95 - 99	0.0%	min size (mm)	15
100 - 104	0.0%	max size (mm)	51
105 - 109	0.0%		
> 109	0.0%		
(Cases) N=	29		
mean	49		
min size (mm)	16		
max size (mm)	89		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS
Santa Cruz Island - Pelican Bay

<i>Megastraea undosa</i>		<i>Pisaster giganteus</i>		<i>Strongylocentrotus franciscanus</i>	
<10	0.0%	< 20	0.0%	< 5	0.0%
10 - 19	0.0%	20 - 39	0.0%	5 - 9	0.0%
20 - 29	0.0%	40 - 59	2.8%	10 - 14	0.0%
30 - 39	33.3%	60 - 79	2.8%	15 - 19	2.3%
40 - 49	33.3%	80 - 99	13.9%	20 - 24	2.8%
50 - 59	0.0%	100 - 119	27.8%	25 - 29	2.8%
60 - 69	0.0%	120 - 139	41.7%	30 - 34	12.5%
70 - 79	33.3%	140 - 159	5.6%	35 - 39	17.6%
80 - 89	0.0%	160 - 179	2.8%	40 - 44	23.9%
90 - 99	0.0%	180 - 199	0.0%	45 - 49	19.9%
100 - 109	0.0%	200 - 219	0.0%	50 - 54	12.5%
110 - 119	0.0%	220 - 239	0.0%	55 - 59	3.4%
> 119	0.0%	> 239	2.8%	60 - 64	1.1%
(Cases) N=	3	(Cases) N=	36	65 - 69	0.6%
mean	53	mean	119	70 - 74	0.6%
min size (mm)	36	min size (mm)	50	75 - 79	0.0%
max size (mm)	78	max size (mm)	250	80 - 84	0.0%
				85 - 89	0.0%
				90 - 94	0.0%
				95 - 99	0.0%
<i>Patiria miniata</i>		<i>Lytechinus anamesus</i>			
<10	0.0%	< 5	0.0%	100 - 104	0.0%
10 - 19	1.7%	5 - 9	0.0%	105 - 109	0.0%
20 - 29	0.0%	10 - 14	0.7%	> 109	0.0%
30 - 39	8.5%	15 - 19	0.0%	(Cases) N=	176
40 - 49	13.6%	20 - 24	13.5%	mean	42
50 - 59	32.2%	25 - 29	77.7%	min size (mm)	17
60 - 69	15.3%	30 - 34	8.1%	max size (mm)	74
70 - 79	18.6%	35 - 39	0.0%		
80 - 89	10.2%	40 - 44	0.0%		
90 - 99	0.0%	45 - 49	0.0%		
> 99	0.0%	> 49	0.0%		
(Cases) N=	59	(Cases) N=	148		
mean	59	mean	27		
min size (mm)	14	min size (mm)	12		
max size (mm)	85	max size (mm)	32		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS
Santa Cruz Island - Pelican Bay (continued)

Strongylocentrotus purpuratus

< 5	0.0%
5 - 9	0.0%
10 - 14	0.0%
15 - 19	0.5%
20 - 24	27.6%
25 - 29	54.7%
30 - 34	15.9%
35 - 39	0.5%
40 - 44	0.9%
45 - 49	0.0%
50 - 54	0.0%
55 - 59	0.0%
60 - 64	0.0%
65 - 69	0.0%
70 - 74	0.0%
75 - 79	0.0%
> 79	0.0%
(Cases) N=	214
mean	27
min size (mm)	19
max size (mm)	43

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Scorpion Anchorage

<i>Megastraea undosa</i>		<i>Crassedoma giganteum</i>		<i>Pisaster giganteus</i>	
<10	0.0%	<10	0.0%	< 20	0.0%
10 - 19	2.2%	10 - 19	0.0%	20 - 39	0.0%
20 - 29	21.7%	20 - 29	0.0%	40 - 59	0.0%
30 - 39	10.9%	30 - 39	0.0%	60 - 79	0.0%
40 - 49	0.0%	40 - 49	0.0%	80 - 99	6.3%
50 - 59	0.0%	50 - 59	0.0%	100 - 119	52.4%
60 - 69	0.0%	60 - 69	8.7%	120 - 139	28.6%
70 - 79	34.8%	70 - 79	13.0%	140 - 159	7.9%
80 - 89	26.1%	80 - 89	8.7%	160 - 179	1.6%
90 - 99	4.3%	90 - 99	17.4%	180 - 199	0.0%
100 - 109	0.0%	100 - 109	8.7%	200 - 219	0.0%
110 - 119	0.0%	110 - 119	8.7%	220 - 239	1.6%
> 119	0.0%	120 - 129	26.1%	> 239	1.6%
(Cases) N=	46	130 - 139	0.0%	(Cases) N=	63
mean	61	> 139	8.7%	mean	121
min size (mm)	12	(Cases) N=	23	min size (mm)	85
max size (mm)	92	mean	104	max size (mm)	255
		min size (mm)	62		
		max size (mm)	156		
<i>Megathura crenulata</i>		<i>Patiria miniata</i>			
<10	0.0%	<10	0.0%		
10 - 19	0.0%	10 - 19	0.0%		
20 - 29	0.0%	20 - 29	0.0%		
30 - 39	0.0%	30 - 39	1.5%		
40 - 49	0.0%	40 - 49	3.0%		
50 - 59	0.0%	50 - 59	4.5%		
60 - 69	46.2%	60 - 69	25.8%		
70 - 79	34.6%	70 - 79	31.8%		
80 - 89	15.4%	80 - 89	27.3%		
90 - 99	3.8%	90 - 99	6.1%		
100 - 109	0.0%	> 99	0.0%		
110 - 119	0.0%	(Cases) N=	66		
> 119	0.0%	mean	72		
(Cases) N=	26	min size (mm)	35		
mean	73	max size (mm)	92		
min size (mm)	62				
max size (mm)	91				

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Scorpion Anchorage (continued)

<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus purpuratus</i>	
< 5	0.0%	< 5	0.0%
5 - 9	0.9%	5 - 9	0.9%
10 - 14	0.0%	10 - 14	0.0%
15 - 19	0.0%	15 - 19	0.0%
20 - 24	0.5%	20 - 24	19.3%
25 - 29	0.0%	25 - 29	32.2%
30 - 34	1.4%	30 - 34	34.3%
35 - 39	5.1%	35 - 39	12.9%
40 - 44	19.6%	40 - 44	0.4%
45 - 49	34.1%	45 - 49	0.0%
50 - 54	20.1%	50 - 54	0.0%
55 - 59	11.7%	55 - 59	0.0%
60 - 64	4.7%	60 - 64	0.0%
65 - 69	0.5%	65 - 69	0.0%
70 - 74	0.5%	70 - 74	0.0%
75 - 79	0.0%	75 - 79	0.0%
80 - 84	0.9%	> 79	0.0%
85 - 89	0.0%	(Cases) N=	233
90 - 94	0.0%	mean	29
95 - 99	0.0%	min size (mm)	8
100 - 104	0.0%	max size (mm)	40
105 - 109	0.0%		
> 109	0.0%		
(Cases) N=	214		
mean	48		
min size (mm)	6		
max size (mm)	81		

Santa Cruz Island - Yellow Banks

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2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks (continued)

<i>Crassedoma giganteum</i>		<i>Haliotis assimilis</i>		<i>Pycnopodia helianthoides</i>	
<10	0.0%	<25	0.0%	< 20	0.0%
10 - 19	0.0%	25 - 34	0.0%	20 - 39	0.0%
20 - 29	0.0%	35 - 44	0.0%	40 - 59	0.0%
30 - 39	0.0%	45 - 54	0.0%	60 - 79	0.0%
40 - 49	0.0%	55 - 64	0.0%	80 - 99	0.0%
50 - 59	0.0%	65 - 74	0.0%	100 - 119	0.0%
60 - 69	0.0%	75 - 84	0.0%	120 - 139	0.0%
70 - 79	0.0%	85 - 94	0.0%	140 - 159	0.0%
80 - 89	0.0%	95 - 104	0.0%	160 - 179	0.0%
90 - 99	33.3%	105 - 114	0.0%	180 - 199	0.0%
100 - 109	0.0%	115 - 124	0.0%	200 - 219	0.0%
110 - 119	33.3%	125 - 134	0.0%	220 - 239	11.8%
120 - 129	33.3%	135 - 144	100.0%	240 - 259	35.3%
130 - 139	0.0%	145 - 154	0.0%	260 - 279	23.5%
> 139	0.0%	155 - 164	0.0%	280 - 299	17.6%
(Cases) N=	3	165 - 174	0.0%	> 299	11.8%
mean	109	175 - 184	0.0%	(Cases) N=	17
min size (mm)	92	185 - 194	0.0%	mean	264
max size (mm)	124	>195	0.0%	min size (mm)	225
		(Cases) N=	1	max size (mm)	315
		mean	135		
		min size (mm)	135		
		max size (mm)	135		
				<i>Lytechinus anamesus</i>	
				< 5	0.0%
				5 - 9	20.0%
				10 - 14	20.0%
				15 - 19	20.0%
				20 - 24	20.0%
				25 - 29	20.0%
				30 - 34	0.0%
				35 - 39	0.0%
				40 - 44	0.0%
				45 - 49	0.0%
				> 49	0.0%
				(Cases) N=	5
				mean	16
				min size (mm)	7
				max size (mm)	25

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS
Santa Cruz Island - Yellow Banks (continued)

<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus purpuratus</i>	
< 5	0.0%	< 5	0.0%
5 - 9	2.8%	5 - 9	2.0%
10 - 14	13.9%	10 - 14	5.1%
15 - 19	13.9%	15 - 19	9.2%
20 - 24	22.2%	20 - 24	13.3%
25 - 29	16.7%	25 - 29	13.3%
30 - 34	2.8%	30 - 34	16.3%
35 - 39	0.0%	35 - 39	10.7%
40 - 44	0.0%	40 - 44	14.8%
45 - 49	2.8%	45 - 49	9.7%
50 - 54	0.0%	50 - 54	4.6%
55 - 59	2.8%	55 - 59	0.5%
60 - 64	0.0%	60 - 64	0.5%
65 - 69	0.0%	65 - 69	0.0%
70 - 74	0.0%	70 - 74	0.0%
75 - 79	8.3%	75 - 79	0.0%
80 - 84	0.0%	> 79	0.0%
85 - 89	0.0%	(Cases) N=	196
90 - 94	2.8%	mean	32
95 - 99	0.0%	min size (mm)	8
100 - 104	2.8%	max size (mm)	60
105 - 109	5.6%		
> 109	2.8%		
(Cases) N=	36		
mean	38		
min size (mm)	8		
max size (mm)	122		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Admiral's Reef

<i>Tethya aurantia</i>		<i>Megastraea undosa</i>		<i>Crassedoma giganteum</i>	
<10	0.0%	<10	0.0%	<10	0.0%
10 - 19	4.5%	10 - 19	0.0%	10 - 19	0.0%
20 - 29	0.0%	20 - 29	16.7%	20 - 29	0.0%
30 - 39	9.1%	30 - 39	0.0%	30 - 39	0.0%
40 - 49	22.7%	40 - 49	0.0%	40 - 49	6.3%
50 - 59	22.7%	50 - 59	0.0%	50 - 59	12.5%
60 - 69	9.1%	60 - 69	0.0%	60 - 69	6.3%
70 - 79	27.3%	70 - 79	0.0%	70 - 79	6.3%
80 - 89	0.0%	80 - 89	0.0%	80 - 89	25.0%
90 - 99	4.5%	90 - 99	66.7%	90 - 99	18.8%
> 99	0.0%	100 - 109	16.7%	100 - 109	0.0%
(Cases) N=	22	110 - 119	0.0%	110 - 119	6.3%
mean	57	> 119	0.0%	120 - 129	0.0%
min size (mm)	18	(Cases) N=	6	130 - 139	6.3%
max size (mm)	94	mean	84	> 139	12.5%
		min size (mm)	22	(Cases) N=	16
		max size (mm)	102	mean	92
				mean	92
				min size (mm)	48
				max size (mm)	152
<i>Kelletia kelletii</i>		<i>Megathura crenulata</i>		<i>Patiria miniata</i>	
< 40	0.0%	<10	0.0%	<10	0.0%
40 - 49	0.0%	10 - 19	0.0%	10 - 19	1.2%
50 - 59	0.0%	20 - 29	0.0%	20 - 29	2.4%
60 - 69	0.0%	30 - 39	0.0%	30 - 39	13.3%
70 - 79	0.0%	40 - 49	13.3%	40 - 49	15.7%
80 - 89	0.0%	50 - 59	33.3%	50 - 59	24.1%
90 - 99	0.0%	60 - 69	40.0%	60 - 69	27.7%
100 - 109	50.0%	70 - 79	13.3%	70 - 79	13.3%
110 - 119	50.0%	80 - 89	0.0%	80 - 89	2.4%
120 - 129	0.0%	90 - 99	0.0%	90 - 99	0.0%
130 - 139	0.0%	100 - 109	0.0%	> 99	0.0%
140 - 149	0.0%	110 - 119	0.0%	(Cases) N=	83
> 149	0.0%	> 119	0.0%	mean	55
(Cases) N=	2	(Cases) N=	15	min size (mm)	19
mean	109	mean	59	max size (mm)	83
min size (mm)	105	min size (mm)	43		
max size (mm)	113	max size (mm)	77		

Anacapa Island - Admiral's Reef (continued)

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2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS
Anacapa Island - Cathedral Cove

<i>Megastraea undosa purpuratus</i>		<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus</i>	
<10	0.0%	< 5	0.0%	< 5	0.0%
10 - 19	4.2%	5 - 9	0.0%	5 - 9	6.2%
20 - 29	11.7%	10 - 14	0.0%	10 - 14	6.2%
30 - 39	16.7%	15 - 19	0.5%	15 - 19	4.6%
40 - 49	14.2%	20 - 24	0.5%	20 - 24	6.2%
50 - 59	12.5%	25 - 29	0.0%	25 - 29	1.5%
60 - 69	5.0%	30 - 34	0.0%	30 - 34	3.1%
70 - 79	9.2%	35 - 39	0.0%	35 - 39	7.7%
80 - 89	19.2%	40 - 44	0.0%	40 - 44	6.2%
90 - 99	5.8%	45 - 49	0.0%	45 - 49	7.7%
100 - 109	1.7%	50 - 54	0.0%	50 - 54	18.5%
110 - 119	0.0%	55 - 59	0.0%	55 - 59	12.3%
> 119	0.0%	60 - 64	0.0%	60 - 64	10.8%
(Cases) N=	120	65 - 69	1.0%	65 - 69	6.2%
mean	56	70 - 74	0.0%	70 - 74	3.1%
min size (mm)	15	75 - 79	2.5%	75 - 79	0.0%
max size (mm)	104	80 - 84	4.5%	> 79	0.0%
		85 - 89	12.4%	(Cases) N=	65
		90 - 94	10.4%	mean	43
		95 - 99	13.4%	min size (mm)	5
		100 - 104	17.9%	max size (mm)	74
		105 - 109	10.9%		
		> 109	25.9%		
		(Cases) N=	201		
		mean	100		
		min size (mm)	16		
		max size (mm)	129		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Landing Cove

<i>Tethya aurantia</i>		<i>Kelletia kelletii</i>		<i>Megathura crenulata</i>	
<10	0.0%	< 40	0.0%	<10	0.0%
10 - 19	0.0%	40 - 49	0.0%	10 - 19	0.0%
20 - 29	50.0%	50 - 59	0.0%	20 - 29	0.0%
30 - 39	0.0%	60 - 69	0.0%	30 - 39	0.0%
40 - 49	50.0%	70 - 79	33.3%	40 - 49	4.3%
50 - 59	0.0%	80 - 89	0.0%	50 - 59	13.0%
60 - 69	0.0%	90 - 99	0.0%	60 - 69	30.4%
70 - 79	0.0%	100 - 109	33.3%	70 - 79	30.4%
80 - 89	0.0%	110 - 119	0.0%	80 - 89	4.3%
90 - 99	0.0%	120 - 129	33.3%	90 - 99	17.4%
> 99	0.0%	130 - 139	0.0%	100 - 109	0.0%
(Cases) N=	2	140 - 149	0.0%	110 - 119	0.0%
mean	34	> 149	0.0%	> 119	0.0%
min size (mm)	20	(Cases) N=	3	(Cases) N=	23
max size (mm)	47	mean	100	mean	71
		min size (mm)	75	min size (mm)	45
		max size (mm)	120	max size (mm)	99

<i>Haliotis corrugata</i>		<i>Megastraea undosa</i>		<i>Crassedoma giganteum</i>	
<25	0.0%	<10	0.0%	<10	0.0%
25 - 34	0.0%	10 - 19	0.0%	10 - 19	0.0%
35 - 44	0.0%	20 - 29	2.4%	20 - 29	2.0%
45 - 54	0.0%	30 - 39	4.8%	30 - 39	3.9%
55 - 64	0.0%	40 - 49	4.8%	40 - 49	8.8%
65 - 74	0.0%	50 - 59	7.1%	50 - 59	20.6%
75 - 84	0.0%	60 - 69	21.4%	60 - 69	11.8%
85 - 94	0.0%	70 - 79	25.0%	70 - 79	10.8%
95 - 104	0.0%	80 - 89	25.0%	80 - 89	10.8%
105 - 114	0.0%	90 - 99	8.3%	90 - 99	4.9%
115 - 124	0.0%	100 - 109	1.2%	100 - 109	5.9%
125 - 134	0.0%	110 - 119	0.0%	110 - 119	6.9%
135 - 144	0.0%	> 119	0.0%	120 - 129	6.9%
145 - 154	0.0%	(Cases) N=	84	130 - 139	5.9%
155 - 164	100.0%	mean	71	> 139	1.0%
165 - 174	0.0%	min size (mm)	25	(Cases) N=	102
175 - 184	0.0%	max size (mm)	104	mean	78
185 - 194	0.0%			min size (mm)	23
>195	0.0%			max size (mm)	141
(Cases) N=	1				
mean	164				
min size (mm)	164				
max size (mm)	164				

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS
Anacapa Island - Landing Cove (continued)

<i>Pisaster giganteus</i> <i>purpuratus</i>		<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus</i>	
< 20	0.0%	< 5	0.0%	< 5	0.5%
20 - 39	0.0%	5 - 9	4.1%	5 - 9	5.4%
40 - 59	0.0%	10 - 14	3.7%	10 - 14	5.9%
60 - 79	0.0%	15 - 19	2.6%	15 - 19	1.8%
80 - 99	0.0%	20 - 24	7.9%	20 - 24	5.9%
100 - 119	0.0%	25 - 29	6.4%	25 - 29	5.0%
120 - 139	0.0%	30 - 34	3.7%	30 - 34	5.9%
140 - 159	0.0%	35 - 39	1.9%	35 - 39	7.2%
160 - 179	0.0%	40 - 44	1.5%	40 - 44	11.3%
180 - 199	50.0%	45 - 49	0.7%	45 - 49	15.3%
200 - 219	50.0%	50 - 54	1.5%	50 - 54	14.4%
220 - 239	0.0%	55 - 59	1.1%	55 - 59	11.3%
> 239	0.0%	60 - 64	1.9%	60 - 64	5.0%
(Cases) N=	2	65 - 69	0.4%	65 - 69	1.8%
mean	195	70 - 74	1.1%	70 - 74	2.3%
min size (mm)	190	75 - 79	2.6%	75 - 79	0.9%
max size (mm)	200	80 - 84	1.9%	> 79	0.5%
		85 - 89	2.2%	(Cases) N=	222
		90 - 94	6.4%	mean	41
		95 - 99	3.4%	min size (mm)	4
		100 - 104	4.5%	max size (mm)	81
		105 - 109	11.2%		
		> 109	29.2%		
		(Cases) N=	267		
		mean	77		
		min size (mm)	6		
		max size (mm)	139		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - SE Sea Lion Rookery

<i>Tethya aurantia</i>		<i>Lithopoma gibberosa</i>		<i>Crassedoma giganteum</i>	
<10	0.0%	<10	0.0%	<10	0.0%
10 - 19	3.1%	10 - 19	0.0%	10 - 19	0.0%
20 - 29	3.1%	20 - 29	12.5%	20 - 29	0.0%
30 - 39	6.2%	30 - 39	62.5%	30 - 39	0.0%
40 - 49	13.8%	40 - 49	25.0%	40 - 49	0.0%
50 - 59	18.5%	50 - 59	0.0%	50 - 59	0.0%
60 - 69	29.2%	60 - 69	0.0%	60 - 69	25.0%
70 - 79	12.3%	70 - 79	0.0%	70 - 79	0.0%
80 - 89	9.2%	80 - 89	0.0%	80 - 89	0.0%
90 - 99	4.6%	90 - 99	0.0%	90 - 99	0.0%
> 99	0.0%	100 - 109	0.0%	100 - 109	0.0%
(Cases) N=	65	110 - 119	0.0%	110 - 119	25.0%
mean	60	> 119	0.0%	120 - 129	25.0%
min size (mm)	12	(Cases) N=	8	130 - 139	25.0%
max size (mm)	93	mean	36	> 139	0.0%
		min size (mm)	28	(Cases) N=	4
		max size (mm)	49	mean	110
				mean	110
				min size (mm)	64
				max size (mm)	130
<i>Megastrea undosa</i>		<i>Megathura crenulata</i>		<i>Patiria miniata</i>	
<10	0.0%	<10	0.0%	<10	0.0%
10 - 19	0.0%	10 - 19	0.0%	10 - 19	0.0%
20 - 29	4.8%	20 - 29	0.0%	20 - 29	1.7%
30 - 39	32.3%	30 - 39	0.0%	30 - 39	1.7%
40 - 49	17.7%	40 - 49	0.0%	40 - 49	11.9%
50 - 59	25.8%	50 - 59	16.7%	50 - 59	10.2%
60 - 69	11.3%	60 - 69	38.9%	60 - 69	32.2%
70 - 79	6.5%	70 - 79	16.7%	70 - 79	37.3%
80 - 89	1.6%	80 - 89	27.8%	80 - 89	3.4%
90 - 99	0.0%	90 - 99	0.0%	90 - 99	1.7%
100 - 109	0.0%	100 - 109	0.0%	> 99	0.0%
110 - 119	0.0%	110 - 119	0.0%	(Cases) N=	59
> 119	0.0%	> 119	0.0%	mean	65
(Cases) N=	62	(Cases) N=	18	min size (mm)	28
mean	47	mean	70	max size (mm)	92
min size (mm)	22	min size (mm)	55		
max size (mm)	89	max size (mm)	84		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - SE Sea Lion Rookery (continued)

<i>Pisaster giganteus</i>		<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus purpuratus</i>	
< 20	0.0%	< 5	0.0%	< 5	0.0%
20 - 39	0.0%	5 - 9	0.0%	5 - 9	0.0%
40 - 59	13.3%	10 - 14	0.0%	10 - 14	0.0%
60 - 79	6.7%	15 - 19	2.6%	15 - 19	14.4%
80 - 99	6.7%	20 - 24	15.4%	20 - 24	58.4%
100 - 119	20.0%	25 - 29	37.9%	25 - 29	18.2%
120 - 139	40.0%	30 - 34	19.8%	30 - 34	6.2%
140 - 159	13.3%	35 - 39	5.3%	35 - 39	1.4%
160 - 179	0.0%	40 - 44	3.5%	40 - 44	1.0%
180 - 199	0.0%	45 - 49	4.4%	45 - 49	0.5%
200 - 219	0.0%	50 - 54	1.3%	50 - 54	0.0%
220 - 239	0.0%	55 - 59	1.3%	55 - 59	0.0%
> 239	0.0%	60 - 64	1.3%	60 - 64	0.0%
(Cases) N=	30	65 - 69	0.0%	65 - 69	0.0%
mean	111	70 - 74	0.9%	70 - 74	0.0%
min size (mm)	48	75 - 79	2.2%	75 - 79	0.0%
max size (mm)	159	80 - 84	1.3%	> 79	0.0%
<i>Pycnopodia helianthoides</i>		85 - 89	0.9%	(Cases) N=	209
		90 - 94	0.0%	mean	23
		95 - 99	0.0%	min size (mm)	16
	< 20			max size (mm)	47
				max size (mm)	47
20 - 39	0.0%	100 - 104	0.9%		
		105 - 109	0.4%		
40 - 59	0.0%	> 109	0.4%		
60 - 79	0.0%				
		(Cases) N=	227		
80 - 99	0.0%	mean	34		
100 - 119	0.0%	min size (mm)	16		
120 - 139	0.0%	max size (mm)	114		
140 - 159	0.0%				
160 - 179	0.0%				
180 - 199	0.0%				
200 - 219	25.0%				
220 - 239	25.0%				
240 - 259	25.0%				
260 - 279	12.5%				
280 - 299	12.5%				
> 299	0.0%				
(Cases) N=	8				
mean	243				
min size (mm)	200				
max size (mm)	295				

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Arch Point

<i>Megastrea undosa</i>		<i>Patiria miniata</i>		<i>Strongylocentrotus franciscanus</i>	
<10	0.0%	<10	0.0%	< 5	0.0%
10 - 19	0.0%	10 - 19	1.7%	5 - 9	0.0%
20 - 29	0.0%	20 - 29	13.3%	10 - 14	1.2%
30 - 39	5.0%	30 - 39	26.7%	15 - 19	4.7%
40 - 49	10.0%	40 - 49	30.0%	20 - 24	17.4%
50 - 59	56.7%	50 - 59	18.3%	25 - 29	25.0%
60 - 69	23.3%	60 - 69	6.7%	30 - 34	12.2%
70 - 79	3.3%	70 - 79	3.3%	35 - 39	6.1%
80 - 89	0.0%	80 - 89	0.0%	40 - 44	3.5%
90 - 99	1.7%	90 - 99	0.0%	45 - 49	3.5%
100 - 109	0.0%	> 99	0.0%	50 - 54	3.2%
110 - 119	0.0%	(Cases) N=	60	55 - 59	3.2%
> 119	0.0%	mean	43	60 - 64	5.5%
(Cases) N=	60	min size (mm)	19	65 - 69	2.9%
mean	56	max size (mm)	77	70 - 74	1.7%
min size (mm)	34			75 - 79	3.2%
max size (mm)	96			80 - 84	2.0%
		<i>Pisaster giganteus</i>		80 - 84	2.0%
				85 - 89	1.7%
		< 20	0.0%		
<i>Crassedoma giganteum</i>		20 - 39	0.0%	90 - 94	1.5%
				95 - 99	1.2%
<10	0.0%	40 - 59	0.0%		
10 - 19	0.0%	60 - 79	5.0%	100 - 104	0.3%
20 - 29	0.0%	80 - 99	13.3%	105 - 109	0.0%
30 - 39	0.0%	100 - 119	50.0%	> 109	0.0%
40 - 49	25.0%	120 - 139	25.0%	(Cases) N=	344
50 - 59	0.0%	140 - 159	1.7%	mean	39
60 - 69	0.0%	160 - 179	1.7%	min size (mm)	11
70 - 79	25.0%	180 - 199	0.0%	max size (mm)	100
80 - 89	0.0%	200 - 219	3.3%		
90 - 99	50.0%	220 - 239	0.0%		
100 - 109	0.0%	> 239	0.0%		
110 - 119	0.0%	(Cases) N=	60		
120 - 129	0.0%	mean	114		
130 - 139	0.0%	min size (mm)	65		
> 139	0.0%	max size (mm)	204		
(Cases) N=	4				
mean	76				
min size (mm)	47				
max size (mm)	94				

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS
Santa Barbara Island - Arch Point (continued)

Strongylocentrotus purpuratus

< 5	0.0%
5 - 9	0.4%
10 - 14	4.0%
15 - 19	28.0%
20 - 24	51.4%
25 - 29	9.3%
30 - 34	2.9%
35 - 39	1.8%
40 - 44	0.9%
45 - 49	1.1%
50 - 54	0.0%
55 - 59	0.2%
60 - 64	0.0%
65 - 69	0.0%
70 - 74	0.0%
75 - 79	0.0%
> 79	0.0%
(Cases) N=	453
mean	22
min size (mm)	5
max size (mm)	55

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Cat Canyon

<i>Tethya aurantia</i>		<i>Megastraea undosa</i>		<i>Patiria miniata</i>	
<10	0.0%	<10	0.0%	<10	0.0%
10 - 19	0.0%	10 - 19	0.0%	10 - 19	0.0%
20 - 29	0.0%	20 - 29	0.0%	20 - 29	3.3%
30 - 39	0.0%	30 - 39	8.3%	30 - 39	13.3%
40 - 49	0.0%	40 - 49	2.8%	40 - 49	18.3%
50 - 59	100.0%	50 - 59	11.1%	50 - 59	36.7%
60 - 69	0.0%	60 - 69	31.9%	60 - 69	20.0%
70 - 79	0.0%	70 - 79	27.8%	70 - 79	5.0%
80 - 89	0.0%	80 - 89	5.6%	80 - 89	3.3%
90 - 99	0.0%	90 - 99	12.5%	90 - 99	0.0%
> 99	0.0%	100 - 109	0.0%	> 99	0.0%
(Cases) N=	1	110 - 119	0.0%	(Cases) N=	60
mean	53	> 119	0.0%	mean	53
min size (mm)	53	(Cases) N=	72	min size (mm)	23
max size (mm)	53	mean	68	max size (mm)	83
		min size (mm)	32		
		max size (mm)	98		
<i>Haliotis corrugata</i>		<i>Megathura crenulata</i>		<i>Pisaster giganteus</i>	
<25	0.0%	<10	0.0%	< 20	0.0%
25 - 34	100.0%	10 - 19	0.0%	20 - 39	0.0%
35 - 44	0.0%	20 - 29	0.0%	40 - 59	17.5%
45 - 54	0.0%	30 - 39	0.0%	60 - 79	26.3%
55 - 64	0.0%	40 - 49	50.0%	80 - 99	19.3%
65 - 74	0.0%	50 - 59	0.0%	100 - 119	22.8%
75 - 84	0.0%	60 - 69	0.0%	120 - 139	5.3%
85 - 94	0.0%	70 - 79	0.0%	140 - 159	7.0%
95 - 104	0.0%	80 - 89	50.0%	160 - 179	0.0%
105 - 114	0.0%	90 - 99	0.0%	180 - 199	1.8%
115 - 124	0.0%	100 - 109	0.0%	200 - 219	0.0%
125 - 134	0.0%	110 - 119	0.0%	220 - 239	0.0%
135 - 144	0.0%	> 119	0.0%	> 239	0.0%
145 - 154	0.0%	(Cases) N=	2	(Cases) N=	57
155 - 164	0.0%	mean	64	mean	89
165 - 174	0.0%	min size (mm)	42	min size (mm)	45
175 - 184	0.0%	max size (mm)	86	max size (mm)	187
185 - 194	0.0%				
>195	0.0%				
(Cases) N=	1				
mean	28				
min size (mm)	28				
max size (mm)	28				

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Cat Canyon (continued)

<i>Pycnopodia helianthoides</i> <i>purpuratus</i>		<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus</i>	
< 20	0.0%	< 5	0.0%	< 5	0.0%
20 - 39	0.0%	5 - 9	0.5%	5 - 9	0.0%
40 - 59	0.0%	10 - 14	0.0%	10 - 14	3.4%
60 - 79	0.0%	15 - 19	5.0%	15 - 19	16.3%
80 - 99	100.0%	20 - 24	12.4%	20 - 24	42.8%
100 - 119	0.0%	25 - 29	19.3%	25 - 29	25.8%
120 - 139	0.0%	30 - 34	17.9%	30 - 34	9.8%
140 - 159	0.0%	35 - 39	16.5%	35 - 39	1.1%
160 - 179	0.0%	40 - 44	7.3%	40 - 44	0.8%
180 - 199	0.0%	45 - 49	4.1%	45 - 49	0.0%
200 - 219	0.0%	50 - 54	2.8%	50 - 54	0.0%
220 - 239	0.0%	55 - 59	3.7%	55 - 59	0.0%
240 - 259	0.0%	60 - 64	0.9%	60 - 64	0.0%
260 - 279	0.0%	65 - 69	2.8%	65 - 69	0.0%
280 - 299	0.0%	70 - 74	1.4%	70 - 74	0.0%
> 299	0.0%	75 - 79	2.3%	75 - 79	0.0%
(Cases) N=	1	80 - 84	1.8%	> 79	0.0%
mean	82	85 - 89	0.5%	(Cases) N=	264
min size (mm)	82	90 - 94	0.5%	mean	23
max size (mm)	82	95 - 99	0.0%	min size (mm)	10
		100 - 104	0.5%	max size (mm)	43
		105 - 109	0.0%		
		> 109	0.0%		
		(Cases) N=	218		
		mean	37		
		min size (mm)	6		
		max size (mm)	101		
<i>Lytechinus anamesus</i>					
< 5	0.0%				
5 - 9	0.0%				
10 - 14	0.0%				
15 - 19	100.0%				
20 - 24	0.0%				
25 - 29	0.0%				
30 - 34	0.0%				
35 - 39	0.0%				
40 - 44	0.0%				
45 - 49	0.0%				
> 49	0.0%				
(Cases) N=	1				
mean	17				
min size (mm)	17				
max size (mm)	17				

San Miguel Island - Miracle Mile

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2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Miracle Mile (continued)

<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus purpuratus</i>	
< 5	0.0%	< 5	0.0%
5 - 9	0.0%	5 - 9	4.8%
10 - 14	0.6%	10 - 14	9.5%
15 - 19	1.3%	15 - 19	19.0%
20 - 24	0.0%	20 - 24	4.8%
25 - 29	3.2%	25 - 29	4.8%
30 - 34	1.3%	30 - 34	14.3%
35 - 39	0.6%	35 - 39	4.8%
40 - 44	1.3%	40 - 44	4.8%
45 - 49	3.8%	45 - 49	14.3%
50 - 54	1.9%	50 - 54	9.5%
55 - 59	1.9%	55 - 59	0.0%
60 - 64	2.5%	60 - 64	4.8%
65 - 69	1.9%	65 - 69	0.0%
70 - 74	1.9%	70 - 74	4.8%
75 - 79	8.3%	75 - 79	0.0%
80 - 84	11.5%	> 79	0.0%
85 - 89	9.6%	(Cases) N=	21
90 - 94	10.2%	mean	33
95 - 99	9.6%	min size (mm)	8
100 - 104	15.3%	max size (mm)	72
105 - 109	8.3%		
> 109	5.1%		
(Cases) N=	157		
mean	84		
min size (mm)	13		
max size (mm)	136		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Cluster Point

<i>Tethya aurantia</i>		<i>Kelletia kelletii</i>		<i>Lithopoma gibberosa</i>	
<10	0.0%	< 40	0.0%	<10	0.0%
10 - 19	0.0%	40 - 49	0.0%	10 - 19	0.0%
20 - 29	9.1%	50 - 59	0.0%	20 - 29	0.0%
30 - 39	4.5%	60 - 69	0.0%	30 - 39	0.0%
40 - 49	12.1%	70 - 79	0.0%	40 - 49	0.0%
50 - 59	13.6%	80 - 89	0.0%	50 - 59	75.0%
60 - 69	7.6%	90 - 99	16.7%	60 - 69	25.0%
70 - 79	4.5%	100 - 109	46.7%	70 - 79	0.0%
80 - 89	24.2%	110 - 119	36.7%	80 - 89	0.0%
90 - 99	12.1%	120 - 129	0.0%	90 - 99	0.0%
> 99	12.1%	130 - 139	0.0%	100 - 109	0.0%
(Cases) N=	66	140 - 149	0.0%	110 - 119	0.0%
mean	70	> 149	0.0%	> 119	0.0%
min size (mm)	22	(Cases) N=	30	(Cases) N=	4
max size (mm)	118	mean	105	mean	57
		min size (mm)	91	min size (mm)	54
		max size (mm)	118	max size (mm)	62
<i>Haliotis rufescens</i>		<i>Megastraea undosa</i>		<i>Megathura crenulata</i>	
<25	0.0%	<10	0.0%	<10	0.0%
25 - 34	12.5%	10 - 19	0.0%	10 - 19	0.0%
35 - 44	0.0%	20 - 29	0.0%	20 - 29	0.0%
45 - 54	0.0%	30 - 39	0.0%	30 - 39	0.0%
55 - 64	25.0%	40 - 49	0.0%	40 - 49	2.7%
65 - 74	12.5%	50 - 59	0.0%	50 - 59	0.0%
75 - 84	12.5%	60 - 69	0.0%	60 - 69	5.4%
85 - 94	0.0%	70 - 79	0.0%	70 - 79	0.0%
95 - 104	37.5%	80 - 89	0.0%	80 - 89	8.1%
105 - 114	0.0%	90 - 99	66.7%	90 - 99	21.6%
115 - 124	0.0%	100 - 109	0.0%	100 - 109	54.1%
125 - 134	0.0%	110 - 119	0.0%	110 - 119	8.1%
135 - 144	0.0%	> 119	33.3%	> 119	0.0%
145 - 154	0.0%	(Cases) N=	3	(Cases) N=	37
155 - 164	0.0%	mean	106	mean	97
165 - 174	0.0%	min size (mm)	96	min size (mm)	40
175 - 184	0.0%	max size (mm)	125	max size (mm)	117
185 - 194	0.0%				
>195	0.0%				
(Cases) N=	8				
mean	75				
min size (mm)	30				
max size (mm)	103				

Santa Rosa Island - Cluster Point (continued)270

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS
Santa Rosa Island - Cluster Point (continued)

Strongylocentrotus purpuratus

< 5	0.0%
5 - 9	1.0%
10 - 14	0.0%
15 - 19	2.0%
20 - 24	8.8%
25 - 29	20.6%
30 - 34	18.6%
35 - 39	16.7%
40 - 44	15.7%
45 - 49	7.8%
50 - 54	5.9%
55 - 59	2.9%
60 - 64	0.0%
65 - 69	0.0%
70 - 74	0.0%
75 - 79	0.0%
> 79	0.0%
(Cases) N=	102
mean	35
min size (mm)	8
max size (mm)	59

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Trancion Canyon

<i>Tethya aurantia</i>		<i>Megathura crenulata</i>		<i>Patiria miniata</i>	
<10	0.0%	<10	0.0%	<10	0.0%
10 - 19	1.5%	10 - 19	0.0%	10 - 19	0.0%
20 - 29	7.6%	20 - 29	0.0%	20 - 29	0.0%
30 - 39	4.5%	30 - 39	3.8%	30 - 39	4.9%
40 - 49	4.5%	40 - 49	0.0%	40 - 49	16.4%
50 - 59	10.6%	50 - 59	0.0%	50 - 59	21.3%
60 - 69	10.6%	60 - 69	0.0%	60 - 69	31.1%
70 - 79	10.6%	70 - 79	0.0%	70 - 79	24.6%
80 - 89	12.1%	80 - 89	3.8%	80 - 89	1.6%
90 - 99	10.6%	90 - 99	19.2%	90 - 99	0.0%
> 99	27.3%	100 - 109	57.7%	> 99	0.0%
(Cases) N=	66	110 - 119	11.5%	(Cases) N=	61
mean	77	> 119	3.8%	mean	61
min size (mm)	16	(Cases) N=	26	min size (mm)	35
max size (mm)	138	mean	101	max size (mm)	87
		min size (mm)	37		
		max size (mm)	124		
<i>Haliotis rufescens</i>		<i>Crassedoma giganteum</i>		<i>Pisaster giganteus</i>	
<25	0.0%	<10	0.0%	< 20	0.0%
25 - 34	0.0%	10 - 19	0.0%	20 - 39	0.0%
35 - 44	0.0%	20 - 29	10.0%	40 - 59	9.1%
45 - 54	0.0%	30 - 39	7.5%	60 - 79	48.5%
55 - 64	0.0%	40 - 49	15.0%	80 - 99	27.3%
65 - 74	0.0%	50 - 59	20.0%	100 - 119	9.1%
75 - 84	0.0%	60 - 69	22.5%	120 - 139	3.0%
85 - 94	50.0%	70 - 79	7.5%	140 - 159	0.0%
95 - 104	0.0%	80 - 89	5.0%	160 - 179	1.5%
105 - 114	0.0%	90 - 99	0.0%	180 - 199	1.5%
115 - 124	0.0%	100 - 109	7.5%	200 - 219	0.0%
125 - 134	0.0%	110 - 119	2.5%	220 - 239	0.0%
135 - 144	0.0%	120 - 129	0.0%	> 239	0.0%
145 - 154	0.0%	130 - 139	2.5%	(Cases) N=	66
155 - 164	0.0%	> 139	0.0%	mean	82
165 - 174	0.0%	(Cases) N=	40	min size (mm)	55
175 - 184	0.0%	mean	61	max size (mm)	193
185 - 194	0.0%	min size (mm)	24		
>195	50.0%	max size (mm)	130		
(Cases) N=	2				
mean	142				
min size (mm)	85				
max size (mm)	198				

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS
Santa Rosa Island - Trancion Canyon (continued)

<i>Pycnopodia helianthoides</i> <i>purpuratus</i>		<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus</i>	
< 20	0.0%	< 5	0.0%	< 5	0.0%
20 - 39	0.0%	5 - 9	0.0%	5 - 9	0.0%
40 - 59	0.0%	10 - 14	0.5%	10 - 14	1.4%
60 - 79	0.0%	15 - 19	2.7%	15 - 19	1.4%
80 - 99	3.1%	20 - 24	6.4%	20 - 24	4.2%
100 - 119	3.1%	25 - 29	3.7%	25 - 29	8.5%
120 - 139	28.1%	30 - 34	1.6%	30 - 34	2.8%
140 - 159	9.4%	35 - 39	2.7%	35 - 39	5.6%
160 - 179	18.8%	40 - 44	0.0%	40 - 44	8.5%
180 - 199	15.6%	45 - 49	1.6%	45 - 49	11.3%
200 - 219	12.5%	50 - 54	0.5%	50 - 54	12.7%
220 - 239	9.4%	55 - 59	1.1%	55 - 59	25.4%
240 - 259	0.0%	60 - 64	1.6%	60 - 64	12.7%
260 - 279	0.0%	65 - 69	1.1%	65 - 69	2.8%
280 - 299	0.0%	70 - 74	3.7%	70 - 74	1.4%
> 299	0.0%	75 - 79	3.2%	75 - 79	0.0%
(Cases) N=	32	80 - 84	7.4%	> 79	1.4%
mean	166	85 - 89	8.5%	(Cases) N=	71
min size (mm)	92	90 - 94	12.8%	mean	49
max size (mm)	235	95 - 99	9.0%	min size (mm)	14
		100 - 104	12.8%	max size (mm)	82
		105 - 109	8.0%		
		> 109	11.2%		
		(Cases) N=	188		
		mean	82		
		min size (mm)	12		
		max size (mm)	128		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Chickasaw

<i>Tethya aurantia</i>		<i>Megathura crenulata</i>		<i>Patiria miniata</i>	
<10	0.0%	<10	0.0%	<10	0.0%
10 - 19	0.0%	10 - 19	0.0%	10 - 19	0.0%
20 - 29	1.6%	20 - 29	0.0%	20 - 29	4.8%
30 - 39	0.0%	30 - 39	0.0%	30 - 39	4.8%
40 - 49	6.5%	40 - 49	0.0%	40 - 49	8.1%
50 - 59	4.8%	50 - 59	0.0%	50 - 59	19.4%
60 - 69	12.9%	60 - 69	0.0%	60 - 69	43.5%
70 - 79	16.1%	70 - 79	14.3%	70 - 79	14.5%
80 - 89	12.9%	80 - 89	7.1%	80 - 89	3.2%
90 - 99	16.1%	90 - 99	0.0%	90 - 99	1.6%
> 99	29.0%	100 - 109	42.9%	> 99	0.0%
(Cases) N=	62	110 - 119	35.7%	(Cases) N=	62
mean	86	> 119	0.0%	mean	60
min size (mm)	25	(Cases) N=	14	min size (mm)	27
max size (mm)	129	mean	102	max size (mm)	90
		min size (mm)	73		
		max size (mm)	114		
<i>Haliotis rufescens</i>		<i>Crassidoma giganteum</i>		<i>Pisaster giganteus</i>	
<25	0.0%	<10	0.0%	< 20	0.0%
25 - 34	0.0%	10 - 19	0.0%	20 - 39	3.3%
35 - 44	0.0%	20 - 29	0.0%	40 - 59	6.6%
45 - 54	0.0%	30 - 39	0.0%	60 - 79	27.9%
55 - 64	2.7%	40 - 49	20.0%	80 - 99	31.1%
65 - 74	2.7%	50 - 59	20.0%	100 - 119	13.1%
75 - 84	2.7%	60 - 69	0.0%	120 - 139	14.8%
85 - 94	0.0%	70 - 79	20.0%	140 - 159	1.6%
95 - 104	2.7%	80 - 89	0.0%	160 - 179	0.0%
105 - 114	2.7%	90 - 99	0.0%	180 - 199	1.6%
115 - 124	13.5%	100 - 109	40.0%	200 - 219	0.0%
125 - 134	5.4%	110 - 119	0.0%	220 - 239	0.0%
135 - 144	2.7%	120 - 129	0.0%	> 239	0.0%
145 - 154	0.0%	130 - 139	0.0%	(Cases) N=	61
155 - 164	5.4%	> 139	0.0%	mean	91
165 - 174	2.7%	(Cases) N=	5	min size (mm)	30
175 - 184	2.7%	mean	75	max size (mm)	180
185 - 194	18.9%	min size (mm)	42		
>195	32.4%	max size (mm)	103		
(Cases) N=	37				
mean	164				
min size (mm)	60				
max size (mm)	214				

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS
Santa Rosa Island - Chickasaw (continued)

<i>Pycnopodia helianthoides</i> <i>purpuratus</i>		<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus</i>	
< 20	0.0%	< 5	0.0%	< 5	0.0%
20 - 39	0.0%	5 - 9	0.0%	5 - 9	0.0%
40 - 59	0.0%	10 - 14	0.3%	10 - 14	2.7%
60 - 79	0.0%	15 - 19	0.7%	15 - 19	8.1%
80 - 99	1.7%	20 - 24	2.1%	20 - 24	8.1%
100 - 119	3.3%	25 - 29	1.7%	25 - 29	16.2%
120 - 139	15.0%	30 - 34	1.7%	30 - 34	29.7%
140 - 159	16.7%	35 - 39	1.7%	35 - 39	16.2%
160 - 179	21.7%	40 - 44	1.7%	40 - 44	8.1%
180 - 199	11.7%	45 - 49	2.1%	45 - 49	0.0%
200 - 219	8.3%	50 - 54	2.4%	50 - 54	2.7%
220 - 239	11.7%	55 - 59	1.0%	55 - 59	5.4%
240 - 259	8.3%	60 - 64	2.1%	60 - 64	2.7%
260 - 279	0.0%	65 - 69	4.5%	65 - 69	0.0%
280 - 299	1.7%	70 - 74	4.5%	70 - 74	0.0%
> 299	0.0%	75 - 79	5.9%	75 - 79	0.0%
(Cases) N=	60	80 - 84	8.7%	> 79	0.0%
mean	176	85 - 89	9.7%	(Cases) N=	37
min size (mm)	90	90 - 94	15.6%	mean	33
max size (mm)	280	95 - 99	12.1%	min size (mm)	13
		100 - 104	9.0%	max size (mm)	62
		105 - 109	5.9%		
		> 109	6.6%		
		(Cases) N=	289		
		mean	82		
		min size (mm)	14		
		max size (mm)	120		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - South Point

<i>Haliotis rufescens</i>		<i>Megastraea undosa</i>		<i>Patiria miniata</i>	
<25	0.0%	<10	0.0%	<10	0.0%
25 - 34	1.7%	10 - 19	0.0%	10 - 19	0.0%
35 - 44	0.0%	20 - 29	0.0%	20 - 29	1.7%
45 - 54	1.7%	30 - 39	0.0%	30 - 39	0.0%
55 - 64	0.0%	40 - 49	0.0%	40 - 49	5.0%
65 - 74	0.0%	50 - 59	0.0%	50 - 59	16.7%
75 - 84	0.0%	60 - 69	0.0%	60 - 69	36.7%
85 - 94	0.0%	70 - 79	0.0%	70 - 79	30.0%
95 - 104	3.4%	80 - 89	0.0%	80 - 89	8.3%
105 - 114	1.7%	90 - 99	0.0%	90 - 99	1.7%
115 - 124	0.0%	100 - 109	0.0%	> 99	0.0%
125 - 134	0.0%	110 - 119	50.0%	(Cases) N=	60
135 - 144	8.6%	> 119	50.0%	mean	66
145 - 154	0.0%	(Cases) N=	2	min size (mm)	24
155 - 164	5.2%	mean	117	max size (mm)	94
165 - 174	13.8%	min size (mm)	114		
175 - 184	22.4%	max size (mm)	120		
				<i>Pisaster giganteus</i>	
185 - 194	19.0%			< 20	0.0%
				20 - 39	0.0%
>195	19.0%				
(Cases) N=	58	<i>Crassidoma giganteum</i>		40 - 59	2.0%
mean	173	<10	0.0%	60 - 79	14.3%
min size (mm)	25	10 - 19	0.0%	80 - 99	42.9%
max size (mm)	225	20 - 29	20.0%	100 - 119	22.4%
		30 - 39	0.0%	120 - 139	10.2%
		40 - 49	0.0%	140 - 159	6.1%
		50 - 59	0.0%	160 - 179	0.0%
		60 - 69	40.0%	180 - 199	2.0%
		70 - 79	0.0%	200 - 219	0.0%
		80 - 89	0.0%	220 - 239	0.0%
		90 - 99	20.0%	> 239	0.0%
		100 - 109	20.0%	(Cases) N=	49
		110 - 119	0.0%	mean	101
		120 - 129	0.0%	min size (mm)	52
		130 - 139	0.0%	max size (mm)	197
		> 139	0.0%		
		(Cases) N=	5		
		mean	70		
		min size (mm)	26		
		max size (mm)	103		
				<i>Kelletia kelletii</i>	
< 40	0.0%			< 40	0.0%
40 - 49	0.0%			40 - 49	0.0%
50 - 59	0.0%			50 - 59	0.0%
60 - 69	0.0%			60 - 69	0.0%
70 - 79	0.0%			70 - 79	0.0%
80 - 89	0.0%			80 - 89	0.0%
90 - 99	0.0%			90 - 99	0.0%
100 - 109	66.7%			100 - 109	66.7%
110 - 119	33.3%			110 - 119	33.3%
120 - 129	0.0%			120 - 129	0.0%
130 - 139	0.0%			130 - 139	0.0%
140 - 149	0.0%			140 - 149	0.0%
> 149	0.0%			> 149	0.0%
(Cases) N=	3			(Cases) N=	3
mean	109			mean	109
min size (mm)	108			min size (mm)	108
max size (mm)	111			max size (mm)	111

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS
Santa Rosa Island - South Point (continued)

<i>Pycnopodia helianthoides</i> <i>purpuratus</i>		<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus</i>	
< 20	0.0%	< 5	0.0%	< 5	0.0%
20 - 39	0.0%	5 - 9	0.4%	5 - 9	2.9%
40 - 59	4.9%	10 - 14	3.9%	10 - 14	8.8%
60 - 79	2.4%	15 - 19	2.0%	15 - 19	6.9%
80 - 99	2.4%	20 - 24	1.6%	20 - 24	10.8%
100 - 119	12.2%	25 - 29	2.0%	25 - 29	9.8%
120 - 139	26.8%	30 - 34	4.3%	30 - 34	15.7%
140 - 159	24.4%	35 - 39	2.7%	35 - 39	5.9%
160 - 179	14.6%	40 - 44	2.4%	40 - 44	14.7%
180 - 199	9.8%	45 - 49	2.0%	45 - 49	8.8%
200 - 219	0.0%	50 - 54	0.4%	50 - 54	6.9%
220 - 239	0.0%	55 - 59	2.0%	55 - 59	5.9%
240 - 259	2.4%	60 - 64	2.4%	60 - 64	2.0%
260 - 279	0.0%	65 - 69	1.2%	65 - 69	1.0%
280 - 299	0.0%	70 - 74	2.7%	70 - 74	0.0%
> 299	0.0%	75 - 79	3.1%	75 - 79	0.0%
(Cases) N=	41	80 - 84	2.7%	> 79	0.0%
mean	139	85 - 89	3.5%	(Cases) N=	102
min size (mm)	43	90 - 94	7.1%	mean	34
max size (mm)	240	95 - 99	9.8%	min size (mm)	7
		100 - 104	18.0%	max size (mm)	65
		105 - 109	12.9%		
		> 109	12.9%		
		(Cases) N=	255		
		mean	82		
		min size (mm)	9		
		max size (mm)	127		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Devil's Peak Member

<i>Tethya aurantia</i>		<i>Megathura crenulata</i>		<i>Patiria miniata</i>	
<10	0.0%	<10	0.0%	<10	0.0%
10 - 19	0.0%	10 - 19	0.0%	10 - 19	0.0%
20 - 29	0.0%	20 - 29	0.0%	20 - 29	0.0%
30 - 39	0.0%	30 - 39	0.0%	30 - 39	4.6%
40 - 49	25.0%	40 - 49	0.0%	40 - 49	3.1%
50 - 59	25.0%	50 - 59	1.1%	50 - 59	27.7%
60 - 69	25.0%	60 - 69	19.5%	60 - 69	23.1%
70 - 79	25.0%	70 - 79	41.4%	70 - 79	32.3%
80 - 89	0.0%	80 - 89	37.9%	80 - 89	6.2%
90 - 99	0.0%	90 - 99	0.0%	90 - 99	3.1%
> 99	0.0%	100 - 109	0.0%	> 99	0.0%
(Cases) N=	4	110 - 119	0.0%	(Cases) N=	65
mean	59	> 119	0.0%	mean	64
min size (mm)	47	(Cases) N=	87	min size (mm)	31
max size (mm)	73	mean	75	max size (mm)	92
		min size (mm)	57		
		max size (mm)	89		
<i>Megastraea undosa</i>		<i>Crassedoma giganteum</i>		<i>Pisaster giganteus</i>	
<10	4.3%	<10	0.0%	< 20	0.0%
10 - 19	4.3%	10 - 19	0.0%	20 - 39	0.0%
20 - 29	8.7%	20 - 29	1.5%	40 - 59	0.0%
30 - 39	4.3%	30 - 39	0.0%	60 - 79	3.0%
40 - 49	8.7%	40 - 49	9.0%	80 - 99	45.5%
50 - 59	4.3%	50 - 59	7.5%	100 - 119	27.3%
60 - 69	4.3%	60 - 69	13.4%	120 - 139	15.2%
70 - 79	13.0%	70 - 79	10.4%	140 - 159	1.5%
80 - 89	47.8%	80 - 89	10.4%	160 - 179	3.0%
90 - 99	0.0%	90 - 99	17.9%	180 - 199	0.0%
100 - 109	0.0%	100 - 109	10.4%	200 - 219	4.5%
110 - 119	0.0%	110 - 119	6.0%	220 - 239	0.0%
> 119	0.0%	120 - 129	9.0%	> 239	0.0%
(Cases) N=	23	130 - 139	4.5%	(Cases) N=	66
mean	63	> 139	0.0%	mean	110
min size (mm)	8	(Cases) N=	67	min size (mm)	71
max size (mm)	87	mean	85	max size (mm)	215
		min size (mm)	22		
		max size (mm)	139		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Devil's Peak Member (continued)

<i>Pycnopodia helianthoides</i> <i>purpuratus</i>		<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus</i>	
< 20	0.0%	< 5	0.5%	< 5	0.0%
20 - 39	0.0%	5 - 9	0.5%	5 - 9	0.0%
40 - 59	0.0%	10 - 14	1.9%	10 - 14	3.5%
60 - 79	0.0%	15 - 19	2.4%	15 - 19	4.4%
80 - 99	0.0%	20 - 24	5.8%	20 - 24	20.1%
100 - 119	0.0%	25 - 29	5.3%	25 - 29	50.7%
120 - 139	0.0%	30 - 34	7.2%	30 - 34	18.8%
140 - 159	0.0%	35 - 39	12.6%	35 - 39	2.6%
160 - 179	0.0%	40 - 44	17.4%	40 - 44	0.0%
180 - 199	0.0%	45 - 49	17.9%	45 - 49	0.0%
200 - 219	0.0%	50 - 54	20.3%	50 - 54	0.0%
220 - 239	100.0%	55 - 59	4.8%	55 - 59	0.0%
240 - 259	0.0%	60 - 64	2.9%	60 - 64	0.0%
260 - 279	0.0%	65 - 69	0.5%	65 - 69	0.0%
280 - 299	0.0%	70 - 74	0.0%	70 - 74	0.0%
> 299	0.0%	75 - 79	0.0%	75 - 79	0.0%
(Cases) N=	2	80 - 84	0.0%	> 79	0.0%
mean	228	85 - 89	0.0%	(Cases) N=	229
min size (mm)	220	90 - 94	0.0%	mean	26
max size (mm)	235	95 - 99	0.0%	min size (mm)	11
		100 - 104	0.0%	max size (mm)	39
		105 - 109	0.0%		
		> 109	0.0%		
		(Cases) N=	207		
		mean	42		
		min size (mm)	3		
		max size (mm)	66		
<i>Lytechinus anamesus</i>					
< 5	0.0%				
5 - 9	6.6%				
10 - 14	43.4%				
15 - 19	43.4%				
20 - 24	6.6%				
25 - 29	0.0%				
30 - 34	0.0%				
35 - 39	0.0%				
40 - 44	0.0%				
45 - 49	0.0%				
> 49	0.0%				
(Cases) N=	76				
mean	14				
min size (mm)	7				
max size (mm)	20				

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Potato Pasture

<i>Tethya aurantia</i>		<i>Megastraea undosa</i>		<i>Crassedoma giganteum</i>	
<10	0.0%	<10	0.0%	<10	0.0%
10 - 19	2.4%	10 - 19	0.0%	10 - 19	0.0%
20 - 29	9.5%	20 - 29	15.8%	20 - 29	0.8%
30 - 39	11.9%	30 - 39	47.4%	30 - 39	2.3%
40 - 49	9.5%	40 - 49	15.8%	40 - 49	11.4%
50 - 59	33.3%	50 - 59	13.2%	50 - 59	6.1%
60 - 69	14.3%	60 - 69	2.6%	60 - 69	9.1%
70 - 79	16.7%	70 - 79	0.0%	70 - 79	7.6%
80 - 89	2.4%	80 - 89	2.6%	80 - 89	14.4%
90 - 99	0.0%	90 - 99	2.6%	90 - 99	14.4%
> 99	0.0%	100 - 109	0.0%	100 - 109	9.1%
(Cases) N=	42	110 - 119	0.0%	110 - 119	12.1%
mean	52	> 119	0.0%	120 - 129	6.8%
min size (mm)	18	(Cases) N=	38	130 - 139	3.8%
max size (mm)	82	mean	41	> 139	2.3%
		min size (mm)	24	(Cases) N=	132
		max size (mm)	91	mean	87
				mean	87
				min size (mm)	26
				max size (mm)	173
<i>Kelletia kelletii</i>		<i>Megathura crenulata</i>		<i>Patiria miniata</i>	
< 40	0.0%	<10	0.0%	<10	0.0%
40 - 49	33.3%	10 - 19	0.0%	10 - 19	0.0%
50 - 59	33.3%	20 - 29	0.0%	20 - 29	6.7%
60 - 69	0.0%	30 - 39	2.0%	30 - 39	6.7%
70 - 79	0.0%	40 - 49	8.0%	40 - 49	11.7%
80 - 89	33.3%	50 - 59	8.0%	50 - 59	40.0%
90 - 99	0.0%	60 - 69	22.0%	60 - 69	26.7%
100 - 109	0.0%	70 - 79	26.0%	70 - 79	6.7%
110 - 119	0.0%	80 - 89	28.0%	80 - 89	1.7%
120 - 129	0.0%	90 - 99	6.0%	90 - 99	0.0%
130 - 139	0.0%	100 - 109	0.0%	> 99	0.0%
140 - 149	0.0%	110 - 119	0.0%	(Cases) N=	60
> 149	0.0%	> 119	0.0%	mean	55
(Cases) N=	3	(Cases) N=	50	min size (mm)	20
mean	62	mean	71	max size (mm)	83
min size (mm)	49	min size (mm)	38		
max size (mm)	84	max size (mm)	93		

<i>Pisaster giganteus</i>		<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus purpuratus</i>	
< 20	0.0%	< 5	0.0%	< 5	0.0%
20 - 39	0.0%	5 - 9	0.5%	5 - 9	0.0%
40 - 59	0.0%	10 - 14	0.0%	10 - 14	0.0%
60 - 79	0.0%	15 - 19	0.0%	15 - 19	5.4%
80 - 99	2.8%	20 - 24	1.0%	20 - 24	62.0%
100 - 119	11.1%	25 - 29	1.5%	25 - 29	27.8%
120 - 139	27.8%	30 - 34	4.9%	30 - 34	4.4%
140 - 159	27.8%	35 - 39	13.2%	35 - 39	0.5%
160 - 179	11.1%	40 - 44	38.7%	40 - 44	0.0%
180 - 199	11.1%	45 - 49	30.4%	45 - 49	0.0%
200 - 219	2.8%	50 - 54	7.4%	50 - 54	0.0%
220 - 239	2.8%	55 - 59	2.5%	55 - 59	0.0%
> 239	2.8%	60 - 64	0.0%	60 - 64	0.0%
(Cases) N=	36	65 - 69	0.0%	65 - 69	0.0%
mean	152	70 - 74	0.0%	70 - 74	0.0%
min size (mm)	95	75 - 79	0.0%	75 - 79	0.0%
max size (mm)	295	80 - 84	0.0%	> 79	0.0%
		85 - 89	0.0%	(Cases) N=	205
<i>Lytechinus anamesus</i>		90 - 94	0.0%	mean	24
		95 - 99	0.0%	min size (mm)	17
< 5	0.0%			max size (mm)	35
		100 - 104	0.0%	max size (mm)	35
5 - 9	0.0%				
		105 - 109	0.0%		
10 - 14	0.9%				
		> 109	0.0%		
15 - 19	8.4%				
		(Cases) N=	204		
20 - 24	72.6%	mean	43		
25 - 29	17.7%	min size (mm)	7		
30 - 34	0.5%	max size (mm)	57		
35 - 39	0.0%				
40 - 44	0.0%				
45 - 49	0.0%				
> 49	0.0%				
(Cases) N=	215				
mean	22				
min size (mm)	14				
max size (mm)	32				

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Cavern Point

<i>Tethya aurantia</i>		<i>Megathura crenulata</i>		<i>Patiria miniata</i>	
<10	0.0%	<10	0.0%	<10	0.0%
10 - 19	4.9%	10 - 19	0.0%	10 - 19	0.0%
20 - 29	12.2%	20 - 29	0.0%	20 - 29	0.0%
30 - 39	14.6%	30 - 39	1.4%	30 - 39	1.6%
40 - 49	17.1%	40 - 49	0.0%	40 - 49	4.9%
50 - 59	19.5%	50 - 59	4.2%	50 - 59	24.6%
60 - 69	17.1%	60 - 69	12.5%	60 - 69	26.2%
70 - 79	7.3%	70 - 79	25.0%	70 - 79	31.1%
80 - 89	4.9%	80 - 89	34.7%	80 - 89	9.8%
90 - 99	2.4%	90 - 99	19.4%	90 - 99	1.6%
> 99	0.0%	100 - 109	1.4%	> 99	0.0%
(Cases) N=	41	110 - 119	1.4%	(Cases) N=	61
mean	50	> 119	0.0%	mean	66
min size (mm)	17	(Cases) N=	72	min size (mm)	39
max size (mm)	93	mean	80	max size (mm)	95
		min size (mm)	35		
		max size (mm)	110		
<i>Megastraea undosa</i>		<i>Crassedoma giganteum</i>		<i>Pisaster giganteus</i>	
<10	0.0%	<10	0.8%	< 20	0.0%
10 - 19	5.6%	10 - 19	0.0%	20 - 39	0.0%
20 - 29	38.9%	20 - 29	0.8%	40 - 59	3.4%
30 - 39	16.7%	30 - 39	3.3%	60 - 79	6.9%
40 - 49	11.1%	40 - 49	5.0%	80 - 99	3.4%
50 - 59	0.0%	50 - 59	9.1%	100 - 119	13.8%
60 - 69	0.0%	60 - 69	10.7%	120 - 139	37.9%
70 - 79	11.1%	70 - 79	6.6%	140 - 159	27.6%
80 - 89	11.1%	80 - 89	15.7%	160 - 179	3.4%
90 - 99	0.0%	90 - 99	14.9%	180 - 199	0.0%
100 - 109	5.6%	100 - 109	14.0%	200 - 219	3.4%
110 - 119	0.0%	110 - 119	8.3%	220 - 239	0.0%
> 119	0.0%	120 - 129	2.5%	> 239	0.0%
(Cases) N=	18	130 - 139	3.3%	(Cases) N=	29
mean	45	> 139	5.0%	mean	127
min size (mm)	18	(Cases) N=	121	min size (mm)	48
max size (mm)	101	mean	87	max size (mm)	211
		min size (mm)	9		
		max size (mm)	157		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS
Santa Cruz Island - Cavern Point (continued)

<i>Lytechinus anamesus</i> <i>purpuratus</i>		<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus</i>	
< 5	0.0%	< 5	0.0%	< 5	0.0%
5 - 9	0.0%	5 - 9	0.0%	5 - 9	0.3%
10 - 14	50.0%	10 - 14	0.0%	10 - 14	0.0%
15 - 19	50.0%	15 - 19	1.3%	15 - 19	3.1%
20 - 24	0.0%	20 - 24	1.3%	20 - 24	48.4%
25 - 29	0.0%	25 - 29	2.2%	25 - 29	41.5%
30 - 34	0.0%	30 - 34	9.5%	30 - 34	6.6%
35 - 39	0.0%	35 - 39	36.4%	35 - 39	0.0%
40 - 44	0.0%	40 - 44	28.6%	40 - 44	0.0%
45 - 49	0.0%	45 - 49	16.5%	45 - 49	0.0%
> 49	0.0%	50 - 54	1.7%	50 - 54	0.0%
(Cases) N=	8	55 - 59	1.7%	55 - 59	0.0%
mean	14	60 - 64	0.4%	60 - 64	0.0%
min size (mm)	10	65 - 69	0.4%	65 - 69	0.0%
max size (mm)	17	70 - 74	0.0%	70 - 74	0.0%
		75 - 79	0.0%	75 - 79	0.0%
		80 - 84	0.0%	> 79	0.0%
		85 - 89	0.0%	(Cases) N=	287
		90 - 94	0.0%	mean	25
		95 - 99	0.0%	min size (mm)	5
		100 - 104	0.0%	max size (mm)	34
		105 - 109	0.0%		
		> 109	0.0%		
		(Cases) N=	231		
		mean	40		
		min size (mm)	18		
		max size (mm)	65		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Little Scorpion

<i>Kelletia kelletii</i>		<i>Megathura crenulata</i>		<i>Pisaster giganteus</i>	
< 40	0.0%	<10	0.0%	< 20	0.0%
40 - 49	0.0%	10 - 19	0.0%	20 - 39	4.0%
50 - 59	0.0%	20 - 29	0.0%	40 - 59	4.0%
60 - 69	0.0%	30 - 39	1.3%	60 - 79	8.0%
70 - 79	0.0%	40 - 49	2.6%	80 - 99	4.0%
80 - 89	4.9%	50 - 59	10.4%	100 - 119	32.0%
90 - 99	19.5%	60 - 69	28.6%	120 - 139	12.0%
100 - 109	29.3%	70 - 79	40.3%	140 - 159	36.0%
110 - 119	26.8%	80 - 89	11.7%	160 - 179	0.0%
120 - 129	17.1%	90 - 99	5.2%	180 - 199	0.0%
130 - 139	2.4%	100 - 109	0.0%	200 - 219	0.0%
140 - 149	0.0%	110 - 119	0.0%	220 - 239	0.0%
> 149	0.0%	> 119	0.0%	> 239	0.0%
(Cases) N=	41	(Cases) N=	77	(Cases) N=	25
mean	109	mean	70	mean	118
min size (mm)	85	min size (mm)	37	min size (mm)	37
max size (mm)	135	max size (mm)	99	max size (mm)	159

<i>Megastraea undosa</i>		<i>Crassedoma giganteum</i>		<i>Lytechinus anamesus</i>	
<10	0.0%	<10	0.0%	< 5	0.0%
10 - 19	0.0%	10 - 19	0.0%	5 - 9	0.0%
20 - 29	0.0%	20 - 29	0.0%	10 - 14	0.0%
30 - 39	0.0%	30 - 39	6.0%	15 - 19	39.1%
40 - 49	0.0%	40 - 49	14.0%	20 - 24	60.9%
50 - 59	9.1%	50 - 59	10.0%	25 - 29	0.0%
60 - 69	0.0%	60 - 69	22.0%	30 - 34	0.0%
70 - 79	45.5%	70 - 79	8.0%	35 - 39	0.0%
80 - 89	9.1%	80 - 89	16.0%	40 - 44	0.0%
90 - 99	18.2%	90 - 99	8.0%	45 - 49	0.0%
100 - 109	18.2%	100 - 109	6.0%	> 49	0.0%
110 - 119	0.0%	110 - 119	8.0%	(Cases) N=	23
> 119	0.0%	120 - 129	0.0%	mean	20
(Cases) N=	11	130 - 139	2.0%	min size (mm)	15
mean	83	> 139	0.0%	max size (mm)	24
min size (mm)	59	(Cases) N=	50		
max size (mm)	107	mean	73		
		min size (mm)	33		
		max size (mm)	135		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS
Santa Cruz Island - Little Scorpion (continued)

<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus purpuratus</i>	
< 5	0.0%	< 5	0.0%
5 - 9	0.0%	5 - 9	0.0%
10 - 14	0.0%	10 - 14	0.0%
15 - 19	0.0%	15 - 19	0.0%
20 - 24	0.0%	20 - 24	0.0%
25 - 29	0.0%	25 - 29	0.5%
30 - 34	0.0%	30 - 34	5.8%
35 - 39	1.5%	35 - 39	13.1%
40 - 44	2.5%	40 - 44	30.1%
45 - 49	4.5%	45 - 49	18.4%
50 - 54	11.9%	50 - 54	18.9%
55 - 59	13.4%	55 - 59	8.7%
60 - 64	15.4%	60 - 64	2.9%
65 - 69	11.9%	65 - 69	1.5%
70 - 74	13.9%	70 - 74	0.0%
75 - 79	11.4%	75 - 79	0.0%
80 - 84	7.0%	> 79	0.0%
85 - 89	4.5%	(Cases) N=	206
90 - 94	2.0%	mean	46
95 - 99	0.0%	min size (mm)	28
100 - 104	0.0%	max size (mm)	67
105 - 109	0.0%		
> 109	0.0%		
(Cases) N=	201		
mean	65		
min size (mm)	35		
max size (mm)	92		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pedro Reef

<i>Tethya aurantia</i>		<i>Megastraea undosa</i>		<i>Crassedoma giganteum</i>	
<10	0.0%	<10	0.0%	<10	0.0%
10 - 19	12.8%	10 - 19	2.2%	10 - 19	1.3%
20 - 29	12.8%	20 - 29	28.3%	20 - 29	2.6%
30 - 39	12.8%	30 - 39	53.3%	30 - 39	5.1%
40 - 49	17.4%	40 - 49	3.3%	40 - 49	12.8%
50 - 59	24.4%	50 - 59	1.1%	50 - 59	15.4%
60 - 69	11.6%	60 - 69	1.1%	60 - 69	7.7%
70 - 79	7.0%	70 - 79	5.4%	70 - 79	6.4%
80 - 89	0.0%	80 - 89	5.4%	80 - 89	10.3%
90 - 99	1.2%	90 - 99	0.0%	90 - 99	15.4%
> 99	0.0%	100 - 109	0.0%	100 - 109	2.6%
(Cases) N=	86	110 - 119	0.0%	110 - 119	2.6%
mean	44	> 119	0.0%	120 - 129	9.0%
min size (mm)	10	(Cases) N=	92	130 - 139	6.4%
max size (mm)	96	mean	37	> 139	2.6%
		min size (mm)	15	(Cases) N=	78
		max size (mm)	88	mean	79
				mean	79
				min size (mm)	17
				max size (mm)	153
<i>Kelletia kelletii</i>		<i>Megathura crenulata</i>		<i>Patiria miniata</i>	
< 40	1.0%	<10	0.0%	<10	0.0%
40 - 49	1.0%	10 - 19	0.0%	10 - 19	0.0%
50 - 59	0.0%	20 - 29	0.0%	20 - 29	3.4%
60 - 69	0.0%	30 - 39	0.0%	30 - 39	5.1%
70 - 79	7.8%	40 - 49	5.7%	40 - 49	3.4%
80 - 89	17.5%	50 - 59	14.3%	50 - 59	15.3%
90 - 99	26.2%	60 - 69	31.4%	60 - 69	30.5%
100 - 109	33.0%	70 - 79	42.9%	70 - 79	28.8%
110 - 119	10.7%	80 - 89	5.7%	80 - 89	13.6%
120 - 129	1.9%	90 - 99	0.0%	90 - 99	0.0%
130 - 139	1.0%	100 - 109	0.0%	> 99	0.0%
140 - 149	0.0%	110 - 119	0.0%	(Cases) N=	59
> 149	0.0%	> 119	0.0%	mean	65
(Cases) N=	103	(Cases) N=	35	min size (mm)	25
mean	96	mean	67	max size (mm)	89
min size (mm)	30	min size (mm)	45		
max size (mm)	131	max size (mm)	82		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pedro Reef (continued)

<i>Pisaster giganteus</i>		<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus purpuratus</i>	
< 20	0.0%	< 5	0.0%	< 5	0.0%
20 - 39	0.0%	5 - 9	1.8%	5 - 9	1.9%
40 - 59	0.0%	10 - 14	1.3%	10 - 14	2.3%
60 - 79	5.9%	15 - 19	3.9%	15 - 19	27.2%
80 - 99	41.2%	20 - 24	4.4%	20 - 24	40.1%
100 - 119	29.4%	25 - 29	9.2%	25 - 29	24.1%
120 - 139	17.6%	30 - 34	19.7%	30 - 34	4.3%
140 - 159	0.0%	35 - 39	30.7%	35 - 39	0.0%
160 - 179	5.9%	40 - 44	19.3%	40 - 44	0.0%
180 - 199	0.0%	45 - 49	5.7%	45 - 49	0.0%
200 - 219	0.0%	50 - 54	2.2%	50 - 54	0.0%
220 - 239	0.0%	55 - 59	1.3%	55 - 59	0.0%
> 239	0.0%	60 - 64	0.4%	60 - 64	0.0%
(Cases) N=	17	65 - 69	0.0%	65 - 69	0.0%
mean	108	70 - 74	0.0%	70 - 74	0.0%
min size (mm)	77	75 - 79	0.0%	75 - 79	0.0%
max size (mm)	175	80 - 84	0.0%	> 79	0.0%
		85 - 89	0.0%	(Cases) N=	257
<i>Lytechinus anamesus</i>		90 - 94	0.0%	mean	22
		95 - 99	0.0%	min size (mm)	5
< 5	0.0%			max size (mm)	33
		100 - 104	0.0%	max size (mm)	33
5 - 9	0.0%				
		105 - 109	0.0%		
10 - 14	0.0%				
		> 109	0.0%		
15 - 19	20.0%				
		(Cases) N=	228		
20 - 24	44.3%	mean	35		
25 - 29	32.9%	min size (mm)	6		
30 - 34	2.9%	max size (mm)	62		
35 - 39	0.0%				
40 - 44	0.0%				
45 - 49	0.0%				
> 49	0.0%				
(Cases) N=	70				
mean	23				
min size (mm)	17				
max size (mm)	32				

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Keyhole

<i>Kelletia kelletii</i>		<i>Megathura crenulata</i>		<i>Patiria miniata</i>	
< 40	0.0%	<10	0.0%	<10	0.0%
40 - 49	0.0%	10 - 19	0.0%	10 - 19	1.6%
50 - 59	0.0%	20 - 29	0.0%	20 - 29	7.8%
60 - 69	0.0%	30 - 39	0.0%	30 - 39	6.3%
70 - 79	0.0%	40 - 49	0.0%	40 - 49	12.5%
80 - 89	0.0%	50 - 59	18.2%	50 - 59	29.7%
90 - 99	21.1%	60 - 69	36.4%	60 - 69	29.7%
100 - 109	26.3%	70 - 79	27.3%	70 - 79	12.5%
110 - 119	21.1%	80 - 89	9.1%	80 - 89	0.0%
120 - 129	31.6%	90 - 99	9.1%	90 - 99	0.0%
130 - 139	0.0%	100 - 109	0.0%	> 99	0.0%
140 - 149	0.0%	110 - 119	0.0%	(Cases) N=	64
> 149	0.0%	> 119	0.0%	mean	55
(Cases) N=	19	(Cases) N=	11	min size (mm)	15
mean	111	mean	69	max size (mm)	77
min size (mm)	95	min size (mm)	55		
max size (mm)	127	max size (mm)	90		
<i>Megastrea undosa</i>		<i>Crassedoma giganteum</i>		<i>Pisaster giganteus</i>	
<10	0.0%	<10	0.0%	< 20	0.0%
10 - 19	2.1%	10 - 19	0.0%	20 - 39	0.0%
20 - 29	21.1%	20 - 29	1.4%	40 - 59	0.0%
30 - 39	41.1%	30 - 39	7.1%	60 - 79	0.0%
40 - 49	6.3%	40 - 49	4.3%	80 - 99	0.0%
50 - 59	3.2%	50 - 59	12.9%	100 - 119	0.0%
60 - 69	5.3%	60 - 69	10.0%	120 - 139	11.1%
70 - 79	3.2%	70 - 79	8.6%	140 - 159	11.1%
80 - 89	10.5%	80 - 89	5.7%	160 - 179	11.1%
90 - 99	3.2%	90 - 99	8.6%	180 - 199	11.1%
100 - 109	4.2%	100 - 109	8.6%	200 - 219	11.1%
110 - 119	0.0%	110 - 119	14.3%	220 - 239	11.1%
> 119	0.0%	120 - 129	4.3%	> 239	33.3%
(Cases) N=	95	130 - 139	7.1%	(Cases) N=	9
mean	46	> 139	7.1%	mean	204
min size (mm)	11	(Cases) N=	70	min size (mm)	130
max size (mm)	106	mean	88	max size (mm)	290
		min size (mm)	29		
		max size (mm)	163		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS
Anacapa Island - Keyhole (continued)

<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus purpuratus</i>	
< 5	0.0%	< 5	0.0%
5 - 9	0.9%	5 - 9	3.0%
10 - 14	0.9%	10 - 14	3.0%
15 - 19	0.9%	15 - 19	0.4%
20 - 24	1.8%	20 - 24	3.0%
25 - 29	1.8%	25 - 29	25.2%
30 - 34	3.6%	30 - 34	41.9%
35 - 39	3.6%	35 - 39	16.7%
40 - 44	8.4%	40 - 44	4.7%
45 - 49	11.1%	45 - 49	1.7%
50 - 54	17.8%	50 - 54	0.4%
55 - 59	13.8%	55 - 59	0.0%
60 - 64	12.9%	60 - 64	0.0%
65 - 69	8.9%	65 - 69	0.0%
70 - 74	5.3%	70 - 74	0.0%
75 - 79	4.0%	75 - 79	0.0%
80 - 84	1.8%	> 79	0.0%
85 - 89	1.8%	(Cases) N=	234
90 - 94	0.4%	mean	31
95 - 99	0.0%	min size (mm)	5
100 - 104	0.4%	max size (mm)	51
105 - 109	0.0%		
> 109	0.0%		
(Cases) N=	225		
mean	54		
min size (mm)	8		
max size (mm)	101		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - East Fish Camp

<i>Tethya aurantia</i>		<i>Megastraea undosa</i>		<i>Crassedoma giganteum</i>	
<10	0.0%	<10	0.0%	<10	0.0%
10 - 19	0.0%	10 - 19	3.7%	10 - 19	0.0%
20 - 29	40.0%	20 - 29	25.6%	20 - 29	0.0%
30 - 39	0.0%	30 - 39	29.3%	30 - 39	14.3%
40 - 49	20.0%	40 - 49	8.5%	40 - 49	28.6%
50 - 59	33.3%	50 - 59	6.1%	50 - 59	0.0%
60 - 69	6.7%	60 - 69	1.2%	60 - 69	14.3%
70 - 79	0.0%	70 - 79	12.2%	70 - 79	0.0%
80 - 89	0.0%	80 - 89	11.0%	80 - 89	14.3%
90 - 99	0.0%	90 - 99	2.4%	90 - 99	0.0%
> 99	0.0%	100 - 109	0.0%	100 - 109	0.0%
(Cases) N=	15	110 - 119	0.0%	110 - 119	0.0%
mean	42	> 119	0.0%	120 - 129	28.6%
min size (mm)	22	(Cases) N=	82	130 - 139	0.0%
max size (mm)	63	mean	45	> 139	0.0%
		min size (mm)	12	(Cases) N=	7
		max size (mm)	94	mean	75
				mean	75
				min size (mm)	32
				max size (mm)	127
<i>Kelletia kelletii</i>		<i>Megathura crenulata</i>		<i>Patiria miniata</i>	
< 40	0.0%	<10	0.0%	<10	0.0%
40 - 49	0.0%	10 - 19	0.0%	10 - 19	0.0%
50 - 59	0.0%	20 - 29	0.0%	20 - 29	5.2%
60 - 69	0.0%	30 - 39	0.0%	30 - 39	10.4%
70 - 79	0.0%	40 - 49	9.6%	40 - 49	21.9%
80 - 89	0.0%	50 - 59	12.3%	50 - 59	20.8%
90 - 99	9.7%	60 - 69	37.0%	60 - 69	14.6%
100 - 109	41.9%	70 - 79	37.0%	70 - 79	22.9%
110 - 119	38.7%	80 - 89	4.1%	80 - 89	4.2%
120 - 129	9.7%	90 - 99	0.0%	90 - 99	0.0%
130 - 139	0.0%	100 - 109	0.0%	> 99	0.0%
140 - 149	0.0%	110 - 119	0.0%	(Cases) N=	96
> 149	0.0%	> 119	0.0%	mean	56
(Cases) N=	31	(Cases) N=	73	min size (mm)	22
mean	109	mean	66	max size (mm)	89
min size (mm)	92	min size (mm)	41		
max size (mm)	124	max size (mm)	81		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - East Fish Camp (continued)

<i>Pisaster giganteus</i>		<i>Lytechinus anamesus</i>		<i>Strongylocentrotus franciscanus</i>	
< 20	0.0%	< 5	0.0%	< 5	0.0%
20 - 39	0.0%	5 - 9	0.7%	5 - 9	0.8%
40 - 59	0.0%	10 - 14	3.4%	10 - 14	9.1%
60 - 79	0.0%	15 - 19	6.7%	15 - 19	5.3%
80 - 99	0.0%	20 - 24	49.0%	20 - 24	9.8%
100 - 119	2.9%	25 - 29	39.6%	25 - 29	19.6%
120 - 139	17.1%	30 - 34	0.7%	30 - 34	26.0%
140 - 159	14.3%	35 - 39	0.0%	35 - 39	18.1%
160 - 179	25.7%	40 - 44	0.0%	40 - 44	8.3%
180 - 199	11.4%	45 - 49	0.0%	45 - 49	1.9%
200 - 219	20.0%	> 49	0.0%	50 - 54	0.8%
220 - 239	5.7%	(Cases) N=	149	55 - 59	0.4%
> 239	2.9%	mean	23	60 - 64	0.0%
(Cases) N=	35	min size (mm)	7	65 - 69	0.0%
mean	176	max size (mm)	30	70 - 74	0.0%
min size (mm)	118			75 - 79	0.0%
max size (mm)	270			80 - 84	0.0%
				85 - 89	0.0%
				90 - 94	0.0%
				95 - 99	0.0%
				100 - 104	0.0%
				105 - 109	0.0%
				> 109	0.0%
				(Cases) N=	265
				mean	30
				min size (mm)	9
				max size (mm)	58
<i>Pycnopodia helianthoides</i>					
< 20	0.0%				
20 - 39	0.0%				
40 - 59	0.0%				
60 - 79	0.0%				
80 - 99	0.0%				
100 - 119	0.0%				
120 - 139	0.0%				
140 - 159	0.0%				
160 - 179	0.0%				
180 - 199	0.0%				
200 - 219	100.0%				
220 - 239	0.0%				
240 - 259	0.0%				
260 - 279	0.0%				
280 - 299	0.0%				
> 299	0.0%				
(Cases) N=	1				
mean	210				
min size (mm)	210				
max size (mm)	210				

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS
Anacapa Island - East Fish Camp (continued)

Strongylocentrotus purpuratus

< 5	0.0%
5 - 9	2.1%
10 - 14	9.1%
15 - 19	43.1%
20 - 24	41.3%
25 - 29	4.1%
30 - 34	0.3%
35 - 39	0.0%
40 - 44	0.0%
45 - 49	0.0%
50 - 54	0.0%
55 - 59	0.0%
60 - 64	0.0%
65 - 69	0.0%
70 - 74	0.0%
75 - 79	0.0%
> 79	0.0%
(Cases) N=	341
mean	19
min size (mm)	7
max size (mm)	30

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Black Sea Bass Reef

<i>Tethya aurantia</i>		<i>Patiria miniata</i>		<i>Strongylocentrotus franciscanus</i>	
<10	0.0%	<10	0.0%	< 5	0.0%
10 - 19	0.0%	10 - 19	0.0%	5 - 9	0.5%
20 - 29	50.0%	20 - 29	3.5%	10 - 14	1.4%
30 - 39	0.0%	30 - 39	7.0%	15 - 19	1.4%
40 - 49	0.0%	40 - 49	26.3%	20 - 24	0.5%
50 - 59	50.0%	50 - 59	12.3%	25 - 29	2.8%
60 - 69	0.0%	60 - 69	24.6%	30 - 34	3.7%
70 - 79	0.0%	70 - 79	21.1%	35 - 39	10.7%
80 - 89	0.0%	80 - 89	3.5%	40 - 44	27.9%
90 - 99	0.0%	90 - 99	1.8%	45 - 49	34.9%
> 99	0.0%	> 99	0.0%	50 - 54	11.2%
(Cases) N=	2	(Cases) N=	57	55 - 59	3.7%
mean	40	mean	58	60 - 64	1.4%
min size (mm)	23	min size (mm)	25	65 - 69	0.0%
max size (mm)	56	max size (mm)	90	70 - 74	0.0%
<i>Megathura crenulata</i>		<i>Pisaster giganteus</i>		75 - 79	0.0%
<10	0.0%	< 20	0.0%	80 - 84	0.0%
10 - 19	0.0%	20 - 39	0.0%	85 - 89	0.0%
20 - 29	0.0%	40 - 59	0.0%	90 - 94	0.0%
30 - 39	0.0%	60 - 79	0.0%	95 - 99	0.0%
40 - 49	2.2%	80 - 99	0.0%	100 - 104	0.0%
50 - 59	7.8%	100 - 119	10.0%	105 - 109	0.0%
60 - 69	23.3%	120 - 139	26.7%	> 109	0.0%
70 - 79	55.6%	140 - 159	26.7%	(Cases) N=	215
80 - 89	11.1%	160 - 179	16.7%	mean	43
90 - 99	0.0%	180 - 199	10.0%	min size (mm)	7
100 - 109	0.0%	200 - 219	6.7%	max size (mm)	64
110 - 119	0.0%	220 - 239	0.0%		
> 119	0.0%	> 239	3.3%		
(Cases) N=	90	(Cases) N=	30		
mean	71	mean	155		
min size (mm)	43	min size (mm)	109		
max size (mm)	88	max size (mm)	245		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS
Anacapa Island - Black Sea Bass Reef (continued)

Strongylocentrotus purpuratus

< 5	0.0%
5 - 9	0.0%
10 - 14	0.0%
15 - 19	50.0%
20 - 24	0.0%
25 - 29	25.0%
30 - 34	25.0%
35 - 39	0.0%
40 - 44	0.0%
45 - 49	0.0%
50 - 54	0.0%
55 - 59	0.0%
60 - 64	0.0%
65 - 69	0.0%
70 - 74	0.0%
75 - 79	0.0%
> 79	0.0%
(Cases) N=	4
mean	23
min size (mm)	15
max size (mm)	32

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Lighthouse

<i>Tethya aurantia</i>		<i>Megastraea undosa</i>		<i>Crassedoma giganteum</i>	
<10	0.0%	<10	0.0%	<10	0.0%
10 - 19	2.0%	10 - 19	0.0%	10 - 19	0.0%
20 - 29	7.8%	20 - 29	2.0%	20 - 29	0.0%
30 - 39	7.8%	30 - 39	7.1%	30 - 39	0.0%
40 - 49	21.6%	40 - 49	0.0%	40 - 49	0.0%
50 - 59	37.3%	50 - 59	1.0%	50 - 59	6.3%
60 - 69	13.7%	60 - 69	2.0%	60 - 69	12.5%
70 - 79	9.8%	70 - 79	15.2%	70 - 79	6.3%
80 - 89	0.0%	80 - 89	45.5%	80 - 89	12.5%
90 - 99	0.0%	90 - 99	22.2%	90 - 99	12.5%
> 99	0.0%	100 - 109	5.1%	100 - 109	0.0%
(Cases) N=	51	110 - 119	0.0%	110 - 119	6.3%
mean	51	> 119	0.0%	120 - 129	31.3%
min size (mm)	17	(Cases) N=	99	130 - 139	0.0%
max size (mm)	73	mean	80	> 139	12.5%
		min size (mm)	25	(Cases) N=	16
		max size (mm)	105	mean	103
				mean	103
				min size (mm)	59
				max size (mm)	153
<i>Kelletia kelletii</i>		<i>Megathura crenulata</i>		<i>Patiria miniata</i>	
< 40	0.0%	<10	0.0%	<10	0.0%
40 - 49	0.0%	10 - 19	0.0%	10 - 19	0.9%
50 - 59	0.0%	20 - 29	0.0%	20 - 29	1.9%
60 - 69	0.0%	30 - 39	3.3%	30 - 39	9.3%
70 - 79	0.0%	40 - 49	5.0%	40 - 49	10.3%
80 - 89	11.1%	50 - 59	10.0%	50 - 59	19.6%
90 - 99	5.6%	60 - 69	16.7%	60 - 69	18.7%
100 - 109	11.1%	70 - 79	35.0%	70 - 79	25.2%
110 - 119	44.4%	80 - 89	23.3%	80 - 89	13.1%
120 - 129	22.2%	90 - 99	6.7%	90 - 99	0.9%
130 - 139	5.6%	100 - 109	0.0%	> 99	0.0%
140 - 149	0.0%	110 - 119	0.0%	(Cases) N=	107
> 149	0.0%	> 119	0.0%	mean	62
(Cases) N=	18	(Cases) N=	60	min size (mm)	18
mean	112	mean	71	max size (mm)	98
min size (mm)	86	min size (mm)	33		
max size (mm)	132	max size (mm)	96		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Lighthouse (continued)

<i>Pisaster giganteus</i> <i>purpuratus</i>		<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus</i>	
< 20	0.0%	< 5	0.0%	< 5	5.7%
20 - 39	0.0%	5 - 9	4.8%	5 - 9	20.5%
40 - 59	0.0%	10 - 14	13.3%	10 - 14	23.3%
60 - 79	0.0%	15 - 19	11.9%	15 - 19	3.3%
80 - 99	7.7%	20 - 24	7.1%	20 - 24	4.3%
100 - 119	11.5%	25 - 29	5.2%	25 - 29	2.9%
120 - 139	23.1%	30 - 34	3.8%	30 - 34	0.5%
140 - 159	19.2%	35 - 39	8.6%	35 - 39	2.9%
160 - 179	19.2%	40 - 44	4.8%	40 - 44	7.1%
180 - 199	7.7%	45 - 49	2.9%	45 - 49	14.8%
200 - 219	7.7%	50 - 54	2.4%	50 - 54	11.4%
220 - 239	0.0%	55 - 59	3.8%	55 - 59	2.9%
> 239	3.8%	60 - 64	3.3%	60 - 64	0.5%
(Cases) N=	26	65 - 69	2.4%	65 - 69	0.0%
mean	152	70 - 74	4.3%	70 - 74	0.0%
min size (mm)	82	75 - 79	5.2%	75 - 79	0.0%
max size (mm)	284	80 - 84	3.8%	> 79	0.0%
		85 - 89	6.2%	(Cases) N=	210
		90 - 94	3.8%	mean	25
		95 - 99	0.5%	min size (mm)	2
		100 - 104	1.4%	max size (mm)	60
		105 - 109	0.5%		
		> 109	0.0%		
		(Cases) N=	210		
		mean	43		
		min size (mm)	5		
		max size (mm)	106		

Santa Barbara Island - Webster's Arch

Strongylocentrotus franciscanus

< 5	0.0%
5 - 9	1.5%
10 - 14	0.0%
15 - 19	16.3%
20 - 24	25.1%
25 - 29	10.8%
30 - 34	6.4%
35 - 39	4.9%
40 - 44	9.4%
45 - 49	11.3%
50 - 54	5.9%
55 - 59	3.0%
60 - 64	2.0%
65 - 69	2.0%
70 - 74	0.0%
75 - 79	1.5%
80 - 84	0.0%
80 - 84	0.0%
85 - 89	0.0%

Megathura crenulata

< 20	0.0%
20 - 39	0.0%
40 - 59	0.0%
60 - 79	0.0%
80 - 99	7.7%
100 - 119	53.8%
120 - 139	32.3%
140 - 159	4.6%
160 - 179	1.5%
180 - 199	0.0%
200 - 219	0.0%
220 - 239	0.0%
> 239	0.0%
(Cases) N=	65
mean	117
min size (mm)	82
max size (mm)	171

90 - 94	0.0%
95 - 99	0.0%
100 - 104	0.0%
105 - 109	0.0%
> 109	0.0%
(Cases) N=	203
mean	33
min size (mm)	5
max size (mm)	79

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS
Santa Barbara Island - Webster's Arch (continued)

Strongylocentrotus purpuratus

< 5	0.0%
5 - 9	2.4%
10 - 14	6.1%
15 - 19	44.9%
20 - 24	37.7%
25 - 29	7.7%
30 - 34	1.2%
35 - 39	0.0%
40 - 44	0.0%
45 - 49	0.0%
50 - 54	0.0%
55 - 59	0.0%
60 - 64	0.0%
65 - 69	0.0%
70 - 74	0.0%
75 - 79	0.0%
> 79	0.0%
(Cases) N=	247
mean	19
min size (mm)	7
max size (mm)	32

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Graveyard Canyon

<i>Tethya aurantia</i>		<i>Kelletia kelletii</i>		<i>Megathura crenulata</i>	
<10	0.0%	< 40	0.0%	<10	0.0%
10 - 19	0.0%	40 - 49	0.0%	10 - 19	0.0%
20 - 29	3.9%	50 - 59	0.0%	20 - 29	0.0%
30 - 39	2.0%	60 - 69	0.0%	30 - 39	0.0%
40 - 49	19.6%	70 - 79	0.0%	40 - 49	5.6%
50 - 59	15.7%	80 - 89	0.0%	50 - 59	5.6%
60 - 69	37.3%	90 - 99	0.0%	60 - 69	11.1%
70 - 79	13.7%	100 - 109	0.0%	70 - 79	44.4%
80 - 89	5.9%	110 - 119	0.0%	80 - 89	33.3%
90 - 99	2.0%	120 - 129	33.3%	90 - 99	0.0%
> 99	0.0%	130 - 139	66.7%	100 - 109	0.0%
(Cases) N=	51	140 - 149	0.0%	110 - 119	0.0%
mean	60	> 149	0.0%	> 119	0.0%
min size (mm)	22	(Cases) N=	3	(Cases) N=	18
max size (mm)	95	mean	133	mean	75
		min size (mm)	125	min size (mm)	49
		max size (mm)	138	max size (mm)	88
<i>Cypraea spadicea</i>		<i>Megastraea undosa</i>		<i>Crassedoma giganteum</i>	
<30	0.0%	<10	0.0%	<10	0.0%
30 - 32	0.0%	10 - 19	0.0%	10 - 19	0.0%
33 - 35	0.0%	20 - 29	0.0%	20 - 29	0.0%
36 - 38	9.1%	30 - 39	0.0%	30 - 39	0.0%
39 - 41	27.3%	40 - 49	0.0%	40 - 49	0.0%
42 - 44	27.3%	50 - 59	18.2%	50 - 59	0.0%
45 - 47	18.2%	60 - 69	27.3%	60 - 69	0.0%
48 - 50	9.1%	70 - 79	18.2%	70 - 79	0.0%
51 - 53	9.1%	80 - 89	27.3%	80 - 89	0.0%
54 - 56	0.0%	90 - 99	0.0%	90 - 99	25.0%
>56	0.0%	100 - 109	9.1%	100 - 109	0.0%
(Cases) N=	11	110 - 119	0.0%	110 - 119	25.0%
mean	44	> 119	0.0%	120 - 129	0.0%
min size (mm)	37	(Cases) N=	11	130 - 139	25.0%
max size (mm)	53	mean	73	> 139	25.0%
		min size (mm)	52	(Cases) N=	4
		max size (mm)	108	mean	121
				min size (mm)	98
				max size (mm)	145

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Graveyard Canyon (continued)

<i>Patiria miniata</i>		<i>Pycnopodia helianthoides Strongylocentrotus franciscanus</i>			
<10	0.0%	< 20	0.0%	< 5	0.3%
10 - 19	0.0%	20 - 39	0.0%	5 - 9	8.0%
20 - 29	0.0%	40 - 59	0.0%	10 - 14	5.4%
30 - 39	1.6%	60 - 79	0.0%	15 - 19	7.7%
40 - 49	12.9%	80 - 99	0.0%	20 - 24	20.2%
50 - 59	9.7%	100 - 119	0.0%	25 - 29	12.2%
60 - 69	37.1%	120 - 139	0.0%	30 - 34	10.3%
70 - 79	22.6%	140 - 159	0.0%	35 - 39	3.5%
80 - 89	14.5%	160 - 179	0.0%	40 - 44	7.4%
90 - 99	1.6%	180 - 199	0.0%	45 - 49	3.5%
> 99	0.0%	200 - 219	33.3%	50 - 54	4.8%
(Cases) N=	62	220 - 239	66.7%	55 - 59	5.1%
mean	67	240 - 259	0.0%	60 - 64	2.9%
min size (mm)	31	260 - 279	0.0%	65 - 69	1.6%
max size (mm)	91	280 - 299	0.0%	70 - 74	1.9%
		> 299	0.0%	75 - 79	2.2%
<i>Pisaster giganteus</i>		(Cases) N=	3	80 - 84	1.3%
		mean	218	85 - 89	0.3%
< 20	0.0%	min size (mm)	200	90 - 94	0.6%
20 - 39	0.0%	max size (mm)	230	95 - 99	0.6%
40 - 59	3.3%				
60 - 79	5.0%			100 - 104	0.0%
80 - 99	16.7%	<i>Lytechinus anamesus</i>		105 - 109	0.0%
				> 109	0.0%
100 - 119	50.0%	< 5	0.0%		
				(Cases) N=	312
120 - 139	23.3%	5 - 9	9.1%	mean	34
140 - 159	1.7%	10 - 14	37.9%	min size (mm)	4
160 - 179	0.0%	15 - 19	19.7%	max size (mm)	98
180 - 199	0.0%	20 - 24	18.2%		
200 - 219	0.0%	25 - 29	13.6%		
220 - 239	0.0%	30 - 34	1.5%		
> 239	0.0%	35 - 39	0.0%		
(Cases) N=	60	40 - 44	0.0%		
mean	107	45 - 49	0.0%		
min size (mm)	41	> 49	0.0%		
max size (mm)	149	(Cases) N=	66		
		mean	17		
		min size (mm)	6		
		max size (mm)	31		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS
Santa Barbara Island - Graveyard Canyon (continued)

Strongylocentrotus purpuratus

< 5	0.5%
5 - 9	5.4%
10 - 14	27.4%
15 - 19	50.5%
20 - 24	12.3%
25 - 29	2.5%
30 - 34	0.9%
35 - 39	0.5%
40 - 44	0.0%
45 - 49	0.0%
50 - 54	0.0%
55 - 59	0.0%
60 - 64	0.0%
65 - 69	0.0%
70 - 74	0.0%
75 - 79	0.0%
> 79	0.0%
(Cases) N=	643
mean	16
min size (mm)	4
max size (mm)	35

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Southeast Reef

<i>Tethya aurantia</i>		<i>Megastraea undosa</i>		<i>Crassedoma giganteum</i>	
<10	0.0%	<10	0.0%	<10	0.0%
10 - 19	0.0%	10 - 19	0.0%	10 - 19	0.0%
20 - 29	0.0%	20 - 29	2.8%	20 - 29	0.0%
30 - 39	0.0%	30 - 39	11.1%	30 - 39	0.0%
40 - 49	0.0%	40 - 49	41.7%	40 - 49	0.0%
50 - 59	100.0%	50 - 59	11.1%	50 - 59	0.0%
60 - 69	0.0%	60 - 69	8.3%	60 - 69	0.0%
70 - 79	0.0%	70 - 79	8.3%	70 - 79	0.0%
80 - 89	0.0%	80 - 89	11.1%	80 - 89	0.0%
90 - 99	0.0%	90 - 99	2.8%	90 - 99	0.0%
> 99	0.0%	100 - 109	2.8%	100 - 109	0.0%
(Cases) N=	1	110 - 119	0.0%	110 - 119	100.0%
mean	51	> 119	0.0%	120 - 129	0.0%
min size (mm)	51	(Cases) N=	36	130 - 139	0.0%
max size (mm)	51	mean	56	> 139	0.0%
		min size (mm)	28	(Cases) N=	1
		max size (mm)	106	mean	113
				mean	113
				min size (mm)	113
				max size (mm)	113
<i>Cypraea spadicea</i>		<i>Megathura crenulata</i>		<i>Patiria miniata</i>	
<30	0.0%	<10	0.0%	<10	0.0%
30 - 32	0.0%	10 - 19	0.0%	10 - 19	0.0%
33 - 35	0.0%	20 - 29	0.0%	20 - 29	0.0%
36 - 38	0.0%	30 - 39	0.0%	30 - 39	2.9%
39 - 41	0.0%	40 - 49	50.0%	40 - 49	17.6%
42 - 44	0.0%	50 - 59	0.0%	50 - 59	30.9%
45 - 47	50.0%	60 - 69	0.0%	60 - 69	17.6%
48 - 50	50.0%	70 - 79	0.0%	70 - 79	19.1%
51 - 53	0.0%	80 - 89	0.0%	80 - 89	10.3%
54 - 56	0.0%	90 - 99	0.0%	90 - 99	1.5%
>56	0.0%	100 - 109	0.0%	> 99	0.0%
(Cases) N=	2	110 - 119	50.0%	(Cases) N=	68
mean	48	> 119	0.0%	mean	61
min size (mm)	46	(Cases) N=	2	min size (mm)	31
max size (mm)	50	mean	79	max size (mm)	92
		min size (mm)	42		
		max size (mm)	115		

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Southeast Reef (continued)

<i>Pisaster giganteus</i>		<i>Lytechinus anamesus</i>		<i>Strongylocentrotus franciscanus</i>	
< 20	0.0%	< 5	0.0%	< 5	0.0%
20 - 39	0.0%	5 - 9	9.1%	5 - 9	5.9%
40 - 59	0.0%	10 - 14	81.8%	10 - 14	5.9%
60 - 79	1.5%	15 - 19	9.1%	15 - 19	3.6%
80 - 99	9.1%	20 - 24	0.0%	20 - 24	6.4%
100 - 119	28.8%	25 - 29	0.0%	25 - 29	5.5%
120 - 139	22.7%	30 - 34	0.0%	30 - 34	9.5%
140 - 159	30.3%	35 - 39	0.0%	35 - 39	11.4%
160 - 179	6.1%	40 - 44	0.0%	40 - 44	6.8%
180 - 199	1.5%	45 - 49	0.0%	45 - 49	2.7%
200 - 219	0.0%	> 49	0.0%	50 - 54	3.2%
220 - 239	0.0%	(Cases) N=	11	55 - 59	4.5%
> 239	0.0%	mean	13	60 - 64	6.8%
(Cases) N=	66	min size (mm)	9	65 - 69	8.2%
mean	130	max size (mm)	15	70 - 74	9.1%
min size (mm)	67			75 - 79	5.9%
max size (mm)	185			80 - 84	2.7%
				85 - 89	1.4%
				90 - 94	0.5%
				95 - 99	0.0%
				100 - 104	0.0%
				105 - 109	0.0%
				> 109	0.0%
				(Cases) N=	220
				mean	45
				min size (mm)	6
				max size (mm)	90
<i>Pycnopodia helianthoides</i>					
< 20	0.0%				
20 - 39	0.0%				
40 - 59	0.0%				
60 - 79	0.0%				
80 - 99	0.0%				
100 - 119	0.0%				
120 - 139	0.0%				
140 - 159	0.0%				
160 - 179	0.0%				
180 - 199	0.0%				
200 - 219	0.0%				
220 - 239	100.0%				
240 - 259	0.0%				
260 - 279	0.0%				
280 - 299	0.0%				
> 299	0.0%				
(Cases) N=	1				
mean	230				
min size (mm)	230				
max size (mm)	230				

2005 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS
Santa Barbara Island - Southeast Reef (continued)

Strongylocentrotus purpuratus

< 5	0.0%
5 - 9	2.5%
10 - 14	5.4%
15 - 19	5.4%
20 - 24	21.7%
25 - 29	25.4%
30 - 34	19.2%
35 - 39	17.1%
40 - 44	3.3%
45 - 49	0.0%
50 - 54	0.0%
55 - 59	0.0%
60 - 64	0.0%
65 - 69	0.0%
70 - 74	0.0%
75 - 79	0.0%
> 79	0.0%
(Cases) N=	240
mean	27
min size (mm)	6
max size (mm)	44

Appendix I. *Macrocystis pyrifera* size frequency distributions.

2005 *Macrocystis pyrifera* SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Wyckoff Ledge

Macrocystis pyrifera Ad.(>1m) number of stipes *Macrocystis pyrifera* Ad.(>1m) holdfast diameters

< 3	50.8%	< 6	7.0%
3 - 5	18.0%	6 - 11	40.6%
6 - 8	6.3%	12 - 17	4.7%
9 - 11	3.9%	18 - 23	11.7%
12 - 14	3.1%	24 - 29	5.5%
15 - 17	1.6%	30 - 35	1.6%
18 - 20	3.1%	36 - 41	3.9%
21 - 23	2.3%	42 - 47	0.8%
24 - 26	0.8%	48 - 53	2.3%
27 - 29	0.8%	54 - 59	3.1%
30 - 32	3.1%	60 - 65	3.1%
33 - 35	2.3%	66 - 71	3.9%
36 - 38	2.3%	72 - 77	4.7%
39 - 41	0.0%	78 - 83	1.6%
42 - 44	0.8%	84 - 89	1.6%
> 44	0.8%	> 89	3.9%
(Cases) N=	128	(Cases) N=	128
mean	8	mean	28
min number	1	min width (cm)	4
max number	45	max width (cm)	104

San Miguel Island - Hare Rock

Macrocystis pyrifera Ad.(>1m) number of stipes *Macrocystis pyrifera* Ad.(>1m) holdfast diameters

< 3	31.5%	< 6	11.7%
3 - 5	29.7%	6 - 11	19.8%
6 - 8	7.2%	12 - 17	24.3%
9 - 11	10.8%	18 - 23	13.5%
12 - 14	4.5%	24 - 29	8.1%
15 - 17	7.2%	30 - 35	8.1%
18 - 20	4.5%	36 - 41	7.2%
21 - 23	0.9%	42 - 47	2.7%
24 - 26	1.8%	48 - 53	0.9%
27 - 29	0.9%	54 - 59	2.7%
30 - 32	0.0%	60 - 65	0.9%
33 - 35	0.0%	66 - 71	0.0%
36 - 38	0.9%	72 - 77	0.0%
39 - 41	0.0%	78 - 83	0.0%
42 - 44	0.0%	84 - 89	0.0%
> 44	0.0%	> 89	0.0%
(Cases) N=	111	(Cases) N=	111
mean	7	mean	20
min number	1	min width (cm)	4
max number	36	max width (cm)	63

2005 *Macrocystis pyrifera* SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee North

<i>Macrocystis pyrifera</i> Ad.(>1m) number of stipes		<i>Macrocystis pyrifera</i> Ad.(>1m) holdfast diameters	
< 3	7.9%	< 6	1.2%
3 - 5	20.7%	6 - 11	7.9%
6 - 8	27.4%	12 - 17	15.9%
9 - 11	20.7%	18 - 23	26.2%
12 - 14	10.4%	24 - 29	25.0%
15 - 17	4.9%	30 - 35	11.0%
18 - 20	1.8%	36 - 41	4.9%
21 - 23	4.3%	42 - 47	3.7%
24 - 26	1.2%	48 - 53	1.2%
27 - 29	0.6%	54 - 59	0.0%
30 - 32	0.0%	60 - 65	1.2%
33 - 35	0.0%	66 - 71	0.6%
36 - 38	0.0%	72 - 77	0.6%
39 - 41	0.0%	78 - 83	0.0%
42 - 44	0.0%	84 - 89	0.0%
> 44	0.0%	> 89	0.6%
(Cases) N=	164	(Cases) N=	164
mean	9	mean	25
min number	1	min width (cm)	5
max number	27	max width (cm)	90

Santa Rosa Island - Johnson's Lee South

<i>Macrocystis pyrifera</i> Ad.(>1m) number of stipes		<i>Macrocystis pyrifera</i> Ad.(>1m) holdfast diameters	
< 3	29.3%	< 6	2.6%
3 - 5	13.8%	6 - 11	10.3%
6 - 8	15.5%	12 - 17	13.8%
9 - 11	16.4%	18 - 23	7.8%
12 - 14	6.9%	24 - 29	12.1%
15 - 17	5.2%	30 - 35	6.0%
18 - 20	5.2%	36 - 41	10.3%
21 - 23	1.7%	42 - 47	5.2%
24 - 26	1.7%	48 - 53	1.7%
27 - 29	3.4%	54 - 59	4.3%
30 - 32	0.9%	60 - 65	4.3%
33 - 35	0.0%	66 - 71	5.2%
36 - 38	0.0%	72 - 77	5.2%
39 - 41	0.0%	78 - 83	5.2%
42 - 44	0.0%	84 - 89	0.9%
> 44	0.0%	> 89	5.2%
(Cases) N=	116	(Cases) N=	116
mean	8	mean	40
min number	1	min width (cm)	3
max number	30	max width (cm)	116

2005 *Macrocystis pyrifera* SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Rodes Reef

<i>Macrocystis pyrifera</i> Ad.(>1m) number of stipes		<i>Macrocystis pyrifera</i> Ad.(>1m) holdfast diameters	
< 3	0.0%	< 6	0.0%
3 - 5	2.2%	6 - 11	0.0%
6 - 8	1.1%	12 - 17	0.0%
9 - 11	7.6%	18 - 23	7.6%
12 - 14	8.7%	24 - 29	8.7%
15 - 17	12.0%	30 - 35	14.1%
18 - 20	17.4%	36 - 41	16.3%
21 - 23	9.8%	42 - 47	17.4%
24 - 26	5.4%	48 - 53	16.3%
27 - 29	8.7%	54 - 59	5.4%
30 - 32	7.6%	60 - 65	10.9%
33 - 35	5.4%	66 - 71	2.2%
36 - 38	4.3%	72 - 77	1.1%
39 - 41	1.1%	78 - 83	0.0%
42 - 44	3.3%	84 - 89	0.0%
> 44	5.4%	> 89	0.0%
(Cases) N=	92	(Cases) N=	92
mean	24	mean	43
min number	3	min width (cm)	19
max number	77	max width (cm)	77

Santa Cruz Island - Gull Island South

<i>Macrocystis pyrifera</i> Ad.(>1m) number of stipes		<i>Macrocystis pyrifera</i> Ad.(>1m) holdfast diameters	
< 3	6.0%	< 6	3.0%
3 - 5	8.3%	6 - 11	3.8%
6 - 8	11.3%	12 - 17	9.0%
9 - 11	18.0%	18 - 23	6.8%
12 - 14	11.3%	24 - 29	18.8%
15 - 17	16.5%	30 - 35	13.5%
18 - 20	12.0%	36 - 41	18.8%
21 - 23	9.8%	42 - 47	12.8%
24 - 26	5.3%	48 - 53	6.8%
27 - 29	0.0%	54 - 59	3.0%
30 - 32	1.5%	60 - 65	1.5%
33 - 35	0.0%	66 - 71	1.5%
36 - 38	0.0%	72 - 77	0.8%
39 - 41	0.0%	78 - 83	0.0%
42 - 44	0.0%	84 - 89	0.0%
> 44	0.0%	> 89	0.0%
(Cases) N=	133	(Cases) N=	133
mean	13	mean	33
min number	1	min width (cm)	3
max number	31	max width (cm)	74

2005 *Macrocystis pyrifera* SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Fry's Harbor

<i>Macrocystis pyrifera</i> Ad.(>1m) number of stipes		<i>Macrocystis pyrifera</i> Ad.(>1m) holdfast diameters	
< 3	33.3%	< 6	0.0%
3 - 5	66.7%	6 - 11	33.3%
6 - 8	0.0%	12 - 17	33.3%
9 - 11	0.0%	18 - 23	33.3%
12 - 14	0.0%	24 - 29	0.0%
15 - 17	0.0%	30 - 35	0.0%
18 - 20	0.0%	36 - 41	0.0%
21 - 23	0.0%	42 - 47	0.0%
24 - 26	0.0%	48 - 53	0.0%
27 - 29	0.0%	54 - 59	0.0%
30 - 32	0.0%	60 - 65	0.0%
33 - 35	0.0%	66 - 71	0.0%
36 - 38	0.0%	72 - 77	0.0%
39 - 41	0.0%	78 - 83	0.0%
42 - 44	0.0%	84 - 89	0.0%
> 44	0.0%	> 89	0.0%
(Cases) N=	3	(Cases) N=	3
mean	3	mean	15
min number	2	min width (cm)	9
max number	5	max width (cm)	20

Santa Cruz Island - Scorpion Anchorage

<i>Macrocystis pyrifera</i> Ad.(>1m) number of stipes		<i>Macrocystis pyrifera</i> Ad.(>1m) holdfast diameters	
< 3	22.2%	< 6	7.4%
3 - 5	25.9%	6 - 11	11.1%
6 - 8	25.9%	12 - 17	22.2%
9 - 11	14.8%	18 - 23	25.9%
12 - 14	7.4%	24 - 29	25.9%
15 - 17	3.7%	30 - 35	7.4%
18 - 20	0.0%	36 - 41	0.0%
21 - 23	0.0%	42 - 47	0.0%
24 - 26	0.0%	48 - 53	0.0%
27 - 29	0.0%	54 - 59	0.0%
30 - 32	0.0%	60 - 65	0.0%
33 - 35	0.0%	66 - 71	0.0%
36 - 38	0.0%	72 - 77	0.0%
39 - 41	0.0%	78 - 83	0.0%
42 - 44	0.0%	84 - 89	0.0%
> 44	0.0%	> 89	0.0%
(Cases) N=	27	(Cases) N=	27
mean	6	mean	19
min number	1	min width (cm)	4
max number	17	max width (cm)	34

2005 *Macrocystis pyrifera* SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

<i>Macrocystis pyrifera</i> Ad.(>1m) number of stipes		<i>Macrocystis pyrifera</i> Ad.(>1m) holdfast diameters	
< 3	0.0%	< 6	0.0%
3 - 5	1.7%	6 - 11	0.0%
6 - 8	10.3%	12 - 17	0.0%
9 - 11	14.7%	18 - 23	0.0%
12 - 14	13.8%	24 - 29	0.0%
15 - 17	30.2%	30 - 35	7.8%
18 - 20	12.1%	36 - 41	17.2%
21 - 23	6.9%	42 - 47	24.1%
24 - 26	4.3%	48 - 53	15.5%
27 - 29	4.3%	54 - 59	15.5%
30 - 32	0.9%	60 - 65	11.2%
33 - 35	0.9%	66 - 71	6.0%
36 - 38	0.0%	72 - 77	0.9%
39 - 41	0.0%	78 - 83	0.9%
42 - 44	0.0%	84 - 89	0.9%
> 44	0.0%	> 89	0.0%
(Cases) N=	116	(Cases) N=	116
mean	16	mean	50
min number	4	min width (cm)	30
max number	34	max width (cm)	87

Anacapa Island - Admiral's Reef

<i>Macrocystis pyrifera</i> Ad.(>1m) number of stipes		<i>Macrocystis pyrifera</i> Ad.(>1m) holdfast diameters	
< 3	65.3%	< 6	4.2%
3 - 5	24.6%	6 - 11	45.8%
6 - 8	4.2%	12 - 17	41.5%
9 - 11	2.5%	18 - 23	1.7%
12 - 14	0.8%	24 - 29	2.5%
15 - 17	0.0%	30 - 35	0.0%
18 - 20	1.7%	36 - 41	1.7%
21 - 23	0.0%	42 - 47	2.5%
24 - 26	0.0%	48 - 53	0.0%
27 - 29	0.0%	54 - 59	0.0%
30 - 32	0.8%	60 - 65	0.0%
33 - 35	0.0%	66 - 71	0.0%
36 - 38	0.0%	72 - 77	0.0%
39 - 41	0.0%	78 - 83	0.0%
42 - 44	0.0%	84 - 89	0.0%
> 44	0.0%	> 89	0.0%
(Cases) N=	118	(Cases) N=	118
mean	3	mean	13
min number	1	min width (cm)	5
max number	30	max width (cm)	46

2005 *Macrocystis pyrifera* SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Cathedral Cove

<i>Macrocystis pyrifera</i> Ad.(>1m) number of stipes		<i>Macrocystis pyrifera</i> Ad.(>1m) holdfast diameters	
< 3	36.8%	< 6	15.2%
3 - 5	16.8%	6 - 11	20.0%
6 - 8	12.0%	12 - 17	17.6%
9 - 11	8.0%	18 - 23	15.2%
12 - 14	2.4%	24 - 29	12.0%
15 - 17	8.0%	30 - 35	8.0%
18 - 20	2.4%	36 - 41	4.8%
21 - 23	4.0%	42 - 47	5.6%
24 - 26	2.4%	48 - 53	0.0%
27 - 29	2.4%	54 - 59	0.8%
30 - 32	1.6%	60 - 65	0.0%
33 - 35	1.6%	66 - 71	0.8%
36 - 38	0.0%	72 - 77	0.0%
39 - 41	0.0%	78 - 83	0.0%
42 - 44	0.0%	84 - 89	0.0%
> 44	1.6%	> 89	0.0%
(Cases) N=	125	(Cases) N=	125
mean	9	mean	19
min number	1	min width (cm)	2
max number	51	max width (cm)	68

Anacapa Island - Landing Cove

<i>Macrocystis pyrifera</i> Ad.(>1m) number of stipes		<i>Macrocystis pyrifera</i> Ad.(>1m) holdfast diameters	
< 3	59.8%	< 6	16.1%
3 - 5	8.0%	6 - 11	35.7%
6 - 8	5.4%	12 - 17	10.7%
9 - 11	6.3%	18 - 23	6.3%
12 - 14	7.1%	24 - 29	8.0%
15 - 17	5.4%	30 - 35	9.8%
18 - 20	1.8%	36 - 41	5.4%
21 - 23	2.7%	42 - 47	3.6%
24 - 26	0.9%	48 - 53	0.9%
27 - 29	0.9%	54 - 59	1.8%
30 - 32	0.0%	60 - 65	0.0%
33 - 35	0.0%	66 - 71	1.8%
36 - 38	0.0%	72 - 77	0.0%
39 - 41	0.9%	78 - 83	0.0%
42 - 44	0.0%	84 - 89	0.0%
> 44	0.9%	> 89	0.0%
(Cases) N=	112	(Cases) N=	112
mean	6	mean	18
min number	1	min width (cm)	3
max number	46	max width (cm)	67

2005 *Macrocystis pyrifera* SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Miracle Mile

<i>Macrocystis pyrifera</i> Ad.(>1m) number of stipes		<i>Macrocystis pyrifera</i> Ad.(>1m) holdfast diameters	
< 3	14.8%	< 6	2.6%
3 - 5	13.0%	6 - 11	13.0%
6 - 8	5.2%	12 - 17	8.7%
9 - 11	13.0%	18 - 23	7.8%
12 - 14	5.2%	24 - 29	2.6%
15 - 17	3.5%	30 - 35	5.2%
18 - 20	5.2%	36 - 41	7.8%
21 - 23	3.5%	42 - 47	6.1%
24 - 26	5.2%	48 - 53	7.0%
27 - 29	1.7%	54 - 59	11.3%
30 - 32	4.3%	60 - 65	7.8%
33 - 35	1.7%	66 - 71	10.4%
36 - 38	5.2%	72 - 77	5.2%
39 - 41	1.7%	78 - 83	0.9%
42 - 44	1.7%	84 - 89	3.5%
> 44	14.8%	> 89	0.0%
(Cases) N=	115	(Cases) N=	115
mean	20	mean	42
min number	1	min width (cm)	4
max number	67	max width (cm)	85

Santa Rosa Island - Cluster Point

<i>Macrocystis pyrifera</i> Ad.(>1m) number of stipes		<i>Macrocystis pyrifera</i> Ad.(>1m) holdfast diameters	
< 3	1.8%	< 6	0.0%
3 - 5	3.7%	6 - 11	0.0%
6 - 8	6.4%	12 - 17	2.8%
9 - 11	7.3%	18 - 23	2.8%
12 - 14	8.3%	24 - 29	2.8%
15 - 17	9.2%	30 - 35	18.3%
18 - 20	5.5%	36 - 41	23.9%
21 - 23	7.3%	42 - 47	11.0%
24 - 26	16.5%	48 - 53	18.3%
27 - 29	7.3%	54 - 59	8.3%
30 - 32	9.2%	60 - 65	6.4%
33 - 35	2.8%	66 - 71	1.8%
36 - 38	2.8%	72 - 77	2.8%
39 - 41	1.8%	78 - 83	0.9%
42 - 44	3.7%	84 - 89	0.0%
> 44	6.4%	> 89	0.0%
(Cases) N=	109	(Cases) N=	109
mean	23	mean	44
min number	2	min width (cm)	15
max number	62	max width (cm)	82

2005 *Macrocystis pyrifera* SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Trancion Canyon

<i>Macrocystis pyrifera</i> Ad.(>1m) number of stipes		<i>Macrocystis pyrifera</i> Ad.(>1m) holdfast diameters	
< 3	11.9%	< 6	1.5%
3 - 5	9.6%	6 - 11	8.9%
6 - 8	10.4%	12 - 17	4.4%
9 - 11	7.4%	18 - 23	11.9%
12 - 14	11.1%	24 - 29	8.9%
15 - 17	8.9%	30 - 35	11.9%
18 - 20	5.2%	36 - 41	9.6%
21 - 23	8.1%	42 - 47	12.6%
24 - 26	5.2%	48 - 53	5.2%
27 - 29	5.2%	54 - 59	7.4%
30 - 32	5.9%	60 - 65	5.2%
33 - 35	0.7%	66 - 71	5.9%
36 - 38	3.0%	72 - 77	2.2%
39 - 41	2.2%	78 - 83	2.2%
42 - 44	2.2%	84 - 89	0.7%
> 44	3.0%	> 89	1.5%
(Cases) N=	135	(Cases) N=	135
mean	17	mean	39
min number	1	min width (cm)	4
max number	60	max width (cm)	95

Santa Rosa Island - Chickasaw

<i>Macrocystis pyrifera</i> Ad.(>1m) number of stipes		<i>Macrocystis pyrifera</i> Ad.(>1m) holdfast diameters	
< 3	15.5%	< 6	0.0%
3 - 5	10.9%	6 - 11	6.4%
6 - 8	10.0%	12 - 17	7.3%
9 - 11	12.7%	18 - 23	4.5%
12 - 14	3.6%	24 - 29	2.7%
15 - 17	6.4%	30 - 35	3.6%
18 - 20	3.6%	36 - 41	12.7%
21 - 23	7.3%	42 - 47	10.9%
24 - 26	6.4%	48 - 53	9.1%
27 - 29	6.4%	54 - 59	4.5%
30 - 32	4.5%	60 - 65	4.5%
33 - 35	2.7%	66 - 71	10.0%
36 - 38	2.7%	72 - 77	13.6%
39 - 41	1.8%	78 - 83	5.5%
42 - 44	1.8%	84 - 89	0.0%
> 44	3.6%	> 89	4.5%
(Cases) N=	110	(Cases) N=	110
mean	17	mean	50
min number	1	min width (cm)	6
max number	66	max width (cm)	100

2005 *Macrocystis pyrifera* SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - South Point

<i>Macrocystis pyrifera</i> Ad.(>1m) number of stipes		<i>Macrocystis pyrifera</i> Ad.(>1m) holdfast diameters	
< 3	48.2%	< 6	2.7%
3 - 5	7.3%	6 - 11	29.1%
6 - 8	4.5%	12 - 17	17.3%
9 - 11	0.0%	18 - 23	4.5%
12 - 14	2.7%	24 - 29	3.6%
15 - 17	1.8%	30 - 35	3.6%
18 - 20	8.2%	36 - 41	0.9%
21 - 23	5.5%	42 - 47	4.5%
24 - 26	2.7%	48 - 53	1.8%
27 - 29	2.7%	54 - 59	3.6%
30 - 32	2.7%	60 - 65	3.6%
33 - 35	0.9%	66 - 71	7.3%
36 - 38	2.7%	72 - 77	4.5%
39 - 41	1.8%	78 - 83	3.6%
42 - 44	4.5%	84 - 89	3.6%
> 44	3.6%	> 89	5.5%
(Cases) N=	110	(Cases) N=	110
mean	13	mean	35
min number	1	min width (cm)	5
max number	67	max width (cm)	105

Anacapa Island - Lighthouse

<i>Macrocystis pyrifera</i> Ad.(>1m) number of stipes		<i>Macrocystis pyrifera</i> Ad.(>1m) holdfast diameters	
< 3	22.0%	< 6	8.0%
3 - 5	12.0%	6 - 11	20.0%
6 - 8	16.0%	12 - 17	16.7%
9 - 11	14.7%	18 - 23	16.0%
12 - 14	8.0%	24 - 29	11.3%
15 - 17	6.7%	30 - 35	17.3%
18 - 20	8.7%	36 - 41	6.0%
21 - 23	4.7%	42 - 47	2.7%
24 - 26	2.7%	48 - 53	0.7%
27 - 29	1.3%	54 - 59	1.3%
30 - 32	1.3%	60 - 65	0.0%
33 - 35	0.0%	66 - 71	0.0%
36 - 38	0.7%	72 - 77	0.0%
39 - 41	0.7%	78 - 83	0.0%
42 - 44	0.0%	84 - 89	0.0%
> 44	0.7%	> 89	0.0%
(Cases) N=	150	(Cases) N=	150
mean	10	mean	21
min number	1	min width (cm)	2
max number	46	max width (cm)	55

2005 *Macrocystis pyrifera* SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Southeast Reef

Macrocystis pyrifera Ad.(>1m) number of stipes *Macrocystis pyrifera* Ad.(>1m) holdfast diameters

< 3	29.2%	< 6	16.0%
3 - 5	15.1%	6 - 11	23.6%
6 - 8	12.3%	12 - 17	14.2%
9 - 11	11.3%	18 - 23	7.5%
12 - 14	12.3%	24 - 29	17.0%
15 - 17	3.8%	30 - 35	10.4%
18 - 20	4.7%	36 - 41	6.6%
21 - 23	4.7%	42 - 47	2.8%
24 - 26	1.9%	48 - 53	0.9%
27 - 29	2.8%	54 - 59	0.9%
30 - 32	0.9%	60 - 65	0.0%
33 - 35	0.0%	66 - 71	0.0%
36 - 38	0.0%	72 - 77	0.0%
39 - 41	0.0%	78 - 83	0.0%
42 - 44	0.9%	84 - 89	0.0%
> 44	0.0%	> 89	0.0%
(Cases) N=	106	(Cases) N=	106
mean	9	mean	19
min number	1	min width (cm)	3
max number	42	max width (cm)	57

Appendix J. *Gorgonian/Stylaster californica* size frequency distributions.

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee South

<i>Lophogorgia chilensis</i> heights		<i>Lophogorgia chilensis</i> widths	
< 5	0.0%	< 5	0.0%
5 - 8	0.0%	5 - 8	3.7%
9 - 12	0.0%	9 - 12	3.7%
13 - 16	3.7%	13 - 16	14.8%
17 - 20	0.0%	17 - 20	7.4%
21 - 24	11.1%	21 - 24	7.4%
25 - 28	0.0%	24 - 28	14.8%
29 - 32	11.1%	29 - 32	7.4%
33 - 36	7.4%	33 - 36	0.0%
37 - 40	11.1%	37 - 40	18.5%
41 - 44	14.8%	41 - 44	7.4%
45 - 48	18.5%	45 - 48	11.1%
49 - 52	11.1%	49 - 52	0.0%
53 - 56	11.1%	53 - 56	3.7%
57 - 60	0.0%	57 - 60	0.0%
61 - 64	0.0%	61 - 64	0.0%
65 - 68	0.0%	65 - 68	0.0%
69 - 72	0.0%	69 - 72	0.0%
73 - 76	0.0%	73 - 76	0.0%
77 - 80	0.0%	77 - 80	0.0%
81 - 84	0.0%	81 - 84	0.0%
85 - 88	0.0%	85 - 88	0.0%
89 - 92	0.0%	89 - 92	0.0%
93 - 96	0.0%	93 - 96	0.0%
97 - 100	0.0%	97 - 100	0.0%
> 100	0.0%	> 100	0.0%
(Cases) N=	27	(Cases) N=	27
mean	40	mean	30
min height (cm)	15	min width (cm)	8
max height (cm)	55	max width (cm)	54

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee South (continued)

<i>Muricea fruticosa</i> heights		<i>Muricea fruticosa</i> widths	
< 5	0.0%	< 5	0.0%
5 - 8	0.0%	5 - 8	0.0%
9 - 12	0.0%	9 - 12	0.0%
13 - 16	0.0%	13 - 16	0.0%
17 - 20	0.0%	17 - 20	0.0%
21 - 24	100.0%	21 - 24	0.0%
25 - 28	0.0%	24 - 28	0.0%
29 - 32	0.0%	29 - 32	100.0%
33 - 36	0.0%	33 - 36	0.0%
37 - 40	0.0%	37 - 40	0.0%
41 - 44	0.0%	41 - 44	0.0%
45 - 48	0.0%	45 - 48	0.0%
49 - 52	0.0%	49 - 52	0.0%
53 - 56	0.0%	53 - 56	0.0%
57 - 60	0.0%	57 - 60	0.0%
61 - 64	0.0%	61 - 64	0.0%
65 - 68	0.0%	65 - 68	0.0%
69 - 72	0.0%	69 - 72	0.0%
73 - 76	0.0%	73 - 76	0.0%
77 - 80	0.0%	77 - 80	0.0%
81 - 84	0.0%	81 - 84	0.0%
85 - 88	0.0%	85 - 88	0.0%
89 - 92	0.0%	89 - 92	0.0%
93 - 96	0.0%	93 - 96	0.0%
97 - 100	0.0%	97 - 100	0.0%
> 100	0.0%	> 100	0.0%
(Cases) N=	1	(Cases) N=	1
mean	23	mean	29
min height (cm)	23	min width (cm)	29
max height (cm)	23	max width (cm)	29

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

Stylaster californica heights

< 3	19.4%
3 - 4	21.0%
5 - 6	11.3%
7 - 8	12.9%
9 - 10	11.3%
11 - 12	11.3%
13 - 14	4.8%
15 - 16	3.2%
17 - 18	3.2%
19 - 20	1.6%
21 - 22	0.0%
23 - 24	0.0%
25 - 26	0.0%
27 - 28	0.0%
29 - 30	0.0%
> 30	0.0%
(Cases) N=	62
mean	7
min height (cm)	1
max height (cm)	20

Stylaster californica widths

< 3	3.2%
3 - 4	12.9%
5 - 6	17.7%
7 - 8	4.8%
9 - 10	9.7%
11 - 12	3.2%
13 - 14	4.8%
15 - 16	4.8%
17 - 18	6.5%
19 - 20	4.8%
21 - 22	6.5%
23 - 24	6.5%
25 - 26	0.0%
27 - 28	0.0%
29 - 30	0.0%
> 30	14.5%
(Cases) N=	62
mean	15
min width (cm)	2
max width (cm)	46

Lophogorgia chilensis heights

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	2.9%
17 - 20	20.6%
21 - 24	17.6%
25 - 28	26.5%
29 - 32	14.7%
33 - 36	8.8%
37 - 40	0.0%
41 - 44	0.0%
45 - 48	0.0%
49 - 52	5.9%
53 - 56	0.0%
57 - 60	2.9%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	34
mean	27
min height (cm)	16
max height (cm)	58

Lophogorgia chilensis widths

< 5	0.0%
5 - 8	8.8%
9 - 12	8.8%
13 - 16	20.6%
17 - 20	32.4%
21 - 24	2.9%
24 - 28	14.7%
29 - 32	5.9%
33 - 36	0.0%
37 - 40	2.9%
41 - 44	2.9%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	34
mean	19
min width (cm)	7
max width (cm)	42

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

Lophogorgia chilensis heights

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	5.7%
17 - 20	11.4%
21 - 24	14.3%
25 - 28	22.9%
29 - 32	11.4%
33 - 36	5.7%
37 - 40	11.4%
41 - 44	5.7%
45 - 48	5.7%
49 - 52	2.9%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	2.9%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	35
mean	30
min height (cm)	13
max height (cm)	65

Lophogorgia chilensis widths

< 5	0.0%
5 - 8	8.6%
9 - 12	14.3%
13 - 16	31.4%
17 - 20	17.1%
21 - 24	8.6%
24 - 28	5.7%
29 - 32	8.6%
33 - 36	0.0%
37 - 40	0.0%
41 - 44	2.9%
45 - 48	2.9%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	35
mean	18
min width (cm)	5
max width (cm)	48

Muricea fruticosa heights

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	0.0%
21 - 24	100.0%
25 - 28	0.0%
29 - 32	0.0%
33 - 36	0.0%
37 - 40	0.0%
41 - 44	0.0%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	1
mean	24
min height (cm)	24
max height (cm)	24

Muricea fruticosa widths

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	0.0%
21 - 24	100.0%
24 - 28	0.0%
29 - 32	0.0%
33 - 36	0.0%
37 - 40	0.0%
41 - 44	0.0%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	1
mean	22
min width (cm)	22
max width (cm)	22

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks (continued)

<i>Muricea californica</i> heights		<i>Muricea californica</i> widths	
< 5	0.0%	< 5	0.0%
5 - 8	0.0%	5 - 8	0.0%
9 - 12	0.0%	9 - 12	0.0%
13 - 16	0.0%	13 - 16	0.0%
17 - 20	6.7%	17 - 20	0.0%
21 - 24	6.7%	21 - 24	0.0%
25 - 28	20.0%	24 - 28	13.3%
29 - 32	6.7%	29 - 32	6.7%
33 - 36	6.7%	33 - 36	0.0%
37 - 40	0.0%	37 - 40	6.7%
41 - 44	0.0%	41 - 44	6.7%
45 - 48	6.7%	45 - 48	0.0%
49 - 52	13.3%	49 - 52	6.7%
53 - 56	6.7%	53 - 56	6.7%
57 - 60	0.0%	57 - 60	0.0%
61 - 64	20.0%	61 - 64	0.0%
65 - 68	6.7%	65 - 68	0.0%
69 - 72	0.0%	69 - 72	0.0%
73 - 76	0.0%	73 - 76	6.7%
77 - 80	0.0%	77 - 80	0.0%
81 - 84	0.0%	81 - 84	13.3%
85 - 88	0.0%	85 - 88	13.3%
89 - 92	0.0%	89 - 92	0.0%
93 - 96	0.0%	93 - 96	13.3%
97 - 100	0.0%	97 - 100	6.7%
> 100	0.0%	> 100	0.0%
(Cases) N=	15	(Cases) N=	15
mean	43	mean	65
min height (cm)	18	min width (cm)	25
max height (cm)	66	max width (cm)	100

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Admiral's Reef

Lophogorgia chilensis heights

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	1.5%
17 - 20	0.0%
21 - 24	7.7%
25 - 28	4.6%
29 - 32	7.7%
33 - 36	9.2%
37 - 40	16.9%
41 - 44	15.4%
45 - 48	16.9%
49 - 52	7.7%
53 - 56	3.1%
57 - 60	3.1%
61 - 64	0.0%
65 - 68	3.1%
69 - 72	1.5%
73 - 76	1.5%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	65
mean	41
min height (cm)	15
max height (cm)	76

Lophogorgia chilensis widths

< 5	0.0%
5 - 8	0.0%
9 - 12	6.2%
13 - 16	6.2%
17 - 20	6.2%
21 - 24	7.7%
24 - 28	10.8%
29 - 32	7.7%
33 - 36	3.1%
37 - 40	12.3%
41 - 44	6.2%
45 - 48	6.2%
49 - 52	7.7%
53 - 56	6.2%
57 - 60	1.5%
61 - 64	1.5%
65 - 68	3.1%
69 - 72	4.6%
73 - 76	3.1%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	65
mean	38
min width (cm)	9
max width (cm)	75

Muricea fruticosa heights

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	0.0%
21 - 24	50.0%
25 - 28	16.7%
29 - 32	33.3%
33 - 36	0.0%
37 - 40	0.0%
41 - 44	0.0%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	6
mean	26
min height (cm)	21
max height (cm)	32

Muricea fruticosa widths

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	0.0%
21 - 24	0.0%
24 - 28	33.3%
29 - 32	16.7%
33 - 36	16.7%
37 - 40	16.7%
41 - 44	16.7%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	6
mean	33
min width (cm)	26
max width (cm)	42

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Admiral's Reef (continued)

<i>Muricea californica</i> heights		<i>Muricea californica</i> widths	
< 5	0.0%	< 5	0.0%
5 - 8	0.0%	5 - 8	0.0%
9 - 12	0.0%	9 - 12	0.0%
13 - 16	0.0%	13 - 16	0.0%
17 - 20	0.0%	17 - 20	0.0%
21 - 24	15.8%	21 - 24	5.3%
25 - 28	5.3%	24 - 28	5.3%
29 - 32	10.5%	29 - 32	10.5%
33 - 36	5.3%	33 - 36	0.0%
37 - 40	5.3%	37 - 40	5.3%
41 - 44	10.5%	41 - 44	5.3%
45 - 48	5.3%	45 - 48	5.3%
49 - 52	5.3%	49 - 52	5.3%
53 - 56	0.0%	53 - 56	0.0%
57 - 60	5.3%	57 - 60	10.5%
61 - 64	10.5%	61 - 64	5.3%
65 - 68	5.3%	65 - 68	0.0%
69 - 72	15.8%	69 - 72	0.0%
73 - 76	0.0%	73 - 76	5.3%
77 - 80	0.0%	77 - 80	5.3%
81 - 84	0.0%	81 - 84	5.3%
85 - 88	0.0%	85 - 88	5.3%
89 - 92	0.0%	89 - 92	5.3%
93 - 96	0.0%	93 - 96	5.3%
97 - 100	0.0%	97 - 100	0.0%
> 100	0.0%	> 100	10.5%
(Cases) N=	19	(Cases) N=	19
mean	46	mean	63
min height (cm)	21	min width (cm)	22
max height (cm)	70	max width (cm)	120

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Devil's Peak Member

Lophogorgia chilensis heights

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	3.3%
17 - 20	3.3%
21 - 24	13.3%
25 - 28	13.3%
29 - 32	15.0%
33 - 36	15.0%
37 - 40	11.7%
41 - 44	11.7%
45 - 48	3.3%
49 - 52	1.7%
53 - 56	0.0%
57 - 60	3.3%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	3.3%
77 - 80	1.7%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	60
mean	35
min height (cm)	14
max height (cm)	80

Lophogorgia chilensis widths

< 5	0.0%
5 - 8	1.7%
9 - 12	3.3%
13 - 16	13.3%
17 - 20	21.7%
21 - 24	15.0%
24 - 28	10.0%
29 - 32	8.3%
33 - 36	6.7%
37 - 40	3.3%
41 - 44	3.3%
45 - 48	5.0%
49 - 52	1.7%
53 - 56	1.7%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	3.3%
69 - 72	1.7%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	60
mean	27
min width (cm)	6
max width (cm)	70

Muricea fruticosa heights

< 5	0.0%
5 - 8	50.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	0.0%
21 - 24	50.0%
25 - 28	0.0%
29 - 32	0.0%
33 - 36	0.0%
37 - 40	0.0%
41 - 44	0.0%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	2
mean	16
min height (cm)	8
max height (cm)	24

Muricea fruticosa widths

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	50.0%
21 - 24	0.0%
24 - 28	0.0%
29 - 32	0.0%
33 - 36	0.0%
37 - 40	0.0%
41 - 44	0.0%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	50.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	2
mean	40
min width (cm)	18
max width (cm)	62

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Devil's Peak Member (continued)

<i>Muricea californica</i> heights		<i>Muricea californica</i> widths	
< 5	0.0%	< 5	0.0%
5 - 8	0.0%	5 - 8	0.0%
9 - 12	0.0%	9 - 12	0.0%
13 - 16	0.0%	13 - 16	0.0%
17 - 20	0.0%	17 - 20	0.0%
21 - 24	0.0%	21 - 24	0.0%
25 - 28	0.0%	24 - 28	0.0%
29 - 32	0.0%	29 - 32	0.0%
33 - 36	25.0%	33 - 36	0.0%
37 - 40	25.0%	37 - 40	0.0%
41 - 44	25.0%	41 - 44	0.0%
45 - 48	0.0%	45 - 48	25.0%
49 - 52	0.0%	49 - 52	0.0%
53 - 56	25.0%	53 - 56	0.0%
57 - 60	0.0%	57 - 60	0.0%
61 - 64	0.0%	61 - 64	25.0%
65 - 68	0.0%	65 - 68	0.0%
69 - 72	0.0%	69 - 72	0.0%
73 - 76	0.0%	73 - 76	25.0%
77 - 80	0.0%	77 - 80	25.0%
81 - 84	0.0%	81 - 84	0.0%
85 - 88	0.0%	85 - 88	0.0%
89 - 92	0.0%	89 - 92	0.0%
93 - 96	0.0%	93 - 96	0.0%
97 - 100	0.0%	97 - 100	0.0%
> 100	0.0%	> 100	0.0%
(Cases) N=	4	(Cases) N=	4
mean	42	mean	66
min height (cm)	33	min width (cm)	47
max height (cm)	55	max width (cm)	78

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Potato Pasture

Lophogorgia chilensis heights

< 5	0.0%
5 - 8	0.0%
9 - 12	3.6%
13 - 16	0.0%
17 - 20	8.3%
21 - 24	4.8%
25 - 28	14.3%
29 - 32	22.6%
33 - 36	11.9%
37 - 40	15.5%
41 - 44	10.7%
45 - 48	6.0%
49 - 52	1.2%
53 - 56	1.2%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	84
mean	32
min height (cm)	11
max height (cm)	55

Lophogorgia chilensis widths

< 5	1.2%
5 - 8	2.4%
9 - 12	7.1%
13 - 16	4.8%
17 - 20	10.7%
21 - 24	14.3%
24 - 28	16.7%
29 - 32	13.1%
33 - 36	8.3%
37 - 40	9.5%
41 - 44	3.6%
45 - 48	6.0%
49 - 52	0.0%
53 - 56	2.4%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	84
mean	27
min width (cm)	3
max width (cm)	56

Muricea californica heights

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	0.0%
21 - 24	100.0%
25 - 28	0.0%
29 - 32	0.0%
33 - 36	0.0%
37 - 40	0.0%
41 - 44	0.0%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	1
mean	23
min height (cm)	23
max height (cm)	23

Muricea californica widths

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	0.0%
21 - 24	0.0%
24 - 28	0.0%
29 - 32	100.0%
33 - 36	0.0%
37 - 40	0.0%
41 - 44	0.0%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	1
mean	32
min width (cm)	32
max width (cm)	32

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Cavern Point

Lophogorgia chilensis heights

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	5.8%
21 - 24	2.9%
25 - 28	14.5%
29 - 32	10.1%
33 - 36	13.0%
37 - 40	10.1%
41 - 44	11.6%
45 - 48	13.0%
49 - 52	1.4%
53 - 56	4.3%
57 - 60	2.9%
61 - 64	2.9%
65 - 68	1.4%
69 - 72	4.3%
73 - 76	1.4%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	69
mean	40
min height (cm)	17
max height (cm)	76

Lophogorgia chilensis widths

< 5	0.0%
5 - 8	1.4%
9 - 12	4.3%
13 - 16	4.3%
17 - 20	8.7%
21 - 24	7.2%
24 - 28	15.9%
29 - 32	15.9%
33 - 36	5.8%
37 - 40	10.1%
41 - 44	10.1%
45 - 48	5.8%
49 - 52	0.0%
53 - 56	2.9%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	1.4%
69 - 72	1.4%
73 - 76	0.0%
77 - 80	2.9%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	1.4%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	69
mean	34
min width (cm)	8
max width (cm)	92

Muricea californica heights

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	0.0%
21 - 24	0.0%
25 - 28	20.0%
29 - 32	0.0%
33 - 36	40.0%
37 - 40	0.0%
41 - 44	40.0%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	5
mean	37
min height (cm)	28
max height (cm)	44

Muricea californica widths

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	0.0%
21 - 24	0.0%
24 - 28	0.0%
29 - 32	0.0%
33 - 36	0.0%
37 - 40	0.0%
41 - 44	0.0%
45 - 48	40.0%
49 - 52	0.0%
53 - 56	20.0%
57 - 60	20.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	20.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	5
mean	55
min width (cm)	48
max width (cm)	69

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Little Scorpion

Lophogorgia chilensis heights

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	1.0%
17 - 20	1.0%
21 - 24	3.9%
25 - 28	6.8%
29 - 32	8.7%
33 - 36	4.9%
37 - 40	16.5%
41 - 44	9.7%
45 - 48	8.7%
49 - 52	10.7%
53 - 56	11.7%
57 - 60	5.8%
61 - 64	1.0%
65 - 68	2.9%
69 - 72	1.0%
73 - 76	4.9%
77 - 80	1.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	103
mean	45
min height (cm)	14
max height (cm)	80

Lophogorgia chilensis widths

< 5	0.0%
5 - 8	0.0%
9 - 12	1.9%
13 - 16	6.8%
17 - 20	2.9%
21 - 24	7.8%
24 - 28	6.8%
29 - 32	5.8%
33 - 36	11.7%
37 - 40	7.8%
41 - 44	8.7%
45 - 48	6.8%
49 - 52	7.8%
53 - 56	2.9%
57 - 60	4.9%
61 - 64	4.9%
65 - 68	1.0%
69 - 72	1.0%
73 - 76	0.0%
77 - 80	2.9%
81 - 84	2.9%
85 - 88	0.0%
89 - 92	3.9%
93 - 96	0.0%
97 - 100	0.0%
> 100	1.0%
(Cases) N=	103
mean	43
min width (cm)	10
max width (cm)	115

Muricea californica heights

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	0.0%
21 - 24	0.0%
25 - 28	0.0%
29 - 32	0.0%
33 - 36	0.0%
37 - 40	100.0%
41 - 44	0.0%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	1
mean	40
min height (cm)	40
max height (cm)	40

Muricea californica widths

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	0.0%
21 - 24	0.0%
24 - 28	0.0%
29 - 32	0.0%
33 - 36	0.0%
37 - 40	0.0%
41 - 44	0.0%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	100.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	1
mean	63
min width (cm)	63
max width (cm)	63

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pedro Reef

Lophogorgia chilensis heights

< 5	0.0%
5 - 8	0.0%
9 - 12	5.0%
13 - 16	3.3%
17 - 20	5.0%
21 - 24	6.7%
25 - 28	5.0%
29 - 32	11.7%
33 - 36	10.0%
37 - 40	21.7%
41 - 44	10.0%
45 - 48	8.3%
49 - 52	3.3%
53 - 56	5.0%
57 - 60	5.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	60
mean	35
min height (cm)	11
max height (cm)	60

Lophogorgia chilensis widths

< 5	0.0%
5 - 8	5.0%
9 - 12	6.7%
13 - 16	6.7%
17 - 20	8.3%
21 - 24	11.7%
24 - 28	10.0%
29 - 32	6.7%
33 - 36	13.3%
37 - 40	10.0%
41 - 44	5.0%
45 - 48	8.3%
49 - 52	3.3%
53 - 56	1.7%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	3.3%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	60
mean	30
min width (cm)	5
max width (cm)	67

Muricea californica heights

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	0.0%
21 - 24	0.0%
25 - 28	0.0%
29 - 32	0.0%
33 - 36	20.0%
37 - 40	0.0%
41 - 44	0.0%
45 - 48	60.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	20.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	5
mean	48
min height (cm)	36
max height (cm)	63

Muricea californica widths

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	0.0%
21 - 24	0.0%
24 - 28	0.0%
29 - 32	0.0%
33 - 36	0.0%
37 - 40	0.0%
41 - 44	0.0%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	40.0%
57 - 60	20.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	20.0%
81 - 84	20.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	5
mean	65
min width (cm)	53
max width (cm)	84

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Keyhole

Lophogorgia chilensis heights

< 5	0.0%
5 - 8	2.7%
9 - 12	4.1%
13 - 16	4.1%
17 - 20	2.7%
21 - 24	6.8%
25 - 28	6.8%
29 - 32	8.1%
33 - 36	14.9%
37 - 40	17.6%
41 - 44	13.5%
45 - 48	4.1%
49 - 52	6.8%
53 - 56	4.1%
57 - 60	4.1%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	74
mean	35
min height (cm)	5
max height (cm)	59

Lophogorgia chilensis widths

< 5	1.4%
5 - 8	2.7%
9 - 12	4.1%
13 - 16	4.1%
17 - 20	6.8%
21 - 24	10.8%
24 - 28	8.1%
29 - 32	14.9%
33 - 36	10.8%
37 - 40	10.8%
41 - 44	6.8%
45 - 48	9.5%
49 - 52	1.4%
53 - 56	2.7%
57 - 60	0.0%
61 - 64	1.4%
65 - 68	2.7%
69 - 72	1.4%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	74
mean	33
min width (cm)	3
max width (cm)	72

Muricea fruticosa heights

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	16.7%
17 - 20	16.7%
21 - 24	50.0%
25 - 28	16.7%
29 - 32	0.0%
33 - 36	0.0%
37 - 40	0.0%
41 - 44	0.0%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	12
mean	20
min height (cm)	13
max height (cm)	26

Muricea fruticosa widths

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	0.0%
21 - 24	33.3%
24 - 28	33.3%
29 - 32	16.7%
33 - 36	16.7%
37 - 40	0.0%
41 - 44	0.0%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	12
mean	27
min width (cm)	21
max width (cm)	33

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island – Keyhole (continued)

<i>Muricea californica</i> heights		<i>Muricea californica</i> widths	
< 5	0.0%	< 5	0.0%
5 - 8	0.0%	5 - 8	0.0%
9 - 12	0.0%	9 - 12	0.0%
13 - 16	0.0%	13 - 16	0.0%
17 - 20	1.6%	17 - 20	0.0%
21 - 24	9.4%	21 - 24	0.0%
25 - 28	9.4%	24 - 28	4.7%
29 - 32	25.0%	29 - 32	9.4%
33 - 36	17.2%	33 - 36	4.7%
37 - 40	15.6%	37 - 40	6.3%
41 - 44	15.6%	41 - 44	9.4%
45 - 48	3.1%	45 - 48	10.9%
49 - 52	0.0%	49 - 52	10.9%
53 - 56	3.1%	53 - 56	18.8%
57 - 60	0.0%	57 - 60	3.1%
61 - 64	0.0%	61 - 64	7.8%
65 - 68	0.0%	65 - 68	1.6%
69 - 72	0.0%	69 - 72	6.3%
73 - 76	0.0%	73 - 76	1.6%
77 - 80	0.0%	77 - 80	1.6%
81 - 84	0.0%	81 - 84	1.6%
85 - 88	0.0%	85 - 88	0.0%
89 - 92	0.0%	89 - 92	0.0%
93 - 96	0.0%	93 - 96	0.0%
97 - 100	0.0%	97 - 100	1.6%
> 100	0.0%	> 100	0.0%
(Cases) N=	64	(Cases) N=	64
mean	34	mean	50
min height (cm)	18	min width (cm)	25
max height (cm)	54	max width (cm)	99

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - East Fish Camp

Lophogorgia chilensis heights

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	0.0%
21 - 24	3.4%
25 - 28	6.9%
29 - 32	10.3%
33 - 36	10.3%
37 - 40	27.6%
41 - 44	3.4%
45 - 48	17.2%
49 - 52	10.3%
53 - 56	6.9%
57 - 60	3.4%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	29
mean	40
min height (cm)	21
max height (cm)	60

Lophogorgia chilensis widths

< 5	0.0%
5 - 8	0.0%
9 - 12	6.9%
13 - 16	3.4%
17 - 20	6.9%
21 - 24	3.4%
24 - 28	10.3%
29 - 32	10.3%
33 - 36	13.8%
37 - 40	20.7%
41 - 44	6.9%
45 - 48	6.9%
49 - 52	3.4%
53 - 56	3.4%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	3.4%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	29
mean	34
min width (cm)	9
max width (cm)	65

Muricea fruticosa heights

< 5	0.0%
5 - 8	0.0%
9 - 12	14.3%
13 - 16	14.3%
17 - 20	28.6%
21 - 24	14.3%
25 - 28	14.3%
29 - 32	14.3%
33 - 36	0.0%
37 - 40	0.0%
41 - 44	0.0%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	7
mean	21
min height (cm)	10
max height (cm)	31

Muricea fruticosa widths

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	14.3%
21 - 24	14.3%
24 - 28	0.0%
29 - 32	0.0%
33 - 36	28.6%
37 - 40	0.0%
41 - 44	14.3%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	28.6%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	7
mean	40
min width (cm)	20
max width (cm)	63

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - East Fish Camp (continued)

<i>Muricea californica</i> heights		<i>Muricea californica</i> widths	
< 5	0.0%	< 5	0.0%
5 - 8	0.0%	5 - 8	0.0%
9 - 12	0.0%	9 - 12	0.0%
13 - 16	3.7%	13 - 16	7.4%
17 - 20	3.7%	17 - 20	0.0%
21 - 24	0.0%	21 - 24	0.0%
25 - 28	7.4%	24 - 28	0.0%
29 - 32	7.4%	29 - 32	0.0%
33 - 36	22.2%	33 - 36	3.7%
37 - 40	25.9%	37 - 40	7.4%
41 - 44	7.4%	41 - 44	7.4%
45 - 48	3.7%	45 - 48	0.0%
49 - 52	0.0%	49 - 52	11.1%
53 - 56	3.7%	53 - 56	11.1%
57 - 60	3.7%	57 - 60	0.0%
61 - 64	0.0%	61 - 64	7.4%
65 - 68	7.4%	65 - 68	3.7%
69 - 72	3.7%	69 - 72	11.1%
73 - 76	0.0%	73 - 76	18.5%
77 - 80	0.0%	77 - 80	0.0%
81 - 84	0.0%	81 - 84	3.7%
85 - 88	0.0%	85 - 88	3.7%
89 - 92	0.0%	89 - 92	0.0%
93 - 96	0.0%	93 - 96	0.0%
97 - 100	0.0%	97 - 100	3.7%
> 100	0.0%	> 100	0.0%
(Cases) N=	27	(Cases) N=	27
mean	40	mean	58
min height (cm)	15	min width (cm)	13
max height (cm)	70	max width (cm)	98

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Black Sea Bass Reef

Lophogorgia chilensis heights

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	7.1%
21 - 24	0.0%
25 - 28	0.0%
29 - 32	7.1%
33 - 36	14.3%
37 - 40	14.3%
41 - 44	28.6%
45 - 48	7.1%
49 - 52	14.3%
53 - 56	0.0%
57 - 60	7.1%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	14
mean	40
min height (cm)	17
max height (cm)	57

Lophogorgia chilensis widths

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	7.1%
21 - 24	14.3%
24 - 28	7.1%
29 - 32	14.3%
33 - 36	7.1%
37 - 40	14.3%
41 - 44	0.0%
45 - 48	28.6%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	7.1%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	14
mean	36
min width (cm)	17
max width (cm)	57

Muricea fruticosa heights

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	0.0%
21 - 24	16.7%
25 - 28	0.0%
29 - 32	33.3%
33 - 36	0.0%
37 - 40	33.3%
41 - 44	0.0%
45 - 48	0.0%
49 - 52	16.7%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	6
mean	36
min height (cm)	23
max height (cm)	51

Muricea fruticosa widths

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	16.7%
21 - 24	0.0%
24 - 28	0.0%
29 - 32	0.0%
33 - 36	0.0%
37 - 40	0.0%
41 - 44	0.0%
45 - 48	16.7%
49 - 52	33.3%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	16.7%
65 - 68	16.7%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	6
mean	49
min width (cm)	20
max width (cm)	66

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Black Sea Bass Reef (continued)

<i>Muricea californica</i> heights		<i>Muricea californica</i> widths	
< 5	0.0%	< 5	0.0%
5 - 8	0.0%	5 - 8	0.0%
9 - 12	0.0%	9 - 12	0.0%
13 - 16	0.0%	13 - 16	0.0%
17 - 20	0.0%	17 - 20	0.0%
21 - 24	0.0%	21 - 24	0.0%
25 - 28	33.3%	24 - 28	0.0%
29 - 32	16.7%	29 - 32	0.0%
33 - 36	0.0%	33 - 36	0.0%
37 - 40	0.0%	37 - 40	0.0%
41 - 44	33.3%	41 - 44	33.3%
45 - 48	16.7%	45 - 48	0.0%
49 - 52	0.0%	49 - 52	16.7%
53 - 56	0.0%	53 - 56	0.0%
57 - 60	0.0%	57 - 60	0.0%
61 - 64	0.0%	61 - 64	16.7%
65 - 68	0.0%	65 - 68	0.0%
69 - 72	0.0%	69 - 72	0.0%
73 - 76	0.0%	73 - 76	16.7%
77 - 80	0.0%	77 - 80	16.7%
81 - 84	0.0%	81 - 84	0.0%
85 - 88	0.0%	85 - 88	0.0%
89 - 92	0.0%	89 - 92	0.0%
93 - 96	0.0%	93 - 96	0.0%
97 - 100	0.0%	97 - 100	0.0%
> 100	0.0%	> 100	0.0%
(Cases) N=	6	(Cases) N=	6
mean	36	mean	59
min height (cm)	25	min width (cm)	43
max height (cm)	45	max width (cm)	78

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island – Lighthouse

Lophogorgia chilensis heights

< 5	0.0%
5 - 8	3.3%
9 - 12	3.3%
13 - 16	10.0%
17 - 20	21.7%
21 - 24	11.7%
25 - 28	10.0%
29 - 32	10.0%
33 - 36	15.0%
37 - 40	8.3%
41 - 44	1.7%
45 - 48	5.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	60
mean	26
min height (cm)	7
max height (cm)	47

Lophogorgia chilensis widths

< 5	1.7%
5 - 8	10.0%
9 - 12	16.7%
13 - 16	13.3%
17 - 20	16.7%
21 - 24	10.0%
24 - 28	15.0%
29 - 32	5.0%
33 - 36	6.7%
37 - 40	3.3%
41 - 44	1.7%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	60
mean	20
min width (cm)	4
max width (cm)	44

Muricea fruticosa heights

< 5	0.0%
5 - 8	0.0%
9 - 12	42.9%
13 - 16	28.6%
17 - 20	14.3%
21 - 24	14.3%
25 - 28	0.0%
29 - 32	0.0%
33 - 36	0.0%
37 - 40	0.0%
41 - 44	0.0%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	7
mean	14
min height (cm)	9
max height (cm)	21

Muricea fruticosa widths

< 5	0.0%
5 - 8	0.0%
9 - 12	14.3%
13 - 16	14.3%
17 - 20	28.6%
21 - 24	0.0%
24 - 28	14.3%
29 - 32	14.3%
33 - 36	14.3%
37 - 40	0.0%
41 - 44	0.0%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	7
mean	23
min width (cm)	10
max width (cm)	33

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island – Lighthouse (continued)

<i>Muricea californica</i> heights		<i>Muricea californica</i> widths	
< 5	0.0%	< 5	0.0%
5 - 8	0.0%	5 - 8	0.0%
9 - 12	1.7%	9 - 12	0.0%
13 - 16	6.7%	13 - 16	1.7%
17 - 20	1.7%	17 - 20	3.3%
21 - 24	6.7%	21 - 24	3.3%
25 - 28	15.0%	24 - 28	3.3%
29 - 32	21.7%	29 - 32	1.7%
33 - 36	16.7%	33 - 36	3.3%
37 - 40	11.7%	37 - 40	5.0%
41 - 44	10.0%	41 - 44	5.0%
45 - 48	1.7%	45 - 48	6.7%
49 - 52	5.0%	49 - 52	8.3%
53 - 56	0.0%	53 - 56	10.0%
57 - 60	1.7%	57 - 60	8.3%
61 - 64	0.0%	61 - 64	5.0%
65 - 68	0.0%	65 - 68	8.3%
69 - 72	0.0%	69 - 72	13.3%
73 - 76	0.0%	73 - 76	5.0%
77 - 80	0.0%	77 - 80	6.7%
81 - 84	0.0%	81 - 84	0.0%
85 - 88	0.0%	85 - 88	0.0%
89 - 92	0.0%	89 - 92	1.7%
93 - 96	0.0%	93 - 96	0.0%
97 - 100	0.0%	97 - 100	0.0%
> 100	0.0%	> 100	0.0%
(Cases) N=	60	(Cases) N=	60
mean	32	mean	54
min height (cm)	12	min width (cm)	15
max height (cm)	60	max width (cm)	90

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Graveyard Canyon

Lophogorgia chilensis heights

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	1.3%
21 - 24	6.6%
25 - 28	11.8%
29 - 32	30.3%
33 - 36	22.4%
37 - 40	17.1%
41 - 44	6.6%
45 - 48	3.9%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	76
mean	33
min height (cm)	17
max height (cm)	48

Lophogorgia chilensis widths

< 5	0.0%
5 - 8	0.0%
9 - 12	6.6%
13 - 16	9.2%
17 - 20	17.1%
21 - 24	13.2%
24 - 28	26.3%
29 - 32	9.2%
33 - 36	6.6%
37 - 40	1.3%
41 - 44	2.6%
45 - 48	3.9%
49 - 52	1.3%
53 - 56	1.3%
57 - 60	1.3%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	76
mean	26
min width (cm)	10
max width (cm)	58

Muricea californica heights

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	5.9%
21 - 24	0.0%
25 - 28	2.9%
29 - 32	20.6%
33 - 36	5.9%
37 - 40	32.4%
41 - 44	11.8%
45 - 48	2.9%
49 - 52	11.8%
53 - 56	5.9%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	34
mean	38
min height (cm)	20
max height (cm)	55

Muricea californica widths

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	0.0%
21 - 24	0.0%
24 - 28	0.0%
29 - 32	2.9%
33 - 36	2.9%
37 - 40	0.0%
41 - 44	0.0%
45 - 48	0.0%
49 - 52	14.7%
53 - 56	11.8%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	5.9%
69 - 72	8.8%
73 - 76	14.7%
77 - 80	11.8%
81 - 84	5.9%
85 - 88	11.8%
89 - 92	5.9%
93 - 96	2.9%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	34
mean	69
min width (cm)	31
max width (cm)	93

2005 GORGONIAN/*Stylaster californica* SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Southeast Reef

Lophogorgia chilensis heights

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	16.7%
21 - 24	0.0%
25 - 28	50.0%
29 - 32	16.7%
33 - 36	0.0%
37 - 40	16.7%
41 - 44	0.0%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	6
mean	28
min height (cm)	17
max height (cm)	40

Lophogorgia chilensis widths

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	16.7%
17 - 20	16.7%
21 - 24	33.3%
24 - 28	16.7%
29 - 32	0.0%
33 - 36	16.7%
37 - 40	0.0%
41 - 44	0.0%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	6
mean	23
min width (cm)	13
max width (cm)	34

Muricea californica heights

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	0.0%
21 - 24	16.7%
25 - 28	0.0%
29 - 32	0.0%
33 - 36	0.0%
37 - 40	0.0%
41 - 44	33.3%
45 - 48	33.3%
49 - 52	16.7%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	0.0%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	0.0%
> 100	0.0%
(Cases) N=	6
mean	42
min height (cm)	21
max height (cm)	50

Muricea californica widths

< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	0.0%
21 - 24	0.0%
24 - 28	0.0%
29 - 32	0.0%
33 - 36	16.7%
37 - 40	0.0%
41 - 44	0.0%
45 - 48	0.0%
49 - 52	0.0%
53 - 56	0.0%
57 - 60	0.0%
61 - 64	0.0%
65 - 68	0.0%
69 - 72	16.7%
73 - 76	16.7%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	33.3%
89 - 92	0.0%
93 - 96	0.0%
97 - 100	16.7%
> 100	0.0%
(Cases) N=	6
mean	76
min width (cm)	35
max width (cm)	99

2005 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee North (continued)

<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus purpuratus</i>	
Number of ARMs	8	Number of ARMs	8
< 5	0.0%	< 5	0.0%
5 - 9	1.3%	5 - 9	10.3%
10 - 14	9.6%	10 - 14	6.9%
15 - 19	5.9%	15 - 19	3.4%
20 - 24	4.2%	20 - 24	20.7%
25 - 29	10.0%	25 - 29	27.6%
30 - 34	10.9%	30 - 34	13.8%
35 - 39	7.5%	35 - 39	3.4%
40 - 44	7.1%	40 - 44	13.8%
45 - 49	5.0%	45 - 49	0.0%
50 - 54	3.3%	50 - 54	0.0%
55 - 59	2.5%	55 - 59	0.0%
60 - 64	5.9%	60 - 64	0.0%
65 - 69	4.2%	65 - 69	0.0%
70 - 74	6.3%	70 - 74	0.0%
75 - 79	5.9%	75 - 79	0.0%
80 - 84	0.8%	> 79	0.0%
85 - 89	2.9%	(Cases) N=	29
90 - 94	3.3%	mean	26
95 - 99	2.1%	min size (mm)	6
100 - 104	1.3%	max size (mm)	42
105 - 109	0.0%		
> 109	0.0%		
(Cases) N=	239		
mean	46		
min size (mm)	9		
max size (mm)	103		

2005 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee South

<i>Cypraea spadicea</i>		<i>Megathura crenulata</i>		<i>Patiria miniata</i>	
Number of ARMs	7	Number of ARMs	7	Number of ARMs	7
<30	0.0%	<10	0.0%	<10	2.3%
30 - 32	0.0%	10 - 19	0.0%	10 - 19	14.0%
33 - 35	0.0%	20 - 29	50.0%	20 - 29	25.6%
36 - 38	0.0%	30 - 39	0.0%	30 - 39	16.3%
39 - 41	7.1%	40 - 49	0.0%	40 - 49	14.0%
42 - 44	14.3%	50 - 59	0.0%	50 - 59	14.0%
45 - 47	17.9%	60 - 69	0.0%	60 - 69	7.0%
48 - 50	42.9%	70 - 79	50.0%	70 - 79	7.0%
51 - 53	14.3%	80 - 89	0.0%	80 - 89	0.0%
54 - 56	3.6%	90 - 99	0.0%	90 - 99	0.0%
>56	0.0%	100 - 109	0.0%	> 99	0.0%
(Cases) N=	28	110 - 119	0.0%	(Cases) N=	43
mean	48	> 119	0.0%	mean	37
min size (mm)	39	(Cases) N=	2	min size (mm)	8
max size (mm)	55	mean	48	max size (mm)	72
		min size (mm)	21		
		max size (mm)	74		
<i>Kelletia kelletii</i>		<i>Crassedoma giganteum</i>		<i>Pisaster giganteus</i>	
Number of ARMs	7	Number of ARMs	7	Number of ARMs	7
< 40	50.0%	<10	0.0%	< 20	0.0%
40 - 49	0.0%	10 - 19	11.1%	20 - 39	44.0%
50 - 59	0.0%	20 - 29	11.1%	40 - 59	56.0%
60 - 69	50.0%	30 - 39	11.1%	60 - 79	0.0%
70 - 79	0.0%	40 - 49	11.1%	80 - 99	0.0%
80 - 89	0.0%	50 - 59	11.1%	100 - 119	0.0%
90 - 99	0.0%	60 - 69	0.0%	120 - 139	0.0%
100 - 109	0.0%	70 - 79	11.1%	140 - 159	0.0%
110 - 119	0.0%	80 - 89	11.1%	160 - 179	0.0%
120 - 129	0.0%	90 - 99	11.1%	180 - 199	0.0%
130 - 139	0.0%	100 - 109	0.0%	200 - 219	0.0%
140 - 149	0.0%	110 - 119	0.0%	220 - 239	0.0%
> 149	0.0%	120 - 129	11.1%	> 239	0.0%
(Cases) N=	2	130 - 139	0.0%	(Cases) N=	25
mean	43	> 139	0.0%	mean	39
min size (mm)	23	(Cases) N=	9	min size (mm)	22
max size (mm)	62	mean	61	max size (mm)	53
		min size (mm)	18		
		max size (mm)	129		

2005 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee South (continued)

<i>Pycnopodia helianthoides</i> <i>purpuratus</i>		<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus</i>	
Number of ARMs	7	Number of ARMs	7	Number of ARMs	7
< 20	0.0%	< 5	0.4%	< 5	0.0%
20 - 39	0.0%	5 - 9	1.3%	5 - 9	1.5%
40 - 59	33.3%	10 - 14	2.1%	10 - 14	1.5%
60 - 79	33.3%	15 - 19	5.0%	15 - 19	9.2%
80 - 99	0.0%	20 - 24	7.1%	20 - 24	12.3%
100 - 119	33.3%	25 - 29	6.7%	25 - 29	16.9%
120 - 139	0.0%	30 - 34	4.6%	30 - 34	10.8%
140 - 159	0.0%	35 - 39	3.8%	35 - 39	15.4%
160 - 179	0.0%	40 - 44	7.1%	40 - 44	10.8%
180 - 199	0.0%	45 - 49	5.4%	45 - 49	10.8%
200 - 219	0.0%	50 - 54	2.5%	50 - 54	3.1%
220 - 239	0.0%	55 - 59	2.5%	55 - 59	4.6%
240 - 259	0.0%	60 - 64	4.2%	60 - 64	0.0%
260 - 279	0.0%	65 - 69	4.2%	65 - 69	3.1%
280 - 299	0.0%	70 - 74	4.2%	70 - 74	0.0%
> 299	0.0%	75 - 79	7.5%	75 - 79	0.0%
(Cases) N=	3	80 - 84	10.8%	> 79	0.0%
mean	80	85 - 89	6.7%	(Cases) N=	65
min size (mm)	49	90 - 94	8.8%	mean	34
max size (mm)	115	95 - 99	4.6%	min size (mm)	5
		100 - 104	0.4%	max size (mm)	66
		105 - 109	0.0%		
		> 109	0.4%		
		(Cases) N=	240		
		mean	58		
		min size (mm)	3		
		max size (mm)	116		

2005 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

<i>Haliotis rufescens</i>		<i>Kelletia kelletii</i>		<i>Megathura crenulata</i>	
Number of ARMs	14	Number of ARMs	14	Number of ARMs	14
<25	50.0%	< 40	50.0%	<10	0.0%
25 - 34	0.0%	40 - 49	0.0%	10 - 19	0.0%
35 - 44	50.0%	50 - 59	0.0%	20 - 29	100.0%
45 - 54	0.0%	60 - 69	0.0%	30 - 39	0.0%
55 - 64	0.0%	70 - 79	50.0%	40 - 49	0.0%
65 - 74	0.0%	80 - 89	0.0%	50 - 59	0.0%
75 - 84	0.0%	90 - 99	0.0%	60 - 69	0.0%
85 - 94	0.0%	100 - 109	0.0%	70 - 79	0.0%
95 - 104	0.0%	110 - 119	0.0%	80 - 89	0.0%
105 - 114	0.0%	120 - 129	0.0%	90 - 99	0.0%
115 - 124	0.0%	130 - 139	0.0%	100 - 109	0.0%
125 - 134	0.0%	140 - 149	0.0%	110 - 119	0.0%
135 - 144	0.0%	> 149	0.0%	> 119	0.0%
145 - 154	0.0%	(Cases) N=	2	(Cases) N=	2
155 - 164	0.0%	mean	49	mean	22
165 - 174	0.0%	min size (mm)	23	min size (mm)	21
175 - 184	0.0%	max size (mm)	75	max size (mm)	23
185 - 194	0.0%				
>195	0.0%				
(Cases) N=	2	<i>Megastrea undosa</i>		<i>Crassidoma giganteum</i>	
mean	27	Number of ARMs	14	Number of ARMs	14
min size (mm)	16	<10	0.0%	<10	0.0%
max size (mm)	38	10 - 19	0.0%	10 - 19	64.7%
		20 - 29	100.0%	20 - 29	11.8%
		30 - 39	0.0%	30 - 39	0.0%
		40 - 49	0.0%	40 - 49	8.8%
		50 - 59	0.0%	50 - 59	0.0%
		60 - 69	0.0%	60 - 69	5.9%
		70 - 79	0.0%	70 - 79	0.0%
		80 - 89	0.0%	80 - 89	0.0%
		90 - 99	0.0%	90 - 99	0.0%
		100 - 109	0.0%	100 - 109	2.9%
		110 - 119	0.0%	110 - 119	0.0%
		> 119	0.0%	120 - 129	2.9%
		(Cases) N=	1	130 - 139	2.9%
		mean	22	> 139	0.0%
		min size (mm)	22	(Cases) N=	34
		max size (mm)	22	mean	31
				min size (mm)	10
				max size (mm)	135
<i>Cypraea spadicea</i>					
Number of ARMs	14				
<30	0.0%				
30 - 32	0.7%				
33 - 35	1.4%				
36 - 38	8.3%				
39 - 41	18.1%				
42 - 44	26.4%				
45 - 47	21.5%				
48 - 50	16.0%				
51 - 53	6.9%				
54 - 56	0.0%				
>56	0.7%				
(Cases) N=	144				
mean	44				
min size (mm)	32				
max size (mm)	58				

2005 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South (continued)

<i>Patiria miniata</i>		<i>Pycnopodia helianthoides</i>		<i>Strongylocentrotus franciscanus</i>	
Number of ARMs	14	Number of ARMs	14	Number of ARMs	14
<10	5.3%	< 20	0.0%	< 5	0.0%
10 - 19	28.0%	20 - 39	0.0%	5 - 9	1.2%
20 - 29	30.7%	40 - 59	0.0%	10 - 14	13.3%
30 - 39	18.7%	60 - 79	0.0%	15 - 19	27.9%
40 - 49	6.7%	80 - 99	0.0%	20 - 24	26.9%
50 - 59	6.7%	100 - 119	75.0%	25 - 29	11.2%
60 - 69	4.0%	120 - 139	0.0%	30 - 34	6.4%
70 - 79	0.0%	140 - 159	25.0%	35 - 39	4.2%
80 - 89	0.0%	160 - 179	0.0%	40 - 44	2.6%
90 - 99	0.0%	180 - 199	0.0%	45 - 49	3.0%
> 99	0.0%	200 - 219	0.0%	50 - 54	1.8%
(Cases) N=	75	220 - 239	0.0%	55 - 59	0.4%
mean	27	240 - 259	0.0%	60 - 64	0.6%
min size (mm)	5	260 - 279	0.0%	65 - 69	0.2%
max size (mm)	63	280 - 299	0.0%	70 - 74	0.0%
		> 299	0.0%	75 - 79	0.0%
		(Cases) N=	4	80 - 84	0.0%
		mean	120	85 - 89	0.2%
		min size (mm)	104	90 - 94	0.0%
		max size (mm)	150	95 - 99	0.0%
				100 - 104	0.0%
				105 - 109	0.0%
				> 109	0.0%
				(Cases) N=	498
				mean	23
				min size (mm)	6
				max size (mm)	88
<i>Pisaster giganteus</i>					
Number of ARMs	14				
< 20	5.3%				
20 - 39	31.6%				
40 - 59	31.6%				
60 - 79	31.6%				
80 - 99	0.0%				
100 - 119	0.0%				
120 - 139	0.0%				
140 - 159	0.0%				
160 - 179	0.0%				
180 - 199	0.0%				
200 - 219	0.0%				
220 - 239	0.0%				
> 239	0.0%				
(Cases) N=	19				
mean	49				
min size (mm)	15				
max size (mm)	77				

2005 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South (continued)

Strongylocentrotus purpuratus

Number of ARMs	14
< 5	0.0%
5 - 9	2.4%
10 - 14	15.5%
15 - 19	43.0%
20 - 24	33.8%
25 - 29	4.8%
30 - 34	0.5%
35 - 39	0.0%
40 - 44	0.0%
45 - 49	0.0%
50 - 54	0.0%
55 - 59	0.0%
60 - 64	0.0%
65 - 69	0.0%
70 - 74	0.0%
75 - 79	0.0%
> 79	0.0%
(Cases) N=	207
mean	18
min size (mm)	5
max size (mm)	32

2005 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Fry's Harbor

Cypraea spadicea

Number of ARMs	5
<30	0.0%
30 - 32	0.0%
33 - 35	12.2%
36 - 38	7.3%
39 - 41	34.1%
42 - 44	26.8%
45 - 47	17.1%
48 - 50	2.4%
51 - 53	0.0%
54 - 56	0.0%
>56	0.0%
(Cases) N=	41
mean	41
min size (mm)	34
max size (mm)	48

Kelletia kelletii

Number of ARMs	5
< 40	0.0%
40 - 49	0.0%
50 - 59	0.0%
60 - 69	0.0%
70 - 79	0.0%
80 - 89	100.0%
90 - 99	0.0%
100 - 109	0.0%
110 - 119	0.0%
120 - 129	0.0%
130 - 139	0.0%
140 - 149	0.0%
> 149	0.0%
(Cases) N=	1
mean	81
min size (mm)	81
max size (mm)	81

Megathura crenulata

Number of ARMs	5
<10	0.0%
10 - 19	0.0%
20 - 29	0.0%
30 - 39	100.0%
40 - 49	0.0%
50 - 59	0.0%
60 - 69	0.0%
70 - 79	0.0%
80 - 89	0.0%
90 - 99	0.0%
100 - 109	0.0%
110 - 119	0.0%
> 119	0.0%
(Cases) N=	1
mean	34
min size (mm)	34
max size (mm)	34

Crassedoma giganteum

Number of ARMs	5
<10	12.5%
10 - 19	6.3%
20 - 29	25.0%
30 - 39	18.8%
40 - 49	12.5%
50 - 59	6.3%
60 - 69	0.0%
70 - 79	0.0%
80 - 89	0.0%
90 - 99	0.0%
100 - 109	0.0%
110 - 119	0.0%
120 - 129	0.0%
130 - 139	0.0%
> 139	18.8%
(Cases) N=	16
mean	51
min size (mm)	5
max size (mm)	162

Patiria miniata

Number of ARMs	5
<10	0.0%
10 - 19	6.9%
20 - 29	22.4%
30 - 39	32.8%
40 - 49	25.9%
50 - 59	6.9%
60 - 69	5.2%
70 - 79	0.0%
80 - 89	0.0%
90 - 99	0.0%
> 99	0.0%
(Cases) N=	58
mean	36
min size (mm)	11
max size (mm)	60

Pisaster giganteus

Number of ARMs	5
< 20	0.0%
20 - 39	16.7%
40 - 59	16.7%
60 - 79	33.3%
80 - 99	16.7%
100 - 119	16.7%
120 - 139	0.0%
140 - 159	0.0%
160 - 179	0.0%
180 - 199	0.0%
200 - 219	0.0%
220 - 239	0.0%
> 239	0.0%
(Cases) N=	6
mean	68
min size (mm)	38
max size (mm)	113

2005 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Fry's Harbor (continued)

<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus purpuratus</i>	
Number of ARMs	5	Number of ARMs	5
< 5	0.0%	< 5	0.0%
5 - 9	0.0%	5 - 9	14.3%
10 - 14	0.0%	10 - 14	0.0%
15 - 19	12.2%	15 - 19	14.3%
20 - 24	4.9%	20 - 24	0.0%
25 - 29	7.3%	25 - 29	42.9%
30 - 34	9.8%	30 - 34	14.3%
35 - 39	9.8%	35 - 39	14.3%
40 - 44	19.5%	40 - 44	0.0%
45 - 49	9.8%	45 - 49	0.0%
50 - 54	12.2%	50 - 54	0.0%
55 - 59	14.6%	55 - 59	0.0%
60 - 64	0.0%	60 - 64	0.0%
65 - 69	0.0%	65 - 69	0.0%
70 - 74	0.0%	70 - 74	0.0%
75 - 79	0.0%	75 - 79	0.0%
80 - 84	0.0%	> 79	0.0%
85 - 89	0.0%	(Cases) N=	7
90 - 94	0.0%	mean	25
95 - 99	0.0%	min size (mm)	6
100 - 104	0.0%	max size (mm)	39
105 - 109	0.0%		
> 109	0.0%		
(Cases) N=	41		
mean	39		
min size (mm)	15		
max size (mm)	58		

2005 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pelican Bay

<i>Cypraea spadicea</i>	
Number of ARMs	6
<30	0.0%
30 - 32	0.0%
33 - 35	0.0%
36 - 38	8.7%
39 - 41	32.6%
42 - 44	26.1%
45 - 47	13.0%
48 - 50	15.2%
51 - 53	2.2%
54 - 56	2.2%
>56	0.0%
(Cases) N=	46
mean	43
min size (mm)	37
max size (mm)	54

<i>Megathura crenulata</i>	
Number of ARMs	6
<10	0.0%
10 - 19	0.0%
20 - 29	0.0%
30 - 39	0.0%
40 - 49	0.0%
50 - 59	100.0%
60 - 69	0.0%
70 - 79	0.0%
80 - 89	0.0%
90 - 99	0.0%
100 - 109	0.0%
110 - 119	0.0%
> 119	0.0%
(Cases) N=	1
mean	55
min size (mm)	55
max size (mm)	55

<i>Crassedoma giganteum</i>	
Number of ARMs	6
<10	0.0%
10 - 19	23.1%
20 - 29	0.0%
30 - 39	38.5%
40 - 49	15.4%
50 - 59	7.7%
60 - 69	0.0%
70 - 79	0.0%
80 - 89	0.0%
90 - 99	0.0%
100 - 109	0.0%
110 - 119	0.0%
120 - 129	7.7%
130 - 139	7.7%
> 139	0.0%
(Cases) N=	13
mean	47
min size (mm)	11
max size (mm)	132

<i>Patiria miniata</i>	
Number of ARMs	6
<10	4.0%
10 - 19	32.0%
20 - 29	16.0%
30 - 39	24.0%
40 - 49	16.0%
50 - 59	4.0%
60 - 69	4.0%
70 - 79	0.0%
80 - 89	0.0%
90 - 99	0.0%
> 99	0.0%
(Cases) N=	25
mean	29
min size (mm)	8
max size (mm)	60

<i>Pisaster giganteus</i>	
Number of ARMs	6
< 20	0.0%
20 - 39	100.0%
40 - 59	0.0%
60 - 79	0.0%
80 - 99	0.0%
100 - 119	0.0%
120 - 139	0.0%
140 - 159	0.0%
160 - 179	0.0%
180 - 199	0.0%
200 - 219	0.0%
220 - 239	0.0%
> 239	0.0%
(Cases) N=	1
mean	24
min size (mm)	24
max size (mm)	24

2005 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pelican Bay (continued)

<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus purpuratus</i>	
Number of ARMs 6		Number of ARMs 6	
< 5	0.0%	< 5	0.0%
5 - 9	0.0%	5 - 9	0.0%
10 - 14	3.3%	10 - 14	0.0%
15 - 19	1.7%	15 - 19	1.3%
20 - 24	3.3%	20 - 24	7.8%
25 - 29	5.0%	25 - 29	40.3%
30 - 34	13.3%	30 - 34	36.4%
35 - 39	20.0%	35 - 39	7.8%
40 - 44	10.0%	40 - 44	2.6%
45 - 49	25.0%	45 - 49	2.6%
50 - 54	13.3%	50 - 54	1.3%
55 - 59	5.0%	55 - 59	0.0%
60 - 64	0.0%	60 - 64	0.0%
65 - 69	0.0%	65 - 69	0.0%
70 - 74	0.0%	70 - 74	0.0%
75 - 79	0.0%	75 - 79	0.0%
80 - 84	0.0%	> 79	0.0%
85 - 89	0.0%	(Cases) N=	77
90 - 94	0.0%	mean	30
95 - 99	0.0%	min size (mm)	18
100 - 104	0.0%	max size (mm)	50
105 - 109	0.0%		
> 109	0.0%		
(Cases) N=	60		
mean	41		
min size (mm)	14		
max size (mm)	57		

2005 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Scorpion Anchorage

Cypraea spadicea

Number of ARMs	7
<30	3.0%
30 - 32	11.9%
33 - 35	13.9%
36 - 38	24.8%
39 - 41	19.8%
42 - 44	12.9%
45 - 47	11.9%
48 - 50	1.0%
51 - 53	0.0%
54 - 56	0.0%
>56	1.0%
(Cases) N=	101
mean	38
min size (mm)	27
max size (mm)	58

Megastrea undosa

Number of ARMs	7
<10	0.0%
10 - 19	0.0%
20 - 29	10.0%
30 - 39	90.0%
40 - 49	0.0%
50 - 59	0.0%
60 - 69	0.0%
70 - 79	0.0%
80 - 89	0.0%
90 - 99	0.0%
100 - 109	0.0%
110 - 119	0.0%
> 119	0.0%
(Cases) N=	10
mean	33
min size (mm)	25
max size (mm)	37

Megathura crenulata

Number of ARMs	7
<10	0.0%
10 - 19	20.0%
20 - 29	0.0%
30 - 39	0.0%
40 - 49	0.0%
50 - 59	20.0%
60 - 69	0.0%
70 - 79	60.0%
80 - 89	0.0%
90 - 99	0.0%
100 - 109	0.0%
110 - 119	0.0%
> 119	0.0%
(Cases) N=	5
mean	58
min size (mm)	12
max size (mm)	79

Crassedoma giganteum

Number of ARMs	7
<10	8.3%
10 - 19	8.3%
20 - 29	8.3%
30 - 39	8.3%
40 - 49	8.3%
50 - 59	0.0%
60 - 69	0.0%
70 - 79	0.0%
80 - 89	0.0%
90 - 99	0.0%
100 - 109	0.0%
110 - 119	8.3%
120 - 129	16.7%
130 - 139	8.3%
> 139	25.0%
(Cases) N=	12
mean	91
min size (mm)	5
max size (mm)	162

Patiria miniata

Number of ARMs	7
<10	0.0%
10 - 19	0.0%
20 - 29	0.0%
30 - 39	0.0%
40 - 49	66.7%
50 - 59	33.3%
60 - 69	0.0%
70 - 79	0.0%
80 - 89	0.0%
90 - 99	0.0%
> 99	0.0%
(Cases) N=	3
mean	48
min size (mm)	42
max size (mm)	54

Pisaster giganteus

Number of ARMs	7
< 20	0.0%
20 - 39	0.0%
40 - 59	0.0%
60 - 79	0.0%
80 - 99	0.0%
100 - 119	0.0%
120 - 139	0.0%
140 - 159	0.0%
160 - 179	0.0%
180 - 199	100.0%
200 - 219	0.0%
220 - 239	0.0%
> 239	0.0%
(Cases) N=	1
mean	180
min size (mm)	180
max size (mm)	180

2005 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Scorpion Anchorage (continued)

<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus purpuratus</i>	
Number of ARMs 7		Number of ARMs 7	
< 5	2.9%	< 5	3.1%
5 - 9	21.4%	5 - 9	16.0%
10 - 14	25.7%	10 - 14	10.4%
15 - 19	2.9%	15 - 19	1.8%
20 - 24	0.0%	20 - 24	1.8%
25 - 29	0.0%	25 - 29	5.5%
30 - 34	2.9%	30 - 34	28.2%
35 - 39	0.0%	35 - 39	26.4%
40 - 44	5.7%	40 - 44	6.7%
45 - 49	17.1%	45 - 49	0.0%
50 - 54	17.1%	50 - 54	0.0%
55 - 59	2.9%	55 - 59	0.0%
60 - 64	1.4%	60 - 64	0.0%
65 - 69	0.0%	65 - 69	0.0%
70 - 74	0.0%	70 - 74	0.0%
75 - 79	0.0%	75 - 79	0.0%
80 - 84	0.0%	> 79	0.0%
85 - 89	0.0%	(Cases) N=	163
90 - 94	0.0%	mean	26
95 - 99	0.0%	min size (mm)	3
100 - 104	0.0%	max size (mm)	44
105 - 109	0.0%		
> 109	0.0%		
(Cases) N=	70	<i>Centrostephanus coronatus</i>	
mean	28	Number of ARMs	7
min size (mm)	4	< 5	0.0%
max size (mm)	60	5 - 9	0.0%
		10 - 14	0.0%
		15 - 19	100.0%
		20 - 24	0.0%
		25 - 29	0.0%
		30 - 34	0.0%
		35 - 39	0.0%
		40 - 44	0.0%
		45 - 49	0.0%
		50 - 54	0.0%
		55 - 59	0.0%
		60 - 64	0.0%
		65 - 69	0.0%
		70 - 74	0.0%
		75 - 79	0.0%
		> 79	0.0%
		(Cases) N=	1
		mean	17
		min size (mm)	17
		max size (mm)	17

2005 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

<i>Haliotis rufescens</i>		<i>Kelletia kelletii</i>		<i>Megathura crenulata</i>	
Number of ARMs	14	Number of ARMs	14	Number of ARMs	14
<25	100.0%	< 40	81.8%	<10	0.0%
25 - 34	0.0%	40 - 49	18.2%	10 - 19	100.0%
35 - 44	0.0%	50 - 59	0.0%	20 - 29	0.0%
45 - 54	0.0%	60 - 69	0.0%	30 - 39	0.0%
55 - 64	0.0%	70 - 79	0.0%	40 - 49	0.0%
65 - 74	0.0%	80 - 89	0.0%	50 - 59	0.0%
75 - 84	0.0%	90 - 99	0.0%	60 - 69	0.0%
85 - 94	0.0%	100 - 109	0.0%	70 - 79	0.0%
95 - 104	0.0%	110 - 119	0.0%	80 - 89	0.0%
105 - 114	0.0%	120 - 129	0.0%	90 - 99	0.0%
115 - 124	0.0%	130 - 139	0.0%	100 - 109	0.0%
125 - 134	0.0%	140 - 149	0.0%	110 - 119	0.0%
135 - 144	0.0%	> 149	0.0%	> 119	0.0%
145 - 154	0.0%	(Cases) N=	11	(Cases) N=	1
155 - 164	0.0%	mean	33	mean	16
165 - 174	0.0%	min size (mm)	22	min size (mm)	16
175 - 184	0.0%	max size (mm)	43	max size (mm)	16
185 - 194	0.0%				
>195	0.0%				
(Cases) N=	2	<i>Megastrea undosa</i>		<i>Crassidoma giganteum</i>	
mean	19	Number of ARMs	14	Number of ARMs	14
min size (mm)	18	<10	0.0%	<10	0.0%
max size (mm)	20	10 - 19	0.0%	10 - 19	26.7%
		20 - 29	0.0%	20 - 29	40.0%
		30 - 39	0.0%	30 - 39	6.7%
		40 - 49	0.0%	40 - 49	6.7%
		50 - 59	100.0%	50 - 59	6.7%
		60 - 69	0.0%	60 - 69	0.0%
		70 - 79	0.0%	70 - 79	0.0%
		80 - 89	0.0%	80 - 89	0.0%
		90 - 99	0.0%	90 - 99	6.7%
		100 - 109	0.0%	100 - 109	0.0%
		110 - 119	0.0%	110 - 119	0.0%
		> 119	0.0%	120 - 129	0.0%
		(Cases) N=	1	130 - 139	6.7%
		mean	51	> 139	0.0%
		min size (mm)	51	(Cases) N=	15
		max size (mm)	51	mean	36
				min size (mm)	13
				max size (mm)	130
<i>Cypraea spadicea</i>					
Number of ARMs	14				
<30	1.3%				
30 - 32	2.6%				
33 - 35	9.2%				
36 - 38	34.2%				
39 - 41	22.4%				
42 - 44	14.5%				
45 - 47	11.8%				
48 - 50	3.9%				
51 - 53	0.0%				
54 - 56	0.0%				
>56	0.0%				
(Cases) N=	76				
mean	39				
min size (mm)	25				
max size (mm)	50				

Santa Cruz Island - Yellow Banks (continued)

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2005 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks (continued)

Strongylocentrotus purpuratus

Number of ARMs	10
< 5	0.1%
5 - 9	1.4%
10 - 14	3.8%
15 - 19	7.2%
20 - 24	11.2%
25 - 29	10.6%
30 - 34	10.1%
35 - 39	18.2%
40 - 44	19.6%
45 - 49	12.1%
50 - 54	4.5%
55 - 59	1.2%
60 - 64	0.1%
65 - 69	0.0%
70 - 74	0.0%
75 - 79	0.0%
> 79	0.0%
(Cases) N=	1410
mean	34
min size (mm)	4
max size (mm)	63

Centrostephanus coronatus

Number of ARMs	14
< 5	0.0%
5 - 9	0.0%
10 - 14	100.0%
15 - 19	0.0%
20 - 24	0.0%
25 - 29	0.0%
30 - 34	0.0%
35 - 39	0.0%
40 - 44	0.0%
45 - 49	0.0%
50 - 54	0.0%
55 - 59	0.0%
60 - 64	0.0%
65 - 69	0.0%
70 - 74	0.0%
75 - 79	0.0%
> 79	0.0%
(Cases) N=	1
mean	11
min size (mm)	11
max size (mm)	11

2005 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Admiral's Reef

<i>Cypraea spadicea</i>		<i>Crassedoma giganteum</i>		<i>Strongylocentrotus franciscanus</i>	
Number of ARMs	6	Number of ARMs	6	Number of ARMs	6
<30	0.0%	<10	0.0%	< 5	0.0%
30 - 32	0.0%	10 - 19	0.0%	5 - 9	2.2%
33 - 35	0.0%	20 - 29	25.0%	10 - 14	11.0%
36 - 38	0.0%	30 - 39	12.5%	15 - 19	0.0%
39 - 41	0.0%	40 - 49	12.5%	20 - 24	15.4%
42 - 44	25.0%	50 - 59	0.0%	25 - 29	25.3%
45 - 47	25.0%	60 - 69	0.0%	30 - 34	5.5%
48 - 50	50.0%	70 - 79	25.0%	35 - 39	15.4%
51 - 53	0.0%	80 - 89	12.5%	40 - 44	17.6%
54 - 56	0.0%	90 - 99	0.0%	45 - 49	5.5%
>56	0.0%	100 - 109	0.0%	50 - 54	2.2%
(Cases) N=	4	110 - 119	0.0%	55 - 59	0.0%
mean	47	120 - 129	0.0%	60 - 64	0.0%
min size (mm)	44	130 - 139	0.0%	65 - 69	0.0%
max size (mm)	49	> 139	12.5%	70 - 74	0.0%
		(Cases) N=	8	75 - 79	0.0%
		mean	63	80 - 84	0.0%
		min size (mm)	20	85 - 89	0.0%
		max size (mm)	140	90 - 94	0.0%
				95 - 99	0.0%
<i>Megathura crenulata</i>		<i>Patiria miniata</i>			
Number of ARMs	6	Number of ARMs	6		
<10	0.0%	<10	2.7%	100 - 104	0.0%
		10 - 19	35.4%	105 - 109	0.0%
10 - 19	50.0%	20 - 29	44.2%	> 109	0.0%
20 - 29	0.0%	30 - 39	15.9%	(Cases) N=	91
30 - 39	50.0%	40 - 49	0.0%	mean	30
		50 - 59	0.9%	min size (mm)	9
40 - 49	0.0%	60 - 69	0.9%	max size (mm)	51
50 - 59	0.0%	70 - 79	0.0%		
60 - 69	0.0%	80 - 89	0.0%		
70 - 79	0.0%	90 - 99	0.0%		
80 - 89	0.0%	> 99	0.0%		
90 - 99	0.0%	(Cases) N=	113		
100 - 109	0.0%	mean	23		
110 - 119	0.0%	min size (mm)	8		
> 119	0.0%	max size (mm)	61		
(Cases) N=	2				
mean	25				
min size (mm)	17				
max size (mm)	32				

2005 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Admiral's Reef (continued)

Strongylocentrotus purpuratus

Number of ARMs	6
< 5	0.0%
5 - 9	6.5%
10 - 14	0.0%
15 - 19	0.0%
20 - 24	32.6%
25 - 29	37.0%
30 - 34	17.4%
35 - 39	6.5%
40 - 44	0.0%
45 - 49	0.0%
50 - 54	0.0%
55 - 59	0.0%
60 - 64	0.0%
65 - 69	0.0%
70 - 74	0.0%
75 - 79	0.0%
> 79	0.0%
(Cases) N=	46
mean	26
min size (mm)	7
max size (mm)	37

2005 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Cathedral Cove

Haliotis corrugata

Number of ARMs	7
<25	33.3%
25 - 34	33.3%
35 - 44	33.3%
45 - 54	0.0%
55 - 64	0.0%
65 - 74	0.0%
75 - 84	0.0%
85 - 94	0.0%
95 - 104	0.0%
105 - 114	0.0%
115 - 124	0.0%
125 - 134	0.0%
135 - 144	0.0%
145 - 154	0.0%
155 - 164	0.0%
165 - 174	0.0%
175 - 184	0.0%
185 - 194	0.0%
>195	0.0%
(Cases) N=	3
mean	31
min size (mm)	24
max size (mm)	38

Cypraea spadicea

Number of ARMs	7
<30	0.0%
30 - 32	12.6%
33 - 35	22.3%
36 - 38	22.3%
39 - 41	14.6%
42 - 44	14.6%
45 - 47	10.7%
48 - 50	2.9%
51 - 53	0.0%
54 - 56	0.0%
>56	0.0%
(Cases) N=	103
mean	38
min size (mm)	30
max size (mm)	50

Kelletia kelletii

Number of ARMs	7
< 40	100.0%
40 - 49	0.0%
50 - 59	0.0%
60 - 69	0.0%
70 - 79	0.0%
80 - 89	0.0%
90 - 99	0.0%
100 - 109	0.0%
110 - 119	0.0%
120 - 129	0.0%
130 - 139	0.0%
140 - 149	0.0%
> 149	0.0%
(Cases) N=	2
mean	28
min size (mm)	24
max size (mm)	32

Megastrea undosa

Number of ARMs	7
<10	9.1%
10 - 19	0.0%
20 - 29	9.1%
30 - 39	27.3%
40 - 49	0.0%
50 - 59	36.4%
60 - 69	18.2%
70 - 79	0.0%
80 - 89	0.0%
90 - 99	0.0%
100 - 109	0.0%
110 - 119	0.0%
> 119	0.0%
(Cases) N=	11
mean	44
min size (mm)	8
max size (mm)	67

Megathura crenulata

Number of ARMs	7
<10	0.0%
10 - 19	0.0%
20 - 29	50.0%
30 - 39	0.0%
40 - 49	0.0%
50 - 59	0.0%
60 - 69	50.0%
70 - 79	0.0%
80 - 89	0.0%
90 - 99	0.0%
100 - 109	0.0%
110 - 119	0.0%
> 119	0.0%
(Cases) N=	2
mean	41
min size (mm)	20
max size (mm)	61

Crassidoma giganteum

Number of ARMs	7
<10	4.2%
10 - 19	25.0%
20 - 29	16.7%
30 - 39	4.2%
40 - 49	0.0%
50 - 59	0.0%
60 - 69	0.0%
70 - 79	0.0%
80 - 89	4.2%
90 - 99	4.2%
100 - 109	0.0%
110 - 119	16.7%
120 - 129	20.8%
130 - 139	4.2%
> 139	0.0%
(Cases) N=	24
mean	67
min size (mm)	9
max size (mm)	138

2005 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Cathedral Cove (continued)

<i>Patiria miniata</i>		<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus</i>	
<i>purpuratus</i>					
Number of ARMs	7	Number of ARMs	5	Number of ARMs	5
<10	13.8%	< 5	0.0%	< 5	0.0%
10 - 19	31.3%	5 - 9	6.4%	5 - 9	11.1%
20 - 29	21.3%	10 - 14	7.1%	10 - 14	7.3%
30 - 39	26.3%	15 - 19	7.9%	15 - 19	3.0%
40 - 49	5.0%	20 - 24	21.4%	20 - 24	3.5%
50 - 59	2.5%	25 - 29	15.5%	25 - 29	4.6%
60 - 69	0.0%	30 - 34	10.7%	30 - 34	8.9%
70 - 79	0.0%	35 - 39	7.9%	35 - 39	8.4%
80 - 89	0.0%	40 - 44	4.5%	40 - 44	7.6%
90 - 99	0.0%	45 - 49	3.8%	45 - 49	7.6%
> 99	0.0%	50 - 54	4.0%	50 - 54	16.0%
(Cases) N=	80	55 - 59	3.8%	55 - 59	13.6%
mean	23	60 - 64	2.9%	60 - 64	5.4%
min size (mm)	5	65 - 69	2.4%	65 - 69	2.7%
max size (mm)	53	70 - 74	1.2%	70 - 74	0.3%
		75 - 79	0.0%	75 - 79	0.0%
		80 - 84	0.0%	> 79	0.0%
<i>Pisaster giganteus</i>					
Number of ARMs	7			(Cases) N=	369
< 20	29.3%	85 - 89	0.0%	mean	38
		90 - 94	0.2%	mean	38
		95 - 99	0.2%	min size (mm)	5
20 - 39	48.8%			min size (mm)	5
		100 - 104	0.0%	max size (mm)	70
40 - 59	12.2%	105 - 109	0.0%	max size (mm)	70
60 - 79	9.8%	> 109	0.0%		
80 - 99	0.0%	(Cases) N=	420		
100 - 119	0.0%	mean	30		
120 - 139	0.0%	min size (mm)	5		
140 - 159	0.0%	max size (mm)	99		
160 - 179	0.0%				
180 - 199	0.0%				
200 - 219	0.0%				
220 - 239	0.0%				
> 239	0.0%				
(Cases) N=	41				
mean	30				
min size (mm)	16				
max size (mm)	69				

2005 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Landing Cove

Haliotis corrugata

Number of ARMs	7
<25	33.3%
25 - 34	0.0%
35 - 44	33.3%
45 - 54	33.3%
55 - 64	0.0%
65 - 74	0.0%
75 - 84	0.0%
85 - 94	0.0%
95 - 104	0.0%
105 - 114	0.0%
115 - 124	0.0%
125 - 134	0.0%
135 - 144	0.0%
145 - 154	0.0%
155 - 164	0.0%
165 - 174	0.0%
175 - 184	0.0%
185 - 194	0.0%
>195	0.0%
(Cases) N=	3
mean	40
min size (mm)	23
max size (mm)	54

Cypraea spadicea

Number of ARMs	7
<30	0.0%
30 - 32	0.0%
33 - 35	7.9%
36 - 38	5.3%
39 - 41	21.1%
42 - 44	26.3%
45 - 47	21.1%
48 - 50	13.2%
51 - 53	2.6%
54 - 56	0.0%
>56	0.0%
(Cases) N=	38
mean	43
min size (mm)	33
max size (mm)	56

Kelletia kelletii

Number of ARMs	7
< 40	50.0%
40 - 49	25.0%
50 - 59	0.0%
60 - 69	25.0%
70 - 79	0.0%
80 - 89	0.0%
90 - 99	0.0%
100 - 109	0.0%
110 - 119	0.0%
120 - 129	0.0%
130 - 139	0.0%
140 - 149	0.0%
> 149	0.0%
(Cases) N=	4
mean	39
min size (mm)	18
max size (mm)	63

Megastrea undosa

Number of ARMs	7
<10	0.0%
10 - 19	0.0%
20 - 29	50.0%
30 - 39	25.0%
40 - 49	0.0%
50 - 59	0.0%
60 - 69	0.0%
70 - 79	0.0%
80 - 89	25.0%
90 - 99	0.0%
100 - 109	0.0%
110 - 119	0.0%
> 119	0.0%
(Cases) N=	4
mean	42
min size (mm)	20
max size (mm)	84

Megathura crenulata

Number of ARMs	7
<10	0.0%
10 - 19	0.0%
20 - 29	50.0%
30 - 39	0.0%
40 - 49	25.0%
50 - 59	25.0%
60 - 69	0.0%
70 - 79	0.0%
80 - 89	0.0%
90 - 99	0.0%
100 - 109	0.0%
110 - 119	0.0%
> 119	0.0%
(Cases) N=	4
mean	34
min size (mm)	20
max size (mm)	54

Crassidoma giganteum

Number of ARMs	7
<10	10.0%
10 - 19	3.3%
20 - 29	13.3%
30 - 39	0.0%
40 - 49	6.7%
50 - 59	20.0%
60 - 69	3.3%
70 - 79	10.0%
80 - 89	3.3%
90 - 99	3.3%
100 - 109	3.3%
110 - 119	16.7%
120 - 129	3.3%
130 - 139	3.3%
> 139	0.0%
(Cases) N=	30
mean	65
min size (mm)	8
max size (mm)	138

2005 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Landing Cove (continued)

<i>Patiria miniata</i>		<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus</i>	
<i>purpuratus</i>					
Number of ARMs	7	Number of ARMs	7	Number of ARMs	7
<10	14.3%	< 5	0.0%	< 5	0.3%
10 - 19	28.6%	5 - 9	15.7%	5 - 9	14.4%
20 - 29	33.3%	10 - 14	18.4%	10 - 14	26.9%
30 - 39	23.8%	15 - 19	7.9%	15 - 19	8.6%
40 - 49	0.0%	20 - 24	12.5%	20 - 24	4.0%
50 - 59	0.0%	25 - 29	8.4%	25 - 29	4.6%
60 - 69	0.0%	30 - 34	5.5%	30 - 34	3.9%
70 - 79	0.0%	35 - 39	4.4%	35 - 39	6.5%
80 - 89	0.0%	40 - 44	4.1%	40 - 44	6.9%
90 - 99	0.0%	45 - 49	4.1%	45 - 49	5.3%
> 99	0.0%	50 - 54	2.9%	50 - 54	4.8%
(Cases) N=	21	55 - 59	3.7%	55 - 59	6.1%
mean	21	60 - 64	2.0%	60 - 64	5.1%
min size (mm)	7	65 - 69	2.6%	65 - 69	2.1%
max size (mm)	38	70 - 74	2.0%	70 - 74	0.1%
		75 - 79	2.9%	75 - 79	0.0%
		80 - 84	2.3%	> 79	0.3%
<i>Pisaster giganteus</i>		85 - 89	0.8%	(Cases) N=	798
Number of ARMs	7	90 - 94	0.0%	mean	28
				mean	28
< 20	50.0%	95 - 99	0.0%	min size (mm)	4
20 - 39	40.0%	100 - 104	0.0%	min size (mm)	4
40 - 59	10.0%	105 - 109	0.0%	max size (mm)	83
60 - 79	0.0%	> 109	0.0%	max size (mm)	83
80 - 99	0.0%				
100 - 119	0.0%	(Cases) N=	657		
120 - 139	0.0%	mean	29		
140 - 159	0.0%	min size (mm)	5		
160 - 179	0.0%	max size (mm)	89		
180 - 199	0.0%				
200 - 219	0.0%				
220 - 239	0.0%				
> 239	0.0%				
(Cases) N=	10				
mean	23				
min size (mm)	12				
max size (mm)	42				

2005 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Miracle Mile

Haliotis rufescens

Number of ARMs	7
<25	25.0%
25 - 34	29.2%
35 - 44	16.7%
45 - 54	0.0%
55 - 64	8.3%
65 - 74	0.0%
75 - 84	4.2%
85 - 94	0.0%
95 - 104	0.0%
105 - 114	4.2%
115 - 124	0.0%
125 - 134	0.0%
135 - 144	8.3%
145 - 154	4.2%
155 - 164	0.0%
165 - 174	0.0%
175 - 184	0.0%
185 - 194	0.0%
>195	0.0%
(Cases) N=	24
mean	51
min size (mm)	8
max size (mm)	152

Megathura crenulata

Number of ARMs	7
<10	0.0%
10 - 19	0.0%
20 - 29	100.0%
30 - 39	0.0%
40 - 49	0.0%
50 - 59	0.0%
60 - 69	0.0%
70 - 79	0.0%
80 - 89	0.0%
90 - 99	0.0%
100 - 109	0.0%
110 - 119	0.0%
> 119	0.0%
(Cases) N=	1
mean	23
min size (mm)	23
max size (mm)	23

Crassidoma giganteum

Number of ARMs	7
<10	0.0%
10 - 19	66.7%
20 - 29	11.1%
30 - 39	0.0%
40 - 49	0.0%
50 - 59	0.0%
60 - 69	0.0%
70 - 79	0.0%
80 - 89	11.1%
90 - 99	0.0%
100 - 109	0.0%
110 - 119	11.1%
120 - 129	0.0%
130 - 139	0.0%
> 139	0.0%
(Cases) N=	9
mean	34
min size (mm)	12
max size (mm)	110

Patiria miniata

Number of ARMs	7
<10	6.6%
10 - 19	24.6%
20 - 29	29.5%
30 - 39	13.1%
40 - 49	11.5%
50 - 59	8.2%
60 - 69	6.6%
70 - 79	0.0%
80 - 89	0.0%
90 - 99	0.0%
> 99	0.0%
(Cases) N=	61
mean	29
min size (mm)	6
max size (mm)	69

Pisaster giganteus

Number of ARMs	7
< 20	22.2%
20 - 39	55.6%
40 - 59	22.2%
60 - 79	0.0%
80 - 99	0.0%
100 - 119	0.0%
120 - 139	0.0%
140 - 159	0.0%
160 - 179	0.0%
180 - 199	0.0%
200 - 219	0.0%
220 - 239	0.0%
> 239	0.0%
(Cases) N=	9
mean	32
min size (mm)	16
max size (mm)	54

Pycnopodia helianthoides

Number of ARMs	7
< 20	0.0%
20 - 39	0.0%
40 - 59	100.0%
60 - 79	0.0%
80 - 99	0.0%
100 - 119	0.0%
120 - 139	0.0%
140 - 159	0.0%
160 - 179	0.0%
180 - 199	0.0%
200 - 219	0.0%
220 - 239	0.0%
240 - 259	0.0%
260 - 279	0.0%
280 - 299	0.0%
> 299	0.0%
(Cases) N=	1
mean	52
min size (mm)	52
max size (mm)	52

2005 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Miracle Mile (continued)

<i>Strongylocentrotus franciscanus</i>		<i>Strongylocentrotus purpuratus</i>	
Number of ARMs	7	Number of ARMs	7
< 5	0.0%	< 5	0.0%
5 - 9	0.0%	5 - 9	0.0%
10 - 14	11.1%	10 - 14	33.3%
15 - 19	8.9%	15 - 19	33.3%
20 - 24	8.9%	20 - 24	0.0%
25 - 29	2.2%	25 - 29	33.3%
30 - 34	0.0%	30 - 34	0.0%
35 - 39	0.0%	35 - 39	0.0%
40 - 44	2.2%	40 - 44	0.0%
45 - 49	0.0%	45 - 49	0.0%
50 - 54	0.0%	50 - 54	0.0%
55 - 59	2.2%	55 - 59	0.0%
60 - 64	4.4%	60 - 64	0.0%
65 - 69	0.0%	65 - 69	0.0%
70 - 74	0.0%	70 - 74	0.0%
75 - 79	2.2%	75 - 79	0.0%
80 - 84	20.0%	> 79	0.0%
85 - 89	20.0%	(Cases) N=	3
90 - 94	11.1%	mean	18
95 - 99	6.7%	min size (mm)	12
100 - 104	0.0%	max size (mm)	26
105 - 109	0.0%		
> 109	0.0%		
(Cases) N=	45		
mean	62		
min size (mm)	10		
max size (mm)	96		

Appendix L. Species list for KFM sites.

Introduction

The species list contains presence/absence and relative abundance data for all species that could be found and identified during the site visits between June and September. Generally, at least one dive is made by an experienced biologist strictly for species list observations. The overall effort varies from station to station with the water conditions and available time. Relative abundance values are subjective, and generally based on opinions of several divers viewing the overall site. Some species assemblages are more difficult to identify than others and may be lumped into general categories. Organisms were generally not collected for additional taxonomic work. When identification is tentative we either do not mark it or place a question mark on the list. Some categories, (e.g. sponges or tunicates) may be much more diverse than it would appear from the list.

Abundance Ratings

X - present, no relative abundance rating given

4 - abundant, organism present in higher than normal densities

3 - common, organism found over most of site or in high density patches

2 - present, organism found in moderate numbers

1 - rare, few organisms found

0 - noticeably absent, an effort was made to look for an organism that was not found.

Notes

e - eggs

j or jvs - juv

s - shell only

int - intertidal

d - drift

PM or night - seen only on night dive

JX - juvs present and adults present

#/J# - (e.g. 2/J3 - adult abundance 2, juv abundance 3)

nests - *Hypsypops* nest turf

dis - diseased

Kelp Forest Monitoring Stations, Sites #1-16

Location	SM WL	SM HR	SR JL NO	SR JL SO	SR RR	SC GI	SC FH	SC PB	SC SA	SC YB	AN AR	AN CC	AN LC	SB SE SL	SB AP	SB CAT
Species Site	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Chlorophyta													1			
Chaetomorpha sp.		X											X			
Chaetomorpha spiralis								X								
Cladophora graminea							X				X		X			
Codium cuneatum							X				X					
Codium fragile							X	X			X		2			
Codium hubbsii/setchellii				1							3		1	2	2	
Codium johnstonei						X										
Derbesia marina							2									
Filamentous green algae									2		X			X		X
Halicystis ovalis													1			
Ulva sp.		3					2									
Phaeophyta													4			
Agarum fimbriatum						X										
Colpomenia sp.							2	2	2		2	X	X	X	2	
Cystoseira sp.	2	1	3	2	0	X	0	0	0	1	0	3	2	0	0	0
Desmarestia sp.	2	3	1	1	0	0	0	0	0	0	X	0	0	0	0	0
Dictyopteris new sp.				X							X					
Dictyopteris undulata												3				
Dictyota/pachydictyon								X		1	X	2	2	2	2	
Egregia menziesii							2								1	
Eisenia arborea	2	1	2	2	0	X	2/J2	0/J1	0	1	1/J2	2/J2	3/J2	0	1/J1	0
Halidrys dioica							X									
Laminaria farlowii	X	0	2	3/J2	0		0	0	0	1	0	2/J4	3/J3	0	0	0
Macrocystis pyrifera	3/J2	4/J2	4/J3	3/J3	3/J0	4	1/J2	1/J1	2/J1	3/J2	2/J2	4/J4	4/J4	0/J1	0/J1	0
Pachydictyon coriaceum											X					
Pterygophora californica	3	1	3/J2	2	0	1	0	0	0	2	0	0	3/J2	0	0	0
Sargassum sp.								1							1	
Sargassum muticum							2		X							
Rhodophyta		3	3	4	1						3	2	3	X	2	
Bossiella/calliathron						X					X		X			
Botryocladia neushulii						1										
Botryocladia pseudodichotoma							2									

[illegible]

[illegible]

[illegible]

Species	Location Site	SM WL	SM HR	SR JL NO	SR JL SO	SR RR	SC GI	SC FH	SC PB	SC SA	SC YB	AN AR	AN CC	AN LC	SB SE SL	SB AP	SB CAT
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Mysids (brown canopy dwellers)		X		X	X	4											
Mysids (clear bottom dwellers)		X	3			4											
Idotea resicata		X	1			2	X	X						0			
Amphipod tube masses		2	X		X	X		X	X			2			1	2	1
Perampithoe sp.							X					X					
Caprellidea							X	X				4				X	
Copepods on megathura crenulata								X			X						
Copepods on fish		X	X	X	X	X		X								X	
Betaeus sp.									X								
Betaeus macginitieae			3	X	3			X				X		X			
Heptacarpus sp.												X					
Lysmata californica								2	X			X					
Pandalus danae		X	3	2	X		X	3	2	X	2	X	X	X			
Panulirus interruptus		0	0	0	0	1	0	0	0	1	1	2	2	4	1	1	0
Hapalogaster cavicauda			X	X	X												
Orthopagurus minimus						2											
Paguristes sp.			X		X			3	X	X					X		X
Pagurus sp.					X				X	X	X						
Phimochirus californiensis								X									
Cancer sp.									X								
Cancer antennarius		X	X		X			2		X		X					
Herbstia parvifrons								X	2	X			2	X			
Loxorhynchus crispatus				X	X			X							0	0	0
Loxorhynchus grandis						X							X		0	1	0
Paraxanthias taylori			X					X	2			X	X				
Podochela hemphilli								4									
Pugettia dalli								4									
Pugettia producta						X											
Pugettia richii		X			X												
Scyra acutifrons								X									
Amphissa versicolor										X	X		X	X			
Lithopoma gibberosum (=Astraea gibberosa)		3	0	0	0	1		0	0	0	1	0	0	0	2	0	0
Megastrea undosa (=Lithopoma/Astraea undosum)		0	0	0	0	0	X		X	2/J2	3/J1	1	3	3	2	2	2
Bursa californica (=Crossata californica)												X			X		
Calliostoma sp.			2		2			X				X					

Species	Location Site	SM WL	SM HR	SR JL NO	SR JL SO	SR RR	SC GI	SC FH	SC PB	SC SA	SC YB	AN AR	AN CC	AN LC	SB SE SL	SB AP	SB CAT
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Calliostoma annulatum							X										
Ceratostoma nuttalli									3	2	X	X		X		X	2
Conus californicus		X	X	X	X			2	2	X	3		X	X	X	X	
Crepidula sp.										X					X	X	
Cypraea spadicea		2	2/E	2	3	1	X	3	2/E	2	2	2	3	2	2	2	2
Fusinus luteopictus								X									
Haliotis corrugata		0	0	0	0	0	0	0	0	0	0/J1	0	1/J1	1	S	0	1
Haliotis cracherodii		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haliotis fulgens		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haliotis rufescens		3/J1	1	2	1	S	0	0	S	0	1	0	0	0	0	0	0
Haliotis sorenseni		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haliotis walallensis		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haliotis assimilis		S	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Homalopoma sp.			2					X		X		X					
Kelletia kelletii		3	1	X	1	1	X	2	2	0	2	1	1/J1	1	1	1	0
Maxwellia gemma							X	3	X			X					
Megathura crenulata		X	1	2	1	2	X	2	1	2	2	1	2	2	2	X	1
Mitra idae					X			2									
Norrisia norrisi						X	X				X			X		1	1
Pedicularia californica							X										
Polinices sp.								S					E			E	
Serpulorbis squamigerus				X	0			X	X	2	1	X	2	2		1	1
Tegula sp.									2	2					X		
Tegula aureotincta										X							
Tegula brunnea								3						2		X	X
Tegula regina							X	2	1		1				2	3	3
Trivia sp.									X								
Trivia solandri													X				
Aplysia californica			0			0		3E	2	X	1	2	2E		2	3	2
Aplysia vaccaria																0	
Navanax inermis			X		X		X	X	X					X			
Tylodina fungina														X			
Diaulula sandiegensis					X		X		X	X	X						
Dirona picta											X						
Doriopsilla albopunctata							X			X	X	X					

Location	SM WL	SM HR	SR JL NO	SR JL SO	SR RR	SC GI	SC FH	SC PB	SC SA	SC YB	AN AR	AN CC	AN LC	SB SE SL	SB AP	SB CAT
Species Site	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Fiona pinnata										X						
Flabellinopsis iodinea (=Coryphella iodinea)							X	X	X	2		X	X		2	1
Hermisenda crassicornis		X				X	3			X		X				
Hopkinsia rosacea										X						
Laila cockerelli										X						
Phidiana pugnax					X											
Triopha catalinae				X			X	X								
Tritonia festiva							X				X			X		
Tonicella lineata	X	3	X	X	X											
Americardia biangulata										S						
Chama arcana									X		X		3			
Gari californica							S									
Crassedoma giganteum	1	1	2	2	1	X	1	2	2	1	1	2	3	1	1	1
Lima hemphilli							2	2	X	S						
Parapholus californicus							1									
Pholad		X	X	2	X			X	X	2			X			
Pododesmus cepio	X		X	2	X		X			X	X	X				
Ventricolaria fordii						S	S			S			X			
Octopus sp.			X	X								X				
Octopus bimaculatus/bimaculoides							X	X	X	X	X		3	X	X	X
Octopus micropysus															X	
Octopus rubescens									X							
Aetea sp.							X									
Antropora tinctoria							3									
Bugula sp.		X		2					X	2	2	3	2	X	2	1
Bugula californica							X									
Bugula neritina			2	2			X				X					
Costazia robertsoniae	X	X	X	X		X		X		X				X		
Diaperoecia californica	2	1	2	3	2	X	2	1	2	2	2	2	3	1	1	0
Eurystomella bilabiata											X					
Heteropora magna	X	X		2												
Hippodiplosia insculpta		3	X	2	X	X				2			X			
Lichenopora novae-zelandiae											X	X		X	X	X
Lyrula hippocrepis																
Membranipora sp.	X	X	X	X	3		3	X	X	2	X	X	3	2	1	X

Location	SM WL	SM HR	SR JL NO	SR JL SO	SR RR	SC GI	SC FH	SC PB	SC SA	SC YB	AN AR	AN CC	AN LC	SB SE SL	SB AP	SB CAT
Species Site	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Phidolopora sp.						X	X				X					
Phidolopora pacifica				X				X	X	2			X			
Thalamoporella californica					X					2	X	2	X		2	
Phoronis vancouverensis								3								
Astrometis sertulifera														1		
Astropecten armatus								2								
Dermasterias imbricata				2												
Henricia sp.	X		X	X										X		
Henricia leviuscula					X	X	2				X					
Henricia n. sp.						X		X			X					
Linckia columbiae				0				3	2		X		2		X	
Mediaster aequalis						X										
Asterina miniata (=Patiria miniata)	4	4	2	4	4	X	4	2	2	3	3	2	0/J1	3	2	2
Pisaster giganteus	2	3	3	2	3	X	2	2	2	2/J2	2	2	1	2	2	2
Pycnopodia helianthoides	3	4	3	4	3	X	2	0	0	3	0	0	0	2	1	1
Diseased seastars	0	0	0		0			0	0	0	1	0			0	
Centrostephanus coronatus		0	0	0	0				X		2	X	2	2	1	1
Lytechinus anamesus	0	0	0	0	0		0	3	1	2	1	0	0	1	1	1
Lytechinus anamesus juvs	0	0			0		0	0	0	1	0	0	0	0	0	0
Strongylocentrotus franciscanus	3	4	2	2	2	X	X	2	2	1	2	3	4	2	4	4
S. franciscanus juv.	2	2	2	2				0	2	1	3	2	3	1	1	1
Strongylocentrotus purpuratus	2	2	1	2	2	X	X	3	4	2	2	2	2	2	4	4
S. purpuratus juv.	1	2	1	2				0	2	1	3	2	2	1	1	1
Diseased urchins	0	0	0	0	0			1	0	0	1	0	0	0	0	2
Ophiactis simplex							3									
Ophioderma panamense									X	X	X					
Ophioplocus esmarki								2							X	X
Ophiopsilla californica									X							X
Ophiopteris papillosa				X	X		2	X	X	X	X			X		
Ophiothrix spiculata					0	1	1	1		1	4	0		3		X
Cucumaria sp.	X	X	X	X	2				X	2	X	X		X	3	X
Cucumaria miniata						X	X				X					
Cucumaria piperata							2	3				X			X	
Cucumaria salma						X	4	X	X	X	X		2			
Eupentacta quinquesemita		3		2	X		X			X						

Species	Location Site	SM WL	SM HR	SR JL NO	SR JL SO	SR RR	SC GI	SC FH	SC PB	SC SA	SC YB	AN AR	AN CC	AN LC	SB SE SL	SB AP	SB CAT
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pachythyone rubra								X	2								
Parastichopus californicus			1					X		2	1				0	0	
Parastichopus parvimensis		2	2	2	2	2	X	X	2	2	2	2	3/J2	2	2	2	
Aplidium sp.				X					2	X	X		X			X	
Boltenia villosa				X	2	3					0						
Clavelina huntsmani									X						1		
Cnemidocarpa finmarkiensis					X				X				X				
Cystodytes lobatus			X	X	3			X									
Didemnum/trididemnum			X	X	X						2	2		2			
Distaplia occidentalis			X						X		X		X	X		X	X
Metandrocarpa dura								X									
Metandrocarpa taylori									X			X		X			
Perophora annectens													X				
Pycnoclavella stanleyi												X	X		X	X	X
Pyura haustor								X									
Styela montereyensis		3	1	4	2	2	0	0	0	0	0	0	0	0	0	0	0
Salps																2	
Cephaloscyllium ventriosum											X						
Heterodontus francisci										2							
Myliobatis californica										1		X		1			
Squatina californica															1		
Gymnothorax mordax									1			1		1	1	1	1
Porichthys sp. (juvs)																1	
Gobiesox sp.						1							X				
Gobiesox eugrammus													X				
Engraulis mordax											2						
Cololabis saira											2						
Atherinops affinis						1					2			1		2	
Aulorhynchus flavidus		2	2			2											
Rathbunella / ronquilus						X		X								1	
Trachurus symmetricus											2						
Alloclinus holderi						1		1	1	X		2	2	2	1	1	2
Gibbonsia sp.										1	2	1	1	2			
Heterostichus rostratus							1			1	1	1	X	2			
H. rostratus (juvs)										1			2	1			

Species	Location Site	SM WL	SM HR	SR JL NO	SR JL SO	SR RR	SC GI	SC FH	SC PB	SC SA	SC YB	AN AR	AN CC	AN LC	SB SE SL	SB AP	SB CAT
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Neoclinus sp.										1							
Neoclinus stephansae								1	2							X	
Neoclinus uninotatus									1								
Artedius corallinus					1	X					1	1		X			
Artedius creaseri								X				X					
Leiocottus hirundo		1				1											
Orthonopias triacis		1	2		2	X	1	2	X	0	1						X
Scorpaenichthys marmoratus			1		1	X					0	1	J1	0			
Brachyistius frenatus		2	2	2	3	3	1				3		3	3	0	0	0
Rhacochilus vacca		1	2	2	2	2	1	2		2		1	X	0	0	0	0
Embiotoca jacksoni		1	1	2	2	2	2		2	3	1	1	3/J1	2	0	0	0
Embiotoca lateralis		2	3	2	2	3	2		0	0	0		0	0	0	0	0
Hypsurus caryi		2		1		2/J2					2		1				
Nautichthys oculofasciatus		1															
Phanerodon furcatus		2															
Rhacochilus toxotes		1		1	1	1		2		1							
Coryphopterus nicholsi		2	2		2	1	2	4	4	4	3	3	2	1	3	2	1
Lythrypnus dalli			0			0		1	1	0		0		1	0	0	0
Lythrypnus zebra						0		1	1	1		X	1	1	0	0	0
Ophiodon elongatus		1	2	1	1	1	1	3		0	0						
Oxylebius pictus		2	2	2	2	2/J2	2	3	1	2	3	3	2	2	1	1	1
Girella nigricans			0		3	0	1	2	0	2	X	3	2	3	0	3	0
Medialuna californiensis								1	1	1		2		2		2	
Medialuna (juvs)														0			
Halichoeres semicinctus					0	0		0									
H. semicinctus (females)			0		0	0				1	1	1	1	1	0	0	0
H. semicinctus (males)			0		0	0				1		1	0	1	0	0	0
H. semicinctus (juvs)			0		0	0			1	0		0	2	2	0	1	0
Oxyjulis californica		2	3	3	3	2	1	2	1	2	3	2	2	2	0	2	2
O. californica (juvs)						0		1	0	1		0	1	0	0	0	0
Semicossyphus pulcher		1					2	2		1	2						
S. pulcher (females)		1	2	1	2	2	2	2	1	1	2	1	2	1	1	2	1
S. pulcher (males)		1	1	1	2	1	2	2	1	0	0	0	1	1	0	0	0
S. pulcher (juvs)			0		0	0	1	1	1	0	2	3	3	2	2	2	1
Caulolatilus princeps					1	2	1	2	3			X	2	1	X		

[illegible]

Kelp Forest Monitoring Stations, Sites #22-37

LOCATION		SR CP	SR TC	SR CSAW	SR SP	SC DPM	SC PP	SC CVP	SC LS	SC PRF	AN KH	AN EFC	AN BSBR	AN LH	SB WA	SB GC	SB SER
Species	Site#	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Chlorophyta																	2
Cladophora sp.											X		1				
Codium fragile							2	1	2		2		1	1			2
Codium hubbsii/setchellii								2				1			3	1	2
Derbesia marina							3										
Filamentous green algae									X	X					1		
Halicystis ovalis														2			2
Ulva sp.											X						
Phaeophyta										1						1	
Colpomenia sp.						X	1	1		1	4		X		0	0	
Cystoseira sp.		1	X	1	2	1	0	0	0	0	1	0	0	3	0	0	1
Desmarestia sp.		0		1	1	0	0	0	0	0	0	0	0	0	0	0	1
Dictyota/pachydictyon		X								1			1	2		0	2
Egregia menziesii														1			1
Eisenia arborea		2/J1	2	1	1	1/J1	1/J1	1/J1	1	0	1/J4	0	0	1/J1	1/J1	0	2/J1
Laminaria farlowii		0	2	0	2	0	0	0	0	0	0	0	0	1	0	0	0/J1
Laminaria setchellii		X															
Macrocystis pyrifera		3/J2	3	3/J2	3/J3	1	0	0	0	0	1	0	0	3/J3	1	0/J1	3/J3
Pterygophora californica		3/J2	2	2	3/J2	0	0	0	0	0	0	0	0	0	0	0	0
Sargassum sp.						X				1	3						1
Rhodophyta		2	3	3	2	2			2		1		1		1	1	2
Corallines - encrusting		X	3	2	2	3	3	3	2	2	2	3	4	2	4	3	3
Corallines - erect		X	1	2	2	1	1	2	1	1	2	1	1	1	1	1	2
Erythrocytis saccata							X										
Fauche n. sp.							X										
Gelidium sp.					0	1	0	2	1	0	0	0	0		0	0	1
Gigartina sp.			3		2	0	0		0	0	1		0		0	1	0
Gigartina corymbifera		1	3	2	2			1	0			0	0			1	
Laurencia pacifica						3	2	2	1	2	2	2	2	2	1	1	2
Rhodymenia sp.		X	X	X	X	X		2	1				1				2

Species	LOCATION Site#	SR CP	SR TC	SR CSAW	SR SP	SC DPM	SC PP	SC CVP	SC LS	SC PRF	AN KH	AN EFC	AN BSBR	AN LH	SB WA	SB GC	SB SER
		22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Rhodymenia californica							1										
Rhodymenia pacifica							1										
Sciadophycus stellatus							X										
Filamentous red algae						3		X	3	3	X	2	2		1		1
Hypsypops turf nest		0	0	0	0	2	X	2	2	1	1	3		0	2	1	4
Diatom film						2	2	2	X	1	3	2	2		2	1	
Porifera		3	2	3	4	1	1	3	2	1	1		2	3	2	1	3
Leucetta losangelensis																	2
Leucilla nuttingi		X	X		X												
Acarus erithacus			X		2												
Axinella mexicana							X										
Axocelita originalis							X										
Cliona sp.		X	X		X			X				X		X			
Haliclona sp.		X	X	X					X			X	X	X	X		2
Haliclona permollis							X										
Hymenamphistra cyanocrypta		3	X	X	X												
Penares cortius							X										
Polymastia pachymastia				2	4												
Red sponges - encrusting		3	X	X	X	X	2	2	2	X	X		X		X	X	2
Spheciospongia confoederata		2	X	3	X												
Tethya aurantia		3	3	3	3	1	2	2	2	2	1	1	2	2	1	3	1
Tetilla arb		2	2	2	X												
Verongia aurea										1	1	1	2				
Xestospongia trindinaea		X	2	X													
Hydrozoa		4	3	4					3		3				2	1	2
Abietinaria sp.							1										
Aglaophenia sp.						1											
Aglaophenia latirostris		X	2	X	X			X							1		
Obelia sp.		X	X	X	X	3	X		X	X	X	X	1	X		X	
Plumularia sp.		X	X	X	X	X		X	2					X	X		X
Sertularella sp./Sertularia sp.						X	X		3		3		1	X			
Clavularia sp.							X		X	X	X						X

Species	LOCATION Site#	SR CP	SR TC	SR CSAW	SR SP	SC DPM	SC PP	SC CVP	SC LS	SC PRF	AN KH	AN EFC	AN BSBR	AN LH	SB WA	SB GC	SB SER
		22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Pachyercanthus fimbriatus		X				X			1	2	2	X	1	1		1	
Hydractinia milleri			X											X			
Eugorgia rubens											3						
Lophogorgia chilensis		0	1	0	0	3	4	4	3	4	3	1	1	2	1	3	1
Muricea californica		0		0	0	1	1	2	1	1	2	2	1	4	1	3	1
Muricea fruticosa		0		0	0	1	0	1	0	0	1	1	1	2	0	1	1
Parazoanthus lucificum											1						
Corynactis californica		2	3	1	2	1	2	2	2	3	2	3	2	2	4	3	1
Anthopleura artemisia				2											X	X	X
Anthopleura sola				2	X		X			X		X		X			
Cactosoma/sagartia			X							X	X			X	X		
Epiactis prolifera		2	3	3	X												
Halcampa decemtentaculata				X													
Tealia coriacea		X	X	X	X	X	X	X		X			2	X	2	2	
Tealia lofotensis		2	3	2	2	1	0	0	0	0	0	0	0	0	0	0	0
Astrangia lajollensis (=A. haimeii)		2	2	2		1	3	2	2	2	2	2	2	2	1	2	2
Balanophyllia elegans		3	3	2	1	1	2	2	1	2	1	0	1	1	3	1	1
Coenocyathus bowersi							1				X		2				
Paracyathus stearnsi (=P. stearnsii)									X	X	X	X	X	X			
Prostheceraeus bellostriatus		X															
Nemertea		X		X													
Arctonoe pulchra							X										
Arctonoe vittata							X										
Bispira turneri							1										
Chaetopterus variopedatus		X		X		2	X	2	2	2	3	2	2	2	1		2
Diopatra ornata		2	3	3	2	1		2	1	2	2	X	1	2	0	1	2
Dodecaceria fewkesi							2	1	1	2	1			1	X	1	2
Eudistylia polymorpha		2	3	2	X		1	1	1	1		1	1	X		1	1
Myxicola infundibulum						2		2	2	2	1		1	1	1	1	
Ophiodromus pugettensis							2										
Phragmatopoma californica		2	2	2	X				0	0	0		0	3	0	0	0
Pista elongata		X		X		2	4	X	2	X							

[illegible]

[illegible]

Species	LOCATION Site#	SR CP	SR TC	SR CSAW	SR SP	SC DPM	SC PP	SC CVP	SC LS	SC PRF	AN KH	AN EFC	AN BSBR	AN LH	SB WA	SB GC	SB SER
		22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Tegula regina						2	2	3	1	2	2	1	1	1	2	0	2
Trivia sp.				S													X
Trivia californiana										X							
Trivia solandri										X							
Aplysia californica		0	0	0	1		3	3	3	3	3	3	0			3	1
Aplysia vaccaria														2			
Bulla sp.																S	
Navanax inermis		X		E						X	X			X		1	1
Haminoea virescens eggs								X		X	X		X				
Acanthodoris hudsoni		X		X													
Aeolidia papillosa				X													
Anisodoris nobilis				X			X										
Archidoris montereyensis				X													
Cadlina luteomarginata				X													
Coryphella sp.							X										
Coryphella trilineata				X													
Dendronotus albus/diversicolor		X	X														
Dendronotus frondosus																	
Diaulula sandiegensis				X			X						X			X	
Dirona albolineata															X		
Doriopsilla albopunctata		X	X	X									X				
Flabellinopsis iodinea (=Coryphella iodinea)			X			X	X	2	2		X			2			2
Hermisenda crassicornis		X	X	X											X		
Mexichromis porterae					X												X
Phidiana pugnax		X	X	X													
Triopha catalinae				X													
Triopha maculata				X													
Cryptochiton stelleri			2														
Tonicella lineata		X		X													
Americardia biangulata						S			S				S				
Chama arcana						X		2	2	X	X						X

[illegible]

Species	LOCATION Site#	SR CP	SR TC	SR CSAW	SR SP	SC DPM	SC PP	SC CVP	SC LS	SC PRF	AN KH	AN EFC	AN BSBR	AN LH	SB WA	SB GC	SB SER
		22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Linckia columbiae					0	1	0	4	4		3		1	0			1
Asterina miniata (=Patiria miniata)		3	2	2	2	2	2	2	3	2	2	2	2	2	3	3	2
Pisaster giganteus		2	2	2	2	2	2	2	2	2	1	2	2	1	3	2	2
Pisaster ochraceus																	1
Pycnopodia helianthoides		2	2	3	2	1		0	1	0	0	0	0	0	1	1	1
Diseased seastars									0	1	1	1	0	1	0	0	0
Centrostephanus coronatus		0	0	0	0	2/J2	2	3	1	2	3/J2	3	2/J1	2/J2	2	3	2
Lytechinus anamesus		0	0	0	0	2	2	1	1	2	0	2	1	0	1	2	0
Lytechinus anamesus (juvs)						1		0	0	0			0	0	0	2	1
Strongylocentrotus franciscanus		2	3	3	2	2	3	2	3	3	2	3	3	2	3	3	3
S. franciscanus (juv)		2	2	2	2	2	1	1	1	1	1	2	2	2	2	2	3
Strongylocentrotus purpuratus		2	2	2	1	3	3	3	3	4	2	4	2	3	3	4	3
S. purpuratus (juv)		1	2	1	1	2		1	2	1	2	2	1	3	2	2	2
Diseased urchins		0	0	0		1			2	1	0	1	0	0	2RED	2RED	0
Ophiactis simplex							3										
Ophioderma panamense									X	X	X			X			
Ophioplocus esmarki						X								X			
Ophiopsilla californica						3		X		X	X			X			
Ophiopteris papillosa		X		X			2	X	X	X		X	2	X		2	
Ophiothrix spiculata							1	1		0	0	3	4	0	2	3	
Cucumaria sp.		3	2	2	X	X	2		2	2	2	2	X	X			
Cucumaria salma		X	X	X		X	4	4	X	X	X		X	2			
Eupentacta quinquesemita		X	X	X			2		X	X				X			
Pachythyone rubra						3				1				0			
Parastichopus californicus								3						0			
Parastichopus parvimensis		2	2	2	1	1	3	2	1	2	2	3	2	2	2	2	3
Urochordata (tunicata)		2	2	2	1	1	1	1	1		1		1	3	2		3
Aplidium sp.		2	3	X	X	X			X		X			2			4
Boltenia villosa		X	X	X													
Clavelina huntsmani			X		1										1		1
Cystodytes lobatus		2		2		1											
Didemnum/trididemnum			X		X	X	X		2	1	X			X	1		2

[illegible]

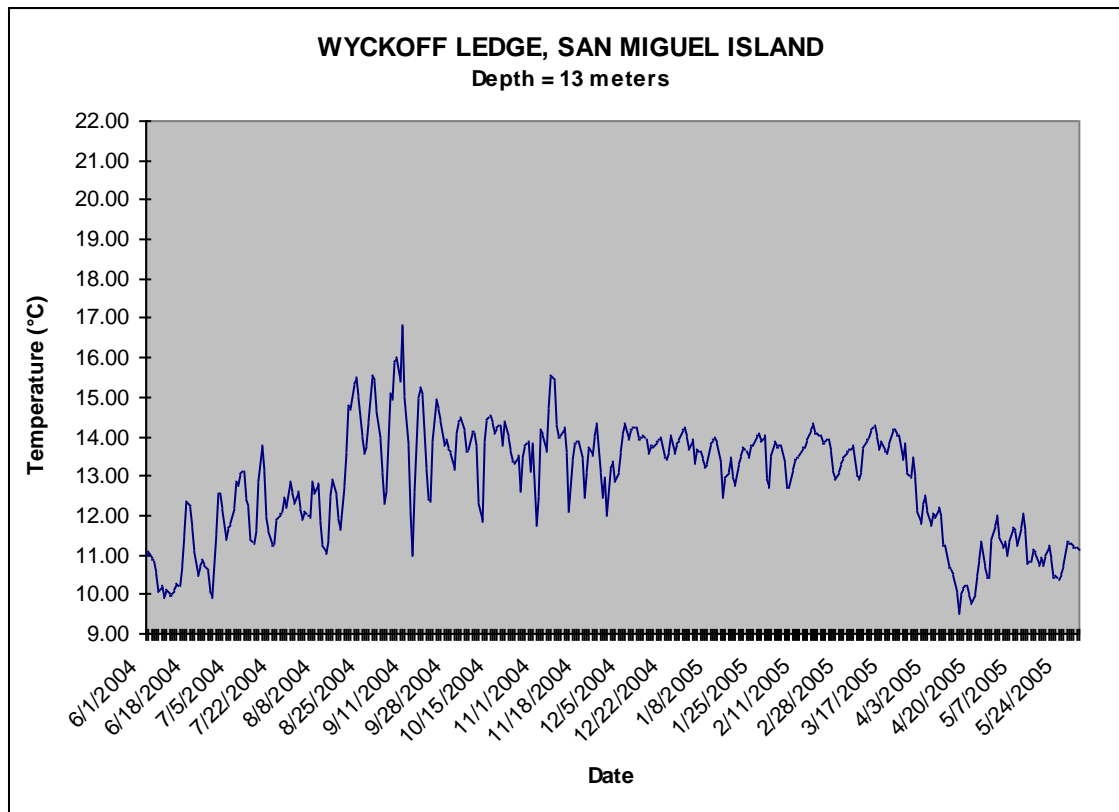
Species	LOCATION Site#	SR CP	SR TC	SR CSAW	SR SP	SC DPM	SC PP	SC CVP	SC LS	SC PRF	AN KH	AN EFC	AN BSBR	AN LH	SB WA	SB GC	SB SER
		22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Orthonopias triacis		2	1	2		X	1	X		X	X	1		1	2	2	2
Scorpaenichthys marmoratus		2	3	2	1	1	1		1		1		X	1	1	0/J1	1
Brachyistius frenatus		2	3	3	2		0		1	0	0	0	0	3	1	0	2
Rhacochilus vacca		2/J1	2/J1	2/J1	2/J1	2	3/J1	3	2	1	1	1	0	2	1	0	1/J1
Embiotoca jacksoni		2	2/J1	2/J2	3/J1	2/J1	2	3/J1	3/J1	1	3/J1	1	0	1	1	0	2/J1
Embiotoca lateralis		3/J1	2/J2	3/J1	3/J1	0	0	0	0	0	0	0	0	0	0	0	0
Hypsurus caryi		1	2	1	1		1			1							
Phanerodon furcatus							1										
Rhacochilus toxotes			1	1	1	2	1	3	0	0			0	0	0	0	0
Coryphopterus nicholsi		1	1	2	1	2	4	3	3	4/J60	2/J3	4	3	2/5 0	2	3	2
Lythrypnus dalli			0		0		1	1	0	1		1	0	0	0	0	0
Lythrypnus zebra								1	0		1		0		0	0	0
Hexagrammos decagrammus				1													
Ophiodon elongatus		2	2	2	1												
Oxylebius pictus		2	2/4 7	3	2	3	3	2/J2	2	2	2/J2	3/J3	2	1/J1	2/J2	2/J1	2/J1
Girella nigricans		1	1	1	X	2	3	2	1	2	1	1	2	2	1	1	3
Hermosilla azurea																	
Medialuna californiensis			0			1	1	2	2	1	1	1	1	1	1	1	3
H. semicinctus (females)		0	0	0	0	2	2	3	1	2	3	1	0	2	0	0	2
H. semicinctus (males)		0	0	0	0		2	3	1	1	2		0	1	0	0	1
H. semicinctus (juvs)		0	0	0	0	1	0	0	0	0	0		0	0	0	1	1
Oxyjulis californica		2	3/9 8	2	2	3	2	3	2	3/1 15	2	2	1	3	2	2	3
O. californica (juvs)			0	1				0	0	0	0	0	0	1	0	1	2
S. pulcher (females)		2	2	2	2	2	2	2	2	2	2	1	2	2	2	1	1
S. pulcher (males)		2	2	2	3	1	0	1	0	2	1	1	2	1	1	1	1
S. pulcher (juvs)		0	0	0	0	2	1	1	0	2	3	2	2	2	1	0	3
Caulolatilus princeps			0			X	1	2	2	1	1			1	1	2	1
Stereolepis gigas								1					3				
Chromis punctipinnis		1	2/6 1	2	2	2	3	3	2	3	3	3	2	3	3	1	3

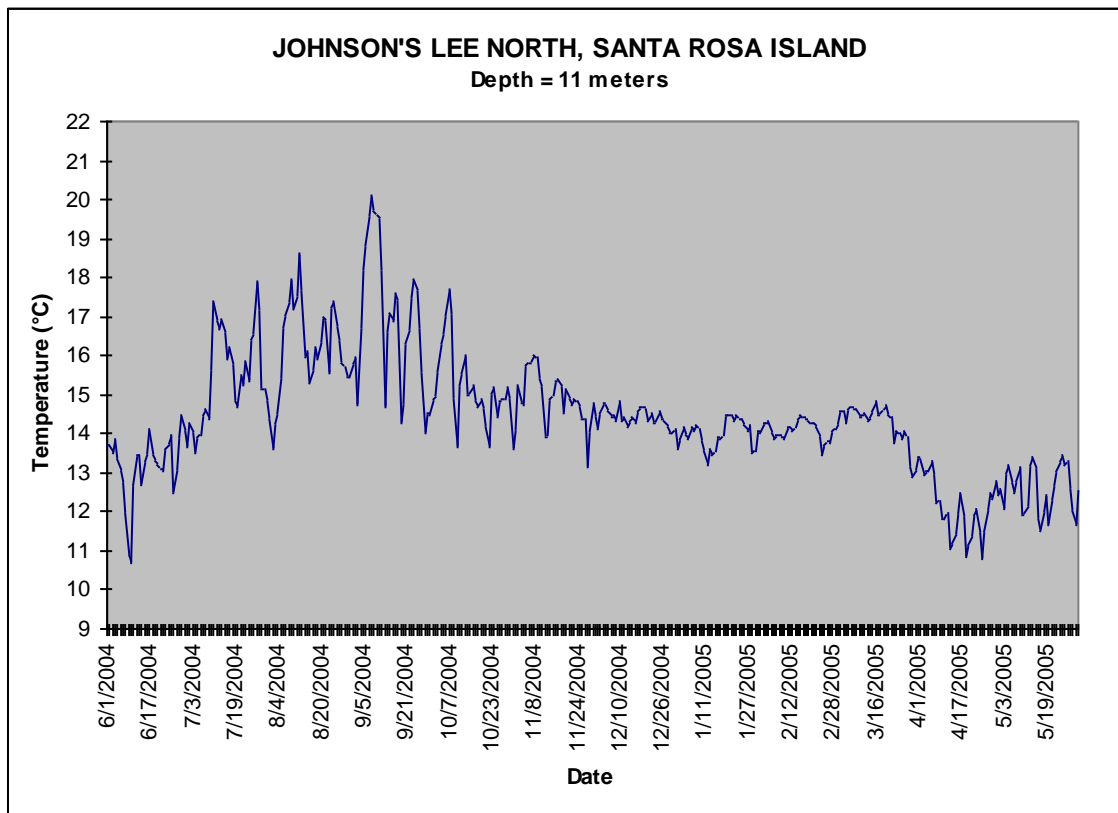
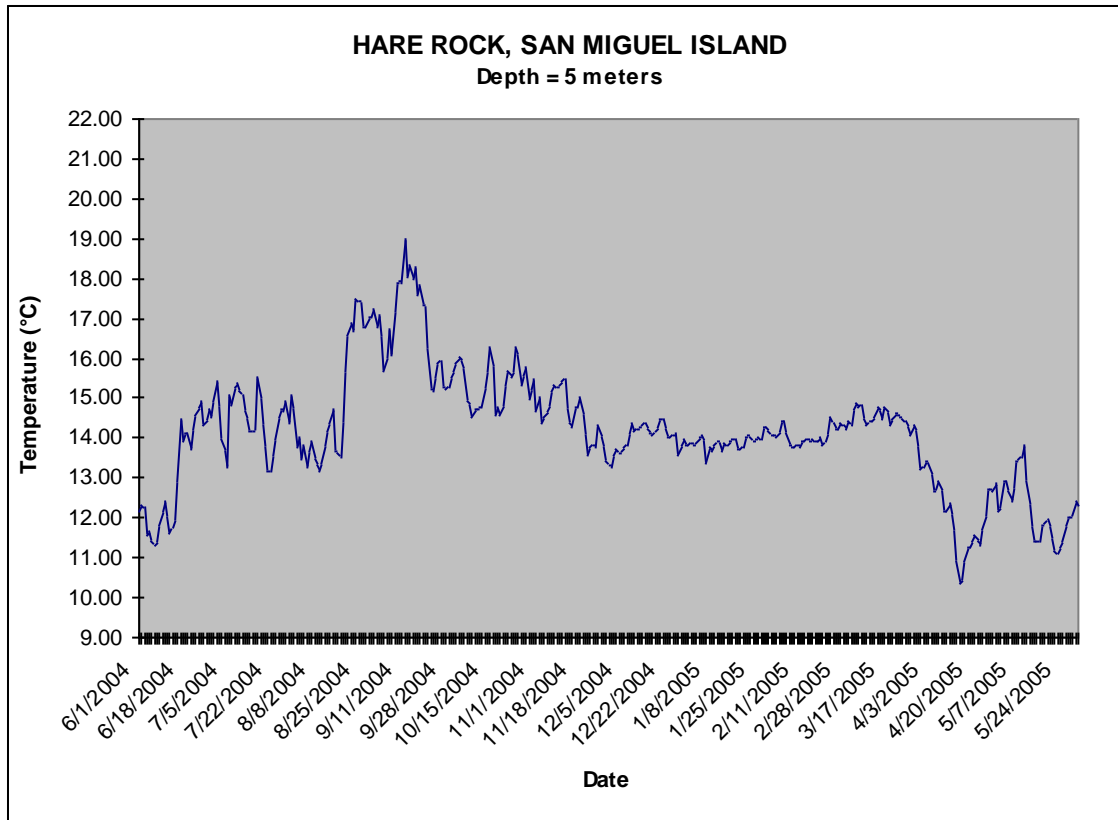
Species	LOCATION Site#	SR CP	SR TC	SR CSAW	SR SP	SC DPM	SC PP	SC CVP	SC LS	SC PRF	AN KH	AN EFC	AN BSBR	AN LH	SB WA	SB GC	SB SER
		22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Chromis punctipinnis (juvs)		0	0	0	0		2	1	1	0	1	1	1	1	0	0	1
Hypsypops rubicundus		0	0	0	0	2	3	3	2	2	3	3	2	2	1	2	4
Hypsopops rubicundus (juvs)		0	0	0	0	0		0	0	0	0	0	0	0	0	0	0
Scorpaena guttata									1		2	1	2	1			
Sebastes sp.																	
Sebastes sp. (juvs.)					1												
Sebastes auriculatus											1						
Sebastes atrovirens		2	2	3	2	2	0	1	2	1	1	0	0	0	0	0	1
S. atrovirens (juvs)		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sebastes carnatus		1	1	1	1	1	X	2	1								1
Sebastes caurinus		1		0			0								0/0		0/J1
S. carnatus/caurinus (juvs)		2	1	3	1		0	0	0	0	1			0			
Sebastes chrysomelas		2	1	3/J2	X	X	1		1	0	1	1			2		1
Sebastes melanops		1	1	1			1		1								
Sebastes miniatus		1		0													
S. miniatus (juvs)		1		0													
Sebastes mystinus		2	2	2	1	1	1	0	1	1	1	0	0	1	0	0	0
S. mystinus (juvs)		1	1	2	0	0		0	0	0	0	1	0	0	0	0	0
Sebastes paucispinis			0					0									
S. paucispinis (juvs)		1	0					0									
Sebastes rastrelliger		1															
Sebastes serranoides		2	1	3	3	1	1	1	2	0	0	0	0	0	0	0	0
S. serran./S. flavidus (juvs)			0	1	0	0		0	0	0	0		0		0	0	0
Sebastes serriceps		2	1	1	1	2	1	2	1	1	3	1	1	1	0	0	1
S. serriceps (juvs)		2	1	2		2	2	1	1	0	1	1	1	1	2	1	3
Paralabrax clathratus		1	1	0	0	2	2	2	2	3/2 6	4	1	1	2	1	0	2
P. clathratus (juvs)		0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Citharichthys sp.																2	
Citharichthys stigmaeus				1	1				1							3	
Pleuronichthys coenosus					1			1	1		X				1		

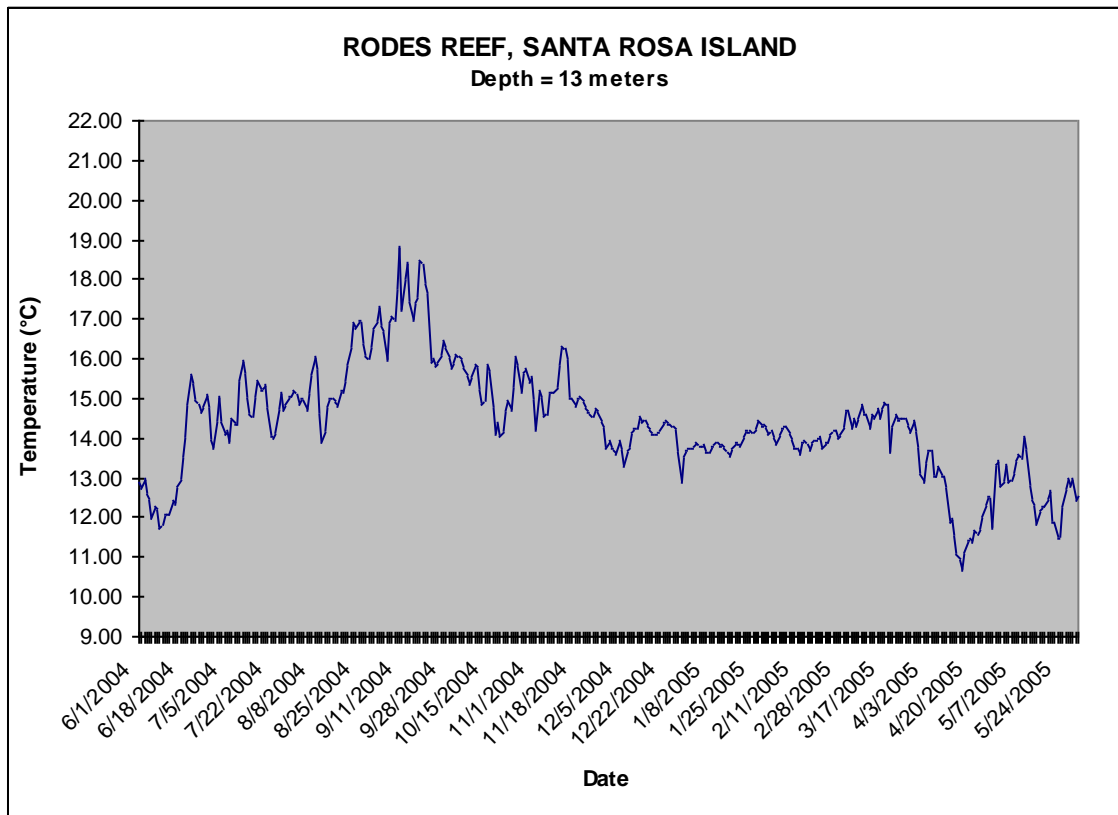
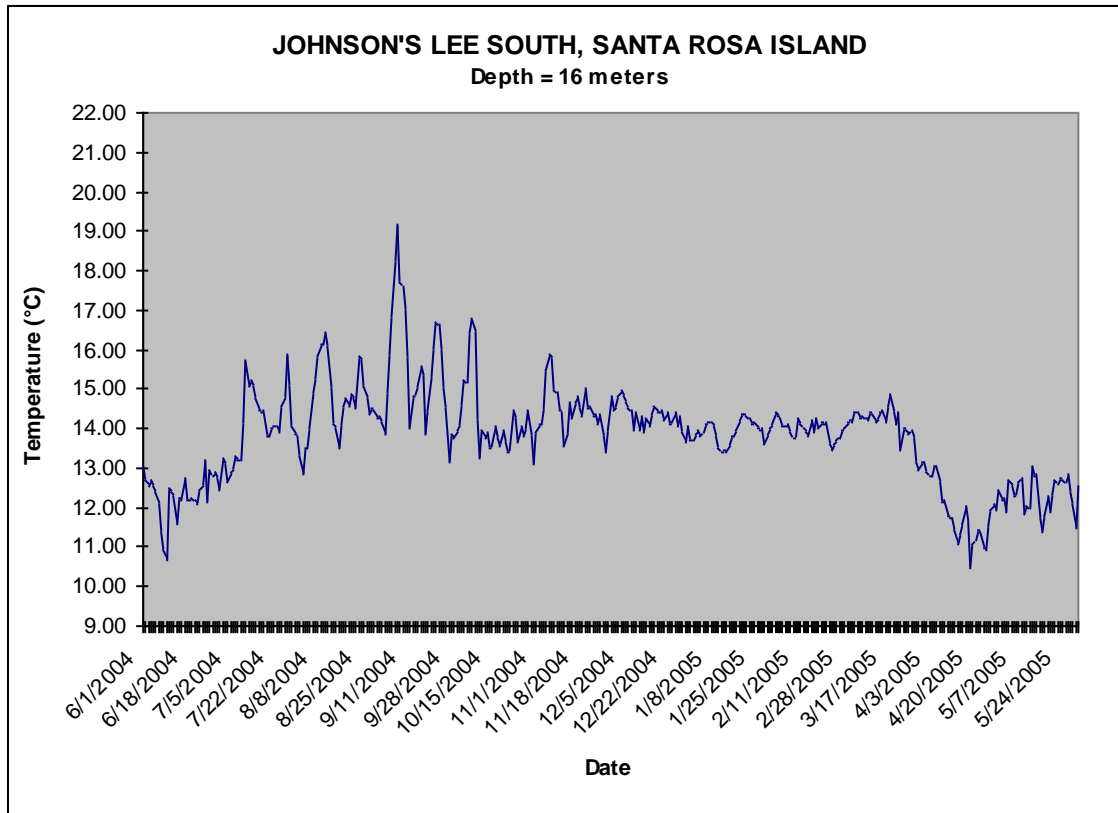
Appendix M. Temperature data graphs.

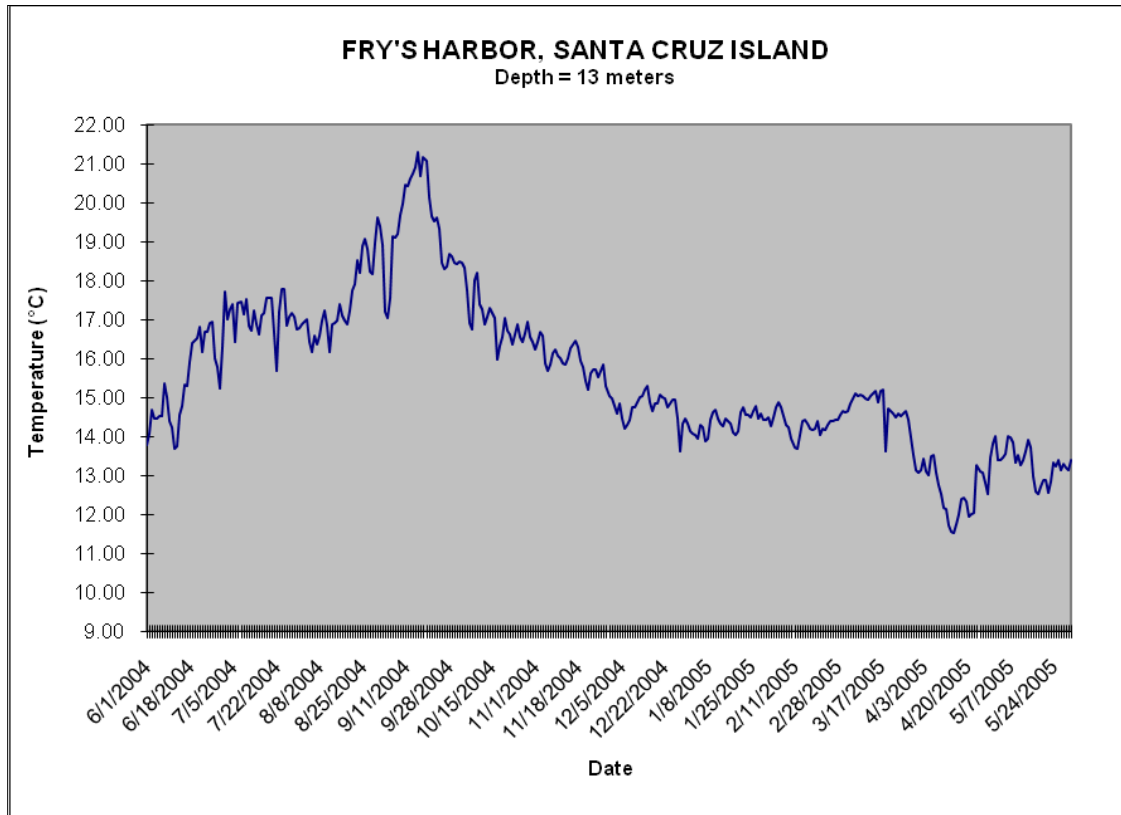
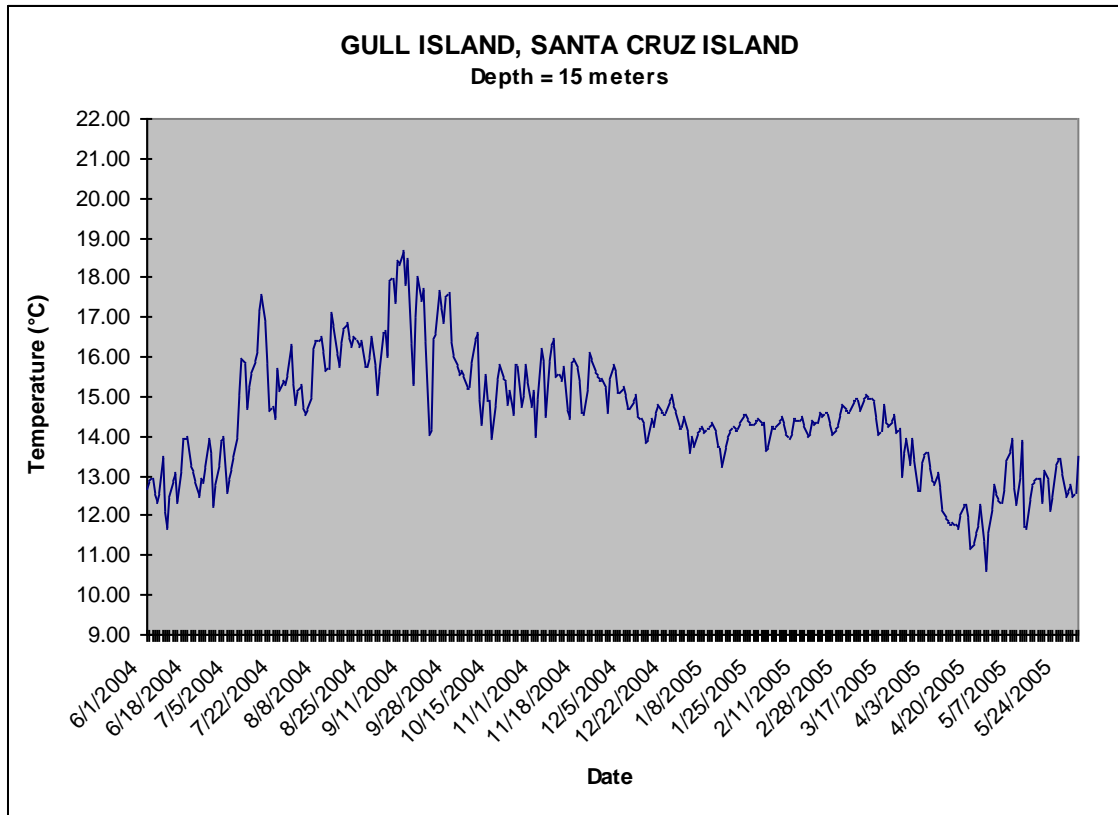
Introduction

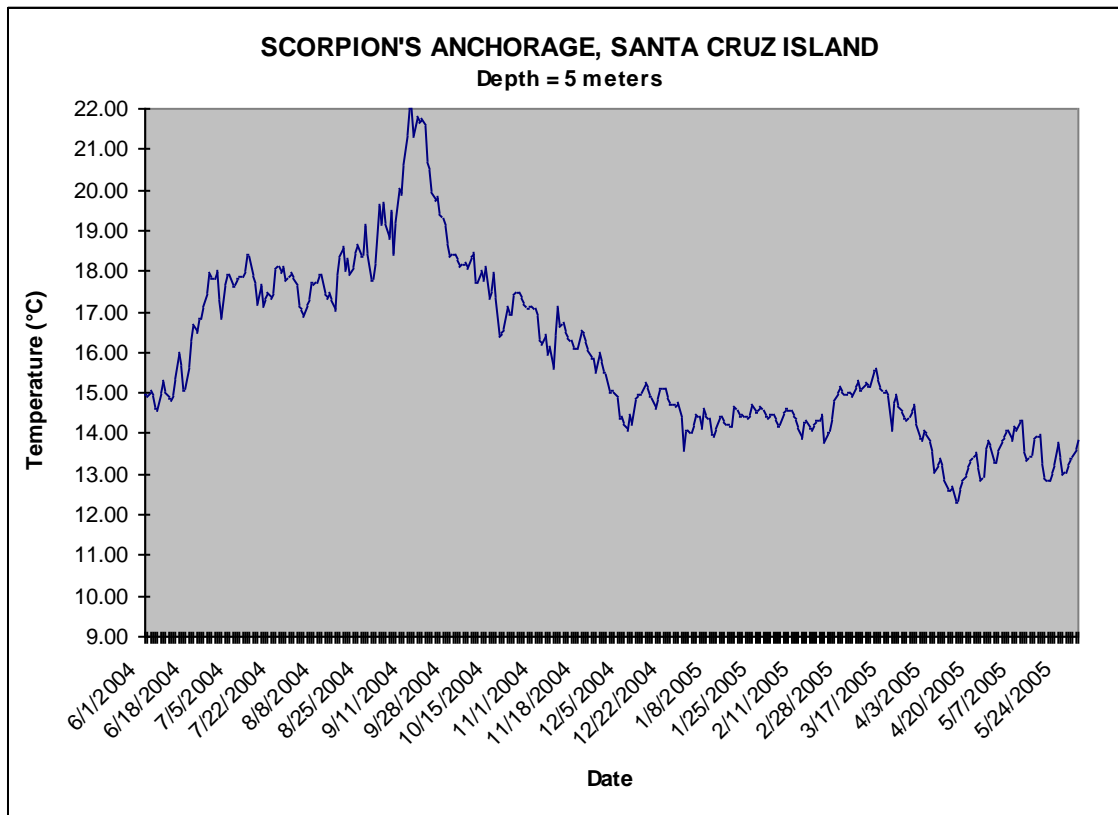
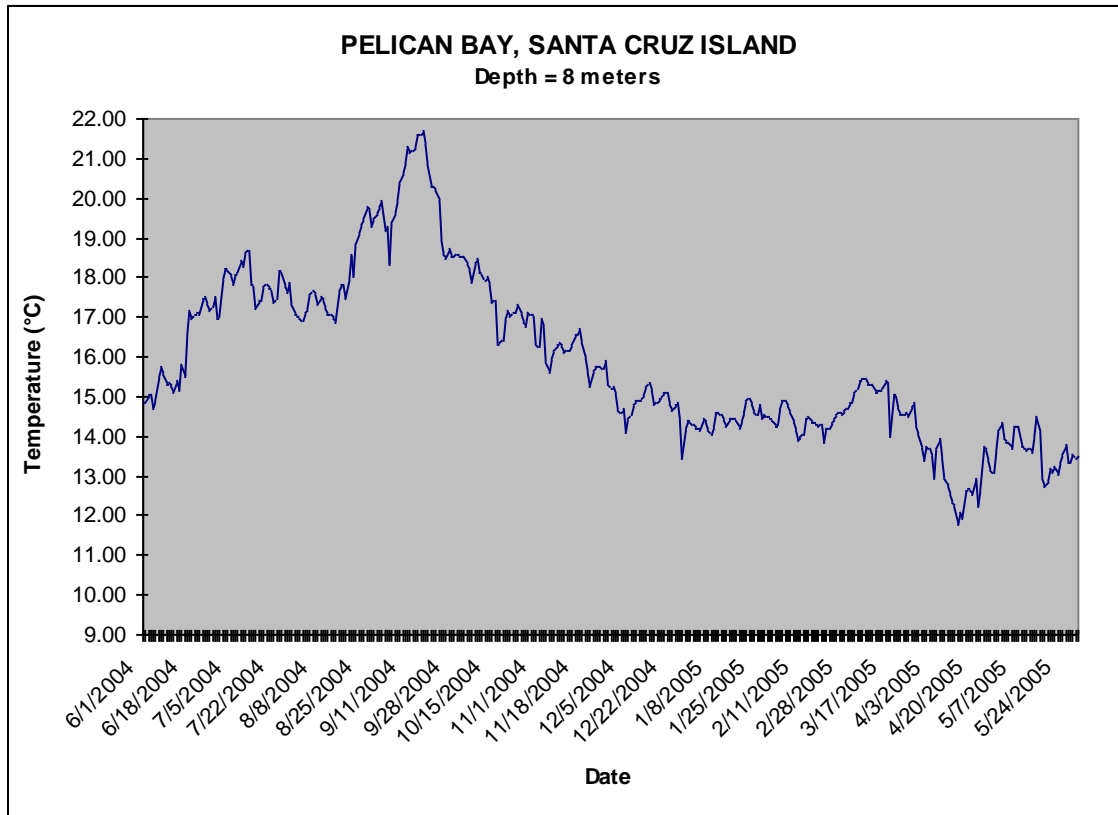
This appendix contains the temperature data (presented graphically) collected by remote TIDBIT™ temperature loggers that were deployed at 20 Kelp Forest Monitoring sites. Missing data at some sites is the result of technical problems or loss of temperature logger. Temperature data for the 16 new sites will be included in next year's annual report.

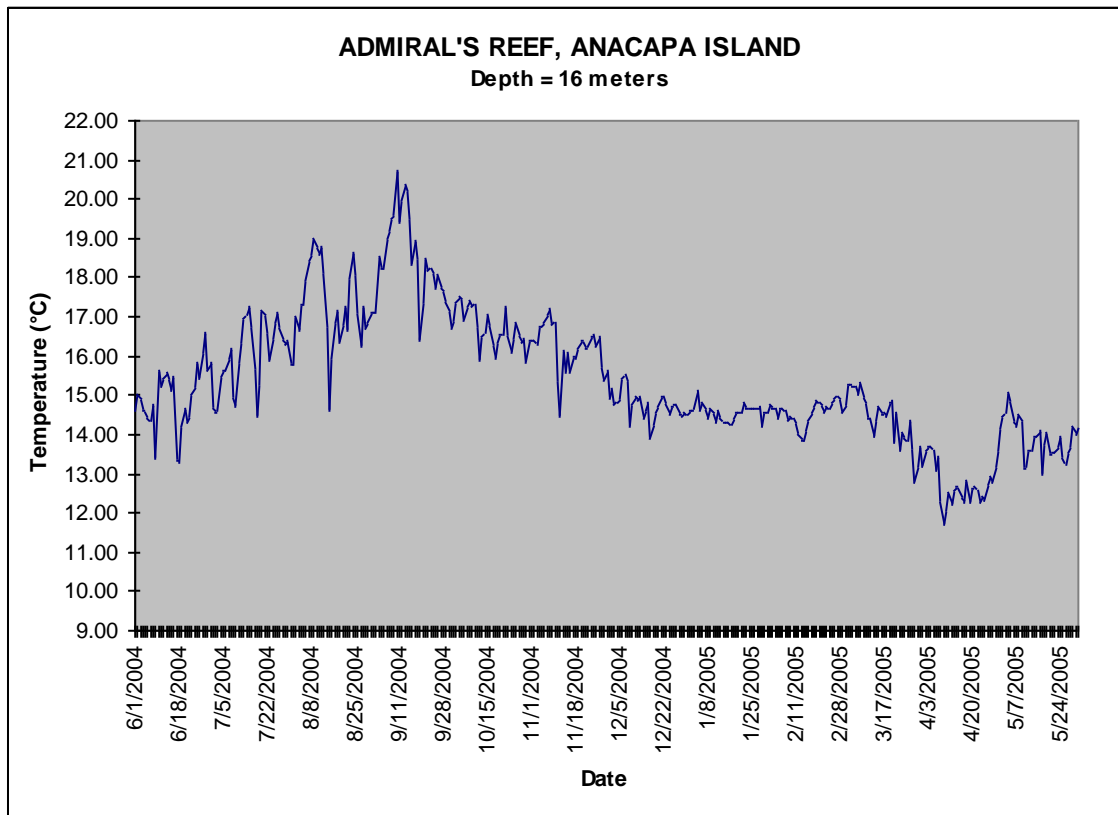
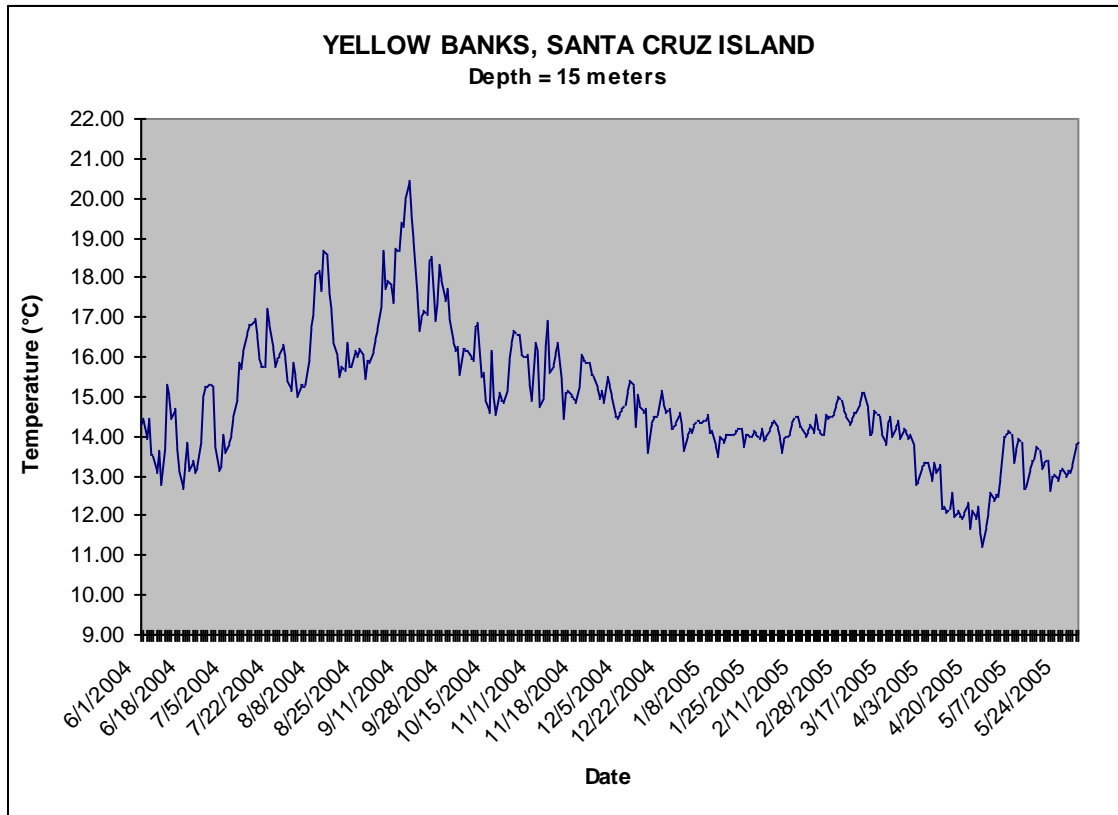


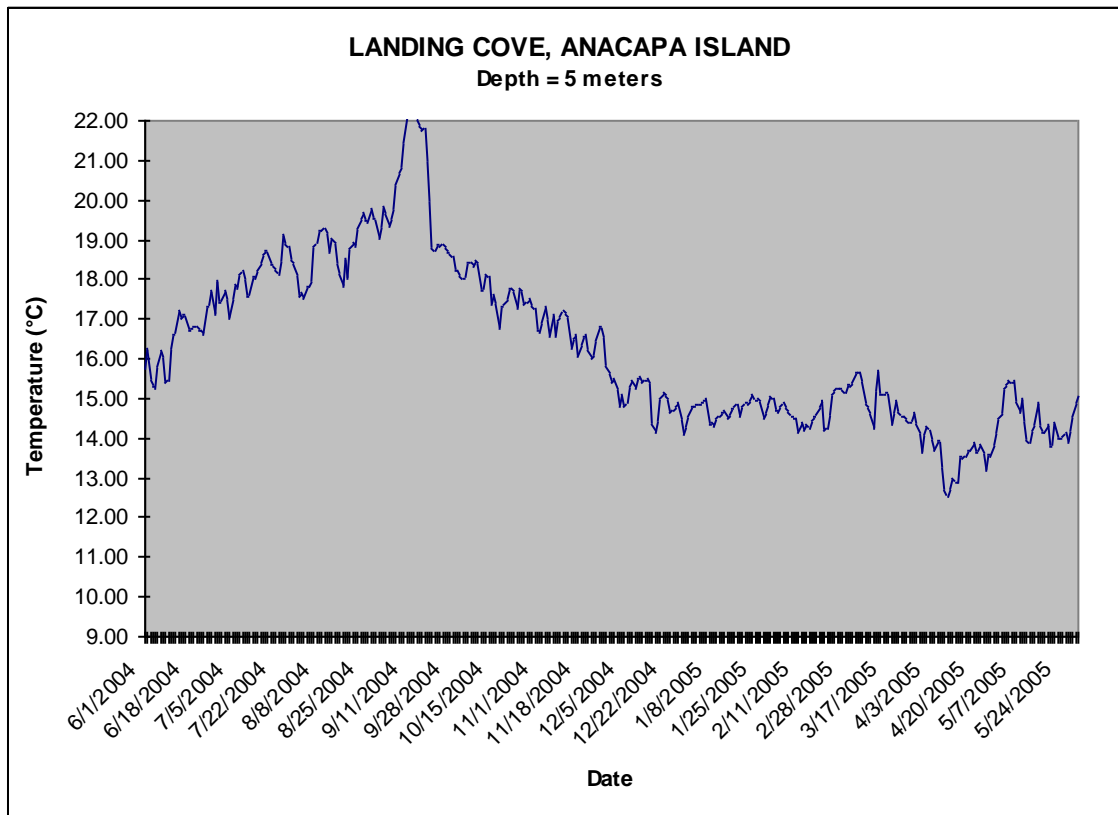
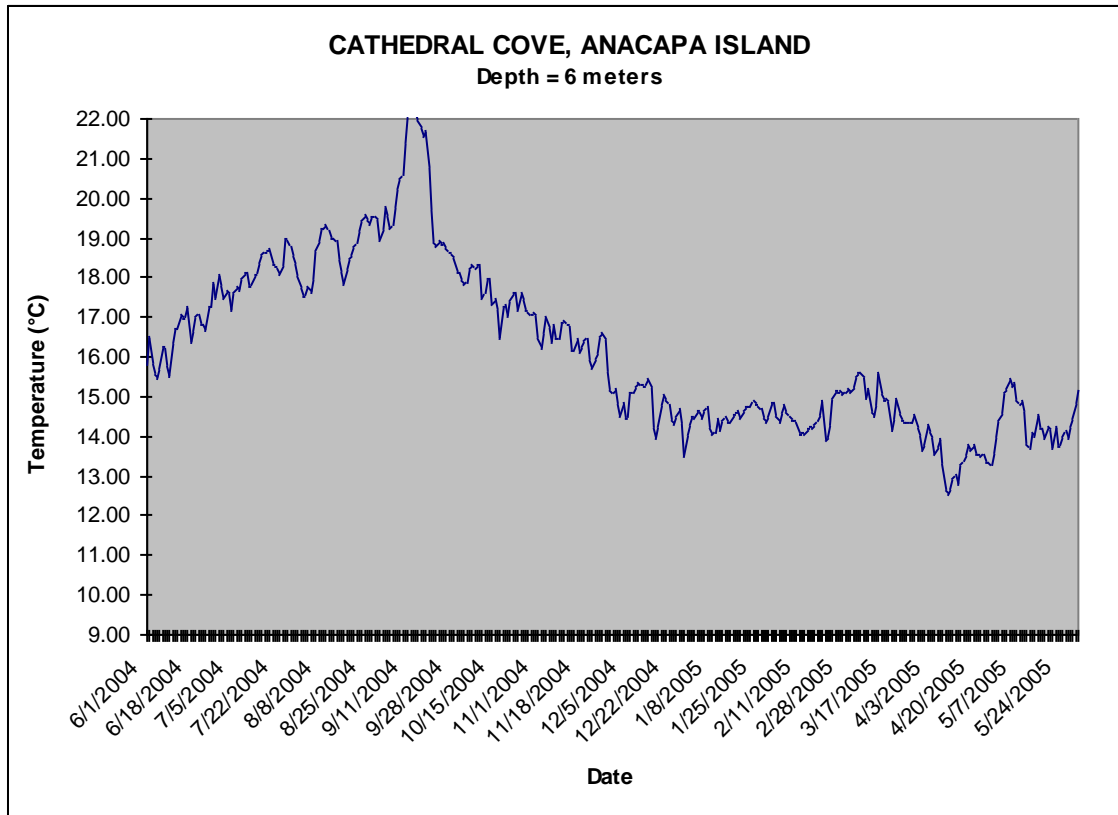


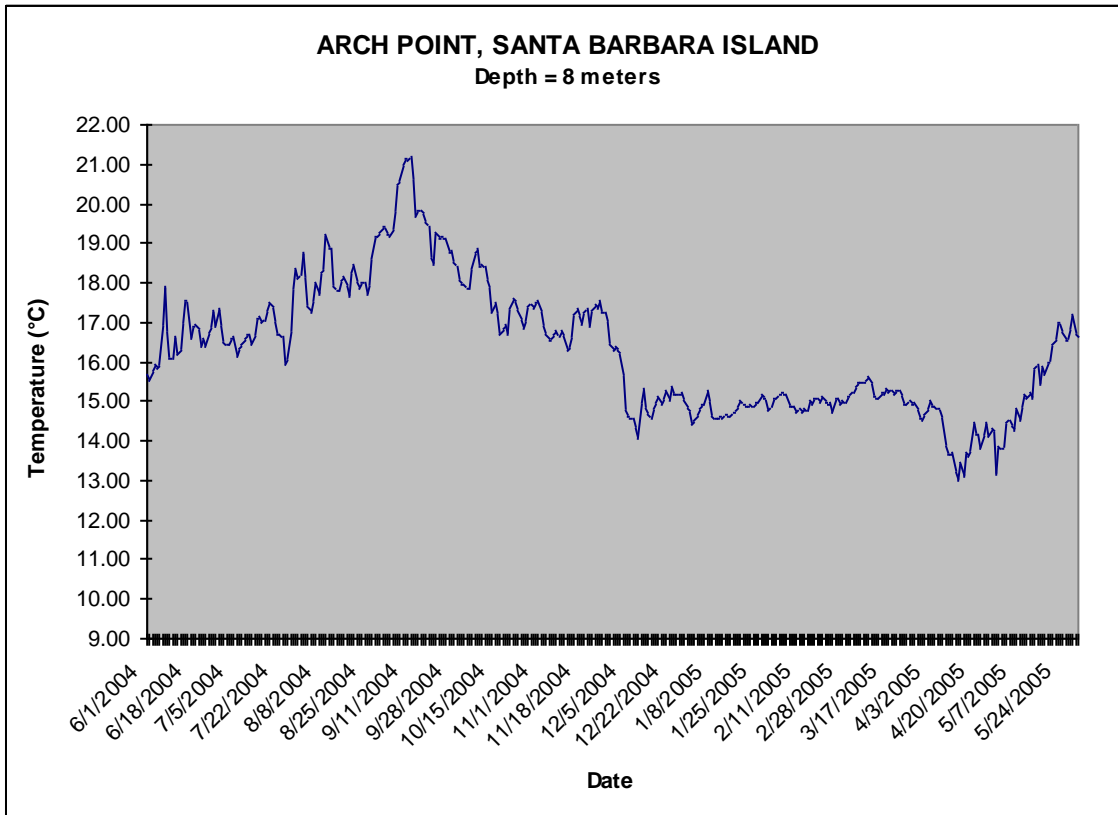
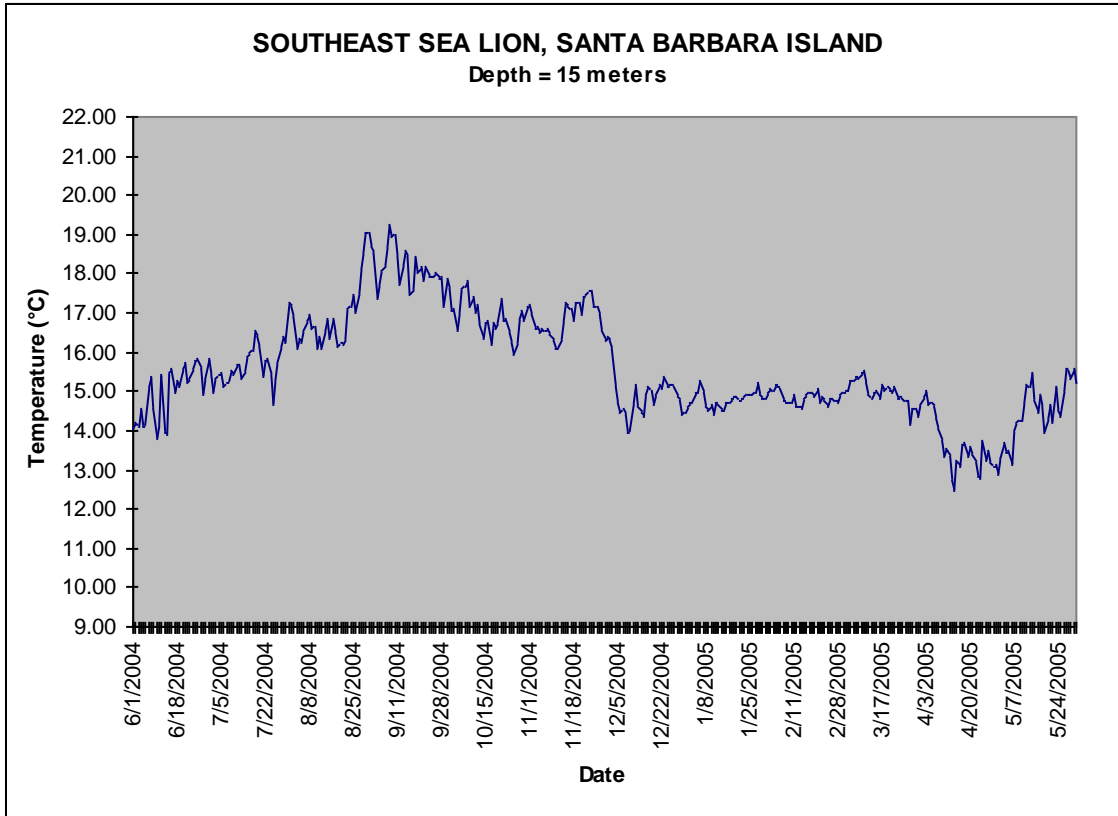


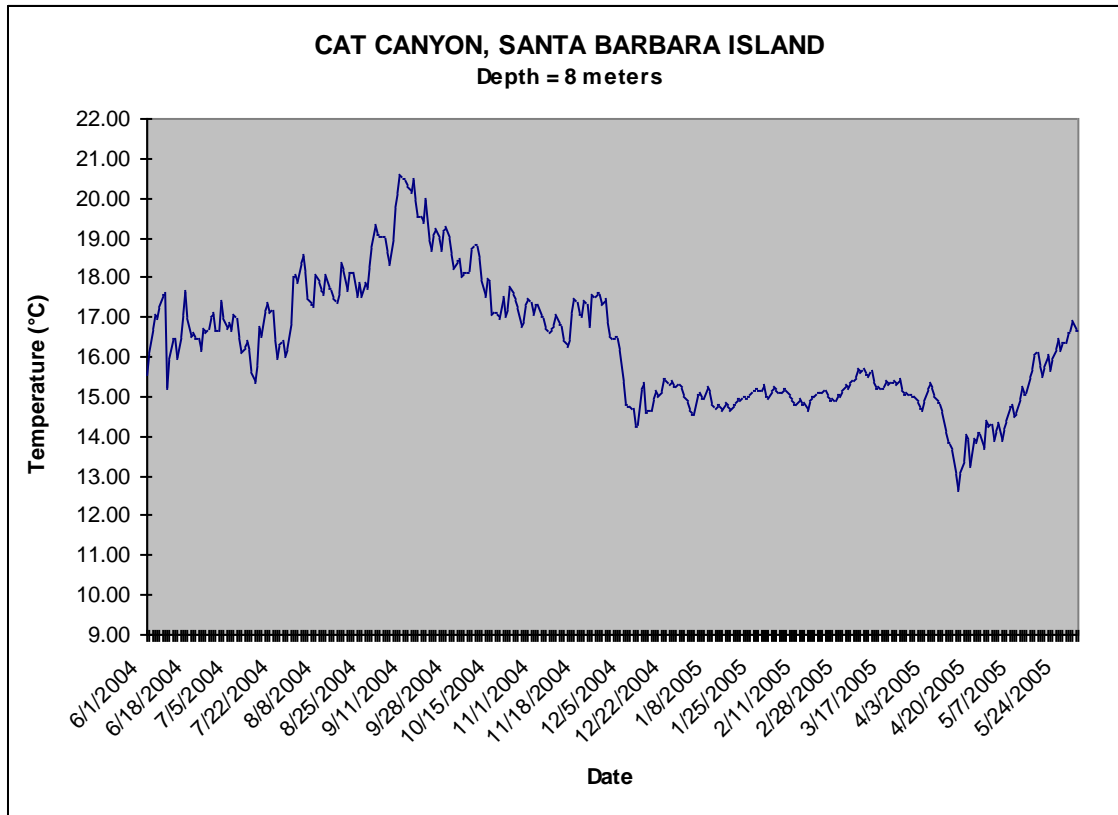












Appendix N. Kelp Forest Monitoring Site Descriptions.

*Note: All site descriptions below were placed in this report because they have not been presented otherwise.

San Miguel Island Wyckoff Ledge Site #1

Code Name: SMWL

Date Established: 1981

Latitude: 34° 01.342 N

Longitude: 120° 23.248 W

Transect Orientation: Southeast to Northwest (120° - 280°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	290	42
1	12.7	300	43
2	?	290	44
3	32.2	320	42
4	41.3	300	42
5	50.3	290	45
6	61.8	280	44
7	70.5	290	44
8	82.1	310	42
9	92.8	270	40
10	102	n/a	48

Old photo-plot location relative to permanent transect: On 1-2 m on south (offshore) side of transect line and 20-24 m from east end, four brass stakes.

Description of surface location: Outside edge of inside kelp forest, parallel to bluff between 2 sandy beaches, 0.15 miles off bluff.

Description of bottom topography: Sand covered rock, mostly flat with a few larger rocks rising 3-4 feet off bottom.

Location of temperature unit: 0 meter mark at the east end, depth 46 feet.

**San Miguel Island
Hare Rock
Site #2**

Code Name: SMHR

Date Established: 1981

Latitude: 34° 03.863 N

Longitude: 120° 21.248 W

Transect Orientation: East to West (90° - 270°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	270	24
1	7	260	21
2	28	300	17
3	31	280	23
4	37	280	20
5	40	270	21
6	46	280	21
7	53	270	19
8	61	310	16
9	81	270	18
10	92	310	23
11	101	-	23

Old photo-plot location relative to permanent transect: Northeast photo-plot point is 6-8 meters north of 20 meter bolt.

Description of surface location: Transect begins from the southeast side of Hare Rock in towards the cliff.

Description of bottom topography: Rocky, low-relief, flat, little vegetation, site is 20-30 ft deep.

Location of temperature unit: Two units – first one is 8.4 m at 315° from meter 10 and the second is 7.8 m at 345° from meter 20, depth 36 feet.

**Santa Rosa Island
Johnson's Lee North
Site #3**

Code Name: SRJLNO

Date Established: 1981

Latitude: 33° 54.088 N

Longitude: 120° 06.178 W

Transect Orientation: North to South (0°-180°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	180	35
1	9.2	180	33
2	19.4	210	33
3	30.1	208	33
4	39.5	210	33
5	49.8	220	33
6	60.4	220	32
7	71.0	210	31
8	78.9 (extra stake at 83.9)	210	32
9	89.3 (extra stake at 94.3)	208	34
10	99.9		36

Old photo-plot location relative to permanent transect: On transect line, 36 m from east end.

Description of surface location: 0.15 mi from island at closest point, 0.4 mi from south point towards south end of line

Description of bottom topography: Low relief rock.

Location of temperature unit: Near 0 meter mark at the northeast end, depth 36 feet.

**Santa Rosa Island
Johnson's Lee South
Site #4**

Code Name: SRJLSO

Date Established: 1981

Latitude: 33° 53.852 N

Longitude: 120° 06.045 W

Transect Orientation: Northeast to Southwest (30° - 210° ± 10°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	180	53
1	11	170	49
2	20	160	42
3	30	170	42
4	39	185	45
5	51	180	45
6	60	195	47
7	68	195	47
8	80.5	210	47
9	90	190	48
10	100	-	49

Old photo-plot location relative to permanent transect: Drilled new photoplot on 12 Sept. 1984 , 4 brass stakes installed at ~1 meter west of meter 61.

Description of surface location: Sparse to thick kelp forest, (Radar: 0.4 mi to South Pt.)

Description of bottom topography: Relatively low-relief rock with occasional sandy areas, more sand in first 30 m from southwest end. Occasional rocky outcrops and large boulders. Transect deeper at northeast end. Anchor chain and cable from USCG Buoy 5-10 m northwest of transect 20-40 m from northeast end. PVC quadrat 15-20 m northwest of southwest end.

Location of temperature unit: Near 100 meter mark at the southwest end, depth 52 feet.

**Santa Rosa Island
Rodes Reef
Site #5**

Code Name: SRRR

Date Established: 1983

Latitude: 34° 01.957 N

Longitude: 120° 06.420 W

Transect Orientation: East to West (90° - 270°)

<u>Stake</u>	Meter (8/21/03)	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	90	45
1	10.3	90	47
2	18.7	60	46
3	29.4	60	47
4	?	80	47
5	50	90	45
6	61.4	90	44
7	70.3	120	45
8	73.4	70	45
9	79.3	120	43
10	88.2	140	43
11	97.7	150	43
12	100.0		42

Old photo-plot location relative to permanent transect: 60 m from east end, 2 m north of the lead line, 4 brass stakes.

Description of surface location: North edge of kelp forest, east and north of breakers on the reef.

Description of bottom topography: Flat rock, low-relief, only small outcrops of rock.

Location of temperature unit: Near 100 meter mark at west end, depth 53 feet.

**Santa Cruz Island
Gull Island South
Site #6**

Code Name: SCGI

Date Established: 1981

Latitude: 33° 56.980 N

Longitude: 119° 49.655 W

Transect Orientation: North to South (0° - 180°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	193	54
1	10	193	47
2	20	193	45
3	31		45
4	39	193	44
5	51	193	51
6			no stake
7	71	180	52
8			no stake
9			no stake
10	last large rock outcropping	descends to sand	no stake

Old photo-plot location relative to permanent transect: 24 m from north end, 1-2 m west, 4 PVC stakes, open area, no kelp.

Description of surface location: Middle of line: .6/.7 .4/.5
50-60' .05 mi from Gull*

*not sure what this information means, but we are keeping it for the time being.

Description of bottom topography: Rocky reef, several outcropping of varied depths, west side of north end drops off to sand at 70 ft, south end drops off to ~70 ft as well as east and west.

Location of temperature unit: ~4 meters west of meter #20, depth 52 feet.

**Santa Cruz Island
Fry's Harbor
Site #7**

Code Name: SCFH

Date Established: 1981

Latitude: 34° 03.381 N

Longitude: 119° 45.309 W

Transect Orientation: North to South (0°-180°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	30	40
1	10	30	40
2	19	350	40
3	30	10	40
4	40	0	40
5	needs new bolt	10	42
6	61	20	44
7	needs new bolt	25	44
8	83	20	39
9	needs new bolt	0	40
10	101	-	40

Old photo-plot location relative to permanent transect: West (cliff side of line) at 45-48 m from south end and ~1 m from line.

Description of surface location: Parallel to cliff (in about 40' at south end), north end is just inside point, south end just north of large cave.

Description of bottom topography: Rocks sloping down and away from cliff, deepest at north end.
Note: At stake number 10, there is a cement filled tire marking the site ~1-2 meters away.

Location of temperature unit: 0 m mark at the north end, ~1-2 meters off, depth 43 ft.

**Santa Cruz Island
Pelican Bay
Site #8**

Code Name: SCPB

Date Established: 1981

Latitude: 34° 02.093 N

Longitude: 119° 42.185 W

Transect Orientation: Northeast to Southwest (20° - 200°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	200	27
1	10.5	200	26
2	20.3	175	25
3	30.6	190	25
4	42.7	195	25
5	51.0	195	24
6	60.8	205	24
7			
8	72.8	180	23
9	82.6	190	20
10		n/a	21

Old photo-plot location relative to permanent transect: ~2 m inshore from stake #9 (92-94 m on transect from 0 m end).

Description of surface location: West end of bay, transect runs north to south, begins at north section of kelp forest, kelp forest runs along sheer white cliff to west point of bay. A few large boulders at base of cliff near north end of transect; transect is ~15-20 m from cliff.

Note: At 100 meter end, there is a cement filled tire marking the site ~1-2 meters away.

Description of bottom topography: Low-relief rock interspersed with sandy areas.

Location of temperature unit: ~5 meters west of meter 5, depth 26 feet.

**Santa Cruz Island
Scorpion Anchorage
Site #9**

Code Name: SCSA

Date Established: 1981

Latitude: 34° 02.52.7 N (GPS)
34° 02.879 N

Longitude: 119° 99.05.1 W (GPS)
119° 33.084 W

Transect Orientation: East to West (90° - 270°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	275	16
1	10	275	13
2	20	265	14
3	30	270	14
4	40	285	13
5	50	280	15
6	60	285	15
7	70	285	16
8	80	290	15
9	91	285	16
10	100		14

Old photo-plot location relative to permanent transect: ~3 m from east end, south (inshore) side of line.

Description of surface location: Parallel to cliff, cave is approximately in the center of the transect, transect is about ~80 meters from cliff at 80 m mark, ~100 ft -150 ft away from island at cave.

Description of bottom topography: Mostly large boulders.

Location of temperature unit: 0 meter mark at the east end, depth 23 feet.

**Santa Cruz Island
Yellow Banks
Site #10**

Code Name: SCYB

Date Established: 1986

Latitude: 33° 59.390 N

Longitude: 119° 33.784 W

Transect Orientation: East to West (90 ° - 270°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	270	48
1	10.1	270	49
2	17.4	272	50
3	27.8	270	50
4	39.8 (drill bit @41.5)	270	50 (50)
5	51.2	270	49
6	60.1	270	50
7	70.1 (extra stake @80.1)	270	49 (50)
8	83.4	271	49
9	92.2	270	51
10	100		52

Old photo-plot location relative to permanent transect: Between 50 and 60 m on north side of transect, about 3 m off, 5.6 m north from 50 m stake to the northeast corner.

Description of surface location: North edge of kelp line, out from fence line on island separating east and west properties, 0.3 mile to closest point on island, v-notch west of fence line.

Description of bottom topography: Transect runs east-west along ridge, low relief sandstone, series of east-west low ridges at site, areas of sand or cobble between large boulders. *Eisenia*, *Laminaria*, some *Macrocystis* on top of reef.

Location of temperature unit: 0 meter mark at east end, depth 49 feet.

**Anacapa Island
Admiral's Reef
Site #11**

Code Name: ANAR

Date Established: 1981

Latitude: 34° 00.465 N

Longitude: 119° 26.063 W

Transect Orientation: Northwest to Southeast (330° -150°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	140	47
1	9.6	150	43
2	20	160	42
3	29	140	49
4	39	130	44
5	49	130	43
6	58	120	45
7	67	140	44
8	77	170	43
9	86	160	44
10	97	140	44

Old photo-plot location relative to permanent transect: Approximately 20 m from northwest end. New photoplot drilled 9-16-87.

Description of surface location: Southwest edge of inner kelp forest off West Anacapa.

Description of bottom topography: The offshore side of the transect runs about 45-60ft deep and is a mix of boulders, cobble, sand and a small amount of bedrock. The inshore side of the transect goes up to the top of a reef at that comes up to a depth of 25ft, with the depth within the transect area typically 35-50 feet on this side. The bottom consists of mostly large boulders and bedrock, but there is also some sand and small boulders.

Note: At 0 meter end, there is a cement filled tire about 1 meter away. Several new bolts were installed in 2007.

Location of temperature unit: 0 meter mark at the southeast end, depth 46 feet.

**Anacapa Island
Cathedral Cove
Site #12**

Code Name: ANCC

Date Established: 1981

Latitude: 34° 00.952 N

Longitude: 119° 22.304 W

Transect Orientation: Northwest to Southeast (330° - 150°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	140	35
1	9.2	135	34
2	18.7	140	31
3	29.1	130	28
4	40.7	120	27
5	49.2	125	25
6	59.6	125	26
7	66.5	140	23
8	72.5	150	23
9	88.5	115	20
10	100		18

Old photo-plot location relative to permanent transect: Photoplot 26m from north end and ~2m west of transect line (inside toward cliff) on upward sloping boulders. Brass stake is not on NE corner of photoplt.

Description of surface location: Transect runs along cliff NW to SE along edge of kelp forest.

Description of bottom topography: East side of transect extends from small boulders to extensive sandy areas several meters off the line on the offshore side of the transect. Transect is on boulders which slope upward toward cliff (west).

Location of temperature unit: 100 meter mark at the southeast end, depth 20 feet.

**Anacapa Island
Landing Cove
Site #13**

Code Name: ANLC

Date Established: 1981

Latitude: 34° 01.022 N

Longitude: 119° 221.668 W

Transect Orientation: Northeast to Southwest (30° – 210°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0 NE	0	214	23
1	9.3	222	19
2	18.9	230	-
3	29.2	217	17
4	39.3	221	20
5	52	215	39
6	61.7	215	37
7	85	220	27
8	93.6	215	21
9	97.2	215	18
10	100		15

Old photo-plot location relative to permanent transect: Photoplot approximately 2 m from north end, on reef crest, at a depth of 5-6 meters.

Description of surface location: In kelp forest along cliff opposite of dock.

Description of bottom topography: The northeast end of the transect begins on top of a reef crest in shallow water then drops off to greater depth, composed of boulders and rocky outcrops, and gradually gets shallower towards the southwest end. In general, there is a mix of low and very high relief areas.

Note: At 100 m end, there is a cement filled tire marking the site about 1-2 meter south west of the end of the transect.

Location of temperature unit: 7 meters northeast of the 0 meter mark, depth 16 feet.

**Santa Barbara Island
Southeast Sea Lion Rookery
Site #14**

Code Name: SBSESL

Date Established: 1981

Latitude: 33° 27.967 N

Longitude: 119° 01.667 W

Transect Orientation: North to South (0° - 180°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	170	40
1	9.5	160	40
2	21	165	42
3	30.2	120	40
4	40.2	130	45
5	50.2	150	45
6	61.2	180	46
7	71.8	170	45
8	81.0	160	44
9	92.0	150	44
10	101.0		43

Old photo-plot location relative to permanent transect: At 70 m mark, 30 m from south end of transect, inshore side of line.

Description of surface location:

Description of bottom topography:

Location of temperature units: Near the 0 meter mark at the north end, depth 39 feet.

**Santa Barbara Island
Arch Point
Site #15**

Code Name: SBAP

Date Established: 1981

Latitude: 33° 29.252 N

Longitude: 119° 01.655 W

Transect Orientation: North to South (20° – 200° ± 20°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	210	25
1	10.6	180	27
2	20.7	170	25
3	31.9	200	26
4	42.2	190	25
5	52.2	190	26
6	61.1	190	25
7	72.9	200	26
8	83.4	200	23
9	92.9	200	22
10	102.8		23

Old photo-plot location relative to permanent transect: Photo-plot at 90-92 m on transect from north end, ~1 m east of transect.

Description of surface location: Transect runs north-south along cliff through and along the bordering kelp forest, south end is in front of cove, north end extends almost to point.

Description of bottom topography: Low relief rock and boulders, depths of 25-30 ft.

Location of temperature unit: ~4 meters east of meter #85, depth 23 feet.

**Santa Barbara Island
Cat Canyon
Site #16**

Code Name: SBCAT

Date Established: 1986

Latitude: 33° 27.865 N

Longitude: 119° 02.350 W

Transect Orientation: East to West (90°-270°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	-	25
1	11.3	310	26
2	21.1	300	28
3	28.9	260	30
4	40.3	280	27
5	50.2	280	25
6	60.2	260	22
7	71.15	275	24
8	80.8	260	25
9	91.5	270	28
10	100	250	25

Old photo-plot location relative to permanent transect:

Description of surface location:

Description of bottom topography: High relief rock.

Location of temperature unit: Near the 0 meter mark at the east end, depth 23 feet.

**San Miguel Island
Miracle Mile
Site #21**

Code Name: SMMM

Date Established: 2001

Latitude: 34° 01.422 N

Longitude: 120° 23.708 W

Transect Orientation: East to West (90° – 270°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
1	0	320	34
2	10.1	290	31
3	20.4	280	25
4	30.3	270	28
5	41.1	290	28
6	51.3	300	24
7	61.2	310	23
8	71.0	320	27
9	82.0	260	30
10	93.0	270	27
11	103.0	N/A	26

Description of surface location:

Description of bottom topography:

Location of temperature unit: logger not installed.

**Santa Rosa Island
Cluster Point
Site #22**

Code Name: SRCP

Date Established: 2005

Latitude: 33° 55.382 N

Longitude: 120° 11.242 W

Transect Orientation: East to West (90° - 270°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	270	40
1	10	270	44
2	20.2	270	46
3	29.8	280	47
4	40.1	275	47
5	50	280	48
6	59.7	270	51
7	66.2	270	49
8	69.3	270	43
9	78.3	270	42
10	89.2	270	40
11	99.8	-	47

Description of surface location: Offshore and west of Cluster Point.

Description of bottom topography: This site runs from east to west and is mostly bedrock and very rugose. It has many high points with peaks, ridges, caves, cracks, ledges, and canyons. There is a large ridge that runs through the transect at the 70 meter mark with a preceding sand channel.

Location of temperature unit: Near the 0 meter mark at the east end, depth 39 feet.

**Santa Rosa Island
Trancion Canyon
Site #23**

Code Name: SRTC

Date Established: 2005

Latitude: 33° 54.513 N

Longitude: 120° 09.330 W

Transect Orientation: East to West (90° - 270)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	270	32
1	10.8	270	39
2	20	270	42
3	29.9	270	42
4	40	270	42
5	49.1	270	40
6	60.3	270	44
7	69.5	270	47
8	80.4	270	45
9	89.3	270	46
10	100	270	45

Description of surface location: East of Cluster Point and west of Chickasaw. It is offshore from Trancion Canyon and there is a shoal rock pile in between the site and the shore line.

Description of bottom topography: A very rugose site with many high ridges and rocks, but mainly composed of bedrock. Just past the east end of the reef, there is a large 10 ft drop off to ~45 ft. There is a large rock that comes up to 20 feet of water on the offshore side at approximately the 85 meter mark.

Location of temperature unit: 0 m mark at the east end, ~1-2 meters off, depth 30 feet.

**Santa Rosa Island
Chickasaw
Site #24**

Code Name: SRCSAW

Date Established: 2005

Latitude: 33° 54.022 N

Longitude: 120° 08.138 W

Transect Orientation: East to West (90° - 270°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	270	36
1	10.6	270	32
2	21.7	270	35
3	30	270	38
4	40.5	270	40
5	48.7	270	41
6	50	270	32
7	53	270	38
8	60.8	270	39
9	66.5	270	39
10	67.7	270	34
11	71	270	37
12	80	270	36
13	89.7	270	36
14	100	270	36

Description of surface location: The site is east of the point at Chickasaw.

Description of bottom topography: Mostly bedrock with a series of ridges and canyons running perpendicular to the site with a large sand channel past the west end of the transect.

Location of temperature unit: Near the 0 meter mark at the east end, depth 33 feet.

**Santa Rosa
South Point
Site #25**

Code Name: SRSP

Date Established: 2005

Latitude: 33° 53.540 N

Longitude: 120° 07.170 W

Transect Orientation in Degrees: East to West (90°-270°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	270	42
1	10	270	42
2	19.5	270	43
3	30	270	41
4	39.9	270	40
5	50	270	43
6	60	270	41
7	70	270	40
8	79.9	270	39
9	90	270	38
10	100.5	270	43

Description of surface location: West of South Point and offshore of guano covered rock.

Description of bottom topography: The transect line was installed mostly on flat rock and encounters very little crevice habitat. There are ridges and outcroppings off the main transect, especially on the onshore side.

Location of temperature unit: Near the 0 meter mark at the east end, depth 43 feet.

**Santa Cruz Island
Devil's Peak Member
Site #26**

Code Name: SCDPM

Date Established: 2005

Latitude: 34° 02.696 N

Longitude: 119° 36.084 W

Transect Orientation: Northeast to Southwest (50° - 230°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	235	44
1	10	230	42
2	19.7	220	41
3	29.6	220	40
4	39.5	225	33
5	49.6	230	36
6	59.4	230	38
7	69.3	225	37
8	79	235	38
9	89.2	220	35
10	99		39

Description of surface location: The 50 meter mark is offshore from the Devil's Peak Member point. It is located two points northeast of Coche Point and west of Potato harbor.

Description of bottom topography: This site is basically a large boulder field with intermittent bedrock. There is a large rock pinnacle at about meter #10 and comes up to ~3 meters of water.

Location of temperature unit: Near the 0 meter mark at the northeast end, depth 43 ft.

**Santa Cruz Island
Potato Pasture
Site #27**

Code Name: SCPP

Date Established: 2005

Latitude: 34° 03.130

Longitude: 119° 34.927

Transect Orientation: East to West (90°- 270°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	270	36
1	9.2	270	38
2	19.5	270	41
3	21.2	270	33
4	30.3	270	32
5	40.5	270	31
6	50	270	38
7	59.2	270	36
8	69.5	270	39
9	80.2	270	41
10	90.3	270	41
11	99.8	270	38

Description of surface location: This site is the first point west of potato harbor. The transect runs parallel to the island. There is a cave that lines up with the 50 meter mark.

Description of bottom topography: The zero end starts right at the beginning of a bedrock reef with sand to the east. The west end of the transect runs into the island. There are large caves and ledges at this site creating a very rugose habitat.

Location of the temperature unit: Near the 0 meter mark at the east end, depth 36 feet.

**Santa Cruz Island
Cavern Point
Site #28**

Code Name: SCCVP

Date Established: 2005

Latitude: 34° 03.257 N

Longitude: 119° 34.012 W

Transect Orientation: Northeast to Southwest (45° - 225°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	220	39
1	10	220	39
2	20.2	215	39
3	30.2	225	38
4	40	230	39
5	50.1	235	39
6	60	230	41
7	70.3	230	42
8	80	235	39
9	89.7	225	43
10	100		42

Description of surface location: Located southwest of Cavern Point in between two exposed wash rocks. This site is very exposed to northwest/west winds and swells and should be monitored in optimal conditions.

Description of bottom topography: This site is on an incline with the offshore side dropping off dramatically. This site is partially a boulder field with some large bedrock formations especially towards the 0-50 meter end. The large rock formations contain many overhangs and crevices. The lead line weaves in and out of the bedrock and crevices on the first half of the transect. The temperature logger sits in 12.5meters depth at the 0 meter end.

Location of temperature unit: Near the 0 meter mark at the northeast end, depth 41 ft.

**Santa Cruz Island
Little Scorpion
Site #29**

Code Name: SCLS

Date Established: 2005

Latitude: 34° 02.649

Longitude: 119° 32.547

Transect Orientation: East Northeast to West Southwest (80° - 260°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	260	35
1	10	260	38
2	20	250	41
3	30.4	260	39
4	40.2	260	36
5	49.7	260	31
6	60	255	34
7	70.2	250	37
8	80.3	250	40
9	90.8	260	40
10	100		45

Description of surface location: Located just east of Little Scorpion.

Description of bottom topography: Steep boulder field intermixed with bedrock. The onshore side of the transect is much shallower than the offshore side. The range in depth is from 20 to 51 feet within the transect area. The transect area within meters 0 to 20 are deeper and not as steep as the rest of the transect. After meter 35, the transect rests on a steep incline.

Location of temperature unit: Near the 0 meter mark at the east end, depth 36 feet.

**Santa Cruz Island
Pedro Reef
Site #30**

Code Name: SCPRF

Date Established: 2005

Latitude: 34° 02.302N

Longitude: 119° 31.518 W

Transect Orientation: Southeast to Northwest (120° - 300°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	305	29
1	10.9	305	28
2	20.1	300	24
3	30	300	28
4	39.3	305	34
5	49.5	300	31
6	59.5	300	32
7	69.7	300	31
8	79.6	300	31
9	89.8	305	28
10	99.7		31

Description of surface location: It is located two coves west of Pedro Point and is directly in front of some caves.

Description of bottom topography: Flat shelf reef with a sand channel just east of the 0 meter mark. Drops off into deeper water on the offshore side of the transect. There is a large ridge around the 50 meter mark that runs perpendicular to the transect. In between the 10 and 30 meter mark on the onshore side, there is a high point in the reef (18 ft) with a large depression in the middle of it. The rest of the site is low lying bedrock.

Location of temperature unit: Near the 0 meter mark at the southeast end, depth 30 feet.

**Anacapa Island
Keyhole Reef
Site #31**

Code Name: ANKH

Date Established: 2005

Latitude: 34° 00.985

Longitude: 119° 25.921

Transect Orientation: East to West (90°- 270°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	270	29
1	10.9	270	28
2	20.1	275	24
3	30	270	28
4	39.3	270	34
5	49.5	280	31
6	59.5	270	31
7	69.7	270	31
8	79.6	270	31
9	89.8	275	28
10	99.5		31

Description of surface location: This site is east of the Fish Bowl and the 50 meter mark lines up with Teardrop Cave, which looks like a keyhole.

Description of bottom topography: Two bedrock ridges/shelves run north south at the beginning of the transect line (~0 m). This site sits on the slope of the Island with most of the bottom consisting of large boulders. There is a considerable depth change between the onshore and offshore sides of the transect line.

Location of the temperature unit: Near the 0 meter mark at the east end, depth 36 feet.

**Anacapa Island
East Fish Camp
Site #32**

Code Name: ANEFC

Date Established: 2005

Latitude: 34° 00.270

Longitude: 119° 23.147

Transect Orientation: North to South (0°-180°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	180	36
1	11	170	36
2	20	180	32
3	29	185	36
4	40	180	32
5	50	180	37
6	58.8	180	36
7	70	180	40
8	80	180	43
9	90.3	180	44
10	100	180	47

Description of surface location: North to south transect that runs parallel to the point at East Fish Camp.

Description of bottom topography: The moderate rugosity at this site is formed by the intermittent sand channels and canyons that intersect it. Off both the north and south ends of the transect are large sandy plains and another sand channel runs east –west across the transect between the 30 to 35 meter mark.

Location of temperature unit: Near the 0 meter mark at the north end, depth 36 feet.

**Anacapa Island
Black Sea Bass Reef
Site #33**

Code Name: ANBSBR

Date Established: 2005

Latitude: 34° 00.756

Longitude: 119° 23.351

Transect Orientation: East to West (90° – 270°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0		280	55
1	10.8	270	54
2	20.2	270	51
3	30.3	280	51
4	40.2	280	53
5	50.4	270	52
6	61.4	260	54
7	71.8	260	52
8	80.8	260	53
9	90	260	55
10	100.2		55

Description of surface location: Located on the north side of Middle Anacapa Island, east of Frenchy's Cove and offshore of the Winfield Scott wreck.

Description of bottom topography: This reef is surrounded by some sand with a rock/sand interface that runs parallel at ~59 to 60 feet. Nearly all of the transect and 10 meters on either side consists of low lying bedrock reef with some intermittent cobble. The zero meter mark is just west of the reef's edge. There is one ridge that runs through the transect to the 23 meter mark.

Location of temperature unit: About 2 meters north of the 0 meter mark at the east end, depth 52 feet. The temperature logger is attached to a cement block since the substrate in the area is poor for installing thread rods.

**Anacapa Island
Lighthouse Reef
Site #34**

Code Name: ANLH

Date Established: 2005

Latitude: 34° 00.846

Longitude: 119° 21.541

Transect Orientation: Northeast to Southwest (210°-390°)
(*Note change in bearing at 32.6 meters and 50 meters along the transect line.)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	210	25
1	10.7	210	28
2	21	200	28
3	30.3	195	29
4	39.7	215	28
5	49.6	250	30
6	60.7	250	29
7	70.5	250	28
8	80.0	260	27
9	89.8	270	27
10	100		28

Description of surface location: Located directly offshore of the Anacapa Lighthouse.

Description of bottom topography: This site is a boulder field intermixed with sand. There is a cobble bed inshore (north) and sand offshore (south) of the transect. The zero bolt is at the east end on top of a large boulder right next to the temperature unit. There is a sand channel just past the 100 meter end of the transect.

Location of temperature unit: Near the 0 meter mark at the northeast end, depth 26 feet.

**Santa Barbara Island
Webster's Arch
Site #35**

Code Name: SBWA

Date Established: 2005

Latitude: 33° 28.802

Longitude: 119° 03.726

Transect Orientation: East to West (90° - 270°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0		270	48
1	10.2	270	49
2	19.7	270	50
3	30	270	49
4	40.3	270	48
5	49.8	270	52
6	59.9	270	51
7	70.2	270	47
8	80.2	270	45
9	90	270	45
10	99.2		46

Description of surface location: This site sits due south of Webster Point about 1 mile and 150 meters south of the underwater arch.

Description of bottom topography: The eastern half of the transect is much different than the western half. The eastern half is a more flat laying reef with a series of low lying ridges. The western half is more rugose with a series of larger ridges that run north to south with intermittent cobble beds in between. There is one large boulder at the eastern end on the south side approximately 20 meters along. The site drops off at the east end of the transect.

Location of the temperature unit: Near the 0 meter mark at the east end, depth 46 feet.

**Santa Barbara Island
Graveyard Canyon
Site #36**

Code Name: SBGC

Date Established: 2005

Latitude: 33° 28.384

Longitude: 119° 01.611

Transect Orientation: Southeast to Northwest (145°-325°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	325	40
1	10	325	38
2	16.5	325	40
3	SAND		
4	40	315	40
5	50	315	40
6	60	320	39
7	69	320	38
8	80	325	37
9	90	325	37
10	100		36

Description of surface location: Offshore of Graveyard canyon and North of Southeast sea lion within the reserve.

Description of bottom topography: Two flat low lying reefs separated by a sand channel. The reef is surrounded by sand on all sides and is the only stretch of reef in the near vicinity.

Location of the temperature unit: Near the 0 meter mark at the southeast end, depth 36 feet.

**Santa Barbara Island
Southeast Reef
Site #37**

Code Name: SBSER

Date Established: 2005

Latitude: 33° 27.776

Longitude: 119° 01.876

Transect Orientation: East to West (90°- 270°)

<u>Stake</u>	<u>Meter</u>	<u>Bearing to next stake</u>	<u>Depth (ft)</u>
0	0	265	36
1	9.6	265	36
2	19.9	265	37
3	29.7	270	35
4	39.2	270	34
5	49.2	265	32
6	58.6	270	34
7	71.1	265	41
8	80.3	260	44
9	89.3	260	47
10	100		50

Description of surface location: East of Cat Canyon and south of Southeast Sea lion; and directly south of the blowhole.

Description of bottom topography: The east (zero end) is at the base of a drop off (10ft) that runs north to south. The transect has a series of ridges that run north-south through the transect line. There is a small sand channel running through meters 23-27 along the transect line.

Location of the temperature unit: Near the 0 meter mark at the east end, depth 36 feet.

Appendix O. Protocol Modifications and Data Management Information

Protocol Changes

The UCSB/PISCO fish protocol was added to facilitate the NRPP reserves project funded this year. See detailed description above under new projects.

Temperature logger housings were changed from the Onset Computer Corporation waterproof housings to housings that are not water proof. This was done because the new TIDBIT™ loggers being used do not require a waterproof housing. The new housings are made by us and are constructed with a 3-4" length of 2" diameter ABS PVC pipe with end caps. There is a half inch hole drilled through the end-caps and this is bolted directly to a thread rod installed at each of the monitoring sites, typically at the zero end of each transect. New temperature loggers were installed at each of the new 16 permanent sites established this year.

In past years, sampling at the kelp forest monitoring sites typically occurred over at least two separate dates, ranging from two weeks to several months apart. Separate sampling dates enabled us to conduct fish transects and roving diver fish counts two times at each site at least two weeks apart. Due to the addition of 16 monitoring sites, effectively doubling the size of the monitoring program, logistical constraints enabled us to only conduct fish transect and roving diver fish counts once per site this year and we expect these constraints to continue in future years. To compensate and to improve our ability to monitor fish populations we have added the PISCO visual fish transect protocol as mentioned above to the 24 sites associated with the assessment of the MPAs.

Corrections to the Database

There were no corrections made to the database in 2005.

Sampling Difficulties

All proposed data collection was completed this year. In past years we have attempted to conduct fish transects and Roving Diver Fish Counts twice per field season. With the addition of new sites, we had planned to conduct these once this year, which we did. With the amount of vessel and personnel support this year, we were unable to conduct those surveys twice.

New Projects

In 2005 the NPS NRPP funded the KFMP proposal "Establish Baseline Ecological Conditions of Newly Established Marine Reserves at the Channel Islands". Under this proposal the KFMP added an additional 16 permanent sites this year for which ecological baseline information is to be collected for three years. These additional sites will allow for the evaluation of the effectiveness of the MPAs. The 16 new sites are paired up with eight existing KFM sites to examine four of the 11 new MPAs that were established in 2003. These four MPAs are Santa Barbara Island, Anacapa Island, Scorpion Anchorage at Santa Cruz Island and South point at Santa Rosa Island. At each of these four MPAs there are at least three sites inside and three sites adjacent to each of them which will allow for comparison. We believe this data will be a valuable resource in evaluating the Channel Islands MPAs and this may prove important in

influencing to what extent marine reserves are utilized for ecosystem management and as a biological conservation tool in California and beyond.

For this proposal we deemed it essential to collect better information on fish size and abundance than what the regular KFMP protocol can provide. The KFMP currently does not collect fish size data and our fish transect protocol has limited use due to low sample size. Collecting fish size and abundance data that has higher resolution has not been conducted by the KFMP previously because of the large logistical effort it takes to conduct these surveys. Because this data is very important for the evaluation of MPAs and we do not have the logistical capabilities to conduct it, we outsourced this portion of the work to UCSB/PISCO through a NPS Cooperative Ecosystems Studies Unit Cooperative Agreement. PISCO protocols for both fish size and abundance are well tested and adequate for our sampling needs. In addition, PISCO was eager to collaborate with us on this work as both groups thought it is essential information to collect for the evaluation of the MPAs. PISCO will collect fish size and abundance data utilizing their protocol at the 24 sites associated with this MPA evaluation from 2005-2007.

Appendix P. KFM Data Usage for 2005.

Data Requests

In 2005, there were 10 requests for Kelp Forest Monitoring data and all were filled.

1. Thomas Young, a UCSB Ph. D. student, requested the size frequency and density data for *Strongylocentrotus purpuratus*, *Strongylocentrotus franciscanus*, *Pycnopodia helianthoides*, alga, and *Panulirus interruptus*, as well as Roving Diver Fish Count and fish transect data. Thomas Young was determining the causes of spatial variation in the size-structure of sea urchin populations inside and outside marine reserves of the northern Channel Islands.
2. The density summaries for *Crassidoma giganteus* were sent to Tal Ben-Horin, a student at the Bren School at UCSB. Tal will be using the data as part of a population viability analysis for rock scallops in the Northern Channel Islands. This will be an academic exercise as part of his requirements of a population ecology class he is taking.
3. Size frequency and density data for *S. purpuratus* and *S. franciscanus* for 8 sites were sent to Roberta Traverso-Estes at Scripps College. She is working on a thesis project on Marine Reserves.
4. Random point contact, 1 m quadrat, and 5 m quadrat summary data for all algae and *Corynactis californica* was sent to Kathleen Morrow, a Masters student at Cal. State Northridge. She may use some of these data for her Masters thesis.
5. Carrie Culver with California Sea Grant was sent all of the density summaries for *Megathura crenulata*. There is a increasing harvest pressure for this slow growing species for pharmaceutical compounds, and much is unknown of the species .
6. Jennifer K. O'Leary a grad student at University of California Santa Cruz (of Dr. Peter Ramondi) requested and was sent all of the summary data for 1 m quadrats, 5 m quadrats, band transects, RPCs, visual fish transects and the temperature data for all years. She is working on the effects of various grazers on encrusting coralline algae in temperate and tropical regions. She is hoping to use the KFM data in a publication comparing the effects of the grazing community on coralline algae in a temperate area versus those in a tropical area.
7. All of the temperature data were sent to Dr. Craig Gelpi with Northrop Grumman XonTech. Craig is a volunteer with Catalina Conservancy Divers and they are using the data to study temperature dynamics in the southern California Bight and are particularly interested in internal waves found in shallow marine environments near Islands of the Bight. Dr. Gelpi completed a report titled "Seasonal Temperature Dynamics of the Upper Ocean In the Southern California Bight".
8. Dr. Ralph Larson of University of San Francisco was sent all of the fish transect data.

9. The *Paralabrax clathratus* adult and juvenile fish transect data were sent to PhD. candidate Augustus Vogel at University of Southern California. He is working on growth and recruitment studies from otoliths and may be able to use our data to ground truth his results.
10. *Strongylocentrotus purpuratus* and *Strongylocentrotus franciscanus* density summary data and *Corynactis californica* cover summary data were sent to Stuart Levenbach at UCSB to help support his Ph D. theses.

Publications

The following publications using KFM data were published in 2005:

Micheli, Fiorenza, and Benjamin S. Halpern. 2005. Low functional redundancy in coastal marine assemblages. *Ecology Letters*, 8.

Davis, Gary E. 2005. Science and Society: Marine Reserve Design for the California Channel Islands. *Conservation Biology* 1745-1751.

Information Requests

The kelp forest monitoring handbooks and annual reports are available in PDF format on the web at: <http://science.nature.nps.gov/im/units/medn/vitalsigns/kelpforestcommunities.cfm>

To obtain raw data collected by the Kelp Forest Monitoring Program, please write to the address below:

Superintendent
Channel Islands National Park
1901 Spinnaker Drive
Ventura, CA 93001

The Department of the Interior protects and manages the nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

NPS 159/117174, September 2012

National Park Service
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