



Channel Islands National Park Kelp Forest Monitoring Program *Annual Report 2008*

Natural Resource Data Series NPS/MEDN/NRDS—2013/572



ON THE COVER

Divers preparing to monitor a kelp forest at the Channel Islands National Park

Photograph by: Channel Islands National Park

Channel Islands National Park Kelp Forest Monitoring Program

Annual Report 2008

Natural Resource Data Series NPS/MEDN/NRDS—2013/572

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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
KFMP	Kelp Forest Monitoring Program
KGB	Kelp/Gopher/Copper/Black & Yellow rockfish young of the year complex
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 Contacts
UCSB	University of California, Santa Barbara

Executive Summary

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. Permanent transects were established at 16 sites 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. In 2005, an additional 16 permanent sites were established to collect base line data from inside and adjacent to four of the newly established Marine Protected Areas (MPAs) for later evaluation. These new sites were initially established with three years (2005-2007) of funding from the National Park Service (NPS) Natural Resource Preservation Program (NRPP). In 2008, the Park secured NPS and outside funding to continue monitoring these additional sites. The results of the sampling effort at all 33 sites mentioned are included in this report.

The 2008 monitoring efforts utilized 62 days of vessel time to conduct 1,007 dives totaling 919 hours of bottom time. This dive effort includes the dives and hours it took KFM divers to conduct the California Department of Fish and Game (CDFG) benthic Cooperative Research and Assessment of Nearshore Ecosystems (CRANE) surveys at 12 sites. Population dynamics of 70 taxa or categories, of algae, fish and invertebrates were measured at the 33 permanent sites in 2008. 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 in 2005 at Santa Barbara, Anacapa, Santa Cruz and Santa Rosa Islands. Survey techniques follow 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 quadrats, 5m²-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 logger installed. This annual report contains a summary of the methods used to conduct the monitoring in 2008 and a brief description of the sites along with the results. All of the data collected during 2008 can be found summarized in the Appendices A-L in this report.

The status of the 33 sites monitored in 2008 were; 14 sites had kelp forests, 17 sites were dominated by echinoderms, and one site was about half kelp forest and half dominated by echinoderms (*Strongylocentrotus purpuratus*). Of the 17 sites dominated by echinoderms, four were dominated by *S. purpuratus*, nine were dominated by *S. purpuratus* and *Strongylocentrotus franciscanus*, two by *Ophiothrix spiculata*, one by *S. franciscanus* and two by *S. purpuratus* and *S. franciscanus* and *O. spiculata*. Kelp forests were present at Wyckoff Ledge and Miracle Mile on San Miguel Island, at Johnson's Lee North and South, Rodes Reef, Cluster Point, Trancion Canyon, Chickasaw, and South Point on Santa Rosa Island, at Gull Island, Fry's Harbor and Yellow Banks on Santa Cruz Island, at Landing Cove and Cathedral Cove on Anacapa Island and at 0-60 m of the site Southeast Reef at Santa Barbara Island, with the remainder of this site dominated by *S. purpuratus*. The site status information is summarized in Table 6. Overall, *Macrocystis pyrifera* abundances were similar to last year.

Santa Barbara Island changed little from last year, with all sites continuing to be dominated by echinoderms. There were increases in *Strongylocentrotus purpuratus* densities at four sites that were already dominated by this species while *Strongylocentrotus franciscanus* densities remained similar to last year. Kelp was only present at one site and the density remained similar to last year. Overall, there was little indication that kelp forests will return in the near future at this Island.

Several sites underwent moderate changes at Anacapa Island. Black Sea Bass Reef changed from being dominated by *Ophiothrix spiculata* to a state of transition towards a kelp forest. Keyhole went from a state of transition to being dominated by *Strongylocentrotus purpuratus*. This was the only one of the seven sites that had a notable increase in *Strongylocentrotus purpuratus*. *Strongylocentrotus franciscanus* densities remained similar at all sites, and *O. spiculata* decreased at one of the three sites where they were abundant. Algae abundance remained high at two sites, similar to last year. Overall, *Strongylocentrotus* spp. abundances changed little while algal abundance increased slightly at Anacapa Island.

Overall, there was little change at most of the monitoring sites at Santa Cruz Island. The most notable changes were a decrease in kelp density at Yellow Banks and increases in kelp density at Fry's Harbor and Scorpion Anchorage. *Strongylocentrotus purpuratus* density increased at Yellow Banks, and decreased at Potato Pasture and Scorpion Anchorage.

Kelp forests continued to be abundant around Santa Rosa and San Miguel Islands. Mature kelp forests were present at nine of ten sites at these two islands. The most notable change at these sites was the decrease in the kelp forest at Hare Rock that was likely caused by *Strongylocentrotus franciscanus* grazing. The kelp forest at Cluster Point changed from a developing kelp forest to a mature one. *Strongylocentrotus purpuratus* densities increased at Rodes Reef. All other sites were similar to last year. Overall, the KFM sites at these two Islands represent them well.

Acknowledgments

This ecological monitoring program was supported by the U.S. NPS in cooperation with the CDFG and the U.S. Department of Commerce, National Oceanographic and Atmospheric Administration (NOAA), Marine Sanctuary Program. Supplemental funding was provided by the Montrose Settlements Restoration Program to continue monitoring the sites associated with the marine reserve evaluation. Funding was also provided by the California Coastal Conservancy to conduct CRANE benthic surveys at select sites.

We are deeply indebted to the many divers who have participated in this project in 2008 (Table 7). 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 also greatly appreciate the efforts of our Captain Keith Duran and Diving Safety Officer Dave Stoltz for supporting us on the boats, keeping us afloat and underwater.

Information Requests

The kelp forest monitoring handbooks and annual reports are available in digital format from Mediterranean Coast Inventory and Monitoring Network site (<http://science.nature.nps.gov/im/units/medn/index.cfm>) and the Natural Resource Publications Management website (<http://www.nature.nps.gov/publications/nrpm/>).

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

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

Introduction

The waters of 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 a nursery to resident, as well as migratory, species. Many species, while not residents of the kelp forest, are dependent upon the existence and productivity of kelp forests; detrital flux from kelp forests provides an important source of nutrients to nearby rocky shore, sandy beach, and estuary communities. The kelp forests are essential to California's commercial and sport fisheries as well as the recreation and tourism industries.

Channel Islands National Park 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 Channel Islands National Marine Sanctuary overlaps the subtidal portions of the park, and its boundary extends six miles seaward from the Park Islands. Channel Islands National Park also bears the designation of International Biosphere Reserve and 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 KFMP is part of the long-term ecological monitoring program at the Park, which is designed to measure the health of the ecosystems. By determining the limits of normal variation and diagnosing abnormal conditions we hope to prescribe guidelines for remedial action through management recommendations.

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), Kushner et al. (2004), Kushner et al. (2007a), Kushner et al. (2007b), Kushner et al. (2007c), Kushner et al. (In progress), Kushner et al. (In progress) and Moore et al. (In progress) describe the 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006 and 2007 monitoring efforts and results respectively. A review of the Kelp Forest Monitoring Program was conducted in 1995 (Davis et al., 1996).

In 2005, the Park was awarded three years of funding from the NPS's Natural Resources Preservation Program (NRPP) to establish baseline ecological conditions of newly established MPAs 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 logistics of 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 2008, our 27th 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 1.

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>Astraea 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
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

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

Taxa/Common Name	Scientific Name	Technique
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>Damalichthys vacca</i>	V, F
Garibaldi	<i>Hypsypops rubicundus</i>	V, F
Opaleye	<i>Girella nigricans</i>	F
Rock Wrasse	<i>Halichoeres semicinctus</i>	V, 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>Damalichthys 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 2) 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). Sites were monitored between April 28th and November 6th 2008 using the NPS vessel “Sea Ranger” and NOAA vessel “Shearwater”. Data management and entry procedures are described in the Kelp Forest Monitoring Handbook Volume II (Kushner et al. 1997).

Table 3. Site information.

Island	Site Location	Site Abbreviation	Depth Meters	Year Sampling Began
San Miguel	Wyckoff Ledge	SMWL	13-15	1982
San Miguel	Hare Rock	SMHR	6-9	1982
San Miguel	Miracle Mile	SMMM	7-10	2001
Santa Rosa	Johnson's Lee North	SRJLNO	9-11	1982
Santa Rosa	Johnson's Lee South	SRJLSO	14-16	1982
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	1982
Santa Cruz	Fry's Harbor	SCFH	12-13	1982
Santa Cruz	Pelican Bay	SCPB	6-8	1982
Santa Cruz	Scorpion Anchorage	SCSA	5-6	1982
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	1982
Anacapa	Cathedral Cove	ANCC	6-11	1982
Anacapa	Landing Cove	ANLC	5-12	1982
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	1982
Santa Barbara	Arch Point	SBAR	7-8	1982
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



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

Each site is marked by a 100m 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 1m x 1m quadrats were systematically arranged along the transect with a random start, 40 continuous and adjacent 1m x 5m quadrats, and 24 paired 3m x 10m 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 points (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; videotaped 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 ² Quadrat	1 m x 2 m	12
5 m ² Quadrat	1 m x 5 m	40
Band Transect	3 m x 20 m	12
Random Point Contact	40 points (0.5x3)	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) undosa</i>	60	Max. shell diameter, mm
<i>Astraea (Lithopoma) gibberosa</i>	60	Max. shell diameter, mm
<i>Kelletia kelletii</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. 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 (+- 0.2 °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 KFMP, logistical constraints enabled us to only conduct fish transects and roving diver fish counts once per site at 29 of the sites this year. However, in addition to the Kelp Forest Monitoring Program fish protocol, Partnership of Interdisciplinary Studies Coastal Oceans (PISCO) continued to perform their fish transect protocol that was performed at 24 sites from 2005 to 2007 as part of the three year Marine Reserve baseline study funded by NRPP under a cooperative agreement with the Park and University of California at Santa Barbara (UCSB). The methods for this protocol can be located at: <http://www.piscoweb.org/research> and all data collected by PISCO are available by contacting them directly through their website.

In past years, and this year, we attempt to complete all of the abundance estimate techniques (1 m quadrats, 5 m²-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 the 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 Results section below. In the text we report numbers to two significant digits.

Results

Sampling was completed at all 33 monitoring sites in 2008 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, two four-day cruises, and seven two-day cruise between April and November (Table 8). The divers logged 1007 dives with over 919 hours of bottom time. All prescribed monitoring data were collected in 2008 with a few exceptions which are listed in the discussion.

Table 6. 2008 Kelp forest monitoring site status with 2007 status for comparison.

Island/Site	2008 Status	2007 Status
San Miguel Island		
Wyckoff Ledge	Mature kelp forest	Mature kelp forest
Hare Rock	Dominated by <i>S. franciscanus</i>	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	Developing kelp forest
Trancion Canyon	Mature kelp forest	Mature kelp forest
Chickasaw	Mature kelp forest	Mature kelp forest
South Point	Mature kelp forest	Mature kelp forest
Santa Cruz Island		
Gull Island South	Mature kelp forest	Mature kelp forest
Fry's Harbor	Kelp forest	Developing 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	Mature kelp forest
Devil's Peak Member	Dominated by <i>S. purpuratus</i>	Dominated by <i>S. purpuratus</i>
Potato Pasture	Dominated by <i>Strongylocentrotus</i> spp.	Dominated by <i>Strongylocentrotus</i> spp.
Cavern Point	Dominated by <i>Strongylocentrotus</i> spp.	Dominated by <i>Strongylocentrotus</i> spp.
Little Scorpion	Dominated by <i>Strongylocentrotus</i> spp.	Dominated by <i>Strongylocentrotus</i> spp.
Pedro Reef	Dominated by <i>Strongylocentrotus</i> spp.	Dominated by <i>Strongylocentrotus</i> spp.
Anacapa Island		
Admiral's Reef	Dominated by <i>O. spiculata</i>	Dominated by <i>O. spiculata</i> and in some areas <i>S. purpuratus</i>
Cathedral Cove	Mature kelp forest	Mature kelp forest
Landing Cove	Mature kelp forest	Mature kelp forest
Keyhole	Dominated by <i>S. purpuratus</i>	State of transition
East Fish Camp	Dominated by <i>Strongylocentrotus</i> spp.	Dominated by <i>Strongylocentrotus</i> spp. and <i>O. spiculata</i>
Black Sea Bass Reef	Dominated by <i>O. spiculata</i>	Dominated by <i>O. spiculata</i>
Lighthouse	Dominated by <i>Strongylocentrotus</i> spp.	Dominated by <i>Strongylocentrotus</i> spp.
Santa Barbara Island		
Southeast Sea Lion Rookery	Dominated by <i>Strongylocentrotus</i> spp. and <i>O. spiculata</i>	Dominated by <i>S. franciscanus</i> and <i>O. spiculata</i>
Arch Point	Dominated by <i>Strongylocentrotus</i> spp.	Dominated by <i>Strongylocentrotus</i> spp.
Cat Canyon	Dominated by <i>Strongylocentrotus</i> spp.	Dominated by <i>Strongylocentrotus</i> spp.
Webster's Arch	Dominated by <i>Strongylocentrotus</i> spp.	Dominated by <i>Strongylocentrotus</i> spp.
Graveyard Canyon	Dominated by <i>Strongylocentrotus</i> spp. and <i>O. spiculata</i>	Dominated by <i>Strongylocentrotus</i> spp. and <i>O. spiculata</i>
Southeast Reef	Half dominated by mature kelp forest and half dominated by <i>Strongylocentrotus</i> spp.	Half dominated by mature kelp forest and half dominated by <i>Strongylocentrotus</i> spp.

Table 7. 2008 Kelp Forest Monitoring participant list.

Participants	Affiliation	Cruises Participated
Aamodt, Kjeld	UCSD	9
Anderson, Shane	UCSB	10
Byrnes, Jarrett	UCSB	13
Douthwright, Theresa	SCA	2,3,4,5,6,7,8,9,13,15,16,17,18
Gentile, Michelle	VIP	12
Greenley, Ashley	MLML	6
Guardino, Michael	Monterey Bay High School	9
Hatke, Joseph	NAVY VIP	11
Jarvis, Erica	CDFG	10
Kushner, David	CHIS	All Cruises
Lerma, Derek	Tierra Data Inc.	8
Martin, Dan	VIP	17
Mooney, Eric	SCA	All Cruises except 1 and 10
Moore, Kelly	CHIS	All Cruises
Moss, Michael	CHIS	All Cruises
Osorio, Dave	CDFG	9
Richards, Dan	CHIS	1,11
Sprague, Joshua	CHIS	All Cruises
Taniguchi, Ian	CDFG	4,7
White, Crow	UCSB	15

Table 8. 2008 Kelp Forest Monitoring Program cruise list.

Cruise #	Cruise Dates	KFM Sites Visited	CRANE Sites Visited
1	04/28 - 05/02	None	SBWA, SBCAT, SBSESL, SBSER, SBGC, SBAP
2	05/14 - 05/15	SCPRF	
3	06/03 - 06/04	ANFC, ANAR	
4	06/09 - 06/12	SBAP, SBCAT, SBWA, SBGC	
5	06/19 - 06/20	SCFH, SCGI	
6	06/23 - 06/27	SBSESL, SBSER, SCLS	SBGC
7	07/09 - 07/10	ANBSBR, SCCVP	
8	07/15 - 07/18	ANLC, SCPB, SCDPM, SCPP	
9	07/28 - 08/01	SRRR, SRSP, SRCSAW, SRCP, SCDPM	
10	08/11 - 08/15	SCFH, SRJLSO, SRTC, ANBSBR, ANKH	SC Pedro Point
11	08/19 - 08/20	ANCC, ANLH	
12	08/25-08/30	ANAR, SCPP, ANLC, SCGI	
13	09/08-09/12	SMWL, SMHR, SCSA, ANKH	
14	09/26	SMMM	
15	09/29-10/03	SCYB, SRJLNO	SR Monacos
16	10/07-10/08	None	SR Beacon Reef, SRRR, SR La Jolla Vieja, SR Monacos
17	10/20-10/24	SRJLNO, SMMM	SR La Jolla Vieja, SR Bee Rock, SRRR, SRCP
18	11/05-11/06	SBAP, SBSESL, SBCAT	

A brief description of each site is included with the site results (Appendix A). Complete data summaries from the sampling protocol are listed in the appendices. Mean densities for 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 1m 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 5 m-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 3 m X 10 m transects or otherwise described as twelve 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 Roving Diver 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.

Natural habitat size frequency distributions for invertebrates other than gorgonians and *Stylaster (Allopora) californica* are in Appendix I. *Macrocystis pyrifera* size frequency distributions are in Appendix J. Gorgonian and *Stylaster (Allopora) californica* size frequency distributions are in Appendix K. Size frequency measurements taken from the Artificial Recruitment Modules were kept separate from the natural habitat measurements and their distributions 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 using TIDBIT™ 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 June 1st 2007 – May 31st 2008 (Appendix M). In 2008, temperature data were collected from 31 sites where loggers were installed. For explanations of any missing data, please see the site results in Appendix A.

Discussion

General trends and observations are described within 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 actual trends, but this is beyond the scope of this annual report.

All 33 permanent sites were monitored and all proposed data collections were completed this year. All 33 permanent sites were established in areas that are historically known to have had or presently have kelp forests. In 2012, 14 sites had kelp forests, 17 sites were dominated by echinoderms, and one site was about half kelp forest and half dominated by echinoderms (*Strongylocentrotus purpuratus*). Of the 17 sites dominated by echinoderms, four were dominated by *S. purpuratus*, 9 were dominated by *S. purpuratus* and *Strongylocentrotus franciscanus*, two by *Ophiothrix spiculata*, one by *S. franciscanus* and two by *S. purpuratus* and *S. franciscanus* and *O. spiculata*. No sites were dominated by *Pachythyone rubra*. Kelp forests were present at Wyckoff Ledge and Miracle Mile on San Miguel Island, at Johnson's Lee North and South, Rodes Reef, Cluster Point, Trancion Canyon, Chickasaw, and South Point on Santa Rosa Island, at Gull Island, Fry's Harbor and Yellow Banks on Santa Cruz Island, at Landing Cove and Cathedral Cove on Anacapa Island and at 0-60 m of the site Southeast Reef at Santa Barbara Island, with the remainder of this site dominated by *S. purpuratus*. The site status information is summarized in Table 6. Overall, *Macrocystis pyrifera* abundances were similar to last year.

Kelp Forests

The status of kelp forests was notably different among the five Islands. This is a result of a combination of factors that include but are not limited to, Oceanography, Biogeography and associated differences in species abundance and composition, as well as sport and commercial fishing pressure. Santa Barbara Island changed little from last year, with all sites remaining dominated by echinoderms. There were increases in *Strongylocentrotus purpuratus* densities at four sites that were already dominated by this species while *Strongylocentrotus franciscanus* densities remained similar to last year. Kelp was only present at one site and the density remained similar to last year. Overall, there was little indication that kelp forests will return in the near future at this Island.

Several sites underwent moderate changes at Anacapa Island. Black Sea Bass Reef changed from being dominated by *Ophiothrix spiculata* to a state of transition towards a kelp forest. Keyhole went from a state of transition to being dominated by *Strongylocentrotus purpuratus*. This was the only one of the seven sites that had a notable increase in *Strongylocentrotus purpuratus*. *Strongylocentrotus franciscanus* densities remained similar at all sites, and *O. spiculata* decreased at one of the three sites where they were abundant. Algae abundance remained high at two sites, similar to last year. Overall, *Strongylocentrotus* spp. abundances changed little while algal abundance increased slightly at Anacapa Island.

Overall, there was little change at most of the monitoring sites at Santa Cruz Island. The most notable changes were a decrease in kelp density at Yellow banks and increases in kelp density at Fry's harbor and Scorpion Anchorage. *Strongylocentrotus purpuratus* density increased at Yellow Banks, and

decreased at Potato Pasture and Scorpion Anchorage. *Strongylocentrotus franciscanus* densities did not change significantly at any Santa Cruz Island sites. The western third of the Island is under-represented by our monitoring program as we don't have any sites west of Gull Island.

Kelp forests continued to be abundant around Santa Rosa and San Miguel Islands. Mature kelp forests were present at nine of ten sites at these two islands. The most notable change at these sites was the decrease in the kelp forest at Hare Rock that was likely caused by *Strongylocentrotus franciscanus* grazing. The kelp forest at Cluster Point changed from a developing kelp forest to a mature one. *Strongylocentrotus purpuratus* densities increased at Rodes Reef. All other sites were similar to last year. Overall, the KFM sites at these two Islands represent them well.

Invertebrates

Strongylocentrotus franciscanus densities remained about the same as last year with an increase at one site, decrease at one site and little change at the remaining 31 sites. We observed more increase in *Strongylocentrotus purpuratus* densities with increases at seven sites, decreases at two sites and little change at 27 sites. There were no notable changes in *Lytechinus anamesus* densities with increases at two sites and decreases at two sites. *Centrostephanus coronatus* were mostly present at Santa Barbara and Anacapa Islands, and remained at low densities or declined slightly. Many of the sites have experienced gradual declines in the density of this species over the last several years since their last significant recruitment event during the 1997/98 El Niño.

Strongylocentrotus franciscanus and *Strongylocentrotus purpuratus* recruitment was higher than last year. We saw moderate recruitment of *S. franciscanus* at three sites, and moderate recruitment of *S. purpuratus* at 19 sites. Santa Barbara Island and Anacapa Island each had six sites with moderate *S. purpuratus* recruitment, while Santa Cruz Island had five sites, San Miguel and Santa Rosa Islands each had one site. Anacapa Island had two sites with moderate *S. franciscanus* recruitment as well as two Santa Barbara Island sites. There has been no significant recruitment of *Centrostephanus coronatus* since the 1997/1998 El Niño and we expect this warm water species to continue to gradually decline in abundance unless there is another warm water event. However, one juvenile *C. coronatus* was observed in an ARM at Cathedral Cove.

Sea urchin wasting disease (Lafferty and Kushner, 1999, and Richards and Kushner, 1992) was slightly less prevalent than last year (Table 9). The disease was observed at 14 sites this year compared to 16 sites last year. Diseased *Lytechinus anamesus* were observed at four sites this year, and appeared to be limited to Santa Cruz Island. The prevalence of diseased *L. anamesus* was approximately 1% at Gull Island and Yellow Banks, and approximately 10% at Pelican Bay and Potato Pasture. Diseased *Strongylocentrotus franciscanus* were observed at 9 sites (Admiral's Reef, East Fish Camp, Landing Cove, Little Scorpion, Pedro Reef, Cat Canyon, Webster's Arch, Graveyard Canyon, and Southeast Reef). Diseased *Strongylocentrotus purpuratus* were observed at nine sites (Scorpion Anchorage, Little Scorpion, Pedro Reef, Potato Pasture, Admiral's Reef, Landing Cove, East Fish Camp, Cat Canyon, and Graveyard Canyon).

Table 9. 2008 Echinoderm wasting disease observations.

Island/Site	Sea Star Wasting Disease		Sea Urchin Wasting Disease	
	Species Observed	Date(s) of Observation	Species Observed	Date(s) of Observation
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		3	8/28
Fry's Harbor	None		None	
Pelican Bay	1	7/17, 10/3	3	10/3
Scorpion Anchorage	1	9/11	2	9/11
Yellow banks	1,8	9/29	3	9/29
Devil's Peak Member	1	8/1	None	
Potato Pasture	1	8/26	2,6	8/26
Cavern Point	None		None	
Little Scorpion	None		2,6	6/26
Pedro Reef	None		2,6	5/15, 6/27
Anacapa Island				
Admiral's Reef	None		2,6	6/4, 8/25
Cathedral Cove	None		None	
Landing Cove	None		2,6	7/15
Keyhole	1	8/15, 9/12	None	
East Fish Camp	None		2,6	6/3
Black Sea Bass Reef	None		None	
Lighthouse	1	8/20	None	
Santa Barbara Island				
SE Sea Lion Rookery	None		None	
Arch Point	None		None	
Cat Canyon	None		2,6	6/10, 11/6
Webster's Arch	None		6	6/10
Graveyard Canyon	None		2,6	6/11
Southeast Reef	None		2,6	6/11

None = Not observed at this site during our visits in 2008.

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

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

Species Legend

1 = <i>Patiria (Asterina) 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>	

Pycnopodia helianthoides densities declined at five sites, increased at three sites and remained about the same at 25 sites. *Pycnopodia helianthoides* continues to appear as the key sea urchin predator at the northern Channel Islands. Similar to last year, *Patiria miniata* densities changed little with moderate increases at two sites, decrease at one site and the remaining 30 sites changing little. The sites with notable changes were at Santa Cruz and Santa Barbara Islands. Overall, there was no general trend in *Pisaster giganteus* densities at the Islands with moderate increases at six sites and moderate decreases at five sites. All of the increases were at Anacapa and Santa Rosa Islands, while the decreases occurred at one site from each of the five Islands.

Sea star wasting disease was uncommon at most of the sites this year (Table 9). Most of the wasting disease we observed was at Anacapa Island. The highest prevalence was observed at Lighthouse and Keyhole where we estimated 10-20% of *Patiria miniata* showed signs of wasting disease. At Scorpion Anchorage and Pelican Bay approximately 5-6 individual *P. miniata* showed signs of wasting disease. Aside from *P. miniata* we also observed one *Pisaster giganteus* at Devil's Peak Member and one *Dermasterias imbricata* at Yellow Banks with signs of wasting disease.

Parastichopus parvimensis densities changed little this year. Anacapa and Santa Cruz Islands each had one site with an increase and one site with a decrease. In 2007 there were many *P. parvimensis* recruits recorded in the ARMs at several sites. As these juveniles become emergent it is expected that densities will begin to increase.

Overall, *Ophiothrix spiculata* abundance increased from last year. The most notable increases occurred at Santa Barbara Island. *Ophiothrix spiculata* continues to be most common at Anacapa and Santa Barbara Islands.

There was a notable increase in *Tethya aurantia* densities. There were increases at nine sites with the remaining 24 sites having little or no change. Five of the sites with increases are now at record high densities. Sponge cover increased on South side of Santa Rosa Island. Cluster Point, Chickasaw, and South point had an increase in sponge cover, with little to no change at the remaining 30 sites.

Bryozoans were abundant this year, and most notable were *Membranipora* sp. and *Thalamoporella californica*. Overall, miscellaneous bryozoans increased from last year with increases at 10 sites, a decrease at one site, and the remaining 22 sites changed little. All but one of the increases occurred at Santa Rosa and Santa Cruz islands, with the exception being Webster's Arch at Santa Barbara Island. Overall, *Diaperoecia californica* abundance changed little, with increases at Landing Cove and Gull Island.

Corynactis californica cover increased at four sites with the remaining 29 sites having little change. Three of the four increases occurred at sites at Anacapa Island, with the other at Santa Rosa Island.

Overall there was little change in *Panulirus interruptus* densities with increases at Scorpion Anchorage and Cathedral Cove, and a decrease at Black Sea Bass Reef. The remaining 30 sites were similar to last year. However, it is very difficult to observe trends in this species on this scale from

our monitoring protocol. This is in large part because we sample during the day when *P. interruptus* are in dens. These dens are often in shallower water or in specific habitat our monitoring sites were not selected for.

Megastraea undosa densities remained low for the ninth consecutive year. There were no notable changes at any of the sites. There has been no recent large scale recruitment of this species as would be predicted by the lack of a recent El Niño event (Zacharias and Kushner, 2006).

Megathura crenulata densities remained similar to last year. Density increased at two sites and remained about the same at 31 sites.

Similar to recent years, *Haliotis rufescens* continued to be rare at most of the monitoring sites. The Miracle Mile site near Wyckoff Ledge that was initially installed in 2001 specifically to monitor *H. rufescens* continued to have a high abundance of this species. South Point, Chickasaw, Cluster Point, Johnson's Lee North, Wyckoff Ledge and Miracle Mile *H. rufescens* densities remained similar to last year with little or no change. Though there was no change in density at Johnson's Lee North this year, there has been a steady increase since 2001. Johnson's Lee South and Hare Rock had notable increases in density, but the *H. rufescens* observed at Hare Rock were all small, less than 53 mm. *Haliotis rufescens* recruitment in ARMs remained low with five individuals found measuring less than 51 mm at Miracle Mile. However, this is more than have been found there in the previous two years. No other sites had juveniles in the ARMs. A total of 12 *H. rufescens* less than 51 mm were found on size frequencies. Ten of these were from Hare Rock. This is the highest number of recruits sampled at any of the sites since 1995 when 17 juveniles were found, all of which were found at Hare Rock.

Similar to recent years, *Haliotis corrugata* continue to be extremely rare at all of the sites. Four adult (≥ 51 mm) *H. corrugata* were observed at Landing Cove. All four individuals were sampled on the randomly placed band transects. Though recruitment remained low this year there were notably more juveniles observed than in recent years with 9 juvenile (< 51 mm) *H. corrugata* observed in the ARMs (Landing Cove, Cathedral Cove, Scorpion Anchorage).

No *Haliotis fulgens*, *Haliotis assimilis*, or *Haliotis sorenseni* were observed this year. One fresh *Haliotis assimilis* shell was observed at Yellow Banks, and measured 134 mm. This was presumed to be the same individual that was found in 2006 measuring 137 mm on a distinct rock where we have been tracking what we presume is the same animal since 2002. If this is the shell from that same animal, here are the past measurements when it was alive: 2002 – 60 mm, 2003 – not measured, 2004 – not measured, 2005 - 135 mm, 2006 – 137 mm, and in 2008 the shell was found and it measured 134 mm. It is likely that some of the edge of the shell was broken and in a smaller shell size than when it was last measured when it was alive. In 2007, we looked for the live abalone, but did not find it so we presume it died between our visits to this site in 2006-2007.

Tunicates appeared more abundant this year. There were increases at four sites and decreases at one site. These changes were mostly notable at Santa Cruz and Santa Rosa Islands. *Styela montereyensis* densities remained relatively unchanged at all sites.

Fish

There were several notable changes in fish populations at the monitoring sites since last year. Most of the comments below and in the site descriptions section under results are garnered from the roving diver fish counts. For the trends described below, adult and juvenile counts were combined unless described separately. *Coryphopterus nicholsii* densities declined at five sites and increased at one site. These changes were limited to Anacapa and Santa Cruz Islands. *Alloclinus holderi* densities did not change much since last year at any of the sites and were observed at 20 sites, similar to recent years. *Lythrypnus dalli* were overall less abundant than last year. Juvenile *Chromis punctipinnis* were more abundant this year but were observed at only eight sites, compared to 12 last year. Adults were observed at 29 sites, similar to recent years. Juvenile *Semicossyphus pulcher* appeared less abundant with observations at 12 sites compared to 21 sites last year. Female and male *S. pulcher* were observed at 32 and 22 sites, respectively, similar to recent years. Juvenile *Oxyjulis californica* were observed at 12 sites, similar to recent years, and were most abundant around Santa Barbara Island. Adult *O. californica* were observed at 29 sites, similar to recent years. Juvenile *Halichoeres semicinctus* were observed at six sites compared to 13 sites last year, and were overall less abundant. Male *H. semicinctus* were observed at 17 sites, similar to previous years, and were overall more abundant. Female *H. semicinctus* were observed at 19 sites, similar to previous years. Juvenile *Hypsypops rubicundus* were observed at two sites and adults were observed at 22 sites, similar to previous years. Their counts were also similar to previous years. *Girella nigricans* were observed at 23 sites, similar to recent years. Juvenile *Paralabrax clathratus* were less abundant this year with only one observation, compared to observations at six sites last year. Adult *P. clathratus* were observed at 25 sites, similar to last year. Adult *Embiotoca jacksoni* were observed at 29 sites, similar to previous years, but the counts overall have decreased. Juvenile *E. jacksoni* were observed at 11 sites, compared to 17 last year, but the counts were higher than in recent years. Adult and juvenile *Embiotoca lateralis* were observed at 13 and 11 sites, respectively, both similar to recent years. Adult *Rhacochilus vacca* were observed at 26 sites, similar to last year, but counts were lower than in past years. Juveniles were observed at eight sites, similar to recent years. Juvenile *Sebastes mystinus* remained relatively abundant for the second year in a row and were observed at 13 sites. Adults were observed at 13 sites, similar to last year. *Sebastes serranoides/flavidus*, olive/yellowtail, juveniles were observed at 12 sites this year, similar to last year. Adult *S. serranoides* appeared less abundant than in recent years. Juvenile *Sebastes atrovirens* were less prevalent than last year and observed at 10 sites during the roving diver fish counts, down from 14 sites in 2007. Their abundances were also lower compared to the high recruitment we observed in 2007. Adult *S. atrovirens* were observed at 26 sites compared to 21 last year. Less KGBs were observed at 11 sites compared to 19 sites last year. In 2007 we observed high recruitment of KGBs, most of which were most likely *Sebastes atrovirens*. *Sebastes chrysomelas*, black and yellow rockfish, juveniles were rare, similar to past years, with observations at three sites. Adults were common with observations at 25 sites, similar to recent years. Juvenile *Sebastes paucispinis*, bocaccio, were relatively common and observed at four sites, similar to recent years. Adults were rare, similar to past years. Adult and juvenile *Sebastes serriceps* were common, similar to last year. Adults were observed at 27 sites compared to 22 sites last year. Juveniles were observed at 19 sites, same as last year. *Sebastes miniatus*, vermillion rockfish, juveniles were less abundant and prevalent than last year, with observations at four sites.

However, adults were more abundant and prevalent this year with observations at five sites. *Sebastes carnatus*, gopher rockfish, were observed at 12 sites, same as last year, but were less abundant. Juveniles were observed at two sites in low abundances. *Sebastes caurinus*, copper rockfish, were observed at nine sites compared to eight sites last year. Juveniles were observed at three sites compared to one last year. *Sebastes auriculatus*, brown rockfish, have been less common in recent years. They were observed at two sites this year compared to three sites last year and seven sites in 2006. *Sebastes melanops*, black rockfish, were rare with observations at two sites, similar to last year.

Ophiodon elongatus, lingcod, were observed at seven sites, similar to last year. *Scorpaenichthys marmoratus*, cabezon, were observed at eight sites, similar to past years. *Stereolepis gigas*, giant black sea bass, were observed at three sites this year. Several more were observed outside of the roving diver fish counts. One *Squatina californica*, Pacific angel shark, was observed this year. This species has been recorded several times in the last four years at Santa Barbara Island and are notably more common than they were in the 1990s. We observed many large schools of *Sardinops sagax*, sardines, as well as schools of *Scomber japonicas*, Pacific mackerel, throughout the summer, most notably in June/July. Many *Sarda chilensis*, Pacific bonito, were observed at Yellow Banks, Santa Cruz Island in September/October. One *Balistes polylepis*, finescale triggerfish, was observed for the second year in a row at Pelican Bay. The only other recorded observation of this species during the roving diver fish count was in 2007 at Pelican Bay as well and it is likely the same fish. One *Paralabrax nebulifer*, barred sand bass, was observed at Scorpion Anchorage for the second year in a row. The only other recorded observations of this species were Scorpion Anchorage in 2001 and Pelican Bay in 1999. One *Hexagrammos decagrammus*, kelp greenling was recorded at Chickasaw. This species has been recorded several times at this site in the last four years.

The new KFM roving diver fish size frequency protocol was performed for the second year. No data from this new method are summarized in this report. However, these data are Report summaries of this protocol will be included in the near future.

Unusual Species / Non-Indicator Species

No unusual species were generally noted this year. Several of the fish species above could be considered unusual, but these fish have been observed in these abundances previously.

Artificial Recruitment Modules (ARMs)

ARMs were monitored at 10 of the original kelp forest monitoring sites as well as at Miracle Mile. All but two ARMs were present and intact from last year; one at Landing Cove which was completely destroyed and not replaced and one at Johnson's Lee North which was repaired. The below trends refer to the ten original KFM sites.

Haliotis spp. in the ARMs were discussed previously above in this discussion where we talk about this genus. Overall, *Cypraea spadicea* abundance increased in density in the ARMs this year, with increases at four sites, decreases at two sites, and little change at the remaining sites. *Megastrea undosa* densities in the ARMs at the sites where they have been common in the past (eastern Santa Cruz Island and Anacapa Island sites) continue to remain low. All three sites where *M. undosa* were

present had an increase in mean size suggesting little or no recent recruitment. There were no noticeable trends in *Megathura crenulata* density in the ARMs. *Crassidoma giganteum* densities increased at three sites and decreased at four sites and were overall similar to last year.

Patiria miniata densities increased at one site, decreased at three sites and had little or no change at seven sites. *Pisaster giganteus* densities increased at one site, decreased at three sites and had little or no change at six sites. Overall, there was little change in *Pycnopodia helianthoides* abundance in the ARMs this year with increases at the two Johnson's Lee sites and a decrease at Miracle Mile.

Strongylocentrotus franciscanus density in the ARMs decreased overall. Their densities increased at two sites, decreased at four sites and had little or no change at five sites. Densities of *Strongylocentrotus purpuratus* in the ARMs increased overall. Their density increased at six sites, decreased at one site and had little or no change at four sites. *Centrostephanus coronatus* remained in low abundance in the ARMs this year with no overall change from 2007.

Temperature

Two Tidbit temperature loggers were deployed at every site except for Miracle Mile, which has no temperature logger stake. This year, we began phasing in a new version of the Tidbit temperature loggers, the Tidbit® v2 UTBI-001. We placed an old Tidbit® v1 temperature logger at each site in case there are any problems with the models.

The temperature loggers and thread rod to which they were attached at Pelican Bay were missing this year. We suspect it is likely a result of anchor damage in this often crowded anchorage. Therefore, there are no temperature data for this site this year. A new stake was installed and a new set of temperature loggers were deployed.

Sampling Difficulties

All proposed data collection was completed this year except the species lists, and roving diver fish counts and fish transects were only performed once at 29 sites due to time constraints.

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Appendix A. Results by Individual Site

Wyckoff Ledge, San Miguel Island

Site #1 SMWL

2008 sampling dates: 9/8, 9/9

2008 status: Mature kelp forest

This site was similar to last year and continues to be a mature, healthy kelp forest. Adult *M. pyrifera* density decreased from last year to 0.33/m². Subadult density increased from last year to 0.24/m². Juvenile density remained low at 0.25/m². Cover of *M. pyrifera* was recorded at 5.7%, the lowest cover recorded at this site. *Eisenia arborea* juveniles were recorded at 0.083/m², with no adults recorded. Cover of *E. arborea* was 0.17%. *Pterygophora californica* were common with adults observed at 0.46/m², juveniles observed at 1.5/m² and an overall cover of 1.8%. No *Laminaria farlowii* were recorded during sampling, similar to previous years. *Agarum/Dictyoneuropsis* spp. were moderately abundant. In recent years we have counted this species on quadrats, but this year we did not. Miscellaneous brown algae cover was 7.5%. *Desmarestia* spp. were abundant at 12% cover. *Cystoseira* spp. were rare at 0.83% cover. *Gelidium* spp. were not recorded during sampling. *Gigartina* spp. were common and were recorded at 1.0% cover. Miscellaneous red algae were abundant, similar to previous years, with a cover of 31%. Articulated coralline algae were common at 16% cover, similar to recent years. Encrusting coralline algae decreased to the lowest cover recorded since 1990 at 16%. Green algae were not recorded during sampling. *Schizynemia* spp. was notably abundant this year. Bare substrate increased to 39%, the highest recorded at this site.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover decreased from last year to 2.3%. The most abundant invertebrates in this category were anemones and hydroids. Last year, this category had a cover of 14.5% and consisted mostly of hydroids. No *Phragmatopoma californica* were recorded during sampling for the fourth consecutive year. Tunicate cover was low at 0.50%. *Styela montereyensis* increased in abundance to 0.42/m². Sponges were common at 1.2% cover. *Tethya aurantia* were present in a wide range of sizes and had a density of 0.18/m². Miscellaneous bryozoans were abundant and diverse with a cover of 19%, similar to last year. No *Diaperoecia californica* were recorded during sampling, but were present on the steep sides of large rocky substrate. *Urticina lofotensis* were abundant at 0.33/m², similar to recent years. *Balanophyllia elegans* and *Astrangia lajollaensis* were both present at a cover of 0.50% and 0.50%, respectively. No *Corynactis californica* were recorded during sampling. *Diopatra ornata* were common in the low-lying areas at a cover of 10%, similar to recent years. No gorgonians were recorded during sampling. They are rare at this site with only one or two *Lophogorgia chilensis* present.

Strongylocentrotus spp. abundances were low, similar to recent years. The density of *Strongylocentrotus franciscanus* was similar to last year at 0.21/m² with all sizes observed. The density of *Strongylocentrotus purpuratus* was 0.21/m². No *Lytechinus anamesus* were present. No sea urchin wasting disease was observed.

Pisaster giganteus were recorded on 1 m quadrats and 5 m quadrats with densities of 0.0/m² and 0.030/m², respectively. *Pisaster giganteus* individuals were common on the top of high relief areas but were rare directly along the transect. Most of the *P. giganteus* were small to medium in size and

had a mean size of 68 mm, similar to previous years. *Patiria miniata* density was 2.3/m², similar to past years. *Pycnopodia helianthoides* were notably rare with a density of 0.0028/m², the lowest recorded since 1996. Only five individuals were found for size frequencies with a mean of 84 mm. *Parastichopus parvimensis* were rare directly along the transect with a density of 0.042/m². All the individuals present were large, similar to past years. No sea star wasting disease was observed.

Haliotis rufescens continued to be abundant for this site with a density of 0.063/m². A total of 137 *H. rufescens* were located for size frequency measurements with a mean size of 174 mm, similar to last year. *Megathura crenulata* were rare at 0.0056/m², similar to past years. Two *M. crenulata* were found for size frequencies and both were small; less than 20 mm. *Crassedoma giganteum* were rare at 0.0042/m², similar to recent years. Only two *C. giganteum* were found for size frequencies and had a mean size of 42 mm. *Kelletia kelletii* were abundant as usual for this site with a density of 0.26/m², similar to recent years. *Astraea gibberosa* were not present in quadrats this year, but were common at the site. *Tegula regina* were recorded at a density of 0.042/m². No *Aplysia californica* were recorded during sampling. *Cancer* spp. (all *Cancer productus* and *Cancer antennarius*) were common and were counted on band transects for a density of 0.0056/m². *Cryptochiton stelleri*, gumboot chiton, continued to be relatively abundant at this site and were also counted on band transects for a density of 0.0028/m².

Similar to recent years, fish were moderately abundant and diverse. *Coryphopterus nicholsii* were not observed during quadrats but up to 11 were counted during the roving diver fish count. *Oxylebius pictus* were common with up to 16 individuals observed. Up to three female, no juvenile, and two male *Semicossyphus pulcher* were observed. Up to 19 *Oxyjulis californica* adults and no juveniles were observed. *Embiotoca jacksoni* were rare with up to three adults and two juveniles observed. *Embiotoca lateralis* were common with up to 11 adults and seven juveniles observed. Up to five adult and two juvenile *Rhacochilus vacca* were observed. *Sebastes* spp. continued to be abundant and diverse. *Sebastes mystinus* were common with up to 28 adults and no juveniles recorded. Up to 28 adults and 13 juvenile *Sebastes atrovirens* were observed. One juvenile and no adult *Sebastes serranoides* were recorded. *Sebastes serriceps* were present with one adult and one juvenile recorded. Up to six *Sebastes caurinus*, copper rockfish, were observed. *Sebastes chrysomelas*, black and yellow rockfish, were common with up to 13 adults and one juvenile observed. One very large *Sebastes miniatus*, vermillion rockfish, was recorded. One juvenile *Sebastes paucispinis*, bocaccio, was recorded. A school of unidentified surfperch sp. was recorded with up to 45 individuals. One KGB was observed. Two *Ophiodon elongatus*, lingcod, were observed. *Brachyistius frenatus*, kelp surfperch, were present in the kelp canopy with three observed. Up to 15 *Hypsurus caryi*, rainbow surfperch, were counted. A school of several thousand tubenout, *Aulorhynchus flavidus*, was observed swimming through the site. Roving diver fish counts were conducted on September 9th by six divers observing 25 species.

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

Hare Rock, San Miguel Island

Site #2 SMHR

2008 sampling dates: 9/10

2008 status: Dominated by *Strongylocentrotus franciscanus*

This site changed significantly from last year. The kelp forest that had been here since 2003 was gone. The site had reverted back to its 1990s state with a high density of *Strongylocentrotus franciscanus*, very little macroalgae, and an abundance of encrusting coralline algae. There was an abundance of *M. pyrifera* just outside of the transect area, but only three *M. pyrifera* were present within the site area. Adult *Macrocystis pyrifera* had a density of 0/m², the lowest density since 2002. Similarly, subadult and juvenile *M. pyrifera* densities were both 0.0/m². Cover of *M. pyrifera* was 1.0%, the lowest cover recorded since 2002. No *Eisenia arborea*, *Pterygophora californica*, *Laminaria farlowii*, *Desmarestia* spp., or *Cystoseira* spp. were recorded during sampling. *Gelidium* spp. and *Gigartina* spp. also were not recorded during sampling. Miscellaneous red algae were rare with a cover of 4.2%. Articulated coralline algae were rare at 1.5% cover. Encrusting coralline algae were very abundant with a cover of 53%, the highest recorded since 2002. Green algae were rare with no cover recorded. There were some *Ulva* sp. noted at the site. Bare substrate cover increased to 28%, the highest recorded since 2000.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover was 2.5%, the lowest recorded since 1984. Miscellaneous bryozoan cover was 5.2%, similar to last year. *Diaperoecia californica* cover was 0.17%, similar to past years. Sponges were rare with a cover of 0.50%, similar to past years. *Tethya aurantia* were rare as well with a density of 0.046/m², similar to past years. Tunicates were rare with 0% cover. No *Styela montereyensis* were observed on 1 m quadrats. Anemones were present in abundance, similar to last year, with *Corynactis californica* cover at 4.2% and *Urticina lofotensis* density at 0.022/m². *Balanophyllia elegans* and *Astrangia lajollaensis* were common with covers of 1.8/m² and 3.8/m², respectively. *Diopatra ornata* cover was 0.83%. No gorgonians were observed, similar to past years as they are rare at this site.

Overall, there was not much change in *Strongylocentrotus* spp. densities compared to last year. *Strongylocentrotus franciscanus* density remained high at 14/m². Few juveniles were observed. *Strongylocentrotus purpuratus* remained rare with a density of 0.54/m² and were mostly located in the shallow areas at the east end. Both of these species were notably less aggregated and more evenly distributed than the past several years. No sea urchin wasting disease was observed.

Pisaster giganteus increased in abundance this year. Their densities on 1 m quadrats and 5 m quadrats were 0.21/m² and 0.15/m², respectively, with most individuals measuring less than 100 mm. *Patiria miniata* remained abundant at 4.4/m². *Pycnopodia helianthoides* were moderately abundant with a density of 0.16/m², similar to last year. *Parastichopus parvimensis* were present at a low density of 0.042/m², and the first time they were recorded on quadrats in four years. No sea star wasting disease was observed.

There were several small *Haliotis rufescens* found under the spine canopy of *Strongylocentrotus franciscanus*. Eleven were measured with a mean size of 31 mm. The density of *H. rufescens* was 0.0083/m², the highest recorded since 1986. The *H. rufescens* observed on band transects were all

small (less than 53mm). Most of the *H. rufescens* sampled on band transects were located in the same area, which was near the kelp forest on the outside edge of the site at the west end in crevices. This is a common spot to find small *H. rufescens* at this site. *Astraea gibberosa* were common at 0.54/m². *Kelletia kelletii* density was 0.0056/m², similar to past years. *Crassidoma giganteum* density remained low at 0.013/m². *Megathura crenulata* were rare at 0.0014/m², similar to previous years. No *Aplysia californica* were observed. *Cypraea spadicea* density decreased to 0.17/m², the lowest recorded since 2003.

The fish at this site were abundant and diverse. *Coryphopterus nicholsii* were observed on quadrats at a density of 0.46/m² and up to 142 were observed during the fish count, both an increase from last year. *Oxylebius pictus* were abundant with up to 40 observed. *Chromis punctipinnis* were common with up to 28 adults observed. *Oxyjulis californica* were common with 15 adults observed. *Semicossyphus pulcher* were abundant with up to nine females, no juveniles and five males observed. *Embiotoca jacksoni* were present with up to three adults and one juvenile observed. *Embiotoca lateralis* were common with up to 13 adults and 13 juveniles observed. Up to 13 adult and one juvenile *Rhacochilus vacca* were observed. *Sebastes mystinus* were common with up to 21 adults and one juvenile observed. *Sebastes atrovirens* were abundant with up to seven adults and 63 juveniles observed. Two adult and four juvenile *Sebastes serranoides* were observed. Three adult and two juvenile *Sebastes serriceps* were observed. Ten adult and one juvenile *Sebastes chrysomelas*, black and yellow rockfish, were observed. Two juvenile and one adult *Sebastes caurinus*, copper rockfish, were observed. Up to 17 kelp/gopher/black and yellow/copper rockfish young of the year complex (KGB) were observed. A school of up to 150 *Atherinops affinis*, topsmelt, was observed. Up to 12 *Rhacochilus toxotes*, rubberlip surfperch, were observed. One *Ophiodon elongatus*, lingcod, was observed. Two *Scorpaenichthys marmoratus*, cabezon, were observed. Juvenile *Rathbunella alleni*, stripefin ronquil, were relatively common though none were observed during the roving diver fish count. Roving diver fish counts were conducted on September 10th by five divers observing 22 species.

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

Johnson's Lee North, Santa Rosa Island

Site #3 SRJLNO

2008 sampling dates: 10/1

2008 status: Mature kelp forest

The site had a kelp forest with an abundance of *Macrocystis pyrifera*. There appeared to be more macroalgae compared to last year. Adult *M. pyrifera* density decreased from last year to 0.37/m². Subadult and juvenile *M. pyrifera* were abundant throughout the site at densities of 0.49/m² and 3.4/m², respectively. Cover of *M. pyrifera* increased for the third consecutive year to 35%, the highest cover recorded since 2002. High percent cover in the category is often associated with high juvenile and subadult densities. *Eisenia arborea* were rare with a cover of 0.83% and none recorded in quadrats. *Pterygophora californica* were more abundant than in recent years with adult and juvenile densities of 0.29/m² and 1.4/m², respectively. Cover of *P. californica* increased to the highest recorded since 1996 at 12%. Adult *Laminaria farlowii* were relatively abundant with a density of 0.29/m² for adults, and 0.33/m² for juveniles. These were the highest densities recorded for

both adults and juveniles since these categories were separated from a combined adult/juvenile category in 1996. Cover of *L. farlowii* increased to 5.7%, the highest recorded since monitoring began at this site. *Cystoseira* spp. were common at 1.0% cover, but not as abundant as in recent years. *Desmarestia* spp. were present with a cover of 1.0%. Miscellaneous brown algae were not recorded during sampling. Miscellaneous green algae were recorded at 0.50%. Miscellaneous red algae cover was 56%, the highest recorded at this site. *Gigartina* spp. were moderately abundant with a cover of 7.2%, the highest recorded since 1996. Articulated coralline algae cover and encrusting coralline algae cover were 6.5% and 10.3% respectively, both increases from last year. Bare substrate cover decreased to 2.8%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover decreased from previous years to 8.0% and consisted mostly of hydroids. *Aglaophenia* spp. were notably abundant. *Styela montereyensis* remained abundant at 6.2/m². Tunicate cover increased from last year to 15%. Sponges were common and diverse, and had a cover of 5.3%. *Tethya aurantia* remained abundant at 0.15/m², the highest recorded at this site. *Phragmatopoma californica* were common, but had a decline in cover to 3.5%. *Diopatra ornata* were present with a cover of 3.5%. *Serpulorbis squamigerus* were rare at a cover of 0.33%. Miscellaneous bryozoans were abundant at a cover of 41%, the highest recorded since 1992. The most abundant bryozoan species were *Membranipora* spp. and *Thalamoporella* spp. Similar to last year. *Diaperoecia californica* were present mostly on the sides of rocks but were not recorded during sampling. *Corynactis californica* were present with a cover of 2.0%, similar to recent years. *Balanophyllia elegans* and *Astrangia lajollaensis* were present with covers 1.2% and 0.83%, respectively. No gorgonians were recorded during sampling and they were relatively rare at this site.

Strongylocentrotus spp. remained at low densities for the ninth consecutive year. *Strongylocentrotus franciscanus* density was 0.13/m², the lowest recorded at this site. *Strongylocentrotus purpuratus* density was 0.042/m². *Strongylocentrotus* spp. were present only in crevice habitat and moderately high density patches of *S. franciscanus* were common. *Strongylocentrotus purpuratus* were noticeably small with many located under the spine canopy of *S. franciscanus*. There was a wide range of sizes present for *Strongylocentrotus* spp., but few less than 15 mm. No *Lytechinus anamesus* were recorded during sampling. No Sea urchin wasting disease was observed.

Pycnopodia helianthoides were abundant at 0.14/m², similar to recent years. Medium and large *P. helianthoides* were common. *Patiria miniata* were relatively abundant for this site with a density of 1.0/m², the highest density recorded since 1982. *Pisaster giganteus* were recorded on both 1 m quadrats and 5 m quadrats at 0.21/m² and 0.15/m², respectively. No *Parastichopus parvimensis* were recorded during sampling, though they were present in low abundance similar to past years. Several *Dermasterias leviuscula* were observed. No sea star wasting disease was observed.

Haliotis rufescens covered a large size distribution and were found in the same cracks and crevices as the last several years, and even the past two decades. Several individuals were very deep in crevices. Their density was the same as last year at 0.015/m², though the density has steadily increased since 2001. Twenty-four *H. rufescens* were found along the transect and measured for size frequencies for a mean size of 170 mm, an increase from last year and a continued gradual increase since 2002.

Several fresh and old *H. rufescens* shells were found and measured, the fresh shells measurements were: 89, 148, 168, 192, and 198. *Cypraea spadicea* decreased to the lowest density since 2002 at 0.083/m². No *Megastrea undosa* or *L. gibberosa* were recorded during sampling though a few very large *M. undosa* were present with the two found for size frequencies measuring 140 mm and 143 mm. *Kelletia kelletii* were rare with a density of 0.0042/m², similar to previous years. *Megathura crenulata* were relatively rare at 0.0042/m², with notably large individuals present. *Crassedoma giganteum* were common at 0.013/m² with a wide range of sizes present. No *Aplysia californica* were observed along the transect, similar to previous years.

Fish were moderately diverse and abundant, similar to past years. *Coryphopterus nicholsii* were present at a density of 0.083/m² and up to 29 observed during the roving diver fish count. *Oxylebius pictus* were abundant with up to 28 observed. Adult *Chromis punctipinnis* were common with up to 41 adults and 32 juveniles observed. *Oxyjulis californica* were the most abundant fish species with up to 48 adults and 24 juveniles observed. Up to five female, one male and no juvenile *Semicossyphus pulcher* were observed. Two female, no juvenile, and one male *Halichoeres semicinctus* were observed. Five adult *Hypsypops rubicundus* were observed. The resident male at the 73 m mark was present as he has been since 1990. *Paralabrax clathratus* were present with two adults and no juveniles observed. Up to seven *Girella nigricans* were observed. *Embiotoca jacksoni* and *Embiotoca lateralis* remained abundant. Up to 18 adults and 10 juvenile *E. jacksoni* were observed. Up to nine adult and six juvenile *E. lateralis* were observed. Up to seven adult and one juvenile *Rhacochilus vacca* were observed. Three adult and one juvenile *Sebastes mystinus* were observed. *Sebastes atrovirens* were common with up to 31 adults and no juveniles observed during the roving diver fish count, though a moderate number of juveniles were noted throughout the day. One adult and one juvenile *Sebastes serripes* were observed. Three adult and six juvenile *Sebastes serranoides* were observed. Up to nine adult *Sebastes chrysomelas*, black and yellow rockfish, were observed. Up to 12 juvenile *Sebastes paucispinis*, bocaccio, were observed. One *Sebastes carnatus*, gopher rockfish, was observed. Up to five *Rhacochilus toxotes*, rubberlip surfperch, were observed. Up to six *Hypsurus caryi*, rainbow surfperch, were observed. Up to 32 *Brachyistius frenatus*, kelp surfperch, were observed. One *Medialuna californiensis*, halfmoon, was observed. Two adult *Heterostichus rostratus*, giant kelpfish, were observed. Approximately five *Trachurus symmetricus*, jack mackerel, were observed. Roving diver fish counts were conducted on October 1st by four divers observing 29 species.

Eight ARMs were sampled for all indicator species. The ninth ARM, #2447, was found destroyed and could not be sampled. This cage was rebuilt with the new number tag #2477, not to be confused with the old one as they are only one number different, and will be sampled next season. No *Haliotis rufescens* were found in the ARMs for the third consecutive year. *Cypraea spadicea* remained relatively abundant at 8.4/ARM, similar to recent years. Similar to last year, there were some juvenile *C. spadicea* found in the ARMs. Juveniles were observed at several sites and we continued to make note of these individuals at all sites this year. Two *C. spadicea* measuring 38 mm and 48 mm had juvenile morphology. *Megathura crenulata* were present at 0.33/ARM, and this is the first time they have been found in the ARMs since 2000. *Crassedoma giganteum* have decreased significantly over the last two years with 0.22/ARM. *Patiria miniata* density remained similar to previous years at

4.7/ARM. *Pisaster giganteus* density was relatively low at 1.1/ARM, similar to recent years. *Pycnopodia helianthoides* density was 0.89/ARM, similar to previous years. *Strongylocentrotus franciscanus* density remained high at 35/ARM, This is the highest density recorded in the ARMs at this site. The mean size of *S. franciscanus* decreased to 48 mm, indicative of recent recruitment. *Strongylocentrotus purpuratus* abundance decreased to 13/ARM. *Parastichopus parvimensis* <10 cm were absent from the ARMs and individuals >10 cm were present at 0.33/ARM, similar to recent years. Two *Octopus rubescens* were noted in the ARMs, similar to last year.

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

Johnson's Lee South, Santa Rosa Island

Site # 4 SRJLSO

2008 sampling dates: 8/12, 8/13

2008 status: Mature kelp forest

This site appeared similar to last year. There was a mature kelp forest with large, widely-spaced *Macrocystis pyrifera* plants. Understory algae were abundant and diverse, with all macroalgae indicator species present as both adults and juveniles. Cover of *M. pyrifera* was recorded at 20%, an increase from last year. Adult *M. pyrifera* density decreased to 0.29/m². This is a common occurrence as kelp forests mature. Subadults remained common at 0.12/m². Juveniles were present at 1.3/m². *Eisenia arborea* were present with a cover of 1.8%, and none recorded in quadrats. *Pterygophora californica* adults had a density of 0.083/m², similar to last year. No juveniles were recorded in quadrats. *Pterygophora californica* cover was similar to previous years at 0.33%. Adult and juvenile *Laminaria farlowii* were present with densities at 0.29/m² and 0.21/m², respectively and cover increased to 5.2%. *Desmarestia* spp. and *Cystoseira* spp. were recorded at covers of 0.17% and 0.33%, respectively, similar to previous years. Miscellaneous brown algae cover was 0.67%, similar to previous years. *Gigartina* spp. were abundant in patches and had a cover of 4.8%. *Gelidium* spp. were rare at 0.17% cover. Miscellaneous red algae cover increased from last year's low to 30%. No green algae were recorded during sampling. Articulated and encrusting coralline algae cover were 3.0% and 8.2%, respectively, similar to recent years. Bare substrate cover was 21%, similar to past years.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover increased from last year's low to 20%, but was similar to recent years. This category mainly consisted of hydroids. Bryozoan cover increased to 29%, the highest recorded since 1999. *Heteropora pacifica* were noticeably abundant and were in large colonies throughout the site. *Diaperoecia californica* were present at 0.83% cover, similar to recent years. Tunicates were moderately abundant with a cover of 8.0%, an increase from last year. *Styela montereyensis* were present with a density of 0.29/m². Sponge cover was 1.5% and *Tethya aurantia* density was 0.35/m², both similar to recent years. The cup corals, *Astrangia lajollaensis* and *Balanophyllia elegans*, had covers of 0.67% and 1.7%, respectively, similar to last year. *Corynactis californica* cover decreased to 1.2%, the lowest cover recorded since 1999. *Urticina lofotensis* remained abundant at 0.17/m². *Diopatra ornata* were moderately abundant in the low lying areas with a cover of 11%. Several bat rays were observed actively feeding on them throughout the

day. *Phragmatopoma californica* were observed with a cover of 1.0%. *Lophogorgia chilensis* were common at 0.051/m², similar to recent years. *Muricea californica* were rare at 0.0014/m².

Sea urchin densities increased for the first time in several years. They were mostly found in crevice habitat. *Strongylocentrotus franciscanus* and *S. purpuratus* were observed at densities of 1.4/m² and 3.2/m², respectively. Juvenile *Strongylocentrotus* spp. were rare. No *Lytechinus anamesus* were observed. No sea urchin wasting disease was observed.

Sea stars were abundant with many size classes present. *Pisaster giganteus* were sampled on 1 m quadrats and 5 m quadrats with densities of 0.083/m² and 0.075/m², respectively. Most of the *P. giganteus* were less than 100 mm. *Pycnopodia helianthoides* density increased to the highest recorded since 2001 at 0.24/m², with a wide range of sizes present. *Patiria miniata* density was similar to recent years at 3.6/m². *Ophiothrix spiculata* were rare at a cover of 0.50%. *Parastichopus parvimensis* density was similar to recent years at 0.042/m². No sea star wasting disease was observed.

Haliotis rufescens density increased from last year to 0.011/m² and nine individuals were measured for size frequencies for a mean size of 151 mm. Three fresh *H. rufescens* shells were measured at 102 mm, 128 mm, and 135 mm. *Cypraea spadicea* were common at a density of 0.21/m² and *Kelletia kelletii* density remained low at 0.014/m². *Crassidoma giganteum* density increased to 0.026/m². The mean size of *C. giganteum* was 52 mm. *Megathura crenulata* remained rare at 0.0028/m². No *Aplysia californica* were observed.

Overall, observations at this site were similar to last year with fish being moderately abundant and diverse. *Coryphopterus nicholsii* were abundant with a density of 0.083/m² and up to 102 observed. Many small individuals were noted. Up to 23 *Oxylebius pictus* were observed with some juveniles being noted. The most abundant fish species was *Oxyjulis californica* with up to 116 adults and four juveniles observed. *Chromis punctipinnis* were rare with up to five adults and no juveniles observed. Seven female, no juvenile and three male *Semicossyphus pulcher* were observed. There were no *Halichoeres semicinctus* observed, same as previous years and we would not expect to see this species at this site. Similar to past years, adult surfperch were abundant. There were up to five adult *Embiotoca jacksoni* observed. Up to 10 adult *Embiotoca lateralis* were observed. Up to 13 *Rhacochilus vacca* adults were observed. There were up to five adult *Girella nigricans* observed. *Paralabrax clathratus* were relatively common with up to 10 adults and no juveniles observed, similar to last year. Six adult and one juvenile *Sebastes mystinus* were counted. *Sebastes serranoides* were present with two adults and two juveniles observed. Up to 50 adult and one juvenile *Sebastes atrovirens* were counted, an increase from last year. Two adult and three juvenile *Sebastes serriceps* were counted. One adult *Sebastes carnatus*, gopher rockfish, and one adult *Sebastes caurinus*, copper rockfish, were observed. Up to 10 adult *Sebastes chrysomelas*, black and yellow rockfish, were observed. Two KGB were observed. Three *Rhacochilus toxotes*, rubberlip surfperch, were observed. Up to 45 adult *Hypsurus caryi*, rainbow surfperch, were counted. *Brachyistius frenatus*, kelp surfperch, were present with up to 25 adults observed. *Medialuna californiensis*, halfmoon, were less abundant than in previous years with two observed. Two *Caulolatilus princeps*, ocean whitefish, were observed. A school of up to 100 *Atherinops affinis*, topsmelt, was observed. Up to four

Myliobatis californica, bat ray, were observed. Roving diver fish counts were performed on July 25th with three divers observing 28 species.

All seven ARMs were monitored for all indicator species. Two of the ARMs (#2453 and #2417) were found upside down. We continue to observe *Phyllolithodes papillosus*, heart crabs, in the ARMs at this site, which is a range extension for this northern species. This year nine were recorded during sampling, the highest number recorded. We have observed this species consistently in the ARMs since 1997. One was a gravid female. These observations suggest successful reproduction is occurring at this site. Two small *Brosmophycis marginata*, red brotula, were observed, similar to last year. These are a rare fish that we have seen regularly in the ARMs at this site in recent years.

One *Haliotis rufescens* was observed in the ARMs for a density of 0.14/ARM and was measured at 132 mm. *Cypraea spadicea* density was 9.9/ARM, an increase from last year, and had a mean size of 47 mm. Three *C. spadicea* had juvenile morphology. One *Megathura crenulata* were observed in the ARMs for a density of 0.14/ARM and had a mean size of 26 mm. *Crassedoma giganteus* density was 1.0/ARM, similar to last year. No *Kelletia kelletii* were observed for the second year. *Patiria miniata* density was observed at 4.9/ARM, a decrease from last year, and had a mean size of 36 mm. *Pisaster giganteus* were present at 1.1/ARM, a decrease from last year, with a mean size of 31 mm, similar to past years. *Pycnopodia helianthoides* density was 1.7/ARM, a decrease from last year's high, and had a mean size of 71 mm. *Strongylocentrotus franciscanus* density was 35/ARM, similar to last year, with a mean size of 63 mm. *Strongylocentrotus purpuratus* density was 24/ARM, an increase from last year, with a mean size of 39 mm, an increase from last year. No *Centrostephanus coronatus* or *Lytechinus anamesus* were recorded. One *Parastichopus parvimensis* <10 cm and two *P. parvimensis* >10 cm were observed in the ARMs for densities of 0.14/ARM and 0.29/ARM. Two large *Parastichopus californicus* were found in the ARMs.

The temperature loggers were retrieved and deployed successfully. We have been monitoring temperature differences between the north end unit and south end unit over the past few years to determine if it would be feasible to permanently move the unit to the north end of the transect to be consistent with the logger location at our other sites. The loggers have had similar readings from both ends of the transect.

Rodes Reef, Santa Rosa Island

Site #5 SRRR

2008 sampling dates: 7/28

2008 status: Mature kelp forest

This site continued to be a mature kelp forest, but *Macrocystis pyrifera* did not appear as abundant as last year and there was lower canopy cover. Understory algae increased, and was possibly due to increased light from less canopy. Adult *M. pyrifera* density was 0.11/m², similar to last year. Subadult and juvenile *M. pyrifera* densities were 0.030/m² and 0.00/m², respectively, and cover was 2.7%. *Laminaria farlowii* were present in low numbers with adult and juvenile densities of 0.0/m² and 0.083/m², respectively, and a cover of 0.67%. No *Eisenia arborea*, *Pterygophora californica*, or *Cystoseira* spp. were observed, similar to last year. *Desmarestia* spp. were rare with 0.33% cover. No miscellaneous brown algae were present on RPCs. Miscellaneous red algae were abundant at a cover

of 53%, the highest recorded since 1997. *Gigartina* spp. were common with 2.7% cover. Similar to past years, no miscellaneous plants (filamentous diatoms) were observed on RPCs. Articulated coralline algae were not recorded. Encrusting coralline algae cover was recorded at 25%, similar to recent years. Bare substrate continued its upward trend with a slight increase to 13%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover was 16%, similar to recent years. The most common miscellaneous invertebrates in this category were hydroids. *Diopatra ornata* were moderately abundant with a cover of 7.2%. Sponges covered 1.7% of the bottom. *Tethya aurantia* were abundant at 0.25/m², similar to past years. *Styela montereyensis* were common at 0.46/m², the highest density recorded since 1995. Tunicate cover decreased to 1.7%. Miscellaneous bryozoan cover remained high and was recorded at 22%. *Diaperoecia californica* was common on the steep sides of rocky relief mostly off the main transect with a cover of 1.3%, similar to previous years. *Urticina lofotensis* were abundant with a density of 0.085/m², the highest recorded at this site. *Balanophyllia elegans* remained sparse at a cover of 0.67%, the lowest recorded cover since 1999. *Corynactis californica* were present at 0.17% cover. *Astrangia lajollaensis* remained abundant, primarily at the western end of the transect, with a cover of 5.8%. *Lophogorgia chilensis* were rare at a density of 0.0014/m². No *Muricea californica* or *Muricea fruticosa* were recorded.

Strongylocentrotus franciscanus and *Strongylocentrotus purpuratus* both increased in densities to 11/m² and 5.2/m², respectively. This is the highest density recorded for *S. franciscanus* at this site. Juvenile *Strongylocentrotus* spp. were rare. *Lytechinus anamesus* and *Centrostephanus coronatus* were not observed during sampling. No sea urchin wasting disease was observed.

Patiria miniata density remained high at 5.5/m², the highest density recorded at this site. *Pycnopodia helianthoides* were present with most individuals being less than 80 mm. Density of *P. helianthoides* decreased to 0.032/m², the lowest recorded since 1999. *Ophiothrix spiculata* were present and found primarily in *Macrocystis* holdfasts, with a cover of 0.50%. This was the first time *O. spiculata* were recorded since this category was included in 2003. *Parastichopus parvimensis* continued to be rare with none recorded during sampling. No sea star wasting disease was observed this year.

No *Haliotis* spp. were recorded during sampling. One *H. rufescens* was found at the site and measured 32 mm. Two fresh *H. rufescens* shells were found measuring 20 mm and 31 mm, indicative of recent recruitment. *Kelletia kelletii* density increased to 0.14/m², the highest recorded since 1995. Several small individuals were noted. No *Megastraea undosa* or *Astraea gibberosa* were sampled, but one large *M. undosa* was found for size frequencies and measured 136 mm. *Megathura crenulata* were common at 0.017/m², similar to past years, and most were present on the western rocky end of the transect. *Crassedoma giganteus* adults and juveniles were common with a density of 0.011/m², the highest density recorded since 1999. *Cypraea spadicea* were present at 0.13/m². *Aplysia californica* were rare at 0.0014/m².

Fish have remained moderately abundant and diverse since the return of kelp at this site last year. *Coryphopterus nicholsii* remained rare with none observed on quadrats and only seven counted during the roving diver fish counts. *Oxylebius pictus* were present with up to 34 counted. Up to 17 adult *Chromis punctipinnis* were observed, similar to last year. No *Oxyjulis californica* were

observed. Four female and four large male *Semicossyphus pulcher* were observed. One adult *Paralabrax clathratus* was observed. Four adult and three juvenile *Embiotoca jacksoni* were observed. *Embiotoca lateralis* were moderately abundant with up to 10 adults and 14 juveniles observed. Up to six adult *Rhacochilus vacca* were observed. *Sebastes mystinus* were common with up to 30 adults observed. One adult *Sebastes serranoides* was observed. *Sebastes atrovirens* were common with up to nine adults observed. *Sebastes caurinus*, copper rockfish, adults were present with two observed. *Sebastes melanops*, black rockfish, were present with two adults observed. One *Sebastes chrysomelas*, black and yellow rockfish, was observed. One juvenile *Sebastes carnatus*, gopher rockfish, was observed. Up to four KGB were observed. One juvenile *Sebastes miniatus*, vermillion rockfish, was observed. Two *Hypsurus caryi*, rainbow surfperch, were observed. Up to nine *Rhacochilus toxotes*, rubberlip surfperch, were observed. *Aulorhynchus flavidus*, tubesnouts, were very abundant with up to 1000 observed. One *Scorpaenichthys marmoratus*, cabezon, was observed. Roving diver fish counts were conducted on July 28th by four divers observing 26 species of fish.

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

Gull Island, Santa Cruz Island

Site #6 SCGI

2008 sampling dates: 6/20, 8/28

2008 status: Mature kelp forest

This site remains a mature kelp forest with a moderate amount of understory algae. There was less canopy this year with a cover of approximately 15%. Adult *Macrocystis pyrifera* abundance was similar to recent years with a density of 0.26/m². Subadult density decreased to 0.13/m² while juvenile density remained steady at 0.58/m². Cover of *M. pyrifera* decreased to 18%. *Eisenia arborea* cover was 2.0%, and none were observed during quadrats, 0/m². *Pterygophora californica* were more common than in recent years with a cover of 1.2%, and adult and juvenile densities of 0.083/m² for both. *Laminaria farlowii* adults had a density of 0.042/m². No juveniles were recorded. Cover of *L. farlowii* was 0%. No *Desmarestia* spp. or *Cystoseira* spp. were recorded during sampling, though a few *Cystoseira* spp. were noted at the site. Miscellaneous brown algae cover was 0.50%, similar to recent years. *Gigartina* spp. were present with a cover of 2.5%. Miscellaneous red algae continued to increase for the fourth consecutive year to 64% cover breaking the last two consecutive record high years. Articulated coralline algae and encrusting coralline algae were both present with respective densities of 1.2% and 38%. Green algae cover was 0.67%. No miscellaneous plants were recorded. Bare substrate cover was observed at 2.0%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover was 5.2%, the lowest recorded since 1983. The most abundant invertebrate in this category was *Spirobranchus spinosus*. Tunicates cover increased to 12%, the highest recorded at this site. *Styela montereyensis* were present, but not recorded during sampling. *Tethya aurantia* were recorded at a density of 0.17/m², similar to recent years. Sponge cover decreased to 1.5%. *Corynactis californica* cover was 1.5%, the lowest recorded since 1994. *Balanophyllia elegans* decreased in cover to 1.3%. *Astrangia lajollaensis* cover was 1.5%, similar to recent years. *Diopatra ornata* cover was similar to recent years at 3.8%. Several bat

rays were observed feeding on patches of *D. ornata* during one of sampling days. *Diaperoecia californica* cover was recorded at 9.7%, the highest recorded at this site. Miscellaneous bryozoans cover increased to 36%, the highest recorded at this site. *Stylaster californica* were present at a density of 0.19/m², the highest recorded at this site. Small *S. californica* colonies were moderately abundant near conspecifics. *Lophogorgia chilensis* were present at 0.044/m², with small recruits present. No *Muricea californica* or *Muricea fruticosa* were recorded during sampling.

Overall, *Strongylocentrotus* spp. were rare but notably more abundant than in recent years. *Strongylocentrotus franciscanus* and *Strongylocentrotus purpuratus* densities both continued to increase for the fourth consecutive year to 1.7/m² and 3.3/m², respectively. Adults and juveniles of both species were present. No *Centrostephanus coronatus* were recorded during sampling. *Lytechinus anamesus* were more abundant than in recent years at 0.049/m². Sea urchin wasting disease was only observed in one *L. anamesus* during the August 28th visit.

Pisaster giganteus were sampled on both 1 m quadrats and 5 m quadrats with densities of 0.15/m² and 0.17/m², respectively, a decrease from last year. *Patiria miniata* remained abundant with a density of 2.6/m². *Pycnopodia helianthoides* were observed with a density of 0.024/m², similar to recent years. *Ophiothrix spiculata* were present, mostly in kelp holdfasts, with a cover of 0.67%. *Parastichopus parvimensis* were present at a density of 0.25/m², similar to recent years, and consisted mostly of large individuals. No *Pachythyone rubra* were recorded during sampling. No sea star wasting disease was observed.

Cypraea spadicea were present at a density of 0.33/m². Neither *Megastrea undosa* nor *Astraea gibberosa* were recorded on 1 m quadrats, similar to past years. However, both species were present. *Tegula regina* were rare at a density of 0.042/m². *Megathura crenulata* were rare with a density of 0.0069/m², similar to recent years. *Aplysia californica* were not recorded during sampling. *Kelletia kelletii* density was similar to recent years at 0.015/m² and most individuals were large. *Crassidoma giganteum* density remained similar to recent years at 0.029/m². One *Haliotis rufescens* was observed at the site and measured approximately 200 mm. *Panulirus interruptus* had a density of 0.0014/m², which is the first time any have been recorded during sampling since monitoring began at this site in 1983.

Fish were moderately diverse and abundant, similar to past years. *Coryphopterus nicholsii* increased to the highest density since 2001 at 1.2/m², and up to 88 were observed during the roving diver fish count. No *Alloclinus holderi* were observed. *Oxylebius pictus* were present with up to 55 observed. *Chromis punctipinnis* were the most abundant fish species with up to 158 adults and no juveniles observed. *Oxyjulis californica* were common with up to 33 adults observed. Up to 24 female, five juvenile and eight male *Semicossyphus pulcher* were observed, similar to recent years. No *Halichoeres semicinctus* were observed. One adult *Hypsypops rubicundus* was observed. Three *Paralabrax clathratus* adults were observed. *Embiotoca jacksoni* were present with up to eight adults and 10 juveniles observed. Up to nine adult and five juvenile *Embiotoca lateralis* were observed. There were up to three adult and three juvenile *Rhacochilus vacca* observed. No *Girella nigricans* were observed. *Sebastes mystinus* were common with up to 18 adults and seven juveniles observed. *Sebastes atrovirens* were abundant with up to 20 adults and 16 juveniles observed. Up to 10 adult

and two juvenile *Sebastes serranoides* were observed. Three adult and one juvenile *Sebastes serripes* were observed. Three *Sebastes carnatus*, gopher rockfish, and six *Sebastes chrysomelas*, black and yellow rockfish, were observed. One *Sebastes caurinus*, copper rockfish, was observed. *Brachyistius frenatus*, kelp surfperch, were present in the kelp canopy with up to nine observed. Two *Hypsurus caryi*, rainbow surfperch, were recorded. A small school of *Atherinops affinis*, topsmelt, was present with up to 15 individuals counted. Two *Ophiodon elongatus*, lingcod, were observed. One *Trachurus symmetricus*, jack mackerel, was observed. One *Caulolatilus princeps*, ocean whitefish, was recorded. Roving diver fish counts were conducted on August 28rd with four divers observing 24 species.

All 14 ARMs were monitored for all indicator species. The density of *Cypraea spadicea* was 16/ARM, the highest recorded since 1994. Fifteen of the *C. spadicea* had juvenile morphology or 1.1/ARM. Twenty four *C. spadicea* had egg masses, or 1.7/ARM. There were no *Haliotis* spp. observed for the third consecutive year. No *Kelletia kelletii* were observed. No *Megastrea undosa* or *Astraea gibberosa* were observed, similar to recent years. *Megathura crenulata* were present with a density of 0.79/ARM. *Crassidoma giganteum* were present at 3.4/ARM with a mean size of 31 mm. This is the highest density recorded at this site. *Tegula regina* were not recorded. *Patiria miniata* density increased to a record high at 7.4/ARM. The mean size of *A. miniata* increased from last year to 23 mm. *Pisaster giganteus* density was higher than last year at 2.1/ARM and had a mean size of 48 mm. *Pycnopodia helianthoides* density was similar to last year at 0.21/ARM with an increase in the mean size to 200 mm. *Strongylocentrotus franciscanus* density decreased to 26/ARM, and the mean size increased to 34 mm. *Strongylocentrotus purpuratus* also decreased in abundance to 5.8/ARM, and had an increase in mean size to 23 mm. No *Centrostephanus coronatus* were observed in the ARMs. *Parastichopus parvimensis* density <10 cm was the same as recent years at 0.14/ARM and individuals >10 cm decreased to 0.07/ARM. Several *Parastichopus californicus* were in the ARMs, with individuals <10 cm at a density of 0.29/ARM and individuals >10 cm at a density of 0.14/ARM, these are not recorded in the database. One *Octopus* spp. was observed. There was an abundance of *Diopatra ornata* on the bottom layer of bricks in one of the ARMs.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully. This site has two temperature logger stakes. The original stake and a new stake that was installed in 2007 at the zero end about 20 meters away from the original stake. Two temperature loggers were deployed last year, one at each stake, to ensure there was no difference in temperature between the two stakes. The loggers were retrieved and all data were downloaded successfully. The loggers were reading within 0.2°C of each other, which is within the range of error of the loggers. We will continue to monitor both locations for at least the next year to ensure there is not locality difference in temperature before we completely switch to the new logger location.

Fry's Harbor, Santa Cruz Island

Site #7 SCFH

2008 sampling dates: 6/19, 8/11

2008 status: Kelp forest

This site continued to dramatically change and had a kelp forest with a thick, mature, understory that was dominated by *Eisenia arborea*. *Macrocystis pyrifera* canopy cover was estimated at 35%. All

Macrocystis pyrifera abundance measurements were recorded at their highest densities since we began monitoring this site in 1982. *Macrocystis pyrifera* adults and subadults were observed with densities of 0.040/m² and 0.50/m², respectively. Juvenile *M. pyrifera* density was 0.46/m² and cover was recorded at 31%. *Eisenia arborea* adult and juvenile densities were 2.2/m² and 2.1/m², respectively and cover was 53%, all record abundances for this site. *Pterygophora californica* were observed on RPCs for the first time since before 1993 at 0.17%. The density of *P. californica* juveniles was 0.042/m² with no adults recorded. *Laminaria farlowii* were not recorded during sampling. *Cystoseira* spp. were present but not recorded, similar to previous years. No miscellaneous brown algae were recorded. *Gigartina* spp. were observed with a cover of 8.0%, the highest recorded at this site. Miscellaneous red algae cover increased to a record high of 46%. Encrusting coralline algae cover remained similar to previous years at 44%. Articulated coralline algae were present for a cover of 2.2%, the highest recorded since 1984. Miscellaneous green algae were abundant with a cover of 5.2%, with *Codium fragile* being notably abundant. Miscellaneous plants, mostly consisting of filamentous diatoms, were recorded at 0.17% cover. Bare substrate cover was 4.0%, the lowest recorded since 1984.

Overall, encrusting invertebrates such as bryozoans and hydroids were abundant. Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover were common at 11%, a decrease from last year. The most common miscellaneous invertebrates in this category were hydroids. The tubeworm *Spirorbis* sp. was moderately abundant as well. *Diopatra ornata* cover was recorded at a record high of 1.5%. *Balanophyllia elegans* were rare at 0.33% cover. *Astrangia lajollaensis* cover remained relatively low for this site at 7.2%. *Corynactis californica* cover was recorded at 0.83%, similar to past years. Miscellaneous bryozoans continued to increase from its record high last year to a new record of 35% cover. *Diaperoecia californica* were noticeably abundant on the sides of large boulders and were recorded at 1.0% cover, similar to recent years. *Lophogorgia chilensis* were abundant on the offshore side of the transect and had a density of 0.25/m², similar to recent years. *Tethya aurantia* were abundant at 0.081/m², the highest recorded since 1985. Miscellaneous sponges covered 0.50% of the bottom, similar to past years. Tunicate cover was 0.50%, similar to past years. Bare substrate cover was 4.0%, the lowest recorded since 1984.

Strongylocentrotus spp. continued to be rare and were confined to crevice habitat. Many whole urchin tests were found along the transect, indicating a high level of predation most likely from *Pycnopodia helianthoides*. *Strongylocentrotus purpuratus* density remained low for the sixth consecutive year at 0.42/m². *Strongylocentrotus franciscanus* density also remained low for the sixth consecutive year at 0.33/m². Juvenile *S. franciscanus* and *S. purpuratus* were present in low numbers. No *Centrostephanus coronatus* or *Lytechinus anamesus* were recorded during sampling and if they were present were rare at the site. No sea urchin wasting disease was observed.

Pisaster giganteus were recorded on 1 m quadrats and 5 m quadrats at densities of 0.54/m² and 0.27/m², respectively, similar to last year. *Patiria miniata* remained abundant at a density of 2.3/m. *Pycnopodia helianthoides* continued to be relatively abundant for this site at a density of 0.046/m², and were observed actively feeding on sea urchins. *Parastichopus parvimensis* density remained relatively low at 0.13/m², similar to recent years. *Ophiothrix spiculata* were not recorded during

sampling, similar to recent years. *Pachythyone rubra* continued to be rare with none recorded during sampling. No sea star wasting disease was observed.

Cypraea spadicea declined to the lowest density recorded since 1984 at 0.042/m². *Megastraea undosa* and *Astraea gibberosa* remained rare with none recorded during sampling. *Tegula regina* were also rare at a density of 0.042/m². *Aplysia californica* were not observed, similar to last year. *Megathura crenulata* remained common at a density of 0.064/m². *Crassedoma giganteum* were present at a density of 0.019/m². *Kelletia kelletii* were present at a density of 0.014/m².

Similar to past years, fish diversity and abundance were high at this site. *Coryphopterus nicholsii* were common at 1.9/m², a decrease from last year. Up to 221 *C. nicholsii* were observed during the roving diver fish counts. *Alloclinus holderi* density decreased to 0.083/m², and two were observed during the roving diver fish count. *Lythrypnus dalli* were common at a density of 0.33/m² and up to 26 individuals counted, a decrease from last year. These were adults and likely from the warm water event that occurred in 2006 between July 19th and August 21st. *Oxylebius pictus* were common with up to 28 observed, similar to last year. *Chromis punctipinnis* were the most abundant fish with up to 1035 adults observed. Up to 92 adult *Oxyjulis californicus* were observed. Three female, five male and three juvenile *Halichoeres semicinctus* were observed. Up to five female, two male and no juvenile *Semicossyphus pulcher* were observed. *Hypsypops rubicundus* were common with up to six adults observed. *Paralabrax clathratus* were common with up to 24 adults observed. Up to 13 adult *Embiotoca jacksoni* were observed. *Rhacochilus vacca* were common with up to 14 adults observed. Three adult and one juvenile *Embiotoca lateralis* were observed. Two *Girella nigricans* were observed. *Sebastes* spp. were less abundant than last year. *Sebastes mystinus* young of the year were common with up to ten observed, as well as two adults. Four adult *Sebastes serranoides* were observed. *Sebastes atrovirens* were common with up to eight adults and four juveniles observed. *Sebastes serriceps* were common with up to nine adults observed. One *Sebastes carnatus*, gopher rockfish, was present. Two adult *Sebastes caurinus*, copper rockfish, were observed. One adult *Sebastes chrysomelas*, black and yellow rockfish, was observed. Up to 16 KGB were observed. One adult *Rhacochilus toxotes*, rubberlip surfperch, was observed. Three *Medialuna californiensis*, halfmoon, were observed. Two *Cephaloscyllium ventriosum*, swell sharks, were counted. Roving diver fish counts were performed on June 19th by four divers observing 27 species.

All five ARMs were intact and monitored for all indicator species. No *Haliotis* spp. were found in the ARMs this year. *Cypraea spadicea* were abundant at 15/ARM, along with a total of 14 egg masses. This is a large contrast compared to the record low density recorded in quadrats. No *Kelletia kelletii* or *Megastraea undosa* were in the ARMs. *Megathura crenulata* were common with a density of 1.6/ARM, the highest recorded in the ARMs since they were placed at this site in 1993. *Crassedoma giganteum* were abundant at 9.4/ARM, the highest density recorded since 1994. *Patiria miniata* density was the lowest recorded since 1994 at 5.8/ARM. *Pisaster giganteus* density was 1.8/ARM, similar to recent years. One *Pycnopodia helianthoides* was found in the ARM, the first time since 2003, for a density of 0.20/ARM. *Strongylocentrotus franciscanus* density was 24.0/ARM, a large increase from last year and the highest density recorded since 2002. Similarly, *Strongylocentrotus*

purpuratus experienced a large increase from last year to 15.0/ARM, also the highest recorded since 2002. *Parastichopus parvimensis* density <10 cm was 0.8/ARM and density >10 cm was 1.8/ARM.

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

Pelican Bay, Santa Cruz Island

Site #8 SCPB

2008 sampling dates: 7/17, 10/3.

2008 status: Dominated by Strongylocentrotus purpuratus

This site continues to be dominated by *Strongylocentrotus purpuratus*, and remains mostly devoid of macroalgae. However, there were more algae present than in recent years, mostly at the north end. *Macrocystis pyrifera* adults and subadults were common, mostly at the north end of the transect, with densities of 0.010/m² and 0.010/m², respectively. No juveniles were recorded. Forty two *M. pyrifera* plants were measured for size frequencies within the transect area, most were small. This is the first time *M. pyrifera* have been recorded since 1995. *Eisenia arborea* were also recorded for the first time since 1995 with a density of 0.042/m² for adults. No juveniles were present. *Pterygophora californica*, *Laminaria farlowii*, *Desmarestia* spp. and *Gigartina* spp. were not observed during sampling. *Cystoseira* spp. were recorded for the first time since 1993 with a cover of 1.3%. Miscellaneous brown algae cover increased to 4.7%. Miscellaneous red algae were present with a cover of 5.7%. Miscellaneous plants, consisting mostly of filamentous diatoms, had a cover of 1.5%, a large decrease from last year's record high. Articulated coralline algae remained rare and were not recorded during sampling. Encrusting coralline algae cover was 33%, similar to past years. Bare substrate cover was 46%, similar to past years.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover was 6.8%, similar to previous years. *Spirobranchus spinosus* were the most common miscellaneous invertebrate observed on RPCs, with hydroids as a close second. *Diopatra ornata* were present with a cover of 0.83%. *Diaperoecia californica* were rare directly along the transect with no cover recorded, similar to past years. Other bryozoans were rare with a cover of 1.8%, similar to past years. Tunicates remained rare with a cover of 0.17%. Sponges were rare with a cover of 0.17%. *Tethya aurantia* were abundant for this site with a density of 0.032/m², the highest density recorded since 1983. *Balanophyllia elegans* were uncommon with 0.0% cover. *Astrangia lajollaensis* remained abundant with a cover of 9.0%, similar to past years. *Corynactis californica* were uncommon at a cover of 0.0%. *Muricea californica* were uncommon with a density of 0.0014/m². *Lophogorgia chilensis* remained abundant with a density of 0.16/m², similar to the past years.

Strongylocentrotus purpuratus density remained low along the transect, similar to recent years, at 14/m². They were much more abundant inshore of the transect line. *Strongylocentrotus franciscanus* density increased to 4.0/m². Most were less than 60 mm with a mean size of 33 mm. *Lytechinus anamesus* were abundant with a density of 2.8/m², an increase from last year. *Centrostephanus coronatus* were not recorded during sampling. Wasting disease was prevalent among *L. anamesus* with about 10% showing signs of the disease.

Patiria miniata density remained similar to recent years at 0.50/m². *Pisaster giganteus* density was similar to past years. They were sampled on both 1 m quadrats and 5 m quadrats with densities of 0.083/m² and 0.090/m², respectively. No *Pycnopodia helianthoides* were present on band transects and they were rare at the site. No *Ophiothrix spiculata* were observed, similar to past years.

Parastichopus parvimensis decreased from last year's high density to 0.083/m², but this density is more similar to recent years at this site. *Pachythyone rubra* continued to increase from last year's record high to a new high of 8.0% cover. Six *Patiria miniata* were observed with sea star wasting disease.

Crassedoma giganteum density was 0.028/m², a decrease from last year. *Aplysia californica* density decreased to a 12 year low at 0.0014/m². *Megastraea undosa* density continued to be very low for this site with a density of 0.042/m². *Kelletia kelletii* density was 0.0097/m², similar to past years.

Bursa californica appeared to be common at the site, but are not sampled. *Megathura crenulata* were relatively abundant with a density of 0.013/m², the highest density recorded since 1991.

For a site that is dominated by *Strongylocentrotus purpuratus*, the fish at this site continue to be moderately abundant and diverse. *Coryphopterus nicholsii* continued to be the most abundant fish at this site with up to 434 observed during the roving diver fish count and a density of 5.5/m² on 1 m quadrats. Many juvenile *C. nicholsii* were present. Up to 63 *Lythrypnus dalli* were observed during the roving diver fish count with a density of 0.042/m² on 1 m quadrats, a decrease from last year's high. These were primarily adults. *Alloclinus holderi* density remained low at 0.042/m² with up to six *A. holderi* counted during the roving diver fish count. There were up to 16 *Oxylebius pictus* observed. *Chromis punctipinnis* were present with up to 92 adults and no juveniles observed. *Oxyjulis californicus* were common with up to 41 adults and no juveniles observed. *Semicossyphus pulcher* were rare with one female observed. Up to 17 female, no juvenile and 11 male *Halichoeres semicinctus* were observed. *Paralabrax clathratus* were moderately abundant with up to 21 adults enumerated. Up to 18 adult *Hypsypops rubicundus* were observed, similar to past years. *Embiotoca jacksoni* counts were similar to past years with up to 20 adults observed. Similar to past years, no *Embiotoca lateralis* were observed. *Rhacochilus vacca* were rare with two adults observed. This site had very few *Sebastes* spp. present. One adult *Sebastes serranoides* was observed. Up to five adult *Sebastes serripes* were observed. One *Sebastes chrysomelas* was spotted. One adult *Rhacochilus toxotes*, rubberlip surfperch, was observed. One *Lythrypnus zebra*, zebra goby, was observed. Two *Medialuna californiensis*, halfmoon, were observed. One *Balistes polylepis*, finescale triggerfish, was counted for the second year in the row at this site. Up to three *Cephaloscyllium ventriosum*, swell sharks, were counted. Roving diver fish counts were conducted on July 17th with six divers counting 23 species.

All six ARMs were in good shape and sampled for all indicator species. Two *Octopus* spp. were found in the ARMs. No *Haliotis* spp. have been found in the ARMs at this site since 1999. *Cypraea spadicea* density increased to 4.5/ARM, with one juvenile present. *Megastraea undosa* were observed in the ARMs for the second year in a row at a density of 0.67/ARM. *Megathura crenulata* were present at 0.50/ARM, a decrease from last year. *Crassedoma giganteum* density increased to 5.7/ARM. *Patiria miniata* were abundant at 16/ARM, an increase from last year. *Pisaster giganteus*

were present at 0.50/ARM. *Lytechinus anamesus* were observed at 0.67/ARM. *Strongylocentrotus franciscanus* continued to increase in abundance to 20/ARM and the mean size remained similar to last year at 30 mm. *Strongylocentrotus purpuratus* were common at 11/ARM with a mean size of 31 mm. No *Centrostephanus coronatus* have been observed in ARMs at this site since 2000. *Parastichopus parvimensis* density decreased with <10 cm at 0.83/ARM and >10 cm at 1.2/ARM.

The temperature logger and the stake it was bolted to were missing. This bay is a popular anchorage, so this was likely the result of an anchor catching the stake and ripping it out. Several dives were made on two separate occasions to search for the logger stake in the bay, but it was never retrieved. Therefore, there are no temperature data for this site this year. A new stake was installed and temperature loggers were deployed.

Scorpion Anchorage, Santa Cruz Island

Site #9 SCSA

2008 sampling dates: 9/11

2008 status: Dominated by *Strongylocentrotus purpuratus*

This site continued to be dominated by *Strongylocentrotus purpuratus*, but there was a noticeable increase in density of the *Macrocystis pyrifera* at the west end of the transect. The kelp forest at this end consisted mainly of juvenile and subadult *M. pyrifera* with scattered adults and a small kelp canopy. Although there was a notable increase in algae at the west end, the rest of the site remained mostly devoid of macroalgae. Adult *M. pyrifera* density increased to 0.095/m², the highest recorded since 1985. Subadult *M. pyrifera* density was similar to last year at 0.14/m². Juvenile *M. pyrifera* density was 0.13/m². Cover of *M. pyrifera* was 8.3%, the highest recorded for this site. Two juvenile *Laminaria farlowii* were recorded in quadrats for a density of 0.083/m², and no adults were present. Cover for *L. farlowii* was 0.0%. No *Eisenia arborea*, *Pterygophora californica*, *Cystoseira* spp., or *Desmarestia* spp. were recorded during sampling, similar to recent years. Miscellaneous brown algae cover decreased to 1.5%. Green algae were not recorded during sampling. No *Gelidium* spp. or *Gigartina* spp. were recorded during sampling. Miscellaneous red algae cover increased to 12%, the highest recorded at this site. Miscellaneous plants, consisting mostly of filamentous diatoms, had a cover of 3.7%, a decrease from recent years. Articulated coralline algae were rare with a cover of 0.67%. Encrusting coralline algae cover increased to 69%, the highest recorded at this site. Bare substrate cover was 20%, similar to past years.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover remained similar to previous years at 12%. Similar to past years, the most common miscellaneous invertebrate on RPCs was *Spirobranchus spinosus*. No *Diopatra ornata* or *Phragmatopoma californica* were recorded during sampling. *Serpulorbis squamigerus* had a cover of 0.17%. Sponges were rare and none were observed on RPCs, similar to last year. *Tethya aurantia* were relatively abundant at 0.051/m², the highest density recorded at this site. Tunicates were rare with a cover of 0.67%, similar to past years. Miscellaneous bryozoans remained rare with a cover of 1.7%. *Corynactis californica* and *Astrangia lajollaensis* were rare with none recorded during sampling. *Balanophyllia elegans* were recorded at 0.50%, similar to past years. Several *Lophogorgia chilensis* were observed along the transect for a density of 0.0014/m², similar to recent years. No *Muricea californica* or *Muricea fruticosa* were recorded during sampling.

Strongylocentrotus franciscanus density was $4.6/\text{m}^2$, the highest recorded since 1986. Juvenile *S. franciscanus* were present, though rare. *Strongylocentrotus purpuratus* continued to dominate this site along the first 70 meters of the transect. However, there was a moderate decrease in density to $28/\text{m}^2$, the lowest recorded since 1999. Juvenile *S. purpuratus* were present. No *Centrostephanus coronatus* were recorded during sampling but were observed at the site. *Lytechinus anamesus* were rare with a density of $0.0014/\text{m}^2$, similar to recent years. Approximately 1% of *S. purpuratus* appeared to have sea urchin wasting disease.

Pisaster giganteus were counted on 1 m quadrats and 5 m quadrats with densities of $0.042/\text{m}^2$ and $0.060/\text{m}^2$, respectively, similar to recent years. *Patiria miniata* density remained similar to recent years at $0.17/\text{m}^2$. *Parastichopus parvimensis* density was $0.54/\text{m}^2$, similar to recent years. No *Ophiothrix spiculata* or *Pachythyone rubra* were recorded during sampling. No *Pycnopodia helianthoides* were recorded during sampling. At least five *Patiria miniata* were observed with sea star wasting disease.

Aplysia californica were moderately abundant at $0.024/\text{m}^2$, similar to recent years. Many *A. californica* appeared unhealthy, and several were found dead. *Megastrea undosa* density remained low for the fifth consecutive year at $0.25/\text{m}^2$, with a wide range of sizes present. *Megathura crenulata* were abundant at $0.14/\text{m}^2$, the highest density recorded since 1987. *Cypraea spadicea* density decreased to $0.042/\text{m}^2$, the lowest density recorded since 1996. *Crassidoma giganteum* density increased from last year's low to $0.049/\text{m}^2$, with a wide range of sizes present. No *Kelletia kelletii* were recorded during sampling. *Tegula regina* were present, but also not recorded during sampling. One fresh *Haliotis corrugata* shell was found and measured 30 mm. *Panulirus interruptus* were common at $0.022/\text{m}^2$, with a wide range of sizes present. There were noticeably more large *P. interruptus* than we have seen in recent years.

For a site dominated by sea urchins the fish here were moderately diverse and abundant. In addition, fish appear to be increasingly abundant relative to several years ago. *Coryphopterus nicholsii* were the most abundant fish at this site with up to 302 observed. The density of *C. nicholsii* decreased from last year to $1.6/\text{m}^2$. *Alloclinus holderi* were present with a density of $0.042/\text{m}^2$ and up to six observed during the roving diver fish count, similar to recent years. One *Lythrypnus dalli* was observed during the roving diver fish count but none were recorded on quadrats. *Oxylebius pictus* were common with up to 16 observed, similar to last year. *Chromis punctipinnis* were relatively rare with up to 17 adults and 25 juveniles observed. *Oxyjulis californica* were common with up to 40 adults and five juveniles observed. One female, one juvenile and no male *Semicossyphus pulcher* were observed. Eight female, no juvenile and five male *Halichoeres semicinctus* were observed. Up to 11 adult *Hypsypops rubicundus* were observed. *Paralabrax clathratus* were abundant with up to 28 adults and no juveniles observed. Up to 23 adult *Girella nigricans* were observed. *Embiotoca jacksoni* were common with up to 25 adults observed. Three adult and one juvenile *Rhacochilus vacca* were observed. Up to seven adult and 14 juvenile *Sebastes atrovirens* were observed. The juveniles were all located near the *Macrocystis pyrifera* forest at the west end. Three adult *Sebastes serranoides* and one adult *Sebastes serripes* were observed. One *Sebastes chrysomelas*, black and yellow rockfish, was observed. One *Sebastes caurinus*, copper rockfish, was observed. One *Sebastes*

auriculatus, brown rockfish, were observed. One *Sebastes caurinus*, copper rockfish, was observed. Up to 11 KGB were counted. Up to four of *Brachyistius frenatus*, kelp surfperch, were observed. Two adult *Medialuna californiensis*, halfmoon, were observed. One *Myliobatis californica*, bat ray, was counted. Three adult *Heterodontus francisci*, horn shark, were observed. One *Paralabrax nebulifer*, barred sandbass, was recorded for the second consecutive year; these are rare at the Channel Islands. Three *Caulolatilus princeps*, ocean whitefish, were recorded. Roving diver fish counts were conducted on September 11th by four divers observing 31 species.

All seven ARMs were monitored for all indicator species. Two of the ARMs were found upside down with one buried two brick layers in the sand. Another ARM had one layer of bricks buried in the sand. No *Octopus* spp. were observed in the ARMs. One 32 mm *Haliotis corrugata* was observed at 0.14/ARM. This is the second consecutive year this species has been found in the ARMs, indicating a small amount of recruitment. *Cypraea spadicea* density decreased to 12/ARM, the lowest density since 2001. One *C. spadicea* had juvenile morphology. No *Megastrea undosa* were present in the ARMs for the second consecutive year. *Megathura crenulata* were present at a density of 0.57/ARM. *Crassidoma giganteum* density was 3.0/ARM. One *Patiria miniata* was present at 0.14/ARM, similar to recent years. *Pisaster giganteus* were relatively abundant at 2.0/ARM, the highest recorded density at this site. One *Pycnopodia helianthoides* was found for a density of 0.14/ARM. *Strongylocentrotus franciscanus* density decreased to 9.3/ARM, with an average size of 42 mm. *Strongylocentrotus purpuratus* density increased for the fourth consecutive year to 100/ARM, the highest density recorded since 1995. Average size for *S. purpuratus* was 35 mm. Two *S. purpuratus* were observed with sea urchin wasting disease. *Parastichopus parvimensis* <10 cm were common with 2.6/ARM and those >10 cm were at a record high of 11/ARM.

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

Yellow Banks, Santa Cruz Island

Site #10 SCYB

2008 sampling dates: 9/29, 9/30

2008 status: Mature kelp forest

Overall, algae were less abundant at this site this year. Overall the kelp appeared healthy. Most of the *M. pyrifera* individuals were large, widely spaced plants creating low light conditions on the bottom. Urchin density increased, with patches of *Strongylocentrotus franciscanus* and *Strongylocentrotus purpuratus* observed at the site.

Adult *Macrocystis pyrifera* density was recorded at 0.12/m², a decrease from last year. Subadult and juvenile densities also decreased to 0.020/m² and 0.083/m², respectively. Cover of *M. pyrifera* decreased to 4.5%, the lowest cover since 2002. No *Eisenia arborea* or *Pterygophora californica* were recorded during sampling though adults of both species were present. *Laminaria farlowii* adults were present in low numbers with a cover of 0.17%, and none recorded in quadrats. A few individual *Cystoseira* spp. were present for a cover of 1.3%. No *Desmarestia* spp. were recorded during sampling. No *Gigartina* spp. or *Gelidium* spp. were recorded during sampling. No Green algae or miscellaneous brown algae were recorded during sampling. Miscellaneous red algae were present at

8.7%, similar to last year. This category consisted mainly of filamentous red algae. There were less foliose red algae than in past years. Encrusting coralline algae were abundant with a cover of 32%, similar to past years. Articulated coralline algae cover decreased from last year to 3.3%. Miscellaneous plants, consisting mainly of filamentous diatoms, were not recorded during sampling. Bare substrate cover increased to 36%, the highest since 2002.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover continued to decrease for the fourth consecutive year to 4.0%. The most dominant miscellaneous invertebrates in this category were gorgonians. Miscellaneous bryozoans cover remained similar to last year at 19%. *Diaperoecia californica* cover was 0.67%, similar to past years. Tunicates were present at 1.7% cover. Sponges were present at 1.0% cover. *Tethya aurantia* were abundant at a density of 0.16/m², the highest density recorded at this site. No *Corynactis californica* or *Balanophyllia elegans* were recorded during sampling. *Astrangia lajollaensis* were present at a cover of 1.3%. *Lophogorgia chilensis* was present at a density of 0.071/m², similar to recent years. Small, <10cm, *L. chilensis* were common, indicative of recent recruitment. *Muricea fruticosa* density was 0.0028/m². *Muricea californica* were common at a density of 0.018/m², similar to past years.

Strongylocentrotus franciscanus were patchy and more abundant than in recent years at 1.4/m², the highest density recorded since 2001. *Strongylocentrotus purpuratus* were patchy as well and also had the highest recorded density since 2001 at 11/m². Both *S. purpuratus* and *S. franciscanus* had high densities in the crevice habitat. Juveniles of both species were present mostly under rocks. *Lytechinus anamesus* were relatively uncommon at a density of 0.49/m². No *Centrostephanus coronatus* were observed on quadrats for the sixth consecutive year. Several *L. anamesus* were observed with wasting disease.

Pisaster giganteus were sampled on 1 m quadrats and 5 m quadrats with densities of 0.17/m² and 0.025/m², respectively, similar to recent years. *Patiria miniata* remained abundant for the second consecutive year at a density of 2.1/m². There were 60 *P. miniata* measured for size frequencies with a mean size of 59 mm. *Pycnopodia helianthoides* were abundant this year and were heavily preying on *Strongylocentrotus purpuratus* as observed by piles of whole tests often directly under or trailing behind the sea stars. Their density was the highest recorded at this site at 0.043/m². A total of 53 *P. helianthoides* were found for size frequencies and almost all were greater than 200 mm for a mean size of 259 mm. Several *Dermasterias leviuscula* were observed. *Ophiothrix spiculata* were not recorded during sampling. No *Parastichopus parvimensis* were present at 0.083/m². One *D. leviuscula* was observed with wasting disease.

No *Haliotis* spp. were found along the transect though one old *Haliotis assimilis* shell of 134 mm and one semi-fresh *Haliotis rufescens* shell at 64 mm were found. *Megastrea undosa* density remained low at 0.083/m², and consisted mainly of larger individuals. Two *Astraea gibberosa* were measured for size frequencies with a mean of 63 mm, but none were observed on quadrats. *Tegula regina* were rare at a density of 0.042/m². *Cypraea spadicea* were not recorded during sampling. *Kelletia kelletii* were rare at a density of 0.042/m², similar past years. *Megathura crenulata* remained relatively uncommon at a density of 0.013/m². *Crassidoma giganteum* density was 0.0028/m², similar to recent years. No *Aplysia californica* were observed.

Fish were less abundant and diverse than in recent years. *Coryphopterus nicholsii* were common with up to 160 observed and a density of 1.1/m². *Alloclinus holderi* were rare with none observed during quadrats or the roving diver fish count. *Oxylebius pictus* were common with up to 19 observed, similar to last year. *Chromis punctipinnis* were not observed during the roving diver fish count. *Oxyjulis californica* were common with up to 33 adults and no juveniles observed. One female, no juvenile and three male *Halichoeres semicinctus* were observed. *Paralabrax clathratus* were more abundant than in recent years with up to 17 adults observed. No *Girella nigricans* were observed. No *Embiotoca jacksoni* were observed. One adult and no juvenile *Rhacochilus vacca* were observed. Several *Sebastes* spp. recruits were present, though in low numbers. Up to 14 adult and 17 juvenile *Sebastes atrovirens* were observed. Many of the adults appeared to be from last year's cohort of recruits. Three adult and two juvenile *Sebastes serranoides* were observed. No *Sebastes mystinus* were observed. Two adult and one juvenile *Sebastes serripes* were observed. Up to six adult and two juvenile *Sebastes miniatus*, vermillion rockfish, were observed. Two adult and two juvenile *Sebastes caurinus*, copper rockfish, were observed. One *Sebastes chrysomelas*, black and yellow rockfish, was observed. One adult and one juvenile *Sebastes carnatus*, gopher rockfish, were observed. Three KGB were observed. Up to 22 *Brachyistius frenatus*, kelp surfperch, were observed underneath the kelp canopy. A school of up to 45 *Atherinops affinis*, topsmelt, was observed. One *Rhacochilus toxotes*, rubberlip surfperch, was observed. Roving diver fish counts were conducted on September 29th by four divers observing 21 species.

Along this transect there are three groups with five ARMs in each group. Over the last several years this site has become a mature kelp forest and a decline in *Strongylocentrotus* spp. densities has been observed in quadrats as has a shift in sea urchin habitat preference from being out in the open to the current usage of crevice habitat. The ARMs function as excellent crevice habitat and as expected, we are observing much higher densities of sea urchins inside the ARMs as compared to outside. Due to the high number of *Strongylocentrotus* spp. in the ARMs and the increase in bottom time required to sample at this site, we did not sample all ARMs for *Strongylocentrotus* spp. this year. A total of six ARMs were monitored for all indicator species (two from each of the three groups of five) and the remaining nine ARMs were sampled for all indicator species excluding *Strongylocentrotus* spp. Four cages were replaced.

No *Haliotis* spp. were observed in the ARMs this year. *Cypraea spadicea* density was 5.7/ARM, similar to recent years. No *Tegula regina*, *Megastrea undosa*, or *Kelletia kelletii* were observed in the ARMs. *Megathura crenulata* density continued to slowly increase and had a density of 0.80/ARM. *Crassidoma giganteum* density was 0.60/ARM, a decrease from last year. Two *Octopus* spp. were observed in the ARMs. *Strongylocentrotus franciscanus* density decreased from last year's high down to 88/ARM. The mean size for *S. franciscanus* was 27 mm, similar to past years. *Strongylocentrotus purpuratus* density increased dramatically to 470/ARM, the highest recorded in ARMs at this site. The mean size remained similar to last year at 31 mm. *Parastichopus parvimensis* <10 cm and >10 cm were observed at 1.7/ARM and 0.67/ARM, respectively. Three *Parastichopus californicus* were present the ARMs this year. We do not monitor *P. californicus* in the ARMs, but the current staff has been keeping notes on this species over the past few years. *Patiria miniata* density was 6.5/ARM, similar to recent years. Mean size was 20 mm, a decrease from last year.

Pisaster giganteus density decreased for the fourth consecutive year to 1.6/ARM. Mean size increased to 25 mm.

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

Admirals Reef, Anacapa Island

Site # 11 ANAR

2008 sampling dates: 6/4, 8/25

2008 status: Dominated by *Ophiothrix spiculata*

Overall, there was little change at this site since last year. Most of the transect is devoid of macroalgae. However, there were some *Macrocystis pyrifera* and *Eisenia arborea* present on the tops of rocks at the western end of the transect. *Macrocystis pyrifera* were rare directly along the transect with no adults, subadults or juveniles recorded. *Eisenia arborea* were rare with no adults or juveniles recorded. *Pterygophora californica* and *Laminaria farlowii* were absent from the transect this year, similar to recent years. *Cystoseira* spp. was absent for a cover of 0.0%, similar to last year. Miscellaneous red algae cover continued to decrease for the fourth consecutive year, from 35% starting in 2005 to 9.5% this year. *Gigartina* spp. were not recorded on RPCs. Green algae cover was 0.33%, similar to last year. Encrusting coralline algae were very abundant at 52% cover, similar to last year. Miscellaneous plants, i.e. filamentous diatoms, were rare at 3.7% cover, but appeared to be more abundant on our second visit. Bare substrate cover was 21%, an increase from last year.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover was 22%, an increase from last year. Most of the category consisted of *Spirobranchus spinosus* and the gorgonian, *Eugorgia rubens*. Miscellaneous bryozoans decreased to a cover of 4.7%. *Diaperoecia californica* were present on the steep slopes of large rocks but were not recorded on RPCs for a cover of 0.0%. Tunicates increased in cover to 2.3%. Sponges were present at 1.5% cover. *Tethya aurantia* density was 0.059/m², a decrease from last year. *Corynactis californica* remained common with a cover of 2.8%. *Astrangia lajollaensis* cover remained low at 0.50%. Similarly, *Balanophyllia elegans* remained rare and none were observed on RPCs. Gorgonians were relatively abundant. *Lophogorgia chilensis* density was 0.046/m², similar to recent years. *Muricea fruticosa* and *Muricea californica* remained relatively abundant with densities of 0.0028/m² and 0.024/m² respectively. The gorgonian *Eugorgia rubens* were abundant as usual for this site, especially on the west end of the transect.

Echinoderm densities remained high with *Ophiothrix spiculata* being the most abundant and covering 47% of the bottom, similar to recent years. Sea urchin densities remained similar to last year. *Strongylocentrotus franciscanus* density was recorded at 8.5/m², similar to recent years. *Strongylocentrotus purpuratus* density was 5.7/m², similar to recent years. There was little recruitment of both these species. *Lytechinus anamesus* remained rare with a density of 0.019/m². *Centrostephanus coronatus* density remained relatively high at 0.75/m², similar to past years at this site. At most sites where *C. coronatus* recruited during the 1997/1998 El Niño we have observed recent declines. However, at this site the density has remained stable over the last several years. Sea urchin wasting disease was observed in approximately 1% of *S. purpuratus* and *S. franciscanus* during our visits on June 4th and August 25th.

Pisaster giganteus were sampled on 1 m quadrats and 5 m quadrats and remained relatively abundant with densities of 0.042/m² and 0.045/m², respectively. *Patiria miniata* remained relatively abundant at this site for the fifth consecutive year with a density of 2.0/m². No *Pycnopodia helianthoides* were observed, similar to last year. *Parastichopus parvimensis* density decreased to the lowest density recorded at this site since monitoring began in 1982 at 0.29/m². No sea star wasting disease was observed.

No *Haliotis corrugata* were observed along the transect for the ninth consecutive year. *Megastrea undosa* were uncommon with none observed on quadrats. *Crassedoma giganteum* were uncommon with a density 0.021/m², a decrease from last year. *Megathura crenulata* were relatively abundant with a density of 0.085/m², an increase from last year. *Aplysia californica* density was 0.013/m², similar to last year, and relatively low for this site. *Kelletia kelletii* density decreased to 0.0028/m², the lowest recorded in five years. *Cypraea spadicea* were uncommon at a density of 0.042/m², similar to recent years. *Panulirus interruptus* were present at 0.0014/m².

Overall, Fish were similarly diverse, but less abundant than last year. *Coryphopterus nicholsii* were less abundant than last year at a density of 1.8/m² and up to 390 observed during the roving diver fish count. *Alloclinus holderi* density was 0.13/m² with up to nine observed, similar to last year. Up to three *Lythrypnus dalli* were observed on the roving diver fish count but none were recorded on quadrats. *Oxylebius pictus* were present with up to 17 counted. Up to 12 female, three juvenile and no male *Semicossyphus pulcher* were observed. While ARMs were being sampled, up to 25 small female *S. pulcher* were observed in the vicinity, though these were not all observed during the roving diver fish count. Adult *Chromis punctipinnis* were the most abundant fish at this site with up to 925 observed. Adult *Oxyjulis californica* were rare with up to nine adults observed. Eight female, no juvenile and one male *Halichoeres semicinctus* were observed. Up to four adult *Paralabrax clathratus* were observed. *Girella nigricans* were present with up to three observed. *Hypsypops rubicundus* were present with up to seven observed, similar to last year. *Embiotoca jacksoni* were present with up to six adults and no juveniles observed. One adult and no juvenile *Rhacochilus vacca* were observed. No adult and two juvenile *Sebastes mystinus* were recorded. Up to eight adult and no juvenile *Sebastes atrovirens* were observed. *Sebastes serriceps* were common with up to seven adults and one juvenile observed. One *Sebastes chrysomelas*, black and yellow rockfish, was observed. One *Scorpaena guttata*, California scorpionfish, was observed. One *Rhacochilus toxotes*, rubberlip surfperch, was observed. Up to five *Lythrypnus zebra*, zebra goby, were observed. One *Gymnothorax mordax*, California moray eel, was observed. Roving diver fish counts were conducted on June 4th by four divers counting 21 species.

All six ARMs at this site were monitored for all indicator species. Three cages were replaced. No *Haliotis* sp. were present. No *Cypraea spadicea* were present. *Megathura crenulata* density was 1.8/ARM, similar to last year. *Crassedoma giganteum* density was 0.5/ARM, similar to recent years, but remained low compared to the 1990s. *Tegula regina* were present at a density of 0.83/ARM, a decrease from last year. *Patiria miniata* density was 15/ARM, similar to past years, with small individuals present. No *Pisaster giganteus* were observed in the ARMS for the second consecutive year. *Lytechinus anamesus* remained rare with none observed in the ARMs for the sixth consecutive

year. *Strongylocentrotus franciscanus* density was recorded at 16/ARM, similar to last year. *Strongylocentrotus purpuratus* density was 28/ARM, an increase from last year. Juvenile *S. purpuratus* were present. *Parastichopus parvimensis* density >10 cm and <10 cm were 0.5/ARM and 0.17/ARM, respectively, and similar to last year.

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

Cathedral Cove, Anacapa Island

Site #12 ANCC

2008 sampling dates: 5/14, 7/16, 8/19

2008 status: Mature kelp forest

This site continued to have an abundance of kelp, and appeared to have increased from recent years. *Macrocystis pyrifera* were abundant along the entire transect. Adult density was 0.17/m², a decrease from last year and a trend that normally occurs as a kelp forest matures. Subadult density increased to 0.63/m². Juvenile density was similar to last year at 5.7/m². Cover of *M. pyrifera* decreased to 17%. Adult *Eisenia arborea* density remained unchanged at 0.042/m², while juveniles increased to 0.21/m², the highest recorded at this site. Cover of *E. arborea* remained similar to previous years at 1.2%. Adult *Laminaria farlowii* density increased to the highest level recorded at this site at 6.6/m². Juvenile density remained similar to last year's record high at 22/m². Cover of *L. farlowii* decreased from last year's record high but remained high at 26%. *Cystoseira* spp. remained abundant with a cover of 22%, a decrease from last year's high. No *Pterygophora californica* or *Desmarestia* spp. were observed at the site. Miscellaneous brown algae cover continued to decrease for the fourth consecutive year to 1.7%. No *Gelidium* spp. or *Gigartina* spp. were recorded. Miscellaneous red algae cover decreased from last year's high down to 5.0%, similar to past years. This category consisted mainly of *Plocamium* spp. Green algae cover was 0.0%. Miscellaneous plants cover was 0.0%. Articulated coralline algae cover decreased to 17%. Encrusting coralline algae cover decreased to 13%, the lowest recorded at this site. Bare substrate cover increased to 31%, the highest recorded since 1991.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover was 9.7%, similar to recent years. The most abundant invertebrate in this category was *Clavularia* sp. Miscellaneous bryozoans remained abundant with a cover of 29%. *Diaperoecia californica* cover was 0.67%, similar to past years. Sponges were present on the large rocks but were rare along the transect with a cover of 0%. *Tethya aurantia* were rare at a density of 0.0028/m². Tunicates remained abundant with a cover of 7.8%, similar to recent years. The most abundant tunicate was *Pycnoclavella* sp. *Diopatra ornata* were relatively abundant at 4.2% cover, the highest recorded at this site. *Phragmatopoma californica* were present at 0.67% cover. *Astrangia lajollaensis* was present this year at 0.67%. *Corynactis californica* and *Balanophyllia elegans* were not recorded during sampling. No gorgonians were recorded during sampling, similar to past years.

Strongylocentrotus franciscanus and *Strongylocentrotus purpuratus* densities were similar to the last several years at 4.3/m² and 1.7/m², respectively. A wide range of sizes were present for *Strongylocentrotus* spp. and juveniles were common. The mean size of *S. franciscanus* increased

from 64 mm last year to 73 mm this year. The mean size of *S. purpuratus* decreased from 36 mm to 27 mm. *Centrostephanus coronatus* were present at 0.042/m². No sea urchin wasting disease was observed. However, one *S. purpuratus* found in one of the ARMs had black spot disease.

Pisaster giganteus and *Patiria miniata* were not recorded during sampling and were rare at the site overall, similar to previous years. No *P. miniata* were located for size frequencies. Twelve *P. giganteus* were measured for a mean size of 114 mm. No *Ophiothrix spiculata* were recorded during sampling. *Ophiopteris papillosa* and *Ophioderma panamense* were common, similar to past years. *Parastichopus parvimensis* were common at a density of 0.83/m², similar to past years, with several juveniles noted. No sea star wasting disease was observed.

Megastraea undosa were common at 1.5/m², similar to past years. *Crassidoma giganteum* were rare at 0.031/m², similar to recent years. No *Aplysia californica* were observed. *Megathura crenulata* density remained relatively abundant and similar to recent years at 0.033/m². *Cypraea spadicea* were rare at 0.042/m². Several *C. spadicea* were observed brooding on May 14th. *Kelletia kelletii* were rare with none recorded during sampling. However, a few juveniles were noted at the site. *Tegula regina* were rare with none recorded during sampling. *Panulirus interruptus* continued to increase in density for the fourth consecutive year to 0.042/m², the highest density recorded since 1993. There were some notably large *P. interruptus* observed at this site which is in the marine reserve, similar to the past few years.

Similar to past years, fish were abundant and diverse. *Coryphopterus nicholsii* were present at a density of 0.25/m² with up to 14 observed during the roving diver fish count, similar to recent years. *Alloclinus holderi* were present at a density of 0.54/m² with up to 21 observed during the roving diver fish count. One *Lythrypnus dalli* was observed during the roving diver fish count, but none were recorded on quadrats. *Oxylebius pictus* were present with four observed. *Chromis punctipinnis* were the most abundant fish at the site with up to 286 adults and five juveniles observed. *Oxyjulis californica* were abundant with up to 78 adults and 39 juveniles observed. Up to seven female, one juvenile and two male *Semicossyphus pulcher* were observed. Up to six female, no juvenile and six male *Halichoeres semicinctus* were observed. Up to eight adult and one juvenile *Hypsypops rubicundus* were observed. *Paralabrax clathratus* were common with up to 13 adults and one juvenile observed. *Embiotoca jacksoni* were common with up to 11 adults and 23 juveniles observed. One adult and seven juvenile *Rhacochilus vacca* were observed. Up to 14 *Girella nigricans* were observed. Up to 14 adult and two juvenile *Sebastes atrovirens* were observed. One adult and seven juvenile *Sebastes serranoides* were observed. Three adult and 10 juvenile *Sebastes serriceps* were observed. Up to four adult and 12 juvenile *Sebastes paucispinis*, bocaccio, were observed. Up to 45 KGB were counted. One adult *Medialuna californiensis*, halfmoon, was observed. *Brachyistius frenatus*, kelp surfperch, were abundant in the areas with thicker kelp canopy with up to 72 observed. Up to three adult and 138 juvenile *Heterostichus rostratus*, giant kelpfish, were observed. Up to 80 *Cymatogaster aggregata*, shiner surfperch, were observed. One *Scorpaena guttata*, California scorpionfish, was present. The roving diver fish counts were conducted on July 16th by five divers counting 26 species.

All seven ARMs were monitored for all indicator species. ARM #2347 was missing the lid and was replaced with the new number tag #2476. ARM #2350 was found upside down. Three *Octopus* spp. were found in the ARMs this year. Seven *Haliotis corrugata* were observed for a density of 1.0/ARM, the highest recorded at this site since we began monitoring the ARMs here in 1992. *Cypraea spadicea* increased to the highest density recorded at 20/ARM. *Megastrea undosa* density was 0.86/ARM, similar to past years. *Crassidoma giganteum* density was 2.3/ARM, a decrease from last year. *Kelletia kelletii* were rare with a density of 0.29/ARM, similar to past years. *Megathura crenulata* were present at a density of 0.14/ARM, similar to past years. *Patiria miniata* density remained high at 10/ARM. *Pisaster giganteus* density was the same as last year at 3.6/ARM. *Strongylocentrotus franciscanus* density was 69/ARM similar to last year. *Strongylocentrotus purpuratus* density increased to 160/ARM, the highest recorded since 2000. One *S. purpuratus* at 32 mm had black spot disease. *Centrostephanus coronatus* were observed at 0.29/ARM, similar to recent years. *Parastichopus parvimensis* juveniles increased while adults continued to decrease for the second year. Small <10 cm and large >10 cm densities were 11/ARM and 2.7/ARM, respectively.

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

Landing Cove, Anacapa Island

Site #13 ANLC

2008 sampling dates: 7/15, 8/27

2008 status: Mature kelp forest

Overall, the site was similar to recent years. The site was a mature kelp forest with a thick understory of brown and red algae. 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 *Macrocystis pyrifera* densities were 0.16/m², 0.50/m², and 6.8/m², respectively, and cover was 14%. Adult density increased from last year. The number of subadult plants increased while juvenile density decreased. Adult *Eisenia arborea* were recorded at 1.9/m², the highest density recorded for this species since they were added to quadrats in 1996. Juvenile *E. arborea* density decreased to 0.58/m². Cover of *E. arborea* remained high at 30%, the highest recorded at this site. *Pterygophora californica* remained relatively abundant with adults and juveniles at 0.79/m² and 1.3/m², respectively. Cover of *P. californica* was relatively high but had decreased from last year's high to 8.1%. *Laminaria farlowii* remained at high density across nearly the entire transect with adults and juveniles at 8.3/m² and 42/m², respectively, the highest adult density recorded at this site. Cover of *L. farlowii* decreased from last year's record but remained high at 37%. *Cystoseira* spp. were common with a cover of 3.7%. Miscellaneous brown algae cover decreased to 1.7%. Miscellaneous red algae cover decreased from last year's high to 18%. *Gelidium* spp. cover was 15%, similar past years. All of the *Gelidium* spp. were present on top of the reef at the eastern end of the transect, similar to past years. *Gigartina* spp. were present at a cover of 0.17%, similar to past years. Green algae cover was 0.33%. Miscellaneous plants cover was 0%. Articulated coralline algae cover was 12%, similar to previous years. Encrusting coralline algae cover was 18%, the lowest recorded at this site. Bare substrate cover increased to 23%, higher than the past several years.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover increased to 14%. The most common invertebrates in this category were hydroids, mainly *Obelia* sp., and *Sertularia* sp. Sponges were moderately abundant in high relief areas at 4.3% cover, similar to past years. *Tethya aurantia* were relatively abundant for this site at a density of 0.013/m², the highest recorded at this site. Miscellaneous bryozoans were abundant, growing on algae and on the substrate, with a cover of 20%. *Membranipora* sp. were notably abundant. *Diaperoecia californica* were abundant on top of the reef with a cover of 7.7%, the highest recorded at this site. *Diopatra ornata* cover was 0.50%. *Phragmatopoma californica* cover was 0.17%. *Serpulorbis squamigerus* were present at 1.0% cover. Tunicate cover was 4.5%, similar to past years. Overall, gorgonians were rare, similar to past years. *Lophogorgia chilensis* and *Muricea californica* were recorded at densities of 0.0028/m² and 0.0028/m², respectively. No *Muricea fruticosa* were recorded during sampling. *Corynactis californica* cover decreased to a record low at 0.17%. *Astrangia lajollaensis* cover was low at 0.33%, and those observed appeared unhealthy. *Balanophyllia elegans* were not observed, similar to past years. The low cover of cup corals may be due to the high algae cover on the benthos.

Strongylocentrotus franciscanus density decreased to 1.9/m², the lowest recorded since 1992. Tests of *S. franciscanus* were common and appeared to be a result of predation as well as black spot disease, although the number of tests bearing the mark of black spot disease was not as high as in recent years. *Strongylocentrotus purpuratus* density was similar to recent years at 1.9/m². Juvenile *S. franciscanus* and *S. purpuratus* were common under the spine canopy of large *S. franciscanus*, but appeared less abundant than in recent years. The mean sizes of *S. franciscanus* and *S. purpuratus* individuals tends to be high at this site, but decreased from last year to 67 mm and 29 mm, respectively. *Centrostephanus coronatus* were present but not recorded during sampling. No *Lytechinus anamesus* were recorded during sampling. Wasting disease was observed in approximately 1% of *S. franciscanus* and *S. purpuratus*. One *S. franciscanus* found in the ARMs appeared to have black spot disease.

Patiria miniata were rare as usual for this site and were not observed on quadrats. However, many were present in the ARMs, see below. *Pisaster giganteus* were common, and were recorded on 1 m quadrats and 5 m quadrats with densities of 0.042/m² and 0.035/m², respectively. *Ophiothrix spiculata* were rare, and were not recorded during sampling. No *Pycnopodia helianthoides* were recorded during sampling. *Parastichopus parvimensis* were present with a density of 0.75/m², similar to past years. No sea star wasting disease was observed.

Halotis corrugata were present at a density of 0.0056/m². This is the highest density recorded since 1999, but is a sampling artifact that overestimated their overall abundance since all four *H. corrugata* we observed at the site were counted on the randomly-placed band transects. The four adult *H. corrugata* observed at the site this year measured 102 mm, 151 mm, 153 mm, and 160 mm. *Panulirus interruptus* were moderately abundant at 0.028/m², and many were notably large or at least legal size.

Crassedoma giganteus remained abundant at 0.23/m², similar to past years. *Aplysia californica* were rare at a density of 0.0014/m², similar to past years. *Megathura crenulata* were rare at 0.024/m², similar to past years. *Kelletia kelletii* were rare at 0.0014/m², a decrease from last year. *Megastrea*

undosa were rare at 0.29/m², similar to recent years. Many crushed *M. undosa* shells were observed indicating recent predation. *Cypraea spadicea* were rare at 0.042/m², similar to past years.

Similar to past years, fish were abundant and diverse. *Coryphopterus nicholsii* density remained low at 0.083/m², and up to 35 observed, an increase from last year. *Alloclinus holderi* density was 0.33/m², and up to 25 were observed, an increase from last year. *Lythrypnus dalli* were not observed on quadrats but up to 38 were observed during the roving diver fish count. Up to 17 *Oxylebius pictus* were observed. *Chromis punctipinnis* were the most abundant fish at the site with up to 410 adults and three juveniles observed. Up to 91 adult and five juvenile *Oxyjulis californica* were observed. *Semicossyphus pulcher* were less abundant than in past years with up to four females, one juvenile and two males observed. One female *S. pulcher* was observed with tag. These fish were tagged by a project led by Dr. Jenn Caselle at UCSB. *Halichoeres semicinctus* were present with one female, no juvenile and four males observed. *Paralabrax clathratus* were common with up to 18 adults observed. *Hypsypops rubicundus* were moderately abundant with up to 12 adults observed. *Girella nigricans* were present with a total of eight counted. Up to 11 adult and eight juvenile *Embiotoca jacksoni* were observed. Four *Embiotoca lateralis* were observed. This is one of the more common places to observe this species at the eastern islands where these are typically rare. One adult and two juvenile *Rhacochilus vacca* were observed. Up to four adult *Sebastes atrovirens* were observed. Up to three adult and eight juvenile *Sebastes serriceps* were observed. Two *Sebastes chrysomelas*, black and yellow rockfish, were observed. One *Sebastes rastrelliger*, grass rockfish, was observed. Up to seven *Lythrypnus zebra*, zebra goby, were observed. Up to three *Hypsurus caryi*, rainbow surfperch, were observed. Up to five *Brachyistius frenatus*, kelp surfperch, were observed. Four *Cymatogaster aggregata*, shiner perch, were observed. Nine KGBs were observed. Up to 11 *Medialuna californiensis*, halfmoon, were observed. Two *Stereolepis gigas*, black sea bass, were seen at the site, but not during the roving diver fish count. Roving diver fish counts were conducted on July 15th by four divers observing 29 species.

Six of the seven ARMs were sampled for all indicator species. The seventh ARM, # 2374, was completely missing. The empty cage was found at a later date west of the dock at least 200 meters away. This ARM was not replaced. Two bricks and the lid were missing from ARM# 2412. The lid was replaced along with the new number tag #2475.

Two *Haliotis corrugata* were observed in the ARMs for a density of 0.33/ARM and were measured at 35 mm and 60 mm. It is unlikely that these were the same abalone found in the ARMS last year since one is smaller in size and there is only a small size difference in the other, less than one would expect for a year's worth of growth. *Cypraea spadicea* were more abundant this year and one juvenile was noted. The density of *C. spadicea* in the ARMs was 8.2/ARM. *Megastrea undosa* density was 0.83/ARM, a decrease from last year. *Tegula regina* were not present in the ARMs. *Kelletia kelletii* density was similar to last year at 0.17/ARM. *Megathura crenulata* density was low at 0.17/ARM. *Crassedoma giganteum* density was 5.0/ARM, the highest recorded since 1996. *Patiria miniata* density was similar to last year at 5.5/ARM. *Pisaster giganteus* density was 1.7/ARM, similar to last year. *Strongylocentrotus franciscanus* density remained high at 62/ARM, a decrease from recent years. One *S. franciscanus* appeared to have black spot disease.

Strongylocentrotus purpuratus density was 180/ARM similar to recent years. One *Strongylocentrotus purpuratus* in the ARMs appeared to have wasting disease. *Parastichopus parvimensis* density <10 cm increased to 4.2/ARM, and *P. parvimensis* >10 cm continued to decrease for the fourth consecutive year to 1.0/ARM.

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

Southeast Sea Lion Rookery, Santa Barbara Island

Site #14 SBSESL

2008 sampling dates: 6/23, 6/24, 11/5

2008 status: Dominated by *Ophiothrix spiculata*, *Strongylocentrotus purpuratus* and *S. franciscanus*

This site was nearly devoid of macroalgae, similar to last year. There were no *Macrocystis*, *Laminaria*, *Pterygophora*, *Eisenia*, *Desmarestia*, or *Cystoseira* present, similar to recent years. There were a few *Gigartina* sp. observed growing epiphytically on a *Muricea californica* (a common observation at this site in recent years). Miscellaneous brown algae were not observed on RPCs, same as last year, but some *Dictyota/Pachydictyon* spp. were noted at the site. Miscellaneous red algae cover was 2.5%, similar to the last four years, and consisted mainly of *Laurencia pacifica*. Encrusting coralline algae were abundant with a cover of 79%, the highest on record at this site. Green algae were observed on RPCs with a cover of 0.33%, similar to recent years. Miscellaneous plant cover, consisting of filamentous diatoms, was recorded at 3.2%. Bare substrate cover decreased to 10%, the lowest on record.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover was 6.8%, similar to recent years. The most common miscellaneous invertebrates in this category were gorgonians. Miscellaneous bryozoan cover remained similar to last year at 2.7%. *Diaperoecia californica* cover remained low at 0.17%. Sponge cover was 0.5%. *Tethya aurantia* density was 0.15/m², similar to recent years. Tunicates were present with 0.83% cover. *Corynactis californica* cover increased to 2.7%, similar to other sites around Santa Barbara Island. *Astrangia lajollaensis* and *Balanophyllia elegans* continued to have low cover at 0.67% and 0.0%, respectively. *Lophogorgia chilensis* were common with a density of 0.13/m², similar to recent years. *Muricea californica* were present with a density of 0.024/m². *Muricea fruticosa* were not recorded.

Strongylocentrotus purpuratus density increased to 18/m² after three years of relatively low densities. There was a noticeable *S. purpuratus* recruitment this year, but the juveniles were patchy. *Strongylocentrotus franciscanus* remained abundant at a density of 13/m², with juveniles present as well, but not as abundant as *S. purpuratus*. The mean sizes of *S. purpuratus* and *S. franciscanus* were 17 mm and 29 mm, respectively. *Lytechinus anamesus* were common in the sandy areas at a density of 0.12/m², the highest recorded since 2002. Adult *Centrostephanus coronatus* were common with a density of 0.25/m². No sea urchin wasting disease was observed.

Patiria miniata were common with a density of 0.33/m². Most *P. miniata* individuals were notably large, similar to last year. *Pisaster giganteus* abundance declined on both 1 m quadrats and 5 m quadrats with

densities of 0.0/m² and 0.015/m², respectively, both the lowest densities recorded for these protocols at this site. However they were common at the site with 21 measured for size frequencies. No *Pycnopodia helianthoides* were observed. *Ophiothrix spiculata* continued to dominate this site. Cover of *O. spiculata* was the highest on record at 71%. This category has increased every year at this site since we began recording it in 2003. *Parastichopus parvimensis* density was low, similar to recent years, at 0.13/m². No sea star wasting disease was observed.

Megastraea undosa were common with a density of 0.46/m². *Tegula regina* were common with a density of 0.38/m². *Megathura crenulata* density was 0.017/m², similar to recent years. Several *Bursa californica* were observed. No *Kelletia kelletii* were observed. *Aplysia californica* density remained similar to last year at 0.025/m². *Crassidoma giganteum* were rare at a density of 0.0083/m². No *Cypraea spadicea* were observed on quadrats. *Panulirus interruptus* were rare at 0.0014/m².

Roving diver fish counts were conducted twice at this site; once early in the field season and once later in the season. Overall, fish diversity and abundance were low at this site as with most of our Santa Barbara Island sites. *Coryphopterus nicholsii* were one of the most abundant fish with up to 186 individuals observed and a density of 0.63/m². *Alloclinus holderi* were rare at a density of 0.13/m² and up to five observed. *Oxylebius pictus* were present with up to 14 individuals observed. *Chromis punctipinnis* were abundant with up to 10 adults and 1106 juveniles observed. *Oxyjulis californicus* were the most abundant fish abundant with up to 1280 juveniles and no adults observed. Several size classes were observed in the recruits of these last two species. Up to four female, two juvenile, and one male *Semicossyphus pulcher* were recorded during the roving diver fish count. One juvenile *Halichoeres semicinctus* was observed. Up to five adult *Hypsypops rubicundus* were observed, similar to last year. No *Embiotocidae* spp. were observed. One adult *Sebastes atrovirens* was counted. One juvenile *Sebastes miniatus*, vermillion rockfish, was observed. One *Sebastes chrysomelas*, black and yellow rockfish, was observed. One adult *Scorpaena guttata*, California scorpionfish, were observed. Up to six *Caulolatilus princeps*, ocean whitefish, were observed. Roving diver fish counts were performed on June 23rd by four divers and on November 5th by three divers observing 11 species and 13 species, respectively.

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

Arch Point, Santa Barbara Island

Site #15 SBAP

2008 sampling dates: 6/9, 11/5

2008 status: Dominated by *Strongylocentrotus purpuratus* and *S. franciscanus*

Similar to last year, this site was mostly devoid of macroalgae and what little algae that was present was located primarily on the tops of rocks. No *Macrocystis pyrifera*, *Laminaria farlowii*, *Pterygophora californica*, *Eisenia arborea*, *Cystoseira* spp. or *Desmarestia* spp. were observed at this site. Miscellaneous brown algae were not recorded along the transect. Miscellaneous red algae cover was recorded at 24%, the highest cover recorded at this site, and consisted mostly of *Laurencia pacifica*. Green algae were rare with 0.0% cover. Miscellaneous plant cover, consisting mostly of

filamentous diatoms, was observed at 5.8% cover. Articulated coralline algae cover was recorded at 0.0%. Encrusting coralline algae cover decreased to 45%. Bare substrate increased to 21% cover.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover was 7.3%, a decrease from last year, but similar to recent years. The most common invertebrates in this category were *Spirobranchus spinosus*, followed by hydroids and barnacles. *Serpulorbis squamigerus* remained rare with a cover of 0.33%. Tunicate cover was similar to last year at 0.17%. Miscellaneous bryozoans were observed at 0.17% cover. *Diaperoecia californica* was not observed. *Corynactis californica* were noticeably abundant and had a cover of 6.7%, an increase from last year. *Astrangia lajollaensis* cover was 0.33%, similar to recent years. No *Balanophyllia elegans* were recorded on RPCs. *Lophogorgia chilensis* density and *Muricea californica* were rare at 0.0014/m² and 0.0/m² respectively.

Strongylocentrotus purpuratus density increased to 130/m², the highest density since 1995. *Strongylocentrotus franciscanus* density remained high and was similar to last year at 13/m². Recruits for *S. purpuratus* were very abundant while *S. franciscanus* recruits were common, similar to our observations elsewhere at this Island. Most of the *S. purpuratus* recruits were under the spine canopy of *S. franciscanus*. *Lytechinus anamesus* density was 0.024/m², similar to past years. *Centrostephanus coronatus* were observed at a density of 0.21/m². No sea urchin wasting disease was observed.

Pisaster giganteus density on 1 m quadrats and 5 m quadrats was 0.21/m² and 0.11/m², respectively, an increase from last year. *Patiria miniata* density was 0.75/m², similar to recent years. No *Pycnopodia helianthoides* were observed. No *Ophiothrix spiculata* were observed on RPCs, similar to past years. *Parastichopus parvimensis* density was 0.29/m². No sea star wasting disease was observed.

Cypraea spadicea were present at a density of 0.17/m². *Megastrea undosa* had a density of 0.96/m², an increase from last year's record low. There was a wide range of sizes of *M. undosa* present. *Tegula regina* were abundant with a density of 1.0/m², with several size classes present. *Aplysia californica* were common with a density of 0.068/m², similar to recent years. Both small and large individuals were present. *Crassidoma giganteum* density remained low at 0.0083/m². *Megathura crenulata* density remained low at 0.0028/m². *Panulirus interruptus* were recorded at a density of 0.0056/m², same as last year.

Roving diver fish counts were performed twice this season at this site. Fish abundance and diversity at this site were low with the exception of a large recruitment of *Chromis punctipinnis* and *Oxyjulis californica* juveniles that were observed during the second roving diver fish count. We have seen both these species recruit in high numbers during our late summer visits in past years. *Coryphopterus nicholsii* were recorded with a density 0.25/m² and up to 42 individuals were observed. One *Alloclinus holderi* was recorded during the roving diver fish count, but none were recorded on quadrats. More were seen after the roving diver fish count was conducted. *Oxylebius pictus* were present with up to 21 observed. The most abundant fish was *Chromis punctipinnis* with up to 628 adults and 2101 juveniles observed. *Oxyjulis californica* were abundant with up to 20 adults and

1961 juveniles observed. Up to five female, one male, and four juvenile *Semicossyphus pulcher* were recorded. Up to 10 female, and four juvenile *Halichoeres semicinctus* were observed. *Hypsypops rubicundus* were common with up to 28 adults and one juvenile observed. Many of them had nests. *Paralabrax clathratus* were rare with two adults observed. *Girella nigricans* were present with up to 17 recorded. *Embiotoca jacksoni* were present with up to five adults and three juveniles observed. One *Sebastes serriceps* was observed this year. Two *Sebastes rastrelliger*, grass rockfish, were recorded during sampling. Two *Medialuna californiensis*, halfmoon, were observed. Two *Myliobatis californica* were observed. Roving diver fish counts were conducted on June 6th by five divers and on November 5th by four divers observing 16 species both times.

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

Cat Canyon, Santa Barbara Island

Site #16 SBCAT

2008 sampling dates: 6/10, 11/6

2008 status: Dominated by *Strongylocentrotus purpuratus* and *S. franciscanus*

This site is similar to other nearby sites on Santa Barbara Island and has not changed significantly over the past several years. It continues to have low diversity with very little macroalgae and is dominated by sea urchins. It was completely devoid of macroalgae, aside from two *Cystoseira* spp. that were on the transect but not sampled during RPCs. Miscellaneous brown algae were also not observed on RPCs. Green algae were absent as well. Miscellaneous red algae cover was 3.5% and mainly consisted of *Laurencia pacifica*, which were present mostly on the tops and sides of boulders. Filamentous red algae were also present in that category. Miscellaneous plants, consisting mainly of filamentous diatoms, were present at 0.67% cover. Encrusting coralline algae remained abundant with a cover of 67%, similar to our other urchin dominated sites. Articulated coralline algae were recorded with a cover of 0.50%. Bare substrate cover was 24%.

Miscellaneous invertebrates excluding *Ophiothrix spiculata*, cover decreased to 1.2%. The most common miscellaneous invertebrate in this category was *Clavularia* spp. *Serpulorbis squamigerus* cover was recorded at 0.17%, similar to previous years. Tunicate cover remained low at 0.50%. *Tethya aurantia* were observed on band transects at a density of 0.0028/m². Sponges were not observed on RPC's. Miscellaneous bryozoan cover increased to 1.7%. Similar to past years, *Diaperoecia californica* were uncommon and none were recorded during RPCs. *Astrangia lajollaensis* cover was 1.2%. *Balanophyllia elegans* cover was 1.0%. *Corynactis californica* cover was 0.67%. No gorgonians were recorded during sampling and are rare at this site.

Strongylocentrotus spp. continued to dominate this site as they have for several years now. *Strongylocentrotus purpuratus* density increased to a record high and was significantly more abundant than *Strongylocentrotus franciscanus*. The density of *S. purpuratus* was recorded at 90/m². Juvenile *S. purpuratus* were very abundant and this species ranged in size from 2-42 mm. *Strongylocentrotus franciscanus* density was also relatively high at 11/m², similar to recent years. Juveniles were also present, but not as abundant as *S. purpuratus*, their sizes ranged in sizes from 3 mm to 70 mm. *Lytechinus anamesus* were observed on band transects at a density of 0.011/m²,

similar to past years. *Centrostephanus coronatus* were not recorded during sampling, but several were observed at the site. There were two *S. franciscanus* observed with urchin wasting disease on June 10th and an estimated 10-15% of *S. purpuratus* were observed with wasting disease on November 6th.

Pisaster giganteus abundance was measured on both 1 m quadrats and 5 m quadrats with densities of 0.083/m² and 0.060/m², respectively, similar to prior years. *Patiria miniata* density was 0.17/m², similar to previous years. One *Pycnopodia helianthoides* was recorded during band transects for a density of 0.0014/m². *Parastichopus parvimensis* density was recorded at 0.71/m². No *Ophiothrix spiculata* were observed on RPCs. No sea star wasting disease was observed.

Megastraea undosa density remained high and was recorded at 0.67/m², with a large range of sizes present. *Tegula regina* were recorded at a density of 0.38/m². *Cypraea spadicea* density was 0.083/m². *Megathura crenulata* were rare and none were recorded during sampling. No *Haliotis* spp. were observed on band transects or at the site. *Aplysia californica* were abundant, similar to last year, with a density of 0.10/m² with both small and large individuals present though most were small. *Crassedoma giganteum* density remained similar to last year at 0.0069/m². Two *Panulirus interruptus* were observed during bands for a density of 0.0028/m².

Roving diver fish counts were conducted twice this year. With the exception of *Chromis punctipinnis* and *Oxyjulis californica* juveniles, fish abundance and diversity were low at this site. *Coryphopterus nicholsii* were observed at a density of 0.17/m² and up to 67 were recorded during the roving diver fish count, similar to last year. *Alloclinus holderi* were rare in quadrats at a density of 0.042/m² and up to nine were observed during the roving diver fish count. No *Lythrypnus dalli* were observed. *Oxylebius pictus* were present with up to 19 observed. *Chromis punctipinnis* were the most abundant fish with up to 187 adults and 1224 juveniles observed. *Oxyjulis californica* were observed with up to 11 adults and 750 juveniles counted. Up to eight female and one male *Semicossyphus pulcher* were observed, with no juveniles present. Most of the females were small. One juvenile *Halichoeres semicinctus* was observed. Up to 17 adult and no juvenile *Hypsypops rubicundus* were observed. One *Embiotoca jacksoni* was observed. Two adult *Paralabrax clathratus* were observed. Up to 51 adult *Girella nigricans* were observed. One *Sebastes atrovirens* was observed. No *Sebastes serriceps* were observed. One adult *Sebastes rastrelliger*, grass rockfish, was observed, similar to past years. One juvenile *Sebastes miniatus*, vermillion rockfish, was observed. *Medialuna californiensis*, halfmoon, were present with up to 19 observed. One *Stereolepis gigas*, black sea bass, was observed. One *Squatina californica*, Pacific angel shark, was observed. There were up to 5 juvenile fish that could not be positively identified, but were thought to be *Anisotremus davidsonii*, sargo. They were left out of the database. Roving diver fish counts were conducted on June 10th by six divers and on November 6th by four divers observing 16 species on both dates.

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

Miracle Mile, San Miguel Island

Site #21 SMMM

2008 sampling dates: 9/26, 10/23

2008 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 Channel Islands National Park in 2001. The monitoring site was chosen to specifically look at a *Haliotis rufescens* population. The site was specifically selected for its high density of *H. rufescens*. When one selects a site for high density of a target species, it can be debated that the site is more likely to experience a decrease in that target species than an increase. At this site, we observed a decrease in abundance of *H. rufescens* initially, but the site has stabilized with still a relatively high density.

This site was similar to last year and continued to be a healthy, mature *Macrocystis pyrifera* forest with a dense and diverse understory of algae. However, there appeared to be less macroalgae than in previous years. Adult *M. pyrifera* density remained similar to last year at 0.15/m². Subadult and juvenile *M. pyrifera* densities declined from last year to 0.045/m² and 0/m², respectively. Cover of *M. pyrifera* decreased to 6.8%, the lowest recorded at this site. No *Laminaria farlowii* were recorded during sampling. *Eisenia arborea* adults were notably abundant on the top of the reef with a density of 0.83/m², most of these adults were large and healthy. No juveniles were observed on 1 m quadrats. Cover of *E. arborea* decreased to 10%, the lowest recorded at this site. Adult *Pterygophora californica* were common in the “deeper” areas at 0.50/m², similar to recent years. Juveniles were rare with a density of 0.083/m². Cover of *P. californica* decreased to the lowest recorded at 1.8%. *Cystoseira* spp. were rare with a cover of 0.50%. *Desmarestia* spp. were present, but not recorded during sampling (0.0% cover). Miscellaneous brown algae and green cover were also both 0.0%. *Gelidium* spp. were observed at 0.17/m², similar to previous years. *Gigartina* spp. were moderately abundant at 6.8% cover. Miscellaneous red algae were abundant all along the transect but decreased in cover to the lowest recorded at this site at 32%. Articulated coralline and encrusting coralline algae both declined from last year to covers of 17% and 23%, respectively. Bare substrate was recorded at 12% cover, similar to past years.

Miscellaneous invertebrates excluding *Ophiothrix spiculata*, cover was 18.3%, similar to last year. The most abundant invertebrates in this category were hydroids. *Phragmatopoma californica* increased in cover to 7.3%. *Serpulorbis squamigerus* were not present on RPCs. *Diopatra ornata* cover was observed at 0.67% and were located mostly in the low lying areas along the transect. Miscellaneous bryozoan cover decreased to 15%. Sponge cover was 8.5%, similar to previous years. The most abundant sponge was an unidentified encrusting grey sponge. *Tethya aurantia* were recorded at a density of 0.25/m², similar to recent years. Tunicates were abundant and diverse with a cover of 13%. The most abundant tunicate species were *Distaplia* sp. and *Aplidium* sp. *Styela montereyensis* were common at a density of 0.21/m². *Urticina lofotensis* were abundant with a density of 0.28/m². *Corynactis californica* cover was 0.17%, similar to last year. *Balanophyllia elegans* cover was 0.17%. No *Astrangia lajollaensis* were observed during sampling. No gorgonians were observed at the site.

Strongylocentrotus spp. abundance remained low at this site. *Strongylocentrotus franciscanus* density was similar to that observed last year at 4.9/m² and most were notably large. *Strongylocentrotus purpuratus* were rare with a density of 0.29/m². No sea urchin wasting disease was observed.

Pisaster giganteus were moderately abundant, cryptic, and small. They were sampled on both 1 m quadrats and 5 m quadrats with densities of 0.88/m² and 0.34/m², respectively. *Patiria miniata* were abundant and increased in density to a new high at 3.7/m². *Pycnopodia helianthoides* decreased in density to 0.019/m², the lowest recorded at this site. *Parastichopus parvimensis* density was 0.042/m², similar to recent years. No sea star wasting disease was observed.

Haliotis rufescens were abundant with a density similar to recent years. Their density was recorded at 0.60/m². There were fewer smaller sized (~60 mm) *H. rufescens* than in recent years. A total of 157 *H. rufescens* were measured for size frequencies with a mean size of 180 mm, an increase from last year. *Kelletia kelletii* were observed at a density of 0.025/m², similar to recent years. The density of *Megathura crenulata* was observed at 0.036/m², similar to recent years. *Crassedoma crenulata* increased in density to 0.022/m². No *Astraea gibberosa*, *Megastraea undosa*, or *Tegula regina* were observed on 1 m quadrats. No *Cypraea spadicea* were observed on 1 m quadrats.

Fish were moderately abundant and diverse, similar to past years. *Coryphopterus nicholsii* were rare with none observed on quadrats and up to four observed during the roving diver fish count. *Oxylebius pictus* were common with up to 11 observed. *Oxyjulis californica* were relatively abundant with up to 85 adults and no juveniles observed. One female and two male *Semicossyphus pulcher* were observed. Up to six adult and no juvenile *Embiotoca jacksoni* were observed. *Embiotoca lateralis* were common with up to 27 adults and two juveniles observed. Up to three adult *Rhacochilus vacca* were observed. Up to 15 adult and two juvenile *Sebastes mystinus* were observed. *Sebastes atrovirens* were common with up to 22 adults and no juveniles observed. One adult *Sebastes serranoides* was observed. One adult *Sebastes serriceps* was observed. Two *Sebastes chrysomelas*, black and yellow rockfish, were observed. *Sebastes melanops*, black rockfish, were present with up to three adults observed. One *Sebastes miniatus*, vermillion rockfish, was observed. One *Sebastes carnatus*, gopher rockfish was observed. One juvenile *Sebastes caurinus*, was observed. One *Brachyistius frenatus*, kelp surfperch, was observed. One adult *Scorpaenichthys marmoratus*, cabezon, was observed. One *Ophiodon elongatus*, lingcod, was observed. Roving diver fish counts were conducted on October 22nd by three divers counting 23 species.

All seven ARMs were monitored for all indicator species. The cages were in good condition and a few of the ARMs were recorded having sand covering the bottom layer of bricks, similar to past years. There were no *Phragmatopoma californica* noted in the cages this year. A total of 11 *Haliotis rufescens* were observed for a density of 1.6/ARM, similar to recent years. The mean size decreased to 86 mm. One *Astraea gibberosa* was observed with a size of 34 mm and a density of 0.14/ARM, same as last year. Four *Crassedoma giganteum* were observed with a density of 0.57/ARM. *Kelletia kelletii* were not present in the ARMs. *Patiria miniata* density was 7.7/ARM, a decrease from last year, with a mean size of 34 mm. A single *Pisaster giganteus* was observed for a density of 0.14/ARM. *Pycnopodia helianthoides* density was 1.6/ARM, higher than past years, and a decrease in mean size to 47 mm. *Strongylocentrotus franciscanus* density was similar to last year at 5.1/ARM.

and a mean size of 72 mm. *Strongylocentrotus purpuratus* density remained low at 0.43/ARM, and had a mean size of 53 mm. One *S. purpuratus* was abnormally large for this site at 90 mm. No *Parastichopus parvimensis* < 10 cm and one > 10 were recorded in the ARMs.

No temperature loggers are deployed at this site.

Cluster Point, Santa Rosa Island

Site #22 SRCP

2008 sampling dates: 7/31

2008 status: Mature kelp forest

This site had a thick, dense kelp forest with a thick canopy of *Macrocystis pyrifera*. Almost every species of macroalgae that are monitored increased in density. *Macrocystis pyrifera* cover was recorded at 32%, the highest at this site. Densities of adults and juveniles decreased from last year's highs to 0.13/m² and 2.0/m², respectively. Subadult *M. pyrifera* density increased to 0.61/m². *Eisenia arborea* adult and juvenile densities remained similar to last year at 0.042/m² and 0.083/m², respectively. Cover of *E. arborea* was 4.5%, the highest recorded at this site. *Pterygophora californica* adults and juveniles both increased to new high densities at 2.9/m² and 8.4/m², respectively. Cover of *P. californica* was also the highest recorded at 31%. *Laminaria farlowii* were rare with adult and juvenile densities of 0.083/m² and 0.0/m², respectively, and 0.0% cover, similar to past years. There was a notable amount of *Laminaria sinclairii* present, but we do not monitor this species. *Desmarestia* spp. were recorded with a cover of 1.3%, similar to past years. *Cystoseira* spp. cover was 2.3%. Miscellaneous brown algae had a cover of 1.3%. No green algae were observed on RPCs. Miscellaneous red algae remained abundant at 67% cover, the highest cover recorded for this site, but similar to recent years. This category included *Polyneura* sp. and *Rhodymenia* sp. Miscellaneous brown algae were present at 1.3% cover. *Gigartina* spp. cover increased to 8.0%. Articulated and encrusting coralline algae cover were 11% and 33%, respectively. Bare substrate cover was 12%.

Miscellaneous invertebrates excluding *Ophiothrix spiculata*, cover decreased to 5.6%, the lowest recorded at this site. The most dominate species in this category were hydroids, specifically *Aglaophenia* sp. Tunicates were abundant at 6.7% cover, similar to last year. *Styela montereyensis* were recorded at a density of 0.29/m². Sponges increased in cover to 8.3%. *Tethya aurantia* was observed at a density of 0.31/m² and most were large. Bryozoans were abundant with a cover of 31%, the highest recorded at this site. *Diaperoecia californica* cover was 0.17%. *Diopatra ornata* were present in the sand channels that run through the site with 3.0% cover. *Phragmatopoma californica* were present with a cover of 0.83%. Anemones were common with *Urticina lofotensis* density observed at 0.049/m². *Corynactis californicus* cover was 0.50%. *Balanophyllia elegans* were moderately abundant and *Astrangia lajollaensis* were rare with covers of 1.8% and 0.17%, respectively. *Lophogorgia chilensis*, *Muricea californica* and *Muricea fruticosa* were not observed at this site, similar to previous years.

Sea urchin densities remained similar to last year, and most individuals were confined to crevice habitat, also similar to past years. *Strongylocentrotus franciscanus* density was 2.8/m², with a wide range of sizes present. *Strongylocentrotus purpuratus* were present at a density of 2.2/m², similar to

last year, with a wide range of sizes present. Few *Strongylocentrotus* spp. juveniles were observed. No sea urchin wasting disease was observed.

Sea stars were common throughout the site. *Pisaster giganteus* densities on 1 m quadrats and 5 m quadrats were 0.29/m² and 0.33/m², respectively, both increases from last year. *Patiria miniata* were present in a wide range of sizes, and had a density of 2.0/m², similar to last year. *Pycnopodia helianthoides* were less common than recent years at a density of 0.011/m². *Parastichopus parvimensis* were present at a density of 0.21/m², and consisted mostly of large individuals. No sea star wasting disease was observed.

The density of *Cypraea spadicea* was similar to last year at 0.21/m². No *Megastraea undosa* or *Astraea gibberosa* were observed on 1 m quadrats, though one large *M. undosa* was recorded at 122 mm. *Megathura crenulata* density was 0.026/m², similar to past years. *Kelletia kelletii* density was relatively low at 0.015/m², but were more common on the eastern half of the transect. Many *K. kelletii* eggs were present on the eastern half of the transect as well. *Crassidoma giganteum* were common at a density of 0.038/m². *Aplysia californica* were rare at 0.0024/m². *Haliotis rufescens* remained rare at a density of 0.0014/m² with three measured for a mean size of 191 mm. Two fresh *H. rufescens* shells were found measuring 72 mm and 31 mm.

When we conducted roving diver fish counts at this site the conditions were poor, with high surge and low visibility, possibly resulting in the relatively low counts. *Coryphopterus nicholsii* were uncommon with up to six observed and a density of 0.042/m². No *Alloclinus holderi* were observed. *Oxylebius pictus* were present with up to eight counted, similar to last year. *Chromis punctipinnis* were rare with four adults and no juveniles counted. No *Oxyjulis californicus* were observed during the roving diver fish count. No *Halichoeres semicinctus* were observed at the site, similar to previous years. *Semicossyphus pulcher* were present with up to two females and six males observed. No *Paralabrax clathratus* were observed. No *Girella nigricans* were observed. *Embiotoca jacksoni* were present with up to five adults and no juveniles observed. *Embiotoca lateralis* were present with up to 10 adults and two juveniles observed. One *Rhacochilus vacca* adult was observed. The most abundant fish at this site was *Sebastes mystinus* with up to 19 adults and no juveniles observed, similar to last year. *Sebastes atrovirens* were present with up to four adults and no juveniles. One *Sebastes serranoides* was observed. No *Sebastes serriceps* were observed. Two *Sebastes melanops*, black rockfish, were observed in the midwater. One adult *Sebastes miniatus*, vermillion rockfish, was observed. One *Sebastes chrysomelas*, black and yellow rockfish, was present. One *Rhacochilus toxotes*, rubberlip surfperch, was observed. One *Ophiodon elongatus*, lingcod, was observed. Roving diver fish counts were conducted on July 31st by five divers counting 18 species.

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

Trancion Canyon, Santa Rosa Island

Site #23 SRTC

2008 sampling dates: 8/14

2008 status: Mature kelp forest

This site was a mature kelp forest. There was an abundance of understory algae and invertebrates, similar to other nearby Santa Rosa Island sites. *Macrocystis pyrifera* adults were common with a density of $0.32/\text{m}^2$, similar to last year. Subadult and juvenile densities were $0.35/\text{m}^2$ and $1.3/\text{m}^2$, respectively. Overall *M. pyrifera* cover increased to 38%. *Pterygophora californica* were abundant with a cover of 22%. Adult density remained similar to last year at $0.54/\text{m}^2$, while juveniles increased to $5.8/\text{m}^2$. No *Laminaria farlowii* were observed during sampling. *Laminaria sinclairii* were noted as being common this year, this alga is not one of our indicator species. *Eisenia arborea* were common with adult and juvenile densities of $0.042/\text{m}^2$ and $0.042/\text{m}^2$, respectively, and a cover of 3.2%. *Desmarestia* spp. had a small increase in cover to 3.0%. *Cystoseira* spp. were abundant, and none appeared to be reproductive, cover increased to 3.2%. Miscellaneous brown algae increased to 4.0%. All categories of red algae experienced increases. Miscellaneous red algae were abundant at 60%. Some of the more common species observed were Rhodymeniales, *Prionitis* spp., *Gracilariopsis* spp., as well as numerous filamentous and encrusting species. *Gigartina* sp. were abundant with 18% cover. Articulated coralline algae were abundant at 21%, and encrusting coralline algae cover was 25%. Bare substrate cover decreased to 5.8%, the lowest recorded at this site.

Miscellaneous invertebrates excluding *Ophiothrix spiculata*, cover was 15%, with hydroids as the most common invertebrate in this category. *Aglaophenia* sp. was one of the more common hydroid species. Tunicates were abundant with 9.3% cover. *Styela montereyensis* were common with a density of $0.88/\text{m}^2$. *Tethya aurantia* were present at $0.23/\text{m}^2$, similar to last year. Sponges were common with 4.5% cover. Some of the more common sponge species observed were *Hymenamphiastra cyanocrypta*, *Speciospongia confoederata*, and *Craniella arb.* Miscellaneous bryozoans increased in cover to 29%. Some of the more abundant species were *Hippodiplosia insculpta* and *Heteropora pacifica*. *Diaperoecia californica* were observed with a cover of 2.2%. Anemones and cup corals were relatively abundant with *Corynactis californica* observed at a 2.7% cover, *Balanophyllia elegans* at 3.2% and *Astrangia lajollaensis* at 0.83%. *Urticina lofotensis* were moderately abundant at a density of $0.12/\text{m}^2$. *Diopatra ornata* were patchy with a cover of 7.8%. *Phragmatopoma californica* were rare with a cover of 0.50%.

Sea urchins were mostly large with a few juveniles present. *Strongylocentrotus franciscanus* were moderately abundant throughout the site, mainly in crevice habitat, and had a density of $6.6/\text{m}^2$, similar to previous years. *Strongylocentrotus purpuratus* were slightly more abundant for the third consecutive year at $7.2/\text{m}^2$. No *Lytechinus anamesus* were observed. No sea urchin wasting disease was observed.

Sea stars were common. *Pisaster giganteus* were sampled on both 1 m quadrats and 5 m quadrats with densities of $0.38/\text{m}^2$ and $0.40/\text{m}^2$, respectively, and a mean size of 79 mm. *Patiria miniata* were common with a density of $2.0/\text{m}^2$, similar to previous years. *Pycnopodia helianthoides* density continued to decline to $0.0056/\text{m}^2$. *Parastichopus parvimensis* density was $0.17/\text{m}^2$, the same as last year, and consisted mostly of large individuals. No sea star wasting disease was observed.

Cypraea spadicea were present at a density of 0.29/m². *Megastrea undosa* remained rare at 0.042/m². Several *Kelletia kelletii* were noted along the transect, and were recorded at a density of 0.0042/m². *Megathura crenulata* were common, mostly on large rocks and boulders, and had a density of 0.039/m², similar to previous years. *Crassedoma giganteum* were present at a density of 0.033/m². Three *Cryptochiton stelleri*, gumboot chiton, were observed at the site, and two were sampled on band transects for a density of 0.0028/m². These are not one of our indicator species and not included in the database. No *Haliotis* spp. were observed at the site, nor were any *Aplysia californica*. *Panulirus interruptus* density was 0.0028/m², the first time we have observed these on band transects at this site.

Fish continued to be abundant and diverse at this site, similar to most Santa Rosa Island sites. *Coryphopterus nicholsii* were present at a density of 0.13/m² and up to 19 observed during the roving diver fish count, similar to last year. *Oxylebius pictus* were abundant with up to 46 observed, and several juveniles noted. *Chromis punctipinnis* were common with up to 28 adults and no juveniles observed. *Oxyjulis californicus* were common with up to 98 adults and 25 juveniles observed. Up to five female, one juvenile and two male *Semicossyphus pulcher* were observed. One male *S. pulcher* was tagged. No *Halichoeres semicinctus* were observed. There were up to nine adult and five juvenile *Embiotoca jacksoni* observed. Up to six adult and one juvenile *Rhacochilus vacca* were observed. *Embiotoca lateralis* were moderately abundant with up to 21 adults and 11 juveniles recorded. One *Paralabrax clathratus* was observed. There were up to five adult *Girella nigricans* observed. *Sebastes* spp. were abundant and diverse. *Sebastes mystinus* were abundant with up to 21 adults and 20 juveniles observed. *Sebastes atrovirens* were abundant with up to 40 adults and nine juveniles counted. *Sebastes serranoides* were present with up to three adults and five juveniles observed. Two adult and three juvenile *Sebastes serriceps* were observed. Up to 10 adult and four juvenile *Sebastes chrysomelas*, black and yellow rockfish, were observed. One *Rhacochilus toxotes*, rubberlip surfperch, was observed. One juvenile *Sebastes paucispinis*, bocaccio, was present, though several more were observed after the roving diver fish count near a *Macrocystis pyrifera* holdfast that had become detached from the substrate. One *Sebastes carnatus*, gopher rockfish, was present. One *Ophiodon elongatus*, lingcod, was present. Two adult *Scorpaenichthys marmoratus*, cabezon, were observed. A school of *Sardinops sagax*, Pacific sardine, was observed with up to 400 individuals counted. Schools of *Scomber japonicas*, Pacific mackerel, and *Trachurus symmetricus*, jack mackerel, were observed with up to 150 and 78 individuals, respectively. The roving diver fish counts were conducted on August 14th with three divers observing 30 species.

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

Chickasaw, Santa Rosa Island

Site #24 SRCSAW

2008 sampling dates: 7/30

2008 status: Mature kelp forest

Similar to previous years, this site remained a healthy mature kelp forest. The kelp canopy was estimated at 100% cover, and the site had an abundance of mature, widely-spaced *Macrocystis pyrifera* plants with a moderate understory of *Pterygophora californica* and *Cystoseira* sp. Overall,

macroalgae density and cover decreased from last year's high densities. *Macrocystis pyrifera* adults and subadults were abundant, but decreased in abundance with densities of 0.31/m² and 0.20/m², respectively, and a cover of 33%. Juvenile *M. pyrifera* density decreased from last year to 0.88/m². *Eisenia arborea* were not recorded during sampling. *Pterygophora californica* adult and juvenile densities remained similar to last year at 0.13/m² and 0.17/m², respectively, with a cover of 2.5%. *Laminaria farlowii* adults and juveniles were not recorded during quadrats, but had a cover of 0.17%. Miscellaneous green and brown algae were not recorded during sampling. Miscellaneous red algae cover was recorded at 44%, a decrease from last year's high. *Gigartina* spp. were observed at 2.7% cover, same as last year. *Cystoseira* spp. were present at 3.2% cover, an increase from last year. *Desmarestia* spp. were not recorded during sampling. Both articulated coralline algae and encrusting coralline algae cover remained similar to last year at 11% and 24%, respectively. Bare substrate cover was also similar to last year at 7.2%.

Miscellaneous invertebrates excluding *Ophiothrix spiculata*, cover continued to decrease to 4.2%. The most common miscellaneous invertebrates were hydroids, same as last year. Bryozoan cover decreased from last year to 24%. *Diaperoecia californica* was observed covering 0.83% of the substrate. *Diopatra ornata* abundance continued to increase along the transect in the sandy channels between large boulders, with a cover of 22%. Tunicate cover remained abundant at 9.3%. *Styela montereyensis* were present at 0.33/m². Sponge cover increased to 8.8%. *Tethya aurantia* were abundant at a density of 0.15/m². *Urticina lofotensis* were common with a density of 0.10/m². *Corynactis californica* cover was similar to last year at 0.17%. *Balanophyllia elegans* and *Astrangia lajollaensis* cover were 2.3% and 0.33%, respectively. No *Lophogorgia chilensis*, *Muricea californica* or *Muricea fruticosa* were observed. One legal sized *Panulirus interruptus* was observed at the site, but was not recorded during sampling.

Sea urchin distribution was similar to the other Santa Rosa Island sites with relatively low densities and most individuals inhabiting crevice habitat. There were many large individuals and juveniles were often located under the spine canopy of large *Strongylocentrotus franciscanus*, similar to last year. *Strongylocentrotus franciscanus* density and mean size were similar to last year at 1.3/m² and 82 mm. *Strongylocentrotus purpuratus* density and mean size were also similar to last year at 0.71/m² and 34 mm. No sea urchin wasting disease was observed.

Pisaster giganteus density was recorded on both 1 m quadrats and 5 m quadrats with densities of 0.17/m² and 0.14/m², respectively. *Patiria miniata* remained abundant with a density of 1.9/m². *Pycnopodia helianthoides* were present with a density of 0.019/m², and had a bimodal size distribution with a mean of 151mm. *Parastichopus parvimensis* remained rare with a density of 0.042/m². No sea star wasting disease was observed.

Megastraea undosa and *Astraea gibberosa* remained absent from this site. *Cypraea spadicea* were present at a density of 0.17/m², similar to last year. *Megathura crenulata* were uncommon with a density of 0.0042/m². *Crassidoma giganteum* were uncommon with a density of 0.022/m². *Haliotis rufescens* were observed with a density of 0.033/m², similar to previous years. There were 41 *H. rufescens* measured for size frequencies, with several small individuals present, for a mean size of 171 mm.

The fish at this site decreased in abundance and diversity compared to last year. *Coryphopterus nicholsii* were rare with a density of 0.13/m² and two observed during the roving diver fish count. *Oxylebius pictus* were common with up to 10 observed. Adult *Chromis punctipinnis* were rare with up to eight adults observed and no juveniles observed. One school of *Oxyjulis californica* was observed during the roving diver fish count that had up to 43 adults and no juveniles. Up to six female, two male and no juvenile *Semicossyphus pulcher* were observed. Up to seven adult and no juvenile *Embiotoca jacksoni* were observed. *Embiotoca lateralis* were present with one adult and three juveniles observed. Two adult *Rhacochilus vacca* were counted. One adult *Rhacochilus toxotes* was observed. *Sebastes mystinus* were abundant with up to 36 adults and one juvenile observed. *Sebastes atrovirens* were common with up to 15 adults and no juveniles observed. *Sebastes serranoides* were relatively common with up to 10 adults and no juveniles observed. One adult and one juvenile *Sebastes serriceps* were recorded. Four *Sebastes chrysomelas*, black and yellow rockfish, were observed. One *Hexagrammus decagrammus*, kelp greenling, was observed. This is one of the few sites where we often observe kelp greenlings. Roving diver fish counts were conducted on August 22nd by three divers counting 26 species.

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

South Point, Santa Rosa Island

Site #25 SRSP

2008 sampling dates: 7/29

2008 status: Mature kelp forest

There was an increase in macroalgae at this site. The amount of scouring appeared substantially less than in recent years. *Macrocystis pyrifera* adult density remained similar to last year at 0.25/m². Subadult *M. pyrifera* density increased to 0.75/m² and juvenile density slightly decreased to 1.3/m². Cover of *M. pyrifera* increased to 24%. *Eisenia arborea* were present with adults recorded at a density of 0.042/m². No juveniles were recorded. Cover of *E. arborea* was 0.17%, similar to past years. *Pterygophora californica* adults and juveniles were abundant with densities of 1.3/m² and 1.6/m², respectively, the highest densities recorded at this site. Cover was similar to past years at 13%. Adult and juvenile *Laminaria farlowii* increased to record high densities at 0.46/m² and 1.3/m², respectively. Cover was also a record high at 8.8%. *Desmarestia* spp. were recorded with a cover of 0.33%, similar to past years. *Cystoseira* spp. cover remained steady at 2.5%. Miscellaneous red algae were abundant throughout the site with a cover of 52%, similar to past years. Miscellaneous brown algae were not present during sampling. *Gigartina* spp. were present with 2.2% cover. *Gelidium* spp. were present with 0.17% cover. Articulated coralline algae continued to decline for the fourth consecutive year to 11% cover. Encrusting coralline algae cover climbed to the highest recorded at 19%. Bare substrate cover decreased to 6.2%.

Overall, invertebrate abundance was similar to recent years. Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover increased from last year's low up to 10%. This category consisted mainly of hydroids. Sponge cover also increased from last year's low to 11%. *Tethya aurantia* were common at 0.16/m², similar to last year. Tunicates remained abundant with a cover of 11.6%. The most common tunicates were *Cystodytes lobatus*, *Aplidium productum*, and *Polyclinum planum*. *Styela*

montereyensis was common in quadrats at a density of 0.879/m², similar to last year. Miscellaneous bryozoan cover increased to a new high at 42% with *Diaperoecia californica* recorded at 0.33% cover. *Diopatra ornata* cover decreased from last year's high down to 2.2%. *Phragmatopoma californica* were common on *Macrocystis pyrifera* holdfasts and were observed with a cover of 5.8%, similar to previous years. *Urticina lofotensis* were common along the transect at a density of 0.050/m². No *Corynactis californica*, *Astrangia lajollaensis*, or *Balanophyllia elegans* were recorded during RPCs. *Serpulorbis squamigerus* were relatively common at 0.67% cover. Similar to past years, no *Lophogorgia chilensis*, *Muricea californica* or *Muricea fruticosa* were observed.

Strongylocentrotus franciscanus density remained low at 0.042/m². The mean size for *S. franciscanus* was 80 mm. *Strongylocentrotus purpuratus* were present at a density of 1.0/m², similar to last year, with a mean size of 32 mm. There were no *Lytechinus anamesus* observed, similar to past years. All urchins were confined to the crevice habitat, which is limited at this site directly along the transect line resulting in low densities. *Parastichopus parvimensis* were present at 0.042/m², similar to last year, with most individuals observed being large. No sea urchin wasting disease was observed.

Pisaster giganteus were more abundant than last year on 1 m quadrats and 5 m quadrats with densities of 0.13/m² and 0.065/m², respectively. *Patiria miniata* were relatively common along the transect at a density of 2.3/m², similar to recent years. *Pycnopodia helianthoides* density increased from last year's low to 0.011/m², and consisted mainly of large individuals between 160-240 mm in size. No sea star wasting disease was observed.

Cypraea spadicea were common in crevice habitat, but rare in quadrats with a density of 0.13/m², similar to past years. *Astraea gibberosa* and *Megastrea undosa* were not observed in quadrats. Only one large *M. undosa* was observed along the transect, but was not measured for size frequencies. *Megathura crenulata* were also rare at a density of 0.0028/m², similar to past years. *Crassidoma giganteum* remained rare as well at a density of 0.0069/m². *Kelletia kelletii* were observed with a density of 0.0083/m², similar to past years. *Haliotis rufescens* were common to the site with a density of 0.092/m², similar to past years. The density has fluctuated over the last four years, but this site has a high rugosity and *H. rufescens* are patchy here, so this is to be expected. Most were large individuals with a few smaller individuals present. A total of 86 individuals were measured for a mean size of 178 mm, similar to last year.

Fish were moderate in abundance and diversity, though less so than last year. *Coryphopterus nicholsii* were less common this year with up to 5 observed on the roving diver fish count, and none recorded in quadrats. *Alloclinus holderi* were not observed. *Oxylebius pictus* were present with up to 13 observed. *Chromis punctipinnis* were rare with 6 adults and no juveniles observed. *Oxyjulis californica* were common with up to 38 adults and no juveniles recorded. Four female, no juvenile and two male *Semicossyphus pulcher* were observed. No *Halichoeres semicinctus* were observed. No *Hypsypops rubicundus* were observed. *Paralabrax clathratus* were rare with up to four adults and no juveniles observed. *Girella nigricans* were present with one adult observed. *Embiotoca jacksoni* were common with up to ten adults and two juveniles enumerated. *Embiotoca lateralis* were relatively common with up to eight adults and one juvenile counted. *Rhacochilus vacca* were present with up to

four adults observed, while *R. toxotes*, rubberlip surfperch, were also present with up to two adults observed. *Sebastes atrovirens* were common with up to 22 adults and no juveniles observed. Up to 18 adult *Sebastes mystinus* were observed. Eleven adult and no juvenile *Sebastes serranoides* were observed. Two adults and one juvenile *Sebastes serriceps* were observed. Up to five *Sebastes chrysomelas*, black and yellow rockfish, were counted. Up to nine *Hypsurus caryi*, rainbow surfperch, were observed. One *Ophiodon elongatus*, lingcod, was reported. One *Scorpaenichthys marmoratus*, cabezon, was observed. Roving diver fish counts were conducted on July 29th by five divers observing 21 species of fish.

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

Devil's Peak Member, Santa Cruz Island

Site #26 SCDPM

2008 sampling dates: 7/18, 8/1

2008 status: Dominated by *Strongylocentrotus purpuratus*

This site changed little from last year. It remained dominated by *Strongylocentrotus purpuratus* and there were very little macroalgae. Most macroalgae present were located on the tops of large boulders. No *Macrocystis pyrifera*, *Pterygophora californica*, *Laminaria farlowii*, *Desmarestia* spp., *Cystoseira* spp., or miscellaneous brown algae were recorded. However, there were patches of *Dictyota/Pachydictyon* present near the sand channels on the offshore side. *Eisenia arborea* adults were not recorded, but juveniles were present on top of rocks and were recorded at a density of 0.042/m². Miscellaneous red algae decreased from last year to 10% cover and consisted mostly of encrusting and filamentous species. Miscellaneous green algae was not present on RPCs. Miscellaneous plants cover, consisting of filamentous diatoms, decreased from last year's high to 0.17%. Encrusting coralline algae were the most abundant algae with a cover of 46%, similar to last year. Articulate coralline algae were rare with 0.67% cover. Bare substrate cover was 10%.

Miscellaneous invertebrates excluding *Ophiothrix spiculata*, cover was 19%, similar to previous years. The most common miscellaneous invertebrate in this category was *Spirobranchus spinosus*. *Diopatra ornata* were present in the low lying areas with sand, but were rare along the main transect for a cover of 0.17%, similar to previous years. Sponge cover was 0%, but *Tethya aurantia* were present at a density of 0.069/m², an increase from last year. Tunicate cover decreased from last year to 1.3%, with *Cystodytes lobatus* being the most common species. *Corynactis californica* and *Balanophyllia elegans* were not recorded. *Astrangia lajollaensis* were abundant with a cover of 4.8%. *Lophogorgia chilensis* was abundant with a density of 0.19/m², similar to last year. *Muricea californica* were present at 0.0083/m². No *M. fruticosa* were recorded on band transects. Miscellaneous bryozoans cover decreased for the second consecutive year to 3.0%. *Diaperoecia californica* were present at 0.67% cover.

Strongylocentrotus purpuratus continued to dominate the site with a density of 24/m², similar to past years. A few juvenile *S. purpuratus* were noted. *Strongylocentrotus franciscanus* were common at a density of 3.7/m², and had a mean size of 42 mm. *Centrostephanus coronatus* were common in the crevice habitat, but none were observed on 1 m quadrats. *Lytechinus anamesus* were moderately

abundant, mostly on the offshore side, with a density of 0.022/m². No sea urchin wasting disease was observed.

Pisaster giganteus were counted on 1 m quadrats and 5 m quadrats with densities of 0.083/m² and 0.13/m², respectively, similar to previous years. Most *P. giganteus* were medium-sized. *Patiria miniata* were common at a density of 0.42/m², with mainly large individuals present. *Pycnopodia helianthoides* were present at 0.0042/m², but appeared more common just outside of the site. *Pachythyone rubra* remained abundant, but experienced a decrease in cover to 7.3%, the lowest recorded at this site. *Parastichopus parvimensis* density was 0.17/m², with all size classes present. One *P. miniata* was observed with sea star wasting disease on the August 1st visit.

Megathura crenulata were abundant, with all size classes present, at a density of 0.50/m², the highest recorded at this site. *Kelletia kelletii* were rare with none recorded during sampling. *Megastraea undosa* were rare with a density of 0.083/m², and mostly consisted of large individuals. *Tegula regina* density was 0.042/m². *Crassidoma giganteum* were common at a density of 0.11/m², similar to last year. *Aplysia californica* density increased to 0.044/m² with several mating aggregations observed, similar to last year. *Panulirus interruptus* were present at a density of 0.0028/m².

Similar to last year, this site had high diversity and abundance of fish. *Coryphopterus nicholsii* were abundant with a density of 1.5/m² and up to 148 observed. *Alloclinus holderi* were also common with a density of 0.33/m² and up to 23 observed. *Lythrypnus dalli* were present with up to 9 observed, a decrease from last year. *Oxylebius pictus* were common with up to 18 observed. Up to 140 *Oxyjulis californica* adults and no juveniles were counted. Similar to previous years, *Chromis punctipinnis* were the most abundant species with up to 205 observed. Three female *Semicossyphus pulcher* were observed. Seven female, no juvenile and three male *Halichoeres semicinctus* were observed. *Hypsypops rubicundus* were abundant with up to 18 adults observed. *Paralabrax clathratus* were common with up to 26 adults counted. Two adult *Girella nigricans* were observed. *Embiotoca jacksoni* were common with up to 13 adults observed. No *Embiotoca lateralis* were observed. Adult *Rhacochilus vacca* were present with up to nine adults observed. Two juvenile *Sebastes mystinus* were observed. Three adult *Sebastes atrovirens* were observed. One adult *Sebastes serranoides* was observed. Up to three adult and two juvenile *Sebastes serripes* were observed. One KGB was counted. One *Sebastes carnatus*, gopher rockfish, was observed. Two adult *Medialuna californiensis*, halfmoon, were observed. One *Lythrypnus zebra*, zebra goby, was observed. Roving diver fish counts were conducted on July 18th with two divers observing 21 species of fish.

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

Potato Pasture, Santa Cruz Island

Site #27 SSCP

2008 sampling dates: 7/18, 8/26

2008 status: Dominated by *Strongylocentrotus purpuratus* and *S. franciscanus*

This site remained dominated by *Strongylocentrotus purpuratus* and *Strongylocentrotus franciscanus* and was almost entirely devoid of macroalgae except on top of the reef at this high relief site, similar

to last year. Overall, there was little noticeable change since last year. No *Macrocystis pyrifera*, *Eisenia arborea*, *Pterygophora californica*, *Laminaria farlowii*, *Cystoseira* spp., *Desmarestia* spp., *Gigartina* spp., or *Gelidium* spp. were recorded during sampling. No Miscellaneous brown algae were recorded during sampling, same as the last four years. Miscellaneous red algae were present at 14% cover, similar to previous years. Green algae cover increased to 5.8%. This category consisted mainly of *Codium setchellii* and *C. fragile*. Miscellaneous plants cover, consisting mostly of filamentous diatoms, was 8.5%. Encrusting coralline algae had a cover of 51%, similar to last year. Articulated coralline algae were not observed on RPCs. Bare substrate cover was similar to last year at 15%.

Miscellaneous invertebrates excluding *Ophiothrix spiculata*, cover increased to 28%. The most dominant miscellaneous invertebrates in this category were *Spirobranchus spinosus*. Sponges were rare at a cover of 0.17%. *Tethya aurantia* were present at a density of 0.040/m². Miscellaneous bryozoans were present at a cover of 3.5%, similar to last year. *Diaperoecia californica* were common on the sides of rocks and were recorded at a cover of 2.0%. Tunicates were rare with a cover of 0.33%, similar to recent years. *Diopatra ornata* were present with a cover of 0.17%. *Corynactis californica* decreased in cover to 1.8%. *Astrangia lajollaensis* and *Balanophyllia elegans* cover was 6.2% and 1.5%, respectively and both relatively high. *Lophogorgia chilensis* remained abundant at a density of 0.17/m². *Muricea californica* were present at a density of 0.0028/m². *Muricea fruticosa* were not observed on band transects.

Strongylocentrotus spp. continued to dominate the site. *Strongylocentrotus purpuratus* density decreased to 16/m². *Strongylocentrotus franciscanus* were moderately abundant at 6.7/m². The mean size for *S. franciscanus* was 32 mm. Some juvenile *Strongylocentrotus* spp. were observed. *Lytechinus anamesus* density decreased to 0.29/m². *Lytechinus anamesus* were present mostly at the east end of the transect within the first 20 meters; this part of the transect is low lying compared to the rest of the transect. *Centrostephanus coronatus* adults were present at a density of 0.083/m². An estimated 1% of *S. purpuratus* and 10% of *L. anamesus* had wasting disease during the August 26th visit.

Pisaster giganteus densities on 1 m quadrats and 5 m quadrats were similar to last year at 0.042/m² and 0.065/m², respectively. *Patiria miniata* were common, with all sizes present, at a density of 0.38/m², similar to last year. Several juvenile *P. miniata* were observed in the crevice habitat. *Pachythyone rubra* were abundant along the first 30 m of the transect at 3.3% cover overall. *Parastichopus parvimensis* were moderately abundant at a density of 0.38/m², similar to recent years. One *Pycnopodia helianthoides* was observed for a density of 0.0014/m², similar to last year. No sea star wasting disease was observed.

Crassedoma giganteum were notably abundant at a density of 0.15/m², with all sizes present, similar to past years. *Megathura crenulata* were moderately abundant with a density of 0.086/m², with all sizes present, similar to last year. *Megastraea undosa* were rare at a density of 0.17/m. *Tegula regina* were present at a density of 0.13/m². *Kelletia kelletii* were present at a density of 0.014/m², and consisted mainly of adults. *Aplysia californica* density decreased to 0.0028/m². *Panulirus interruptus* were common throughout the site, in the appropriate habitat, at a density of 0.0069/m².

Fish were moderately abundant and diverse. *Coryphopterus nicholsii* were abundant at a density of 1.3/m² and up to 210 were observed, similar to last year. *Alloclinus holderi* were present at a density of 0.21/m² with up to 17 observed, similar to last year. Up to 30 *Lythrypnus dalli* were observed during roving diver fish counts, a decrease from last year. None were observed in quadrats, similar to previous years. *Oxylebius pictus* were common with up to 17 individuals observed. *Chromis punctipinnis* were the most abundant fish species with up to 158 adults and no juveniles observed. *Oxyjulis californica* were present with up to 35 adults and no juveniles observed. Six female, no juvenile, and one male *Semicossyphus pulcher* were observed. *Halichoeres semicinctus* were common with up to seven females, no juvenile and seven males observed. *Hypsypops rubicundus* were abundant with up to 20 adults observed, similar to last year. Up to 29 *Paralabrax clathratus* adults were observed, similar to last year. *Girella nigricans* were present with up to seven observed. *Embiotoca jacksoni* were rare with up to 5 adults observed. *Rhacochilus vacca* were common with up to 10 adults and no juveniles observed. *Sebastes mystinus* were present with one adult observed. No *Sebastes atrovirens* were observed. One adult *Sebastes serranoides* was observed. Five adult and two juvenile *Sebastes serriceps* were observed. One adult *Sebastes chrysomelas*, black and yellow rockfish, was observed. Three adult *Sebastes carnatus*, gopher rockfish, were observed. One *Sebastes caurinus*, copper rockfish, was observed. One *Sebastes auriculatus*, brown rockfish, was observed. Two *Lythrypnus zebra*, zebra goby, were observed. Eight *Medialuna californiensis*, halfmoon, were observed. Roving diver fish counts were conducted on July 18th by four divers counting 24 species.

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

Cavern Point, Santa Cruz Island

Site #28 SCCVP

2008 sampling dates: 7/10

2008 status: Dominated by *Strongylocentrotus purpuratus* and *S. franciscanus*

Similar to last year, algae were low in abundance and diversity. Other than an increase in miscellaneous red algae, there was not much change. No brown macroalgae were recorded on RPCs or quadrats. Miscellaneous red algae were one of the more abundant algal categories with a cover of 29%, an increase from last year. Green algae cover was 0.33%, similar to last year. Miscellaneous plants, consisting of filamentous diatoms, were present at a cover of 6.7%, similar to other nearby sites. Encrusting coralline algae were the most abundant algae with a cover of 53%, similar to last year. Articulate coralline algae were present with a cover of 1.2%, similar to last year. Bare substrate cover remained similar to last year at 8.0%.

Miscellaneous invertebrates excluding *Ophiothrix spiculata*, cover was abundant at 31%, similar to last year. The most dominant miscellaneous invertebrates in this category were *Spirobranchus spinosus*, followed by hydroids. *Diaperoecia californica* were present at 0.33% cover. Miscellaneous bryozoan cover was 8.8%. Tunicates and sponges were common with covers of 7.3% and 1.7%, respectively. *Tethya aurantia* density was 0.075/m². *Corynactis californica* cover was low at 0.17%. *Balanophyllia elegans* were not recorded during sampling. *Astrangia lajollaensis* were common with a cover of 3.5%, similar to last year. *Lophogorgia chilensis* were abundant on the offshore side of the

transect with a density of 0.26/m², similar to last year. Several *Muricea californica* were observed for a density of 0.0083/m². *Muricea fruticosa* were recorded at a density of 0.0014/m².

Strongylocentrotus spp. changed little from last year. *Strongylocentrotus purpuratus* were the most abundant echinoderm with a density of 31/m². *Strongylocentrotus franciscanus* density was 2.0/m², similar to last year. *Centrostephanus coronatus* were present in the crevice habitat with a density of 0.13/m², similar to last year. *Lytechinus anamesus* were rare with a density of 0.0014/m². No sea urchin wasting disease was observed.

Pisaster giganteus were common and counted on 1 m quadrats and 5 m quadrats with densities of 0.042/m² and 0.06/m², respectively. A total of 41 *P. giganteus* were measured for size frequencies for a mean of 160 mm. No *Ophiothrix spiculata* were observed on RPCs. *Patiria miniata* were common at a density of 0.67/m². *Parastichopus parvimensis* were abundant at a density of 1.5/m², similar to previous years. *Pycnopodia helianthoides* were recorded at 0.0014/m². No sea star wasting disease was observed.

Megastraea undosa were present at a density of 0.083/m². *Crassedoma giganteum* density was similar to past years at 0.25/m², with a large range of sizes present. No *Kelletia kelletii* were observed on band transects, 0.0/m². *Megathura crenulata* were common at a density of 0.18/m² and juveniles were rare. *Tegula regina* were present at a density of 0.042/m². *Panulirus interruptus* were observed at a density of 0.0014/m², these were noticeably more common inshore of the transect in shallower water. *Aplysia californica* were present at a density of 0.022/m², with several breeding aggregations observed.

Fish abundance and diversity was moderate, similar to previous years. *Coryphopterus nicholsii* density increased to 1.1/m², and up to 198 observed. *Alloclinus holderi* were moderately abundant with an increase in density to 0.46/m² and up to 26 observed. *Lythrypnus dalli* were present with a density of 0.0/m² and up to four counted, a decrease from last year. *Oxylebius pictus* were present with up to 28 observed. One *Lythrypnus zebra*, zebra goby, was observed. *Chromis punctipinnis* were common with up to 78 adults and no juveniles observed. *Oxyjulis californica* were the most abundant fish species with up to 94 adults and no juveniles observed. Seven female, no juvenile and one male *Semicossyphus pulcher* were observed, similar to last year. *Halichoeres semicinctus* were common with up to three females and three males observed. Up to 11 *Hypsypops rubicundus* were observed. *Paralabrax clathratus* were common with up to 11 adults observed. *Girella nigricans* were present with two observed. Up to eight adult *Embiotoca jacksoni* were observed. *Rhacochilus vacca* were present with up to 14 adults observed. One *Sebastes atrovirens* was observed. Three adults and three juvenile *Sebastes serriceps* were observed. One juvenile *Sebastes mystinus* juvenile was observed. Three adult *Sebastes carnatus*, gopher rockfish, were observed, similar to last year. One *Scorpaena guttata*, California scorpionfish, was observed. Three adult *Rhacochilus toxotes*, rubberlip surfperch, were observed. *Caulolatilus princeps*, ocean whitefish, were rare with one observed. Up to Two *Medialuna californiensis*, halfmoon, were observed. Three *Myliobatis californica*, bat ray, were observed. Roving diver fish counts were conducted on July 10th by four divers counting 25 species.

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

Little Scorpion, Santa Cruz Island

Site #29 SCLS

2008 sampling dates: 6/26

2008 status: Dominated by *Strongylocentrotus purpuratus* and *S. franciscanus*

This site continued to be dominated by *Strongylocentrotus* spp. and was almost entirely devoid of macroalgae except on the tops of large rocks. Similar to last year, there were little to no macroalgae and no *Macrocystis pyrifera*, *Pterygophora californica*, *Laminaria farlowii*, *Cystoseira* spp., or miscellaneous brown algae present. Green algae were present at a cover of 2.2%, higher than the past several years. Miscellaneous red algae cover was 26.2%, an increase from last year. This category consisted mostly of *Laurencia pacifica*. Encrusting coralline algae cover was 33%, similar to last year. Articulated coralline algae were rare and none were recorded on RPCs. Miscellaneous plants cover, consisting mostly of filamentous diatoms, was 11%. Bare substrate covered 18% of the bottom, similar to past years.

Miscellaneous invertebrates excluding *Ophiothrix spiculata*, cover was abundant at 19%, similar to last year. The most dominant miscellaneous invertebrates in this category were hydroids. Sponge cover was 1.3%, similar to last year. *Tethya aurantia* density was 0.017/m². Tunicates cover was 1.0%. Miscellaneous bryozoan cover remained similar to last year at 6.3%. *Diaperoecia californica* was common in small patches off the main transect and were recorded at 1.3% cover. *Corynactis californica* and *Balanophyllia elegans* cover remained similar to last year at 0.5% and 0.33%, respectively. *Astrangia lajollaensis* cover was 1.8%, relatively low for this site. *Lophogorgia chilensis* were abundant on the offshore/deeper side and their density was 0.11/m², similar to last year. No *Muricea californica* or *Muricea fruticosa* were recorded during sampling.

Strongylocentrotus franciscanus and *Strongylocentrotus purpuratus* were both moderately abundant in the crevice habitat and were recorded at densities of 5.0/m² and 11/m², respectively, similar to last year. Juvenile *S. purpuratus* were present. *Lytechinus anamesus* were in the low lying sand areas with a density of 0.058/m², a decrease from last year. *Centrostephanus coronatus* were moderately abundant at 0.17/m². Approximately 4% of *Strongylocentrotus* spp. were observed with wasting disease.

Patiria miniata were relatively abundant for this site with a density of 1.7/m², the highest recorded here. *Pisaster giganteus* were present on both 1 m quadrats and 5 m quadrats with densities of 0.042/m² and 0.15/m², respectively. *Pycnopodia helianthoides* were not observed during sampling for the second year in a row, but one was noted at the site. *Parastichopus parvimensis* density was 0.50/m². No sea star wasting disease was observed.

Crassedoma giganteum were common at a density of 0.032/m², with some notably large individuals. *Megathura crenulata* were notably abundant with a density of 0.51/m², similar to last year, with many juveniles present. *Cypraea spadicea* density was 0.042/m². Adult and juvenile *Megastraea undosa* were present at a density of 0.13/m², similar to last year. *Kelletia kelletii* were common with a

density of 0.028/m². *Tegula regina* were recorded at 0.08/m² similar to last year. *Aplysia californica* were present at a density of 0.025/m². *Panulirus interruptus* were present at a density of 0.0056/m².

This site continued to have high fish abundance and diversity. *Coryphopterus nicholsii* density decreased from last year to 0.95/m² and up to 80 were observed during the roving diver fish count. *Alloclinus holderi* density decreased to 0.042/m² and up to four were observed. *Lythrypnus dalli* were common with up to 31 observed, but none recorded during quadrats. *Oxylebius pictus* were common with up to 21 observed. *Chromis punctipinnis* were the most abundant fish species with up to 228 adults observed, similar to past years. *Oxyjulis californica* were common with up to 91 adults and 5 juveniles observed. Three female and one juvenile *Semicossyphus pulcher* were observed. Up to ten female and nine male *Halichoeres semicinctus* were observed. *Hypsypops rubicundus* were abundant with up to 19 adults observed. *Paralabrax clathratus* were common with up to 13 observed. *Embiotoca jacksoni* were common with up to 13 adults observed. Up to five *Rhacochilus vacca* were observed. Up to seven *Girella nigricans* were recorded. One adult *Sebastes serranoides* was recorded. One adult *Sebastes mystinus* was observed. Up to 11 adult *Sebastes atrovirens* were observed, slightly less than previous years. Six adult and one juvenile *Sebastes serriceps* were observed, similar to last year. Seven adult *Sebastes chrysomelas*, black and yellow rockfish, were observed. Three *Cephaloscyllium ventriosum*, swell sharks, were recorded. Two adult *Rhacochilus toxotes*, rubberlip surfperch, were observed. One adult *Caulolatilus princeps*, ocean whitefish, was observed. Up to seven *Medialuna californiensis*, halfmoon, were observed. Roving diver fish counts were conducted on June 26th by six divers observing 23 species.

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

Pedro Reef, Santa Cruz Island

Site #30 SCPRF

2008 sampling dates: 5/15, 6/27

2008 status: Dominated by *Strongylocentrotus purpuratus* and *S. franciscanus*

This site was similar to last year and continued to be devoid of macroalgae. No *Macrocystis pyrifera*, *Eisenia arborea*, *Pterygophora californica*, *Laminaria farlowii*, *Cystoseira* spp. or *Desmarestia* spp. were observed, similar to past years. Miscellaneous red algae cover decreased from last year to 2.2%. Miscellaneous green algae and miscellaneous plants were not observed this year on RPCs.

Articulated coralline algae were also not present on RPCs. Encrusting coralline algae cover was 30%, a decrease from last year. Bare substrate increased to a cover of 39%.

Miscellaneous invertebrates excluding *Ophiothrix spiculata*, cover was 23%, higher than the past several years. The most dominant miscellaneous invertebrate in this category was *Spirobranchus spinosus*, Christmas tree worms. Sponge cover was 0.50%, similar to last year. *Tethya aurantia* were moderately abundant with a density of 0.15/m², an increase from last year. No tunicates were recorded on RPCs. *Diopatra ornata* cover was 0.17%. *Serpulorbis squamigerus* were rare with 0.17% cover. *Corynactis californica* were moderately abundant with a cover of 7.8%, similar to last year. *Astrangia lajollaensis* were common with a cover of 1.8%. *Balanophyllia elegans* were common with a cover of 0.33%, similar to last year. Miscellaneous bryozoans were present, but not

common, with a cover of 0.50%, similar to last year. *Diaperoecia californica* were not observed. *Lophogorgia chilensis* were abundant at a density of 0.29/m², similar to last year. *Muricea californica* were observed at a density of 0.0083/m². *Muricea fruticosa* were rare at a density of 0.0014/m².

Strongylocentrotus purpuratus remained abundant with a density of 59/m² and most individuals were small for a mean size of 20 mm, similar to last year. *Strongylocentrotus franciscanus* were moderately abundant with a density of 8.5/m² and were also small for a mean size of 33 mm, similar to last year. *Centrostephanus coronatus* were relatively common with a density of 0.17/m², similar to last year. *Lytechinus anamesus* were common and increased in density to 0.63/m² on band transects and 2.2/m² on quadrats. Approximately 5% of *S. purpuratus* and *S. franciscanus* were observed with wasting disease on May 15th, and approximately 3% of *S. purpuratus* and *S. franciscanus* were observed with wasting disease on June 27th.

Pisaster giganteus were common on both 1 m quadrats and 5 m quadrats with densities of 0.042/m² and 0.050/m², respectively. *Patiria miniata* were common with a density of 0.63/m². One *Pycnopodia helianthoides* were observed on band transects for a density of 0.0014/m². *Pachythyone rubra* were present with a cover of 1.8%, similar to last year and were mostly present on the western end of the transect. *Parastichopus parvimensis* were recorded at a density of 0.50/m², an increase from last year.

Megastraea undosa were common at a density of 0.67/m², similar to last year. *Tegula regina* were not observed on quadrats. *Crassidoma giganteum* continued to decrease in density for the fourth consecutive year to 0.011/m². *Kelletia kelletii* density remained relatively low at 0.0042/m². *Megathura crenulata* were common in the high relief areas with a density of 0.057/m², similar to previous years. *Cypraea spadicea* were relatively abundant at 0.88/m². No *Panulirus interruptus* were observed along the transect.

Fish had moderate diversity and abundance for this barren site, similar to last year. *Coryphopterus nicholsii* were the most abundant fish species with up to 307 observed and a density of 1.2/m², a decrease from last year. *Alloclinus holderi* were rare with only one observed during the roving diver fish count and none on quadrats, similar to last year. Two *Lythrypnus dalli* were observed during the roving diver fish count but none were observed on quadrats. One *Lythrypnus zebra*, zebra goby, was present. *Oxylebius pictus* were moderately abundant with up to 25 observed. *Chromis punctipinnis* were very abundant with up to 150 adults and no juveniles observed. *Oxyjulis californica* were common with up to 54 adults and no juveniles observed. *Semicossyphus pulcher* were present with six females, three juveniles and no males observed. One female, no juvenile and two male *Halichoeres semicinctus* were observed. *Hypsypops rubicundus* were common with up to five adults observed. Ten adult and no juvenile *Paralabrax clathratus* were observed. *Girella nigricans* were present with up to three observed. Two adult and no juvenile *Embiotoca jacksoni* were observed. Two adult *Rhacochilus vacca* were observed. One adult *Sebastes serripes* was observed. No *Sebastes atrovirens* or *Sebastes mystinus* were observed. One *Scorpaena guttata*, California scorpionfish, was observed. Two *Caulolatilus princeps*, ocean whitefish, were observed. One *Gymnothorax mordax*, California moray eel, was observed. Four adult *Medialuna californiensis*,

halfmoon, were observed. Roving diver fish counts were conducted on June 27th by four divers counting 22 species.

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

Keyhole, Anacapa Island

Site #31 ANKH

2008 sampling dates: 8/15, 9/12

2008 status: Dominated by *Strongylocentrotus purpuratus*

This site is dominated by *Strongylocentrotus purpuratus*, but with a few patches of low sea urchin density that have some macroalgae present at the eastern and western ends of the transect. Cover of *Macrocystis pyrifera* remained low but did increase to 4.7%. Adult, subadult, and juvenile densities of *M. pyrifera* remained low at 0.025/m², 0.015/m², and 0.042/m², respectively. Adult and juvenile *Eisenia arborea* were common at densities of 0.25/m² and 0.33/m², respectively, similar to last year. Cover was recorded at 3.5%. No *Pterygophora californica* or *Laminaria farlowii* were observed on quadrats, though a few adult *L. farlowii* were present. No *Cystoseira* spp. or *Desmarestia* spp. were recorded during sampling, though *Cystoseira* spp. were observed at the site. Miscellaneous brown algae cover remained similar to last year at 16%, and mainly consisted of *Dictyota/Pachydictyon* spp. Green algae cover was similar to last year at 0.5%, and mainly consisted of *Codium setchellii*. Miscellaneous red algae remained similar to last year at 18% cover. Articulated coralline algae were recorded at 1.7% cover. Encrusting coralline algae cover increased to 46%. Miscellaneous plants, consisting mostly of filamentous diatoms, decreased in cover to 6.2%. Bare substrate covered 18% of the bottom, similar to last year.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover was 32%, similar to past years. The most common miscellaneous invertebrates in this category were gorgonians. Miscellaneous bryozoan cover was observed at 13%, similar to previous years. *Diaperoecia californica* cover was 0.67%, similar to previous years. Sponge cover increased to 3.7%. *Tethya aurantia* were rare with a density of 0.0014/m². Tunicates increased in cover to 2.7%. *Serpulorbis squamigerus* cover was 0.17%. *Corynactis californica* were rare at 0.17% cover, similar to past years. *Astrangia lajollaensis* were common with a cover of 0.67%. All three gorgonian species were present at densities similar to past years with *Lophogorgia chilensis* at 0.33/m², *Muricea fruticosa* at 0.0014/m², and *Muricea californica* at 0.04/m². *Eugorgia rubens* were moderately abundant, similar to past years, though we do not record the density of this species.

Strongylocentrotus franciscanus were common and mainly confined to the crevice habitat with a density of 4.3/m², similar to past years. A wide range of sizes were present, though juvenile *S. franciscanus* were rare. *Strongylocentrotus purpuratus* were abundant throughout the site with a few low density patches at the east and west end of the transect. The density of *S. purpuratus* increased from last year to 43/m², the highest recorded at this site. *Lytechinus anamesus* density increased to 0.12/m², and they were present in a wide range of sizes. *Centrostephanus coronatus* were common, consisting mostly of adults, at a density of 0.29/m². No sea urchin wasting disease was observed.

Patiria miniata abundance decreased from last year's high to a density of 0.54/m², similar to 2005 and 2006. *Pisaster giganteus* were uncommon on 1 m quadrats and 5 m quadrats with densities of 0.042/m² and 0.0050/m², respectively. Only six *P. giganteus* were found for size frequencies.

Pycnopodia helianthoides were not observed on band transects, similar to previous years.

Parastichopus parvimensis were present at 0.54/m² and consisted mostly of adults. On August 15th we observed two *Patiria miniata* with sea star wasting disease and on September 12th prevalence noticeably increased and we estimated 5-10% of the stars showed signs of disease.

Kelletia kelletii remained rare at 0.0083/m², similar to previous years. *Megathura crenulata* density remained similar to last year at 0.0097/m². *Crassodoma giganteum* were common at 0.099/m², with a wide range of sizes present. Many empty *C. giganteus* shells were noted at the site. *Panulirus interruptus* were present at a density of 0.0028/m², similar to previous years. *Cypraea spadicea* density was 0.042/m², similar to previous years. *Megastraea undosa* were common, in a wide range of sizes, at a density of 1.1/m², similar to previous years. *Tegula regina* density was 0.17/m², similar to previous years. No *Aplysia californica* were observed.

Fish diversity and abundance was moderate, similar to last year. *Coryphopterus nicholsii* density was 0.96/m² and up to 369 observed during the roving diver fish count. *Alloclinus holderi* density was similar to last year at 0.79/m² and up to 49 observed during the roving diver fish count. Similar to last year, *Lythrypnus dalli* had a density of 0.042/m² and up to 18 were observed during the roving diver fish count. *Oxylebius pictus* were relatively rare with up to 6 observed. *Chromis punctipinnis* were abundant, similar to previous years, with up to 212 adults and two juveniles observed. *Oxyjulis californica* were common with up to 40 adults and 33 juveniles observed. Up to seven female, two juvenile, and no male *Semicossyphus pulcher* were observed. Up to 21 female, one juvenile and 24 male *Halichoeres semicinctus* were observed, similar to previous years. More *Hypsypops rubicundus* were present than last year with up to eight observed. *Girella nigricans* were abundant with up to 36 observed. *Paralabrax clathratus* were common with up to 20 adults and no juveniles observed. Up to 14 adult and eight juvenile *Embiotoca jacksoni* were observed. No *Rhacochilus vacca* were observed. No *Sebastes mystinus* or *Sebastes serranoides* were observed. *Sebastes atrovirens* were present with one adult and two juveniles observed. *Sebastes serripes* were present with one adult and one juvenile observed. One adult *Sebastes chrysomelas*, black and yellow rockfish, was observed. *Lythrypnus zebra*, zebra goby, were common with up to seven observed. Up to eight *Medialuna californiensis*, halfmoon, were observed. One *Myliobatis californica*, bat ray, was observed. Up to 62 juvenile *Heterostichus rostratus*, giant kelpfish, were present. Though not observed during the roving diver fish count a school of up approximately 50 *Sarda chilensis*, Pacific bonito, were observed at the site. Roving diver fish counts were conducted on August 15th by three divers observing 19 species.

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

East Fish Camp, Anacapa Island

Site # 32 ANEFC

2008 sampling dates: 6/3

2008 status: Dominated by *Strongylocentrotus franciscanus* and *S. purpuratus*

This site has changed little from last year and continues to be dominated by *Strongylocentrotus franciscanus* and *Strongylocentrotus purpuratus*, and had a moderately high cover of *Ophiothrix spiculata*. The site remained almost completely devoid of macroalgae. No macroalgae were observed on quadrats, but one juvenile *Macrocystis pyrifera* and one juvenile *Eisenia arborea* were present at the site. Miscellaneous brown algae were not observed on RPCs. Miscellaneous green algae were present at a cover of 0.17%, which consisted of *Codium setchellii*. Miscellaneous red algae continued to decrease since we began monitoring this site in 2005 to a cover of 2.5%. In this category, *Laurencia pacifica* were most common species and these algae were found on the tops of rocks/ridges. Miscellaneous plants consisting of filamentous diatoms were observed with 0.17% cover, the same as last year. Filamentous diatoms were observed growing on *L. pacifica* and on some encrusting invertebrates. No articulated coralline algae were observed on RPCs and were rare at the site, similar to past years. Encrusting coralline algae were present at 43% cover, similar to last year. Bare substrate covered 34% of the bottom, similar to last year.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, covered 6.8% of the bottom and consisted mostly of *Spirobranchus spinosus*, similar to last year. Similar to last year, bryozoans were rare with miscellaneous bryozoans cover at 0.17% and no *Diaperoecia californica* observed on RPCs. Tunicates and sponges other than *Tethya aurantia* were rare with covers of 0.17% and 0% respectively. *Tethya aurantia* density was 0.033/m², similar to last year. *Corynactis californica* was noticeably abundant with 13% cover, an increase from last year. *Balanophyllia elegans* and *Astrangia lajollaensis* were rare with covers of 0.0% and 1.3% respectively, similar to last year.

Strongylocentrotus purpuratus were abundant with a density of 62/m², an increase from last year. Juvenile *S. purpuratus* were common. *Strongylocentrotus franciscanus* were also abundant at 12/m², similar to last year. *Centrostephanus coronatus* were present at a density of 0.46/m², but have gradually decreased since we began monitoring this site in 2005. *Lytechinus anamesus* were moderately abundant in the low lying sandy areas at 0.64/m², similar to last year. *Lytechinus anamesus* had a notable bi-modal size distribution. On June 6th, approximately 2% of *S. franciscanus* and 1% of *S. purpuratus* were observed with sea urchin wasting disease.

Ophiothrix spiculata were less abundant than last year with a cover of 7.5%. *Patiria miniata* were common with a density of 0.50/m², a decrease from last year. In 2007 we observed *P. miniata* with wasting disease that may have caused some mortality. *Pisaster giganteus* were common and notably large with a mean size of 199 mm, though none were observed on 1 m quadrats or 5 m quadrats. One large *Pycnopodia helianthoides* was observed at the site, but none were observed on band transects. *Parastichopus parvimensis* were relatively abundant at a density of 1.1/m². Both adult and juvenile *P. parvimensis* were present. No sea star wasting disease was observed.

No live *Haliotis* spp. or fresh shells were found. *Megastraea undosa* were moderately abundant at 0.75/m², similar to last year. One *Astraea gibberosa* was observed on quadrats this year, 0.83/m².

Tegula regina were common with a density of 0.42/m². Small and large *Megathura crenulata* were abundant at 0.27/m², the highest density recorded at this site. *Megathura crenulata* have gradually increased in density since we began monitoring at this site in 2005. All three monitored species of gorgonians were present with *Lophogorgia chilensis* at 0.0083/m², *Muricea fruticosa* at 0.0028/m², and *Muricea californica* at 0.014/m². *Kelletia kelletii* were notably less abundant than last year with a density of 0.0069/m². There appeared to be a shift in size frequency distribution of *K. kelletii* due to both a decrease in larger (>100 mm) individuals and an increase in smaller (<80 mm) individuals for a mean size of 76mm, down from 111 mm last year. *Crassidoma giganteum* were common on the large boulders with a density of 0.018/m², a decrease from last year. *Aplysia californica* were moderately abundant at 0.10/m².

Overall, fish diversity and abundance decreased from last year at this site. Some recent rockfish recruitment was noted. *Coryphopterus nicholsii* were notably less abundant than last year with a density of 1.1/m² and up to 280 were observed during the roving diver fish count. The density for *Alloclinus holderi* was 0.083/m² with up to six observed, a decrease from last year. One *Lythrypnus dalli* was observed at the site, but not on quadrats. *Lythrypnus zebra*, zebra goby, were present with one observed. *Oxylebius pictus* were present with up to 10 observed. *Chromis punctipinnis* were common with up to 181 adults and no juveniles observed. There was one adult and no juvenile *Oxyjulis californica* observed. One female, no juvenile, and two male *Halichoeres semicinctus* were observed. Up to seven female, no juvenile, and no male *Semicossyphus pulcher* were observed. Up to 18 *Hypsypops rubicundus* were observed. Adult *Paralabrax clathratus* were common with up to eight observed. One adult *Girella nigricans* were observed. One adult *Embiotoca jacksoni* was observed. One juvenile *Sebastes serripes* was observed. One juvenile *Sebastes mystinus* was observed. Two adult *Sebastes chrysomelas*, black and yellow rockfish, were observed. One juvenile *Sebastes miniatus*, vermillion rockfish, was observed. One *Scorpaenichthys marmoratus*, cabezon, was observed. Roving diver fish counts were conducted on June 3rd by four divers observing 17 species. Roving Diver Fish Counts were performed early in the season, likely before any fish recruitment occurred.

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

Black Sea Bass Reef, Anacapa Island

Site #33 ANBSBR

2008 sampling dates: 7/9

2008 status: Dominated by *Ophiothrix spiculata*

This site has changed noticeably from last year. *Macrocystis pyrifera* abundance increased while *Ophiothrix spiculata* coverage decreased. As a result, there appears to be a shift from echinoderm-dominated species assemblages to macroalgae-dominated assemblages. Most algae were present on the eastern half of the transect, but were also present throughout the site. There was a large amount of *M. pyrifera* that had settled in the cobble areas of the transect. However, as these plants grow they are likely to float off the transect when their buoyancy becomes great than the substrate to which they are attached. *Macrocystis pyrifera* were present as juveniles, sub-adults and adults, with densities of 1.3/m², 0.13/m², and 0.005/m², respectively. Cover of *M. pyrifera* was 6.7%. All of these abundance

were the highest recorded since we began monitoring this site in 2005. There were no *Eisenia arborea*, *Pterygophora californica*, *Laminaria farlowii*, *Desmarestia* spp., *Cystoseira* spp., or *Gigartina* spp. observed during sampling. Miscellaneous brown algae cover was 1.7%, similar to last year. Miscellaneous red algae cover was 17%. Encrusting coralline algae cover decreased to 58%, the lowest cover recorded since we began monitoring this site in 2005. No articulated coralline algae were sampled. Miscellaneous plants cover, consisting mostly of filamentous diatoms, was 1.0%, a decrease from previous years. Green algae cover decreased to 0.33%. Bare substrate cover was 10%, similar to past years.

Miscellaneous invertebrates excluding *Ophiothrix spiculata*, cover was 5.6% and mostly consisted of *Chaetopterus variopedatus*, parchment tube worms. Sponge cover was 0.17%. *Tethya aurantia* were common with a density of 0.044/m², and were mostly large in size. Tunicate cover increased to 1.7%. Miscellaneous bryozoans were common at 3.8%, similar to last year. *Diaperoecia californica* cover was 0.33%. *Corynactis californica* cover was 1.0%. *Astrangia lajollaensis* were recorded at a cover of 0.17%. *Balanophyllia elegans* were not observed on RPCs. *Lophogorgia chilensis* were present at 0.0042/m². *Muricea fruticosa* and *Muricea californica* were both rare with densities of 0.0014/m² and 0.0/m², respectively.

Strongylocentrotus franciscanus adults and juveniles were common at a density of 1.9/m². Most were located in crevice habitat. *Strongylocentrotus purpuratus* were common at 2.2/m², with juveniles abundant. Many were in crevice habitat but there were also some found in the open. *Centrostephanus coronatus* were common at 0.50/m². *Lytechinus anamesus* were rare at a density of 0.0028/m², similar to previous years. No sea urchin wasting disease was observed.

Ophiothrix spiculata remained abundant but there was a moderate decrease in cover to 54%. *Patiria miniata* were present at a density of 0.13/m². *Pisaster giganteus* were rare. They were counted on 1 m quadrats and 5 m quadrats with densities of 0.042/m² and 0.005/m², respectively. No *Pycnopodia helianthoides* were observed. *Parastichopus parvimensis* were present at 0.75/m². There were many sea urchin tests present. No sea star wasting disease was observed.

Megastraea undosa were present at a density of 0.083/m². No *Tegula regina* were observed on quadrats. *Megathura crenulata* were abundant with a density of 0.14/m², similar to previous years. *Kelletia kelletii* were rare at 0.0014/m². *Crassidoma giganteum* were observed with a density of 0.0056/m², similar to previous years. *Panulirus interruptus* were common at 0.0097/m² and many were well over legal size.

Fish were abundant and moderately diverse. *Coryphopterus nicholsii* were abundant with a density of 0.75/m² and up to 182 counted. *Alloclinus holderi* were relatively abundant at 0.63/m² and up to 24 counted. There were 42 *Lythrypnus dalli* observed, and recorded a density of 0.21/m² on quadrats. Two *Oxylebius pictus* were observed. *Chromis punctipinnis* were the most abundant fish species with up to 402 adults observed. Up to 330 adult *Oxyjulis californicus* were present. Up to seven female, no juvenile, and five male *Semicossyphus pulcher* were observed. Three female, no juvenile, and six male *Halichoeres semicinctus* were observed. Up to six adult *Hypsypops rubicundus* were observed. Six *Girella nigricans* were observed. Up to eight adult *Embiotoca jacksoni* were observed.

Rhacochilus vacca were rare with two adults and no juveniles observed. Two adult *Sebastes atrovirens* were observed. *Paralabrax clathratus* were abundant with up to 30 adults observed. *Sebastes serriceps* were common with one adult and five juveniles observed. Three KGB were observed. A school of up to 450 *Trachurus symmetricus*, jack mackerel, was observed. There were up to 37 *Caulolatilus princeps*, ocean whitefish, observed. *Medialuna californiensis*, halfmoon, were abundant with up to 28 observed. A small school of up to 15 *Sardinops sagax*, Pacific sardine, was observed. Two *Stereolepis gigas*, giant black sea bass, were observed during the roving diver fish count, but at least eight individuals were seen throughout the day. Roving diver fish counts were conducted on July 9th by four divers counting 23 species.

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

Lighthouse, Anacapa Island

Site #34 ANLH

2008 sampling dates: 8/20

2008 status: Dominated by *Strongylocentrotus purpuratus* and *S. franciscanus*

This site changed little from last year. A few *Macrocystis pyrifera* were present growing epiphytically on gorgonians, otherwise the site was devoid of macroalgae. No *Macrocystis pyrifera*, *Eisenia arborea*, *Laminaria farlowii*, *Pterygophora californica*, *Cystoseira* spp., *Desmarestia* spp., *Gigartina* spp., or *Gelidium* spp. were observed on 1 m quadrats or RPCs. One *M. pyrifera* was present in the transect area and measured for size frequencies. No green algae or miscellaneous brown algae were observed during RPCs. Miscellaneous red algae were present at a cover of 1.8%, similar to last year. Articulated coralline algae were not observed on RPCs. Encrusting coralline algae cover was recorded at 35%, similar to previous years. Miscellaneous plants cover, mostly consisting of filamentous diatoms, was abundant at 25%. Bare substrate cover decreased substantially from last year to 14%, most likely due to an increase in miscellaneous invertebrates, but this cover was similar to 2005 and 2006.

Miscellaneous invertebrates excluding *Ophiothrix spiculata*, cover was high at 35%, the highest recorded at this site. The most common miscellaneous invertebrates in this category were barnacles, followed by hydroids. Tunicates were rare with a cover of 0.17%. Miscellaneous bryozoans cover was 0.83%, similar to recent years. *Diaperoecia californica* were common on the steep sides of large boulders but were rare along the transect with a cover of 0.0%, similar to past years. Sponges cover was 0.17%. *Tethya aurantia* were common at a density of 0.058/m², similar to previous years. *Phragmatopoma californica* were not recorded on RPCs but were present at the site and appeared more common than last year. *Diopatra ornata* were common with a cover of 8.1%, similar to previous years. *Corynactis californica* were abundant with a cover of 6.3%, the highest recorded at this site. *Astrangia lajollaensis* were present with a cover of 1.0%. *Balanophyllia elegans* were not observed on RPCs. All the gorgonian species remained abundant with *Muricea californica* being the most abundant at 0.33/m². *Muricea fruticosa* density decreased to 0.0097/m². *Lophogorgia chilensis* density remained similar to recent years at 0.10/m².

Strongylocentrotus spp. dominated the site, similar to last year. *Strongylocentrotus franciscanus* were abundant with a density of 11/m², similar to recent years. *Strongylocentrotus purpuratus* density remained high, similar to last year at 33/m². *Centrostephanus coronatus* were present at 0.21/m². *Lytechinus anamesus* density was 0.076/m², an increase from last year. No sea urchin wasting disease was observed.

Patiria miniata were present at a density of 0.38/m². *Pisaster giganteus* were sampled on 1 m quadrats and 5 m quadrats with densities of 0.083/m² and 0.085/m², respectively, an increase from last year. *Parastichopus parvimensis* density continued to increase for the fourth consecutive year to 0.50/m². Juvenile *P. parvimensis* were observed. Sea star wasting disease was observed in approximately 20% of *P. miniata* on August 20th.

Megathura crenulata were present at a density of 0.044/m², similar to last year. *Crassidoma giganteum* were present in a large range of sizes at a density of 0.0083/m², similar to last year. Many empty *C. giganteus* were noted. *Kelletia kelletii* density was 0.022/m², and all of those observed were large adults. *Tegula regina* were not observed on 1 m quadrats and eight were found for size frequency measurements. *Megastrea undosa* density continued to decline for the fourth consecutive year to 0.083/m² with mostly adults present. No *Astraea gibberosa* or *Cypraea spadicea* were observed on 1 m quadrats. *Aplysia californica* were rare with a density of 0.0097/m², similar to last year. No *Panulirus interruptus* were observed on band transects, though a few were observed at the site.

Similar to last year, fish diversity was low, but overall abundance was high. Very few rockfish were present. *Coryphopterus nicholsii* density was lower than last year but similar to previous years at 0.92/m² and up to 211 observed during the roving diver fish count. *Alloclinus holderi* were common, similar to last year, with a density of 0.25/m² and up to nine observed. *Oxylebius pictus* were abundant with up to 38 observed, similar to last year. *Chromis punctipinnis* were the most abundant fish with up to 670 adults observed. *Oxyjulis californica* were common with up to 65 adults observed. *Semicossyphus pulcher* were very abundant this year with up to 19 females (mostly small), seven juveniles, and no males observed. Four female, one juvenile, and five male *Halichoeres semicinctus* were observed. *Hypsypops rubicundus* were common with up to 19 adults observed. Up to 10 adult and no juvenile *Paralabrax clathratus* were observed. *Girella nigricans* were abundant with up to 70 adults counted. There were up to three adult *Embiotoca jacksoni* observed. No *Embiotoca lateralis* were observed. One *Rhacochilus vacca* was observed. No *Sebastes mystinus* were observed. No *Sebastes atrovirens* were observed. No *Sebastes serranoides* were observed. There was one adult *Sebastes serriceps* observed. One *Sebastes chrysomelas*, black and yellow rockfish, was observed. *Medialuna californiensis*, halfmoon, were present with up to 10 adults observed. Two *Caulolatilus princeps*, ocean whitefish, were observed. One *Pleuronichthys coenosus*, CO turbot, was counted. One *Stereolepis gigas*, giant black sea bass, was observed. Roving diver fish counts were conducted on August 20th by four divers observing 20 species.

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

Webster's Arch, Santa Barbara Island

Site #35 SBWA

2008 sampling dates: 6/10, 6/11

2008 status: Dominated by *Strongylocentrotus purpuratus* and *S. franciscanus*

This site continued to be dominated by *Strongylocentrotus* spp. and nearly devoid of macroalgae, similar to most of the sites around this island. Adult *Eisenia arborea* were noted on the top of larger rocks and other high relief areas where there were no sea urchins, but there appeared to be fewer individuals than last year. A few juveniles were noted along the transect as well. No *Macrocystis pyrifera*, *Laminaria farlowii*, *Eisenia arborea*, *Pterygophora californica*, or misc. brown algae were recorded nor observed along the transect. Green algae cover was 3.3%, similar to past years. Miscellaneous red algae cover continued to increase since we began monitoring this site four years ago to 19.8%. These categories consisted mostly of *Laurencia pacifica* and *Codium setchellii* which were present mostly on top of rocks. Miscellaneous plant cover, consisting of filamentous diatoms, was recorded at 5.3%. Articulate coralline algae were present with a cover of 1.0%. Encrusting coralline algae remained abundant, but decreased in cover to 45%. Bare substrate increased from last year to 15%.

Miscellaneous invertebrates excluding *Ophiothrix spiculata*, cover was recorded at 15%. *Spirobranchus spinosus* and barnacles were the most dominant invertebrates in this category. There were also a moderate amount of *Myxicola infundibulum* noted along the transect in aggregations. Tunicate cover was 3.5%. Sponge cover was of 2.5%, an increase from last year. *Tethya aurantia* were rare at 0.0028/m². Miscellaneous bryozoan cover was 8.7%, an increase from last year. *Corynactis californica* were abundant over most of the transect, a trend seen at other Santa Barbara Island sites, with a cover of 8.2%. *Balanophyllia elegans* cover was 0.50%. *Astrangia lajollaensis* cover was 0.33%. *Lophogorgia chilensis*, *Muricea californica*, and *Muricea fruticosa* were present with densities of 0.0125/m², 0.0069/m², and 0.0014/m², respectively.

This site continued to be dominated by *Strongylocentrotus franciscanus* and *Strongylocentrotus purpuratus* with a uniform distribution throughout the site, similar to past years. *Strongylocentrotus franciscanus* were moderately abundant with a density of 9.4/m² and *S. purpuratus* were very abundant with a density of 84/m². Juvenile *S. franciscanus* were common while juvenile *S. purpuratus* were abundant. The mean size of *S. franciscanus* and *S. purpuratus* were 29 mm and 17 mm, respectively, similar to last year. *Centrostephanus coronatus* were common at a density of 0.25/m². *Lytechinus anamesus* were observed a density of 0.0028/m². Approximately 2% of *S. franciscanus* were observed with wasting disease on June 10th.

Ophiothrix spiculata cover continued to steadily increase to 15%, the highest cover recorded since we began monitoring here in 2005. *Patiria miniata* were moderately abundant at a density of 2.3/m². *Pisaster giganteus* were moderately abundant but were mostly found on high relief areas and directly along the transect. They were counted on both 1 m quadrats and 5 m quadrats with densities of 0.042/m² and 0.065/m², respectively. *Pycnopodia helianthoides* were present at a density of

0.0028/m². *Parastichopus parvimensis* were common at a density of 0.54/m². No sea star wasting disease was observed.

Cypraea spadicea density was 0.54/m², similar to past years. *Megastrea undosa* were abundant with a density of 1.2/m² with most being medium-sized (40-59 mm). *Astraea gibberosa* were present but none were recorded during sampling. *Tegula regina* were present in patches and had a density of 0.58/m². *Kelletia kelletii* were present but rare, with none observed on band transects. *Megathura crenulata* were moderately abundant, similar to last year, with a density of 0.13/m². *Crassidoma giganteum* continued to be rare with a density of 0.011/m². *Aplysia californica* were small and abundant, though their density did decline from last year's high to 0.044/m². No *Panulirus interruptus* were observed in band transects.

The fish at this site were low in abundance and diversity, with all species having similar abundance to last year. *Coryphopterus nicholsii* density was 0.042/m², similar to last year, and up to 16 individuals were observed during the roving diver fish count. *Alloclinus holderi* were not observed in quadrats this year, but one was observed during the roving diver fish count. No *Lythrypnus dalli* were observed. *Oxylebius pictus* were common with up to 21 observed. *Chromis punctipinnis* were the most abundant fish at this site with up to 185 adults observed. Two adult *Oxyjulis californica* were observed. Up to eight female, no juvenile, and two male *Semicossyphus pulcher* were observed. No *Halichoeres semicinctus* were observed. *Hypsypops rubicundus* adults were moderately abundant with up to 13 adults observed. No *Embiotocidae* spp. were observed. One *Girella nigricans* was observed. No *Sebastes serriceps* or *Sebastes mystinus* were observed. Up to four adult *Sebastes chrysomelas*, black and yellow rockfish, were observed. One *Scorpaenichthys marmoratus*, cabezon, was observed. Roving diver fish counts were conducted on June 10th by four divers observing 11 species.

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

Graveyard Canyon, Santa Barbara Island

Site #36 SBGC

2008 sampling dates: 6/11

2008 status: Dominated by *Ophiothrix spiculata*, *Strongylocentrotus purpuratus* and *S. franciscanus*

The community biology at this site was similar to last year. *Strongylocentrotus* spp. and *Ophiothrix spiculata* continued to dominate the site. There were no significant changes in macroalgae. No indicator species of macroalgae were observed on quadrats or on RPCs. Miscellaneous brown algae and miscellaneous red algae were present at 0.50% and 1.5% cover, respectively. The miscellaneous red algae category consisted mainly of *Laurencia pacifica* and the miscellaneous brown algae category consisted mainly of *Dictyota/Pachydictyota* spp., similar to last year. Miscellaneous plants, specifically filamentous diatoms, were present at 1.5% cover. Encrusting coralline algae cover was similar to last year at 38%. No articulated coralline algae were observed on RPCs. Bare substrate cover remained high at 43%. This site appears to be subject to sand movement, which may account to the high amount of bare substrate.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover was 11%, an increase from last year. Amphipod tube mats were the most abundant invertebrate in this category. No sponges were observed during RPCs although *Tethya aurantia* were common with a density of 0.085/m².

Corynactis californica cover increased to 6.2%, a trend that has been observed at our other Santa Barbara Island sites. *Balanophyllia elegans* were not observed on RPCs. *Astrangia lajollaensis* were present at 0.33% cover, similar to last year. *Lophogorgia chilensis*, *Muricea fruticosa* and *Muricea californica* were all present at this site with densities of 0.038/m², 0.0014/m², and 0.022/m², respectively and similar to last year.

Strongylocentrotus franciscanus and *Strongylocentrotus purpuratus* were present in similar densities as last year at 5.2/m² and 17/m², respectively. *Strongylocentrotus franciscanus* and *S. purpuratus* were both mostly small with means of 32 mm and 16 mm, respectively. *Centrostephanus coronatus* was present at a density of 0.042/m², similar to the last four years. *Lytechinus anamesus* were less abundant than last year at 0.15/m². One *Arbacia incisa* was found at the site measuring 31 mm. This species had not been observed at any of our sites for several years, and we estimate from the size that this one likely recruited during the 2004/05 warm water event. We know approximate growth rates from an individual that was collected and held at the Marine Science Institute, UCSB and from ones that were measured in the ARMs at Admiral's Reef, Anacapa Island. Approximately 3% of *S. franciscanus* and 1% *S. purpuratus* were observed with sea urchin wasting disease on June 11th.

Ophiothrix spiculata was the most dominant invertebrate with a cover of 39%, continuing its steady increase in cover since we began monitoring this site in 2005. *Pisaster giganteus* density was 0.015/m² on 5 m quadrats and none recorded on 1 m quadrats. We found 14 *P. giganteus* at the site for size frequency measurements. *Patiria miniata* density was 0.25/m². No *Pycnopodia helianthoides* were observed. *Parastichopus parvimensis* density was 0.46/m², the highest density recorded since we began monitoring this site in 2005. No sea star wasting disease was observed.

Megathura crenulata were rare with a density of 0.0028/m². *Megastrea undosa* were present in low numbers, similar to last year with a density of 0.042/m², and 15 were found for size frequencies. *Cypraea spadicea* were not observed on quadrats. *Aplysia californica* were less abundant than previous years, at a density of 0.038/m². *Kelletia kelletii* were rare with none observed on band transects. *Crassidoma giganteum* were rare with a density of 0.0042/m², similar to past years.

This site continued to have the lowest fish abundance and diversity of any of our sites. In addition, this may be the least diverse roving diver fish count for this site yet. *Coryphopterus nicholsii* were rare on quadrats with a density of 0.29/m² and up to 87 individuals observed during roving diver fish count. No *Lythrypnus dalli* or *Alloclinus holderi* were observed during quadrats this year. However, one *A. holderi* was observed during the roving diver fish count. Two *Oxylebius pictus* were observed. No *Chromis punctipinnis* were observed. *Oxyjulis californicus* were not observed during this sampling for the second year. No *Semicossyphus pulcher* were observed. No *Halichoeres semicinctus* were observed. No *Hypsypops rubicundus* were observed. No *Paralabrax clathratus* were observed. No *Girella nigricans* were observed. No *Embiotocidae* or *Sebastes* spp. were observed. *Citharichthys stigmaeus*, speckled sanddab, were present with two observed. A school of about 15 *Sphyræna argentea*, California barracuda, was observed. One *Paralichthys californicus*, California halibut, was

observed. While not observed during the roving diver fish count, one *Squatina californica*, Pacific angel shark was noted. Roving diver fish count was conducted on June 11th with six divers observing 7 species.

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

Southeast Reef, Santa Barbara Island

Site #37 SBSER

2008 sampling dates: 6/24, 6/25

2008 status: Half dominated by a mature kelp forest and half dominated by *Strongylocentrotus* spp.

This site continued to be a mature and diverse kelp forest habitat on the eastern 60m half of the transect and a *Strongylocentrotus purpuratus* and *Strongylocentrotus franciscanus* dominated habitat on the western 40 m half. This is a slight shift from the past years where the kelp forest extended only 40 m and the urchin dominated half extended 60 m. Overall, *Macrocystis pyrifera* adults decreased in density from last year to 0.08/m². However, subadult and juvenile densities increased from last year to 0.42/m² and 1.6/m², respectively. Cover of *M. pyrifera* increased to the highest level since we began monitoring this site in 2005 at 18%. *Laminaria farlowii* were not observed on 1 m quadrats or RPCs. *Cystoseira* spp. were observed at 0.17% cover, similar to last year. *Eisenia arborea* adult and juvenile densities remained similar to last year at 0.13/m² and 0.13/m², respectively. Cover of *E. arborea* was recorded at 5.0%. No *Pterygophora californica* were observed in quadrats, but cover was recorded at 0.17%. *Desmarestia* spp. were noticeably abundant at 18% cover, the highest recorded at this site. Miscellaneous brown algae cover remained similar to last year at 3.0%. Green algae were observed with a cover of 1.0%. Miscellaneous red algae cover increased to the highest recorded at this site at 40%. *Gigartina* spp. were recorded at 0.83% cover. Miscellaneous plants, consisting mostly of filamentous diatoms, were present at a cover of 4.8%. Encrusting coralline algae cover was high at 44.8%, similar to last year. Articulated coralline algae cover increased from last year to 10%. Bare substrate cover continued to decrease and was recorded at 2.5%, the lowest recorded at this site.

Miscellaneous invertebrates excluding *Ophiothrix spiculata*, cover was 15%, with anemones being the most abundant invertebrate in this category. Miscellaneous bryozoans were abundant at 11% cover, similar to last year. Tunicates were very abundant where kelp was present at 8.7% cover, similar to last year. Sponge cover was 1.5%. *Tethya aurantia* were recorded at a density of 0.0042/m². *Corynactis californica* increased in cover to 0.83%, a trend observed at other Santa Barbara Island sites this year. *Astrangia lajollaensis* and *Balanophyllia elegans* were present in low densities at 0.33% and 0.33% cover, respectively. *Lophogorgia chilensis*, *Muricea californica*, and *Muricea fruticosa* were present in small numbers with densities of 0.0097/m², 0.0069/m², and 0.0042/m² respectively. *Diopatra ornata* were present in the low lying areas with a cover of 0.17%. *Serpulorbis squamigerus* were recorded with a cover of 0.17%.

Both *Strongylocentrotus franciscanus* and *Strongylocentrotus purpuratus* were common along the transect but were most abundant along the western half of the transect. *Strongylocentrotus*

franciscanus decreased in density to 8.3/m², the lowest recorded at this site. *Strongylocentrotus purpuratus* increased in density to 16/m², the highest recorded at this site. *Centrostephanus coronatus* were present at a density of 0.13/m². *Lytechinus anamesus* were rare at a density of 0.022/m². Sea urchin wasting disease was observed on approximately 2% of *S. franciscanus* on June 24th.

Pisaster giganteus continued to decrease in density from previous years and were recorded on 1 m quadrats and 5 m quadrats with densities of 0.0/m² and 0.035/m², respectively. *Patiria miniata* remained rare with none recorded during sampling. No *Pycnopodia helianthoides* were observed, similar to previous years. *Parastichopus parvimensis* were abundant at 1.0/m², similar to previous years.

Megastraea undosa were more abundant than in previous years at a density of 0.42/m². *Tegula regina* decreased in density to 0.042/m². *Cypraea spadicea* were present at 0.042/m². *Crassidoma giganteum* density continued to increase from previous years to 0.10/m². *Megathura crenulata* were rare with a density of 0.0028/m². *Aplysia californica* decreased from their high density last year to 0.024/m². *Panulirus interruptus* were present at a density of 0.0042/m². *Panulirus interruptus* continue to be moderately abundant in some of the deep crevices just offshore of the transect area on the reef.

Fish diversity and abundance were similar to last year and notably higher than at the other Santa Barbara Island sites. *Coryphopterus nicholsii* were present with a density of 0.17/m² and up to 66 individuals observed during the roving diver fish count. *Alloclinus holderi* density was 0.042/m², and none were recorded during the roving diver fish count. *Oxylebius pictus* were present with up to 9 observed. *Chromis punctipinnis* were less abundant than last year with up to 63 adults observed. Up to 22 adult and 129 juvenile *Oxyjulis californica* were observed. Six female, one male, and no juvenile *Semicossyphus pulcher* were observed, noticeably less than last year. One female *Halichoeres semicinctus* was recorded. *Hypsypops rubicundus* were common with up to 21 adults recorded. One adult *Paralabrax clathratus* was observed. Three *Girella nigricans* were observed along the transect. *Rhacochilus vacca* were present with up to 13 individuals observed. Up to six *Embiotoca jacksoni* were observed. *Sebastes atrovirens* were present with one recorded during the roving diver fish count. Two adult *Sebastes serriceps* were observed. One *Sebastes chrysomelas*, black and yellow rockfish, was recorded. Two *Gymnothorax mordax*, California moral eel, and one *Scorpaena guttata*, California scorpionfish, were observed. Two *Scorpaenichthys marmoratus*, cabezon, were observed. Six juvenile *Heterostichus rostratus*, giant kelpfish, were observed. Roving diver fish counts were performed on June 24th with seven divers observing 20 species.

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

Appendix B. 1 Meter Quadrat Data

2008 1-M 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> , adult	0.5417	0.7821	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.2500	0.3989	12
<i>Macrocystis pyrifera</i> stipes for plants >1m	4.7500	5.8833	12
<i>Eisenia arborea</i> , adult	0.0000	0.0000	12
<i>Eisenia arborea</i> , juvenile	0.0833	0.1946	12
<i>Pterygophora californica</i> , adult	0.4583	0.6557	12
<i>Pterygophora californica</i> , juvenile	1.5000	1.6376	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>Tegula regina</i>	0.0417	0.1443	12
<i>Patiria miniata</i>	2.3333	2.3677	12
<i>Pisaster giganteus</i>	0.0000	0.0000	12
<i>Strongylocentrotus franciscanus</i>	0.2083	0.7217	12
<i>Strongylocentrotus purpuratus</i>	0.2083	0.4502	12
<i>Parastichopus parvimensis</i>	0.0417	0.1443	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	0.4167	0.5149	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsi</i>	0.0000	0.0000	12
<i>Alloclinis holderi</i>	0.0000	0.0000	12
San Miguel Island - Hare Rock			
<i>Macrocystis pyrifera</i> , adult	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> stipes for plants >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	0.2462	12
<i>Megastrea undosa</i>	0.0000	0.0000	12
<i>Lithopoma gibberosa</i>	0.5417	0.9160	12
<i>Tegula regina</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	4.3750	2.0684	12
<i>Pisaster giganteus</i>	0.2083	0.3343	12
<i>Strongylocentrotus franciscanus</i>	14.2500	8.4464	12
<i>Strongylocentrotus purpuratus</i>	0.5417	1.7249	12
<i>Parastichopus parvimensis</i>	0.0417	0.1443	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 nicholsi</i>	0.4583	1.1373	12
<i>Alloclinis holderi</i>	0.0000	0.0000	12

2008 1-M 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> , adult	1.5000	1.3314	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	3.3750	4.1622	12
<i>Macrocystis pyrifera</i> stipes for plants >1m	6.5000	4.6904	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	0.4981	12
<i>Pterygophora californica</i> , juvenile	1.4167	2.3143	12
<i>Laminaria farlowii</i> , adult	0.2917	0.3343	12
<i>Laminaria farlowii</i> , juvenile	0.3333	0.3892	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>Tegula regina</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	1.0417	0.6557	12
<i>Pisaster giganteus</i>	0.2083	0.3965	12
<i>Strongylocentrotus franciscanus</i>	0.1250	0.3108	12
<i>Strongylocentrotus purpuratus</i>	0.0417	0.1443	12
<i>Parastichopus parvimensis</i>	0.0000	0.0000	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	6.1667	4.3293	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsi</i>	0.0833	0.1946	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12
Santa Rosa Island - Johnson's Lee South			
<i>Macrocystis pyrifera</i> , adult	0.3333	0.3257	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	1.2917	3.2784	12
<i>Macrocystis pyrifera</i> stipes for plants >1m	5.6250	6.4566	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	0.0833	0.2887	12
<i>Pterygophora californica</i> , juvenile	0.0000	0.0000	12
<i>Laminaria farlowii</i> , adult	0.2917	0.4502	12
<i>Laminaria farlowii</i> , juvenile	0.2083	0.4981	12
<i>Cypraea spadicea</i>	0.2083	0.4502	12
<i>Megastrea undosa</i>	0.0000	0.0000	12
<i>Lithopoma gibberosa</i>	0.0417	0.1443	12
<i>Tegula regina</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	3.5833	2.5480	12
<i>Pisaster giganteus</i>	0.0833	0.1946	12
<i>Strongylocentrotus franciscanus</i>	1.4167	4.0555	12
<i>Strongylocentrotus purpuratus</i>	3.2083	6.1808	12
<i>Parastichopus parvimensis</i>	0.0417	0.1443	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	0.2917	0.3965	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsi</i>	0.8333	1.1742	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12

2008 1-M 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> , adult	0.0417	0.1443	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> stipes for plants >1m	0.2500	0.8660	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	0.0833	0.1946	12
<i>Cypraea spadicea</i>	0.1250	0.2261	12
<i>Megastrea undosa</i>	0.0000	0.0000	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Tegula regina</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	5.5417	2.7589	12
<i>Pisaster giganteus</i>	0.3750	0.7111	12
<i>Strongylocentrotus franciscanus</i>	11.4167	11.4233	12
<i>Strongylocentrotus purpuratus</i>	5.2083	9.6941	12
<i>Parastichopus parvimensis</i>	0.0000	0.0000	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	0.4583	0.4981	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsi</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> , adult	0.3333	0.3257	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.5833	0.9252	12
<i>Macrocystis pyrifera</i> stipes for plants >1m	3.7083	3.9454	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	0.0833	0.1946	12
<i>Pterygophora californica</i> , juvenile	0.0833	0.1946	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>	0.3333	0.4924	12
<i>Megastrea undosa</i>	0.0000	0.0000	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Tegula regina</i>	0.0417	0.1443	12
<i>Patiria miniata</i>	2.5833	1.3456	12
<i>Pisaster giganteus</i>	0.1667	0.3257	12
<i>Strongylocentrotus franciscanus</i>	1.7083	2.4445	12
<i>Strongylocentrotus purpuratus</i>	3.3333	4.9237	12
<i>Parastichopus parvimensis</i>	0.2500	0.3989	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 nicholsi</i>	1.1667	1.0299	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12

2008 1-M 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> , adult	0.2500	0.4523	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.4583	0.6557	12
<i>Macrocystis pyrifera</i> stipes for plants >1m	0.3750	0.6440	12
<i>Eisenia arborea</i> , adult	2.2083	2.0277	12
<i>Eisenia arborea</i> , juvenile	2.0833	1.5643	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	0.0000	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>Tegula regina</i>	0.0417	0.1443	12
<i>Patiria miniata</i>	2.2500	1.5300	12
<i>Pisaster giganteus</i>	0.5417	0.6895	12
<i>Strongylocentrotus franciscanus</i>	0.3333	0.5365	12
<i>Strongylocentrotus purpuratus</i>	0.4167	0.7334	12
<i>Parastichopus parvimensis</i>	0.1250	0.3108	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.3333	0.3892	12
<i>Coryphopterus nicholsi</i>	1.8750	1.1702	12
<i>Alloclinus holderi</i>	0.0833	0.1946	12
Santa Cruz Island - Pelican Bay			
<i>Macrocystis pyrifera</i> , adult	0.0417	0.1443	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> stipes for plants >1m	0.0833	0.2887	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>	0.0833	0.1946	12
<i>Megastrea undosa</i>	0.0417	0.1443	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Tegula regina</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.5000	0.5641	12
<i>Pisaster giganteus</i>	0.0833	0.1946	12
<i>Lytechinus anamesus</i>	5.0833	2.5746	12
<i>Strongylocentrotus franciscanus</i>	4.0000	2.1213	12
<i>Strongylocentrotus purpuratus</i>	13.5000	6.9609	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>	0.0417	0.1443	12
<i>Coryphopterus nicholsi</i>	5.4583	2.0165	12
<i>Alloclinus holderi</i>	0.0417	0.1443	12

2008 1-M 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> , adult	0.0833	0.2887	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.1250	0.4330	12
<i>Macrocystis pyrifera</i> stipes for plants >1m	0.1667	0.5774	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	0.0833	0.2887	12
<i>Cypraea spadicea</i>	0.0417	0.1443	12
<i>Megastrea undosa</i>	0.2500	0.2611	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Tegula regina</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.1667	0.2462	12
<i>Pisaster giganteus</i>	0.0417	0.1443	12
<i>Strongylocentrotus franciscanus</i>	4.5833	2.7289	12
<i>Strongylocentrotus purpuratus</i>	27.9583	19.0412	12
<i>Parastichopus parvimensis</i>	0.5417	0.7525	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 nicholsi</i>	1.5833	1.0408	12
<i>Alloclinus holderi</i>	0.0417	0.1443	12
Santa Cruz Island - Yellow Banks			
<i>Macrocystis pyrifera</i> , adult	0.1667	0.2462	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.0833	0.2887	12
<i>Macrocystis pyrifera</i> stipes for plants >1m	3.9167	6.0371	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>Tegula regina</i>	0.0417	0.1443	12
<i>Patiria miniata</i>	2.0833	1.4434	12
<i>Pisaster giganteus</i>	0.1667	0.3257	12
<i>Lytechinus anamesus</i>	0.0417	0.1443	12
<i>Strongylocentrotus franciscanus</i>	1.3750	1.7205	12
<i>Strongylocentrotus purpuratus</i>	10.6667	8.8634	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 nicholsi</i>	1.0833	1.0836	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12

2008 1-M 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> , adult	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.0833	0.2887	12
<i>Macrocystis pyrifera</i> stipes for plants >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>	0.0000	0.0000	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Tegula regina</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	1.9583	1.2332	12
<i>Pisaster giganteus</i>	0.0417	0.1443	12
<i>Strongylocentrotus franciscanus</i>	8.5417	5.5328	12
<i>Strongylocentrotus purpuratus</i>	5.7083	4.1146	12
<i>Parastichopus parvimensis</i>	0.2917	0.5823	12
<i>Centrostephanus coronatus</i>	0.7500	0.9170	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsi</i>	1.7500	0.8118	12
<i>Alloclinus holderi</i>	0.1250	0.2261	12
Anacapa Island - Cathedral Cove			
<i>Macrocystis pyrifera</i> , adult	1.0000	0.9293	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	5.7083	10.6972	12
<i>Macrocystis pyrifera</i> stipes for plants >1m	9.7500	9.4087	12
<i>Eisenia arborea</i> , adult	0.0417	0.1443	12
<i>Eisenia arborea</i> , juvenile	0.2083	0.5823	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	6.6250	4.1677	12
<i>Laminaria farlowii</i> , juvenile	22.4583	25.4643	12
<i>Cypraea spadicea</i>	0.0417	0.1443	12
<i>Megastrea undosa</i>	1.5000	1.3143	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Tegula regina</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.0000	0.0000	12
<i>Pisaster giganteus</i>	0.0000	0.0000	12
<i>Strongylocentrotus franciscanus</i>	4.2500	3.4477	12
<i>Strongylocentrotus purpuratus</i>	1.7083	2.5977	12
<i>Parastichopus parvimensis</i>	0.8333	0.8072	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 nicholsi</i>	0.2500	0.2611	12
<i>Alloclinus holderi</i>	0.5417	0.4981	12

2008 1-M 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> , adult	0.9583	0.6201	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	6.7917	12.4854	12
<i>Macrocystis pyrifera</i> stipes for plants >1m	5.5000	6.7790	12
<i>Eisenia arborea</i> , adult	1.9167	2.5301	12
<i>Eisenia arborea</i> , juvenile	0.5833	0.9962	12
<i>Pterygophora californica</i> , adult	0.7917	1.0326	12
<i>Pterygophora californica</i> , juvenile	1.2917	1.3049	12
<i>Laminaria farlowii</i> , adult	8.2917	6.7939	12
<i>Laminaria farlowii</i> , juvenile	41.7917	59.5801	12
<i>Cypraea spadicea</i>	0.0417	0.1443	12
<i>Megastrea undosa</i>	0.2917	0.3965	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Tegula regina</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.0000	0.0000	12
<i>Pisaster giganteus</i>	0.0417	0.1443	12
<i>Strongylocentrotus franciscanus</i>	1.9167	2.0542	12
<i>Strongylocentrotus purpuratus</i>	1.8750	2.6382	12
<i>Parastichopus parvimensis</i>	0.7500	0.9653	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 nicholsi</i>	0.0833	0.1946	12
<i>Alloclinus holderi</i>	0.3333	0.3892	12
Santa Barbara Island - SE Sea Lion Rookery			
<i>Macrocystis pyrifera</i> , adult	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> stipes for plants >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>	0.4583	0.6557	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Tegula regina</i>	0.3750	0.8823	12
<i>Patiria miniata</i>	0.3333	0.4924	12
<i>Pisaster giganteus</i>	0.0000	0.0000	12
<i>Lytechinus anamesus</i>	0.0000	0.0000	12
<i>Strongylocentrotus franciscanus</i>	13.0417	7.7179	12
<i>Strongylocentrotus purpuratus</i>	18.3750	20.9362	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 nicholsi</i>	0.6250	0.6784	12
<i>Alloclinus holderi</i>	0.1250	0.3108	12

2008 1-M 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> , adult	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> stipes for plants >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	0.3257	12
<i>Megastrea undosa</i>	0.9583	1.3222	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Tegula regina</i>	1.0417	2.7007	12
<i>Patiria miniata</i>	0.7500	0.8919	12
<i>Pisaster giganteus</i>	0.2083	0.3343	12
<i>Strongylocentrotus franciscanus</i>	13.1250	7.3303	12
<i>Strongylocentrotus purpuratus</i>	132.6250	51.0290	12
<i>Parastichopus parvimensis</i>	0.2917	0.4502	12
<i>Centrostephanus coronatus</i>	0.2083	0.4502	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsi</i>	0.2500	0.5000	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12
Santa Barbara Island - Cat Canyon			
<i>Macrocystis pyrifera</i> , adult	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> stipes for plants >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	0.1946	12
<i>Megastrea undosa</i>	0.6667	0.7487	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Tegula regina</i>	0.3750	0.7424	12
<i>Patiria miniata</i>	0.1667	0.3257	12
<i>Pisaster giganteus</i>	0.0833	0.1946	12
<i>Strongylocentrotus franciscanus</i>	10.6250	5.0413	12
<i>Strongylocentrotus purpuratus</i>	90.0417	26.8434	12
<i>Parastichopus parvimensis</i>	0.7083	0.5418	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 nicholsi</i>	0.1667	0.3257	12
<i>Alloclinus holderi</i>	0.0417	0.1443	12

2008 1-M 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> , adult	0.2083	0.4502	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> stipes for plants >1m	2.3750	4.9503	12
<i>Eisenia arborea</i> , adult	0.8333	0.8616	12
<i>Eisenia arborea</i> , juvenile	0.0000	0.0000	12
<i>Pterygophora californica</i> , adult	0.5000	0.7071	12
<i>Pterygophora californica</i> , juvenile	0.0833	0.2887	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>Tegula regina</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	3.6667	2.1985	12
<i>Pisaster giganteus</i>	0.8750	0.8292	12
<i>Strongylocentrotus franciscanus</i>	4.8750	7.3951	12
<i>Strongylocentrotus purpuratus</i>	0.2917	0.7217	12
<i>Parastichopus parvimensis</i>	0.0417	0.1443	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	0.2083	0.4502	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsi</i>	0.0000	0.0000	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12
Santa Rosa Island - Cluster Point			
<i>Macrocystis pyrifera</i> , adult	0.5417	0.9160	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	1.9583	2.3496	12
<i>Macrocystis pyrifera</i> stipes for plants >1m	3.9167	5.8030	12
<i>Eisenia arborea</i> , adult	0.0417	0.1443	12
<i>Eisenia arborea</i> , juvenile	0.0833	0.1946	12
<i>Pterygophora californica</i> , adult	2.8750	2.7230	12
<i>Pterygophora californica</i> , juvenile	8.4167	26.0278	12
<i>Laminaria farlowii</i> , adult	0.0833	0.1946	12
<i>Laminaria farlowii</i> , juvenile	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.2083	0.2575	12
<i>Megastrea undosa</i>	0.0000	0.0000	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Tegula regina</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	2.0000	1.3981	12
<i>Pisaster giganteus</i>	0.2917	0.4502	12
<i>Strongylocentrotus franciscanus</i>	2.7917	4.7168	12
<i>Strongylocentrotus purpuratus</i>	2.1667	3.2845	12
<i>Parastichopus parvimensis</i>	0.2083	0.3343	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	0.2917	0.6201	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsi</i>	0.0417	0.1443	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12

2008 1-M 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> , adult	0.5833	0.7017	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	1.2500	1.7516	12
<i>Macrocystis pyrifera</i> stipes for plants >1m	6.0000	9.8465	12
<i>Eisenia arborea</i> , adult	0.0417	0.1443	12
<i>Eisenia arborea</i> , juvenile	0.0417	0.1443	12
<i>Pterygophora californica</i> , adult	0.5417	1.0326	12
<i>Pterygophora californica</i> , juvenile	5.7500	15.6924	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>	0.2917	0.4502	12
<i>Megastrea undosa</i>	0.0417	0.1443	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Tegula regina</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	1.9583	1.0326	12
<i>Pisaster giganteus</i>	0.3750	0.4827	12
<i>Strongylocentrotus franciscanus</i>	6.5833	6.3455	12
<i>Strongylocentrotus purpuratus</i>	7.1667	6.7901	12
<i>Parastichopus parvimensis</i>	0.1667	0.2462	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	0.8750	1.1307	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsi</i>	0.1250	0.3108	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12
Santa Rosa Island - Chickasaw			
<i>Macrocystis pyrifera</i> , adult	0.4167	0.2887	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.8750	1.0472	12
<i>Macrocystis pyrifera</i> stipes for plants >1m	4.2083	6.7334	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	0.1667	0.2462	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	0.3257	12
<i>Megastrea undosa</i>	0.0000	0.0000	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Tegula regina</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	1.8750	0.9077	12
<i>Pisaster giganteus</i>	0.1667	0.3257	12
<i>Strongylocentrotus franciscanus</i>	1.1250	1.9084	12
<i>Strongylocentrotus purpuratus</i>	0.7083	1.1373	12
<i>Parastichopus parvimensis</i>	0.0417	0.1443	12
<i>Centrostephanus coronatus</i>	0.0000	0.0000	12
<i>Styela montereyensis</i>	0.3333	0.7177	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsi</i>	0.1250	0.4330	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12

2008 1-M 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> , adult	0.9167	0.6337	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	1.3333	1.4355	12
<i>Macrocystis pyrifera</i> stipes for plants >1m	5.4583	5.4082	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	1.2917	1.5442	12
<i>Pterygophora californica</i> , juvenile	1.5833	2.0431	12
<i>Laminaria farlowii</i> , adult	0.4583	0.4981	12
<i>Laminaria farlowii</i> , juvenile	1.3333	2.6827	12
<i>Cypraea spadicea</i>	0.1250	0.4330	12
<i>Megastrea undosa</i>	0.0000	0.0000	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Tegula regina</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	2.2917	2.0052	12
<i>Pisaster giganteus</i>	0.1250	0.2261	12
<i>Strongylocentrotus franciscanus</i>	0.0417	0.1443	12
<i>Strongylocentrotus purpuratus</i>	1.0417	2.0052	12
<i>Parastichopus parvimensis</i>	0.0417	0.1443	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 nicholsi</i>	0.0000	0.0000	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12
Santa Cruz Island - Devil's Peak Member			
<i>Macrocystis pyrifera</i> , adult	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> stipes for plants >1m	0.0000	0.0000	12
<i>Eisenia arborea</i> , adult	0.0000	0.0000	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	0.0000	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>	0.0833	0.1946	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Tegula regina</i>	0.0417	0.1443	12
<i>Patiria miniata</i>	0.4167	0.7638	12
<i>Pisaster giganteus</i>	0.0833	0.2887	12
<i>Strongylocentrotus franciscanus</i>	3.6667	3.0327	12
<i>Strongylocentrotus purpuratus</i>	23.8750	14.0148	12
<i>Parastichopus parvimensis</i>	0.1667	0.3257	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 nicholsi</i>	1.5417	0.9876	12
<i>Alloclinus holderi</i>	0.3333	0.3257	12

2008 1-M 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> , adult	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> stipes for plants >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	0.3371	12
<i>Megastrea undosa</i>	0.1667	0.3257	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Tegula regina</i>	0.1250	0.3108	12
<i>Patiria miniata</i>	0.3750	0.7111	12
<i>Pisaster giganteus</i>	0.0417	0.1443	12
<i>Lytechinus anamesus</i>	0.0417	0.1443	12
<i>Strongylocentrotus franciscanus</i>	6.6667	2.6657	12
<i>Strongylocentrotus purpuratus</i>	15.9583	10.1834	12
<i>Parastichopus parvimensis</i>	0.3750	0.4827	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 nicholsi</i>	1.2500	1.3568	12
<i>Alloclinus holderi</i>	0.2083	0.3343	12
Santa Cruz Island - Cavern Point			
<i>Macrocystis pyrifera</i> , adult	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> stipes for plants >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>	0.0833	0.2887	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Tegula regina</i>	0.0417	0.1443	12
<i>Patiria miniata</i>	0.6667	1.4822	12
<i>Pisaster giganteus</i>	0.0417	0.1443	12
<i>Lytechinus anamesus</i>	0.1250	0.2261	12
<i>Strongylocentrotus franciscanus</i>	2.0417	1.8642	12
<i>Strongylocentrotus purpuratus</i>	30.5833	9.6456	12
<i>Parastichopus parvimensis</i>	1.5000	0.9770	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 nicholsi</i>	1.0833	0.5149	12
<i>Alloclinus holderi</i>	0.4583	0.5418	12

2008 1-M 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> , adult	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> stipes for plants >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>Tegula regina</i>	0.0833	0.1946	12
<i>Patiria miniata</i>	1.7083	1.4055	12
<i>Pisaster giganteus</i>	0.0417	0.1443	12
<i>Strongylocentrotus franciscanus</i>	5.0417	2.8640	12
<i>Strongylocentrotus purpuratus</i>	10.8333	8.1110	12
<i>Parastichopus parvimensis</i>	0.5000	0.6396	12
<i>Centrostephanus coronatus</i>	0.1667	0.3257	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsi</i>	0.9583	1.1572	12
<i>Alloclinus holderi</i>	0.0417	0.1443	12
Santa Cruz Island - Pedro Reef			
<i>Macrocystis pyrifera</i> , adult	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> stipes for plants >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>	0.8750	1.1506	12
<i>Megastrea undosa</i>	0.6667	0.5774	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Tegula regina</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.6250	0.4827	12
<i>Pisaster giganteus</i>	0.0417	0.1443	12
<i>Lytechinus anamesus</i>	2.1667	2.7497	12
<i>Strongylocentrotus franciscanus</i>	8.5417	3.4474	12
<i>Strongylocentrotus purpuratus</i>	59.2500	25.3211	12
<i>Parastichopus parvimensis</i>	0.5000	0.7071	12
<i>Centrostephanus coronatus</i>	0.1667	0.3257	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsi</i>	1.2083	1.4687	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12

2008 1-M 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> , adult	0.0417	0.1443	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.0417	0.1443	12
<i>Macrocystis pyrifera</i> stipes for plants >1m	0.1250	0.4330	12
<i>Eisenia arborea</i> , adult	0.2500	0.6216	12
<i>Eisenia arborea</i> , juvenile	0.3333	0.5365	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>	1.0833	0.8211	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Tegula regina</i>	0.1667	0.3257	12
<i>Patiria miniata</i>	0.5417	0.6895	12
<i>Pisaster giganteus</i>	0.0417	0.1443	12
<i>Lytechinus anamesus</i>	0.0417	0.1443	12
<i>Strongylocentrotus franciscanus</i>	4.2500	3.4542	12
<i>Strongylocentrotus purpuratus</i>	42.9167	32.7510	12
<i>Parastichopus parvimensis</i>	0.5417	0.8107	12
<i>Centrostephanus coronatus</i>	0.2917	0.3343	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0417	0.1443	12
<i>Coryphopterus nicholsi</i>	0.9583	0.5823	12
<i>Alloclinus holderi</i>	0.7917	0.7525	12
Anacapa Island - East Fish Camp			
<i>Macrocystis pyrifera</i> , adult	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> stipes for plants >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	0.3257	12
<i>Megastrea undosa</i>	0.7500	1.0335	12
<i>Lithopoma gibberosa</i>	0.0833	0.1946	12
<i>Tegula regina</i>	0.0417	0.1443	12
<i>Patiria miniata</i>	0.5000	0.4264	12
<i>Pisaster giganteus</i>	0.0000	0.0000	12
<i>Lytechinus anamesus</i>	2.0000	4.1010	12
<i>Strongylocentrotus franciscanus</i>	11.7917	3.9339	12
<i>Strongylocentrotus purpuratus</i>	61.6250	16.7497	12
<i>Parastichopus parvimensis</i>	1.0833	0.7017	12
<i>Centrostephanus coronatus</i>	0.4583	0.4981	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsi</i>	1.0833	1.1839	12
<i>Alloclinus holderi</i>	0.0833	0.1946	12

2008 1-M 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> , adult	0.5417	0.8649	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	1.3333	1.9228	12
<i>Macrocystis pyrifera</i> stipes for plants >1m	1.2917	2.0052	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>Tegula regina</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.1250	0.3108	12
<i>Pisaster giganteus</i>	0.0417	0.1443	12
<i>Strongylocentrotus franciscanus</i>	2.3750	1.6114	12
<i>Strongylocentrotus purpuratus</i>	5.9167	7.2295	12
<i>Parastichopus parvimensis</i>	0.7500	0.5839	12
<i>Centrostephanus coronatus</i>	0.5000	0.6030	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.2083	0.7217	12
<i>Coryphopterus nicholsi</i>	0.7500	0.8118	12
<i>Alloclinus holderi</i>	0.6250	0.4330	12
Anacapa Island - Lighthouse			
<i>Macrocystis pyrifera</i> , adult	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> stipes for plants >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>Tegula regina</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.3750	0.3769	12
<i>Pisaster giganteus</i>	0.0833	0.2887	12
<i>Strongylocentrotus franciscanus</i>	10.7917	5.7582	12
<i>Strongylocentrotus purpuratus</i>	33.4167	4.9490	12
<i>Parastichopus parvimensis</i>	0.5000	0.6030	12
<i>Centrostephanus coronatus</i>	0.2083	0.2575	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsi</i>	0.9167	0.6337	12
<i>Alloclinus holderi</i>	0.2500	0.3371	12

2008 1-M 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> , adult	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> stipes for plants >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>	0.5417	0.8382	12
<i>Megastrea undosa</i>	1.1667	1.2673	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Tegula regina</i>	0.5833	0.7017	12
<i>Patiria miniata</i>	2.2917	1.0104	12
<i>Pisaster giganteus</i>	0.0417	0.1443	12
<i>Strongylocentrotus franciscanus</i>	9.4167	2.9375	12
<i>Strongylocentrotus purpuratus</i>	83.9583	24.0676	12
<i>Parastichopus parvimensis</i>	0.5417	0.6201	12
<i>Centrostephanus coronatus</i>	0.2500	0.5000	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsi</i>	0.0417	0.1443	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12
Santa Barbara Island - Graveyard Canyon			
<i>Macrocystis pyrifera</i> , adult	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	0.0000	0.0000	12
<i>Macrocystis pyrifera</i> stipes for plants >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>	0.0417	0.1443	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Tegula regina</i>	0.0000	0.0000	12
<i>Patiria miniata</i>	0.2500	0.3371	12
<i>Pisaster giganteus</i>	0.0000	0.0000	12
<i>Lytechinus anamesus</i>	0.4583	0.9643	12
<i>Strongylocentrotus franciscanus</i>	5.1667	3.3052	12
<i>Strongylocentrotus purpuratus</i>	16.8333	18.6965	12
<i>Parastichopus parvimensis</i>	0.4583	0.5418	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 nicholsi</i>	0.2917	0.4502	12
<i>Alloclinus holderi</i>	0.0000	0.0000	12

2008 1-M 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> , adult	0.3333	0.8876	12
<i>Macrocystis pyrifera</i> , juvenile, juvenile	1.6250	2.8455	12
<i>Macrocystis pyrifera</i> stipes for plants >1m	1.5833	3.6979	12
<i>Eisenia arborea</i> , adult	0.1250	0.3108	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	0.0000	0.0000	12
<i>Cypraea spadicea</i>	0.0417	0.1443	12
<i>Megastrea undosa</i>	0.4167	0.5573	12
<i>Lithopoma gibberosa</i>	0.0000	0.0000	12
<i>Tegula regina</i>	0.0417	0.1443	12
<i>Patiria miniata</i>	0.0000	0.0000	12
<i>Pisaster giganteus</i>	0.0000	0.0000	12
<i>Strongylocentrotus franciscanus</i>	8.3333	6.9260	12
<i>Strongylocentrotus purpuratus</i>	16.4583	31.6913	12
<i>Parastichopus parvimensis</i>	1.0833	0.8483	12
<i>Centrostephanus coronatus</i>	0.1250	0.4330	12
<i>Styela montereyensis</i>	0.0000	0.0000	12
<i>Lythrypnus dalli</i>	0.0000	0.0000	12
<i>Coryphopterus nicholsi</i>	0.1667	0.4438	12
<i>Alloclinus holderi</i>	0.0417	0.1443	12

Appendix C. 5 Meter Quadrat Data

2008 5-M QUADRAT DATA: MEAN NUMBER PER M²

NOTE: *Macrocystis*
Macrocystis

Adult = >1m and haptera above the primary
Subadult = >1m and NO haptera above the primary dichotomy

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
San Miguel Island - Wyckoff Ledge			
<i>Macrocystis pyrifera</i> , adult	0.3300	0.2420	40
<i>Macrocystis pyrifera</i> , subadult	0.2350	0.3000	40
<i>Pisaster giganteus</i>	0.0300	0.1159	40
San Miguel Island - Hare Rock			
<i>Macrocystis pyrifera</i> , adult	0.0000	0.0000	40
<i>Macrocystis pyrifera</i> , subadult	0.0000	0.0000	40
<i>Pisaster giganteus</i>	0.1500	0.2342	40
Santa Rosa Island - Johnson's Lee North			
<i>Macrocystis pyrifera</i> , adult	0.3650	0.3000	40
<i>Macrocystis pyrifera</i> , subadult	0.4850	0.4748	40
<i>Pisaster giganteus</i>	0.1500	0.1908	40
Santa Rosa Island - Johnson's Lee South			
<i>Macrocystis pyrifera</i> , adult	0.2900	0.2863	40
<i>Macrocystis pyrifera</i> , subadult	0.1200	0.2857	40
<i>Pisaster giganteus</i>	0.0750	0.1335	40
Santa Rosa Island - Rodes Reef			
<i>Macrocystis pyrifera</i> , adult	0.1100	0.1919	40
<i>Macrocystis pyrifera</i> , subadult	0.0300	0.0966	40
<i>Pisaster giganteus</i>	0.2400	0.3144	40
Santa Cruz Island - Gull Island South			
<i>Macrocystis pyrifera</i> , adult	0.2600	0.2836	40
<i>Macrocystis pyrifera</i> , subadult	0.1300	0.1843	40
<i>Pisaster giganteus</i>	0.1450	0.1974	40
Santa Cruz Island - Fry's Harbor			
<i>Macrocystis pyrifera</i> , adult	0.0400	0.1033	40
<i>Macrocystis pyrifera</i> , subadult	0.5050	0.5711	40
<i>Pisaster giganteus</i>	0.2700	0.3314	40
Santa Cruz Island - Pelican Bay			
<i>Macrocystis pyrifera</i> , adult	0.0100	0.0441	40
<i>Macrocystis pyrifera</i> , subadult	0.0100	0.0632	40
<i>Pisaster giganteus</i>	0.0900	0.1566	40
Santa Cruz Island - Scorpion Anchorage			
<i>Macrocystis pyrifera</i> , adult	0.0950	0.2353	40
<i>Macrocystis pyrifera</i> , subadult	0.1350	0.3853	40
<i>Pisaster giganteus</i>	0.0600	0.1128	40
Santa Cruz Island - Yellow Banks			
<i>Macrocystis pyrifera</i> , adult	0.1300	0.2151	40
<i>Macrocystis pyrifera</i> , subadult	0.0200	0.0608	40
<i>Pisaster giganteus</i>	0.0250	0.0809	40

2008 5-M QUADRAT DATA: MEAN NUMBER PER M₂

NOTE: *Macrocystis*
Macrocystis

Adult = >1m and haptera above the primary
Subadult = >1m and NO haptera above the primary dichotomy

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Anacapa Island - Admiral's 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>	0.0450	0.0959	40
Anacapa Island - Cathedral Cove			
<i>Macrocystis pyrifera</i> , adult	0.1650	0.1626	40
<i>Macrocystis pyrifera</i> , subadult	0.6300	0.5369	40
<i>Pisaster giganteus</i>	0.0000	0.0000	40
Anacapa Island - Landing Cove			
<i>Macrocystis pyrifera</i> , adult	0.1550	0.1999	40
<i>Macrocystis pyrifera</i> , subadult	0.5000	0.4961	40
<i>Pisaster giganteus</i>	0.0350	0.1189	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>	0.0150	0.0700	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>	0.1050	0.1694	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>	0.0600	0.1128	40
San Miguel Island - Miracle Mile			
<i>Macrocystis pyrifera</i> , adult	0.1500	0.2013	40
<i>Macrocystis pyrifera</i> , subadult	0.0450	0.1535	40
<i>Pisaster giganteus</i>	0.3350	0.4161	40
Santa Rosa Island - Cluster Point			
<i>Macrocystis pyrifera</i> , adult	0.1250	0.2743	40
<i>Macrocystis pyrifera</i> , subadult	0.6100	0.5870	40
<i>Pisaster giganteus</i>	0.3300	0.3090	40
Santa Rosa Island - Trancion Canyon			
<i>Macrocystis pyrifera</i> , adult	0.3150	0.3262	40
<i>Macrocystis pyrifera</i> , subadult	0.3450	0.4793	40
<i>Pisaster giganteus</i>	0.3950	0.4284	40
Santa Rosa Island - Chickasaw			
<i>Macrocystis pyrifera</i> , adult	0.3050	0.2218	40
<i>Macrocystis pyrifera</i> , subadult	0.1950	0.3748	40
<i>Pisaster giganteus</i>	0.1400	0.1516	40

2008 5-M QUADRAT DATA: MEAN NUMBER PER M₂

NOTE: *Macrocystis*
Macrocystis

Adult = >1m and haptera above the primary
Subadult = >1m and NO haptera above the primary dichotomy

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Rosa Island - South Point			
<i>Macrocystis pyrifera</i> , adult	0.2500	0.2253	40
<i>Macrocystis pyrifera</i> , subadult	0.7550	0.5556	40
<i>Pisaster giganteus</i>	0.0650	0.1312	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>	0.1300	0.1843	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	0.1145	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>	0.0600	0.0928	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>	0.1450	0.1431	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>	0.0500	0.1414	40
Anacapa Island - Keyhole			
<i>Macrocystis pyrifera</i> , adult	0.0250	0.0670	40
<i>Macrocystis pyrifera</i> , subadult	0.0150	0.0533	40
<i>Pisaster giganteus</i>	0.0050	0.0316	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>	0.0000	0.0000	40
Anacapa Island - Black Sea Bass Reef			
<i>Macrocystis pyrifera</i> , adult	0.0050	0.0316	40
<i>Macrocystis pyrifera</i> , subadult	0.1250	0.3440	40
<i>Pisaster giganteus</i>	0.0050	0.0316	40
Anacapa Island - Lighthouse			
<i>Macrocystis pyrifera</i> , adult	0.0000	0.0000	40
<i>Macrocystis pyrifera</i> , subadult	0.0000	0.0000	40
<i>Pisaster giganteus</i>	0.0850	0.1272	40

2008 5-M QUADRAT DATA: MEAN NUMBER PER M₂

NOTE: *Macrocystis*
Macrocystis

Adult = >1m and haptera above the primary
 Subadult = >1m and NO haptera above the primary dichotomy

<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>	0.0650	0.1312	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>	0.0150	0.0533	40
Santa Barbara Island - Southeast Reef			
<i>Macrocystis pyrifera</i> , adult	0.0800	0.1620	40
<i>Macrocystis pyrifera</i> , subadult	0.4150	0.7406	40
<i>Pisaster giganteus</i>	0.0350	0.1189	40

Appendix D. Band Transect Data

2008 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			
Tethya aurantia	0.1778	0.1064	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.3278	0.2900	12
Lophogorgia chilensis	0.0000	0.0000	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0625	0.0556	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.2639	0.1096	12
Megathura crenulata	0.0056	0.0109	12
Crassidoma giganteum	0.0042	0.0075	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0028	0.0096	12
Lytechinus anamesus	0.0000	0.0000	12
San Miguel Island - Hare Rock			
Tethya aurantia	0.0458	0.0334	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0222	0.0343	12
Lophogorgia chilensis	0.0000	0.0000	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0083	0.0241	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0056	0.0109	12
Megathura crenulata	0.0014	0.0048	12
Crassidoma giganteum	0.0125	0.0144	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.1597	0.0854	12
Lytechinus anamesus	0.0000	0.0000	12
Santa Rosa Island - Johnson's Lee North			
Tethya aurantia	0.1486	0.0637	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0125	0.0144	12
Lophogorgia chilensis	0.0000	0.0000	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0153	0.0150	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0042	0.0075	12
Megathura crenulata	0.0042	0.0075	12
Crassidoma giganteum	0.0125	0.0203	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.1389	0.0763	12
Lytechinus anamesus	0.0000	0.0000	12

2008 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			
Tethya aurantia	0.3542	0.1458	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.1653	0.1296	12
Lophogorgia chilensis	0.0514	0.0230	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0014	0.0048	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0111	0.0287	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0139	0.0120	12
Megathura crenulata	0.0028	0.0096	12
Crassedoma giganteum	0.0264	0.0241	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.2403	0.1415	12
Lytechinus anamesus	0.0000	0.0000	12
Santa Rosa Island - Rodes Reef			
Tethya aurantia	0.2472	0.0794	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0847	0.0452	12
Lophogorgia chilensis	0.0014	0.0048	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.1361	0.0950	12
Megathura crenulata	0.0167	0.0246	12
Crassedoma giganteum	0.0111	0.0164	12
Aplysia californica	0.0014	0.0048	12
Pycnopodia helianthoides	0.0319	0.0288	12
Lytechinus anamesus	0.0000	0.0000	12
Santa Cruz Island - Gull Island South			
Tethya aurantia	0.1667	0.1000	12
Stylaster californicus	0.1931	0.2264	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0444	0.0287	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0014	0.0048	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0153	0.0194	12
Megathura crenulata	0.0069	0.0111	12
Crassedoma giganteum	0.0292	0.0215	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0236	0.0207	12
Lytechinus anamesus	0.0486	0.0933	12

2008 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			
Tethya aurantia	0.0806	0.0670	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.2486	0.1930	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0139	0.0139	12
Megathura crenulata	0.0639	0.0602	12
Crassedoma giganteum	0.0194	0.0186	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0458	0.0587	12
Lytechinus anamesus	0.0000	0.0000	12
Santa Cruz Island - Pelican Bay			
Tethya aurantia	0.0319	0.0279	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.1625	0.1231	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0014	0.0048	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0097	0.0111	12
Megathura crenulata	0.0125	0.0203	12
Crassedoma giganteum	0.0278	0.0278	12
Aplysia californica	0.0014	0.0048	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	2.8417	1.1496	12
Santa Cruz Island - Scorpion Anchorage			
Tethya aurantia	0.0514	0.0510	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0014	0.0048	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0222	0.0404	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.1444	0.0422	12
Crassedoma giganteum	0.0486	0.0337	12
Aplysia californica	0.0236	0.0270	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0014	0.0048	12

2008 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			
Tethya aurantia	0.1625	0.0736	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0708	0.0508	12
Muricea fruticosa	0.0028	0.0065	12
Muricea californica	0.0181	0.0166	12
Panulirus interruptus	0.0014	0.0048	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0417	0.0417	12
Megathura crenulata	0.0125	0.0144	12
Crassedoma giganteum	0.0028	0.0065	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0431	0.0386	12
Lytechinus anamesus	0.4903	0.5201	12
Anacapa Island - Admiral's Reef			
Tethya aurantia	0.0597	0.0557	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0458	0.0390	12
Muricea fruticosa	0.0028	0.0096	12
Muricea californica	0.0236	0.0230	12
Panulirus interruptus	0.0014	0.0048	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0028	0.0065	12
Megathura crenulata	0.0847	0.0515	12
Crassedoma giganteum	0.0208	0.0190	12
Aplysia californica	0.0125	0.0144	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0194	0.0674	12
Anacapa Island - Cathedral Cove			
Tethya aurantia	0.0028	0.0096	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0000	0.0000	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0417	0.0698	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.0333	0.0487	12
Crassedoma giganteum	0.0306	0.0244	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0000	0.0000	12

2008 BAND TRANSECT DATA: MEAN NUMBER PER M²

<u>Species</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Anacapa Island - Landing Cove			
Tethya aurantia	0.0125	0.0144	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0028	0.0096	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0028	0.0096	12
Panulirus interruptus	0.0278	0.0351	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0056	0.0109	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0014	0.0048	12
Megathura crenulata	0.0236	0.0313	12
Crassedoma giganteum	0.2347	0.1260	12
Aplysia californica	0.0014	0.0048	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0000	0.0000	12
Santa Barbara Island - SE Sea Lion Rookery			
Tethya aurantia	0.1514	0.0683	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.1292	0.0729	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0236	0.0219	12
Panulirus interruptus	0.0014	0.0048	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.0167	0.0201	12
Crassedoma giganteum	0.0083	0.0133	12
Aplysia californica	0.0250	0.0337	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.1222	0.1288	12
Santa Barbara Island - Arch Point			
Tethya aurantia	0.0000	0.0000	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0014	0.0048	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0056	0.0109	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.0028	0.0065	12
Crassedoma giganteum	0.0083	0.0133	12
Aplysia californica	0.0681	0.0329	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0236	0.0359	12

2008 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			
Tethya aurantia	0.0028	0.0065	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0000	0.0000	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0028	0.0096	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.0000	0.0000	12
Crassedoma giganteum	0.0069	0.0111	12
Aplysia californica	0.1000	0.0444	12
Pycnopodia helianthoides	0.0014	0.0048	12
Lytechinus anamesus	0.0111	0.0205	12
San Miguel Island - Miracle Mile			
Tethya aurantia	0.2458	0.0982	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.2833	0.0829	12
Lophogorgia chilensis	0.0000	0.0000	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.6000	0.4351	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0250	0.0241	12
Megathura crenulata	0.0361	0.0274	12
Crassedoma giganteum	0.0222	0.0250	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0194	0.0332	12
Lytechinus anamesus	0.0000	0.0000	12
Santa Rosa Island - Cluster Point			
Tethya aurantia	0.3139	0.1557	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0486	0.0329	12
Lophogorgia chilensis	0.0000	0.0000	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0014	0.0048	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0153	0.0219	12
Megathura crenulata	0.0264	0.0313	12
Crassedoma giganteum	0.0375	0.0587	12
Aplysia californica	0.0028	0.0096	12
Pycnopodia helianthoides	0.0111	0.0179	12
Lytechinus anamesus	0.0000	0.0000	12

2008 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			
Tethya aurantia	0.2319	0.0740	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.1236	0.0609	12
Lophogorgia chilensis	0.0000	0.0000	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0028	0.0065	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0042	0.0104	12
Megathura crenulata	0.0389	0.0296	12
Crassedoma giganteum	0.0333	0.0310	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0056	0.0109	12
Lytechinus anamesus	0.0000	0.0000	12
Santa Rosa Island - Chickasaw			
Tethya aurantia	0.1514	0.0637	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.1042	0.0370	12
Lophogorgia chilensis	0.0000	0.0000	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0333	0.0293	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.0042	0.0075	12
Crassedoma giganteum	0.0222	0.0328	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0194	0.0186	12
Lytechinus anamesus	0.0000	0.0000	12
Santa Rosa Island - South Point			
Tethya aurantia	0.1611	0.0722	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0500	0.0725	12
Lophogorgia chilensis	0.0000	0.0000	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0917	0.0740	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0083	0.0112	12
Megathura crenulata	0.0028	0.0065	12
Crassedoma giganteum	0.0069	0.0111	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0111	0.0148	12
Lytechinus anamesus	0.0000	0.0000	12

2008 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			
Tethya aurantia	0.0694	0.0651	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.1875	0.3464	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0083	0.0087	12
Panulirus interruptus	0.0028	0.0065	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.4958	0.1907	12
Crassedoma giganteum	0.1083	0.0680	12
Aplysia californica	0.0444	0.0743	12
Pycnopodia helianthoides	0.0042	0.0075	12
Lytechinus anamesus	0.0222	0.0278	12
Santa Cruz Island - Potato Pasture			
Tethya aurantia	0.0403	0.0392	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.1722	0.1102	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0028	0.0065	12
Panulirus interruptus	0.0069	0.0111	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0139	0.0186	12
Megathura crenulata	0.0861	0.0714	12
Crassedoma giganteum	0.1486	0.1655	12
Aplysia californica	0.0028	0.0096	12
Pycnopodia helianthoides	0.0014	0.0048	12
Lytechinus anamesus	0.2903	0.7160	12
Santa Cruz Island - Cavern Point			
Tethya aurantia	0.0750	0.0777	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.2583	0.1638	12
Muricea fruticosa	0.0014	0.0048	12
Muricea californica	0.0083	0.0112	12
Panulirus interruptus	0.0014	0.0048	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.1792	0.1020	12
Crassedoma giganteum	0.1708	0.1676	12
Aplysia californica	0.0222	0.0358	12
Pycnopodia helianthoides	0.0014	0.0048	12
Lytechinus anamesus	0.0014	0.0048	12

2008 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			
Tethya aurantia	0.0167	0.0188	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.1111	0.1248	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0056	0.0082	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0278	0.0328	12
Megathura crenulata	0.5069	0.2738	12
Crassedoma giganteum	0.0319	0.0297	12
Aplysia californica	0.0250	0.0297	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.1069	0.1525	12
Santa Cruz Island - Pedro Reef			
Tethya aurantia	0.1500	0.1356	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.2861	0.1839	12
Muricea fruticosa	0.0014	0.0048	12
Muricea californica	0.0083	0.0133	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0042	0.0144	12
Megathura crenulata	0.0569	0.0484	12
Crassedoma giganteum	0.0111	0.0205	12
Aplysia californica	0.0361	0.0324	12
Pycnopodia helianthoides	0.0014	0.0048	12
Lytechinus anamesus	0.6333	0.6409	12
Anacapa Island - Keyhole			
Tethya aurantia	0.0014	0.0048	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.3292	0.1131	12
Muricea fruticosa	0.0014	0.0048	12
Muricea californica	0.0278	0.0269	12
Panulirus interruptus	0.0028	0.0096	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0083	0.0133	12
Megathura crenulata	0.0111	0.0130	12
Crassedoma giganteum	0.0986	0.0747	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.1194	0.1872	12

2008 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			
Tethya aurantia	0.0333	0.0266	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0083	0.0112	12
Muricea fruticosa	0.0028	0.0065	12
Muricea californica	0.0139	0.0172	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0069	0.0111	12
Megathura crenulata	0.2722	0.1406	12
Crassedoma giganteum	0.0181	0.0181	12
Aplysia californica	0.1028	0.0810	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.6472	0.5136	12
Anacapa Island - Black Sea Bass Reef			
Tethya aurantia	0.0444	0.0451	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0042	0.0075	12
Muricea fruticosa	0.0014	0.0048	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0097	0.0150	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0014	0.0048	12
Megathura crenulata	0.1361	0.0810	12
Crassedoma giganteum	0.0056	0.0082	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0028	0.0065	12
Anacapa Island - Lighthouse			
Tethya aurantia	0.0583	0.0485	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.1042	0.0556	12
Muricea fruticosa	0.0097	0.0111	12
Muricea californica	0.3292	0.0769	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0222	0.0296	12
Megathura crenulata	0.0444	0.0259	12
Crassedoma giganteum	0.0083	0.0112	12
Aplysia californica	0.0097	0.0194	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0764	0.1238	12

2008 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			
Tethya aurantia	0.0028	0.0065	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0125	0.0226	12
Muricea fruticosa	0.0014	0.0048	12
Muricea californica	0.0069	0.0086	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.1347	0.0609	12
Crassedoma giganteum	0.0111	0.0148	12
Aplysia californica	0.0444	0.0320	12
Pycnopodia helianthoides	0.0028	0.0096	12
Lytechinus anamesus	0.0028	0.0096	12
Santa Barbara Island - Graveyard Canyon			
Tethya aurantia	0.0847	0.0676	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0375	0.0450	12
Muricea fruticosa	0.0014	0.0048	12
Muricea californica	0.0222	0.0259	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.0028	0.0065	12
Crassedoma giganteum	0.0042	0.0104	12
Aplysia californica	0.0375	0.0503	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.1514	0.2610	12
Santa Barbara Island - Southeast Reef			
Tethya aurantia	0.0042	0.0144	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0097	0.0132	12
Muricea fruticosa	0.0042	0.0144	12
Muricea californica	0.0069	0.0111	12
Panulirus interruptus	0.0042	0.0104	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.0028	0.0065	12
Crassedoma giganteum	0.1000	0.1025	12
Aplysia californica	0.0236	0.0458	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0222	0.0561	12

Appendix E. Random Point Contact Data

2008 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	0.0000	0.0000	15
Other Brown Algae	4.0000	6.4642	15
Desmarestia spp.	12.3333	15.0732	15
Cystoseira spp.	0.8333	1.5430	15
Macrocystis pyrifera	5.6667	5.3005	15
Eisenia arborea	0.1667	0.6455	15
Pterygophora	1.8333	1.9970	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	31.5000	10.2557	15
Articulated Coralline	9.6667	9.5836	15
Encrusting Coralline	16.1667	11.0948	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	1.0000	2.6390	15
Misc. Plant (i.e. diatom film)	0.1667	0.6455	15
Sponges	1.1667	2.0845	15
Corynactis californica	0.0000	0.0000	15
Balanophyllia elegans	0.5000	1.4015	15
Astrangia lajollaensis	0.5000	1.9365	15
Diopatra ornata	10.0000	9.0139	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	19.1667	9.7590	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	0.5000	1.0351	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	2.3333	2.4029	15
Bare	38.5000	22.6936	15
Rock	75.1667	23.6316	15
Cobble	9.8333	12.6937	15
Sand	15.0000	19.2029	15
San Miguel Island - Hare Rock			
Green Algae	0.0000	0.0000	15
Other Brown Algae	0.5000	1.9365	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	1.0000	3.8730	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	4.1667	3.3630	15
Articulated Coralline	1.5000	2.8031	15
Encrusting Coralline	53.1667	14.8645	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	3.0000	2.8661	15
Sponges	0.5000	1.0351	15
Corynactis californica	4.1667	4.6930	15
Balanophyllia elegans	1.8333	2.2093	15
Astrangia lajollaensis	3.8333	4.3164	15
Diopatra ornata	0.8333	1.5430	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.5000	1.0351	15
Bryozoans, other	5.1667	6.3714	15
Diaperoecia californica	0.1667	0.6455	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	0.0000	0.0000	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	2.5000	2.5000	15
Bare	28.3333	13.1837	15
Rock	86.6667	13.4519	15
Cobble	9.0000	12.1302	15
Sand	4.3333	5.3841	15

Santa Rosa Island - Johnson's Lee North

Green Algae	0.5000	1.0351	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	1.0000	2.0702	15
Cystoseira spp.	1.0000	2.2756	15
Macrocystis pyrifera	35.1667	14.3448	15
Eisenia arborea	0.8333	2.6163	15
Pterygophora	12.0000	22.4245	15
Laminaria farlowii	5.6667	10.6682	15
Other Reds	56.3333	15.1736	15
Articulated Coralline	6.5000	4.3095	15
Encrusting Coralline	10.3333	5.8909	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	7.1667	5.1640	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	5.3333	5.5795	15
Corynactis californica	2.0000	3.0178	15
Balanophyllia elegans	1.1667	2.2887	15
Astrangia lajollaensis	0.8333	2.0412	15
Diopatra ornata	3.5000	6.9949	15
Phragmatopoma	3.5000	3.9866	15
Serpulorbis	0.3333	0.8797	15
Bryozoans, other	41.3333	13.5576	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	14.6667	4.1043	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	8.0000	5.6061	15
Bare	2.8333	2.9681	15
Rock	96.5000	6.7348	15
Cobble	2.0000	3.1623	15
Sand	1.5000	5.8095	15

Santa Rosa Island - Johnson's Lee South

Green Algae	0.0000	0.0000	15
Other Brown Algae	0.6667	1.4840	15
Desmarestia spp.	0.1667	0.6455	15
Cystoseira spp.	0.3333	0.8797	15
Macrocystis pyrifera	19.5000	14.7962	15
Eisenia arborea	1.8333	4.3780	15
Pterygophora	0.3333	1.2910	15
Laminaria farlowii	5.1667	7.2251	15
Other Reds	29.8333	19.0972	15
Articulated Coralline	3.0000	3.9188	15
Encrusting Coralline	8.1667	3.9491	15
Gelidium spp.	0.1667	0.6455	15
Gigartina spp.	4.8333	4.9522	15
Misc. Plant (i.e. diatom film)	0.1667	0.6455	15
Sponges	1.5000	1.8420	15
Corynactis californica	1.1667	1.8581	15
Balanophyllia elegans	1.6667	1.8094	15
Astrangia lajollaensis	0.6667	1.4840	15
Diopatra ornata	10.5000	10.9870	15
Phragmatopoma	1.0000	1.8420	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	28.6667	13.3920	15
Diaperoecia californica	0.8333	2.0412	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.5000	1.4015	15
Tunicates	8.0000	7.3921	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	19.5000	7.5711	15
Bare	20.8333	15.4303	15
Rock	76.8333	17.3068	15
Cobble	2.1667	3.1149	15
Sand	21.0000	16.5238	15

2008 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	0.0000	0.0000	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.3333	1.2910	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	2.6667	5.5474	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.6667	1.9970	15
Other Reds	52.5000	20.3101	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	25.3333	12.9514	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	2.6667	4.2748	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	1.6667	1.5430	15
Corynactis californica	0.1667	0.6455	15
Balanophyllia elegans	0.6667	1.4840	15
Astrangia lajollaensis	5.8333	7.6571	15
Diopatra ornata	7.1667	8.4972	15
Phragmatopoma	0.1667	0.6455	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	22.1667	13.4253	15
Diaperoecia californica	1.3333	1.8581	15
Pachythyone rubra	0.0000	0.0000	15
Ophiolithrix spiculata	0.5000	1.4015	15
Tunicates	1.6667	2.4398	15
Miscellaneous Invertebrates w/o Ophiolithrix spiculata	15.6667	8.0438	15
Bare	12.6667	12.3008	15
Rock	78.5000	19.9955	15
Cobble	14.1667	15.2558	15
Sand	7.3333	9.6115	15

Santa Cruz Island - Gull Island South

Green Algae	0.6667	1.1443	15
Other Brown Algae	0.5000	1.4015	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	17.5000	15.5265	15
Eisenia arborea	2.0000	4.2468	15
Pterygophora	1.1667	4.5185	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	64.3333	10.7930	15
Articulated Coralline	1.1667	1.2910	15
Encrusting Coralline	37.8333	12.1327	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	2.5000	4.3301	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	1.5000	2.2756	15
Corynactis californica	1.5000	2.2756	15
Balanophyllia elegans	1.3333	1.2910	15
Astrangia lajollaensis	1.5000	2.2756	15
Diopatra ornata	3.8333	7.4322	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	35.5000	12.3996	15
Diaperoecia californica	9.6667	1.5999	15
Pachythyone rubra	0.0000	0.0000	15
Ophiolithrix spiculata	0.6667	1.4840	15
Tunicates	12.1667	7.6103	15
Miscellaneous Invertebrates w/o Ophiolithrix spiculata	5.1667	5.8605	15
Bare	2.0000	3.5607	15
Rock	94.3333	8.8372	15
Cobble	1.0000	1.8420	15
Sand	4.6667	8.0659	15

2008 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	5.1667	3.4675	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	30.6667	22.0281	15
Eisenia arborea	52.6667	18.8620	15
Pterygophora	0.1667	0.6455	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	45.6667	18.7194	15
Articulated Coralline	2.1667	4.3164	15
Encrusting Coralline	43.5000	10.6821	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	8.0000	11.6190	15
Misc. Plant (i.e. diatom film)	0.1667	0.6455	15
Sponges	0.5000	1.0351	15
Corynactis californica	0.8333	2.0412	15
Balanophyllia elegans	0.3333	1.2910	15
Astrangia lajollaensis	7.1667	6.4688	15
Diopatra ornata	1.5000	2.8031	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	34.8333	15.4535	15
Diaperoecia californica	1.0000	1.2677	15
Pachythyone rubra	0.0000	0.0000	15
Ophiolithrix spiculata	0.0000	0.0000	15
Tunicates	0.5000	1.4015	15
Miscellaneous Invertebrates w/o Ophiolithrix spiculata	10.8333	7.2989	15
Bare	4.0000	2.6390	15
Rock	92.8333	5.4989	15
Cobble	4.1667	4.0825	15
Sand	3.0000	4.6483	15
Santa Cruz Island - Pelican Bay			
Green Algae	0.0000	0.0000	15
Other Brown Algae	4.6667	10.8918	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	1.3333	5.1640	15
Macrocystis pyrifera	3.0000	8.5670	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	5.6667	5.2156	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	32.8333	15.2030	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	1.5000	2.8031	15
Sponges	0.1667	0.6455	15
Corynactis californica	0.0000	0.0000	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	9.0000	6.8007	15
Diopatra ornata	0.8333	2.6163	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	1.8333	3.5940	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	8.0000	16.4805	15
Ophiolithrix spiculata	0.0000	0.0000	15
Tunicates	0.1667	0.6455	15
Miscellaneous Invertebrates w/o Ophiolithrix spiculata	6.8333	9.4239	15
Bare	46.1667	21.6685	15
Rock	53.0000	24.3156	15
Cobble	21.1667	12.4236	15
Sand	25.8333	18.8193	15

2008 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	0.0000	0.0000	15
Other Brown Algae	1.5000	2.2756	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	8.3333	19.6093	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	12.1667	6.8704	15
Articulated Coralline	0.6667	1.1443	15
Encrusting Coralline	69.1667	17.4660	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	3.6667	8.8068	15
Sponges	0.0000	0.0000	15
Corynactis californica	0.0000	0.0000	15
Balanophyllia elegans	0.5000	1.4015	15
Astrangia lajollaensis	0.0000	0.0000	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.1667	0.6455	15
Bryozoans, other	1.6667	2.7817	15
Diaperoecia californica	0.1667	0.6455	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	0.6667	1.1443	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	11.5000	11.4876	15
Bare	19.6667	10.4739	15
Rock	88.5000	10.2120	15
Cobble	1.8333	2.7495	15
Sand	9.6667	9.6763	15
Santa Cruz Island - Yellow Banks			
Green Algae	0.0000	0.0000	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	1.3333	2.4761	15
Macrocystis pyrifera	4.5000	5.7632	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.1667	0.6455	15
Laminaria farlowii	0.1667	0.6455	15
Other Reds	8.6667	5.0768	15
Articulated Coralline	3.3333	3.0861	15
Encrusting Coralline	32.0000	12.7895	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	1.0000	1.2677	15
Corynactis californica	0.0000	0.0000	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	1.3333	1.5999	15
Diopatra ornata	0.8333	1.5430	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	18.5000	12.3129	15
Diaperoecia californica	0.6667	1.4840	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	1.6667	2.7817	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	4.0000	4.2046	15
Bare	36.0000	14.9344	15
Rock	80.3333	26.0985	15
Cobble	15.6667	22.0281	15
Sand	4.0000	6.2536	15

2008 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	0.3333	0.8797	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	9.5000	6.2821	15
Articulated Coralline	0.5000	1.9365	15
Encrusting Coralline	51.8333	9.7040	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	3.6667	3.7639	15
Sponges	1.5000	2.8031	15
Corynactis californica	2.8333	3.2550	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	0.5000	1.0351	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	4.6667	5.1640	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	47.0000	39.6773	15
Tunicates	2.3333	3.1997	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	21.8333	13.6102	15
Bare	21.3333	14.0746	15
Rock	89.6667	14.6344	15
Cobble	2.3333	3.0570	15
Sand	8.1667	13.3452	15

Anacapa Island - Cathedral Cove

Green Algae	0.0000	0.0000	15
Other Brown Algae	1.6667	3.9716	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	22.0000	15.7888	15
Macrocystis pyrifera	16.5000	12.7755	15
Eisenia arborea	1.1667	2.6502	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	26.3333	18.2705	15
Other Reds	5.0000	8.5042	15
Articulated Coralline	17.0000	8.8741	15
Encrusting Coralline	12.6667	5.6273	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	0.0000	0.0000	15
Corynactis californica	0.0000	0.0000	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	0.6667	1.1443	15
Diopatra ornata	4.1667	5.9512	15
Phragmatopoma	0.6667	1.4840	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	28.6667	12.2790	15
Diaperoecia californica	0.6667	1.1443	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	7.8333	6.2583	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	9.6667	5.8146	15
Bare	31.0000	15.3762	15
Rock	65.0000	21.8967	15
Cobble	17.6667	15.7113	15
Sand	17.3333	13.5115	15

2008 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	0.3333	0.8797	15
Other Brown Algae	1.6667	3.9716	15
Desmarestia spp.	0.3333	1.2910	15
Cystoseira spp.	3.6667	5.2497	15
Macrocystis pyrifera	13.5000	9.7651	15
Eisenia arborea	30.1667	29.0699	15
Pterygophora	8.1667	11.8196	15
Laminaria farlowii	37.0000	29.0504	15
Other Reds	17.6667	15.2499	15
Articulated Coralline	12.1667	10.4312	15
Encrusting Coralline	17.8333	14.1063	15
Gelidium spp.	14.8333	22.0281	15
Gigartina spp.	0.1667	0.6455	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	4.3333	5.7061	15
Corynactis californica	0.1667	0.6455	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	0.3333	0.8797	15
Diopatra ornata	0.5000	1.0351	15
Phragmatopoma	0.1667	0.6455	15
Serpulorbis	1.0000	1.2677	15
Bryozoans, other	19.6667	17.3686	15
Diaperoecia californica	7.6667	12.0069	15
Pachythyone rubra	0.0000	0.0000	15
Ophiolithrix spiculata	0.0000	0.0000	15
Tunicates	4.5000	5.5259	15
Miscellaneous Invertebrates w/o Ophiolithrix spiculata	14.3333	11.0384	15
Bare	23.3333	27.3807	15
Rock	67.8333	32.5531	15
Cobble	24.8333	23.6882	15
Sand	7.3333	13.3786	15

Santa Barbara Island - SE Sea Lion Rookery

Green Algae	0.3333	0.8797	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	2.5000	3.6596	15
Articulated Coralline	0.1667	0.6455	15
Encrusting Coralline	79.3333	10.8342	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	3.1667	4.8612	15
Sponges	1.5000	2.2756	15
Corynactis californica	2.6667	2.7495	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	0.6667	1.1443	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	2.6667	2.9073	15
Diaperoecia californica	0.1667	0.6455	15
Pachythyone rubra	0.0000	0.0000	15
Ophiolithrix spiculata	71.1667	22.9298	15
Tunicates	0.8333	1.5430	15
Miscellaneous Invertebrates w/o Ophiolithrix spiculata	6.8333	4.8612	15
Bare	10.1667	13.4452	15
Rock	89.6667	16.1982	15
Cobble	4.6667	9.5836	15
Sand	5.6667	8.3166	15

2008 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	0.0000	0.0000	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	26.1667	11.4512	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	45.0000	17.2171	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	5.8333	11.5599	15
Sponges	0.1667	0.6455	15
Corynactis californica	6.6667	8.2736	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	0.3333	0.8797	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.3333	0.8797	15
Bryozoans, other	0.1667	0.6455	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	0.1667	0.6455	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	7.3333	5.4663	15
Bare	20.5000	13.1339	15
Rock	85.6667	11.2388	15
Cobble	11.3333	9.1059	15
Sand	3.0000	5.3619	15

Santa Barbara Island - Cat Canyon

Green Algae	0.0000	0.0000	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	3.5000	3.2459	15
Articulated Coralline	0.5000	1.4015	15
Encrusting Coralline	66.5000	9.2002	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	0.6667	1.9970	15
Sponges	0.0000	0.0000	15
Corynactis californica	0.6667	1.1443	15
Balanophyllia elegans	1.0000	2.6390	15
Astrangia lajollaensis	1.1667	2.0845	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.1667	0.6455	15
Bryozoans, other	1.6667	2.4398	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	0.5000	1.0351	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	1.1667	1.5999	15
Bare	24.3333	10.4140	15
Rock	89.5000	12.3996	15
Cobble	6.0000	9.5805	15
Sand	4.5000	8.7729	15

2008 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	0.0000	0.0000	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.5000	1.4015	15
Macrocystis pyrifera	6.8333	11.3965	15
Eisenia arborea	10.1667	12.8336	15
Pterygophora	1.8333	2.4029	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	32.3333	17.3583	15
Articulated Coralline	16.6667	12.8753	15
Encrusting Coralline	23.0000	9.5056	15
Gelidium spp.	0.1667	0.6455	15
Gigartina spp.	6.8333	7.1631	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	8.5000	6.3948	15
Corynactis californica	0.1667	0.6455	15
Balanophyllia elegans	0.1667	0.6455	15
Astrangia lajollaensis	0.0000	0.0000	15
Diopatra ornata	0.6667	1.1443	15
Phragmatopoma	7.3333	8.6843	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	14.8333	9.8410	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiolithrix spiculata	0.0000	0.0000	15
Tunicates	13.0000	10.1419	15
Miscellaneous Invertebrates w/o Ophiolithrix spiculata	18.1667	8.8875	15
Bare	12.5000	15.5265	15
Rock	87.0000	16.4262	15
Cobble	7.8333	12.4236	15
Sand	5.1667	8.5287	15
Santa Rosa Island - Cluster Point			
Green Algae	0.0000	0.0000	15
Other Brown Algae	1.3333	2.8137	15
Desmarestia spp.	2.8333	10.3020	15
Cystoseira spp.	2.3333	3.8344	15
Macrocystis pyrifera	31.6667	23.8048	15
Eisenia arborea	4.5000	11.8849	15
Pterygophora	31.3333	27.9647	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	66.6667	23.1005	15
Articulated Coralline	10.6667	11.0787	15
Encrusting Coralline	33.0000	14.0535	15
Gelidium spp.	0.1667	0.6455	15
Gigartina spp.	8.0000	10.8644	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	8.3333	4.5968	15
Corynactis californica	0.5000	1.9365	15
Balanophyllia elegans	1.8333	2.9073	15
Astrangia lajollaensis	0.1667	0.6455	15
Diopatra ornata	3.0000	3.5607	15
Phragmatopoma	0.8333	2.2493	15
Serpulorbis	0.1667	0.6455	15
Bryozoans, other	31.3333	10.9735	15
Diaperoecia californica	0.1667	0.6455	15
Pachythyone rubra	0.0000	0.0000	15
Ophiolithrix spiculata	0.0000	0.0000	15
Tunicates	6.6667	4.7871	15
Miscellaneous Invertebrates w/o Ophiolithrix spiculata	5.6667	5.0415	15
Bare	11.8333	22.2900	15
Rock	90.3333	20.0416	15
Cobble	6.5000	11.4876	15
Sand	3.1667	8.9874	15

2008 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	0.1667	0.6455	15
Other Brown Algae	4.0000	6.2536	15
Desmarestia spp.	3.0000	5.3619	15
Cystoseira spp.	3.1667	6.0109	15
Macrocystis pyrifera	38.3333	16.1651	15
Eisenia arborea	3.1667	8.3702	15
Pterygophora	21.6667	22.1937	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	60.1667	21.7631	15
Articulated Coralline	20.6667	17.4864	15
Encrusting Coralline	24.5000	11.0680	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	18.1667	22.0484	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	4.5000	5.6061	15
Corynactis californica	2.6667	3.7161	15
Balanophyllia elegans	3.1667	4.3780	15
Astrangia lajollaensis	0.8333	1.5430	15
Diopatra ornata	7.8333	8.7048	15
Phragmatopoma	0.5000	1.9365	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	28.5000	10.9707	15
Diaperoecia californica	2.1667	3.9940	15
Pachythyone rubra	0.1667	0.6455	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	9.3333	8.7355	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	14.8333	11.4746	15
Bare	5.8333	12.0885	15
Rock	92.5000	15.5552	15
Cobble	0.1667	0.6455	15
Sand	7.3333	15.4245	15
Santa Rosa Island - Chickasaw			
Green Algae	0.0000	0.0000	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	3.1667	3.9491	15
Macrocystis pyrifera	33.3333	27.8495	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	2.5000	4.4320	15
Laminaria farlowii	0.1667	0.6455	15
Other Reds	44.0000	18.0476	15
Articulated Coralline	10.5000	10.9870	15
Encrusting Coralline	24.0000	14.2302	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	2.6667	5.2156	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	8.8333	9.5369	15
Corynactis californica	0.1667	0.6455	15
Balanophyllia elegans	2.3333	3.3363	15
Astrangia lajollaensis	0.3333	0.8797	15
Diopatra ornata	21.6667	17.9450	15
Phragmatopoma	0.6667	1.9970	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	23.5000	17.2119	15
Diaperoecia californica	0.8333	1.8094	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.1667	0.6455	15
Tunicates	9.3333	7.4682	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	4.1667	5.5635	15
Bare	7.1667	7.2498	15
Rock	77.8333	20.3511	15
Cobble	0.0000	0.0000	15
Sand	22.1667	20.3511	15

2008 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	0.0000	0.0000	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.3333	0.8797	15
Cystoseira spp.	2.5000	5.0885	15
Macrocystis pyrifera	24.1667	18.0195	15
Eisenia arborea	0.1667	0.6455	15
Pterygophora	12.6667	16.0487	15
Laminaria farlowii	8.8333	10.8918	15
Other Reds	51.6667	12.5594	15
Articulated Coralline	10.8333	9.4806	15
Encrusting Coralline	18.6667	19.1299	15
Gelidium spp.	0.1667	0.6455	15
Gigartina spp.	2.1667	3.2550	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	11.3333	9.5836	15
Corynactis californica	0.0000	0.0000	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	0.0000	0.0000	15
Diopatra ornata	2.1667	2.4761	15
Phragmatopoma	5.8333	4.6930	15
Serpulorbis	0.6667	1.4840	15
Bryozoans, other	42.0000	9.2195	15
Diaperoecia californica	0.3333	1.2910	15
Pachythyone rubra	0.0000	0.0000	15
Ophiolithrix spiculata	0.1667	0.6455	15
Tunicates	11.6667	9.0960	15
Miscellaneous Invertebrates w/o Ophiolithrix spiculata	10.3333	7.8982	15
Bare	6.1667	8.6016	15
Rock	94.8333	7.4082	15
Cobble	1.1667	2.2887	15
Sand	4.0000	6.2536	15

Santa Cruz Island - Devil's Peak Member

Green Algae	0.0000	0.0000	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	10.3333	5.8146	15
Articulated Coralline	0.6667	1.9970	15
Encrusting Coralline	45.6667	12.1548	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	0.1667	0.6455	15
Sponges	0.0000	0.0000	15
Corynactis californica	0.0000	0.0000	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	4.8333	5.0415	15
Diopatra ornata	0.1667	0.6455	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	3.0000	2.8661	15
Diaperoecia californica	0.6667	1.4840	15
Pachythyone rubra	7.3333	10.4140	15
Ophiolithrix spiculata	0.0000	0.0000	15
Tunicates	1.3333	1.5999	15
Miscellaneous Invertebrates w/o Ophiolithrix spiculata	19.3333	7.5277	15
Bare	10.0000	6.0504	15
Rock	95.6667	3.8344	15
Cobble	2.6667	2.7495	15
Sand	1.6667	2.4398	15

2008 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	5.8333	8.0549	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	14.0000	9.9013	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	50.5000	13.6015	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	8.5000	8.7014	15
Sponges	0.1667	0.6455	15
Corynactis californica	1.8333	4.0606	15
Balanophyllia elegans	1.5000	4.6098	15
Astrangia lajollaensis	6.1667	5.1640	15
Diopatra ornata	0.1667	0.6455	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	3.5000	3.7559	15
Diaperoecia californica	2.0000	3.4330	15
Pachythyone rubra	3.3333	8.9974	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	0.3333	1.2910	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	27.8333	10.5588	15
Bare	15.3333	15.5801	15
Rock	73.0000	24.7343	15
Cobble	22.0000	23.5129	15
Sand	5.0000	5.7477	15
Santa Cruz Island - Cavern Point			
Green Algae	0.3333	0.8797	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	29.3333	12.0441	15
Articulated Coralline	1.1667	1.5999	15
Encrusting Coralline	52.6667	13.0749	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	6.6667	3.6187	15
Sponges	1.6667	2.9378	15
Corynactis californica	0.1667	0.6455	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	3.5000	2.6390	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.1667	0.6455	15
Bryozoans, other	8.8333	5.9662	15
Diaperoecia californica	0.3333	0.8797	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	7.3333	7.2866	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	31.0000	8.6499	15
Bare	8.0000	8.6189	15
Rock	93.1667	9.0370	15
Cobble	6.5000	8.2808	15
Sand	0.3333	0.8797	15

2008 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	2.1667	2.6502	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	26.1667	16.2532	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	32.8333	8.3915	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	10.6667	12.3370	15
Sponges	1.3333	1.5999	15
Corynactis californica	0.5000	1.0351	15
Balanophyllia elegans	0.3333	0.8797	15
Astrangia lajollaensis	1.8333	1.9970	15
Diopatra ornata	0.1667	0.6455	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	6.3333	5.2497	15
Diaperoecia californica	1.3333	2.0845	15
Pachythyone rubra	0.0000	0.0000	15
Ophiolithrix spiculata	0.0000	0.0000	15
Tunicates	1.0000	1.2677	15
Miscellaneous Invertebrates w/o Ophiolithrix spiculata	19.1667	10.6346	15
Bare	18.1667	14.0936	15
Rock	75.5000	22.3846	15
Cobble	22.0000	19.1377	15
Sand	2.5000	4.5316	15

Santa Cruz Island - Pedro Reef

Green Algae	0.0000	0.0000	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	2.1667	2.2887	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	30.6667	11.7057	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	0.5000	1.0351	15
Corynactis californica	7.8333	8.1759	15
Balanophyllia elegans	0.3333	1.2910	15
Astrangia lajollaensis	1.8333	2.2093	15
Diopatra ornata	0.1667	0.6455	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.1667	0.6455	15
Bryozoans, other	0.5000	1.0351	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	1.8333	3.8344	15
Ophiolithrix spiculata	0.0000	0.0000	15
Tunicates	0.0000	0.0000	15
Miscellaneous Invertebrates w/o Ophiolithrix spiculata	22.5000	10.5644	15
Bare	39.0000	13.7191	15
Rock	80.6667	24.8292	15
Cobble	1.6667	2.9378	15
Sand	17.8333	23.8834	15

2008 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	0.5000	1.4015	15
Other Brown Algae	15.6667	10.4994	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	4.6667	9.1059	15
Eisenia arborea	3.5000	7.1214	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	18.0000	6.4226	15
Articulated Coralline	1.6667	3.0861	15
Encrusting Coralline	46.1667	11.5289	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	6.1667	4.4186	15
Sponges	3.6667	3.8807	15
Corynactis californica	0.1667	0.6455	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	2.3333	3.0570	15
Diopatra ornata	5.0000	6.6144	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.1667	0.6455	15
Bryozoans, other	13.1667	7.5868	15
Diaperoecia californica	0.6667	1.4840	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	2.6667	3.3363	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	32.3333	8.1540	15
Bare	17.8333	11.5289	15
Rock	80.5000	15.5035	15
Cobble	5.5000	6.2106	15
Sand	14.0000	14.6019	15

Anacapa Island - East Fish Camp

Green Algae	0.1667	0.6455	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	2.5000	3.1339	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	43.3333	15.1971	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	0.1667	0.6455	15
Sponges	0.0000	0.0000	15
Corynactis californica	12.6667	10.9572	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	1.3333	3.1149	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	0.1667	0.6455	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	7.5000	10.1770	15
Tunicates	0.1667	0.6455	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	6.8333	6.7788	15
Bare	34.1667	13.5840	15
Rock	84.6667	19.5683	15
Cobble	5.8333	6.7259	15
Sand	9.6667	14.7862	15

2008 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	0.3333	1.2910	15
Other Brown Algae	1.6667	4.4987	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	6.6667	9.6671	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	17.3333	22.0484	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	58.0000	23.2456	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	1.0000	2.0702	15
Sponges	0.1667	0.6455	15
Corynactis californica	1.0000	1.5811	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	0.1667	0.6455	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	3.8333	5.1640	15
Diaperoecia californica	0.3333	0.8797	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	53.6667	16.3627	15
Tunicates	1.6667	2.2493	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	5.6667	6.9736	15
Bare	10.1667	10.6682	15
Rock	82.8333	15.3200	15
Cobble	11.5000	13.0521	15
Sand	5.3333	7.1880	15

Anacapa Island - Lighthouse

Green Algae	0.0000	0.0000	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	1.8333	1.7593	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	34.6667	15.4361	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	25.1667	12.1548	15
Sponges	0.1667	0.6455	15
Corynactis californica	6.3333	6.1866	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	1.0000	1.8420	15
Diopatra ornata	8.1667	6.9736	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	0.8333	1.5430	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	0.1667	0.6455	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	34.8333	13.2782	15
Bare	14.1667	11.4434	15
Rock	69.3333	21.1387	15
Cobble	9.1667	7.4801	15
Sand	21.3333	15.2616	15

2008 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	3.3333	3.4932	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	19.8333	15.8809	15
Articulated Coralline	1.0000	1.5811	15
Encrusting Coralline	44.5000	13.9578	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	5.3333	5.1640	15
Sponges	2.5000	3.1339	15
Corynactis californica	8.1667	8.4762	15
Balanophyllia elegans	0.5000	1.0351	15
Astrangia lajollaensis	0.3333	0.8797	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.5000	1.0351	15
Bryozoans, other	8.6667	4.4186	15
Diaperoecia californica	0.1667	0.6455	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	11.3333	14.7560	15
Tunicates	3.5000	3.2459	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	14.8333	6.1577	15
Bare	14.1667	5.0592	15
Rock	96.0000	8.9043	15
Cobble	3.6667	7.6687	15
Sand	0.3333	1.2910	15

Santa Barbara Island - Graveyard Canyon

Green Algae	0.0000	0.0000	15
Other Brown Algae	0.5000	1.9365	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	1.5000	2.4640	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	38.5000	21.4809	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	1.5000	2.9580	15
Sponges	0.0000	0.0000	15
Corynactis californica	6.1667	10.4739	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	0.3333	0.8797	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	0.0000	0.0000	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	38.5000	39.0375	15
Tunicates	1.1667	1.8581	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	10.5000	13.8293	15
Bare	42.6667	30.4647	15
Rock	61.3333	32.7581	15
Cobble	3.1667	3.1997	15
Sand	35.5000	34.1504	15

2008 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	1.0000	2.6390	15
Other Brown Algae	3.0000	4.8366	15
Desmarestia spp.	18.3333	20.8880	15
Cystoseira spp.	0.1667	0.6455	15
Macrocystis pyrifera	18.1667	23.8946	15
Eisenia arborea	5.0000	9.0139	15
Pterygophora	0.1667	0.6455	15
Laminaria farlowii	0.0000	0.0000	15
Other Reds	40.1667	25.1330	15
Articulated Coralline	10.3333	15.4650	15
Encrusting Coralline	44.8333	23.9319	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.8333	2.0412	15
Misc. Plant (i.e. diatom film)	4.8333	7.4082	15
Sponges	1.5000	3.1053	15
Corynactis californica	0.8333	1.5430	15
Balanophyllia elegans	0.3333	0.8797	15
Astrangia lajollaensis	0.3333	0.8797	15
Diopatra ornata	0.1667	0.6455	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.1667	0.6455	15
Bryozoans, other	10.5000	7.0837	15
Diaperoecia californica	0.5000	1.0351	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	8.6667	9.0073	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	14.5000	8.9243	15
Bare	2.5000	3.2733	15
Rock	94.6667	10.3020	15
Cobble	4.3333	10.1975	15
Sand	1.0000	1.8420	15

Appendix F. Fish Transect Data

2008 FISH TRANSECT DATA: MEAN NUMBER PER 300 M³

<u>Species</u>	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
San Miguel Island - Wyckoff Ledge				
<i>Chromis punctipinnis</i> , adult	9/9/2008	0.0000	0.0000	4
<i>Chromis punctipinnis</i> , juvenile	9/9/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	9/9/2008	0.2500	0.5000	4
<i>Embiotoca jacksoni</i> , juvenile	9/9/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	9/9/2008	4.2500	4.3493	4
<i>Embiotoca lateralis</i> , juvenile	9/9/2008	0.7500	1.5000	4
<i>Girella nigricans</i> , adult	9/9/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	9/9/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	9/9/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , male	9/9/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	9/9/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , juvenile	9/9/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	9/9/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , juvenile	9/9/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	9/9/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , juvenile	9/9/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	9/9/2008	0.2500	0.5000	4
<i>Rhacochilus vacca</i> , juvenile	9/9/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	9/9/2008	0.7500	1.5000	4
<i>Sebastes atrovirens</i> , juvenile	9/9/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	9/9/2008	3.5000	5.7446	4
<i>Sebastes mystinus</i> , juvenile	9/9/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	9/9/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	9/9/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	9/9/2008	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> , juvenile	9/9/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	9/9/2008	0.0000	0.0000	4
San Miguel Island - Hare Rock				
<i>Chromis punctipinnis</i> , adult	9/10/2008	4.5000	7.7244	4
<i>Chromis punctipinnis</i> , juvenile	9/10/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	9/10/2008	0.7500	1.5000	4
<i>Embiotoca jacksoni</i> , juvenile	9/10/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	9/10/2008	1.0000	0.8165	4
<i>Embiotoca lateralis</i> , juvenile	9/10/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	9/10/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	9/10/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	9/10/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , male	9/10/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	9/10/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , juvenile	9/10/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	9/10/2008	0.2500	0.5000	4
<i>Oxyjulis californica</i> , juvenile	9/10/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	9/10/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , juvenile	9/10/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	9/10/2008	1.0000	1.4142	4
<i>Rhacochilus vacca</i> , juvenile	9/10/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	9/10/2008	0.2500	0.5000	4
<i>Sebastes atrovirens</i> , juvenile	9/10/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	9/10/2008	0.2500	0.5000	4
<i>Sebastes mystinus</i> , juvenile	9/10/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	9/10/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	9/10/2008	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> , female	9/10/2008	0.5000	0.5774	4
<i>Semicossyphus pulcher</i> , juvenile	9/10/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	9/10/2008	0.5000	0.5774	4

2008 FISH TRANSECT DATA: MEAN NUMBER PER 300 M³

<u>Species</u>	<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	10/1/2008	0.5000	1.0000	4
<i>Chromis punctipinnis</i> , juvenile	10/1/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	10/1/2008	4.5000	2.6458	4
<i>Embiotoca jacksoni</i> , juvenile	10/1/2008	1.2500	0.9574	4
<i>Embiotoca lateralis</i> , adult	10/1/2008	0.5000	0.5774	4
<i>Embiotoca lateralis</i> , juvenile	10/1/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	10/1/2008	0.2500	0.5000	4
<i>Girella nigricans</i> , juvenile	10/1/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	10/1/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , male	10/1/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	10/1/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , juvenile	10/1/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	10/1/2008	0.5000	1.0000	4
<i>Oxyjulis californica</i> , juvenile	10/1/2008	0.2500	0.5000	4
<i>Paralabrax clathratus</i> , adult	10/1/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , juvenile	10/1/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	10/1/2008	0.5000	0.5774	4
<i>Rhacochilus vacca</i> , juvenile	10/1/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	10/1/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	10/1/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	10/1/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	10/1/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	10/1/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	10/1/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	10/1/2008	0.7500	0.9574	4
<i>Semicossyphus pulcher</i> , juvenile	10/1/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	10/1/2008	0.0000	0.0000	4
Santa Rosa Island - Johnson's Lee South				
<i>Chromis punctipinnis</i> , adult	8/13/2008	0.5000	0.5774	4
<i>Chromis punctipinnis</i> , juvenile	8/13/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	8/13/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , juvenile	8/13/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	8/13/2008	0.2500	0.5000	4
<i>Embiotoca lateralis</i> , juvenile	8/13/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	8/13/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	8/13/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	8/13/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , male	8/13/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	8/13/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , juvenile	8/13/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	8/13/2008	5.5000	6.6081	4
<i>Oxyjulis californica</i> , juvenile	8/13/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	8/13/2008	0.2500	0.5000	4
<i>Paralabrax clathratus</i> , juvenile	8/13/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	8/13/2008	1.2500	0.5000	4
<i>Rhacochilus vacca</i> , juvenile	8/13/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	8/13/2008	1.0000	0.8165	4
<i>Sebastes atrovirens</i> , juvenile	8/13/2008	0.2500	0.5000	4
<i>Sebastes mystinus</i> , adult	8/13/2008	0.2500	0.5000	4
<i>Sebastes mystinus</i> , juvenile	8/13/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	8/13/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	8/13/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	8/13/2008	0.5000	0.5774	4
<i>Semicossyphus pulcher</i> , juvenile	8/13/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	8/13/2008	0.0000	0.0000	4

2008 FISH TRANSECT DATA: MEAN NUMBER PER 300 M³

<u>Species</u>	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Rosa Island - Rodes Reef				
<i>Chromis punctipinnis</i> , adult	7/28/2008	0.0000	0.0000	4
<i>Chromis punctipinnis</i> , juvenile	7/28/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	7/28/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , juvenile	7/28/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	7/28/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	7/28/2008	0.2500	0.5000	4
<i>Girella nigricans</i> , adult	7/28/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	7/28/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	7/28/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , male	7/28/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	7/28/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , juvenile	7/28/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	7/28/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , juvenile	7/28/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	7/28/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , juvenile	7/28/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	7/28/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , juvenile	7/28/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	7/28/2008	0.5000	1.0000	4
<i>Sebastes atrovirens</i> , juvenile	7/28/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	7/28/2008	0.7500	0.9574	4
<i>Sebastes mystinus</i> , juvenile	7/28/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	7/28/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	7/28/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	7/28/2008	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> , juvenile	7/28/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	7/28/2008	0.0000	0.0000	4
Santa Cruz Island - Gull Island South				
<i>Chromis punctipinnis</i> , adult	8/28/2008	0.7500	0.9574	4
<i>Chromis punctipinnis</i> , juvenile	8/28/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	8/28/2008	0.2500	0.5000	4
<i>Embiotoca jacksoni</i> , juvenile	8/28/2008	1.7500	2.8723	4
<i>Embiotoca lateralis</i> , adult	8/28/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	8/28/2008	0.2500	0.5000	4
<i>Girella nigricans</i> , adult	8/28/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	8/28/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	8/28/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , male	8/28/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	8/28/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , juvenile	8/28/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	8/28/2008	0.2500	0.5000	4
<i>Oxyjulis californica</i> , juvenile	8/28/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	8/28/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , juvenile	8/28/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	8/28/2008	0.2500	0.5000	4
<i>Rhacochilus vacca</i> , juvenile	8/28/2008	0.2500	0.5000	4
<i>Sebastes atrovirens</i> , adult	8/28/2008	0.2500	0.5000	4
<i>Sebastes atrovirens</i> , juvenile	8/28/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	8/28/2008	0.2500	0.5000	4
<i>Sebastes mystinus</i> , juvenile	8/28/2008	0.2500	0.5000	4
<i>Sebastes serranoides</i> , adult	8/28/2008	0.2500	0.5000	4
<i>Sebastes serranoides</i> , juvenile	8/28/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	8/28/2008	2.2500	0.9574	4
<i>Semicossyphus pulcher</i> , juvenile	8/28/2008	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> , male	8/28/2008	1.0000	0.8165	4

2008 FISH TRANSECT DATA: MEAN NUMBER PER 300 M³

<u>Species</u>	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Cruz Island - Fry's Harbor				
<i>Chromis punctipinnis</i> , adult	6/19/2008	54.5000	11.0303	4
<i>Chromis punctipinnis</i> , juvenile	6/19/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	6/19/2008	0.7500	0.9574	4
<i>Embiotoca jacksoni</i> , juvenile	6/19/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	6/19/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	6/19/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	6/19/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	6/19/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	6/19/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , male	6/19/2008	0.2500	0.5000	4
<i>Hypsypops rubicundus</i> , adult	6/19/2008	0.2500	0.5000	4
<i>Hypsypops rubicundus</i> , juvenile	6/19/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	6/19/2008	4.0000	6.7330	4
<i>Oxyjulis californica</i> , juvenile	6/19/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	6/19/2008	0.7500	0.9574	4
<i>Paralabrax clathratus</i> , juvenile	6/19/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	6/19/2008	0.2500	0.5000	4
<i>Rhacochilus vacca</i> , juvenile	6/19/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	6/19/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	6/19/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	6/19/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	6/19/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	6/19/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	6/19/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	6/19/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , juvenile	6/19/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	6/19/2008	0.0000	0.0000	4
Santa Cruz Island - Pelican Bay				
<i>Chromis punctipinnis</i> , adult	7/17/2008	0.7500	0.9574	4
<i>Chromis punctipinnis</i> , juvenile	7/17/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	7/17/2008	1.0000	1.1547	4
<i>Embiotoca jacksoni</i> , juvenile	7/17/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	7/17/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	7/17/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	7/17/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	7/17/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	7/17/2008	1.2500	1.8930	4
<i>Halichoeres semicinctus</i> , male	7/17/2008	0.2500	0.5000	4
<i>Hypsypops rubicundus</i> , adult	7/17/2008	0.7500	0.5000	4
<i>Hypsypops rubicundus</i> , juvenile	7/17/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	7/17/2008	3.0000	2.8284	4
<i>Oxyjulis californica</i> , juvenile	7/17/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	7/17/2008	0.5000	0.5774	4
<i>Paralabrax clathratus</i> , juvenile	7/17/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	7/17/2008	0.2500	0.5000	4
<i>Rhacochilus vacca</i> , juvenile	7/17/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	7/17/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	7/17/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	7/17/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	7/17/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	7/17/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	7/17/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	7/17/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , juvenile	7/17/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	7/17/2008	0.0000	0.0000	4

2008 FISH TRANSECT DATA: MEAN NUMBER PER 300 M³

<u>Species</u>	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Cruz Island - Scorpion Anchorage				
<i>Chromis punctipinnis</i> , adult	9/11/2008	0.0000	0.0000	4
<i>Chromis punctipinnis</i> , juvenile	9/11/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	9/11/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , juvenile	9/11/2008	0.5000	1.0000	4
<i>Embiotoca lateralis</i> , adult	9/11/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	9/11/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	9/11/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	9/11/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	9/11/2008	0.5000	0.5774	4
<i>Halichoeres semicinctus</i> , male	9/11/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	9/11/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , juvenile	9/11/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	9/11/2008	3.0000	4.0825	4
<i>Oxyjulis californica</i> , juvenile	9/11/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	9/11/2008	0.5000	0.5774	4
<i>Paralabrax clathratus</i> , juvenile	9/11/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	9/11/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , juvenile	9/11/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	9/11/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	9/11/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	9/11/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	9/11/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	9/11/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	9/11/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	9/11/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , juvenile	9/11/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	9/11/2008	0.0000	0.0000	4
Santa Cruz Island - Yellow Banks				
<i>Chromis punctipinnis</i> , adult	9/29/2008	0.0000	0.0000	4
<i>Chromis punctipinnis</i> , juvenile	9/29/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	9/29/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , juvenile	9/29/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	9/29/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	9/29/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	9/29/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	9/29/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	9/29/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , male	9/29/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	9/29/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , juvenile	9/29/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	9/29/2008	1.5000	1.2910	4
<i>Oxyjulis californica</i> , juvenile	9/29/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	9/29/2008	0.5000	0.5774	4
<i>Paralabrax clathratus</i> , juvenile	9/29/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	9/29/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , juvenile	9/29/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	9/29/2008	1.7500	3.5000	4
<i>Sebastes atrovirens</i> , juvenile	9/29/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	9/29/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	9/29/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	9/29/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	9/29/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	9/29/2008	1.0000	0.0000	4
<i>Semicossyphus pulcher</i> , juvenile	9/29/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	9/29/2008	0.0000	0.0000	4

2008 FISH TRANSECT DATA: MEAN NUMBER PER 300 M³

<u>Species</u>	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Anacapa Island - Admiral's Reef				
<i>Chromis punctipinnis</i> , adult	6/4/2008	36.2500	19.0679	4
<i>Chromis punctipinnis</i> , juvenile	6/4/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	6/4/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , juvenile	6/4/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	6/4/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	6/4/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	6/4/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	6/4/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	6/4/2008	0.2500	0.5000	4
<i>Halichoeres semicinctus</i> , male	6/4/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	6/4/2008	0.5000	1.0000	4
<i>Hypsypops rubicundus</i> , juvenile	6/4/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	6/4/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , juvenile	6/4/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	6/4/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , juvenile	6/4/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	6/4/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , juvenile	6/4/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	6/4/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	6/4/2008	0.5000	0.5774	4
<i>Sebastes mystinus</i> , adult	6/4/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	6/4/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	6/4/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	6/4/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	6/4/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , juvenile	6/4/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	6/4/2008	0.0000	0.0000	4
Anacapa Island - Cathedral Cove				
<i>Chromis punctipinnis</i> , adult	7/16/2008	0.7500	1.5000	4
<i>Chromis punctipinnis</i> , juvenile	7/16/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	7/16/2008	0.5000	1.0000	4
<i>Embiotoca jacksoni</i> , juvenile	7/16/2008	0.2500	0.5000	4
<i>Embiotoca lateralis</i> , adult	7/16/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	7/16/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	7/16/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	7/16/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	7/16/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , male	7/16/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	7/16/2008	0.2500	0.5000	4
<i>Hypsypops rubicundus</i> , juvenile	7/16/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	7/16/2008	0.2500	0.5000	4
<i>Oxyjulis californica</i> , juvenile	7/16/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	7/16/2008	0.2500	0.5000	4
<i>Paralabrax clathratus</i> , juvenile	7/16/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	7/16/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , juvenile	7/16/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	7/16/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	7/16/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	7/16/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	7/16/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	7/16/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	7/16/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	7/16/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , juvenile	7/16/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	7/16/2008	0.0000	0.0000	4

2008 FISH TRANSECT DATA: MEAN NUMBER PER 300 M³

<u>Species</u>	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Anacapa Island - Landing Cove				
<i>Chromis punctipinnis</i> , adult	7/15/2008	11.5000	10.7858	4
<i>Chromis punctipinnis</i> , juvenile	7/15/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	7/15/2008	1.0000	0.8165	4
<i>Embiotoca jacksoni</i> , juvenile	7/15/2008	0.7500	0.9574	4
<i>Embiotoca lateralis</i> , adult	7/15/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	7/15/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	7/15/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	7/15/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	7/15/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , male	7/15/2008	0.2500	0.5000	4
<i>Hypsypops rubicundus</i> , adult	7/15/2008	1.5000	1.9149	4
<i>Hypsypops rubicundus</i> , juvenile	7/15/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	7/15/2008	8.2500	7.3655	4
<i>Oxyjulis californica</i> , juvenile	7/15/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	7/15/2008	1.2500	0.9574	4
<i>Paralabrax clathratus</i> , juvenile	7/15/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	7/15/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , juvenile	7/15/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	7/15/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	7/15/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	7/15/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	7/15/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	7/15/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	7/15/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	7/15/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , juvenile	7/15/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	7/15/2008	0.0000	0.0000	4
Santa Barbara Island - SE Sea Lion Rookery				
<i>Chromis punctipinnis</i> , adult	6/23/2008	0.0000	0.0000	4
<i>Chromis punctipinnis</i> , juvenile	6/23/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	6/23/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , juvenile	6/23/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	6/23/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	6/23/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	6/23/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	6/23/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	6/23/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , male	6/23/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	6/23/2008	0.2500	0.5000	4
<i>Hypsypops rubicundus</i> , juvenile	6/23/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	6/23/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , juvenile	6/23/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	6/23/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , juvenile	6/23/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	6/23/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , juvenile	6/23/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	6/23/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	6/23/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	6/23/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	6/23/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	6/23/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	6/23/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	6/23/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , juvenile	6/23/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	6/23/2008	0.0000	0.0000	4

2008 FISH TRANSECT DATA: MEAN NUMBER PER 300 M³

<u>Species</u>	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Barbara Island - Arch Point				
<i>Chromis punctipinnis</i> , adult	6/9/2008	11.0000	13.3417	4
<i>Chromis punctipinnis</i> , adult	11/5/2008	26.5000	18.6279	4
<i>Chromis punctipinnis</i> , juvenile	6/9/2008	0.0000	0.0000	4
<i>Chromis punctipinnis</i> , juvenile	11/5/2008	212.7500	142.0126	4
<i>Embiotoca jacksoni</i> , adult	6/9/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	11/5/2008	0.5000	1.0000	4
<i>Embiotoca jacksoni</i> , juvenile	6/9/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , juvenile	11/5/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	6/9/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	11/5/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	6/9/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	11/5/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	6/9/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	11/5/2008	1.5000	2.3805	4
<i>Girella nigricans</i> , juvenile	6/9/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	11/5/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	6/9/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	11/5/2008	1.0000	2.0000	4
<i>Halichoeres semicinctus</i> , male	6/9/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , male	11/5/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	6/9/2008	1.5000	1.2910	4
<i>Hypsypops rubicundus</i> , adult	11/5/2008	3.2500	4.2720	4
<i>Hypsypops rubicundus</i> , juvenile	6/9/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , juvenile	11/5/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	6/9/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	11/5/2008	5.5000	3.3166	4
<i>Oxyjulis californica</i> , juvenile	6/9/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , juvenile	11/5/2008	203.5000	230.4322	4
<i>Paralabrax clathratus</i> , adult	6/9/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	11/5/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , juvenile	6/9/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , juvenile	11/5/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	6/9/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	11/5/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , juvenile	6/9/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , juvenile	11/5/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	6/9/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	11/5/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	6/9/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	11/5/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	6/9/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	11/5/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	6/9/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	11/5/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	6/9/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	11/5/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	6/9/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	11/5/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	6/9/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	11/5/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , juvenile	6/9/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , juvenile	11/5/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	6/9/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	11/5/2008	0.0000	0.0000	4

2008 FISH TRANSECT DATA: MEAN NUMBER PER 300 M³

<u>Species</u>	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Barbara Island - Cat Canyon				
<i>Chromis punctipinnis</i> , adult	6/11/2008	2.2500	2.8723	4
<i>Chromis punctipinnis</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	6/11/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	6/11/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	6/11/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	6/11/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , male	6/11/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	6/11/2008	0.2500	0.5000	4
<i>Hypsypops rubicundus</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	6/11/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	6/11/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	6/11/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	6/11/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	6/11/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	6/11/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	6/11/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	6/11/2008	0.0000	0.0000	4
San Miguel Island - Miracle Mile				
<i>Chromis punctipinnis</i> , adult	10/22/2008	0.0000	0.0000	4
<i>Chromis punctipinnis</i> , juvenile	10/22/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	10/22/2008	0.2500	0.5000	4
<i>Embiotoca jacksoni</i> , juvenile	10/22/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	10/22/2008	1.2500	1.2583	4
<i>Embiotoca lateralis</i> , juvenile	10/22/2008	0.5000	0.5774	4
<i>Girella nigricans</i> , adult	10/22/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	10/22/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	10/22/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , male	10/22/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	10/22/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , juvenile	10/22/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	10/22/2008	3.2500	3.9476	4
<i>Oxyjulis californica</i> , juvenile	10/22/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	10/22/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , juvenile	10/22/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	10/22/2008	0.5000	0.5774	4
<i>Rhacochilus vacca</i> , juvenile	10/22/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	10/22/2008	0.5000	0.5774	4
<i>Sebastes atrovirens</i> , juvenile	10/22/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	10/22/2008	0.7500	0.9574	4
<i>Sebastes mystinus</i> , juvenile	10/22/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	10/22/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	10/22/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	10/22/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , juvenile	10/22/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	10/22/2008	0.0000	0.0000	4

2008 FISH TRANSECT DATA: MEAN NUMBER PER 300 M³

<u>Species</u>	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Rosa Island - Cluster Point				
<i>Chromis punctipinnis</i> , adult	7/31/2008	0.0000	0.0000	4
<i>Chromis punctipinnis</i> , juvenile	7/31/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	7/31/2008	0.2500	0.5000	4
<i>Embiotoca jacksoni</i> , juvenile	7/31/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	7/31/2008	0.5000	0.5774	4
<i>Embiotoca lateralis</i> , juvenile	7/31/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	7/31/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	7/31/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	7/31/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , male	7/31/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	7/31/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , juvenile	7/31/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	7/31/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , juvenile	7/31/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	7/31/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , juvenile	7/31/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	7/31/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , juvenile	7/31/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	7/31/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	7/31/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	7/31/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	7/31/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	7/31/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	7/31/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	7/31/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , juvenile	7/31/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	7/31/2008	0.2500	0.5000	4
Santa Rosa Island - Trancion Canyon				
<i>Chromis punctipinnis</i> , adult	8/14/2008	3.2500	3.7749	4
<i>Chromis punctipinnis</i> , juvenile	8/14/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	8/14/2008	1.0000	0.8165	4
<i>Embiotoca jacksoni</i> , juvenile	8/14/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	8/14/2008	1.2500	1.2583	4
<i>Embiotoca lateralis</i> , juvenile	8/14/2008	0.7500	0.9574	4
<i>Girella nigricans</i> , adult	8/14/2008	0.5000	1.0000	4
<i>Girella nigricans</i> , juvenile	8/14/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	8/14/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , male	8/14/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	8/14/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , juvenile	8/14/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	8/14/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , juvenile	8/14/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	8/14/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , juvenile	8/14/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	8/14/2008	0.5000	0.5774	4
<i>Rhacochilus vacca</i> , juvenile	8/14/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	8/14/2008	1.0000	0.8165	4
<i>Sebastes atrovirens</i> , juvenile	8/14/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	8/14/2008	1.0000	1.4142	4
<i>Sebastes mystinus</i> , juvenile	8/14/2008	0.5000	1.0000	4
<i>Sebastes serranoides</i> , adult	8/14/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	8/14/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	8/14/2008	1.0000	0.8165	4
<i>Semicossyphus pulcher</i> , juvenile	8/14/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	8/14/2008	1.0000	0.0000	4

2008 FISH TRANSECT DATA: MEAN NUMBER PER 300 M³

<u>Species</u>	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Rosa Island - Chickasaw				
<i>Chromis punctipinnis</i> , adult	7/30/2008	0.0000	0.0000	4
<i>Chromis punctipinnis</i> , juvenile	7/30/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	7/30/2008	0.5000	0.5774	4
<i>Embiotoca jacksoni</i> , juvenile	7/30/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	7/30/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	7/30/2008	0.5000	1.0000	4
<i>Girella nigricans</i> , adult	7/30/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	7/30/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	7/30/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , male	7/30/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	7/30/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , juvenile	7/30/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	7/30/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , juvenile	7/30/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	7/30/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , juvenile	7/30/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	7/30/2008	0.2500	0.5000	4
<i>Rhacochilus vacca</i> , juvenile	7/30/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	7/30/2008	1.0000	1.4142	4
<i>Sebastes atrovirens</i> , juvenile	7/30/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	7/30/2008	0.5000	1.0000	4
<i>Sebastes mystinus</i> , juvenile	7/30/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	7/30/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	7/30/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	7/30/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , juvenile	7/30/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	7/30/2008	0.2500	0.5000	4
Santa Rosa Island - South Point				
<i>Chromis punctipinnis</i> , adult	7/29/2008	0.5000	0.5774	4
<i>Chromis punctipinnis</i> , juvenile	7/29/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	7/29/2008	0.2500	0.5000	4
<i>Embiotoca jacksoni</i> , juvenile	7/29/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	7/29/2008	0.7500	0.9574	4
<i>Embiotoca lateralis</i> , juvenile	7/29/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	7/29/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	7/29/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	7/29/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , male	7/29/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	7/29/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , juvenile	7/29/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	7/29/2008	1.5000	1.2910	4
<i>Oxyjulis californica</i> , juvenile	7/29/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	7/29/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , juvenile	7/29/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	7/29/2008	0.2500	0.5000	4
<i>Rhacochilus vacca</i> , juvenile	7/29/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	7/29/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	7/29/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	7/29/2008	0.5000	1.0000	4
<i>Sebastes mystinus</i> , juvenile	7/29/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	7/29/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	7/29/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	7/29/2008	0.5000	0.5774	4
<i>Semicossyphus pulcher</i> , juvenile	7/29/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	7/29/2008	0.2500	0.5000	4

2008 FISH TRANSECT DATA: MEAN NUMBER PER 300 M³

<u>Species</u>	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Cruz Island - Devil's Peak Member				
<i>Chromis punctipinnis</i> , adult	7/18/2008	3.7500	5.1881	4
<i>Chromis punctipinnis</i> , juvenile	7/18/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	7/18/2008	1.2500	0.9574	4
<i>Embiotoca jacksoni</i> , juvenile	7/18/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	7/18/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	7/18/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	7/18/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	7/18/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	7/18/2008	0.2500	0.5000	4
<i>Halichoeres semicinctus</i> , male	7/18/2008	0.2500	0.5000	4
<i>Hypsypops rubicundus</i> , adult	7/18/2008	1.2500	0.9574	4
<i>Hypsypops rubicundus</i> , juvenile	7/18/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	7/18/2008	6.2500	4.3493	4
<i>Oxyjulis californica</i> , juvenile	7/18/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	7/18/2008	0.2500	0.5000	4
<i>Paralabrax clathratus</i> , juvenile	7/18/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	7/18/2008	0.2500	0.5000	4
<i>Rhacochilus vacca</i> , juvenile	7/18/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	7/18/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	7/18/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	7/18/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	7/18/2008	0.7500	1.5000	4
<i>Sebastes serranoides</i> , adult	7/18/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	7/18/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	7/18/2008	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> , juvenile	7/18/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	7/18/2008	0.0000	0.0000	4
Santa Cruz Island - Potato Pasture				
<i>Chromis punctipinnis</i> , adult	7/18/2008	2.5000	4.3589	4
<i>Chromis punctipinnis</i> , juvenile	7/18/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	7/18/2008	0.2500	0.5000	4
<i>Embiotoca jacksoni</i> , juvenile	7/18/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	7/18/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	7/18/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	7/18/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	7/18/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	7/18/2008	1.2500	0.9574	4
<i>Halichoeres semicinctus</i> , male	7/18/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	7/18/2008	1.2500	0.9574	4
<i>Hypsypops rubicundus</i> , juvenile	7/18/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	7/18/2008	2.0000	2.7080	4
<i>Oxyjulis californica</i> , juvenile	7/18/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	7/18/2008	0.5000	0.5774	4
<i>Paralabrax clathratus</i> , juvenile	7/18/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	7/18/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , juvenile	7/18/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	7/18/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	7/18/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	7/18/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	7/18/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	7/18/2008	0.2500	0.5000	4
<i>Sebastes serranoides</i> , juvenile	7/18/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	7/18/2008	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> , juvenile	7/18/2008	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> , male	7/18/2008	0.0000	0.0000	4

2008 FISH TRANSECT DATA: MEAN NUMBER PER 300 M³

<u>Species</u>	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Cruz Island - Cavern Point				
<i>Chromis punctipinnis</i> , adult	7/10/2008	5.2500	5.5603	4
<i>Chromis punctipinnis</i> , juvenile	7/10/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	7/10/2008	0.2500	0.5000	4
<i>Embiotoca jacksoni</i> , juvenile	7/10/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	7/10/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	7/10/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	7/10/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	7/10/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	7/10/2008	0.5000	0.5774	4
<i>Halichoeres semicinctus</i> , male	7/10/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	7/10/2008	1.2500	0.5000	4
<i>Hypsypops rubicundus</i> , juvenile	7/10/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	7/10/2008	4.7500	3.5940	4
<i>Oxyjulis californica</i> , juvenile	7/10/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	7/10/2008	1.0000	0.8165	4
<i>Paralabrax clathratus</i> , juvenile	7/10/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	7/10/2008	0.2500	0.5000	4
<i>Rhacochilus vacca</i> , juvenile	7/10/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	7/10/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	7/10/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	7/10/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	7/10/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	7/10/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	7/10/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	7/10/2008	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> , juvenile	7/10/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	7/10/2008	0.0000	0.0000	4
Santa Cruz Island - Little Scorpion				
<i>Chromis punctipinnis</i> , adult	6/26/2008	28.0000	27.5439	4
<i>Chromis punctipinnis</i> , juvenile	6/26/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	6/26/2008	0.5000	0.5774	4
<i>Embiotoca jacksoni</i> , juvenile	6/26/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	6/26/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	6/26/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	6/26/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	6/26/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	6/26/2008	1.0000	1.4142	4
<i>Halichoeres semicinctus</i> , male	6/26/2008	0.5000	0.5774	4
<i>Hypsypops rubicundus</i> , adult	6/26/2008	0.5000	0.5774	4
<i>Hypsypops rubicundus</i> , juvenile	6/26/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	6/26/2008	2.7500	3.5000	4
<i>Oxyjulis californica</i> , juvenile	6/26/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	6/26/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , juvenile	6/26/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	6/26/2008	0.7500	0.5000	4
<i>Rhacochilus vacca</i> , juvenile	6/26/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	6/26/2008	0.2500	0.5000	4
<i>Sebastes atrovirens</i> , juvenile	6/26/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	6/26/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	6/26/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	6/26/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	6/26/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	6/26/2008	0.5000	0.5774	4
<i>Semicossyphus pulcher</i> , juvenile	6/26/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	6/26/2008	0.0000	0.0000	4

2008 FISH TRANSECT DATA: MEAN NUMBER PER 300 M³

<u>Species</u>	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Cruz Island - Pedro Reef				
<i>Chromis punctipinnis</i> , adult	6/27/2008	2.7500	5.5000	4
<i>Chromis punctipinnis</i> , juvenile	6/27/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	6/27/2008	0.2500	0.5000	4
<i>Embiotoca jacksoni</i> , juvenile	6/27/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	6/27/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	6/27/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	6/27/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	6/27/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	6/27/2008	0.5000	1.0000	4
<i>Halichoeres semicinctus</i> , male	6/27/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	6/27/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , juvenile	6/27/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	6/27/2008	1.2500	1.2583	4
<i>Oxyjulis californica</i> , juvenile	6/27/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	6/27/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , juvenile	6/27/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	6/27/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , juvenile	6/27/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	6/27/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	6/27/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	6/27/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	6/27/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	6/27/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	6/27/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	6/27/2008	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> , juvenile	6/27/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	6/27/2008	0.0000	0.0000	4
Anacapa Island - Keyhole				
<i>Chromis punctipinnis</i> , adult	8/15/2008	33.2500	18.1177	4
<i>Chromis punctipinnis</i> , juvenile	8/15/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	8/15/2008	1.0000	0.8165	4
<i>Embiotoca jacksoni</i> , juvenile	8/15/2008	0.5000	0.5774	4
<i>Embiotoca lateralis</i> , adult	8/15/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	8/15/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	8/15/2008	0.2500	0.5000	4
<i>Girella nigricans</i> , juvenile	8/15/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	8/15/2008	2.7500	0.5000	4
<i>Halichoeres semicinctus</i> , male	8/15/2008	1.2500	1.5000	4
<i>Hypsypops rubicundus</i> , adult	8/15/2008	1.0000	0.0000	4
<i>Hypsypops rubicundus</i> , juvenile	8/15/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	8/15/2008	1.5000	1.9149	4
<i>Oxyjulis californica</i> , juvenile	8/15/2008	0.5000	1.0000	4
<i>Paralabrax clathratus</i> , adult	8/15/2008	0.2500	0.5000	4
<i>Paralabrax clathratus</i> , juvenile	8/15/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	8/15/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , juvenile	8/15/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	8/15/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	8/15/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	8/15/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	8/15/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	8/15/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	8/15/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	8/15/2008	1.5000	1.2910	4
<i>Semicossyphus pulcher</i> , juvenile	8/15/2008	0.5000	0.5774	4
<i>Semicossyphus pulcher</i> , male	8/15/2008	0.0000	0.0000	4

2008 FISH TRANSECT DATA: MEAN NUMBER PER 300 M³

<u>Species</u>	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Anacapa Island - East Fish Camp				
<i>Chromis punctipinnis</i> , adult	6/3/2008	4.7500	8.2209	4
<i>Chromis punctipinnis</i> , juvenile	6/3/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	6/3/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , juvenile	6/3/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	6/3/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	6/3/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	6/3/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	6/3/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	6/3/2008	0.7500	1.5000	4
<i>Halichoeres semicinctus</i> , male	6/3/2008	0.2500	0.5000	4
<i>Hypsypops rubicundus</i> , adult	6/3/2008	1.0000	1.1547	4
<i>Hypsypops rubicundus</i> , juvenile	6/3/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	6/3/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , juvenile	6/3/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	6/3/2008	0.2500	0.5000	4
<i>Paralabrax clathratus</i> , juvenile	6/3/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	6/3/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , juvenile	6/3/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	6/3/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	6/3/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	6/3/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	6/3/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	6/3/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	6/3/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	6/3/2008	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> , juvenile	6/3/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	6/3/2008	0.0000	0.0000	4
Anacapa Island - Black Sea Bass Reef				
<i>Chromis punctipinnis</i> , adult	7/9/2008	10.7500	3.3040	4
<i>Chromis punctipinnis</i> , juvenile	7/9/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	7/9/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , juvenile	7/9/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	7/9/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	7/9/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	7/9/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	7/9/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	7/9/2008	0.2500	0.5000	4
<i>Halichoeres semicinctus</i> , male	7/9/2008	1.0000	1.4142	4
<i>Hypsypops rubicundus</i> , adult	7/9/2008	0.7500	0.9574	4
<i>Hypsypops rubicundus</i> , juvenile	7/9/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	7/9/2008	10.7500	9.2150	4
<i>Oxyjulis californica</i> , juvenile	7/9/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	7/9/2008	3.0000	1.6330	4
<i>Paralabrax clathratus</i> , juvenile	7/9/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	7/9/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , juvenile	7/9/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	7/9/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	7/9/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	7/9/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	7/9/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	7/9/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	7/9/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	7/9/2008	0.2500	0.5000	4
<i>Semicossyphus pulcher</i> , juvenile	7/9/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	7/9/2008	0.0000	0.0000	4

2008 FISH TRANSECT DATA: MEAN NUMBER PER 300 M³

<u>Species</u>	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Anacapa Island - Lighthouse				
<i>Chromis punctipinnis</i> , adult	8/20/2008	45.0000	12.6227	4
<i>Chromis punctipinnis</i> , juvenile	8/20/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	8/20/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , juvenile	8/20/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	8/20/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	8/20/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	8/20/2008	3.7500	2.5000	4
<i>Girella nigricans</i> , juvenile	8/20/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	8/20/2008	0.2500	0.5000	4
<i>Halichoeres semicinctus</i> , male	8/20/2008	1.0000	1.1547	4
<i>Hypsypops rubicundus</i> , adult	8/20/2008	0.7500	0.5000	4
<i>Hypsypops rubicundus</i> , juvenile	8/20/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	8/20/2008	7.7500	3.3040	4
<i>Oxyjulis californica</i> , juvenile	8/20/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	8/20/2008	0.5000	0.5774	4
<i>Paralabrax clathratus</i> , juvenile	8/20/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	8/20/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , juvenile	8/20/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	8/20/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	8/20/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	8/20/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	8/20/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	8/20/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	8/20/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	8/20/2008	0.5000	0.5774	4
<i>Semicossyphus pulcher</i> , juvenile	8/20/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	8/20/2008	0.0000	0.0000	4
Santa Barbara Island - Webster's Arch				
<i>Chromis punctipinnis</i> , adult	6/10/2008	0.2500	0.5000	4
<i>Chromis punctipinnis</i> , juvenile	6/10/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	6/10/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , juvenile	6/10/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	6/10/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	6/10/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	6/10/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	6/10/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	6/10/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , male	6/10/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	6/10/2008	0.5000	0.5774	4
<i>Hypsypops rubicundus</i> , juvenile	6/10/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	6/10/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , juvenile	6/10/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	6/10/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , juvenile	6/10/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	6/10/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , juvenile	6/10/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	6/10/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	6/10/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	6/10/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	6/10/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	6/10/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	6/10/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	6/10/2008	0.5000	0.5774	4
<i>Semicossyphus pulcher</i> , juvenile	6/10/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	6/10/2008	0.0000	0.0000	4

2008 FISH TRANSECT DATA: MEAN NUMBER PER 300 M³

<u>Species</u>	<u>Date</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>n</u>
Santa Barbara Island - Graveyard Canyon				
<i>Chromis punctipinnis</i> , adult	6/11/2008	0.0000	0.0000	4
<i>Chromis punctipinnis</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	6/11/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	6/11/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	6/11/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	6/11/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , male	6/11/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	6/11/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	6/11/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	6/11/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	6/11/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	6/11/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	6/11/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	6/11/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	6/11/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , juvenile	6/11/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	6/11/2008	0.0000	0.0000	4
Santa Barbara Island - Southeast Reef				
<i>Chromis punctipinnis</i> , adult	6/24/2008	4.5000	3.8730	4
<i>Chromis punctipinnis</i> , juvenile	6/24/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , adult	6/24/2008	0.0000	0.0000	4
<i>Embiotoca jacksoni</i> , juvenile	6/24/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , adult	6/24/2008	0.0000	0.0000	4
<i>Embiotoca lateralis</i> , juvenile	6/24/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , adult	6/24/2008	0.0000	0.0000	4
<i>Girella nigricans</i> , juvenile	6/24/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , female	6/24/2008	0.0000	0.0000	4
<i>Halichoeres semicinctus</i> , male	6/24/2008	0.0000	0.0000	4
<i>Hypsypops rubicundus</i> , adult	6/24/2008	1.7500	0.9574	4
<i>Hypsypops rubicundus</i> , juvenile	6/24/2008	0.0000	0.0000	4
<i>Oxyjulis californica</i> , adult	6/24/2008	3.5000	4.0415	4
<i>Oxyjulis californica</i> , juvenile	6/24/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , adult	6/24/2008	0.0000	0.0000	4
<i>Paralabrax clathratus</i> , juvenile	6/24/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , adult	6/24/2008	0.0000	0.0000	4
<i>Rhacochilus vacca</i> , juvenile	6/24/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , adult	6/24/2008	0.0000	0.0000	4
<i>Sebastes atrovirens</i> , juvenile	6/24/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , adult	6/24/2008	0.0000	0.0000	4
<i>Sebastes mystinus</i> , juvenile	6/24/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , adult	6/24/2008	0.0000	0.0000	4
<i>Sebastes serranoides</i> , juvenile	6/24/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , female	6/24/2008	0.5000	0.5774	4
<i>Semicossyphus pulcher</i> , juvenile	6/24/2008	0.0000	0.0000	4
<i>Semicossyphus pulcher</i> , male	6/24/2008	0.0000	0.0000	4

Appendix G. Roving Diver Fish Count Data

2008 ROVING DIVER FISH COUNT

Island	Site Name	Date	# of Observer	# of Species Observed
San Miguel Island	Wyckoff Ledge	9/9/2008	6	28
San Miguel Island	Hare Rock	9/10/2008	5	23
Santa Rosa Island	Johnson's Lee North	10/1/2008	4	30
Santa Rosa Island	Johnson's Lee South	8/13/2008	3	29
Santa Rosa Island	Rodes Reef	7/28/2008	4	24
Santa Cruz Island	Gull Island South	8/28/2008	4	25
Santa Cruz Island	Fry's Harbor	6/19/2008	4	27
Santa Cruz Island	Pelican Bay	7/17/2008	6	23
Santa Cruz Island	Scorpion Anchorage	9/11/2008	4	31
Santa Cruz Island	Yellow Banks	9/29/2008	4	22
Anacapa Island	Admiral's Reef	6/4/2008	4	21
Anacapa Island	Cathedral Cove	7/16/2008	5	27
Anacapa Island	Landing Cove	7/15/2008	4	28
Santa Barbara Island	SE Sea Lion Rookery	6/23/2008	4	11
Santa Barbara Island	SE Sea Lion Rookery	11/5/2008	3	13
Santa Barbara Island	Arch Point	6/9/2008	5	14
Santa Barbara Island	Arch Point	11/5/2008	4	16
Santa Barbara Island	Cat Canyon	6/10/2008	6	16
Santa Barbara Island	Cat Canyon	11/6/2008	4	15
San Miguel Island	Miracle Mile	10/22/200	3	23
Santa Rosa Island	Cluster Point	7/31/2008	5	16
Santa Rosa Island	Trancion Canyon	8/14/2008	3	32
Santa Rosa Island	Chickasaw	7/30/2008	7	17
Santa Rosa Island	South Point	7/29/2008	5	21
Santa Cruz Island	Devil's Peak Member	7/18/2008	2	21
Santa Cruz Island	Potato Pasture	7/18/2008	4	24
Santa Cruz Island	Cavern Point	7/10/2008	4	25
Santa Cruz Island	Little Scorpion	6/26/2008	6	22
Santa Cruz Island	Pedro Reef	6/27/2008	4	21
Anacapa Island	Keyhole	8/15/2008	3	19
Anacapa Island	East Fish Camp	6/3/2008	4	18
Anacapa Island	Black Sea Bass Reef	7/9/2008	4	22
Anacapa Island	Lighthouse	8/20/2008	4	20
Santa Barbara Island	Webster's Arch	6/10/2008	4	11
Santa Barbara Island	Graveyard Canyon	6/11/2008	6	7
Santa Barbara Island	Southeast Reef	6/24/2008	7	20

2008 ROVING DIVER FISH COUNT

San Miguel Island - Wyckoff Ledge

Common Name	Date	Max # of	# of	Score		Abundance		Count	
		Observers	Observations	Avg	St Dev	Avg	St Dev	Avg	St Dev
black and yellow rockfish, adult	9/9/2008	6	5	8.33	2.25	2.00	0.89	8.40	4.67
black and yellow/gopher rockfish, juvenile	9/9/2008	6	1	8.00		1.00		1.00	
black surfperch, adult	9/9/2008	6	2	9.00	1.41	0.60	0.89	0.80	1.30
black surfperch, all	9/9/2008	6	3	8.50	1.29	1.17	0.98	1.20	1.30
black surfperch, juvenile	9/9/2008	6	1	7.00		0.40	0.89	0.40	0.89
blackeye goby	9/9/2008	6	4	9.75	0.50	1.33	1.21	4.20	4.44
blue rockfish, adult	9/9/2008	6	5	8.40	1.52	3.00	0.00	23.60	3.51
blue rockfish, all	9/9/2008	6	5	8.17	1.47	3.00	0.00	23.60	3.51
bocaccio, juvenile	9/9/2008	6	2	7.50	3.54	1.00	0.00	1.00	0.00
California sheephead, female	9/9/2008	6	5	8.00	1.79	1.67	0.52	2.00	0.71
California sheephead, male	9/9/2008	6	5	8.33	1.75	1.33	0.52	1.40	0.55
copper rockfish, adult	9/9/2008	6	5	8.33	1.03	1.83	0.41	3.60	2.07
gopher rockfish, adult	9/9/2008	6	1	7.00	1.41	1.00	0.00	1.00	
kelp rockfish, adult	9/9/2008	6	5	9.80	0.45	2.60	0.89	17.60	10.69
kelp rockfish, all	9/9/2008	6	5	9.50	0.84	2.50	0.84	20.20	14.69
kelp rockfish, juvenile	9/9/2008	6	1	10.00		0.60	1.34	2.60	5.81
kelp surfperch	9/9/2008	6	1	10.00		2.00		3.00	
kelpfish spp.	9/9/2008	6	2	7.00	1.41	1.50	0.71	2.00	1.41
KGB	9/9/2008	6	1	8.50	0.71	1.00	0.00	1.00	
lingcod, adult	9/9/2008	6	2	7.67	1.53	1.67	0.58	1.50	0.71
olive rockfish, all	9/9/2008	6	1	8.00		0.17	0.41	0.20	0.45
olive/yellowtail rockfish, juvenile	9/9/2008	6	1	8.00		0.20	0.45	0.20	0.45
painted greenling	9/9/2008	6	5	8.50	1.64	2.33	0.52	9.60	6.02
pile perch, adult	9/9/2008	6	5	9.00	1.41	2.00	0.00	3.20	1.30
pile perch, all	9/9/2008	6	5	9.33	1.21	2.00	0.00	4.00	2.00
pile perch, juvenile	9/9/2008	6	3	9.00	1.73	0.80	0.84	0.80	0.84
rainbow surfperch	9/9/2008	6	4	9.50	1.00	2.25	0.50	10.25	3.69
sailfin sculpin	9/9/2008	6	1	5.00		1.00		1.00	
scalyhead sculpin	9/9/2008	6	1	5.00		1.00		1.00	
seporita, adult	9/9/2008	6	5	7.40	2.51	1.80	0.84	5.20	7.76
seporita, all	9/9/2008	6	5	7.00	2.45	1.67	0.82	5.20	7.76
snubnose sculpin	9/9/2008	6	2	7.00	0.00	1.50	0.71	1.50	0.71
striped surfperch, adult	9/9/2008	6	4	9.25	0.50	2.00	1.22	8.00	4.58
striped surfperch, all	9/9/2008	6	4	9.25	0.50	1.83	1.47	10.40	6.66
striped surfperch, juvenile	9/9/2008	6	3	8.67	0.58	1.00	1.00	2.40	3.05
surfperch spp., adult	9/9/2008	6	5	9.33	1.21	3.00	0.00	27.00	14.30
treefish, adult	9/9/2008	6	1	10.00		0.17	0.41	0.20	0.45
treefish, juvenile	9/9/2008	6	1	7.00		0.17	0.41	0.20	0.45
tubesnout, adult	9/9/2008	6	5	10.00	0.00	3.67	0.82	4110.00	3929.12
vermillion rockfish, adult	9/9/2008	6	5	7.83	1.72	1.00	0.00	1.00	0.00

2008 ROVING DIVER FISH COUNT

San Miguel Island - Hare Rock

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
black and yellow rockfish, adult	9/10/2008	5	3	9.67	0.58	2.00	0.00	6.00	3.61
black and yellow/gopher rockfish, juvenile	9/10/2008	5	1	6.00		1.00		1.00	
black surfperch, adult	9/10/2008	5	2	8.00	0.00	1.00	1.15	1.25	1.50
black surfperch, all	9/10/2008	5	2	8.50	0.71	0.80	1.10	1.75	2.06
black surfperch, juvenile	9/10/2008	5	2	8.50	0.71	0.50	0.58	0.50	0.58
blackeye goby	9/10/2008	5	4	10.00	0.00	3.40	0.55	100.75	37.48
blacksmith, adult	9/10/2008	5	4	10.00	0.00	3.00	0.00	21.50	5.45
blacksmith, all	9/10/2008	5	4	10.00	0.00	3.00	0.00	21.50	5.45
blue rockfish, adult	9/10/2008	5	4	9.50	0.58	3.00	0.00	18.75	3.30
blue rockfish, all	9/10/2008	5	4	9.40	0.55	3.00	0.00	19.00	3.37
blue rockfish, juvenile	9/10/2008	5	1	6.00		0.25	0.50	0.25	0.50
cabezon, adult	9/10/2008	5	3	8.67	1.53	1.33	0.58	1.33	0.58
California sheephead, female	9/10/2008	5	4	9.80	0.45	1.80	0.45	7.25	2.36
California sheephead, male	9/10/2008	5	4	8.40	1.34	1.60	0.55	2.75	1.71
copper rockfish, adult	9/10/2008	5	4	8.80	1.10	1.80	0.45	3.25	0.96
copper rockfish, juvenile	9/10/2008	5	2	6.50	0.71	2.00	0.00	2.00	0.00
kelp rockfish, adult	9/10/2008	5	4	9.25	0.96	2.00	0.00	5.25	1.71
kelp rockfish, all	9/10/2008	5	4	9.40	0.89	2.40	0.55	23.50	29.77
kelp rockfish, juvenile	9/10/2008	5	3	8.00	2.00	1.75	1.26	18.25	29.93
KGB	9/10/2008	5	4	9.20	1.30	2.60	0.55	11.75	6.08
lingcod, adult	9/10/2008	5	2	9.00	0.00	1.00	0.00	1.00	0.00
olive rockfish, adult	9/10/2008	5	3	8.33	1.53	1.00	0.82	1.00	0.82
olive rockfish, all	9/10/2008	5	3	9.25	0.96	1.40	0.89	2.75	2.63
olive/yellowtail rockfish, juvenile	9/10/2008	5	2	9.00	1.41	1.00	1.15	1.75	2.06
painted greenling	9/10/2008	5	4	10.00	0.00	3.00	0.00	28.00	8.76
pile perch, adult	9/10/2008	5	4	9.50	0.58	2.00	0.82	7.00	5.48
pile perch, all	9/10/2008	5	4	9.40	0.55	2.20	0.84	7.25	5.85
pile perch, juvenile	9/10/2008	5	1	10.00		0.25	0.50	0.25	0.50
ronquil spp.	9/10/2008	5	2	7.50	3.54	1.50	0.71	1.50	0.71
rubberlip surfperch	9/10/2008	5	4	8.50	0.58	2.50	0.58	8.75	4.03
seporita, adult	9/10/2008	5	4	7.25	0.96	2.75	0.50	10.50	4.65
seporita, all	9/10/2008	5	4	7.40	0.89	2.80	0.45	10.50	4.65
snubnose sculpin	9/10/2008	5	4	9.50	0.58	2.50	0.58	11.00	12.03
striped surfperch, adult	9/10/2008	5	4	8.75	1.26	2.50	0.58	10.00	3.46
striped surfperch, all	9/10/2008	5	4	10.00	0.00	3.00	0.00	21.50	3.11
striped surfperch, juvenile	9/10/2008	5	4	10.00	0.00	2.75	0.50	11.50	1.29
top smelt	9/10/2008	5	3	8.00	1.00	3.33	0.58	86.67	55.08
treefish, adult	9/10/2008	5	1	9.00		0.40	0.89	0.75	1.50
treefish, juvenile	9/10/2008	5	2	8.00	1.41	0.60	0.89	0.75	0.96

2008 ROVING DIVER FISH COUNT

Santa Rosa Island - Johnson's Lee North

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
black and yellow rockfish, adult	10/1/2008	4	4	9.00	1.15	2.00	0.00	7.25	2.22
black surfperch, adult	10/1/2008	4	4	9.50	0.58	3.00	0.00	17.25	4.92
black surfperch, all	10/1/2008	4	4	9.75	0.50	3.00	0.00	22.00	5.83
black surfperch, juvenile	10/1/2008	4	3	10.00	0.00	1.50	1.00	4.75	4.27
blackeye goby	10/1/2008	4	4	9.75	0.50	3.00	0.00	25.25	5.56
blacksmith, adult	10/1/2008	4	4	10.00	0.00	2.75	0.50	22.00	15.30
blacksmith, all	10/1/2008	4	4	10.00	0.00	2.75	0.50	31.25	29.80
blacksmith, juvenile	10/1/2008	4	2	9.00	1.41	1.25	1.50	9.25	15.35
blue rockfish, adult	10/1/2008	4	1	8.00		0.50	1.00	0.75	1.50
blue rockfish, all	10/1/2008	4	1	8.00		0.50	1.00	1.00	2.00
blue rockfish, juvenile	10/1/2008	4	1	6.00		0.25	0.50	0.25	0.50
bocaccio, juvenile	10/1/2008	4	1	7.00		3.00		12.00	
California sheephead, female	10/1/2008	4	4	9.25	1.50	2.00	0.00	3.50	1.00
California sheephead, male	10/1/2008	4	4	6.75	2.22	1.00	0.00	1.00	0.00
garibaldi, adult	10/1/2008	4	4	9.50	0.58	2.00	0.00	4.25	0.96
giant kelpfish, adult	10/1/2008	4	1	5.00		2.00		2.00	
gopher rockfish, adult	10/1/2008	4	2	9.00	0.00	1.00	0.00	1.00	0.00
halfmoon, adult	10/1/2008	4	1	6.00		1.00		1.00	
jack mackerel	10/1/2008	4	1	10.00		2.00		5.00	
kelp bass, adult	10/1/2008	4	3	9.67	0.58	1.25	0.96	1.25	0.96
kelp bass, all	10/1/2008	4	3	9.67	0.58	1.25	0.96	1.25	0.96
kelp rockfish, adult	10/1/2008	4	4	10.00	0.00	3.00	0.00	21.25	7.14
kelp rockfish, all	10/1/2008	4	4	10.00	0.00	3.00	0.00	21.25	7.14
kelp surfperch	10/1/2008	4	2	10.00	0.00	2.50	0.71	18.50	19.09
lavender sculpin	10/1/2008	4	1	5.00		1.00		1.00	
olive rockfish, adult	10/1/2008	4	4	6.50	1.73	2.00	0.00	2.50	0.58
olive rockfish, all	10/1/2008	4	4	6.75	1.71	2.00	0.00	5.25	3.77
olive/yellowtail rockfish, juvenile	10/1/2008	4	2	7.00	0.00	1.00	1.15	2.75	3.20
opaleye, all	10/1/2008	4	2	8.50	0.71	1.00	1.15	2.50	3.32
painted greenling	10/1/2008	4	4	10.00	0.00	3.00	0.00	18.75	6.29
pile perch, adult	10/1/2008	4	4	9.00	1.41	1.50	0.58	4.00	3.46
pile perch, all	10/1/2008	4	4	9.00	1.41	1.75	0.50	4.50	3.51
pile perch, juvenile	10/1/2008	4	2	7.00	0.00	0.50	0.58	0.50	0.58
rainbow surfperch	10/1/2008	4	4	8.00	1.41	2.00	0.00	4.00	1.41
rock wrasse, female	10/1/2008	4	2	7.50	0.71	1.00	1.15	1.00	1.15
rock wrasse, male	10/1/2008	4	2	7.50	2.12	0.50	0.58	0.50	0.58
rubberlip surfperch	10/1/2008	4	2	7.50	2.12	2.00	0.00	3.50	2.12
seporita, adult	10/1/2008	4	4	10.00	0.00	2.75	0.50	29.00	19.08
seporita, all	10/1/2008	4	4	10.00	0.00	2.75	0.50	41.00	32.68
seporita, juvenile	10/1/2008	4	2	10.00	0.00	1.50	1.73	12.00	13.86
snubnose sculpin	10/1/2008	4	1	9.00		1.00		1.00	
striped surfperch, adult	10/1/2008	4	4	8.25	2.22	1.75	0.50	5.75	3.95
striped surfperch, all	10/1/2008	4	4	8.25	2.22	2.25	0.96	8.00	6.58
striped surfperch, juvenile	10/1/2008	4	2	8.00	1.41	1.00	1.15	2.25	2.87
surfperch spp., adult	10/1/2008	4	2	10.00	0.00	1.50	0.71	2.50	2.12
top smelt	10/1/2008	4	2	10.00	0.00	3.00	0.00	49.00	16.97
treefish, adult	10/1/2008	4	4	9.00	1.41	1.00	0.00	1.00	0.00
treefish, juvenile	10/1/2008	4	2	7.50	0.71	0.50	0.58	0.50	0.58

2008 ROVING DIVER FISH COUNT

Santa Rosa Island - Johnson's Lee South

Common Name	Date	Max # of	# of	Score		Abundance		Count	
		Observers	Observations	Avg	St Dev	Avg	St Dev	Avg	St Dev
bat ray	8/13/2008	3	3	9.67	0.58	2.00	0.00	3.67	0.58
black and yellow rockfish, adult	8/13/2008	3	3	9.00	1.00	2.00	0.00	9.67	0.58
black surfperch, adult	8/13/2008	3	3	9.67	0.58	2.00	0.00	4.00	1.00
black surfperch, all	8/13/2008	3	3	9.67	0.58	2.00	0.00	4.00	1.00
blackeye goby	8/13/2008	3	3	9.67	0.58	3.33	0.58	53.00	43.28
blacksmith, adult	8/13/2008	3	3	9.33	0.58	3.00	0.00	30.33	20.65
blacksmith, all	8/13/2008	3	3	9.33	0.58	3.00	0.00	30.33	20.65
blue rockfish, adult	8/13/2008	3	3	9.00	1.00	2.00	0.00	4.33	1.53
blue rockfish, all	8/13/2008	3	3	9.00	1.00	2.00	0.00	4.67	1.53
blue rockfish, juvenile	8/13/2008	3	1	7.00		0.33	0.58	0.33	0.58
California sheephead, female	8/13/2008	3	3	9.67	0.58	2.00	0.00	5.33	2.08
California sheephead, male	8/13/2008	3	3	9.33	0.58	2.00	0.00	2.67	0.58
copper rockfish, adult	8/13/2008	3	1	7.00		1.00		1.00	
coralline sculpin	8/13/2008	3	2	7.50	0.71	1.00	0.00	1.00	0.00
gopher rockfish, adult	8/13/2008	3	2	8.50	0.71	1.00	0.00	1.00	0.00
halfmoon, adult	8/13/2008	3	3	8.00	1.00	1.67	0.58	1.67	0.58
kelp bass, adult	8/13/2008	3	3	9.33	0.58	2.00	0.00	5.33	4.04
kelp bass, all	8/13/2008	3	3	9.33	0.58	2.00	0.00	5.33	4.04
kelp rockfish, adult	8/13/2008	3	3	9.33	0.58	3.00	0.00	27.00	20.22
kelp rockfish, all	8/13/2008	3	3	9.33	0.58	3.00	0.00	27.33	20.03
kelp rockfish, juvenile	8/13/2008	3	1	10.00		0.33	0.58	0.33	0.58
kelp surfperch	8/13/2008	3	2	10.00	0.00	2.50	0.71	14.50	14.85
kelpfish spp.	8/13/2008	3	1	9.00		1.00		1.00	
KGB	8/13/2008	3	1	9.00		2.00		2.00	
ocean whitefish, adult	8/13/2008	3	1	8.00		2.00		2.00	
olive rockfish, adult	8/13/2008	3	2	9.00	1.41	1.00	1.00	1.00	1.00
olive rockfish, all	8/13/2008	3	3	9.00	1.00	1.67	0.58	2.00	1.00
olive/yellowtail rockfish, juvenile	8/13/2008	3	2	9.50	0.71	1.00	1.00	1.00	1.00
opaleye, all	8/13/2008	3	3	8.33	1.53	1.67	0.58	3.00	2.00
painted greenling	8/13/2008	3	3	9.67	0.58	3.00	0.00	18.67	5.86
pile perch, adult	8/13/2008	3	3	9.33	0.58	2.33	0.58	8.00	4.36
pile perch, all	8/13/2008	3	3	9.33	0.58	2.33	0.58	8.00	4.36
rainbow surfperch	8/13/2008	3	3	9.00	0.00	2.67	0.58	21.67	20.60
rubberlip surfperch	8/13/2008	3	2	9.50	0.71	1.50	0.71	2.00	1.41
seporita, adult	8/13/2008	3	3	10.00	0.00	3.33	0.58	81.00	30.51
seporita, all	8/13/2008	3	3	10.00	0.00	3.33	0.58	82.33	29.19
seporita, juvenile	8/13/2008	3	1	6.00		0.67	1.15	1.33	2.31
snubnose sculpin	8/13/2008	3	2	8.50	2.12	1.00	0.00	1.00	0.00
striped surfperch, adult	8/13/2008	3	3	9.33	0.58	2.00	0.00	7.00	3.00
striped surfperch, all	8/13/2008	3	3	9.33	0.58	2.00	0.00	7.00	3.00
top smelt	8/13/2008	3	3	9.33	1.15	3.00	0.00	52.00	43.55
treefish, adult	8/13/2008	3	2	7.50	0.71	1.00	1.00	1.00	1.00
treefish, juvenile	8/13/2008	3	2	9.00	0.00	1.33	1.15	1.67	1.53

2008 ROVING DIVER FISH COUNT

Santa Rosa Island - Rodes Reef

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
black and yellow rockfish, adult	7/28/2008	4	2	8.67	1.53	1.00	0.00	1.00	0.00
black rockfish, adult	7/28/2008	4	1	8.00		2.00		2.00	
black surfperch, adult	7/28/2008	4	3	8.67	1.15	1.67	0.58	2.67	1.53
black surfperch, all	7/28/2008	4	3	9.25	0.96	1.75	0.50	3.67	3.06
black surfperch, juvenile	7/28/2008	4	1	9.00		0.67	1.15	1.00	1.73
blackeye goby	7/28/2008	4	2	10.00	0.00	1.50	1.00	4.67	4.04
blacksmith, adult	7/28/2008	4	3	8.67	2.31	2.33	0.58	7.67	8.08
blacksmith, all	7/28/2008	4	3	9.00	2.00	2.25	0.50	7.67	8.08
blue rockfish, adult	7/28/2008	4	3	10.00	0.00	3.00	0.00	20.33	9.50
blue rockfish, all	7/28/2008	4	3	10.00	0.00	3.00	0.00	20.33	9.50
cabezon, adult	7/28/2008	4	2	5.50	0.71	1.00	0.00	1.00	0.00
California sheephead, female	7/28/2008	4	3	9.50	0.58	1.75	0.50	3.00	1.73
California sheephead, male	7/28/2008	4	3	10.00	0.00	1.75	0.50	2.67	1.53
copper rockfish, adult	7/28/2008	4	3	7.25	1.50	1.50	0.58	1.33	0.58
coralline sculpin	7/28/2008	4	1	9.00		2.00		3.00	
gopher rockfish, juvenile	7/28/2008	4	1	7.00		1.00		1.00	
kelp bass, adult	7/28/2008	4	1	7.00		0.33	0.58	0.33	0.58
kelp bass, all	7/28/2008	4	1	7.00		0.25	0.50	0.33	0.58
kelp greenling	7/28/2008	4	1	7.00		1.00		1.00	
kelp rockfish, adult	7/28/2008	4	3	9.67	0.58	2.00	0.00	6.33	2.31
kelp rockfish, all	7/28/2008	4	3	9.50	0.58	2.00	0.00	6.33	2.31
KGB	7/28/2008	4	1	9.00		2.00		4.00	
ocean whitefish, adult	7/28/2008	4	3	8.00	2.16	1.75	0.50	2.00	1.00
olive rockfish, adult	7/28/2008	4	1	8.00		0.33	0.58	0.33	0.58
olive rockfish, all	7/28/2008	4	1	8.00		0.25	0.50	0.33	0.58
painted greenling	7/28/2008	4	3	9.75	0.50	2.50	0.58	22.67	14.74
pile perch, adult	7/28/2008	4	2	6.50	0.71	1.33	1.15	2.67	3.06
pile perch, all	7/28/2008	4	2	7.67	2.08	1.50	1.00	2.67	3.06
rainbow surfperch	7/28/2008	4	2	7.33	0.58	1.67	0.58	1.50	0.71
rubberlip surfperch	7/28/2008	4	2	7.00	0.00	2.00	0.00	6.00	4.24
striped surfperch, adult	7/28/2008	4	3	9.33	1.15	2.00	0.00	7.33	2.52
striped surfperch, all	7/28/2008	4	3	9.50	1.00	2.25	0.96	13.67	8.08
striped surfperch, juvenile	7/28/2008	4	2	8.00	1.41	1.67	1.53	6.33	7.09
stripedfin ronquil	7/28/2008	4	1	8.00		1.00		1.00	
tubesnout, adult	7/28/2008	4	3	9.00	1.00	4.00	0.00	555.00	410.88

2008 ROVING DIVER FISH COUNT

Santa Cruz Island - Gull Island South

Common Name	Date	Max # of	# of	Score		Abundance		Count	
		Observers	Observations	Avg	St Dev	Avg	St Dev	Avg	St Dev
black and yellow rockfish, adult	8/28/2008	4	3	8.00	0.00	2.00	0.00	5.00	1.00
black surfperch, adult	8/28/2008	4	4	9.25	0.96	1.75	0.50	4.25	2.87
black surfperch, all	8/28/2008	4	4	9.25	0.96	2.75	0.50	11.25	3.10
black surfperch, juvenile	8/28/2008	4	4	9.00	0.82	2.00	0.00	7.00	3.16
blackeye goby	8/28/2008	4	4	9.75	0.50	3.00	0.00	55.25	27.13
blacksmith, adult	8/28/2008	4	4	10.00	0.00	3.75	0.50	125.00	28.68
blacksmith, all	8/28/2008	4	4	10.00	0.00	3.75	0.50	125.00	28.68
blue rockfish, adult	8/28/2008	4	4	9.75	0.50	2.75	0.50	12.00	4.97
blue rockfish, all	8/28/2008	4	4	9.75	0.50	2.75	0.50	18.00	6.27
blue rockfish, juvenile	8/28/2008	4	4	9.00	0.82	2.00	0.00	6.00	1.41
California sheephead, female	8/28/2008	4	4	10.00	0.00	2.75	0.50	14.00	6.78
California sheephead, juvenile	8/28/2008	4	4	8.00	2.16	2.00	0.00	3.75	0.96
California sheephead, male	8/28/2008	4	4	10.00	0.00	2.00	0.00	7.50	0.58
copper rockfish, adult	8/28/2008	4	3	7.33	2.31	1.33	0.58	1.33	0.58
garibaldi, adult	8/28/2008	4	2	7.00	0.00	0.50	0.58	0.50	0.58
giant kelpfish, juvenile	8/28/2008	4	1	5.00		1.00		1.00	
gopher rockfish, adult	8/28/2008	4	2	7.50	0.71	1.50	0.71	2.00	1.41
jack mackerel	8/28/2008	4	1	10.00		1.00		1.00	
kelp bass, adult	8/28/2008	4	2	9.00	1.41	1.00	1.15	1.25	1.50
kelp bass, all	8/28/2008	4	2	9.00	1.41	1.00	1.15	1.25	1.50
kelp rockfish, adult	8/28/2008	4	4	9.00	0.00	3.00	0.00	16.75	3.30
kelp rockfish, all	8/28/2008	4	4	9.25	0.50	3.00	0.00	26.50	9.95
kelp rockfish, juvenile	8/28/2008	4	4	8.75	1.26	2.50	0.58	9.75	6.70
kelp surfperch	8/28/2008	4	2	7.50	3.54	1.50	0.71	5.00	5.66
lingcod, adult	8/28/2008	4	4	7.25	0.96	1.75	0.50	1.75	0.50
ocean whitefish, adult	8/28/2008	4	1	7.00		1.00		1.00	
olive rockfish, adult	8/28/2008	4	4	8.75	0.96	2.00	0.00	7.00	2.94
olive rockfish, all	8/28/2008	4	4	8.75	0.96	2.25	0.50	8.75	4.65
olive/yellowtail rockfish, juvenile	8/28/2008	4	2	7.00	1.41	1.00	1.15	1.75	2.36
painted greenling	8/28/2008	4	4	9.75	0.50	3.00	0.00	30.00	17.93
pile perch, adult	8/28/2008	4	4	6.50	1.91	1.50	0.58	1.75	0.96
pile perch, all	8/28/2008	4	4	7.75	1.89	2.00	0.00	4.00	0.82
pile perch, juvenile	8/28/2008	4	4	7.75	1.89	2.00	0.00	2.25	0.50
rainbow surfperch	8/28/2008	4	3	8.00	1.73	1.67	0.58	1.67	0.58
seporita, adult	8/28/2008	4	4	8.75	2.50	2.75	0.50	21.75	9.84
seporita, all	8/28/2008	4	4	8.75	2.50	2.75	0.50	21.75	9.84
striped surfperch, adult	8/28/2008	4	4	8.75	1.50	2.00	0.00	6.75	3.20
striped surfperch, all	8/28/2008	4	4	8.75	1.50	2.25	0.50	8.75	1.71
striped surfperch, juvenile	8/28/2008	4	3	9.00	1.00	1.25	0.96	2.00	2.16
top smelt	8/28/2008	4	1	5.00		3.00		15.00	
treefish, adult	8/28/2008	4	2	8.00	0.00	0.75	0.96	1.00	1.41
treefish, juvenile	8/28/2008	4	2	8.00	1.41	0.50	0.58	0.50	0.58

2008 ROVING DIVER FISH COUNT

Santa Cruz Island - Fry's Harbor

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
black and yellow rockfish, adult	6/19/2008	4	3	7.00	1.73	1.00	0.00	1.00	0.00
black surfperch, adult	6/19/2008	4	3	10.00	0.00	2.67	0.58	9.67	4.93
black surfperch, all	6/19/2008	4	3	9.50	1.00	2.50	0.58	9.67	4.93
blackeye goby	6/19/2008	4	3	9.25	0.96	3.50	0.58	132.00	85.71
blacksmith, adult	6/19/2008	4	3	10.00	0.00	4.00	0.00	884.67	191.55
blacksmith, all	6/19/2008	4	3	10.00	0.00	4.00	0.00	884.67	191.55
blue rockfish, adult	6/19/2008	4	1	5.00		0.67	1.15	0.67	1.15
blue rockfish, all	6/19/2008	4	3	7.50	0.58	2.00	0.82	7.67	4.04
blue rockfish, juvenile	6/19/2008	4	3	7.67	0.58	2.00	0.00	7.00	3.00
blue-banded goby	6/19/2008	4	3	9.25	0.96	2.25	0.96	15.00	10.15
California sheephead, female	6/19/2008	4	3	8.00	1.41	2.00	0.00	3.33	1.53
California sheephead, juvenile	6/19/2008	4	1	7.00		0.25	0.50	0.33	0.58
California sheephead, male	6/19/2008	4	1	9.00	0.00	1.00	1.15	0.67	1.15
copper rockfish, adult	6/19/2008	4	2	7.50	2.12	2.00	0.00	2.00	0.00
garibaldi, adult	6/19/2008	4	3	8.25	1.50	2.00	0.00	4.67	1.15
gopher rockfish, adult	6/19/2008	4	2	7.00	2.83	1.00	0.00	1.00	0.00
halfmoon, adult	6/19/2008	4	2	7.00	1.41	1.50	0.71	2.00	1.41
island kelpfish	6/19/2008	4	2	9.00	0.00	1.00	1.15	1.33	1.15
kelp bass, adult	6/19/2008	4	3	10.00	0.00	3.00	0.00	18.67	6.11
kelp bass, all	6/19/2008	4	3	10.00	0.00	3.00	0.00	18.67	6.11
kelp rockfish, adult	6/19/2008	4	3	9.00	1.00	2.00	0.00	6.33	2.08
kelp rockfish, all	6/19/2008	4	3	9.25	0.96	2.25	0.50	9.00	3.00
kelp rockfish, juvenile	6/19/2008	4	3	7.67	0.58	2.00	0.00	2.67	1.15
KGB	6/19/2008	4	2	8.00	1.41	2.50	0.71	9.00	9.90
olive rockfish, adult	6/19/2008	4	3	7.33	1.53	2.00	0.00	3.00	1.00
olive rockfish, all	6/19/2008	4	3	7.33	1.53	1.50	1.00	3.00	1.00
opaleye, adult	6/19/2008	4	1	8.00		0.67	1.15	0.67	1.15
opaleye, all	6/19/2008	4	1	8.00		0.50	1.00	0.67	1.15
painted greenling	6/19/2008	4	3	9.75	0.50	2.75	0.50	26.33	1.53
pile perch, adult	6/19/2008	4	3	9.67	0.58	2.67	0.58	10.67	4.16
pile perch, all	6/19/2008	4	3	9.75	0.50	2.75	0.50	10.67	4.16
rainbow surfperch	6/19/2008	4	2	7.67	1.15	1.67	0.58	2.50	0.71
rock wrasse, female	6/19/2008	4	3	8.33	0.58	1.50	1.00	2.67	0.58
rock wrasse, juvenile	6/19/2008	4	1	9.00		0.50	1.00	1.67	2.89
rock wrasse, male	6/19/2008	4	3	8.33	1.15	1.50	1.00	2.33	0.58
rubberlip surfperch	6/19/2008	4	2	8.50	0.71	1.00	0.00	1.00	0.00
seporita, adult	6/19/2008	4	3	10.00	0.00	3.00	0.00	77.00	13.45
seporita, all	6/19/2008	4	3	10.00	0.00	3.00	0.00	77.00	13.45
snubnose sculpin	6/19/2008	4	1	7.00		1.00		1.00	
striped surfperch, adult	6/19/2008	4	3	8.00	2.65	1.67	0.58	2.00	1.00
striped surfperch, all	6/19/2008	4	3	9.50	0.58	1.75	0.50	3.00	1.00
striped surfperch, juvenile	6/19/2008	4	2	7.50	2.12	1.00	1.00	1.00	1.00
swell shark	6/19/2008	4	3	8.50	1.73	1.25	0.50	1.33	0.58
treefish, adult	6/19/2008	4	3	9.25	0.50	2.00	0.00	7.33	1.53

2008 ROVING DIVER FISH COUNT

Santa Cruz Island - Pelican Bay

Common Name	Date	Max # of	# of	Score		Abundance		Count	
		Observers	Observations	Avg	St Dev	Avg	St Dev	Avg	St Dev
black and yellow rockfish, adult	7/17/2008	6	1	5.00		1.00		1.00	
black surfperch, adult	7/17/2008	6	6	10.00	0.00	2.83	0.41	14.50	4.55
black surfperch, all	7/17/2008	6	6	10.00	0.00	2.83	0.41	14.50	4.55
blackeye goby	7/17/2008	6	6	10.00	0.00	4.00	0.00	273.00	125.47
blacksmith, adult	7/17/2008	6	6	9.67	0.52	2.83	0.41	58.00	30.12
blacksmith, all	7/17/2008	6	6	9.67	0.52	2.83	0.41	58.00	30.12
blue-banded goby	7/17/2008	6	6	9.83	0.41	3.00	0.00	35.50	22.28
California sheephead, female	7/17/2008	6	5	6.20	0.45	0.83	0.41	0.83	0.41
finescale triggerfish, adult	7/17/2008	6	3	6.00	1.00	1.00	0.00	1.00	0.00
fringehead spp.	7/17/2008	6	3	7.67	2.52	1.33	0.58	1.33	0.58
garibaldi, adult	7/17/2008	6	6	9.50	0.84	2.67	0.52	12.33	6.25
halfmoon, adult	7/17/2008	6	1	8.00		2.00		2.00	
island kelpfish	7/17/2008	6	6	6.50	1.52	1.67	0.52	3.00	1.90
kelp bass, adult	7/17/2008	6	6	10.00	0.00	3.00	0.00	15.83	3.49
kelp bass, all	7/17/2008	6	6	10.00	0.00	3.00	0.00	15.83	3.49
kelp rockfish, adult	7/17/2008	6	5	8.60	1.34	0.83	0.41	0.83	0.41
kelp rockfish, all	7/17/2008	6	5	8.60	1.34	0.83	0.41	0.83	0.41
olive rockfish, adult	7/17/2008	6	1	6.00		0.17	0.41	0.17	0.41
olive rockfish, all	7/17/2008	6	1	6.00		0.17	0.41	0.17	0.41
painted greenling	7/17/2008	6	6	10.00	0.00	2.50	0.55	10.33	3.61
pile perch, adult	7/17/2008	6	4	8.00	1.83	1.17	0.98	1.17	0.98
pile perch, all	7/17/2008	6	4	8.00	1.83	1.17	0.98	1.17	0.98
rock wrasse, female	7/17/2008	6	6	9.33	0.82	2.17	0.41	5.83	5.56
rock wrasse, male	7/17/2008	6	6	8.83	1.17	2.00	0.63	5.33	3.50
rubberlip surfperch	7/17/2008	6	5	7.60	1.14	1.00	0.00	1.00	0.00
seporita, adult	7/17/2008	6	6	10.00	0.00	3.00	0.00	26.67	10.41
seporita, all	7/17/2008	6	6	10.00	0.00	3.00	0.00	26.67	10.41
snubnose sculpin	7/17/2008	6	1	10.00		1.00		1.00	
swell shark	7/17/2008	6	4	8.25	0.96	1.25	0.50	1.50	1.00
treefish, adult	7/17/2008	6	4	7.00	0.82	1.17	0.98	1.67	1.86
zebra goby	7/17/2008	6	2	6.50	2.12	1.00	0.00	1.00	0.00

2008 ROVING DIVER FISH COUNT

Santa Cruz Island - Scorpion Anchorage

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
barred sand bass	9/11/2008	4	2	7.50	0.71	1.00	0.00	1.00	0.00
bat ray	9/11/2008	4	1	5.00		1.00		1.00	
black and yellow rockfish, adult	9/11/2008	4	3	5.67	0.58	1.00	0.00	1.00	0.00
black surfperch, adult	9/11/2008	4	4	9.50	0.58	2.75	0.50	14.75	7.14
black surfperch, all	9/11/2008	4	4	9.50	0.58	2.75	0.50	14.75	7.14
blackeye goby	9/11/2008	4	4	10.00	0.00	4.00	0.00	207.50	71.19
blacksmith, adult	9/11/2008	4	4	7.50	2.08	2.50	0.58	10.00	6.06
blacksmith, all	9/11/2008	4	4	8.25	2.36	2.75	0.50	17.50	11.09
blacksmith, juvenile	9/11/2008	4	3	8.33	1.53	1.75	1.26	7.50	11.73
blue-banded goby	9/11/2008	4	1	7.00		0.25	0.50	0.25	0.50
brown rockfish, adult	9/11/2008	4	1	8.00		1.00		1.00	
California sheephead, female	9/11/2008	4	3	8.00	2.65	0.75	0.50	0.75	0.50
c-o turbot	9/11/2008	4	1	7.00		1.00		1.00	
copper rockfish, adult	9/11/2008	4	1	7.00		1.00		1.00	
fringehead spp.	9/11/2008	4	1	9.00		1.00		1.00	
garibaldi, adult	9/11/2008	4	4	9.75	0.50	2.25	0.50	7.00	3.16
giant kelpfish, adult	9/11/2008	4	1	9.00		1.00		1.00	
giant kelpfish, juvenile	9/11/2008	4	2	7.50	2.12	1.00	0.00	1.00	0.00
gopher rockfish, adult	9/11/2008	4	1	9.00		1.00		1.00	
halfmoon, adult	9/11/2008	4	3	7.67	1.53	1.33	0.58	1.33	0.58
horn shark	9/11/2008	4	3	9.33	0.58	1.67	0.58	2.00	1.00
island kelpfish	9/11/2008	4	3	9.67	0.58	1.50	1.00	2.75	2.50
kelp bass, adult	9/11/2008	4	4	10.00	0.00	3.00	0.00	21.75	5.32
kelp bass, all	9/11/2008	4	4	10.00	0.00	3.00	0.00	21.75	5.32
kelp rockfish, adult	9/11/2008	4	4	6.75	1.71	2.00	0.00	5.00	2.16
kelp rockfish, all	9/11/2008	4	4	8.00	1.83	2.25	0.50	9.25	4.79
kelp rockfish, juvenile	9/11/2008	4	2	9.50	0.71	1.25	1.50	4.25	6.65
kelp surfperch	9/11/2008	4	2	8.00	2.83	2.00	0.00	4.00	0.00
KGB	9/11/2008	4	2	10.00	0.00	2.50	0.71	7.00	5.66
ocean whitefish, adult	9/11/2008	4	1	6.00		2.00		3.00	
olive rockfish, adult	9/11/2008	4	2	10.00	0.00	1.00	1.15	1.25	1.50
olive rockfish, all	9/11/2008	4	2	10.00	0.00	1.00	1.15	1.25	1.50
opaleye, all	9/11/2008	4	4	8.50	0.58	2.50	0.58	12.75	6.95
painted greenling	9/11/2008	4	4	9.75	0.50	2.50	0.58	11.75	3.40
pile perch, adult	9/11/2008	4	2	8.00	1.41	1.00	1.15	1.25	1.50
pile perch, all	9/11/2008	4	2	8.00	1.41	1.00	1.15	1.50	1.91
pile perch, juvenile	9/11/2008	4	1	9.00		0.25	0.50	0.25	0.50
rock wrasse, female	9/11/2008	4	4	9.50	0.58	1.75	0.50	4.50	3.51
rock wrasse, male	9/11/2008	4	4	8.75	1.26	2.00	0.00	3.50	1.29
seporita, adult	9/11/2008	4	4	10.00	0.00	3.00	0.00	34.25	4.03
seporita, all	9/11/2008	4	4	10.00	0.00	3.00	0.00	37.25	5.25
seporita, juvenile	9/11/2008	4	3	8.00	2.00	1.50	1.00	3.00	2.45
treefish, adult	9/11/2008	4	2	9.00	0.00	0.50	0.58	0.50	0.58
yellowfin fringehead	9/11/2008	4	1	7.00		1.00		1.00	

2008 ROVING DIVER FISH COUNT

Santa Cruz Island - Yellow Banks

Common Name	Date	Max # of	# of	Score		Abundance		Count	
		Observers	Observations	Avg	St Dev	Avg	St Dev	Avg	St Dev
black and yellow rockfish, adult	9/29/2008	4	2	6.50	2.12	1.50	0.71	1.50	0.71
blackeye goby	9/29/2008	4	4	10.00	0.00	3.50	0.58	105.25	45.13
California sheephead, female	9/29/2008	4	4	8.75	0.96	2.25	0.50	9.75	2.22
copper rockfish, adult	9/29/2008	4	1	10.00		2.00		2.00	
copper rockfish, juvenile	9/29/2008	4	1	5.00		2.00		2.00	
coralline sculpin	9/29/2008	4	1	5.00		1.00		1.00	
giant kelpfish, adult	9/29/2008	4	1	7.00		1.00		1.00	
giant kelpfish, juvenile	9/29/2008	4	1	7.00		1.00		1.00	
gopher rockfish, adult	9/29/2008	4	1	9.00		1.00		1.00	
gopher rockfish, juvenile	9/29/2008	4	1	6.00		1.00		1.00	
kelp bass, adult	9/29/2008	4	4	10.00	0.00	3.00	0.00	15.25	1.26
kelp bass, all	9/29/2008	4	4	10.00	0.00	3.00	0.00	15.25	1.26
kelp rockfish, adult	9/29/2008	4	4	10.00	0.00	2.50	0.58	9.50	3.70
kelp rockfish, all	9/29/2008	4	4	10.00	0.00	2.50	0.58	13.75	11.70
kelp rockfish, juvenile	9/29/2008	4	1	10.00		0.75	1.50	4.25	8.50
kelp surfperch	9/29/2008	4	3	8.33	2.08	2.33	0.58	12.67	8.33
KGB	9/29/2008	4	2	6.00	0.00	1.50	0.71	2.00	1.41
ocean whitefish, adult	9/29/2008	4	1	8.00		2.00		3.00	
olive rockfish, adult	9/29/2008	4	2	8.00	2.83	0.50	0.58	0.50	0.58
olive rockfish, all	9/29/2008	4	2	8.00	2.83	0.50	0.58	0.50	0.58
painted greenling	9/29/2008	4	4	9.75	0.50	3.00	0.00	17.75	1.50
pile perch, adult	9/29/2008	4	1	9.00		0.25	0.50	0.25	0.50
pile perch, all	9/29/2008	4	1	9.00		0.25	0.50	0.25	0.50
rock wrasse, female	9/29/2008	4	4	7.25	1.71	1.00	0.00	1.00	0.00
rock wrasse, male	9/29/2008	4	3	7.00	1.73	1.00	0.82	1.25	1.26
rubberlip surfperch	9/29/2008	4	2	5.00	0.00	1.00	0.00	1.00	0.00
seporita, adult	9/29/2008	4	4	9.75	0.50	3.00	0.00	24.00	6.98
seporita, all	9/29/2008	4	4	9.75	0.50	3.00	0.00	24.00	6.98
top smelt	9/29/2008	4	2	7.50	3.54	3.00	0.00	42.50	3.54
treefish, adult	9/29/2008	4	3	7.00	2.65	1.00	0.82	1.25	1.26
treefish, juvenile	9/29/2008	4	3	8.33	2.08	1.25	0.96	1.25	0.96
vermillion rockfish, adult	9/29/2008	4	4	6.50	2.38	2.00	0.00	4.00	1.83
vermillion rockfish, juvenile	9/29/2008	4	2	7.50	3.54	2.00	0.00	2.00	0.00
zebra goby	9/29/2008	4	1	8.00		1.00		1.00	

2008 ROVING DIVER FISH COUNT

Anacapa Island - Admiral's Reef

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
black and yellow rockfish, adult	6/4/2008	4	1	6.00		1.00		1.00	
black surfperch, adult	6/4/2008	4	3	8.33	2.08	2.00	0.00	3.67	2.08
black surfperch, all	6/4/2008	4	3	7.50	2.38	1.75	0.50	3.67	2.08
blackeye goby	6/4/2008	4	3	10.00	0.00	4.00	0.00	253.33	130.51
blacksmith, adult	6/4/2008	4	3	10.00	0.00	4.00	0.00	804.33	109.00
blacksmith, all	6/4/2008	4	3	10.00	0.00	4.00	0.00	804.33	109.00
blue rockfish, all	6/4/2008	4	2	10.00	0.00	1.25	0.96	1.33	1.15
blue rockfish, juvenile	6/4/2008	4	2	10.00	0.00	1.33	1.15	1.33	1.15
blue-banded goby	6/4/2008	4	2	8.50	2.12	1.00	1.15	1.67	1.53
California moray eel	6/4/2008	4	1	6.00		1.00		1.00	
California scorpionfish, adult	6/4/2008	4	1	8.00		1.00		1.00	
California sheephead, female	6/4/2008	4	3	10.00	0.00	2.50	0.58	9.67	3.21
California sheephead, juvenile	6/4/2008	4	2	7.00	2.83	0.75	0.96	1.33	1.53
garibaldi, adult	6/4/2008	4	3	8.75	1.26	2.00	0.00	5.67	1.15
island kelpfish	6/4/2008	4	3	10.00	0.00	1.50	1.00	5.00	3.61
kelp bass, adult	6/4/2008	4	3	9.33	0.58	1.67	0.58	3.00	1.73
kelp bass, all	6/4/2008	4	3	9.25	0.50	1.75	0.50	3.00	1.73
kelp rockfish, adult	6/4/2008	4	3	10.00	0.00	2.00	0.00	6.67	1.15
kelp rockfish, all	6/4/2008	4	3	10.00	0.00	2.00	0.00	6.67	1.15
opaleye, adult	6/4/2008	4	3	7.67	1.15	2.00	0.00	2.33	0.58
opaleye, all	6/4/2008	4	3	7.67	1.15	1.50	1.00	2.33	0.58
painted greenling	6/4/2008	4	3	10.00	0.00	2.75	0.50	17.33	10.60
pile perch, adult	6/4/2008	4	1	8.00		0.33	0.58	0.33	0.58
pile perch, all	6/4/2008	4	1	8.50	0.71	0.50	0.58	0.33	0.58
rock wrasse, female	6/4/2008	4	3	10.00	0.00	1.50	1.00	4.67	3.06
rock wrasse, male	6/4/2008	4	1	9.00		0.25	0.50	0.33	0.58
rubberlip surfperch	6/4/2008	4	1	6.00	0.00	1.00	0.00	1.00	
seporita, adult	6/4/2008	4	3	8.67	2.31	1.67	0.58	4.00	4.36
seporita, all	6/4/2008	4	3	9.00	2.00	1.75	0.50	4.00	4.36
treefish, adult	6/4/2008	4	3	9.00	1.41	2.00	0.00	4.00	2.65
treefish, juvenile	6/4/2008	4	2	5.33	0.58	1.00	0.82	0.67	0.58
zebra goby	6/4/2008	4	1	10.00		2.00		5.00	

2008 ROVING DIVER FISH COUNT

Anacapa Island - Cathedral Cove

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
black surfperch, adult	7/16/2008	5	5	8.60	1.34	2.00	0.71	5.80	3.90
black surfperch, all	7/16/2008	5	5	9.60	0.55	3.00	0.00	17.60	6.66
black surfperch, juvenile	7/16/2008	5	5	9.60	0.55	2.20	0.84	11.80	8.23
blackeye goby	7/16/2008	5	5	8.40	2.07	2.40	0.55	8.40	4.51
blacksmith, adult	7/16/2008	5	5	10.00	0.00	4.00	0.00	214.80	70.75
blacksmith, all	7/16/2008	5	5	9.20	1.79	4.00	0.00	216.40	69.75
blacksmith, juvenile	7/16/2008	5	2	8.00	2.83	0.80	1.10	1.60	2.30
blue-banded goby	7/16/2008	5	2	8.00	1.41	0.40	0.55	0.40	0.55
bocaccio, adult	7/16/2008	5	1	6.00		2.00		4.00	
bocaccio, juvenile	7/16/2008	5	3	8.67	2.31	2.33	1.15	8.00	6.08
California scorpionfish, adult	7/16/2008	5	1	9.00		1.00		1.00	
California sheephead, female	7/16/2008	5	5	9.20	1.30	2.00	0.00	4.80	1.64
California sheephead, juvenile	7/16/2008	5	2	8.50	0.71	0.40	0.55	0.40	0.55
California sheephead, male	7/16/2008	5	5	9.20	0.84	1.80	0.45	1.80	0.45
garibaldi, adult	7/16/2008	5	5	9.60	0.55	2.00	0.00	5.00	1.87
garibaldi, juvenile	7/16/2008	5	3	5.67	1.15	0.60	0.55	0.60	0.55
giant kelpfish, adult	7/16/2008	5	3	10.00	0.00	1.67	0.58	2.00	1.00
giant kelpfish, juvenile	7/16/2008	5	3	10.00	0.00	3.67	0.58	115.67	21.13
halfmoon, adult	7/16/2008	5	1	10.00		1.00		1.00	
island kelpfish	7/16/2008	5	5	9.40	0.89	3.00	0.00	16.00	3.81
kelp bass, adult	7/16/2008	5	5	10.00	0.00	2.40	0.55	10.00	2.45
kelp bass, all	7/16/2008	5	5	10.00	0.00	2.40	0.55	10.20	2.77
kelp bass, juvenile	7/16/2008	5	1	5.00		0.20	0.45	0.20	0.45
kelp rockfish, adult	7/16/2008	5	5	9.80	0.45	2.80	0.45	11.80	2.49
kelp rockfish, all	7/16/2008	5	5	9.80	0.45	2.80	0.45	12.40	2.97
kelp rockfish, juvenile	7/16/2008	5	2	5.00	0.00	0.60	0.89	0.60	0.89
kelp surfperch	7/16/2008	5	5	10.00	0.00	2.40	0.55	21.60	29.36
kelpfish spp.	7/16/2008	5	1	8.00		1.00		1.00	
KGB	7/16/2008	5	5	9.20	1.79	2.20	0.84	17.60	17.95
olive rockfish, adult	7/16/2008	5	1	8.00		0.20	0.45	0.20	0.45
olive rockfish, all	7/16/2008	5	4	8.50	2.38	1.40	0.89	2.40	2.70
olive/yellowtail rockfish, juvenile	7/16/2008	5	4	8.50	2.38	1.20	0.84	2.20	2.77
opaleye, adult	7/16/2008	5	2	10.00	0.00	2.50	0.71	9.00	7.07
opaleye, all	7/16/2008	5	5	10.00	0.00	2.40	0.55	9.60	3.85
painted greenling	7/16/2008	5	5	7.40	0.89	1.60	0.55	2.60	1.52
pile perch, adult	7/16/2008	5	3	6.67	1.15	0.60	0.55	0.60	0.55
pile perch, all	7/16/2008	5	4	8.75	0.96	1.60	0.89	3.60	3.05
pile perch, juvenile	7/16/2008	5	4	8.75	0.96	1.40	0.89	3.00	2.74
rainbow surfperch	7/16/2008	5	1	7.00		2.00		4.00	
rock wrasse, female	7/16/2008	5	5	8.80	1.64	1.80	0.45	3.60	2.07
rock wrasse, male	7/16/2008	5	5	8.60	1.67	1.80	0.45	3.00	2.00
seporita, adult	7/16/2008	5	5	9.80	0.45	3.00	0.00	43.80	25.79
seporita, all	7/16/2008	5	5	9.80	0.45	3.20	0.45	63.60	33.10
seporita, juvenile	7/16/2008	5	5	7.60	2.30	2.60	0.55	19.80	14.65
shiner surfperch	7/16/2008	5	4	7.00	0.82	3.00	0.00	55.00	21.21
top smelt	7/16/2008	5	1	6.00		1.00		1.00	
treefish, adult	7/16/2008	5	5	8.00	1.41	1.60	0.55	1.80	0.84
treefish, juvenile	7/16/2008	5	5	8.60	0.89	1.80	0.45	3.40	3.71

2008 ROVING DIVER FISH COUNT

Anacapa Island - Landing Cove

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
black and yellow rockfish, adult	7/15/2008	4	3	8.00	1.00	1.67	0.58	1.67	0.58
black surfperch, adult	7/15/2008	4	4	10.00	0.00	2.25	0.50	8.00	2.94
black surfperch, all	7/15/2008	4	4	10.00	0.00	2.50	0.58	11.25	4.79
black surfperch, juvenile	7/15/2008	4	3	9.00	1.73	1.50	1.00	3.25	3.40
blackeye goby	7/15/2008	4	4	9.75	0.50	3.00	0.00	19.50	10.47
blacksmith, adult	7/15/2008	4	4	10.00	0.00	3.50	0.58	137.00	60.76
blacksmith, all	7/15/2008	4	4	10.00	0.00	3.75	0.50	139.25	60.56
blacksmith, juvenile	7/15/2008	4	3	8.00	0.00	1.50	1.00	2.25	1.50
blue-banded goby	7/15/2008	4	4	9.50	0.58	2.50	0.58	17.75	14.17
California sheephead, female	7/15/2008	4	4	9.50	1.00	1.75	0.50	2.25	1.26
California sheephead, juvenile	7/15/2008	4	4	8.75	0.50	1.00	0.00	1.00	0.00
California sheephead, male	7/15/2008	4	3	9.00	0.00	1.25	0.96	1.25	0.96
garibaldi, adult	7/15/2008	4	4	9.75	0.50	2.25	0.50	9.25	2.06
giant kelpfish, adult	7/15/2008	4	2	8.00	2.83	1.00	0.00	1.00	0.00
giant kelpfish, juvenile	7/15/2008	4	2	9.50	0.71	2.00	0.00	3.00	0.00
grass rockfish, adult	7/15/2008	4	1	10.00		1.00		1.00	
halfmoon, adult	7/15/2008	4	4	7.75	2.06	2.00	0.82	4.50	4.43
island kelpfish	7/15/2008	4	4	10.00	0.00	2.75	0.50	15.50	8.54
kelp bass, adult	7/15/2008	4	4	10.00	0.00	2.50	0.58	10.75	5.25
kelp bass, all	7/15/2008	4	4	10.00	0.00	2.50	0.58	10.75	5.25
kelp rockfish, adult	7/15/2008	4	4	8.25	1.71	1.75	0.50	2.50	1.29
kelp rockfish, all	7/15/2008	4	4	8.25	1.71	1.75	0.50	2.50	1.29
kelp surfperch	7/15/2008	4	2	8.50	2.12	2.00	0.00	3.50	2.12
kelpfish spp.	7/15/2008	4	1	10.00		1.00		1.00	
KGB	7/15/2008	4	1	7.00		2.00		9.00	
lavender sculpin	7/15/2008	4	3	6.00	1.73	1.33	0.58	1.33	0.58
opaleye, adult	7/15/2008	4	4	8.50	1.91	1.75	0.50	5.50	3.32
opaleye, all	7/15/2008	4	4	8.50	1.91	1.75	0.50	5.50	3.32
painted greenling	7/15/2008	4	4	8.75	1.89	2.50	0.58	10.00	7.62
pile perch, adult	7/15/2008	4	1	7.00		0.25	0.50	0.25	0.50
pile perch, all	7/15/2008	4	3	7.67	1.15	1.00	0.82	1.00	0.82
pile perch, juvenile	7/15/2008	4	2	8.00	1.41	0.75	0.96	0.75	0.96
rainbow surfperch	7/15/2008	4	2	6.50	0.71	2.00	0.00	2.50	0.71
rock wrasse, female	7/15/2008	4	2	8.50	0.71	0.50	0.58	0.50	0.58
rock wrasse, male	7/15/2008	4	4	9.50	0.58	2.00	0.00	3.00	1.15
seporita, adult	7/15/2008	4	4	10.00	0.00	3.00	0.00	69.25	16.88
seporita, all	7/15/2008	4	4	10.00	0.00	3.00	0.00	71.00	16.35
seporita, juvenile	7/15/2008	4	2	8.00	0.00	1.00	1.15	1.75	2.36
shiner surfperch	7/15/2008	4	3	8.00	0.00	1.67	0.58	3.00	1.73
striped surfperch, adult	7/15/2008	4	3	9.33	1.15	1.25	0.96	2.00	1.83
striped surfperch, all	7/15/2008	4	3	9.33	1.15	1.25	0.96	2.00	1.83
top smelt	7/15/2008	4	3	8.33	2.89	2.00	1.00	15.33	19.09
treefish, adult	7/15/2008	4	4	8.75	1.50	1.75	0.50	2.50	1.00
treefish, juvenile	7/15/2008	4	3	6.67	2.89	1.25	0.96	2.25	2.63
zebra goby	7/15/2008	4	2	8.00	1.41	1.50	0.71	4.00	4.24

2008 ROVING DIVER FISH COUNT

Santa Barbara Island - SE Sea Lion Rookery

Common Name	Date	Max # of	# of	Score		Abundance		Count	
		Observers	Observations	Avg	St Dev	Avg	St Dev	Avg	St Dev
black and yellow rockfish, adult	6/23/2008	4	1	9.00		1.00		1.00	
blackeye goby	6/23/2008	4	3	10.00	0.00	2.75	0.50	65.00	5.00
blackeye goby	11/5/2008	3	3	10.00	0.00	3.67	0.58	136.00	68.44
blacksmith, adult	11/5/2008	3	2	10.00	0.00	1.00	1.00	1.00	1.00
blacksmith, adult	6/23/2008	4	2	8.50	0.71	1.33	1.15	4.33	5.13
blacksmith, all	6/23/2008	4	2	8.50	0.71	1.00	1.15	4.33	5.13
blacksmith, all	11/5/2008	3	3	10.00	0.00	4.00	0.00	968.00	196.52
blacksmith, juvenile	11/5/2008	3	3	10.00	0.00	4.00	0.00	967.00	197.44
California scorpionfish, adult	6/23/2008	4	1	7.00		1.00		1.00	
California sheephead, female	6/23/2008	4	3	8.25	2.36	1.00	0.00	1.00	0.00
California sheephead, female	11/5/2008	3	3	10.00	0.00	2.00	0.00	3.00	1.00
California sheephead, juvenile	11/5/2008	3	3	8.33	0.58	1.33	0.58	1.33	0.58
California sheephead, male	11/5/2008	3	1	10.00		0.33	0.58	0.33	0.58
coralline sculpin	11/5/2008	3	1	6.00		1.00		1.00	
coralline sculpin	6/23/2008	4	1	6.00		1.00		1.00	
garibaldi, adult	11/5/2008	3	3	10.00	0.00	2.00	0.00	3.33	0.58
garibaldi, adult	6/23/2008	4	3	8.75	1.50	2.00	0.00	3.00	1.73
island kelpfish	6/23/2008	4	1	9.00		0.25	0.50	0.33	0.58
island kelpfish	11/5/2008	3	3	7.67	2.52	1.67	0.58	3.33	2.08
kelp rockfish, adult	11/5/2008	3	3	6.67	0.58	1.00	0.00	1.00	0.00
kelp rockfish, all	11/5/2008	3	3	6.67	0.58	1.00	0.00	1.00	0.00
ocean whitefish, adult	11/5/2008	3	3	7.67	2.08	2.00	0.00	4.33	1.53
ocean whitefish, adult	6/23/2008	4	1	7.00		2.00		4.00	
painted greenling	11/5/2008	3	3	10.00	0.00	2.67	0.58	11.33	2.08
painted greenling	6/23/2008	4	3	9.50	1.00	2.50	0.58	11.00	3.61
rock wrasse, juvenile	11/5/2008	3	1	7.00		0.33	0.58	0.33	0.58
seporita, all	11/5/2008	3	3	10.00	0.00	4.00	0.00	904.67	331.10
seporita, juvenile	11/5/2008	3	3	10.00	0.00	4.00	0.00	904.67	331.10
snubnose sculpin	6/23/2008	4	1	10.00		1.00		1.00	
snubnose sculpin	11/5/2008	3	1	7.00		1.00		1.00	
vermillion rockfish, juvenile	11/5/2008	3	2	5.50	0.71	1.00	0.00	1.00	0.00

2008 ROVING DIVER FISH COUNT

Santa Barbara Island - Arch Point

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
bat ray	11/5/2008	4	2	6.50	0.71	1.50	0.71	1.50	0.71
black surfperch, adult	11/5/2008	4	4	8.75	1.89	1.75	0.50	3.00	1.83
black surfperch, all	11/5/2008	4	4	8.75	1.89	1.75	0.50	3.75	2.75
black surfperch, juvenile	11/5/2008	4	1	10.00		0.50	1.00	0.75	1.50
blackeye goby	11/5/2008	4	4	10.00	0.00	2.50	0.58	19.50	16.42
blackeye goby	6/9/2008	5	3	9.20	0.84	2.60	0.55	17.67	13.32
blacksmith, adult	6/9/2008	5	3	7.67	1.15	2.67	0.58	48.67	38.02
blacksmith, adult	11/5/2008	4	4	10.00	0.00	4.00	0.00	392.25	159.86
blacksmith, all	6/9/2008	5	3	8.00	1.00	2.80	0.45	48.67	38.02
blacksmith, all	11/5/2008	4	4	10.00	0.00	4.00	0.00	1867.25	433.40
blacksmith, juvenile	11/5/2008	4	4	10.00	0.00	4.00	0.00	1475.00	474.69
California sheephead, female	6/9/2008	5	1	7.50	3.54	0.60	0.89	0.33	0.58
California sheephead, female	11/5/2008	4	4	9.50	0.58	2.00	0.00	3.50	1.29
California sheephead, juvenile	11/5/2008	4	1	10.00		0.50	1.00	1.00	2.00
California sheephead, juvenile	6/9/2008	5	1	6.50	2.12	0.60	0.89	0.33	0.58
California sheephead, male	6/9/2008	5	1	9.00	0.00	0.60	0.89	0.33	0.58
coralline sculpin	6/9/2008	5	1	10.00		1.00		1.00	
garibaldi, adult	6/9/2008	5	3	10.00	0.00	3.00	0.00	22.33	4.93
garibaldi, adult	11/5/2008	4	4	10.00	0.00	2.75	0.50	18.75	6.08
garibaldi, juvenile	11/5/2008	4	3	9.67	0.58	0.75	0.50	0.75	0.50
grass rockfish, adult	11/5/2008	4	3	9.00	1.00	1.67	0.58	1.67	0.58
grass rockfish, adult	6/9/2008	5	2	7.00	1.00	2.00	0.00	2.00	0.00
halfmoon, adult	6/9/2008	5	2	7.50	3.54	1.50	0.71	1.50	0.71
halfmoon, adult	11/5/2008	4	1	9.00		1.00		1.00	
island kelpfish	11/5/2008	4	1	5.00		0.25	0.50	0.25	0.50
island kelpfish	6/9/2008	5	2	6.67	1.53	0.60	0.55	0.67	0.58
kelp bass, adult	6/9/2008	5	1	8.00		0.33	0.58	0.33	0.58
kelp bass, adult	11/5/2008	4	2	8.00	0.00	0.75	0.96	0.75	0.96
kelp bass, all	6/9/2008	5	1	8.00		0.20	0.45	0.33	0.58
kelp bass, all	11/5/2008	4	2	8.00	0.00	0.75	0.96	0.75	0.96
opaleye, adult	6/9/2008	5	1	6.00		0.33	0.58	0.33	0.58
opaleye, all	11/5/2008	4	4	9.00	0.82	2.25	0.50	9.75	5.38
opaleye, all	6/9/2008	5	1	6.50	0.71	0.40	0.55	0.33	0.58
painted greenling	6/9/2008	5	3	9.40	0.89	2.40	0.55	13.00	3.61
painted greenling	11/5/2008	4	4	10.00	0.00	2.75	0.50	14.75	4.57
rock wrasse, female	11/5/2008	4	2	9.50	0.71	1.00	1.15	3.00	4.76
rock wrasse, juvenile	11/5/2008	4	3	7.67	2.08	1.50	1.00	2.50	1.91
seporita, adult	6/9/2008	5	3	6.67	0.58	2.33	0.58	6.33	7.51
seporita, adult	11/5/2008	4	3	9.33	1.15	1.75	1.26	8.25	8.66
seporita, all	6/9/2008	5	3	6.75	0.50	2.00	1.22	6.33	7.51
seporita, all	11/5/2008	4	4	9.50	1.00	4.00	0.00	1083.00	643.17
seporita, juvenile	11/5/2008	4	4	9.50	1.00	4.00	0.00	1074.75	634.85
snubnose sculpin	6/9/2008	5	2	9.00	1.41	2.00	0.00	2.00	0.00
snubnose sculpin	11/5/2008	4	3	9.67	0.58	1.33	0.58	2.00	1.73
treefish, adult	11/5/2008	4	1	10.00		0.25	0.50	0.25	0.50
treefish, adult	6/9/2008	5	2	7.00	0.00	0.40	0.55	0.67	0.58
treefish, juvenile	6/9/2008	5	1	7.00		0.20	0.45	0.33	0.58

2008 ROVING DIVER FISH COUNT

Santa Barbara Island - Cat Canyon

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
black surfperch, adult	6/10/2008	6	1	10.00		0.25	0.50	0.25	0.50
black surfperch, all	6/10/2008	6	1	10.00	0.00	0.33	0.52	0.25	0.50
blackeye goby	11/6/2008	4	4	10.00	0.00	3.00	0.00	44.50	23.19
blackeye goby	6/10/2008	6	4	10.00	0.00	2.67	0.52	26.00	12.33
blacksmith, adult	11/6/2008	4	4	10.00	0.00	3.00	0.00	57.50	27.69
blacksmith, adult	6/10/2008	6	4	10.00	0.00	3.75	0.50	133.50	60.91
blacksmith, all	6/10/2008	6	4	9.83	0.41	3.83	0.41	133.50	60.91
blacksmith, all	11/6/2008	4	4	10.00	0.00	4.00	0.00	1068.25	143.60
blacksmith, juvenile	11/6/2008	4	4	10.00	0.00	4.00	0.00	1010.75	151.30
California sheephead, female	6/10/2008	6	3	9.60	0.89	1.67	0.82	3.25	2.50
California sheephead, female	11/6/2008	4	4	9.00	1.41	2.00	0.00	6.00	1.83
California sheephead, male	11/6/2008	4	2	6.50	2.12	0.50	0.58	0.50	0.58
garibaldi, adult	6/10/2008	6	4	9.33	1.03	2.17	0.41	6.25	4.35
garibaldi, adult	11/6/2008	4	4	10.00	0.00	3.00	0.00	14.00	2.58
giant black sea bass, adult	6/10/2008	6	1	10.00		1.00		1.00	
grass rockfish, adult	6/10/2008	6	2	9.33	1.15	1.00	0.00	1.00	0.00
grass rockfish, adult	11/6/2008	4	1	7.00		1.00		1.00	
halfmoon, adult	11/6/2008	4	2	10.00	0.00	3.00	0.00	15.00	5.66
halfmoon, adult	6/10/2008	6	3	9.00	0.82	2.00	0.00	4.00	3.46
island kelpfish	11/6/2008	4	2	10.00	0.00	0.75	0.96	0.75	0.96
island kelpfish	6/10/2008	6	4	7.83	1.60	1.67	0.52	5.00	4.08
kelp bass, adult	11/6/2008	4	2	8.00	1.41	1.00	1.15	1.00	1.15
kelp bass, adult	6/10/2008	6	2	6.50	0.71	0.50	0.58	0.50	0.58
kelp bass, all	11/6/2008	4	2	8.00	1.41	1.00	1.15	1.00	1.15
kelp bass, all	6/10/2008	6	2	6.75	1.71	0.67	0.52	0.50	0.58
kelp rockfish, adult	11/6/2008	4	1	9.00		0.25	0.50	0.25	0.50
kelp rockfish, adult	6/10/2008	6	2	8.50	0.71	0.50	0.58	0.50	0.58
kelp rockfish, all	11/6/2008	4	1	9.00		0.25	0.50	0.25	0.50
kelp rockfish, all	6/10/2008	6	2	8.25	0.96	0.67	0.52	0.50	0.58
opaleye, adult	6/10/2008	6	3	8.33	0.58	1.25	0.96	3.75	3.77
opaleye, all	11/6/2008	4	4	10.00	0.00	2.75	0.50	32.25	20.55
opaleye, all	6/10/2008	6	3	8.60	0.89	1.67	1.03	3.75	3.77
Pacific angel shark	11/6/2008	4	1	7.00		1.00		1.00	
painted greenling	6/10/2008	6	4	9.80	0.45	2.17	1.17	13.00	4.32
painted greenling	11/6/2008	4	4	9.75	0.50	2.50	0.58	10.50	4.04
rock wrasse, juvenile	11/6/2008	4	1	7.00		0.25	0.50	0.25	0.50
seporita, adult	6/10/2008	6	3	6.67	2.08	1.50	1.29	5.25	5.56
seporita, adult	11/6/2008	4	1	9.00		0.25	0.50	0.25	0.50
seporita, all	6/10/2008	6	3	7.00	1.83	1.33	1.21	5.25	5.56
seporita, all	11/6/2008	4	4	7.50	1.00	4.00	0.00	561.50	242.34
seporita, juvenile	11/6/2008	4	4	7.50	1.00	4.00	0.00	561.25	242.19
snubnose sculpin	11/6/2008	4	1	8.00		2.00		2.00	
snubnose sculpin	6/10/2008	6	3	6.75	2.36	1.75	0.50	2.33	0.58
vermillion rockfish, juvenile	6/10/2008	6	2	8.00	2.83	1.00	0.00	1.00	0.00

2008 ROVING DIVER FISH COUNT

San Miguel Island - Miracle Mile

Common Name	Date	Max # of	# of	Score		Abundance		Count	
		Observers	Observations	Avg	St Dev	Avg	St Dev	Avg	St Dev
bat ray	10/22/2008	3	1	10.00		1.00		1.00	
black and yellow rockfish, adult	10/22/2008	3	2	9.50	0.71	1.50	0.71	1.50	0.71
black rockfish, adult	10/22/2008	3	3	8.33	1.53	2.00	0.00	2.33	0.58
black surfperch, adult	10/22/2008	3	3	7.67	2.08	2.00	0.00	5.33	1.15
black surfperch, all	10/22/2008	3	3	7.67	2.08	2.00	0.00	5.33	1.15
blackeye goby	10/22/2008	3	2	6.50	0.71	1.00	1.00	1.67	2.08
blue rockfish, adult	10/22/2008	3	3	9.67	0.58	2.67	0.58	12.00	2.65
blue rockfish, all	10/22/2008	3	3	9.67	0.58	2.67	0.58	12.67	2.52
blue rockfish, juvenile	10/22/2008	3	1	6.00		0.67	1.15	0.67	1.15
cabezon, adult	10/22/2008	3	2	6.50	0.71	1.00	0.00	1.00	0.00
California sheephead, female	10/22/2008	3	2	5.50	0.71	0.67	0.58	0.67	0.58
California sheephead, male	10/22/2008	3	2	6.50	0.71	1.00	1.00	1.00	1.00
copper rockfish, juvenile	10/22/2008	3	1	8.00		1.00		1.00	
gopher rockfish, adult	10/22/2008	3	1	7.00		1.00		1.00	
kelp rockfish, adult	10/22/2008	3	3	9.67	0.58	2.33	0.58	13.67	7.23
kelp rockfish, all	10/22/2008	3	3	9.67	0.58	2.33	0.58	13.67	7.23
kelp surfperch	10/22/2008	3	1	5.00		1.00		1.00	
lingcod, adult	10/22/2008	3	1	10.00		1.00		1.00	
olive rockfish, adult	10/22/2008	3	1	6.00		0.33	0.58	0.33	0.58
olive rockfish, all	10/22/2008	3	1	6.00		0.33	0.58	0.33	0.58
painted greenling	10/22/2008	3	3	9.67	0.58	2.33	0.58	8.67	2.52
pile perch, adult	10/22/2008	3	3	7.33	0.58	1.67	0.58	2.00	1.00
pile perch, all	10/22/2008	3	3	7.33	0.58	1.67	0.58	2.00	1.00
sculpin spp.	10/22/2008	3	1	5.00		1.00		1.00	
seporita, adult	10/22/2008	3	3	10.00	0.00	3.00	0.00	50.00	30.81
seporita, all	10/22/2008	3	3	10.00	0.00	3.00	0.00	50.00	30.81
snubnose sculpin	10/22/2008	3	1	7.00		1.00		1.00	
striped surfperch, adult	10/22/2008	3	3	10.00	0.00	3.00	0.00	19.33	7.09
striped surfperch, all	10/22/2008	3	3	10.00	0.00	3.00	0.00	21.33	6.03
striped surfperch, juvenile	10/22/2008	3	2	9.00	1.41	1.33	1.15	2.00	2.00
reef fish, adult	10/22/2008	3	1	10.00		0.33	0.58	0.33	0.58
tubenose, adult	10/22/2008	3	2	7.00	0.00	1.50	0.71	2.00	1.41
vermillion rockfish, adult	10/22/2008	3	1	6.00		1.00		1.00	

2008 ROVING DIVER FISH COUNT

Santa Rosa Island - Cluster Point

Common Name	Date	Max # of	# of	Score		Abundance		Count	
		Observers	Observations	Avg	St Dev	Avg	St Dev	Avg	St Dev
black and yellow rockfish, adult	7/31/2008	5	3	7.00	1.73	1.33	0.58	1.33	0.58
black surfperch, adult	7/31/2008	5	2	9.50	0.71	1.33	1.15	2.67	2.52
black surfperch, all	7/31/2008	5	2	9.67	0.58	1.20	1.10	2.67	2.52
blacksmith, adult	7/31/2008	5	2	9.50	0.71	1.00	1.00	1.67	2.08
blacksmith, all	7/31/2008	5	2	9.50	0.71	0.60	0.89	1.67	2.08
blue rockfish, adult	7/31/2008	5	3	10.00	0.00	2.67	0.58	11.33	7.51
blue rockfish, all	7/31/2008	5	3	10.00	0.00	2.40	0.55	11.33	7.51
California sheephead, female	7/31/2008	5	3	8.60	1.14	1.40	0.55	1.67	0.58
California sheephead, male	7/31/2008	5	3	10.00	0.00	2.00	0.00	4.00	1.73
kelp rockfish, adult	7/31/2008	5	2	9.50	0.71	1.33	1.15	2.33	2.08
kelp rockfish, all	7/31/2008	5	2	9.67	0.58	1.20	1.10	2.33	2.08
kelpfish spp.	7/31/2008	5	1	8.00		1.00		1.00	
lingcod, adult	7/31/2008	5	2	6.50	2.12	1.50	0.71	1.50	0.71
olive rockfish, adult	7/31/2008	5	1	9.00		0.33	0.58	0.33	0.58
olive rockfish, all	7/31/2008	5	1	9.67	0.58	0.80	0.84	0.33	0.58
painted greenling	7/31/2008	5	3	8.60	1.52	2.00	0.00	5.00	3.00
pile perch, adult	7/31/2008	5	2	8.00	1.41	0.67	0.58	0.67	0.58
pile perch, all	7/31/2008	5	2	8.67	1.53	0.60	0.55	0.67	0.58
rainbow surfperch	7/31/2008	5	1	6.33	1.53	1.67	0.58	2.00	
snubnose sculpin	7/31/2008	5	1	9.00		1.00		1.00	
striped surfperch, adult	7/31/2008	5	3	10.00	0.00	2.00	0.00	9.33	0.58
striped surfperch, all	7/31/2008	5	3	10.00	0.00	2.40	0.55	10.67	0.58
striped surfperch, juvenile	7/31/2008	5	3	8.67	2.31	1.33	0.58	1.33	0.58
tubesnout, adult	7/31/2008	5	1	7.00	2.83	2.00	1.41	33.00	
vermillion rockfish, adult	7/31/2008	5	2	8.50	1.29	1.00	0.00	1.00	0.00

2008 ROVING DIVER FISH COUNT

Santa Rosa Island - Trancion Canyon

Common Name	Date	Max # of	# of	Score		Abundance		Count	
		Observers	Observations	Avg	St Dev	Avg	St Dev	Avg	St Dev
bat ray	8/14/2008	3	3	10.00	0.00	1.33	0.58	1.33	0.58
black and yellow rockfish, adult	8/14/2008	3	3	9.67	0.58	2.00	0.00	8.00	1.73
black and yellow/gopher rockfish, juvenile	8/14/2008	3	1	9.00		2.00		4.00	
black surfperch, adult	8/14/2008	3	3	9.67	0.58	2.00	0.00	8.00	1.00
black surfperch, all	8/14/2008	3	3	9.67	0.58	2.33	0.58	10.33	1.53
black surfperch, juvenile	8/14/2008	3	3	9.67	0.58	1.33	0.58	2.33	2.31
blackeye goby	8/14/2008	3	3	9.67	0.58	3.00	0.00	18.00	1.73
blacksmith, adult	8/14/2008	3	3	8.67	1.15	3.00	0.00	22.67	5.51
blacksmith, all	8/14/2008	3	3	8.67	1.15	3.00	0.00	22.67	5.51
blue rockfish, adult	8/14/2008	3	3	9.33	0.58	2.67	0.58	13.33	7.09
blue rockfish, all	8/14/2008	3	3	9.67	0.58	3.00	0.00	29.00	10.82
blue rockfish, juvenile	8/14/2008	3	3	9.67	0.58	2.67	0.58	15.67	5.13
bocaccio, juvenile	8/14/2008	3	1	7.00		2.00		2.00	
cabezon, adult	8/14/2008	3	2	7.00	1.41	1.50	0.71	1.50	0.71
California sheephead, female	8/14/2008	3	3	9.33	0.58	2.00	0.00	3.67	1.15
California sheephead, juvenile	8/14/2008	3	1	8.00		0.33	0.58	0.33	0.58
California sheephead, male	8/14/2008	3	3	7.67	1.53	1.67	0.58	1.67	0.58
coralline sculpin	8/14/2008	3	1	9.00		2.00		2.00	
gopher rockfish, adult	8/14/2008	3	2	8.50	0.71	1.00	0.00	1.00	0.00
jack mackerel	8/14/2008	3	2	7.50	3.54	2.50	0.71	40.00	53.74
kelp bass, adult	8/14/2008	3	1	5.00		0.33	0.58	0.33	0.58
kelp bass, all	8/14/2008	3	1	5.00		0.33	0.58	0.33	0.58
kelp rockfish, adult	8/14/2008	3	3	8.67	1.15	3.00	0.00	34.00	5.20
kelp rockfish, all	8/14/2008	3	3	8.67	1.15	3.00	0.00	38.00	9.54
kelp rockfish, juvenile	8/14/2008	3	3	7.67	0.58	1.67	0.58	4.00	4.36
kelp surfperch	8/14/2008	3	1	6.00		1.00		1.00	
kelpfish spp.	8/14/2008	3	2	10.00	0.00	1.50	0.71	3.50	3.54
lingcod, adult	8/14/2008	3	1	9.00		1.00		1.00	
olive rockfish, adult	8/14/2008	3	3	8.33	0.58	2.00	0.00	3.00	0.00
olive rockfish, all	8/14/2008	3	3	8.67	0.58	2.00	0.00	5.00	2.65
olive/yellowtail rockfish, juvenile	8/14/2008	3	2	8.50	0.71	1.00	1.00	2.00	2.65
opaleye, all	8/14/2008	3	3	7.67	1.53	2.00	0.00	3.67	1.53
Pacific mackerel	8/14/2008	3	1	5.00		4.00		150.00	
Pacific sardine	8/14/2008	3	2	5.50	0.71	4.00	0.00	275.00	176.78
painted greenling	8/14/2008	3	3	9.67	0.58	3.00	0.00	35.00	10.15
pile perch, adult	8/14/2008	3	3	8.00	1.73	1.67	0.58	3.67	2.52
pile perch, all	8/14/2008	3	3	8.33	2.08	1.67	0.58	4.00	2.65
pile perch, juvenile	8/14/2008	3	1	10.00		0.33	0.58	0.33	0.58
rainbow surfperch	8/14/2008	3	1	6.00		1.00		1.00	
rubberlip surfperch	8/14/2008	3	1	5.00		1.00		1.00	
seporita, adult	8/14/2008	3	3	10.00	0.00	3.00	0.00	46.00	45.31
seporita, all	8/14/2008	3	3	10.00	0.00	3.00	0.00	54.33	41.67
seporita, juvenile	8/14/2008	3	1	5.00		1.00	1.73	8.33	14.43
snubnose sculpin	8/14/2008	3	3	7.67	1.53	1.00	0.00	1.00	0.00
striped surfperch, adult	8/14/2008	3	3	9.67	0.58	3.00	0.00	18.33	2.52
striped surfperch, all	8/14/2008	3	3	9.67	0.58	3.00	0.00	27.33	1.53
striped surfperch, juvenile	8/14/2008	3	3	9.00	1.00	2.33	0.58	9.00	1.73
treefish, adult	8/14/2008	3	1	6.00		0.67	1.15	0.67	1.15
treefish, juvenile	8/14/2008	3	2	7.00	1.41	1.33	1.15	1.67	1.53
tubesnout, adult	8/14/2008	3	1	7.00		1.00		1.00	

2008 ROVING DIVER FISH COUNT

Santa Rosa Island - Chickasaw

Common Name	Date	Max # of	# of	Score		Abundance		Count	
		Observers	Observations	Avg	St Dev	Avg	St Dev	Avg	St Dev
black and yellow rockfish, adult	7/30/2008	7	4	8.80	1.79	2.00	0.00	3.50	1.00
black surfperch, adult	7/30/2008	7	6	9.33	0.82	1.67	0.52	3.17	2.40
black surfperch, all	7/30/2008	7	6	9.29	0.76	1.57	0.53	3.17	2.40
blackeye goby	7/30/2008	7	5	7.80	1.79	0.86	0.69	1.00	0.63
blacksmith, adult	7/30/2008	7	3	8.00	1.73	1.00	1.10	2.50	3.21
blacksmith, all	7/30/2008	7	3	8.00	1.73	0.86	1.07	2.50	3.21
blue rockfish, adult	7/30/2008	7	6	10.00	0.00	2.33	0.82	16.00	13.43
blue rockfish, all	7/30/2008	7	6	10.00	0.00	2.43	0.53	16.33	13.35
blue rockfish, juvenile	7/30/2008	7	2	8.50	2.12	0.33	0.52	0.33	0.52
California sheephead, female	7/30/2008	7	6	8.29	0.95	1.86	0.38	2.50	1.76
California sheephead, male	7/30/2008	7	5	7.17	1.60	1.00	0.58	1.00	0.63
kelp greenling	7/30/2008	7	1	5.00		1.00		1.00	
kelp rockfish, adult	7/30/2008	7	6	9.50	0.84	2.17	0.41	7.50	4.18
kelp rockfish, all	7/30/2008	7	6	9.57	0.79	2.14	0.38	7.50	4.18
kelpfish spp.	7/30/2008	7	4	7.75	2.63	1.00	0.00	1.00	0.00
olive rockfish, adult	7/30/2008	7	6	9.67	0.82	2.00	0.00	6.17	2.32
olive rockfish, all	7/30/2008	7	6	9.43	0.98	2.00	0.00	6.17	2.32
opaleye, all	7/30/2008	7	1	6.00		0.14	0.38	0.17	0.41
painted greenling	7/30/2008	7	6	9.57	1.13	2.00	0.00	7.00	3.35
pile perch, adult	7/30/2008	7	2	7.50	2.12	0.50	0.84	0.50	0.84
pile perch, all	7/30/2008	7	2	7.50	2.12	0.43	0.79	0.50	0.84
rubberlip surfperch	7/30/2008	7	1	6.00		1.00		1.00	
seporita, adult	7/30/2008	7	2	5.00	0.00	0.83	1.33	7.83	17.30
seporita, all	7/30/2008	7	2	5.00	0.00	0.71	1.25	7.83	17.30
striped surfperch, adult	7/30/2008	7	3	8.67	1.53	0.67	0.82	0.83	1.17
striped surfperch, all	7/30/2008	7	3	9.00	0.82	0.86	0.90	1.50	1.97
striped surfperch, juvenile	7/30/2008	7	2	8.50	0.71	0.50	0.84	0.67	1.21
treefish, adult	7/30/2008	7	1	5.00		0.14	0.38	0.17	0.41
treefish, juvenile	7/30/2008	7	1	7.00		0.14	0.38	0.17	0.41

2008 ROVING DIVER FISH COUNT

Santa Rosa Island - South Point

Common Name	Date	Max # of	# of	Score		Abundance		Count	
		Observers	Observations	Avg	St Dev	Avg	St Dev	Avg	St Dev
black and yellow rockfish, adult	7/29/2008	5	3	8.00	0.82	1.50	0.58	3.33	2.08
black surfperch, adult	7/29/2008	5	3	9.33	0.58	2.00	0.00	7.00	3.61
black surfperch, all	7/29/2008	5	3	9.60	0.55	2.00	0.00	8.00	2.65
black surfperch, juvenile	7/29/2008	5	2	7.50	3.54	1.00	1.00	1.00	1.00
blackeye goby	7/29/2008	5	3	7.20	1.48	1.60	0.55	2.00	1.00
blacksmith, adult	7/29/2008	5	3	7.33	1.15	1.67	0.58	3.33	2.52
blacksmith, all	7/29/2008	5	3	6.80	1.10	1.60	0.55	3.33	2.52
blue rockfish, adult	7/29/2008	5	3	10.00	0.00	3.00	0.00	13.67	3.79
blue rockfish, all	7/29/2008	5	3	10.00	0.00	2.80	0.45	13.67	3.79
cabezon, adult	7/29/2008	5	2	6.00	1.00	1.00	0.00	1.00	0.00
California sheephead, female	7/29/2008	5	3	7.60	1.52	1.40	0.55	2.67	1.53
California sheephead, male	7/29/2008	5	3	9.60	0.55	1.40	0.55	1.67	0.58
kelp bass, adult	7/29/2008	5	3	7.33	2.52	1.33	0.58	2.00	1.73
kelp bass, all	7/29/2008	5	3	6.75	2.36	1.00	0.71	2.00	1.73
kelp rockfish, adult	7/29/2008	5	3	9.33	0.58	3.00	0.00	16.00	5.29
kelp rockfish, all	7/29/2008	5	3	9.40	0.55	2.60	0.55	16.00	5.29
lingcod, adult	7/29/2008	5	1	10.00		1.00		1.00	
olive rockfish, adult	7/29/2008	5	3	10.00	0.00	2.33	0.58	6.00	4.36
olive rockfish, all	7/29/2008	5	3	9.50	1.00	1.80	1.10	6.00	4.36
opaleye, all	7/29/2008	5	1	5.00		0.20	0.45	0.33	0.58
painted greenling	7/29/2008	5	3	8.40	1.14	2.20	0.45	10.00	2.65
pile perch, adult	7/29/2008	5	3	8.67	1.15	1.67	0.58	3.00	1.73
pile perch, all	7/29/2008	5	3	9.20	1.10	1.80	0.45	3.00	1.73
rainbow surfperch	7/29/2008	5	2	9.00	0.82	2.00	0.00	6.00	4.24
rubberlip surfperch	7/29/2008	5	3	9.80	0.45	1.80	0.45	2.00	0.00
seporita, adult	7/29/2008	5	3	10.00	0.00	3.00	0.00	27.33	12.22
seporita, all	7/29/2008	5	3	9.80	0.45	2.80	0.45	27.33	12.22
striped surfperch, adult	7/29/2008	5	3	7.67	2.52	2.00	0.00	4.33	3.21
striped surfperch, all	7/29/2008	5	3	7.00	2.45	1.60	0.89	5.33	3.21
striped surfperch, juvenile	7/29/2008	5	3	6.00	1.00	1.00	0.00	1.00	0.00
treefish, adult	7/29/2008	5	2	9.50	0.71	0.60	0.89	1.00	1.00
treefish, juvenile	7/29/2008	5	1	7.00		0.20	0.45	0.33	0.58
tubesnout, adult	7/29/2008	5	2	8.00	2.00	1.67	0.58	3.50	3.54
yellowfin fringehead	7/29/2008	5	1	8.00		1.00		1.00	

2008 ROVING DIVER FISH COUNT

Santa Cruz Island - Devil's Peak Member

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
black surfperch, adult	7/18/2008	2	2	10.00	0.00	2.50	0.71	11.50	2.12
black surfperch, all	7/18/2008	2	2	10.00	0.00	2.50	0.71	11.50	2.12
blackeye goby	7/18/2008	2	2	10.00	0.00	3.50	0.71	109.00	55.15
blacksmith, adult	7/18/2008	2	2	9.50	0.71	4.00	0.00	202.50	3.54
blacksmith, all	7/18/2008	2	2	9.50	0.71	4.00	0.00	202.50	3.54
blue rockfish, all	7/18/2008	2	1	10.00		1.00	1.41	1.00	1.41
blue rockfish, juvenile	7/18/2008	2	1	10.00		1.00	1.41	1.00	1.41
blue-banded goby	7/18/2008	2	2	9.50	0.71	2.00	0.00	7.00	2.83
California sheephead, female	7/18/2008	2	2	9.50	0.71	2.00	0.00	3.00	0.00
garibaldi, adult	7/18/2008	2	2	10.00	0.00	3.00	0.00	16.50	2.12
gopher rockfish, adult	7/18/2008	2	2	5.50	0.71	1.00	0.00	1.00	0.00
halfmoon, adult	7/18/2008	2	2	9.00	0.00	1.50	0.71	1.50	0.71
island kelpfish	7/18/2008	2	2	10.00	0.00	3.00	0.00	23.00	0.00
kelp bass, adult	7/18/2008	2	2	10.00	0.00	3.00	0.00	23.50	3.54
kelp bass, all	7/18/2008	2	2	10.00	0.00	3.00	0.00	23.50	3.54
kelp rockfish, adult	7/18/2008	2	2	9.50	0.71	1.50	0.71	2.00	1.41
kelp rockfish, all	7/18/2008	2	2	9.50	0.71	1.50	0.71	2.00	1.41
KGB	7/18/2008	2	1	8.00		1.00		1.00	
olive rockfish, adult	7/18/2008	2	1	9.00		0.50	0.71	0.50	0.71
olive rockfish, all	7/18/2008	2	1	9.00		0.50	0.71	0.50	0.71
opaleye, adult	7/18/2008	2	2	8.50	0.71	2.00	0.00	2.00	0.00
opaleye, all	7/18/2008	2	2	8.50	0.71	2.00	0.00	2.00	0.00
painted greenling	7/18/2008	2	2	10.00	0.00	2.50	0.71	13.00	7.07
pile perch, adult	7/18/2008	2	2	7.50	0.71	2.00	0.00	5.50	4.95
pile perch, all	7/18/2008	2	2	7.50	0.71	2.00	0.00	5.50	4.95
rock wrasse, female	7/18/2008	2	2	9.00	0.00	2.00	0.00	5.00	2.83
rock wrasse, male	7/18/2008	2	2	8.50	0.71	2.00	0.00	2.50	0.71
seporita, adult	7/18/2008	2	2	10.00	0.00	3.50	0.71	115.00	35.36
seporita, all	7/18/2008	2	2	10.00	0.00	3.50	0.71	115.00	35.36
treefish, adult	7/18/2008	2	2	8.50	2.12	2.00	0.00	3.00	0.00
treefish, juvenile	7/18/2008	2	2	7.00	0.00	1.50	0.71	1.50	0.71
zebra goby	7/18/2008	2	1	7.00		1.00		1.00	

2008 ROVING DIVER FISH COUNT

Santa Cruz Island - Potato Pasture

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
black and yellow rockfish, adult	7/18/2008	4	3	7.67	1.15	1.00	0.00	1.00	0.00
black surfperch, adult	7/18/2008	4	4	9.75	0.50	2.00	0.00	3.25	1.26
black surfperch, all	7/18/2008	4	4	9.75	0.50	2.00	0.00	3.25	1.26
blackeye goby	7/18/2008	4	4	10.00	0.00	3.50	0.58	116.50	64.52
blacksmith, adult	7/18/2008	4	4	9.75	0.50	3.25	0.50	91.50	45.49
blacksmith, all	7/18/2008	4	4	9.75	0.50	3.25	0.50	91.50	45.49
blue rockfish, adult	7/18/2008	4	4	9.25	0.96	1.00	0.00	1.00	0.00
blue rockfish, all	7/18/2008	4	4	9.25	0.96	1.00	0.00	1.00	0.00
blue-banded goby	7/18/2008	4	4	8.75	1.50	2.50	0.58	15.00	11.14
brown rockfish, adult	7/18/2008	4	2	10.00	0.00	1.00	0.00	1.00	0.00
California moray eel	7/18/2008	4	1	6.00		1.00		1.00	
California sheephead, female	7/18/2008	4	4	10.00	0.00	2.00	0.00	5.50	1.00
California sheephead, male	7/18/2008	4	2	8.50	0.71	0.50	0.58	0.50	0.58
copper rockfish, adult	7/18/2008	4	1	10.00		1.00		1.00	
garibaldi, adult	7/18/2008	4	4	9.75	0.50	3.00	0.00	14.50	3.79
gopher rockfish, adult	7/18/2008	4	3	7.00	1.00	1.67	0.58	2.00	1.00
halfmoon, adult	7/18/2008	4	4	8.75	2.50	2.00	0.00	4.00	2.71
island kelpfish	7/18/2008	4	4	8.25	1.50	2.00	0.82	6.00	7.44
kelp bass, adult	7/18/2008	4	4	10.00	0.00	3.00	0.00	19.75	7.27
kelp bass, all	7/18/2008	4	4	10.00	0.00	3.00	0.00	19.75	7.27
olive rockfish, adult	7/18/2008	4	2	7.50	0.71	0.50	0.58	0.50	0.58
olive rockfish, all	7/18/2008	4	2	7.50	0.71	0.50	0.58	0.50	0.58
opaleye, adult	7/18/2008	4	3	9.33	0.58	1.50	1.00	2.75	2.99
opaleye, all	7/18/2008	4	3	9.33	0.58	1.50	1.00	2.75	2.99
painted greenling	7/18/2008	4	4	9.25	0.50	2.25	0.50	9.00	4.69
pile perch, adult	7/18/2008	4	4	8.00	2.16	1.75	0.50	4.25	3.95
pile perch, all	7/18/2008	4	4	8.00	2.16	1.75	0.50	4.25	3.95
rock wrasse, female	7/18/2008	4	4	10.00	0.00	2.00	0.00	4.75	1.71
rock wrasse, male	7/18/2008	4	1	8.00		0.50	1.00	1.75	3.50
seporita, adult	7/18/2008	4	4	9.75	0.50	3.00	0.00	25.25	7.09
seporita, all	7/18/2008	4	4	9.75	0.50	3.00	0.00	25.25	7.09
snubnose sculpin	7/18/2008	4	1	8.00		1.00		1.00	
treefish, adult	7/18/2008	4	3	8.67	2.31	1.25	0.96	2.50	2.38
treefish, juvenile	7/18/2008	4	1	10.00		0.50	1.00	0.50	1.00
zebra goby	7/18/2008	4	3	8.33	2.08	1.67	0.58	1.67	0.58

2008 ROVING DIVER FISH COUNT

Santa Cruz Island - Cavern Point

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
bat ray	7/10/2008	4	3	10.00	0.00	1.25	0.50	1.67	1.15
black surfperch, adult	7/10/2008	4	3	9.67	0.58	2.00	0.00	5.33	2.52
black surfperch, all	7/10/2008	4	3	9.75	0.50	2.00	0.00	5.33	2.52
blackeye goby	7/10/2008	4	3	10.00	0.00	3.50	0.58	104.67	83.77
blacksmith, adult	7/10/2008	4	3	9.33	1.15	3.00	0.00	53.00	29.82
blacksmith, all	7/10/2008	4	3	9.50	1.00	3.00	0.00	53.00	29.82
blue rockfish, all	7/10/2008	4	1	5.50	0.71	0.50	0.58	0.33	0.58
blue rockfish, juvenile	7/10/2008	4	1	5.50	0.71	0.50	0.58	0.33	0.58
blue-banded goby	7/10/2008	4	2	7.50	0.71	0.75	0.96	1.67	2.08
California moray eel	7/10/2008	4	1	8.00		1.00		1.00	
California scorpionfish, adult	7/10/2008	4	1	6.00		1.00		1.00	
California sheephead, female	7/10/2008	4	3	9.75	0.50	2.00	0.00	5.00	2.00
California sheephead, male	7/10/2008	4	2	9.67	0.58	1.00	0.82	0.67	0.58
garibaldi, adult	7/10/2008	4	3	10.00	0.00	2.50	0.58	9.33	1.53
gopher rockfish, adult	7/10/2008	4	2	9.00	1.00	2.00	0.00	3.00	0.00
halfmoon, adult	7/10/2008	4	2	7.00	1.00	1.67	0.58	1.50	0.71
island kelpfish	7/10/2008	4	3	9.50	0.58	2.75	0.50	18.67	7.02
kelp bass, adult	7/10/2008	4	3	9.67	0.58	2.33	0.58	8.67	2.08
kelp bass, all	7/10/2008	4	3	9.50	0.58	2.50	0.58	8.67	2.08
kelp rockfish, adult	7/10/2008	4	1	9.00		0.33	0.58	0.33	0.58
kelp rockfish, all	7/10/2008	4	1	9.00		0.25	0.50	0.33	0.58
ocean whitefish, adult	7/10/2008	4	1	10.00		1.00		1.00	
opaleye, adult	7/10/2008	4	1	6.00		0.67	1.15	0.67	1.15
opaleye, all	7/10/2008	4	1	6.00		0.50	1.00	0.67	1.15
painted greenling	7/10/2008	4	3	10.00	0.00	3.00	0.00	20.00	8.00
pile perch, adult	7/10/2008	4	2	8.00	0.00	1.33	1.53	5.00	7.81
pile perch, all	7/10/2008	4	2	8.00	0.00	1.50	1.29	5.00	7.81
rock wrasse, female	7/10/2008	4	3	7.50	1.73	2.00	0.00	2.67	0.58
rock wrasse, male	7/10/2008	4	3	7.33	2.08	1.00	0.82	1.67	1.15
rubberlip surfperch	7/10/2008	4	3	7.67	0.58	1.67	0.58	2.00	1.00
seporita, adult	7/10/2008	4	3	10.00	0.00	3.00	0.00	67.33	23.44
seporita, all	7/10/2008	4	3	10.00	0.00	3.25	0.50	67.33	23.44
snubnose sculpin	7/10/2008	4	1	8.00		2.00		2.00	
treefish, adult	7/10/2008	4	2	7.33	1.53	1.25	0.96	1.33	1.53
treefish, juvenile	7/10/2008	4	2	8.33	2.08	1.00	0.82	1.67	2.08
zebra goby	7/10/2008	4	1	8.00		1.00		1.00	

2008 ROVING DIVER FISH COUNT

Santa Cruz Island - Little Scorpion

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
black and yellow rockfish, adult	6/26/2008	6	3	9.17	1.17	2.00	0.00	5.33	1.53
black surfperch, adult	6/26/2008	6	3	9.33	0.58	2.33	0.58	9.33	3.51
black surfperch, all	6/26/2008	6	3	9.33	0.82	2.17	0.41	9.33	3.51
blackeye goby	6/26/2008	6	3	10.00	0.00	3.00	0.00	78.00	2.65
blacksmith, adult	6/26/2008	6	3	10.00	0.00	4.00	0.00	197.00	46.94
blacksmith, all	6/26/2008	6	3	10.00	0.00	4.00	0.00	217.00	72.55
blue rockfish, all	6/26/2008	6	1	9.50	0.71	0.33	0.52	0.33	0.58
blue rockfish, juvenile	6/26/2008	6	1	10.00		0.33	0.58	0.33	0.58
blue-banded goby	6/26/2008	6	3	7.60	2.51	1.83	1.33	20.33	17.79
California sheephead, female	6/26/2008	6	3	8.50	1.73	1.33	1.03	2.33	0.58
California sheephead, juvenile	6/26/2008	6	1	7.50	2.12	0.33	0.52	0.33	0.58
garibaldi, adult	6/26/2008	6	3	9.50	0.55	2.67	0.52	15.00	4.58
halfmoon, adult	6/26/2008	6	3	8.25	1.50	1.75	0.50	3.67	3.06
island kelpfish	6/26/2008	6	3	7.75	2.63	1.17	0.98	3.33	0.58
kelp bass, adult	6/26/2008	6	3	9.67	0.58	2.67	0.58	11.00	2.00
kelp bass, all	6/26/2008	6	3	9.83	0.41	2.33	0.52	11.00	2.00
kelp rockfish, adult	6/26/2008	6	3	10.00	0.00	2.33	0.58	8.67	2.08
kelp rockfish, all	6/26/2008	6	3	9.17	1.33	2.17	0.41	8.67	2.08
olive rockfish, adult	6/26/2008	6	2	7.50	3.54	0.67	0.58	0.67	0.58
olive rockfish, all	6/26/2008	6	2	7.50	3.54	0.33	0.52	0.67	0.58
opaleye, adult	6/26/2008	6	3	8.33	1.53	2.00	0.00	4.67	2.08
opaleye, all	6/26/2008	6	3	8.20	1.10	1.50	0.84	4.67	2.08
painted greenling	6/26/2008	6	3	9.83	0.41	3.00	0.00	19.33	2.08
pile perch, adult	6/26/2008	6	3	8.33	1.53	1.67	0.58	2.67	1.53
pile perch, all	6/26/2008	6	3	8.33	1.63	1.83	0.41	2.67	1.53
rock wrasse, female	6/26/2008	6	3	9.83	0.41	2.00	0.00	7.33	3.79
rock wrasse, male	6/26/2008	6	3	9.20	0.84	1.67	0.82	5.33	3.21
rubberlip surfperch	6/26/2008	6	2	9.00	1.00	1.33	0.58	1.50	0.71
seporita, adult	6/26/2008	6	3	10.00	0.00	3.00	0.00	69.67	24.44
seporita, all	6/26/2008	6	3	10.00	0.00	3.17	0.41	71.33	21.73
seporita, juvenile	6/26/2008	6	1	10.00		0.67	1.15	1.67	2.89
snubnose sculpin	6/26/2008	6	1	10.00		1.00		1.00	
swell shark	6/26/2008	6	3	6.00	1.00	1.67	0.58	2.33	1.15
treefish, adult	6/26/2008	6	3	9.33	1.03	1.83	0.41	6.00	0.00
treefish, juvenile	6/26/2008	6	1	7.50	0.71	0.33	0.52	0.33	0.58

2008 ROVING DIVER FISH COUNT

Santa Cruz Island - Pedro Reef

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
black surfperch, adult	6/27/2008	4	2	9.50	0.71	1.33	1.15	1.33	1.15
black surfperch, all	6/27/2008	4	2	9.67	0.58	1.50	1.00	1.33	1.15
blackeye goby	6/27/2008	4	3	10.00	0.00	4.00	0.00	259.00	61.26
blacksmith, adult	6/27/2008	4	3	10.00	0.00	3.67	0.58	121.00	37.99
blacksmith, all	6/27/2008	4	3	10.00	0.00	3.75	0.50	121.00	37.99
blue-banded goby	6/27/2008	4	2	7.50	0.71	1.00	1.15	1.33	1.15
California moray eel	6/27/2008	4	1	9.00		1.00		1.00	
California scorpionfish, adult	6/27/2008	4	1	9.00		2.00		2.00	
California sheephead, female	6/27/2008	4	3	9.25	1.50	2.00	0.00	5.33	1.15
California sheephead, juvenile	6/27/2008	4	2	7.50	3.54	0.75	0.96	1.33	1.53
coralline sculpin	6/27/2008	4	1	10.00		2.00		2.00	
garibaldi, adult	6/27/2008	4	3	8.25	0.96	2.00	0.00	4.67	0.58
halfmoon, adult	6/27/2008	4	3	8.25	1.71	2.00	0.00	3.67	0.58
island kelpfish	6/27/2008	4	2	6.50	0.71	0.50	0.58	0.67	0.58
kelp bass, adult	6/27/2008	4	3	10.00	0.00	2.00	0.00	9.67	0.58
kelp bass, all	6/27/2008	4	3	9.75	0.50	2.00	0.00	9.67	0.58
ocean whitefish, adult	6/27/2008	4	1	10.00		2.00		2.00	
opaleye, adult	6/27/2008	4	2	8.50	0.71	1.33	1.15	1.67	1.53
opaleye, all	6/27/2008	4	2	8.00	1.00	1.25	0.96	1.67	1.53
painted greenling	6/27/2008	4	3	9.50	1.00	3.00	0.00	18.00	6.08
pile perch, adult	6/27/2008	4	2	7.00	1.41	1.00	1.00	1.00	1.00
pile perch, all	6/27/2008	4	2	7.00	1.41	0.75	0.96	1.00	1.00
rock wrasse, female	6/27/2008	4	1	8.00	2.83	0.75	0.96	0.33	0.58
rock wrasse, male	6/27/2008	4	2	7.00	2.83	1.00	1.15	1.33	1.15
seporita, adult	6/27/2008	4	3	10.00	0.00	3.00	0.00	34.33	17.39
seporita, all	6/27/2008	4	3	10.00	0.00	3.00	0.00	34.33	17.39
snubnose sculpin	6/27/2008	4	1	10.00		1.00		1.00	
treefish, adult	6/27/2008	4	1	8.00		0.25	0.50	0.33	0.58
zebra goby	6/27/2008	4	2	9.00	1.41	1.00	0.00	1.00	0.00

2008 ROVING DIVER FISH COUNT

Anacapa Island - Keyhole

Common Name	Date	Max # of	# of	Score		Abundance		Count	
		Observers	Observations	Avg	St Dev	Avg	St Dev	Avg	St Dev
bat ray	8/15/2008	3	1	10.00		1.00		1.00	
black and yellow rockfish, adult	8/15/2008	3	2	8.00	2.83	1.00	0.00	1.00	0.00
black surfperch, adult	8/15/2008	3	3	10.00	0.00	2.33	0.58	9.33	4.04
black surfperch, all	8/15/2008	3	3	10.00	0.00	3.00	0.00	14.00	1.73
black surfperch, juvenile	8/15/2008	3	3	9.00	1.73	1.67	0.58	4.67	3.51
blackeye goby	8/15/2008	3	3	10.00	0.00	4.00	0.00	249.67	110.82
blacksmith, adult	8/15/2008	3	3	10.00	0.00	4.00	0.00	207.33	6.43
blacksmith, all	8/15/2008	3	3	10.00	0.00	4.00	0.00	208.33	6.35
blacksmith, juvenile	8/15/2008	3	2	6.00	0.00	1.00	1.00	1.00	1.00
blue-banded goby	8/15/2008	3	3	9.33	1.15	3.00	0.00	15.33	3.06
California sheephead, female	8/15/2008	3	3	10.00	0.00	2.00	0.00	5.67	1.53
California sheephead, juvenile	8/15/2008	3	3	7.33	2.52	1.67	0.58	1.67	0.58
garibaldi, adult	8/15/2008	3	3	9.33	0.58	2.00	0.00	6.67	1.53
giant kelpfish, juvenile	8/15/2008	3	3	8.67	2.31	3.00	0.00	30.67	27.21
halfmoon, adult	8/15/2008	3	3	9.00	1.73	2.33	0.58	8.67	5.03
island kelpfish	8/15/2008	3	3	10.00	0.00	3.00	0.00	36.33	15.53
kelp bass, adult	8/15/2008	3	3	10.00	0.00	2.67	0.58	16.00	5.29
kelp bass, all	8/15/2008	3	3	10.00	0.00	2.67	0.58	16.00	5.29
kelp rockfish, adult	8/15/2008	3	2	7.00	1.41	0.67	0.58	0.67	0.58
kelp rockfish, all	8/15/2008	3	2	8.50	0.71	1.00	1.00	1.33	1.53
kelp rockfish, juvenile	8/15/2008	3	1	9.00		0.67	1.15	0.67	1.15
opaleye, all	8/15/2008	3	3	10.00	0.00	3.00	0.00	32.00	3.46
painted greenling	8/15/2008	3	3	9.67	0.58	2.00	0.00	4.67	1.53
rock wrasse, female	8/15/2008	3	3	10.00	0.00	3.00	0.00	17.00	3.61
rock wrasse, juvenile	8/15/2008	3	2	7.00	1.41	0.67	0.58	0.67	0.58
rock wrasse, male	8/15/2008	3	3	10.00	0.00	3.00	0.00	19.33	6.43
seporita, adult	8/15/2008	3	3	10.00	0.00	3.00	0.00	23.33	14.47
seporita, all	8/15/2008	3	3	10.00	0.00	3.00	0.00	44.33	25.15
seporita, juvenile	8/15/2008	3	3	8.00	2.00	3.00	0.00	21.00	10.82
treefish, adult	8/15/2008	3	3	7.67	2.08	1.00	0.00	1.00	0.00
treefish, juvenile	8/15/2008	3	1	6.00		0.33	0.58	0.33	0.58
zebra goby	8/15/2008	3	3	9.00	1.00	2.00	0.00	6.00	1.00

2008 ROVING DIVER FISH COUNT

Anacapa Island - East Fish Camp

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
black and yellow rockfish, adult	6/3/2008	4	2	7.50	0.71	2.00	0.00	2.00	0.00
black surfperch, adult	6/3/2008	4	2	8.00	0.00	0.67	0.58	0.67	0.58
black surfperch, all	6/3/2008	4	2	8.00	0.00	0.50	0.58	0.67	0.58
blackeye goby	6/3/2008	4	3	10.00	0.00	3.75	0.50	251.67	53.46
blacksmith, adult	6/3/2008	4	3	8.67	1.15	3.33	0.58	66.33	43.15
blacksmith, all	6/3/2008	4	3	8.75	0.96	3.25	0.50	66.33	43.15
blue rockfish, all	6/3/2008	4	1	5.00		0.25	0.50	0.33	0.58
blue rockfish, juvenile	6/3/2008	4	1	5.00		0.33	0.58	0.33	0.58
blue-banded goby	6/3/2008	4	1	5.00		0.25	0.50	0.33	0.58
cabezon, adult	6/3/2008	4	1	10.00		1.00		1.00	
California sheephead, female	6/3/2008	4	3	9.00	0.00	2.00	0.00	5.00	1.73
garibaldi, adult	6/3/2008	4	3	10.00	0.00	2.75	0.50	16.00	2.00
island kelpfish	6/3/2008	4	3	7.25	1.89	1.75	0.50	3.67	2.08
kelp bass, adult	6/3/2008	4	3	8.33	0.58	2.00	0.00	6.00	2.65
kelp bass, all	6/3/2008	4	3	8.50	0.58	2.00	0.00	6.00	2.65
opaleye, adult	6/3/2008	4	1	7.00		0.33	0.58	0.33	0.58
opaleye, all	6/3/2008	4	1	7.00		0.25	0.50	0.33	0.58
painted greenling	6/3/2008	4	3	10.00	0.00	2.00	0.00	10.00	0.00
rock wrasse, female	6/3/2008	4	3	8.25	0.50	1.00	0.00	1.00	0.00
rock wrasse, male	6/3/2008	4	3	8.25	0.50	1.50	0.58	1.33	0.58
seporita, adult	6/3/2008	4	1	8.00		0.33	0.58	0.33	0.58
seporita, all	6/3/2008	4	1	8.00		0.25	0.50	0.33	0.58
treefish, adult	6/3/2008	4	1	7.00		0.25	0.50	0.33	0.58
vermillion rockfish, juvenile	6/3/2008	4	1	5.00		1.00		1.00	
zebra goby	6/3/2008	4	1	10.00		2.00		2.00	

2008 ROVING DIVER FISH COUNT

Anacapa Island - Black Sea Bass Reef

Common Name	Date	Max # of	# of	Score		Abundance		Count	
		Observers	Observations	Avg	St Dev	Avg	St Dev	Avg	St Dev
black surfperch, adult	7/9/2008	4	4	9.50	0.58	2.00	0.00	3.50	3.00
black surfperch, all	7/9/2008	4	4	9.50	0.58	2.00	0.00	3.50	3.00
blackeye goby	7/9/2008	4	4	9.50	0.58	3.25	0.50	69.00	77.22
blacksmith, adult	7/9/2008	4	4	10.00	0.00	4.00	0.00	302.50	113.54
blacksmith, all	7/9/2008	4	4	10.00	0.00	4.00	0.00	302.50	113.54
blue-banded goby	7/9/2008	4	4	9.75	0.50	2.50	0.58	20.75	20.71
California sheephead, female	7/9/2008	4	4	9.50	1.00	2.00	0.00	6.25	0.96
California sheephead, male	7/9/2008	4	4	9.50	1.00	1.75	0.50	3.00	1.83
garibaldi, adult	7/9/2008	4	4	10.00	0.00	2.00	0.00	4.50	1.00
giant black sea bass, adult	7/9/2008	4	3	9.00	1.73	1.67	0.58	1.67	0.58
halfmoon, adult	7/9/2008	4	4	9.00	1.15	2.75	0.50	18.50	8.06
island kelpfish	7/9/2008	4	4	7.75	2.22	2.25	0.96	10.25	10.90
jack mackerel	7/9/2008	4	4	9.00	1.15	4.00	0.00	206.25	163.57
kelp bass, adult	7/9/2008	4	4	10.00	0.00	3.00	0.00	24.75	4.99
kelp bass, all	7/9/2008	4	4	10.00	0.00	3.00	0.00	24.75	4.99
kelp rockfish, adult	7/9/2008	4	2	8.00	1.41	1.00	1.15	1.00	1.15
kelp rockfish, all	7/9/2008	4	2	8.00	1.41	1.00	1.15	1.00	1.15
KGB	7/9/2008	4	2	8.00	0.00	1.50	0.71	2.00	1.41
ocean whitefish, adult	7/9/2008	4	4	9.75	0.50	3.00	0.00	30.50	7.55
opaleye, adult	7/9/2008	4	4	8.50	2.38	2.00	0.00	4.25	1.50
opaleye, all	7/9/2008	4	4	8.50	2.38	2.00	0.00	4.25	1.50
Pacific sardine	7/9/2008	4	1	8.00		3.00		15.00	
painted greenling	7/9/2008	4	3	7.67	1.53	1.00	0.82	1.00	0.82
pile perch, adult	7/9/2008	4	2	6.50	0.71	0.75	0.96	0.75	0.96
pile perch, all	7/9/2008	4	2	6.50	0.71	0.75	0.96	0.75	0.96
rock wrasse, female	7/9/2008	4	3	7.67	1.53	1.50	1.00	1.75	1.26
rock wrasse, male	7/9/2008	4	4	8.50	0.58	1.75	0.50	3.50	2.08
seporita, adult	7/9/2008	4	4	10.00	0.00	4.00	0.00	280.25	37.04
seporita, all	7/9/2008	4	4	10.00	0.00	4.00	0.00	280.25	37.04
treefish, adult	7/9/2008	4	1	9.00		0.25	0.50	0.25	0.50
treefish, juvenile	7/9/2008	4	2	8.00	2.83	0.75	0.96	1.50	2.38
zebra goby	7/9/2008	4	1	6.00		1.00		1.00	

2008 ROVING DIVER FISH COUNT

Anacapa Island - Lighthouse

Common Name	Date	Max # of	# of	Score		Abundance		Count	
		Observers	Observations	Avg	St Dev	Avg	St Dev	Avg	St Dev
bat ray	8/20/2008	4	1	8.00		1.00		1.00	
black and yellow rockfish, adult	8/20/2008	4	2	8.50	0.71	1.00	0.00	1.00	0.00
black surfperch, adult	8/20/2008	4	3	8.33	1.53	1.50	1.00	1.75	1.26
black surfperch, all	8/20/2008	4	3	8.33	1.53	1.50	1.00	1.75	1.26
blackeye goby	8/20/2008	4	4	10.00	0.00	3.25	0.50	100.25	83.08
blacksmith, adult	8/20/2008	4	4	10.00	0.00	4.00	0.00	584.75	74.90
blacksmith, all	8/20/2008	4	4	10.00	0.00	4.00	0.00	584.75	74.90
California sheephead, female	8/20/2008	4	4	10.00	0.00	2.50	0.58	13.50	5.26
California sheephead, juvenile	8/20/2008	4	4	9.00	0.82	1.75	0.50	4.25	2.75
c-o turbot	8/20/2008	4	3	9.33	0.58	1.00	0.00	1.00	0.00
coralline sculpin	8/20/2008	4	1	7.00		1.00		1.00	
garibaldi, adult	8/20/2008	4	4	10.00	0.00	2.75	0.50	13.00	4.69
giant black sea bass, adult	8/20/2008	4	1	10.00		1.00		1.00	
halfmoon, adult	8/20/2008	4	4	10.00	0.00	2.00	0.00	7.00	3.46
island kelpfish	8/20/2008	4	4	9.75	0.50	2.00	0.00	7.00	1.83
kelp bass, adult	8/20/2008	4	4	10.00	0.00	2.00	0.00	9.00	1.41
kelp bass, all	8/20/2008	4	4	10.00	0.00	2.00	0.00	9.00	1.41
ocean whitefish, adult	8/20/2008	4	2	6.50	0.71	2.00	0.00	2.00	0.00
opaleye, all	8/20/2008	4	4	10.00	0.00	3.00	0.00	44.00	18.31
painted greenling	8/20/2008	4	4	10.00	0.00	3.00	0.00	28.75	7.41
pile perch, adult	8/20/2008	4	1	7.00		0.25	0.50	0.25	0.50
pile perch, all	8/20/2008	4	1	7.00		0.25	0.50	0.25	0.50
rock wrasse, female	8/20/2008	4	3	8.67	1.53	1.50	1.00	2.25	1.71
rock wrasse, juvenile	8/20/2008	4	1	7.00		0.25	0.50	0.25	0.50
rock wrasse, male	8/20/2008	4	4	7.75	2.22	1.75	0.50	3.75	1.89
seporita, adult	8/20/2008	4	4	10.00	0.00	3.00	0.00	55.00	7.07
seporita, all	8/20/2008	4	4	10.00	0.00	3.00	0.00	55.00	7.07
treefish, adult	8/20/2008	4	3	7.33	1.53	0.75	0.50	0.75	0.50

2008 ROVING DIVER FISH COUNT

Santa Barbara Island - Webster's Arch

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
black and yellow rockfish, adult	6/10/2008	4	3	7.25	2.63	1.75	0.50	2.33	1.53
blackeye goby	6/10/2008	4	3	9.00	2.00	2.50	0.58	11.33	4.04
blacksmith, adult	6/10/2008	4	3	10.00	0.00	3.67	0.58	117.67	80.85
blacksmith, all	6/10/2008	4	3	10.00	0.00	3.50	0.58	117.67	80.85
cabezon, adult	6/10/2008	4	1	6.00		1.00		1.00	
California sheephead, female	6/10/2008	4	3	9.50	0.58	2.00	0.00	5.33	2.52
California sheephead, male	6/10/2008	4	3	9.00	0.00	1.50	0.58	1.67	0.58
garibaldi, adult	6/10/2008	4	3	8.75	1.89	2.25	0.50	9.33	4.04
island kelpfish	6/10/2008	4	1	6.50	0.71	0.75	0.96	0.33	0.58
opaleye, adult	6/10/2008	4	1	6.00		0.33	0.58	0.33	0.58
opaleye, all	6/10/2008	4	1	6.00		0.25	0.50	0.33	0.58
painted greenling	6/10/2008	4	3	10.00	0.00	2.75	0.50	16.00	7.00
seporita, adult	6/10/2008	4	1	6.00		0.67	1.15	0.67	1.15
seporita, all	6/10/2008	4	1	6.00		0.50	1.00	0.67	1.15
snubnose sculpin	6/10/2008	4	1	8.00		2.00		4.00	

2008 ROVING DIVER FISH COUNT

Santa Barbara Island - Graveyard Canyon

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
blackeye goby	6/11/2008	6	4	10.00	0.00	2.83	0.41	47.75	30.21
California halibut	6/11/2008	6	2	8.33	2.89	1.00	0.00	1.00	0.00
island kelpfish	6/11/2008	6	2	7.00	0.00	0.33	0.52	0.50	0.58
kelpfish spp.	6/11/2008	6	1	7.00		1.00		1.00	
Pacific barracuda	6/11/2008	6	1	10.00	0.00	3.00	0.00	15.00	
painted greenling	6/11/2008	6	1	6.00		0.33	0.82	0.50	1.00
speckled sanddab	6/11/2008	6	2	6.67	2.89	1.33	0.58	1.50	0.71

2008 ROVING DIVER FISH COUNT

Santa Barbara Island - Southeast Reef

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
black and yellow rockfish, adult	6/24/2008	7	1	6.50	0.71	1.00	0.00	1.00	
black surfperch, adult	6/24/2008	7	3	8.00	0.00	1.25	0.96	2.75	3.59
black surfperch, all	6/24/2008	7	3	8.00	1.10	1.71	0.95	2.75	3.59
blackeye goby	6/24/2008	7	4	9.29	1.89	2.86	0.38	37.75	19.81
blacksmith, adult	6/24/2008	7	4	9.75	0.50	2.75	0.50	28.00	23.85
blacksmith, all	6/24/2008	7	4	9.86	0.38	2.71	0.49	28.00	23.85
cabezon, adult	6/24/2008	7	2	9.00	1.73	1.33	0.58	1.50	0.71
California moray eel	6/24/2008	7	3	9.80	0.45	1.60	0.55	2.00	0.00
California scorpionfish, adult	6/24/2008	7	1	6.00		1.00		1.00	
California sheephead, female	6/24/2008	7	4	8.33	1.37	1.29	0.76	3.25	2.06
California sheephead, male	6/24/2008	7	1	7.33	1.53	0.43	0.53	0.25	0.50
garibaldi, adult	6/24/2008	7	4	10.00	0.00	2.86	0.38	14.25	5.38
giant kelpfish, juvenile	6/24/2008	7	1	8.00		2.00		6.00	
kelp bass, adult	6/24/2008	7	1	8.00		0.25	0.50	0.25	0.50
kelp bass, all	6/24/2008	7	1	8.00		0.14	0.38	0.25	0.50
kelp rockfish, adult	6/24/2008	7	1	6.00		0.25	0.50	0.25	0.50
kelp rockfish, all	6/24/2008	7	1	6.00		0.14	0.38	0.25	0.50
lavender sculpin	6/24/2008	7	2	7.50	3.54	1.00	0.00	1.00	0.00
opaleye, adult	6/24/2008	7	1	8.00		0.50	1.00	0.75	1.50
opaleye, all	6/24/2008	7	1	8.00		0.29	0.76	0.75	1.50
painted greenling	6/24/2008	7	2	10.00	0.00	1.29	0.95	3.00	4.24
pile perch, adult	6/24/2008	7	3	7.33	1.15	1.25	1.26	3.75	6.18
pile perch, all	6/24/2008	7	3	7.40	0.89	1.29	1.25	3.75	6.18
rock wrasse, female	6/24/2008	7	1	9.00		0.14	0.38	0.25	0.50
seporita, adult	6/24/2008	7	4	8.25	0.50	2.75	0.50	15.50	6.24
seporita, all	6/24/2008	7	4	8.14	0.69	3.14	0.69	59.25	57.89
seporita, juvenile	6/24/2008	7	4	7.75	0.96	3.00	0.82	43.75	57.50
snubnose sculpin	6/24/2008	7	3	7.33	2.52	1.00	0.00	1.00	0.00
treefish, adult	6/24/2008	7	2	6.67	2.89	0.57	0.79	0.75	0.96

Appendix H. Fish Size Frequency Distributions

Fish size frequency distributions are not presented in this annual report, but will be in future reports.
The raw data is available by request.

Appendix I. Natural Habitat Size Frequency Distributions

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Wyckoff Ledge

<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	100.0 %
20 - 29	8.2 %	50 - 59	0.0 %	20 - 29	0.0 %
30 - 39	9.8 %	60 - 69	4.4 %	30 - 39	0.0 %
40 - 49	18.0 %	70 - 79	14.7 %	40 - 49	0.0 %
50 - 59	13.1 %	80 - 89	30.9 %	50 - 59	0.0 %
60 - 69	13.1 %	90 - 99	35.3 %	60 - 69	0.0 %
70 - 79	16.4 %	100 - 109	14.7 %	70 - 79	0.0 %
80 - 89	9.8 %	110 - 119	0.0 %	80 - 89	0.0 %
90 - 99	4.9 %	120 - 129	0.0 %	90 - 99	0.0 %
> 99	6.6 %	130 - 139	0.0 %	100 - 109	0.0 %
(Cases) N =	61	140 - 149	0.0 %	110 - 119	0.0 %
mean	62	> 149	0.0 %	> 119	0.0 %
min size (mm)	22	(Cases) N =	68	(Cases) N =	2
max size (mm)	109	mean	88	mean	13
		min size (mm)	62	min size (mm)	12
		max size (mm)	109	max size (mm)	14
<i>Haliotis rufescens</i>		<i>Lithopoma gibberosa</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	0.0 %	20 - 29	0.0 %
45 - 54	0.0 %	30 - 39	2.0 %	30 - 39	50.0 %
55 - 64	0.0 %	40 - 49	20.4 %	40 - 49	0.0 %
65 - 74	0.7 %	50 - 59	59.2 %	50 - 59	50.0 %
75 - 84	0.0 %	60 - 69	18.4 %	60 - 69	0.0 %
85 - 94	0.0 %	70 - 79	0.0 %	70 - 79	0.0 %
95 - 104	0.0 %	80 - 89	0.0 %	80 - 89	0.0 %
105 - 114	0.0 %	90 - 99	0.0 %	90 - 99	0.0 %
115 - 124	4.4 %	100 - 109	0.0 %	100 - 109	0.0 %
125 - 134	1.5 %	110 - 119	0.0 %	110 - 119	0.0 %
135 - 144	5.8 %	> 119	0.0 %	120 - 129	0.0 %
145 - 154	10.2 %	(Cases) N =	49	130 - 139	0.0 %
155 - 164	10.2 %	mean	52	> 139	0.0 %
165 - 174	13.1 %	min size (mm)	32	(Cases) N =	2
175 - 184	19.0 %	max size (mm)	65	mean	42
185 - 194	12.4 %			min size (mm)	33
>195	21.9 %			max size (mm)	50
(Cases) N =	137				
mean	172				
min size (mm)	68				
max size (mm)	225				

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Wyckoff Ledge

<i>Patiria miniata</i>		<i>Pycnopodia helianthoides</i>		<i>Strongylocentrotus purpuratus</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	20.0 %	10 - 14	1.9 %
30 - 39	5.2 %	60 - 79	40.0 %	15 - 19	11.3 %
40 - 49	3.4 %	80 - 99	0.0 %	20 - 24	11.3 %
50 - 59	31.0 %	100 - 119	20.0 %	25 - 29	24.5 %
60 - 69	39.7 %	120 - 139	0.0 %	30 - 34	17.0 %
70 - 79	17.2 %	140 - 159	20.0 %	35 - 39	17.0 %
80 - 89	3.4 %	160 - 179	0.0 %	40 - 44	7.5 %
90 - 99	0.0 %	180 - 199	0.0 %	45 - 49	3.8 %
> 99	0.0 %	200 - 219	0.0 %	50 - 54	0.0 %
(Cases) N =	58	220 - 239	0.0 %	55 - 59	1.9 %
mean	61	240 - 259	0.0 %	60 - 64	1.9 %
min size (mm)	35	260 - 279	0.0 %	65 - 69	0.0 %
max size (mm)	81	280 - 299	0.0 %	70 - 74	1.9 %
		> 299	0.0 %	75 - 79	0.0 %
		(Cases) N =	5	> 79	0.0 %
		mean	84	(Cases) N =	53
		min size (mm)	42	mean	32
		max size (mm)	140	min size (mm)	14
				max size (mm)	74
<i>Pisaster giganteus</i>		<i>Strongylocentrotus franciscanus</i>			
< 20	0.0 %	< 5	0.0 %		
20 - 39	4.6 %	5 - 9	0.0 %		
40 - 59	36.9 %	10 - 14	0.0 %		
60 - 79	35.4 %	15 - 19	1.9 %		
80 - 99	18.5 %	20 - 24	3.4 %		
100 - 119	1.5 %	25 - 29	1.4 %		
120 - 139	0.0 %	30 - 34	2.4 %		
140 - 159	1.5 %	35 - 39	1.9 %		
160 - 179	1.5 %	40 - 44	0.0 %		
180 - 199	0.0 %	45 - 49	2.9 %		
200 - 219	0.0 %	50 - 54	2.4 %		
220 - 239	0.0 %	55 - 59	1.4 %		
> 239	0.0 %	60 - 64	1.9 %		
(Cases) N =	65	65 - 69	1.9 %		
mean	68	70 - 74	7.2 %		
min size (mm)	36	75 - 79	2.4 %		
max size (mm)	161	80 - 84	12.0 %		
		85 - 89	10.1 %		
		90 - 94	10.6 %		
		95 - 99	7.2 %		
		100 - 104	10.6 %		
		105 - 109	8.2 %		
		> 109	10.1 %		
		(Cases) N =	208		
		mean	79		
		min size (mm)	16		
		max size (mm)	127		

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Hare Rock

<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	5.0 %	50 - 59	0.0 %	20 - 29	0.0 %
30 - 39	10.0 %	60 - 69	0.0 %	30 - 39	0.0 %
40 - 49	25.0 %	70 - 79	0.0 %	40 - 49	18.5 %
50 - 59	20.0 %	80 - 89	0.0 %	50 - 59	75.4 %
60 - 69	25.0 %	90 - 99	0.0 %	60 - 69	6.2 %
70 - 79	10.0 %	100 - 109	50.0 %	70 - 79	0.0 %
80 - 89	5.0 %	110 - 119	30.0 %	80 - 89	0.0 %
90 - 99	0.0 %	120 - 129	10.0 %	90 - 99	0.0 %
> 99	0.0 %	130 - 139	10.0 %	100 - 109	0.0 %
(Cases) N =	20	140 - 149	0.0 %	110 - 119	0.0 %
mean	55	> 149	0.0 %	> 119	0.0 %
min size (mm)	22	(Cases) N =	10	(Cases) N =	65
max size (mm)	88	mean	113	mean	53
		min size (mm)	100	min size (mm)	43
		max size (mm)	130	max size (mm)	61

<i>Haliotis rufescens</i>		<i>Megastrea undosa</i>		<i>Megathura crenulata</i>	
<25	27.3 %	<10	0.0 %	<10	0.0 %
25 - 34	36.4 %	10 - 19	0.0 %	10 - 19	0.0 %
35 - 44	27.3 %	20 - 29	0.0 %	20 - 29	0.0 %
45 - 54	9.1 %	30 - 39	50.0 %	30 - 39	0.0 %
55 - 64	0.0 %	40 - 49	0.0 %	40 - 49	0.0 %
65 - 74	0.0 %	50 - 59	50.0 %	50 - 59	0.0 %
75 - 84	0.0 %	60 - 69	0.0 %	60 - 69	25.0 %
85 - 94	0.0 %	70 - 79	0.0 %	70 - 79	25.0 %
95 - 104	0.0 %	80 - 89	0.0 %	80 - 89	0.0 %
105 - 114	0.0 %	90 - 99	0.0 %	90 - 99	25.0 %
115 - 124	0.0 %	100 - 109	0.0 %	100 - 109	25.0 %
125 - 134	0.0 %	110 - 119	0.0 %	110 - 119	0.0 %
135 - 144	0.0 %	> 119	0.0 %	> 119	0.0 %
145 - 154	0.0 %	(Cases) N =	2	(Cases) N =	4
155 - 164	0.0 %	mean	48	mean	82
165 - 174	0.0 %	min size (mm)	39	min size (mm)	60
175 - 184	0.0 %	max size (mm)	57	max size (mm)	100
185 - 194	0.0 %				
>195	0.0 %				
(Cases) N =	11				
mean	31				
min size (mm)	20				
max size (mm)	53				

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Hare Rock

<i>Crassedoma giganteum</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	19.7 %	10 - 14	0.0 %
30 - 39	0.0 %	60 - 79	41.0 %	15 - 19	0.0 %
40 - 49	0.0 %	80 - 99	23.0 %	20 - 24	0.0 %
50 - 59	0.0 %	100 - 119	8.2 %	25 - 29	0.4 %
60 - 69	33.3 %	120 - 139	4.9 %	30 - 34	0.4 %
70 - 79	16.7 %	140 - 159	1.6 %	35 - 39	4.5 %
80 - 89	16.7 %	160 - 179	0.0 %	40 - 44	3.1 %
90 - 99	0.0 %	180 - 199	0.0 %	45 - 49	5.4 %
100 - 109	0.0 %	200 - 219	1.6 %	50 - 54	10.3 %
110 - 119	0.0 %	220 - 239	0.0 %	55 - 59	11.6 %
120 - 129	0.0 %	> 239	0.0 %	60 - 64	10.3 %
130 - 139	16.7 %	(Cases) N =	61	65 - 69	8.0 %
> 139	16.7 %	mean	82	70 - 74	8.5 %
(Cases) N =	6	min size (mm)	45	75 - 79	5.4 %
mean	95	max size (mm)	207	80 - 84	6.3 %
min size (mm)	61			85 - 89	5.4 %
max size (mm)	152			90 - 94	4.9 %
		<i>Pycnopodia helianthoides</i>		95 - 99	6.3 %
		< 20	1.1 %	100 - 104	4.0 %
		20 - 39	8.8 %	105 - 109	1.8 %
		40 - 59	8.8 %	> 109	3.6 %
		60 - 79	9.9 %	(Cases) N =	224
		80 - 99	8.8 %	mean	75
		100 - 119	29.7 %	min size (mm)	27
		120 - 139	15.4 %	max size (mm)	121
		140 - 159	4.4 %		
		160 - 179	5.5 %		
		180 - 199	0.0 %		
		200 - 219	1.1 %		
		220 - 239	1.1 %		
		240 - 259	2.2 %		
		260 - 279	2.2 %		
		280 - 299	0.0 %		
		> 299	1.1 %		
		(Cases) N =	91		
		mean	110		
		min size (mm)	14		
		max size (mm)	352		
				<i>Strongylocentrotus purpuratus</i>	
				< 5	0.0 %
				5 - 9	5.1 %
				10 - 14	4.6 %
				15 - 19	6.6 %
				20 - 24	8.1 %
				25 - 29	10.7 %
				30 - 34	15.2 %
				35 - 39	18.8 %
				40 - 44	9.1 %
				45 - 49	14.2 %
				50 - 54	6.1 %
				55 - 59	1.5 %
				60 - 64	0.0 %
				65 - 69	0.0 %
				70 - 74	0.0 %
				75 - 79	0.0 %
				> 79	0.0 %
				(Cases) N =	197
				mean	30
				min size (mm)	5
				max size (mm)	58
<i>Patiria miniata</i>					
<10	0.0 %				
10 - 19	0.0 %				
20 - 29	3.3 %				
30 - 39	11.7 %				
40 - 49	10.0 %				
50 - 59	23.3 %				
60 - 69	38.3 %				
70 - 79	11.7 %				
80 - 89	1.7 %				
90 - 99	0.0 %				
> 99	0.0 %				
(Cases) N =	60				
mean	55				
min size (mm)	23				
max size (mm)	81				

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee North

<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	1.6 %	50 - 59	0.0 %	20 - 29	0.0 %
30 - 39	13.1 %	60 - 69	0.0 %	30 - 39	0.0 %
40 - 49	8.2 %	70 - 79	0.0 %	40 - 49	0.0 %
50 - 59	18.0 %	80 - 89	0.0 %	50 - 59	7.7 %
60 - 69	27.9 %	90 - 99	0.0 %	60 - 69	0.0 %
70 - 79	16.4 %	100 - 109	0.0 %	70 - 79	0.0 %
80 - 89	9.8 %	110 - 119	0.0 %	80 - 89	7.7 %
90 - 99	4.9 %	120 - 129	33.3 %	90 - 99	0.0 %
> 99	0.0 %	130 - 139	33.3 %	100 - 109	76.9 %
(Cases) N =	61	140 - 149	33.3 %	110 - 119	7.7 %
mean	59	> 149	0.0 %	> 119	0.0 %
min size (mm)	26	(Cases) N =	3	(Cases) N =	13
max size (mm)	97	mean	135	mean	99
		min size (mm)	129	min size (mm)	55
		max size (mm)	144	max size (mm)	111

<i>Haliotis rufescens</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	0.0 %	20 - 29	0.0 %
45 - 54	4.2 %	30 - 39	0.0 %	30 - 39	5.9 %
55 - 64	0.0 %	40 - 49	0.0 %	40 - 49	35.3 %
65 - 74	0.0 %	50 - 59	0.0 %	50 - 59	0.0 %
75 - 84	0.0 %	60 - 69	0.0 %	60 - 69	11.8 %
85 - 94	0.0 %	70 - 79	0.0 %	70 - 79	5.9 %
95 - 104	0.0 %	80 - 89	0.0 %	80 - 89	11.8 %
105 - 114	0.0 %	90 - 99	0.0 %	90 - 99	5.9 %
115 - 124	0.0 %	100 - 109	0.0 %	100 - 109	5.9 %
125 - 134	4.2 %	110 - 119	0.0 %	110 - 119	0.0 %
135 - 144	4.2 %	> 119	100.0 %	120 - 129	11.8 %
145 - 154	8.3 %	(Cases) N =	2	130 - 139	5.9 %
155 - 164	12.5 %	mean	142	> 139	0.0 %
165 - 174	12.5 %	min size (mm)	140	(Cases) N =	17
175 - 184	25.0 %	max size (mm)	143	mean	75
185 - 194	12.5 %			min size (mm)	33
>195	16.7 %			max size (mm)	130
(Cases) N =	24				
mean	168				
min size (mm)	52				
max size (mm)	215				

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee North

<i>Patiria miniata</i>		<i>Pycnopodia helianthoides</i>		<i>Strongylocentrotus purpuratus</i>	
<10	0.0 %	< 20	0.0 %	< 5	0.0 %
10 - 19	0.0 %	20 - 39	0.0 %	5 - 9	0.9 %
20 - 29	1.7 %	40 - 59	0.0 %	10 - 14	10.0 %
30 - 39	5.1 %	60 - 79	1.6 %	15 - 19	15.2 %
40 - 49	6.8 %	80 - 99	22.2 %	20 - 24	24.6 %
50 - 59	15.3 %	100 - 119	17.5 %	25 - 29	18.5 %
60 - 69	27.1 %	120 - 139	9.5 %	30 - 34	13.7 %
70 - 79	39.0 %	140 - 159	14.3 %	35 - 39	7.1 %
80 - 89	5.1 %	160 - 179	14.3 %	40 - 44	5.2 %
90 - 99	0.0 %	180 - 199	11.1 %	45 - 49	0.9 %
> 99	0.0 %	200 - 219	4.8 %	50 - 54	1.9 %
(Cases) N =	59	220 - 239	3.2 %	55 - 59	0.9 %
mean	62	240 - 259	1.6 %	60 - 64	0.5 %
min size (mm)	27	260 - 279	0.0 %	65 - 69	0.5 %
max size (mm)	86	280 - 299	0.0 %	70 - 74	0.0 %
		> 299	0.0 %	75 - 79	0.0 %
		(Cases) N =	63	> 79	0.0 %
		mean	142	(Cases) N =	211
		min size (mm)	61	mean	28
		max size (mm)	250	min size (mm)	8
				max size (mm)	66
<i>Pisaster giganteus</i>		<i>Strongylocentrotus franciscanus</i>			
< 20	0.0 %	< 5	0.0 %		
20 - 39	0.0 %	5 - 9	0.0 %		
40 - 59	1.8 %	10 - 14	1.6 %		
60 - 79	35.7 %	15 - 19	3.7 %		
80 - 99	25.0 %	20 - 24	7.4 %		
100 - 119	8.9 %	25 - 29	6.4 %		
120 - 139	7.1 %	30 - 34	6.9 %		
140 - 159	8.9 %	35 - 39	5.3 %		
160 - 179	5.4 %	40 - 44	0.5 %		
180 - 199	1.8 %	45 - 49	1.1 %		
200 - 219	1.8 %	50 - 54	1.6 %		
220 - 239	0.0 %	55 - 59	1.1 %		
> 239	3.6 %	60 - 64	3.7 %		
(Cases) N =	56	65 - 69	4.8 %		
mean	112	70 - 74	3.2 %		
min size (mm)	58	75 - 79	4.8 %		
max size (mm)	245	80 - 84	7.4 %		
		85 - 89	8.5 %		
		90 - 94	6.4 %		
		95 - 99	5.3 %		
		100 - 104	3.7 %		
		105 - 109	5.3 %		
		> 109	11.2 %		
		(Cases) N =	188		
		mean	67		
		min size (mm)	10		
		max size (mm)	136		

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee South

<i>Tethya aurantia</i>		<i>Kelletia kelletii</i>		<i>Lithopoma gibberosa</i>	
<10	0.0 %	< 40	0.0 %	<10	0.0 %
10 - 19	1.7 %	40 - 49	0.0 %	10 - 19	0.0 %
20 - 29	1.7 %	50 - 59	0.0 %	20 - 29	0.0 %
30 - 39	0.0 %	60 - 69	0.0 %	30 - 39	0.0 %
40 - 49	3.4 %	70 - 79	3.6 %	40 - 49	0.0 %
50 - 59	16.9 %	80 - 89	3.6 %	50 - 59	0.0 %
60 - 69	10.2 %	90 - 99	10.7 %	60 - 69	100.0 %
70 - 79	18.6 %	100 - 109	46.4 %	70 - 79	0.0 %
80 - 89	11.9 %	110 - 119	32.1 %	80 - 89	0.0 %
90 - 99	11.9 %	120 - 129	3.6 %	90 - 99	0.0 %
> 99	23.7 %	130 - 139	0.0 %	100 - 109	0.0 %
(Cases) N =	59	140 - 149	0.0 %	110 - 119	0.0 %
mean	83	> 149	0.0 %	> 119	0.0 %
min size (mm)	18	(Cases) N =	28	(Cases) N =	1
max size (mm)	153	mean	104	mean	62
		min size (mm)	73	min size (mm)	62
		max size (mm)	122	max size (mm)	62

<i>Haliotis rufescens</i>		<i>Megastrea 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	5.6 %
35 - 44	11.1 %	20 - 29	0.0 %	20 - 29	5.6 %
45 - 54	0.0 %	30 - 39	0.0 %	30 - 39	13.9 %
55 - 64	0.0 %	40 - 49	0.0 %	40 - 49	22.2 %
65 - 74	0.0 %	50 - 59	0.0 %	50 - 59	25.0 %
75 - 84	0.0 %	60 - 69	0.0 %	60 - 69	13.9 %
85 - 94	0.0 %	70 - 79	0.0 %	70 - 79	5.6 %
95 - 104	22.2 %	80 - 89	0.0 %	80 - 89	2.8 %
105 - 114	0.0 %	90 - 99	0.0 %	90 - 99	2.8 %
115 - 124	0.0 %	100 - 109	0.0 %	100 - 109	2.8 %
125 - 134	0.0 %	110 - 119	0.0 %	110 - 119	0.0 %
135 - 144	11.1 %	> 119	100.0 %	120 - 129	0.0 %
145 - 154	0.0 %	(Cases) N =	2	130 - 139	0.0 %
155 - 164	0.0 %	mean	130	> 139	0.0 %
165 - 174	22.2 %	min size (mm)	128	(Cases) N =	36
175 - 184	0.0 %	max size (mm)	132	mean	52
185 - 194	0.0 %			min size (mm)	11
>195	33.3 %			max size (mm)	101
(Cases) N =	9				
mean	151				
min size (mm)	39				
max size (mm)	236				

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee South

<i>Patiria miniata</i>		<i>Pycnopodia helianthoides</i>		<i>Strongylocentrotus purpuratus</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	5.0 %	10 - 14	3.8 %
30 - 39	0.0 %	60 - 79	18.3 %	15 - 19	3.8 %
40 - 49	5.0 %	80 - 99	33.3 %	20 - 24	10.8 %
50 - 59	10.0 %	100 - 119	15.0 %	25 - 29	15.1 %
60 - 69	10.0 %	120 - 139	3.3 %	30 - 34	10.8 %
70 - 79	35.0 %	140 - 159	6.7 %	35 - 39	15.6 %
80 - 89	28.3 %	160 - 179	0.0 %	40 - 44	11.8 %
90 - 99	10.0 %	180 - 199	10.0 %	45 - 49	11.3 %
> 99	1.7 %	200 - 219	3.3 %	50 - 54	9.1 %
(Cases) N =	60	220 - 239	3.3 %	55 - 59	3.8 %
mean	71	240 - 259	0.0 %	60 - 64	2.7 %
min size (mm)	41	260 - 279	0.0 %	65 - 69	1.6 %
max size (mm)	102	280 - 299	1.7 %	70 - 74	0.0 %
		> 299	0.0 %	75 - 79	0.0 %
		(Cases) N =	60	> 79	0.0 %
		mean	118	(Cases) N =	186
		min size (mm)	56	mean	38
		max size (mm)	280	min size (mm)	13
				max size (mm)	69
<i>Pisaster giganteus</i>		<i>Strongylocentrotus franciscanus</i>			
< 20	0.0 %	< 5	0.0 %		
20 - 39	0.0 %	5 - 9	0.0 %		
40 - 59	20.4 %	10 - 14	1.1 %		
60 - 79	46.3 %	15 - 19	3.2 %		
80 - 99	20.4 %	20 - 24	4.7 %		
100 - 119	3.7 %	25 - 29	3.7 %		
120 - 139	1.9 %	30 - 34	4.7 %		
140 - 159	0.0 %	35 - 39	3.2 %		
160 - 179	3.7 %	40 - 44	5.3 %		
180 - 199	0.0 %	45 - 49	3.7 %		
200 - 219	1.9 %	50 - 54	6.3 %		
220 - 239	1.9 %	55 - 59	3.7 %		
> 239	0.0 %	60 - 64	10.0 %		
(Cases) N =	54	65 - 69	5.3 %		
mean	89	70 - 74	8.4 %		
min size (mm)	42	75 - 79	5.3 %		
max size (mm)	220	80 - 84	6.3 %		
		85 - 89	6.8 %		
		90 - 94	4.7 %		
		95 - 99	4.2 %		
		100 - 104	4.7 %		
		105 - 109	2.6 %		
		> 109	2.1 %		
		(Cases) N =	190		
		mean	65		
		min size (mm)	12		
		max size (mm)	120		

2008 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	0.0 %	10 - 19	0.0 %	10 - 19	0.0 %
20 - 29	4.5 %	20 - 29	0.0 %	20 - 29	1.7 %
30 - 39	10.0 %	30 - 39	0.0 %	30 - 39	10.0 %
40 - 49	13.6 %	40 - 49	0.0 %	40 - 49	18.3 %
50 - 59	23.6 %	50 - 59	0.0 %	50 - 59	21.7 %
60 - 69	9.1 %	60 - 69	6.3 %	60 - 69	26.7 %
70 - 79	11.8 %	70 - 79	6.3 %	70 - 79	16.7 %
80 - 89	9.1 %	80 - 89	6.3 %	80 - 89	5.0 %
90 - 99	8.2 %	90 - 99	43.8 %	90 - 99	0.0 %
> 99	10.0 %	100 - 109	25.0 %	> 99	0.0 %
(Cases) N =	110	110 - 119	12.5 %	(Cases) N =	60
mean	67	> 119	0.0 %	mean	57
min size (mm)	21	(Cases) N =	16	min size (mm)	29
max size (mm)	130	mean	97	max size (mm)	84
		min size (mm)	68		
		max size (mm)	118		
<i>Kelletia kelletii</i>		<i>Crassedoma giganteum</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	1.8 %	20 - 29	0.0 %	40 - 59	38.9 %
60 - 69	0.0 %	30 - 39	0.0 %	60 - 79	46.3 %
70 - 79	1.8 %	40 - 49	14.3 %	80 - 99	7.4 %
80 - 89	14.3 %	50 - 59	28.6 %	100 - 119	7.4 %
90 - 99	16.1 %	60 - 69	42.9 %	120 - 139	0.0 %
100 - 109	25.0 %	70 - 79	0.0 %	140 - 159	0.0 %
110 - 119	26.8 %	80 - 89	0.0 %	160 - 179	0.0 %
120 - 129	14.3 %	90 - 99	14.3 %	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	0.0 %	> 239	0.0 %
(Cases) N =	56	130 - 139	0.0 %	(Cases) N =	54
mean	103	> 139	0.0 %	mean	67
min size (mm)	52	(Cases) N =	7	min size (mm)	43
max size (mm)	127	mean	63	max size (mm)	108
		min size (mm)	47		
		max size (mm)	99		
<i>Megastraea undosa</i>					
<10	0.0 %				
10 - 19	0.0 %				
20 - 29	0.0 %				
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	100.0 %				
(Cases) N =	1				
mean	136				
min size (mm)	136				
max size (mm)	136				

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Rodes Reef

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	33.3 %
40 - 59	33.3 %
60 - 79	33.3 %
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 =	3
mean	55
min size (mm)	39
max size (mm)	70

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.6 %
10 - 14	0.6 %
15 - 19	4.5 %
20 - 24	10.6 %
25 - 29	10.1 %
30 - 34	17.3 %
35 - 39	13.4 %
40 - 44	11.2 %
45 - 49	10.1 %
50 - 54	8.9 %
55 - 59	7.3 %
60 - 64	2.8 %
65 - 69	2.8 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	179
mean	39
min size (mm)	5
max size (mm)	67

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	1.9 %
15 - 19	9.1 %
20 - 24	14.4 %
25 - 29	4.8 %
30 - 34	6.7 %
35 - 39	5.3 %
40 - 44	4.8 %
45 - 49	1.9 %
50 - 54	1.9 %
55 - 59	3.8 %
60 - 64	1.0 %
65 - 69	1.0 %
70 - 74	1.9 %
75 - 79	3.4 %
80 - 84	5.3 %
85 - 89	8.7 %
90 - 94	8.2 %
95 - 99	7.2 %
100 - 104	3.4 %
105 - 109	2.4 %
> 109	2.9 %
(Cases) N =	208
mean	62
min size (mm)	11
max size (mm)	129

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

<i>Tethya aurantia</i>		<i>Kelletia kelletii</i>		<i>Lithopoma gibberosa</i>	
<10	0.0 %	< 40	0.0 %	<10	0.0 %
10 - 19	3.5 %	40 - 49	0.0 %	10 - 19	0.0 %
20 - 29	10.5 %	50 - 59	0.0 %	20 - 29	0.0 %
30 - 39	29.8 %	60 - 69	0.0 %	30 - 39	25.0 %
40 - 49	19.3 %	70 - 79	0.0 %	40 - 49	75.0 %
50 - 59	12.3 %	80 - 89	0.0 %	50 - 59	0.0 %
60 - 69	8.8 %	90 - 99	0.0 %	60 - 69	0.0 %
70 - 79	3.5 %	100 - 109	50.0 %	70 - 79	0.0 %
80 - 89	5.3 %	110 - 119	37.5 %	80 - 89	0.0 %
90 - 99	5.3 %	120 - 129	12.5 %	90 - 99	0.0 %
> 99	1.8 %	130 - 139	0.0 %	100 - 109	0.0 %
(Cases) N =	57	140 - 149	0.0 %	110 - 119	0.0 %
mean	51	> 149	0.0 %	> 119	0.0 %
min size (mm)	17	(Cases) N =	8	(Cases) N =	4
max size (mm)	112	mean	108	mean	40
		min size (mm)	101	min size (mm)	32
		max size (mm)	125	max size (mm)	46

<i>Haliotis rufescens</i>		<i>Megastrea undosa</i>		<i>Megathura crenulata</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	0.0 %	20 - 29	0.0 %
45 - 54	0.0 %	30 - 39	11.1 %	30 - 39	0.0 %
55 - 64	0.0 %	40 - 49	0.0 %	40 - 49	0.0 %
65 - 74	0.0 %	50 - 59	11.1 %	50 - 59	0.0 %
75 - 84	0.0 %	60 - 69	0.0 %	60 - 69	33.3 %
85 - 94	0.0 %	70 - 79	22.2 %	70 - 79	0.0 %
95 - 104	0.0 %	80 - 89	0.0 %	80 - 89	66.7 %
105 - 114	0.0 %	90 - 99	11.1 %	90 - 99	0.0 %
115 - 124	0.0 %	100 - 109	11.1 %	100 - 109	0.0 %
125 - 134	0.0 %	110 - 119	0.0 %	110 - 119	0.0 %
135 - 144	0.0 %	> 119	33.3 %	> 119	0.0 %
145 - 154	0.0 %	(Cases) N =	9	(Cases) N =	3
155 - 164	0.0 %	mean	91	mean	78
165 - 174	0.0 %	min size (mm)	36	min size (mm)	60
175 - 184	0.0 %	max size (mm)	132	max size (mm)	89
185 - 194	0.0 %				
>195	100.0 %				
(Cases) N =	1				
mean	200				
min size (mm)	200				
max size (mm)	200				

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

<i>Crassedoma giganteum</i>		<i>Pisaster giganteus</i>		<i>Lytechinus anamesus</i>	
<10	0.0 %	< 20	0.0 %	< 5	0.0 %
10 - 19	0.0 %	20 - 39	0.0 %	5 - 9	4.2 %
20 - 29	0.0 %	40 - 59	0.0 %	10 - 14	25.0 %
30 - 39	14.3 %	60 - 79	10.0 %	15 - 19	54.2 %
40 - 49	42.9 %	80 - 99	26.7 %	20 - 24	16.7 %
50 - 59	21.4 %	100 - 119	43.3 %	25 - 29	0.0 %
60 - 69	7.1 %	120 - 139	13.3 %	30 - 34	0.0 %
70 - 79	7.1 %	140 - 159	6.7 %	35 - 39	0.0 %
80 - 89	0.0 %	160 - 179	0.0 %	40 - 44	0.0 %
90 - 99	0.0 %	180 - 199	0.0 %	45 - 49	0.0 %
100 - 109	0.0 %	200 - 219	0.0 %	> 49	0.0 %
110 - 119	7.1 %	220 - 239	0.0 %	(Cases) N =	24
120 - 129	0.0 %	> 239	0.0 %	mean	16
130 - 139	0.0 %	(Cases) N =	60	min size (mm)	8
> 139	0.0 %	mean	106	max size (mm)	23
(Cases) N =	14	min size (mm)	60		
mean	55	max size (mm)	148		
min size (mm)	30				
max size (mm)	112				
<i>Patiria miniata</i>		<i>Pycnopodia helianthoides</i>		<i>Strongylocentrotus franciscanus</i>	
<10	0.0 %	< 20	0.0 %	< 5	0.0 %
10 - 19	0.0 %	20 - 39	0.0 %	5 - 9	1.2 %
20 - 29	0.0 %	40 - 59	0.0 %	10 - 14	0.6 %
30 - 39	0.0 %	60 - 79	0.0 %	15 - 19	4.0 %
40 - 49	5.0 %	80 - 99	0.0 %	20 - 24	6.9 %
50 - 59	13.3 %	100 - 119	0.0 %	25 - 29	4.6 %
60 - 69	26.7 %	120 - 139	10.0 %	30 - 34	4.0 %
70 - 79	38.3 %	140 - 159	10.0 %	35 - 39	5.2 %
80 - 89	15.0 %	160 - 179	0.0 %	40 - 44	2.9 %
90 - 99	1.7 %	180 - 199	30.0 %	45 - 49	3.5 %
> 99	0.0 %	200 - 219	10.0 %	50 - 54	5.8 %
(Cases) N =	60	220 - 239	20.0 %	55 - 59	5.2 %
mean	68	240 - 259	10.0 %	60 - 64	5.2 %
min size (mm)	43	260 - 279	0.0 %	65 - 69	2.3 %
max size (mm)	92	280 - 299	10.0 %	70 - 74	6.9 %
		> 299	0.0 %	75 - 79	4.6 %
		(Cases) N =	10	80 - 84	2.9 %
		mean	205	85 - 89	3.5 %
		min size (mm)	136	90 - 94	7.5 %
		max size (mm)	294	95 - 99	6.9 %
				100 - 104	5.8 %
				105 - 109	4.0 %
				> 109	6.4 %
				(Cases) N =	173
				mean	67
				min size (mm)	9
				max size (mm)	126

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

<i>Strongylocentrotus purpuratus</i>		<i>Patiria miniata</i>	
< 5	0.0 %	<10	0.0 %
5 - 9	0.0 %	10 - 19	0.0 %
10 - 14	1.4 %	20 - 29	0.0 %
15 - 19	12.3 %	30 - 39	0.0 %
20 - 24	11.0 %	40 - 49	0.0 %
25 - 29	8.2 %	50 - 59	3.2 %
30 - 34	11.0 %	60 - 69	25.4 %
35 - 39	11.0 %	70 - 79	28.6 %
40 - 44	17.8 %	80 - 89	33.3 %
45 - 49	6.8 %	90 - 99	9.5 %
50 - 54	11.0 %	> 99	0.0 %
55 - 59	6.8 %	(Cases) N =	63
60 - 64	2.7 %	mean	77
65 - 69	0.0 %	min size (mm)	57
70 - 74	0.0 %	max size (mm)	96
75 - 79	0.0 %		
> 79	0.0 %		
(Cases) N =	73		
mean	35		
min size (mm)	10		
max size (mm)	62		
		<i>Pisaster giganteus</i>	
		< 20	0.0 %
		20 - 39	0.0 %
		40 - 59	0.0 %
		60 - 79	6.7 %
		80 - 99	20.0 %
		100 - 119	20.0 %
		120 - 139	22.2 %
		140 - 159	24.4 %
		160 - 179	6.7 %
		180 - 199	0.0 %
		200 - 219	0.0 %
		220 - 239	0.0 %
		> 239	0.0 %
		(Cases) N =	45
		mean	119
		min size (mm)	64
		max size (mm)	167

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Fry's Harbor

<i>Strongylocentrotus franciscanus</i>		<i>Tethya aurantia</i>	
< 5	0.0 %	<10	0.0 %
5 - 9	0.8 %	10 - 19	4.0 %
10 - 14	3.2 %	20 - 29	20.0 %
15 - 19	7.9 %	30 - 39	22.0 %
20 - 24	5.6 %	40 - 49	20.0 %
25 - 29	10.3 %	50 - 59	18.0 %
30 - 34	5.6 %	60 - 69	6.0 %
35 - 39	6.3 %	70 - 79	2.0 %
40 - 44	0.8 %	80 - 89	4.0 %
45 - 49	5.6 %	90 - 99	4.0 %
50 - 54	5.6 %	> 99	0.0 %
55 - 59	2.4 %	(Cases) N =	50
60 - 64	5.6 %	mean	46
65 - 69	3.2 %	min size (mm)	11
70 - 74	6.3 %	max size (mm)	95
75 - 79	4.0 %		
80 - 84	6.3 %		
85 - 89	3.2 %	<i>Kelletia kelletii</i>	
90 - 94	4.0 %	< 40	0.0 %
95 - 99	4.8 %	40 - 49	0.0 %
100 - 104	4.8 %	50 - 59	0.0 %
105 - 109	4.0 %	60 - 69	33.3 %
> 109	0.0 %	70 - 79	16.7 %
(Cases) N =	126	80 - 89	0.0 %
mean	59	90 - 99	0.0 %
min size (mm)	9	100 - 109	0.0 %
max size (mm)	109	110 - 119	16.7 %
		120 - 129	0.0 %
		130 - 139	16.7 %
		140 - 149	16.7 %
		> 149	0.0 %
		(Cases) N =	6
		mean	102
		min size (mm)	67
		max size (mm)	142
<i>Strongylocentrotus purpuratus</i>		<i>Megastrea undosa</i>	
< 5	0.0 %	<10	0.0 %
5 - 9	5.2 %	10 - 19	0.0 %
10 - 14	7.0 %	20 - 29	0.0 %
15 - 19	12.2 %	30 - 39	0.0 %
20 - 24	18.3 %	40 - 49	0.0 %
25 - 29	14.8 %	50 - 59	0.0 %
30 - 34	14.8 %	60 - 69	33.3 %
35 - 39	8.7 %	70 - 79	33.3 %
40 - 44	9.6 %	80 - 89	33.3 %
45 - 49	7.8 %	90 - 99	0.0 %
50 - 54	1.7 %	100 - 109	0.0 %
55 - 59	0.0 %	110 - 119	0.0 %
60 - 64	0.0 %	> 119	0.0 %
65 - 69	0.0 %	(Cases) N =	6
70 - 74	0.0 %	mean	76
75 - 79	0.0 %	min size (mm)	65
> 79	0.0 %	max size (mm)	89
(Cases) N =	115		
mean	29		
min size (mm)	7		
max size (mm)	50		

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pelican Bay

<i>Megathura crenulata</i>		<i>Tegula regina</i>		<i>Pisaster giganteus</i>	
<10	0.0 %	< 5	0.0 %	< 20	0.0 %
10 - 19	0.0 %	5 - 9	0.0 %	20 - 39	0.0 %
20 - 29	0.0 %	10 - 14	0.0 %	40 - 59	0.0 %
30 - 39	0.0 %	15 - 19	0.0 %	60 - 79	0.0 %
40 - 49	0.0 %	20 - 24	0.0 %	80 - 99	0.0 %
50 - 59	3.8 %	25 - 29	0.0 %	100 - 119	1.7 %
60 - 69	7.7 %	30 - 34	0.0 %	120 - 139	5.1 %
70 - 79	34.6 %	35 - 39	0.0 %	140 - 159	32.2 %
80 - 89	38.5 %	40 - 44	0.0 %	160 - 179	27.1 %
90 - 99	11.5 %	45 - 49	0.0 %	180 - 199	18.6 %
100 - 109	3.8 %	50 - 54	100.0 %	200 - 219	8.5 %
110 - 119	0.0 %	55 - 59	0.0 %	220 - 239	3.4 %
> 119	0.0 %	60 - 64	0.0 %	> 239	3.4 %
(Cases) N =	26	65 - 69	0.0 %	(Cases) N =	59
mean	80	70 - 74	0.0 %	mean	174
min size (mm)	59	> 75	0.0 %	min size (mm)	111
max size (mm)	102	(Cases) N =	1	max size (mm)	275
		mean	52		
		min size (mm)	52		
		max size (mm)	52		
<i>Crassidoma giganteum</i>		<i>Patiria miniata</i>		<i>Pycnopodia helianthoides</i>	
<10	0.0 %	<10	0.0 %	< 20	0.0 %
10 - 19	0.0 %	10 - 19	0.0 %	20 - 39	0.0 %
20 - 29	7.1 %	20 - 29	1.7 %	40 - 59	0.0 %
30 - 39	7.1 %	30 - 39	1.7 %	60 - 79	0.0 %
40 - 49	0.0 %	40 - 49	3.3 %	80 - 99	0.0 %
50 - 59	7.1 %	50 - 59	16.7 %	100 - 119	0.0 %
60 - 69	0.0 %	60 - 69	26.7 %	120 - 139	0.0 %
70 - 79	7.1 %	70 - 79	30.0 %	140 - 159	0.0 %
80 - 89	7.1 %	80 - 89	16.7 %	160 - 179	0.0 %
90 - 99	14.3 %	90 - 99	1.7 %	180 - 199	100.0 %
100 - 109	10.7 %	> 99	1.7 %	200 - 219	0.0 %
110 - 119	17.9 %	(Cases) N =	60	220 - 239	0.0 %
120 - 129	3.6 %	mean	68	240 - 259	0.0 %
130 - 139	0.0 %	min size (mm)	23	260 - 279	0.0 %
> 139	17.9 %	max size (mm)	108	280 - 299	0.0 %
(Cases) N =	28			> 299	0.0 %
mean	98			(Cases) N =	1
min size (mm)	27			mean	190
max size (mm)	157			min size (mm)	190
				max size (mm)	190

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pelican Bay

Lytechinus anamesus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	10.3 %
20 - 24	54.0 %
25 - 29	16.1 %
30 - 34	17.8 %
35 - 39	1.7 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	174
mean	27
min size (mm)	18
max size (mm)	38

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	2.1 %
15 - 19	14.2 %
20 - 24	19.2 %
25 - 29	15.0 %
30 - 34	10.8 %
35 - 39	5.8 %
40 - 44	8.3 %
45 - 49	8.8 %
50 - 54	7.1 %
55 - 59	5.0 %
60 - 64	2.5 %
65 - 69	0.8 %
70 - 74	0.4 %
75 - 79	0.0 %
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 =	240
mean	38
min size (mm)	10
max size (mm)	70

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	1.0 %
15 - 19	10.1 %
20 - 24	14.4 %
25 - 29	37.5 %
30 - 34	28.4 %
35 - 39	6.7 %
40 - 44	1.9 %
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 =	208
mean	28
min size (mm)	12
max size (mm)	44

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Scorpion Anchorage

<i>Tethya aurantia</i>		<i>Crassedoma giganteum</i>		<i>Patiria miniata</i>	
<10	0.0 %	<10	0.0 %	<10	0.0 %
10 - 19	9.5 %	10 - 19	0.0 %	10 - 19	0.0 %
20 - 29	21.4 %	20 - 29	0.0 %	20 - 29	0.0 %
30 - 39	21.4 %	30 - 39	0.0 %	30 - 39	4.0 %
40 - 49	31.0 %	40 - 49	8.0 %	40 - 49	0.0 %
50 - 59	11.9 %	50 - 59	12.0 %	50 - 59	22.0 %
60 - 69	0.0 %	60 - 69	0.0 %	60 - 69	24.0 %
70 - 79	0.0 %	70 - 79	4.0 %	70 - 79	36.0 %
80 - 89	2.4 %	80 - 89	8.0 %	80 - 89	10.0 %
90 - 99	0.0 %	90 - 99	8.0 %	90 - 99	2.0 %
> 99	2.4 %	100 - 109	8.0 %	> 99	2.0 %
(Cases) N =	42	110 - 119	4.0 %	(Cases) N =	50
mean	39	120 - 129	16.0 %	mean	70
min size (mm)	15	130 - 139	4.0 %	min size (mm)	30
max size (mm)	115	> 139	28.0 %	max size (mm)	109
		(Cases) N =	25		
		mean	106		
		min size (mm)	40		
		max size (mm)	169		
<i>Megastreaa undosa</i>		<i>Tegula regina</i>		<i>Pisaster giganteus</i>	
<10	0.0 %	< 5	0.0 %	< 20	0.0 %
10 - 19	1.6 %	5 - 9	0.0 %	20 - 39	0.0 %
20 - 29	3.1 %	10 - 14	0.0 %	40 - 59	4.0 %
30 - 39	0.0 %	15 - 19	0.0 %	60 - 79	6.0 %
40 - 49	10.9 %	20 - 24	0.0 %	80 - 99	24.0 %
50 - 59	12.5 %	25 - 29	0.0 %	100 - 119	34.0 %
60 - 69	1.6 %	30 - 34	0.0 %	120 - 139	20.0 %
70 - 79	17.2 %	35 - 39	0.0 %	140 - 159	8.0 %
80 - 89	21.9 %	40 - 44	0.0 %	160 - 179	4.0 %
90 - 99	17.2 %	45 - 49	0.0 %	180 - 199	0.0 %
100 - 109	9.4 %	50 - 54	33.3 %	200 - 219	0.0 %
110 - 119	4.7 %	55 - 59	66.7 %	220 - 239	0.0 %
> 119	0.0 %	60 - 64	0.0 %	> 239	0.0 %
(Cases) N =	64	65 - 69	0.0 %	(Cases) N =	50
mean	77	70 - 74	0.0 %	mean	111
min size (mm)	18	> 75	0.0 %	min size (mm)	52
max size (mm)	116	(Cases) N =	3	max size (mm)	160
		mean	55		
		min size (mm)	52		
		max size (mm)	57		
<i>Megathura crenulata</i>					
<10	0.0 %				
10 - 19	0.0 %				
20 - 29	0.0 %				
30 - 39	0.0 %				
40 - 49	0.0 %				
50 - 59	0.0 %				
60 - 69	28.3 %				
70 - 79	30.0 %				
80 - 89	33.3 %				
90 - 99	8.3 %				
100 - 109	0.0 %				
110 - 119	0.0 %				
> 119	0.0 %				
(Cases) N =	60				
mean	77				
min size (mm)	60				
max size (mm)	94				

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Scorpion Anchorage

<i>Strongylocentrotus franciscanus</i>		<i>Tethya aurantia</i>	
< 5	0.0 %	<10	0.0 %
5 - 9	0.0 %	10 - 19	8.3 %
10 - 14	0.0 %	20 - 29	10.0 %
15 - 19	0.5 %	30 - 39	33.3 %
20 - 24	0.5 %	40 - 49	21.7 %
25 - 29	0.0 %	50 - 59	11.7 %
30 - 34	0.5 %	60 - 69	11.7 %
35 - 39	3.8 %	70 - 79	3.3 %
40 - 44	11.8 %	80 - 89	0.0 %
45 - 49	21.5 %	90 - 99	0.0 %
50 - 54	20.4 %	> 99	0.0 %
55 - 59	21.5 %	(Cases) N =	60
60 - 64	11.3 %	mean	44
65 - 69	3.2 %	min size (mm)	14
70 - 74	2.2 %	max size (mm)	73
75 - 79	2.2 %		
80 - 84	0.5 %		
85 - 89	0.0 %	<i>Kelletia kelletii</i>	
90 - 94	0.0 %	< 40	0.0 %
95 - 99	0.0 %	40 - 49	2.1 %
100 - 104	0.0 %	50 - 59	0.0 %
105 - 109	0.0 %	60 - 69	0.0 %
> 109	0.0 %	70 - 79	0.0 %
(Cases) N =	186	80 - 89	4.3 %
mean	54	90 - 99	29.8 %
min size (mm)	15	100 - 109	40.4 %
max size (mm)	84	110 - 119	23.4 %
		120 - 129	0.0 %
		130 - 139	0.0 %
		140 - 149	0.0 %
		> 149	0.0 %
		(Cases) N =	47
		mean	100
		min size (mm)	47
		max size (mm)	116
<i>Strongylocentrotus purpuratus</i>			
< 5	0.0 %	<i>Megastrea undosa</i>	
5 - 9	5.7 %	<10	0.0 %
10 - 14	3.3 %	10 - 19	0.0 %
15 - 19	4.3 %	20 - 29	0.0 %
20 - 24	3.8 %	30 - 39	30.0 %
25 - 29	11.5 %	40 - 49	0.0 %
30 - 34	47.8 %	50 - 59	0.0 %
35 - 39	18.7 %	60 - 69	0.0 %
40 - 44	3.8 %	70 - 79	0.0 %
45 - 49	0.5 %	80 - 89	0.0 %
50 - 54	0.5 %	90 - 99	20.0 %
55 - 59	0.0 %	100 - 109	10.0 %
60 - 64	0.0 %	110 - 119	20.0 %
65 - 69	0.0 %	> 119	20.0 %
70 - 74	0.0 %	(Cases) N =	10
75 - 79	0.0 %	mean	94
> 79	0.0 %	min size (mm)	34
(Cases) N =	209	max size (mm)	124
mean	27		
min size (mm)	5		
max size (mm)	51		

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

<i>Lithopoma gibberosa</i>		<i>Crassidoma giganteum</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	33.3 %	20 - 29	3.3 %
30 - 39	0.0 %	30 - 39	0.0 %	30 - 39	16.7 %
40 - 49	0.0 %	40 - 49	0.0 %	40 - 49	13.3 %
50 - 59	0.0 %	50 - 59	0.0 %	50 - 59	16.7 %
60 - 69	100.0 %	60 - 69	0.0 %	60 - 69	10.0 %
70 - 79	0.0 %	70 - 79	33.3 %	70 - 79	25.0 %
80 - 89	0.0 %	80 - 89	33.3 %	80 - 89	13.3 %
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 =	60
> 119	0.0 %	120 - 129	0.0 %	mean	59
(Cases) N =	2	130 - 139	0.0 %	min size (mm)	20
mean	63	> 139	0.0 %	max size (mm)	94
min size (mm)	60	(Cases) N =	3		
max size (mm)	65	mean	64		
		min size (mm)	28		
		max size (mm)	87		
<i>Megathura crenulata</i>		<i>Tegula regina</i>		<i>Pisaster giganteus</i>	
<10	0.0 %	< 5	0.0 %	< 20	0.0 %
10 - 19	0.0 %	5 - 9	0.0 %	20 - 39	0.0 %
20 - 29	0.0 %	10 - 14	0.0 %	40 - 59	12.5 %
30 - 39	12.5 %	15 - 19	0.0 %	60 - 79	25.0 %
40 - 49	0.0 %	20 - 24	0.0 %	80 - 99	0.0 %
50 - 59	0.0 %	25 - 29	0.0 %	100 - 119	25.0 %
60 - 69	37.5 %	30 - 34	0.0 %	120 - 139	25.0 %
70 - 79	50.0 %	35 - 39	0.0 %	140 - 159	12.5 %
80 - 89	0.0 %	40 - 44	0.0 %	160 - 179	0.0 %
90 - 99	0.0 %	45 - 49	25.0 %	180 - 199	0.0 %
100 - 109	0.0 %	50 - 54	75.0 %	200 - 219	0.0 %
110 - 119	0.0 %	55 - 59	0.0 %	220 - 239	0.0 %
> 119	0.0 %	60 - 64	0.0 %	> 239	0.0 %
(Cases) N =	8	65 - 69	0.0 %	(Cases) N =	8
mean	67	70 - 74	0.0 %	mean	91
min size (mm)	38	> 75	0.0 %	min size (mm)	40
max size (mm)	78	(Cases) N =	4	max size (mm)	140
		mean	51		
		min size (mm)	48		
		max size (mm)	53		

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

<i>Pycnopodia helianthoides</i>		<i>Strongylocentrotus franciscanus</i>	
< 20	0.0 %	< 5	0.0 %
20 - 39	0.0 %	5 - 9	0.0 %
40 - 59	0.0 %	10 - 14	1.0 %
60 - 79	0.0 %	15 - 19	13.6 %
80 - 99	0.0 %	20 - 24	14.6 %
100 - 119	0.0 %	25 - 29	12.1 %
120 - 139	0.0 %	30 - 34	15.1 %
140 - 159	0.0 %	35 - 39	12.6 %
160 - 179	0.0 %	40 - 44	9.5 %
180 - 199	1.9 %	45 - 49	5.5 %
200 - 219	9.4 %	50 - 54	4.0 %
220 - 239	7.5 %	55 - 59	2.0 %
240 - 259	28.3 %	60 - 64	3.0 %
260 - 279	22.6 %	65 - 69	0.5 %
280 - 299	11.3 %	70 - 74	2.0 %
> 299	18.9 %	75 - 79	1.0 %
(Cases) N =	53	80 - 84	0.5 %
mean	256	85 - 89	0.5 %
min size (mm)	180	90 - 94	1.5 %
max size (mm)	350	95 - 99	0.5 %
		100 - 104	0.0 %
		105 - 109	0.0 %
		> 109	0.5 %
		(Cases) N =	199
		mean	41
		min size (mm)	12
		max size (mm)	113
<i>Lytechinus anamesus</i>		<i>Strongylocentrotus purpuratus</i>	
< 5	0.0 %	< 5	0.0 %
5 - 9	2.1 %	5 - 9	1.1 %
10 - 14	15.8 %	10 - 14	2.8 %
15 - 19	19.5 %	15 - 19	5.7 %
20 - 24	41.1 %	20 - 24	13.1 %
25 - 29	21.2 %	25 - 29	30.1 %
30 - 34	0.4 %	30 - 34	19.3 %
35 - 39	0.0 %	35 - 39	14.2 %
40 - 44	0.0 %	40 - 44	6.8 %
45 - 49	0.0 %	45 - 49	2.8 %
> 49	0.0 %	50 - 54	1.1 %
(Cases) N =	241	55 - 59	2.3 %
mean	19	60 - 64	0.6 %
min size (mm)	8	65 - 69	0.0 %
max size (mm)	31	70 - 74	0.0 %
		75 - 79	0.0 %
		> 79	0.0 %
		(Cases) N =	176
		mean	31
		min size (mm)	6
		max size (mm)	62

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Admiral's Reef

<i>Tethya aurantia</i>		<i>Megathura crenulata</i>		<i>Tegula regina</i>	
<10	0.0 %	<10	0.0 %	< 5	0.0 %
10 - 19	8.3 %	10 - 19	0.0 %	5 - 9	0.0 %
20 - 29	8.3 %	20 - 29	0.0 %	10 - 14	0.0 %
30 - 39	4.2 %	30 - 39	0.0 %	15 - 19	0.0 %
40 - 49	29.2 %	40 - 49	6.6 %	20 - 24	0.0 %
50 - 59	16.7 %	50 - 59	8.2 %	25 - 29	0.0 %
60 - 69	12.5 %	60 - 69	36.1 %	30 - 34	0.0 %
70 - 79	12.5 %	70 - 79	27.9 %	35 - 39	0.0 %
80 - 89	8.3 %	80 - 89	16.4 %	40 - 44	10.5 %
90 - 99	0.0 %	90 - 99	0.0 %	45 - 49	10.5 %
> 99	0.0 %	100 - 109	4.9 %	50 - 54	57.9 %
(Cases) N =	24	110 - 119	0.0 %	55 - 59	15.8 %
mean	51	> 119	0.0 %	60 - 64	5.3 %
min size (mm)	12	(Cases) N =	61	65 - 69	0.0 %
max size (mm)	86	mean	70	70 - 74	0.0 %
		min size (mm)	42	> 75	0.0 %
		max size (mm)	109	(Cases) N =	19
				mean	51
				min size (mm)	41
				max size (mm)	61
<i>Kelletia kelletii</i>		<i>Crassidoma giganteum</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	6.7 %	20 - 29	0.0 %
60 - 69	0.0 %	30 - 39	0.0 %	30 - 39	11.1 %
70 - 79	7.4 %	40 - 49	26.7 %	40 - 49	15.9 %
80 - 89	18.5 %	50 - 59	20.0 %	50 - 59	22.2 %
90 - 99	7.4 %	60 - 69	0.0 %	60 - 69	25.4 %
100 - 109	18.5 %	70 - 79	13.3 %	70 - 79	22.2 %
110 - 119	37.0 %	80 - 89	6.7 %	80 - 89	1.6 %
120 - 129	11.1 %	90 - 99	6.7 %	90 - 99	1.6 %
130 - 139	0.0 %	100 - 109	13.3 %	> 99	0.0 %
140 - 149	0.0 %	110 - 119	0.0 %	(Cases) N =	63
> 149	0.0 %	120 - 129	0.0 %	mean	59
(Cases) N =	27	130 - 139	6.7 %	min size (mm)	34
mean	103	> 139	0.0 %	max size (mm)	92
min size (mm)	78	(Cases) N =	15		
max size (mm)	124	mean	68		
		min size (mm)	28		
		max size (mm)	133		
<i>Megastraea undosa</i>					
<10	0.0 %				
10 - 19	0.0 %				
20 - 29	0.0 %				
30 - 39	5.9 %				
40 - 49	5.9 %				
50 - 59	5.9 %				
60 - 69	17.6 %				
70 - 79	23.5 %				
80 - 89	29.4 %				
90 - 99	11.8 %				
100 - 109	0.0 %				
110 - 119	0.0 %				
> 119	0.0 %				
(Cases) N =	17				
mean	71				
min size (mm)	31				
max size (mm)	96				

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Admiral's Reef

<i>Pisaster giganteus</i>		<i>Strongylocentrotus franciscanus</i>	
< 20	0.0 %	< 5	0.0 %
20 - 39	0.0 %	5 - 9	0.0 %
40 - 59	0.0 %	10 - 14	0.9 %
60 - 79	0.0 %	15 - 19	3.7 %
80 - 99	3.2 %	20 - 24	3.7 %
100 - 119	12.9 %	25 - 29	8.8 %
120 - 139	29.0 %	30 - 34	18.4 %
140 - 159	16.1 %	35 - 39	16.1 %
160 - 179	22.6 %	40 - 44	2.3 %
180 - 199	6.5 %	45 - 49	5.5 %
200 - 219	6.5 %	50 - 54	3.2 %
220 - 239	3.2 %	55 - 59	4.1 %
> 239	0.0 %	60 - 64	6.9 %
(Cases) N =	31	65 - 69	11.5 %
mean	150	70 - 74	6.0 %
min size (mm)	97	75 - 79	4.6 %
max size (mm)	222	80 - 84	3.2 %
		85 - 89	0.9 %
		90 - 94	0.0 %
		95 - 99	0.0 %
		100 - 104	0.0 %
		105 - 109	0.0 %
		> 109	0.0 %
		(Cases) N =	217
		mean	47
		min size (mm)	13
		max size (mm)	89
<i>Lytechinus anamesus</i>		<i>Strongylocentrotus purpuratus</i>	
< 5	0.0 %	< 5	0.0 %
5 - 9	0.0 %	5 - 9	0.5 %
10 - 14	40.0 %	10 - 14	2.4 %
15 - 19	40.0 %	15 - 19	7.5 %
20 - 24	20.0 %	20 - 24	13.7 %
25 - 29	0.0 %	25 - 29	32.1 %
30 - 34	0.0 %	30 - 34	21.7 %
35 - 39	0.0 %	35 - 39	13.7 %
40 - 44	0.0 %	40 - 44	5.7 %
45 - 49	0.0 %	45 - 49	1.9 %
> 49	0.0 %	50 - 54	0.9 %
(Cases) N =	10	55 - 59	0.0 %
mean	17	60 - 64	0.0 %
min size (mm)	11	65 - 69	0.0 %
max size (mm)	23	70 - 74	0.0 %
		75 - 79	0.0 %
		> 79	0.0 %
		(Cases) N =	212
		mean	29
		min size (mm)	7
		max size (mm)	50

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Cathedral Cove

<i>Tethya aurantia</i>		<i>Crassedoma giganteum</i>		<i>Strongylocentrotus franciscanus</i>	
<10	0.0 %	<10	0.0 %	< 5	0.0 %
10 - 19	0.0 %	10 - 19	0.0 %	5 - 9	0.9 %
20 - 29	0.0 %	20 - 29	0.0 %	10 - 14	7.2 %
30 - 39	20.0 %	30 - 39	1.9 %	15 - 19	4.4 %
40 - 49	20.0 %	40 - 49	5.7 %	20 - 24	5.6 %
50 - 59	0.0 %	50 - 59	22.6 %	25 - 29	1.9 %
60 - 69	20.0 %	60 - 69	17.0 %	30 - 34	2.2 %
70 - 79	40.0 %	70 - 79	15.1 %	35 - 39	1.9 %
80 - 89	0.0 %	80 - 89	5.7 %	40 - 44	2.5 %
90 - 99	0.0 %	90 - 99	11.3 %	45 - 49	3.1 %
> 99	0.0 %	100 - 109	9.4 %	50 - 54	1.6 %
(Cases) N =	5	110 - 119	5.7 %	55 - 59	1.9 %
mean	59	120 - 129	0.0 %	60 - 64	3.1 %
min size (mm)	36	130 - 139	5.7 %	65 - 69	2.8 %
max size (mm)	73	> 139	0.0 %	70 - 74	4.4 %
		(Cases) N =	53	75 - 79	2.5 %
		mean	79	80 - 84	5.0 %
		min size (mm)	37	85 - 89	3.4 %
		max size (mm)	136	90 - 94	7.8 %
				95 - 99	9.0 %
<i>Megastrea undosa</i>		<i>Pisaster giganteus</i>		100 - 104	9.0 %
<10	0.0 %	< 20	0.0 %	105 - 109	6.5 %
10 - 19	2.1 %	20 - 39	0.0 %	> 109	13.4 %
20 - 29	4.2 %	40 - 59	0.0 %	(Cases) N =	321
30 - 39	10.6 %	60 - 79	16.7 %	mean	70
40 - 49	7.0 %	80 - 99	25.0 %	min size (mm)	5
50 - 59	6.3 %	100 - 119	25.0 %	max size (mm)	126
60 - 69	9.2 %	120 - 139	8.3 %		
70 - 79	16.9 %	140 - 159	8.3 %		
80 - 89	10.6 %	160 - 179	8.3 %		
90 - 99	14.8 %	180 - 199	8.3 %		
100 - 109	16.9 %	200 - 219	0.0 %		
110 - 119	1.4 %	220 - 239	0.0 %		
> 119	0.0 %	> 239	0.0 %		
(Cases) N =	142	(Cases) N =	12		
mean	70	mean	114		
min size (mm)	13	min size (mm)	71		
max size (mm)	110	max size (mm)	184		
<i>Megathura crenulata</i>				<i>Strongylocentrotus purpuratus</i>	
<10	0.0 %			< 5	0.0 %
10 - 19	0.0 %			5 - 9	11.0 %
20 - 29	0.0 %			10 - 14	16.3 %
30 - 39	0.0 %			15 - 19	16.6 %
40 - 49	0.0 %			20 - 24	11.7 %
50 - 59	16.7 %			25 - 29	9.2 %
60 - 69	16.7 %			30 - 34	8.8 %
70 - 79	50.0 %			35 - 39	3.9 %
80 - 89	0.0 %			40 - 44	6.0 %
90 - 99	16.7 %			45 - 49	3.5 %
100 - 109	0.0 %			50 - 54	5.7 %
110 - 119	0.0 %			55 - 59	3.9 %
> 119	0.0 %			60 - 64	1.8 %
(Cases) N =	6			65 - 69	1.8 %
mean	73			70 - 74	0.0 %
min size (mm)	50			75 - 79	0.0 %
max size (mm)	92			> 79	0.0 %
				(Cases) N =	283
				mean	31
				min size (mm)	5
				max size (mm)	67

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Landing Cove

<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	33.3 %	50 - 59	0.0 %	20 - 29	0.0 %
30 - 39	16.7 %	60 - 69	0.0 %	30 - 39	0.0 %
40 - 49	50.0 %	70 - 79	0.0 %	40 - 49	0.0 %
50 - 59	0.0 %	80 - 89	25.0 %	50 - 59	100.0 %
60 - 69	0.0 %	90 - 99	50.0 %	60 - 69	0.0 %
70 - 79	0.0 %	100 - 109	25.0 %	70 - 79	0.0 %
80 - 89	0.0 %	110 - 119	0.0 %	80 - 89	0.0 %
90 - 99	0.0 %	120 - 129	0.0 %	90 - 99	0.0 %
> 99	0.0 %	130 - 139	0.0 %	100 - 109	0.0 %
(Cases) N =	6	140 - 149	0.0 %	110 - 119	0.0 %
mean	40	> 149	0.0 %	> 119	0.0 %
min size (mm)	29	(Cases) N =	4	(Cases) N =	1
max size (mm)	49	mean	95	mean	50
		min size (mm)	85	min size (mm)	50
		max size (mm)	101	max size (mm)	50

<i>Haliotis corrugata</i>		<i>Megastrea undosa</i>		<i>Megathura crenulata</i>	
<25	0.0 %	<10	0.0 %	<10	0.0 %
25 - 34	0.0 %	10 - 19	1.4 %	10 - 19	0.0 %
35 - 44	0.0 %	20 - 29	0.0 %	20 - 29	0.0 %
45 - 54	0.0 %	30 - 39	7.0 %	30 - 39	0.0 %
55 - 64	0.0 %	40 - 49	12.7 %	40 - 49	0.0 %
65 - 74	0.0 %	50 - 59	11.3 %	50 - 59	0.0 %
75 - 84	0.0 %	60 - 69	15.5 %	60 - 69	8.3 %
85 - 94	0.0 %	70 - 79	23.9 %	70 - 79	16.7 %
95 - 104	25.0 %	80 - 89	15.5 %	80 - 89	50.0 %
105 - 114	0.0 %	90 - 99	9.9 %	90 - 99	8.3 %
115 - 124	0.0 %	100 - 109	1.4 %	100 - 109	8.3 %
125 - 134	0.0 %	110 - 119	1.4 %	110 - 119	8.3 %
135 - 144	0.0 %	> 119	0.0 %	> 119	0.0 %
145 - 154	50.0 %	(Cases) N =	71	(Cases) N =	12
155 - 164	25.0 %	mean	68	mean	85
165 - 174	0.0 %	min size (mm)	15	min size (mm)	61
175 - 184	0.0 %	max size (mm)	111	max size (mm)	115
185 - 194	0.0 %				
>195	0.0 %				
(Cases) N =	4				
mean	142				
min size (mm)	102				
max size (mm)	160				

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Landing Cove

<i>Crassedoma giganteum</i>		<i>Pisaster giganteus</i>		<i>Strongylocentrotus purpuratus</i>	
<10	0.0 %	< 20	0.0 %	< 5	0.7 %
10 - 19	0.0 %	20 - 39	0.0 %	5 - 9	5.6 %
20 - 29	3.8 %	40 - 59	0.0 %	10 - 14	11.3 %
30 - 39	16.5 %	60 - 79	0.0 %	15 - 19	13.4 %
40 - 49	17.7 %	80 - 99	0.0 %	20 - 24	16.9 %
50 - 59	11.4 %	100 - 119	15.0 %	25 - 29	9.2 %
60 - 69	12.7 %	120 - 139	10.0 %	30 - 34	10.6 %
70 - 79	8.9 %	140 - 159	5.0 %	35 - 39	7.0 %
80 - 89	5.1 %	160 - 179	15.0 %	40 - 44	6.3 %
90 - 99	7.6 %	180 - 199	10.0 %	45 - 49	4.9 %
100 - 109	0.0 %	200 - 219	10.0 %	50 - 54	9.2 %
110 - 119	11.4 %	220 - 239	25.0 %	55 - 59	1.4 %
120 - 129	3.8 %	> 239	10.0 %	60 - 64	3.5 %
130 - 139	1.3 %	(Cases) N =	20	65 - 69	0.0 %
> 139	0.0 %	mean	182	70 - 74	0.0 %
(Cases) N =	79	min size (mm)	106	75 - 79	0.0 %
mean	69	max size (mm)	276	> 79	0.0 %
min size (mm)	26			(Cases) N =	142
max size (mm)	135			mean	32
<i>Tegula regina</i>		<i>Strongylocentrotus franciscanus</i>		min size (mm)	4
< 5	0.0 %	< 5	0.0 %	max size (mm)	64
5 - 9	0.0 %	5 - 9	1.0 %		
10 - 14	0.0 %	10 - 14	3.9 %		
15 - 19	0.0 %	15 - 19	5.9 %		
20 - 24	0.0 %	20 - 24	5.4 %		
25 - 29	0.0 %	25 - 29	5.4 %		
30 - 34	0.0 %	30 - 34	4.9 %		
35 - 39	0.0 %	35 - 39	1.5 %		
40 - 44	25.0 %	40 - 44	3.4 %		
45 - 49	62.5 %	45 - 49	2.4 %		
50 - 54	12.5 %	50 - 54	2.4 %		
55 - 59	0.0 %	55 - 59	5.4 %		
60 - 64	0.0 %	60 - 64	4.4 %		
65 - 69	0.0 %	65 - 69	2.4 %		
70 - 74	0.0 %	70 - 74	6.3 %		
> 75	0.0 %	75 - 79	0.0 %		
(Cases) N =	8	80 - 84	6.8 %		
mean	46	85 - 89	2.9 %		
min size (mm)	42	90 - 94	9.8 %		
max size (mm)	50	95 - 99	5.9 %		
		100 - 104	6.3 %		
		105 - 109	2.4 %		
		> 109	11.2 %		
		(Cases) N =	205		
		mean	64		
		min size (mm)	7		
		max size (mm)	129		

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - SE Sea Lion Rookery

<i>Tethya aurantia</i>		<i>Lithopoma gibberosa</i>		<i>Crassidoma 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	6.3 %	20 - 29	0.0 %	20 - 29	0.0 %
30 - 39	6.3 %	30 - 39	20.0 %	30 - 39	0.0 %
40 - 49	8.8 %	40 - 49	40.0 %	40 - 49	14.3 %
50 - 59	16.3 %	50 - 59	40.0 %	50 - 59	14.3 %
60 - 69	21.3 %	60 - 69	0.0 %	60 - 69	0.0 %
70 - 79	20.0 %	70 - 79	0.0 %	70 - 79	0.0 %
80 - 89	13.8 %	80 - 89	0.0 %	80 - 89	14.3 %
90 - 99	6.3 %	90 - 99	0.0 %	90 - 99	0.0 %
> 99	1.3 %	100 - 109	0.0 %	100 - 109	14.3 %
(Cases) N =	80	110 - 119	0.0 %	110 - 119	0.0 %
mean	64	> 119	0.0 %	120 - 129	28.6 %
min size (mm)	23	(Cases) N =	5	130 - 139	0.0 %
max size (mm)	106	mean	46	> 139	14.3 %
		min size (mm)	30	(Cases) N =	7
		max size (mm)	56	mean	99
				min size (mm)	41
				max size (mm)	158
<i>Kelletia kelletii</i>		<i>Megathura crenulata</i>		<i>Tegula regina</i>	
< 40	0.0 %	<10	0.0 %	< 5	0.0 %
40 - 49	0.0 %	10 - 19	0.0 %	5 - 9	0.0 %
50 - 59	50.0 %	20 - 29	0.0 %	10 - 14	0.0 %
60 - 69	50.0 %	30 - 39	0.0 %	15 - 19	0.0 %
70 - 79	0.0 %	40 - 49	6.3 %	20 - 24	0.0 %
80 - 89	0.0 %	50 - 59	6.3 %	25 - 29	0.0 %
90 - 99	0.0 %	60 - 69	6.3 %	30 - 34	0.0 %
100 - 109	0.0 %	70 - 79	6.3 %	35 - 39	0.0 %
110 - 119	0.0 %	80 - 89	18.8 %	40 - 44	7.0 %
120 - 129	0.0 %	90 - 99	43.8 %	45 - 49	37.2 %
130 - 139	0.0 %	100 - 109	6.3 %	50 - 54	51.2 %
140 - 149	0.0 %	110 - 119	6.3 %	55 - 59	4.7 %
> 149	0.0 %	> 119	0.0 %	60 - 64	0.0 %
(Cases) N =	2	(Cases) N =	16	65 - 69	0.0 %
mean	57	mean	85	70 - 74	0.0 %
min size (mm)	54	min size (mm)	49	> 75	0.0 %
max size (mm)	60	max size (mm)	112	(Cases) N =	43
				mean	50
				min size (mm)	41
				max size (mm)	59
<i>Megastrea undosa</i>					
<10	0.0 %				
10 - 19	0.0 %				
20 - 29	1.1 %				
30 - 39	17.0 %				
40 - 49	28.7 %				
50 - 59	13.8 %				
60 - 69	26.6 %				
70 - 79	9.6 %				
80 - 89	3.2 %				
90 - 99	0.0 %				
100 - 109	0.0 %				
110 - 119	0.0 %				
> 119	0.0 %				
(Cases) N =	94				
mean	53				
min size (mm)	25				
max size (mm)	87				

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - SE Sea Lion Rookery

<i>Patiria miniata</i>		<i>Strongylocentrotus franciscanus</i>	
<10	0.0 %	< 5	0.0 %
10 - 19	1.5 %	5 - 9	1.0 %
20 - 29	3.1 %	10 - 14	3.4 %
30 - 39	12.3 %	15 - 19	13.0 %
40 - 49	6.2 %	20 - 24	15.0 %
50 - 59	23.1 %	25 - 29	15.5 %
60 - 69	16.9 %	30 - 34	16.4 %
70 - 79	23.1 %	35 - 39	21.7 %
80 - 89	7.7 %	40 - 44	10.1 %
90 - 99	3.1 %	45 - 49	3.9 %
> 99	3.1 %	50 - 54	0.0 %
(Cases) N =	65	55 - 59	0.0 %
mean	61	60 - 64	0.0 %
min size (mm)	16	65 - 69	0.0 %
max size (mm)	105	70 - 74	0.0 %
		75 - 79	0.0 %
		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 =	207
		mean	28
		min size (mm)	7
		max size (mm)	48
<i>Pisaster giganteus</i>		<i>Strongylocentrotus purpuratus</i>	
< 20	0.0 %	< 5	1.0 %
20 - 39	0.0 %	5 - 9	13.2 %
40 - 59	0.0 %	10 - 14	11.2 %
60 - 79	9.5 %	15 - 19	43.1 %
80 - 99	38.1 %	20 - 24	24.4 %
100 - 119	28.6 %	25 - 29	5.6 %
120 - 139	19.0 %	30 - 34	1.5 %
140 - 159	4.8 %	35 - 39	0.0 %
160 - 179	0.0 %	40 - 44	0.0 %
180 - 199	0.0 %	45 - 49	0.0 %
200 - 219	0.0 %	50 - 54	0.0 %
220 - 239	0.0 %	55 - 59	0.0 %
> 239	0.0 %	60 - 64	0.0 %
(Cases) N =	21	65 - 69	0.0 %
mean	104	70 - 74	0.0 %
min size (mm)	77	75 - 79	0.0 %
max size (mm)	145	> 79	0.0 %
		(Cases) N =	197
		mean	18
		min size (mm)	4
		max size (mm)	34
<i>Lytechinus anamesus</i>			
< 5	0.0 %		
5 - 9	0.0 %		
10 - 14	21.4 %		
15 - 19	53.6 %		
20 - 24	21.4 %		
25 - 29	3.6 %		
30 - 34	0.0 %		
35 - 39	0.0 %		
40 - 44	0.0 %		
45 - 49	0.0 %		
> 49	0.0 %		
(Cases) N =	56		
mean	18		
min size (mm)	10		
max size (mm)	25		

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Arch Point

<i>Megastraea undosa</i>		<i>Patiria miniata</i>		<i>Strongylocentrotus franciscanus</i>	
<10	0.0 %	<10	0.0 %	< 5	0.0 %
10 - 19	2.1 %	10 - 19	0.0 %	5 - 9	4.1 %
20 - 29	6.3 %	20 - 29	4.8 %	10 - 14	11.7 %
30 - 39	50.0 %	30 - 39	15.9 %	15 - 19	5.6 %
40 - 49	20.8 %	40 - 49	20.6 %	20 - 24	8.7 %
50 - 59	2.1 %	50 - 59	22.2 %	25 - 29	13.3 %
60 - 69	6.3 %	60 - 69	12.7 %	30 - 34	14.8 %
70 - 79	2.1 %	70 - 79	9.5 %	35 - 39	15.3 %
80 - 89	4.2 %	80 - 89	9.5 %	40 - 44	5.1 %
90 - 99	2.1 %	90 - 99	4.8 %	45 - 49	5.6 %
100 - 109	4.2 %	> 99	0.0 %	50 - 54	5.1 %
110 - 119	0.0 %	(Cases) N =	63	55 - 59	1.5 %
> 119	0.0 %	mean	57	60 - 64	2.6 %
(Cases) N =	48	min size (mm)	20	65 - 69	1.0 %
mean	47	max size (mm)	98	70 - 74	1.0 %
min size (mm)	16			75 - 79	1.0 %
max size (mm)	101			80 - 84	2.0 %
<i>Tegula regina</i>		<i>Pisaster giganteus</i>		<i>Strongylocentrotus purpuratus</i>	
< 5	0.0 %	< 20	0.0 %	< 5	43.2 %
5 - 9	0.0 %	20 - 39	0.0 %	5 - 9	17.6 %
10 - 14	0.0 %	40 - 59	0.0 %	10 - 14	8.8 %
15 - 19	0.0 %	60 - 79	9.1 %	15 - 19	10.0 %
20 - 24	0.0 %	80 - 99	9.1 %	20 - 24	10.4 %
25 - 29	1.7 %	100 - 119	31.8 %	25 - 29	5.8 %
30 - 34	5.0 %	120 - 139	18.2 %	30 - 34	3.9 %
35 - 39	10.0 %	140 - 159	31.8 %	35 - 39	0.0 %
40 - 44	45.0 %	160 - 179	0.0 %	40 - 44	0.0 %
45 - 49	30.0 %	180 - 199	0.0 %	45 - 49	0.0 %
50 - 54	8.3 %	200 - 219	0.0 %	50 - 54	0.0 %
55 - 59	0.0 %	220 - 239	0.0 %	55 - 59	0.2 %
60 - 64	0.0 %	> 239	0.0 %	60 - 64	0.0 %
65 - 69	0.0 %	(Cases) N =	22	65 - 69	0.0 %
70 - 74	0.0 %	mean	122	70 - 74	0.0 %
> 75	0.0 %	min size (mm)	64	75 - 79	0.0 %
(Cases) N =	60	max size (mm)	157	> 79	0.0 %
mean	41			(Cases) N =	431
min size (mm)	25			mean	18
max size (mm)	52			min size (mm)	2
<i>Lytechinus anamesus</i>				max size (mm)	57
< 5	0.0 %				
5 - 9	0.0 %				
10 - 14	0.0 %				
15 - 19	0.0 %				
20 - 24	40.0 %				
25 - 29	40.0 %				
30 - 34	20.0 %				
35 - 39	0.0 %				
40 - 44	0.0 %				
45 - 49	0.0 %				
> 49	0.0 %				
(Cases) N =	10				
mean	26				
min size (mm)	20				
max size (mm)	33				

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Cat Canyon

<i>Megastrea undosa</i>		<i>Tegula regina</i>		<i>Pisaster giganteus</i>	
<10	0.0 %	< 5	0.0 %	< 20	0.0 %
10 - 19	1.9 %	5 - 9	0.0 %	20 - 39	0.0 %
20 - 29	3.8 %	10 - 14	0.0 %	40 - 59	2.0 %
30 - 39	5.7 %	15 - 19	0.0 %	60 - 79	8.2 %
40 - 49	39.6 %	20 - 24	0.0 %	80 - 99	26.5 %
50 - 59	18.9 %	25 - 29	0.0 %	100 - 119	53.1 %
60 - 69	9.4 %	30 - 34	0.0 %	120 - 139	10.2 %
70 - 79	7.5 %	35 - 39	6.5 %	140 - 159	0.0 %
80 - 89	5.7 %	40 - 44	6.5 %	160 - 179	0.0 %
90 - 99	5.7 %	45 - 49	41.9 %	180 - 199	0.0 %
100 - 109	1.9 %	50 - 54	40.3 %	200 - 219	0.0 %
110 - 119	0.0 %	55 - 59	4.8 %	220 - 239	0.0 %
> 119	0.0 %	60 - 64	0.0 %	> 239	0.0 %
(Cases) N =	53	65 - 69	0.0 %	(Cases) N =	49
mean	57	70 - 74	0.0 %	mean	100
min size (mm)	16	> 75	0.0 %	min size (mm)	54
max size (mm)	102	(Cases) N =	62	max size (mm)	130
		mean	47		
		min size (mm)	35		
		max size (mm)	56		
<i>Crassedoma giganteum</i>		<i>Patiria miniata</i>		<i>Pycnopodia helianthoides</i>	
<10	0.0 %	<10	0.0 %	< 20	0.0 %
10 - 19	0.0 %	10 - 19	0.0 %	20 - 39	0.0 %
20 - 29	0.0 %	20 - 29	3.7 %	40 - 59	0.0 %
30 - 39	0.0 %	30 - 39	13.0 %	60 - 79	0.0 %
40 - 49	0.0 %	40 - 49	22.2 %	80 - 99	0.0 %
50 - 59	25.0 %	50 - 59	24.1 %	100 - 119	0.0 %
60 - 69	0.0 %	60 - 69	24.1 %	120 - 139	0.0 %
70 - 79	0.0 %	70 - 79	7.4 %	140 - 159	0.0 %
80 - 89	0.0 %	80 - 89	5.6 %	160 - 179	0.0 %
90 - 99	0.0 %	90 - 99	0.0 %	180 - 199	0.0 %
100 - 109	0.0 %	> 99	0.0 %	200 - 219	100.0 %
110 - 119	50.0 %	(Cases) N =	54	220 - 239	0.0 %
120 - 129	0.0 %	mean	54	240 - 259	0.0 %
130 - 139	0.0 %	min size (mm)	27	260 - 279	0.0 %
> 139	25.0 %	max size (mm)	83	280 - 299	0.0 %
(Cases) N =	4			> 299	0.0 %
mean	110			(Cases) N =	1
min size (mm)	58			mean	218
max size (mm)	157			min size (mm)	218
				max size (mm)	218

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Cat Canyon

Strongylocentrotus franciscanus

< 5	0.5 %
5 - 9	2.4 %
10 - 14	2.9 %
15 - 19	2.4 %
20 - 24	4.8 %
25 - 29	15.9 %
30 - 34	41.3 %
35 - 39	19.2 %
40 - 44	8.7 %
45 - 49	1.4 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.5 %
75 - 79	0.0 %
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 =	208
mean	28
min size (mm)	3
max size (mm)	70

Strongylocentrotus purpuratus

< 5	31.0 %
5 - 9	38.7 %
10 - 14	10.0 %
15 - 19	2.3 %
20 - 24	7.3 %
25 - 29	9.2 %
30 - 34	1.1 %
35 - 39	0.0 %
40 - 44	0.4 %
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 =	261
mean	17
min size (mm)	2
max size (mm)	42

Haliotis rufescens

<25	0.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	0.6 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	1.3 %
115 - 124	1.3 %
125 - 134	1.9 %
135 - 144	2.5 %
145 - 154	5.1 %
155 - 164	7.0 %
165 - 174	13.4 %
175 - 184	23.6 %
185 - 194	14.6 %
>195	26.1 %
(Cases) N =	157
mean	177
min size (mm)	83
max size (mm)	242

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	1.0 %
20 - 24	2.0 %
25 - 29	2.0 %
30 - 34	0.0 %
35 - 39	0.5 %
40 - 44	2.0 %
45 - 49	0.5 %
50 - 54	2.5 %
55 - 59	1.0 %
60 - 64	3.0 %
65 - 69	5.5 %
70 - 74	4.0 %
75 - 79	7.0 %
80 - 84	8.0 %
85 - 89	9.5 %
90 - 94	8.5 %
95 - 99	11.1 %
100 - 104	15.6 %
105 - 109	5.0 %
> 109	11.1 %
(Cases) N =	199
mean	82
min size (mm)	18
max size (mm)	127

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Cluster Point

<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	1.6 %	50 - 59	0.0 %	20 - 29	0.0 %
30 - 39	1.6 %	60 - 69	0.0 %	30 - 39	0.0 %
40 - 49	12.7 %	70 - 79	0.0 %	40 - 49	0.0 %
50 - 59	9.5 %	80 - 89	0.0 %	50 - 59	0.0 %
60 - 69	7.9 %	90 - 99	0.0 %	60 - 69	0.0 %
70 - 79	17.5 %	100 - 109	100.0 %	70 - 79	0.0 %
80 - 89	12.7 %	110 - 119	0.0 %	80 - 89	6.7 %
90 - 99	9.5 %	120 - 129	0.0 %	90 - 99	33.3 %
> 99	27.0 %	130 - 139	0.0 %	100 - 109	53.3 %
(Cases) N =	63	140 - 149	0.0 %	110 - 119	6.7 %
mean	78	> 149	0.0 %	> 119	0.0 %
min size (mm)	24	(Cases) N =	2	(Cases) N =	15
max size (mm)	140	mean	109	mean	101
		min size (mm)	108	min size (mm)	84
		max size (mm)	109	max size (mm)	113

<i>Haliotis rufescens</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	0.0 %	20 - 29	0.0 %
45 - 54	0.0 %	30 - 39	0.0 %	30 - 39	8.0 %
55 - 64	0.0 %	40 - 49	0.0 %	40 - 49	32.0 %
65 - 74	0.0 %	50 - 59	0.0 %	50 - 59	20.0 %
75 - 84	0.0 %	60 - 69	0.0 %	60 - 69	20.0 %
85 - 94	0.0 %	70 - 79	0.0 %	70 - 79	12.0 %
95 - 104	0.0 %	80 - 89	0.0 %	80 - 89	0.0 %
105 - 114	0.0 %	90 - 99	0.0 %	90 - 99	0.0 %
115 - 124	0.0 %	100 - 109	0.0 %	100 - 109	4.0 %
125 - 134	0.0 %	110 - 119	0.0 %	110 - 119	0.0 %
135 - 144	0.0 %	> 119	100.0 %	120 - 129	0.0 %
145 - 154	0.0 %	(Cases) N =	1	130 - 139	0.0 %
155 - 164	0.0 %	mean	122	> 139	4.0 %
165 - 174	0.0 %	min size (mm)	122	(Cases) N =	25
175 - 184	0.0 %	max size (mm)	122	mean	60
185 - 194	100.0 %			min size (mm)	37
>195	0.0 %			max size (mm)	150
(Cases) N =	3				
mean	191				
min size (mm)	189				
max size (mm)	193				

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Cluster Point

<i>Patiria miniata</i>		<i>Pycnopodia helianthoides</i>		<i>Strongylocentrotus purpuratus</i>	
<10	0.0 %	< 20	0.0 %	< 5	0.0 %
10 - 19	0.0 %	20 - 39	0.0 %	5 - 9	0.0 %
20 - 29	1.4 %	40 - 59	0.0 %	10 - 14	2.1 %
30 - 39	2.9 %	60 - 79	41.7 %	15 - 19	5.5 %
40 - 49	20.0 %	80 - 99	8.3 %	20 - 24	9.0 %
50 - 59	38.6 %	100 - 119	16.7 %	25 - 29	9.0 %
60 - 69	17.1 %	120 - 139	0.0 %	30 - 34	10.3 %
70 - 79	17.1 %	140 - 159	8.3 %	35 - 39	9.7 %
80 - 89	2.9 %	160 - 179	8.3 %	40 - 44	13.1 %
90 - 99	0.0 %	180 - 199	8.3 %	45 - 49	11.7 %
> 99	0.0 %	200 - 219	8.3 %	50 - 54	11.0 %
(Cases) N =	70	220 - 239	0.0 %	55 - 59	9.7 %
mean	58	240 - 259	0.0 %	60 - 64	6.9 %
min size (mm)	24	260 - 279	0.0 %	65 - 69	0.7 %
max size (mm)	88	280 - 299	0.0 %	70 - 74	1.4 %
		> 299	0.0 %	75 - 79	0.0 %
		(Cases) N =	12	> 79	0.0 %
		mean	110	(Cases) N =	145
		min size (mm)	62	mean	40
		max size (mm)	200	min size (mm)	13
				max size (mm)	70
<i>Pisaster giganteus</i>		<i>Strongylocentrotus franciscanus</i>			
< 20	0.0 %	< 5	0.0 %		
20 - 39	0.0 %	5 - 9	0.0 %		
40 - 59	9.8 %	10 - 14	3.2 %		
60 - 79	34.4 %	15 - 19	5.9 %		
80 - 99	37.7 %	20 - 24	4.1 %		
100 - 119	13.1 %	25 - 29	1.8 %		
120 - 139	0.0 %	30 - 34	1.8 %		
140 - 159	3.3 %	35 - 39	5.0 %		
160 - 179	1.6 %	40 - 44	3.6 %		
180 - 199	0.0 %	45 - 49	4.5 %		
200 - 219	0.0 %	50 - 54	4.1 %		
220 - 239	0.0 %	55 - 59	4.1 %		
> 239	0.0 %	60 - 64	5.0 %		
(Cases) N =	61	65 - 69	1.8 %		
mean	85	70 - 74	3.6 %		
min size (mm)	49	75 - 79	3.2 %		
max size (mm)	178	80 - 84	3.6 %		
		85 - 89	4.1 %		
		90 - 94	4.1 %		
		95 - 99	8.2 %		
		100 - 104	8.2 %		
		105 - 109	10.0 %		
		> 109	10.0 %		
		(Cases) N =	220		
		mean	72		
		min size (mm)	11		
		max size (mm)	129		

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Trancion Canyon

<i>Tethya aurantia</i>		<i>Crassedoma giganteum</i>		<i>Pisaster giganteus</i>	
<10	0.0 %	<10	0.0 %	< 20	0.0 %
10 - 19	0.0 %	10 - 19	0.0 %	20 - 39	0.0 %
20 - 29	0.0 %	20 - 29	0.0 %	40 - 59	1.9 %
30 - 39	5.0 %	30 - 39	5.0 %	60 - 79	52.8 %
40 - 49	3.3 %	40 - 49	25.0 %	80 - 99	37.7 %
50 - 59	8.3 %	50 - 59	10.0 %	100 - 119	7.5 %
60 - 69	3.3 %	60 - 69	10.0 %	120 - 139	0.0 %
70 - 79	20.0 %	70 - 79	15.0 %	140 - 159	0.0 %
80 - 89	16.7 %	80 - 89	10.0 %	160 - 179	0.0 %
90 - 99	13.3 %	90 - 99	5.0 %	180 - 199	0.0 %
> 99	30.0 %	100 - 109	10.0 %	200 - 219	0.0 %
(Cases) N =	60	110 - 119	5.0 %	220 - 239	0.0 %
mean	82	120 - 129	0.0 %	> 239	0.0 %
min size (mm)	35	130 - 139	5.0 %	(Cases) N =	53
max size (mm)	128	> 139	0.0 %	mean	82
		(Cases) N =	20	min size (mm)	51
		mean	72	max size (mm)	114
		min size (mm)	38		
		max size (mm)	133		
<i>Megathura crenulata</i>		<i>Patiria miniata</i>		<i>Pycnopodia helianthoides</i>	
<10	0.0 %	<10	0.0 %	< 20	0.0 %
10 - 19	0.0 %	10 - 19	0.0 %	20 - 39	0.0 %
20 - 29	0.0 %	20 - 29	0.0 %	40 - 59	0.0 %
30 - 39	0.0 %	30 - 39	1.7 %	60 - 79	0.0 %
40 - 49	0.0 %	40 - 49	6.7 %	80 - 99	25.0 %
50 - 59	4.0 %	50 - 59	20.0 %	100 - 119	0.0 %
60 - 69	0.0 %	60 - 69	38.3 %	120 - 139	0.0 %
70 - 79	0.0 %	70 - 79	25.0 %	140 - 159	25.0 %
80 - 89	4.0 %	80 - 89	6.7 %	160 - 179	50.0 %
90 - 99	28.0 %	90 - 99	1.7 %	180 - 199	0.0 %
100 - 109	56.0 %	> 99	0.0 %	200 - 219	0.0 %
110 - 119	8.0 %	(Cases) N =	60	220 - 239	0.0 %
> 119	0.0 %	mean	66	240 - 259	0.0 %
(Cases) N =	25	min size (mm)	39	260 - 279	0.0 %
mean	100	max size (mm)	92	280 - 299	0.0 %
min size (mm)	53			> 299	0.0 %
max size (mm)	114			(Cases) N =	4
				mean	141
				min size (mm)	80
				max size (mm)	170

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Trancion Canyon

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	2.4 %
15 - 19	4.8 %
20 - 24	5.3 %
25 - 29	8.1 %
30 - 34	3.8 %
35 - 39	2.4 %
40 - 44	1.4 %
45 - 49	2.4 %
50 - 54	2.9 %
55 - 59	1.9 %
60 - 64	2.4 %
65 - 69	4.3 %
70 - 74	4.3 %
75 - 79	2.9 %
80 - 84	6.2 %
85 - 89	4.3 %
90 - 94	7.7 %
95 - 99	6.7 %
100 - 104	4.8 %
105 - 109	8.6 %
> 109	12.4 %
(Cases) N =	209
mean	68
min size (mm)	11
max size (mm)	132

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	1.0 %
10 - 14	2.1 %
15 - 19	7.9 %
20 - 24	7.3 %
25 - 29	11.0 %
30 - 34	10.5 %
35 - 39	19.9 %
40 - 44	18.8 %
45 - 49	9.9 %
50 - 54	8.4 %
55 - 59	1.6 %
60 - 64	1.0 %
65 - 69	0.5 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	191
mean	35
min size (mm)	5
max size (mm)	66

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	1.7 %
30 - 39	1.7 %
40 - 49	6.9 %
50 - 59	5.2 %
60 - 69	22.4 %
70 - 79	22.4 %
80 - 89	15.5 %
90 - 99	12.1 %
> 99	12.1 %
(Cases) N =	58
mean	76
min size (mm)	28
max size (mm)	127

Haliotis rufescens

<25	0.0 %
25 - 34	0.0 %
35 - 44	2.4 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	2.4 %
75 - 84	0.0 %
85 - 94	2.4 %
95 - 104	0.0 %
105 - 114	2.4 %
115 - 124	4.9 %
125 - 134	4.9 %
135 - 144	2.4 %
145 - 154	2.4 %
155 - 164	9.8 %
165 - 174	9.8 %
175 - 184	4.9 %
185 - 194	9.8 %
>195	34.1 %
(Cases) N =	41
mean	168
min size (mm)	36
max size (mm)	223

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Chickasaw

<i>Megathura crenulata</i>		<i>Patiria miniata</i>		<i>Pycnopodia helianthoides</i>	
<10	0.0 %	<10	0.0 %	< 20	0.0 %
10 - 19	0.0 %	10 - 19	0.0 %	20 - 39	0.0 %
20 - 29	0.0 %	20 - 29	2.1 %	40 - 59	25.0 %
30 - 39	0.0 %	30 - 39	3.2 %	60 - 79	12.5 %
40 - 49	0.0 %	40 - 49	6.4 %	80 - 99	0.0 %
50 - 59	0.0 %	50 - 59	11.7 %	100 - 119	12.5 %
60 - 69	0.0 %	60 - 69	34.0 %	120 - 139	0.0 %
70 - 79	0.0 %	70 - 79	31.9 %	140 - 159	0.0 %
80 - 89	0.0 %	80 - 89	10.6 %	160 - 179	0.0 %
90 - 99	16.7 %	90 - 99	0.0 %	180 - 199	0.0 %
100 - 109	16.7 %	> 99	0.0 %	200 - 219	0.0 %
110 - 119	50.0 %	(Cases) N =	94	220 - 239	25.0 %
> 119	16.7 %	mean	62	240 - 259	25.0 %
(Cases) N =	6	min size (mm)	20	260 - 279	0.0 %
mean	112	max size (mm)	87	280 - 299	0.0 %
min size (mm)	98			> 299	0.0 %
max size (mm)	122			(Cases) N =	8
				mean	151
				min size (mm)	50
				max size (mm)	240
<i>Crassedoma giganteum</i>		<i>Pisaster giganteus</i>		<i>Strongylocentrotus franciscanus</i>	
<10	0.0 %	< 20	0.0 %	< 5	0.0 %
10 - 19	6.3 %	20 - 39	1.7 %	5 - 9	0.0 %
20 - 29	18.8 %	40 - 59	11.7 %	10 - 14	1.5 %
30 - 39	25.0 %	60 - 79	23.3 %	15 - 19	3.0 %
40 - 49	18.8 %	80 - 99	31.7 %	20 - 24	4.5 %
50 - 59	12.5 %	100 - 119	16.7 %	25 - 29	3.0 %
60 - 69	6.3 %	120 - 139	6.7 %	30 - 34	2.0 %
70 - 79	6.3 %	140 - 159	5.0 %	35 - 39	1.0 %
80 - 89	6.3 %	160 - 179	1.7 %	40 - 44	2.5 %
90 - 99	0.0 %	180 - 199	1.7 %	45 - 49	3.0 %
100 - 109	0.0 %	200 - 219	0.0 %	50 - 54	1.0 %
110 - 119	0.0 %	220 - 239	0.0 %	55 - 59	3.0 %
120 - 129	0.0 %	> 239	0.0 %	60 - 64	5.0 %
130 - 139	0.0 %	(Cases) N =	60	65 - 69	2.5 %
> 139	0.0 %	mean	93	70 - 74	4.5 %
(Cases) N =	16	min size (mm)	32	75 - 79	1.5 %
mean	43	max size (mm)	190	80 - 84	5.5 %
min size (mm)	12			85 - 89	8.5 %
max size (mm)	89			90 - 94	7.5 %
				95 - 99	2.5 %
				100 - 104	5.0 %
				105 - 109	6.0 %
				> 109	27.4 %
				(Cases) N =	201
				mean	80
				min size (mm)	12
				max size (mm)	135

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Chickasaw

<i>Strongylocentrotus purpuratus</i>		<i>Tethya aurantia</i>	
< 5	0.0 %	<10	0.0 %
5 - 9	1.2 %	10 - 19	0.0 %
10 - 14	5.6 %	20 - 29	0.0 %
15 - 19	9.3 %	30 - 39	1.4 %
20 - 24	13.0 %	40 - 49	7.2 %
25 - 29	10.5 %	50 - 59	10.1 %
30 - 34	12.3 %	60 - 69	11.6 %
35 - 39	10.5 %	70 - 79	17.4 %
40 - 44	11.7 %	80 - 89	11.6 %
45 - 49	11.1 %	90 - 99	15.9 %
50 - 54	8.0 %	> 99	24.6 %
55 - 59	2.5 %	(Cases) N =	69
60 - 64	2.5 %	mean	83
65 - 69	1.9 %	min size (mm)	38
70 - 74	0.0 %	max size (mm)	125
75 - 79	0.0 %		
> 79	0.0 %		
(Cases) N =	162		
mean	35		
min size (mm)	7		
max size (mm)	68		
		<i>Haliotis rufescens</i>	
		<25	0.0 %
		25 - 34	0.0 %
		35 - 44	0.0 %
		45 - 54	0.0 %
		55 - 64	1.2 %
		65 - 74	0.0 %
		75 - 84	0.0 %
		85 - 94	1.2 %
		95 - 104	0.0 %
		105 - 114	1.2 %
		115 - 124	1.2 %
		125 - 134	0.0 %
		135 - 144	1.2 %
		145 - 154	1.2 %
		155 - 164	10.5 %
		165 - 174	18.6 %
		175 - 184	25.6 %
		185 - 194	19.8 %
		>195	16.3 %
		(Cases) N =	86
		mean	175
		min size (mm)	60
		max size (mm)	222

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - South Point

<i>Kelletia kelletii</i>		<i>Crassedoma giganteum</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	6.6 %
60 - 69	0.0 %	30 - 39	0.0 %	60 - 79	16.4 %
70 - 79	0.0 %	40 - 49	0.0 %	80 - 99	41.0 %
80 - 89	0.0 %	50 - 59	20.0 %	100 - 119	24.6 %
90 - 99	0.0 %	60 - 69	20.0 %	120 - 139	8.2 %
100 - 109	50.0 %	70 - 79	40.0 %	140 - 159	0.0 %
110 - 119	50.0 %	80 - 89	0.0 %	160 - 179	3.3 %
120 - 129	0.0 %	90 - 99	0.0 %	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	20.0 %	> 239	0.0 %
(Cases) N =	2	130 - 139	0.0 %	(Cases) N =	61
mean	110	> 139	0.0 %	mean	94
min size (mm)	108	(Cases) N =	5	min size (mm)	50
max size (mm)	112	mean	77	max size (mm)	176
		min size (mm)	52		
		max size (mm)	121		
<i>Megathura crenulata</i>		<i>Patiria miniata</i>		<i>Pycnopodia helianthoides</i>	
<10	0.0 %	<10	0.0 %	< 20	0.0 %
10 - 19	0.0 %	10 - 19	0.0 %	20 - 39	0.0 %
20 - 29	0.0 %	20 - 29	1.6 %	40 - 59	0.0 %
30 - 39	0.0 %	30 - 39	3.3 %	60 - 79	0.0 %
40 - 49	0.0 %	40 - 49	13.1 %	80 - 99	0.0 %
50 - 59	0.0 %	50 - 59	13.1 %	100 - 119	0.0 %
60 - 69	0.0 %	60 - 69	23.0 %	120 - 139	0.0 %
70 - 79	0.0 %	70 - 79	32.8 %	140 - 159	0.0 %
80 - 89	0.0 %	80 - 89	13.1 %	160 - 179	33.3 %
90 - 99	50.0 %	90 - 99	0.0 %	180 - 199	16.7 %
100 - 109	0.0 %	> 99	0.0 %	200 - 219	33.3 %
110 - 119	50.0 %	(Cases) N =	61	220 - 239	16.7 %
> 119	0.0 %	mean	64	240 - 259	0.0 %
(Cases) N =	6	min size (mm)	25	260 - 279	0.0 %
mean	105	max size (mm)	85	280 - 299	0.0 %
min size (mm)	95			> 299	0.0 %
max size (mm)	116			(Cases) N =	6
				mean	194
				min size (mm)	170
				max size (mm)	220

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - South Point

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	2.6 %
15 - 19	4.6 %
20 - 24	6.7 %
25 - 29	3.1 %
30 - 34	3.1 %
35 - 39	1.5 %
40 - 44	2.6 %
45 - 49	3.6 %
50 - 54	3.6 %
55 - 59	2.6 %
60 - 64	1.5 %
65 - 69	0.5 %
70 - 74	2.6 %
75 - 79	3.1 %
80 - 84	3.6 %
85 - 89	2.6 %
90 - 94	3.6 %
95 - 99	1.5 %
100 - 104	7.2 %
105 - 109	8.2 %
> 109	31.8 %
(Cases) N =	195
mean	76
min size (mm)	11
max size (mm)	140

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	1.0 %
10 - 14	2.4 %
15 - 19	11.7 %
20 - 24	15.0 %
25 - 29	19.4 %
30 - 34	11.7 %
35 - 39	12.1 %
40 - 44	10.2 %
45 - 49	9.7 %
50 - 54	3.9 %
55 - 59	1.5 %
60 - 64	1.0 %
65 - 69	0.5 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	206
mean	33
min size (mm)	6
max size (mm)	67

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	13.6 %
30 - 39	31.8 %
40 - 49	27.3 %
50 - 59	13.6 %
60 - 69	0.0 %
70 - 79	9.1 %
80 - 89	4.5 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	22
mean	45
min size (mm)	22
max size (mm)	87

Kelletia kelletii

< 40	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	20.0 %
120 - 129	40.0 %
130 - 139	40.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	5
mean	128
min size (mm)	119
max size (mm)	135

Megastrea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	4.5 %
60 - 69	4.5 %
70 - 79	22.7 %
80 - 89	13.6 %
90 - 99	27.3 %
100 - 109	22.7 %
110 - 119	4.5 %
> 119	0.0 %
(Cases) N =	22
mean	89
min size (mm)	54
max size (mm)	111

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Devil's Peak Member

<i>Megathura crenulata</i>		<i>Tegula regina</i>		<i>Pisaster giganteus</i>	
<10	0.0 %	< 5	0.0 %	< 20	0.0 %
10 - 19	0.0 %	5 - 9	0.0 %	20 - 39	0.0 %
20 - 29	0.0 %	10 - 14	0.0 %	40 - 59	1.8 %
30 - 39	0.0 %	15 - 19	0.0 %	60 - 79	14.3 %
40 - 49	0.0 %	20 - 24	0.0 %	80 - 99	33.9 %
50 - 59	3.4 %	25 - 29	0.0 %	100 - 119	25.0 %
60 - 69	13.8 %	30 - 34	0.0 %	120 - 139	12.5 %
70 - 79	29.3 %	35 - 39	0.0 %	140 - 159	3.6 %
80 - 89	39.7 %	40 - 44	0.0 %	160 - 179	3.6 %
90 - 99	13.8 %	45 - 49	12.5 %	180 - 199	0.0 %
100 - 109	0.0 %	50 - 54	43.8 %	200 - 219	3.6 %
110 - 119	0.0 %	55 - 59	37.5 %	220 - 239	0.0 %
> 119	0.0 %	60 - 64	6.3 %	> 239	1.8 %
(Cases) N =	58	65 - 69	0.0 %	(Cases) N =	56
mean	79	70 - 74	0.0 %	mean	113
min size (mm)	54	> 75	0.0 %	min size (mm)	59
max size (mm)	98	(Cases) N =	16	max size (mm)	243
		mean	54		
		min size (mm)	48		
		max size (mm)	60		
<i>Crassidoma giganteum</i>		<i>Patiria miniata</i>		<i>Pycnopodia helianthoides</i>	
<10	0.0 %	<10	0.0 %	< 20	0.0 %
10 - 19	0.0 %	10 - 19	0.0 %	20 - 39	0.0 %
20 - 29	0.0 %	20 - 29	1.7 %	40 - 59	0.0 %
30 - 39	0.0 %	30 - 39	5.0 %	60 - 79	0.0 %
40 - 49	5.5 %	40 - 49	11.7 %	80 - 99	0.0 %
50 - 59	14.5 %	50 - 59	30.0 %	100 - 119	0.0 %
60 - 69	12.7 %	60 - 69	36.7 %	120 - 139	0.0 %
70 - 79	3.6 %	70 - 79	8.3 %	140 - 159	50.0 %
80 - 89	12.7 %	80 - 89	6.7 %	160 - 179	50.0 %
90 - 99	12.7 %	90 - 99	0.0 %	180 - 199	0.0 %
100 - 109	9.1 %	> 99	0.0 %	200 - 219	0.0 %
110 - 119	14.5 %	(Cases) N =	60	220 - 239	0.0 %
120 - 129	9.1 %	mean	59	240 - 259	0.0 %
130 - 139	3.6 %	min size (mm)	29	260 - 279	0.0 %
> 139	1.8 %	max size (mm)	83	280 - 299	0.0 %
(Cases) N =	55			> 299	0.0 %
mean	88			(Cases) N =	2
min size (mm)	40			mean	163
max size (mm)	140			min size (mm)	159
				max size (mm)	167

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Devil's Peak Member

<i>Strongylocentrotus franciscanus</i>		<i>Tethya aurantia</i>	
< 5	0.0 %	<10	0.0 %
5 - 9	0.0 %	10 - 19	0.0 %
10 - 14	1.7 %	20 - 29	22.7 %
15 - 19	7.6 %	30 - 39	27.3 %
20 - 24	3.5 %	40 - 49	13.6 %
25 - 29	1.7 %	50 - 59	13.6 %
30 - 34	4.7 %	60 - 69	13.6 %
35 - 39	15.7 %	70 - 79	4.5 %
40 - 44	16.3 %	80 - 89	4.5 %
45 - 49	20.3 %	90 - 99	0.0 %
50 - 54	12.2 %	> 99	0.0 %
55 - 59	9.3 %	(Cases) N =	22
60 - 64	5.2 %	mean	45
65 - 69	1.2 %	min size (mm)	24
70 - 74	0.6 %	max size (mm)	82
75 - 79	0.0 %		
80 - 84	0.0 %		
85 - 89	0.0 %	<i>Kelletia kelletii</i>	
90 - 94	0.0 %	< 40	0.0 %
95 - 99	0.0 %	40 - 49	0.0 %
100 - 104	0.0 %	50 - 59	5.6 %
105 - 109	0.0 %	60 - 69	22.2 %
> 109	0.0 %	70 - 79	5.6 %
(Cases) N =	172	80 - 89	5.6 %
mean	41	90 - 99	5.6 %
min size (mm)	13	100 - 109	11.1 %
max size (mm)	70	110 - 119	22.2 %
		120 - 129	11.1 %
		130 - 139	11.1 %
		140 - 149	0.0 %
		> 149	0.0 %
		(Cases) N =	18
		mean	99
		min size (mm)	55
		max size (mm)	136
<i>Strongylocentrotus purpuratus</i>			
< 5	0.0 %	<i>Megastrea undosa</i>	
5 - 9	0.0 %	<10	0.0 %
10 - 14	0.4 %	10 - 19	0.0 %
15 - 19	0.9 %	20 - 29	2.1 %
20 - 24	2.7 %	30 - 39	12.8 %
25 - 29	17.8 %	40 - 49	10.6 %
30 - 34	45.8 %	50 - 59	6.4 %
35 - 39	22.2 %	60 - 69	36.2 %
40 - 44	10.2 %	70 - 79	25.5 %
45 - 49	0.0 %	80 - 89	6.4 %
50 - 54	0.0 %	90 - 99	0.0 %
55 - 59	0.0 %	100 - 109	0.0 %
60 - 64	0.0 %	110 - 119	0.0 %
65 - 69	0.0 %	> 119	0.0 %
70 - 74	0.0 %	(Cases) N =	47
75 - 79	0.0 %	mean	59
> 79	0.0 %	min size (mm)	25
(Cases) N =	225	max size (mm)	85
mean	31		
min size (mm)	14		
max size (mm)	44		

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Potato Pasture

<i>Lithopoma gibberosa</i>		<i>Crassidoma giganteum</i>		<i>Patiria miniata</i>	
<10	0.0 %	<10	0.0 %	<10	0.0 %
10 - 19	0.0 %	10 - 19	0.0 %	10 - 19	3.6 %
20 - 29	0.0 %	20 - 29	1.7 %	20 - 29	3.6 %
30 - 39	100.0 %	30 - 39	3.4 %	30 - 39	17.9 %
40 - 49	0.0 %	40 - 49	8.6 %	40 - 49	16.1 %
50 - 59	0.0 %	50 - 59	6.9 %	50 - 59	32.1 %
60 - 69	0.0 %	60 - 69	8.6 %	60 - 69	16.1 %
70 - 79	0.0 %	70 - 79	3.4 %	70 - 79	10.7 %
80 - 89	0.0 %	80 - 89	0.0 %	80 - 89	0.0 %
90 - 99	0.0 %	90 - 99	10.3 %	90 - 99	0.0 %
100 - 109	0.0 %	100 - 109	12.1 %	> 99	0.0 %
110 - 119	0.0 %	110 - 119	12.1 %	(Cases) N =	56
> 119	0.0 %	120 - 129	10.3 %	mean	48
(Cases) N =	1	130 - 139	13.8 %	min size (mm)	14
mean	31	> 139	8.6 %	max size (mm)	78
min size (mm)	31	(Cases) N =	58		
max size (mm)	31	mean	98		
		min size (mm)	29		
		max size (mm)	192		
<i>Megathura crenulata</i>		<i>Tegula regina</i>		<i>Pisaster giganteus</i>	
<10	0.0 %	< 5	0.0 %	< 20	0.0 %
10 - 19	0.0 %	5 - 9	0.0 %	20 - 39	0.0 %
20 - 29	0.0 %	10 - 14	0.0 %	40 - 59	0.0 %
30 - 39	0.0 %	15 - 19	0.0 %	60 - 79	0.0 %
40 - 49	5.5 %	20 - 24	0.0 %	80 - 99	2.2 %
50 - 59	14.5 %	25 - 29	0.0 %	100 - 119	6.7 %
60 - 69	23.6 %	30 - 34	0.0 %	120 - 139	13.3 %
70 - 79	14.5 %	35 - 39	0.0 %	140 - 159	20.0 %
80 - 89	23.6 %	40 - 44	0.0 %	160 - 179	20.0 %
90 - 99	16.4 %	45 - 49	23.1 %	180 - 199	11.1 %
100 - 109	1.8 %	50 - 54	53.8 %	200 - 219	8.9 %
110 - 119	0.0 %	55 - 59	23.1 %	220 - 239	4.4 %
> 119	0.0 %	60 - 64	0.0 %	> 239	13.3 %
(Cases) N =	55	65 - 69	0.0 %	(Cases) N =	45
mean	74	70 - 74	0.0 %	mean	175
min size (mm)	41	> 75	0.0 %	min size (mm)	99
max size (mm)	102	(Cases) N =	13	max size (mm)	285
		mean	52		
		min size (mm)	47		
		max size (mm)	57		
				<i>Lytechinus anamesus</i>	
				< 5	0.0 %
				5 - 9	0.0 %
				10 - 14	12.6 %
				15 - 19	28.7 %
				20 - 24	46.2 %
				25 - 29	12.6 %
				30 - 34	0.0 %
				35 - 39	0.0 %
				40 - 44	0.0 %
				45 - 49	0.0 %
				> 49	0.0 %
				(Cases) N =	223
				mean	20
				min size (mm)	11
				max size (mm)	28

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Potato Pasture

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	2.9 %
15 - 19	2.4 %
20 - 24	3.4 %
25 - 29	7.8 %
30 - 34	8.8 %
35 - 39	11.2 %
40 - 44	17.1 %
45 - 49	18.5 %
50 - 54	20.5 %
55 - 59	6.8 %
60 - 64	0.5 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
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 =	205
mean	37
min size (mm)	10
max size (mm)	60

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	12.0 %
10 - 14	15.7 %
15 - 19	9.3 %
20 - 24	16.7 %
25 - 29	27.8 %
30 - 34	13.4 %
35 - 39	4.6 %
40 - 44	0.0 %
45 - 49	0.0 %
50 - 54	0.5 %
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 =	216
mean	22
min size (mm)	5
max size (mm)	52

Tethya aurantia

<10	0.0 %
10 - 19	5.0 %
20 - 29	13.3 %
30 - 39	16.7 %
40 - 49	21.7 %
50 - 59	15.0 %
60 - 69	18.3 %
70 - 79	6.7 %
80 - 89	1.7 %
90 - 99	1.7 %
> 99	0.0 %
(Cases) N =	60
mean	49
min size (mm)	11
max size (mm)	90

Megastrea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	5.9 %
40 - 49	33.3 %
50 - 59	13.7 %
60 - 69	5.9 %
70 - 79	21.6 %
80 - 89	13.7 %
90 - 99	3.9 %
100 - 109	2.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	51
mean	63
min size (mm)	35
max size (mm)	104

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	1.6 %
50 - 59	7.9 %
60 - 69	14.3 %
70 - 79	23.8 %
80 - 89	28.6 %
90 - 99	19.0 %
100 - 109	3.2 %
110 - 119	1.6 %
> 119	0.0 %
(Cases) N =	63
mean	78
min size (mm)	49
max size (mm)	111

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Cavern Point

<i>Crassedoma giganteum</i>		<i>Patiria miniata</i>		<i>Pycnopodia helianthoides</i>	
<10	0.0 %	<10	0.0 %	< 20	0.0 %
10 - 19	0.0 %	10 - 19	0.0 %	20 - 39	0.0 %
20 - 29	1.4 %	20 - 29	0.0 %	40 - 59	0.0 %
30 - 39	5.5 %	30 - 39	3.4 %	60 - 79	0.0 %
40 - 49	12.3 %	40 - 49	8.6 %	80 - 99	0.0 %
50 - 59	11.0 %	50 - 59	20.7 %	100 - 119	0.0 %
60 - 69	4.1 %	60 - 69	36.2 %	120 - 139	0.0 %
70 - 79	12.3 %	70 - 79	22.4 %	140 - 159	0.0 %
80 - 89	5.5 %	80 - 89	6.9 %	160 - 179	0.0 %
90 - 99	6.8 %	90 - 99	1.7 %	180 - 199	0.0 %
100 - 109	6.8 %	> 99	0.0 %	200 - 219	50.0 %
110 - 119	15.1 %	(Cases) N =	58	220 - 239	0.0 %
120 - 129	9.6 %	mean	63	240 - 259	0.0 %
130 - 139	5.5 %	min size (mm)	32	260 - 279	50.0 %
> 139	4.1 %	max size (mm)	90	280 - 299	0.0 %
(Cases) N =	73			> 299	0.0 %
mean	87			(Cases) N =	2
min size (mm)	29			mean	242
max size (mm)	155			min size (mm)	205
				max size (mm)	278
<i>Tegula regina</i>		<i>Pisaster giganteus</i>		<i>Lytechinus anamesus</i>	
< 5	0.0 %	< 20	0.0 %	< 5	0.0 %
5 - 9	0.0 %	20 - 39	0.0 %	5 - 9	0.0 %
10 - 14	0.0 %	40 - 59	0.0 %	10 - 14	50.0 %
15 - 19	0.0 %	60 - 79	2.4 %	15 - 19	50.0 %
20 - 24	0.0 %	80 - 99	4.9 %	20 - 24	0.0 %
25 - 29	0.0 %	100 - 119	4.9 %	25 - 29	0.0 %
30 - 34	0.0 %	120 - 139	17.1 %	30 - 34	0.0 %
35 - 39	0.0 %	140 - 159	29.3 %	35 - 39	0.0 %
40 - 44	0.0 %	160 - 179	17.1 %	40 - 44	0.0 %
45 - 49	0.0 %	180 - 199	9.8 %	45 - 49	0.0 %
50 - 54	63.6 %	200 - 219	7.3 %	> 49	0.0 %
55 - 59	36.4 %	220 - 239	0.0 %	(Cases) N =	2
60 - 64	0.0 %	> 239	7.3 %	mean	16
65 - 69	0.0 %	(Cases) N =	41	min size (mm)	14
70 - 74	0.0 %	mean	160	max size (mm)	18
> 75	0.0 %	min size (mm)	63		
(Cases) N =	11	max size (mm)	300		
mean	55				
min size (mm)	52				
max size (mm)	57				

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Cavern Point

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	2.0 %
10 - 14	2.5 %
15 - 19	2.5 %
20 - 24	1.5 %
25 - 29	1.5 %
30 - 34	1.5 %
35 - 39	1.0 %
40 - 44	15.3 %
45 - 49	26.7 %
50 - 54	26.7 %
55 - 59	12.4 %
60 - 64	3.5 %
65 - 69	1.5 %
70 - 74	1.0 %
75 - 79	0.5 %
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 =	202
mean	43
min size (mm)	6
max size (mm)	78

Strongylocentrotus purpuratus

< 5	1.3 %
5 - 9	11.5 %
10 - 14	9.0 %
15 - 19	3.0 %
20 - 24	3.0 %
25 - 29	22.2 %
30 - 34	35.5 %
35 - 39	11.5 %
40 - 44	1.7 %
45 - 49	1.3 %
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 =	234
mean	24
min size (mm)	4
max size (mm)	48

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	15.0 %
30 - 39	20.0 %
40 - 49	30.0 %
50 - 59	5.0 %
60 - 69	25.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	5.0 %
> 99	0.0 %
(Cases) N =	20
mean	48
min size (mm)	21
max size (mm)	93

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	27.3 %
100 - 109	18.2 %
110 - 119	18.2 %
120 - 129	36.4 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	11
mean	108
min size (mm)	94
max size (mm)	123

Megastrea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	1.6 %
30 - 39	17.5 %
40 - 49	27.0 %
50 - 59	9.5 %
60 - 69	9.5 %
70 - 79	11.1 %
80 - 89	14.3 %
90 - 99	3.2 %
100 - 109	4.8 %
110 - 119	1.6 %
> 119	0.0 %
(Cases) N =	63
mean	63
min size (mm)	23
max size (mm)	111

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Little Scorpion

<i>Lithopoma gibberosa</i>		<i>Crassidoma giganteum</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	1.6 %
30 - 39	0.0 %	30 - 39	0.0 %	30 - 39	8.2 %
40 - 49	100.0 %	40 - 49	14.3 %	40 - 49	9.8 %
50 - 59	0.0 %	50 - 59	23.8 %	50 - 59	21.3 %
60 - 69	0.0 %	60 - 69	14.3 %	60 - 69	27.9 %
70 - 79	0.0 %	70 - 79	14.3 %	70 - 79	19.7 %
80 - 89	0.0 %	80 - 89	4.8 %	80 - 89	9.8 %
90 - 99	0.0 %	90 - 99	4.8 %	90 - 99	1.6 %
100 - 109	0.0 %	100 - 109	0.0 %	> 99	0.0 %
110 - 119	0.0 %	110 - 119	4.8 %	(Cases) N =	61
> 119	0.0 %	120 - 129	9.5 %	mean	62
(Cases) N =	1	130 - 139	9.5 %	min size (mm)	28
mean	45	> 139	0.0 %	max size (mm)	92
min size (mm)	45	(Cases) N =	21		
max size (mm)	45	mean	79		
		min size (mm)	40		
		max size (mm)	134		
<i>Megathura crenulata</i>		<i>Tegula regina</i>		<i>Pisaster giganteus</i>	
<10	0.0 %	< 5	0.0 %	< 20	0.0 %
10 - 19	0.0 %	5 - 9	0.0 %	20 - 39	0.0 %
20 - 29	0.0 %	10 - 14	0.0 %	40 - 59	0.0 %
30 - 39	0.0 %	15 - 19	0.0 %	60 - 79	0.0 %
40 - 49	1.6 %	20 - 24	0.0 %	80 - 99	0.0 %
50 - 59	4.7 %	25 - 29	0.0 %	100 - 119	5.0 %
60 - 69	20.3 %	30 - 34	0.0 %	120 - 139	8.3 %
70 - 79	35.9 %	35 - 39	0.0 %	140 - 159	8.3 %
80 - 89	20.3 %	40 - 44	0.0 %	160 - 179	18.3 %
90 - 99	14.1 %	45 - 49	9.7 %	180 - 199	16.7 %
100 - 109	3.1 %	50 - 54	64.5 %	200 - 219	21.7 %
110 - 119	0.0 %	55 - 59	25.8 %	220 - 239	8.3 %
> 119	0.0 %	60 - 64	0.0 %	> 239	13.3 %
(Cases) N =	64	65 - 69	0.0 %	(Cases) N =	60
mean	76	70 - 74	0.0 %	mean	190
min size (mm)	46	> 75	0.0 %	min size (mm)	102
max size (mm)	104	(Cases) N =	31	max size (mm)	277
		mean	52		
		min size (mm)	46		
		max size (mm)	56		
		<i>Lytechinus anamesus</i>			
		< 5	0.0 %		
		5 - 9	0.0 %		
		10 - 14	2.4 %		
		15 - 19	0.0 %		
		20 - 24	43.9 %		
		25 - 29	48.8 %		
		30 - 34	4.9 %		
		35 - 39	0.0 %		
		40 - 44	0.0 %		
		45 - 49	0.0 %		
		> 49	0.0 %		
		(Cases) N =	41		
		mean	24		
		min size (mm)	13		
		max size (mm)	32		

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Little Scorpion

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	7.6 %
20 - 24	3.2 %
25 - 29	2.7 %
30 - 34	1.6 %
35 - 39	7.6 %
40 - 44	3.8 %
45 - 49	8.6 %
50 - 54	14.1 %
55 - 59	15.7 %
60 - 64	10.8 %
65 - 69	5.4 %
70 - 74	6.5 %
75 - 79	5.9 %
80 - 84	3.2 %
85 - 89	2.2 %
90 - 94	0.5 %
95 - 99	0.5 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	185
mean	54
min size (mm)	15
max size (mm)	98

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	1.0 %
10 - 14	1.0 %
15 - 19	3.9 %
20 - 24	2.9 %
25 - 29	7.3 %
30 - 34	18.0 %
35 - 39	19.9 %
40 - 44	16.0 %
45 - 49	13.6 %
50 - 54	7.8 %
55 - 59	4.9 %
60 - 64	2.4 %
65 - 69	1.5 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	206
mean	39
min size (mm)	8
max size (mm)	66

Tethya aurantia

<10	0.0 %
10 - 19	1.1 %
20 - 29	4.5 %
30 - 39	22.5 %
40 - 49	15.7 %
50 - 59	14.6 %
60 - 69	14.6 %
70 - 79	11.2 %
80 - 89	10.1 %
90 - 99	2.2 %
> 99	3.4 %
(Cases) N =	89
mean	57
min size (mm)	17
max size (mm)	113

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	75.0 %
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 =	8
mean	57
min size (mm)	52
max size (mm)	64

Megastrea undosa

<10	0.0 %
10 - 19	3.6 %
20 - 29	3.6 %
30 - 39	14.3 %
40 - 49	10.7 %
50 - 59	3.6 %
60 - 69	22.6 %
70 - 79	26.2 %
80 - 89	7.1 %
90 - 99	7.1 %
100 - 109	1.2 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	84
mean	61
min size (mm)	16
max size (mm)	108

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pedro Reef

<i>Megathura crenulata</i>		<i>Tegula regina</i>		<i>Pisaster giganteus</i>	
<10	0.0 %	< 5	0.0 %	< 20	0.0 %
10 - 19	0.0 %	5 - 9	0.0 %	20 - 39	0.0 %
20 - 29	0.0 %	10 - 14	0.0 %	40 - 59	0.0 %
30 - 39	1.2 %	15 - 19	0.0 %	60 - 79	4.6 %
40 - 49	0.0 %	20 - 24	0.0 %	80 - 99	6.2 %
50 - 59	21.4 %	25 - 29	0.0 %	100 - 119	23.1 %
60 - 69	29.8 %	30 - 34	0.0 %	120 - 139	21.5 %
70 - 79	20.2 %	35 - 39	0.0 %	140 - 159	20.0 %
80 - 89	27.4 %	40 - 44	0.0 %	160 - 179	6.2 %
90 - 99	0.0 %	45 - 49	20.0 %	180 - 199	7.7 %
100 - 109	0.0 %	50 - 54	60.0 %	200 - 219	3.1 %
110 - 119	0.0 %	55 - 59	20.0 %	220 - 239	0.0 %
> 119	0.0 %	60 - 64	0.0 %	> 239	7.7 %
(Cases) N =	84	65 - 69	0.0 %	(Cases) N =	65
mean	67	70 - 74	0.0 %	mean	145
min size (mm)	36	> 75	0.0 %	min size (mm)	61
max size (mm)	89	(Cases) N =	10	max size (mm)	320
		mean	51		
		min size (mm)	45		
		max size (mm)	56		
<i>Crassidoma giganteum</i>		<i>Patiria miniata</i>		<i>Pycnopodia helianthoides</i>	
<10	0.0 %	<10	0.0 %	< 20	0.0 %
10 - 19	0.0 %	10 - 19	0.6 %	20 - 39	0.0 %
20 - 29	0.0 %	20 - 29	6.7 %	40 - 59	0.0 %
30 - 39	0.0 %	30 - 39	12.9 %	60 - 79	100.0 %
40 - 49	0.0 %	40 - 49	12.3 %	80 - 99	0.0 %
50 - 59	0.0 %	50 - 59	22.1 %	100 - 119	0.0 %
60 - 69	33.3 %	60 - 69	19.0 %	120 - 139	0.0 %
70 - 79	11.1 %	70 - 79	9.2 %	140 - 159	0.0 %
80 - 89	0.0 %	80 - 89	10.4 %	160 - 179	0.0 %
90 - 99	0.0 %	90 - 99	4.3 %	180 - 199	0.0 %
100 - 109	11.1 %	> 99	2.5 %	200 - 219	0.0 %
110 - 119	22.2 %	(Cases) N =	163	220 - 239	0.0 %
120 - 129	0.0 %	mean	59	240 - 259	0.0 %
130 - 139	11.1 %	min size (mm)	13	260 - 279	0.0 %
> 139	11.1 %	max size (mm)	108	280 - 299	0.0 %
(Cases) N =	9			> 299	0.0 %
mean	98			(Cases) N =	1
min size (mm)	60			mean	60
max size (mm)	145			min size (mm)	60
				max size (mm)	60

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pedro Reef

Lytechinus anamesus

< 5	0.0 %
5 - 9	4.4 %
10 - 14	21.1 %
15 - 19	3.3 %
20 - 24	41.1 %
25 - 29	18.9 %
30 - 34	11.1 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	90
mean	21
min size (mm)	8
max size (mm)	32

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.5 %
10 - 14	1.6 %
15 - 19	3.2 %
20 - 24	7.4 %
25 - 29	23.4 %
30 - 34	23.4 %
35 - 39	20.2 %
40 - 44	11.7 %
45 - 49	5.3 %
50 - 54	1.6 %
55 - 59	0.5 %
60 - 64	0.5 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.5 %
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 =	188
mean	33
min size (mm)	8
max size (mm)	76

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	2.0 %
10 - 14	17.0 %
15 - 19	23.0 %
20 - 24	31.0 %
25 - 29	25.5 %
30 - 34	1.5 %
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 =	200
mean	19
min size (mm)	7
max size (mm)	31

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Keyhole

<i>Kelletia kelletii</i>		<i>Lithopoma gibberosa</i>		<i>Crassidoma giganteum</i>	
< 40	0.0 %	<10	0.0 %	<10	0.0 %
40 - 49	0.0 %	10 - 19	0.0 %	10 - 19	0.0 %
50 - 59	25.0 %	20 - 29	0.0 %	20 - 29	1.7 %
60 - 69	0.0 %	30 - 39	0.0 %	30 - 39	0.0 %
70 - 79	25.0 %	40 - 49	100.0 %	40 - 49	15.0 %
80 - 89	25.0 %	50 - 59	0.0 %	50 - 59	16.7 %
90 - 99	25.0 %	60 - 69	0.0 %	60 - 69	16.7 %
100 - 109	0.0 %	70 - 79	0.0 %	70 - 79	11.7 %
110 - 119	0.0 %	80 - 89	0.0 %	80 - 89	8.3 %
120 - 129	0.0 %	90 - 99	0.0 %	90 - 99	6.7 %
130 - 139	0.0 %	100 - 109	0.0 %	100 - 109	5.0 %
140 - 149	0.0 %	110 - 119	0.0 %	110 - 119	3.3 %
> 149	0.0 %	> 119	0.0 %	120 - 129	10.0 %
(Cases) N =	4	(Cases) N =	1	130 - 139	5.0 %
mean	78	mean	46	> 139	0.0 %
min size (mm)	58	min size (mm)	46	(Cases) N =	60
max size (mm)	97	max size (mm)	46	mean	82
				min size (mm)	23
				max size (mm)	138
<i>Megastraea undosa</i>		<i>Megathura crenulata</i>		<i>Tegula regina</i>	
<10	0.0 %	<10	0.0 %	< 5	0.0 %
10 - 19	1.9 %	10 - 19	0.0 %	5 - 9	0.0 %
20 - 29	9.3 %	20 - 29	33.3 %	10 - 14	0.0 %
30 - 39	11.1 %	30 - 39	0.0 %	15 - 19	0.0 %
40 - 49	16.7 %	40 - 49	0.0 %	20 - 24	0.0 %
50 - 59	9.3 %	50 - 59	0.0 %	25 - 29	0.0 %
60 - 69	9.3 %	60 - 69	33.3 %	30 - 34	0.0 %
70 - 79	18.5 %	70 - 79	0.0 %	35 - 39	0.0 %
80 - 89	13.0 %	80 - 89	33.3 %	40 - 44	8.0 %
90 - 99	7.4 %	90 - 99	0.0 %	45 - 49	36.0 %
100 - 109	1.9 %	100 - 109	0.0 %	50 - 54	48.0 %
110 - 119	1.9 %	110 - 119	0.0 %	55 - 59	8.0 %
> 119	0.0 %	> 119	0.0 %	60 - 64	0.0 %
(Cases) N =	54	(Cases) N =	3	65 - 69	0.0 %
mean	61	mean	57	70 - 74	0.0 %
min size (mm)	17	min size (mm)	20	> 75	0.0 %
max size (mm)	112	max size (mm)	84	(Cases) N =	25
				mean	50
				min size (mm)	44
				max size (mm)	55

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Keyhole

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	1.7 %
30 - 39	11.7 %
40 - 49	10.0 %
50 - 59	21.7 %
60 - 69	26.7 %
70 - 79	20.0 %
80 - 89	8.3 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	60
mean	58
min size (mm)	28
max size (mm)	86

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	16.7 %
100 - 119	0.0 %
120 - 139	0.0 %
140 - 159	16.7 %
160 - 179	16.7 %
180 - 199	33.3 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	16.7 %
(Cases) N =	6
mean	182
min size (mm)	98
max size (mm)	285

Lytechinus anamesus

< 5	0.0 %
5 - 9	1.9 %
10 - 14	25.2 %
15 - 19	8.4 %
20 - 24	20.6 %
25 - 29	28.0 %
30 - 34	15.9 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	107
mean	21
min size (mm)	6
max size (mm)	33

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	1.9 %
10 - 14	7.2 %
15 - 19	16.7 %
20 - 24	7.2 %
25 - 29	6.7 %
30 - 34	2.9 %
35 - 39	3.8 %
40 - 44	2.9 %
45 - 49	2.9 %
50 - 54	5.3 %
55 - 59	11.0 %
60 - 64	9.6 %
65 - 69	5.7 %
70 - 74	4.8 %
75 - 79	4.8 %
80 - 84	3.8 %
85 - 89	2.4 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.5 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	209
mean	48
min size (mm)	8
max size (mm)	101

Strongylocentrotus purpuratus

< 5	0.4 %
5 - 9	7.3 %
10 - 14	16.2 %
15 - 19	33.2 %
20 - 24	14.7 %
25 - 29	9.7 %
30 - 34	6.6 %
35 - 39	5.8 %
40 - 44	2.7 %
45 - 49	1.5 %
50 - 54	1.2 %
55 - 59	0.8 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	259
mean	25
min size (mm)	4
max size (mm)	56

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - East Fish Camp

<i>Tethya aurantia</i>		<i>Megathura crenulata</i>		<i>Tegula regina</i>	
<10	0.0 %	<10	0.0 %	< 5	0.0 %
10 - 19	3.4 %	10 - 19	0.0 %	5 - 9	0.0 %
20 - 29	6.9 %	20 - 29	2.9 %	10 - 14	0.0 %
30 - 39	24.1 %	30 - 39	10.3 %	15 - 19	0.0 %
40 - 49	17.2 %	40 - 49	27.9 %	20 - 24	0.0 %
50 - 59	10.3 %	50 - 59	20.6 %	25 - 29	0.0 %
60 - 69	20.7 %	60 - 69	35.3 %	30 - 34	0.0 %
70 - 79	10.3 %	70 - 79	2.9 %	35 - 39	0.0 %
80 - 89	0.0 %	80 - 89	0.0 %	40 - 44	0.0 %
90 - 99	3.4 %	90 - 99	0.0 %	45 - 49	11.1 %
> 99	3.4 %	100 - 109	0.0 %	50 - 54	72.2 %
(Cases) N =	29	110 - 119	0.0 %	55 - 59	16.7 %
mean	50	> 119	0.0 %	60 - 64	0.0 %
min size (mm)	13	(Cases) N =	68	65 - 69	0.0 %
max size (mm)	100	mean	51	70 - 74	0.0 %
		min size (mm)	26	> 75	0.0 %
		max size (mm)	79	(Cases) N =	18
				mean	53
				min size (mm)	49
				max size (mm)	57
<i>Kelletia kelletii</i>		<i>Crassedoma giganteum</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	10.0 %	20 - 29	0.0 %	20 - 29	1.0 %
60 - 69	40.0 %	30 - 39	15.4 %	30 - 39	3.0 %
70 - 79	20.0 %	40 - 49	7.7 %	40 - 49	16.2 %
80 - 89	10.0 %	50 - 59	0.0 %	50 - 59	16.2 %
90 - 99	10.0 %	60 - 69	7.7 %	60 - 69	26.3 %
100 - 109	0.0 %	70 - 79	7.7 %	70 - 79	19.2 %
110 - 119	10.0 %	80 - 89	0.0 %	80 - 89	14.1 %
120 - 129	0.0 %	90 - 99	15.4 %	90 - 99	3.0 %
130 - 139	0.0 %	100 - 109	0.0 %	> 99	1.0 %
140 - 149	0.0 %	110 - 119	7.7 %	(Cases) N =	99
> 149	0.0 %	120 - 129	0.0 %	mean	64
(Cases) N =	10	130 - 139	7.7 %	min size (mm)	24
mean	76	> 139	30.8 %	max size (mm)	100
min size (mm)	51	(Cases) N =	13		
max size (mm)	116	mean	104		
		min size (mm)	30		
		max size (mm)	178		
<i>Megastraea undosa</i>					
<10	0.0 %				
10 - 19	0.0 %				
20 - 29	1.5 %				
30 - 39	22.7 %				
40 - 49	19.7 %				
50 - 59	30.3 %				
60 - 69	18.2 %				
70 - 79	3.0 %				
80 - 89	4.5 %				
90 - 99	0.0 %				
100 - 109	0.0 %				
110 - 119	0.0 %				
> 119	0.0 %				
(Cases) N =	66				
mean	51				
min size (mm)	28				
max size (mm)	84				

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - East Fish Camp

<i>Pisaster giganteus</i>		<i>Lytechinus anamesus</i>		<i>Strongylocentrotus purpuratus</i>	
< 20	0.0 %	< 5	0.0 %	< 5	0.0 %
20 - 39	0.0 %	5 - 9	2.9 %	5 - 9	5.6 %
40 - 59	0.0 %	10 - 14	34.3 %	10 - 14	7.7 %
60 - 79	0.0 %	15 - 19	15.3 %	15 - 19	40.0 %
80 - 99	0.0 %	20 - 24	35.8 %	20 - 24	44.6 %
100 - 119	9.1 %	25 - 29	11.7 %	25 - 29	2.1 %
120 - 139	4.5 %	30 - 34	0.0 %	30 - 34	0.0 %
140 - 159	0.0 %	35 - 39	0.0 %	35 - 39	0.0 %
160 - 179	13.6 %	40 - 44	0.0 %	40 - 44	0.0 %
180 - 199	36.4 %	45 - 49	0.0 %	45 - 49	0.0 %
200 - 219	9.1 %	> 49	0.0 %	50 - 54	0.0 %
220 - 239	9.1 %	(Cases) N =	137	55 - 59	0.0 %
> 239	18.2 %	mean	19	60 - 64	0.0 %
(Cases) N =	22	min size (mm)	8	65 - 69	0.0 %
mean	200	max size (mm)	29	70 - 74	0.0 %
min size (mm)	114			75 - 79	0.0 %
max size (mm)	340			> 79	0.0 %
<i>Pycnopodia helianthoides</i>		<i>Strongylocentrotus franciscanus</i>			
< 20	0.0 %	< 5	0.0 %	(Cases) N =	195
20 - 39	0.0 %	5 - 9	0.5 %	mean	16
40 - 59	0.0 %	10 - 14	0.5 %	min size (mm)	5
60 - 79	0.0 %	15 - 19	19.2 %	max size (mm)	26
80 - 99	0.0 %	20 - 24	13.7 %		
100 - 119	0.0 %	25 - 29	42.9 %		
120 - 139	0.0 %	30 - 34	20.3 %		
140 - 159	0.0 %	35 - 39	2.2 %		
160 - 179	0.0 %	40 - 44	0.5 %		
180 - 199	0.0 %	45 - 49	0.0 %		
200 - 219	0.0 %	50 - 54	0.0 %		
220 - 239	0.0 %	55 - 59	0.0 %		
240 - 259	0.0 %	60 - 64	0.0 %		
260 - 279	0.0 %	65 - 69	0.0 %		
280 - 299	0.0 %	70 - 74	0.0 %		
> 299	100.0 %	75 - 79	0.0 %		
(Cases) N =	1	80 - 84	0.0 %		
mean	369	85 - 89	0.0 %		
min size (mm)	369	90 - 94	0.0 %		
max size (mm)	369	95 - 99	0.0 %		
		100 - 104	0.0 %		
		105 - 109	0.0 %		
		> 109	0.0 %		
		(Cases) N =	182		
		mean	26		
		min size (mm)	8		
		max size (mm)	40		

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Black Sea Bass Reef

<i>Tethya aurantia</i>		<i>Megathura crenulata</i>		<i>Tegula regina</i>	
<10	0.0 %	<10	0.0 %	< 5	0.0 %
10 - 19	0.0 %	10 - 19	0.0 %	5 - 9	0.0 %
20 - 29	4.2 %	20 - 29	0.0 %	10 - 14	0.0 %
30 - 39	0.0 %	30 - 39	0.0 %	15 - 19	0.0 %
40 - 49	16.7 %	40 - 49	1.8 %	20 - 24	0.0 %
50 - 59	8.3 %	50 - 59	0.0 %	25 - 29	0.0 %
60 - 69	16.7 %	60 - 69	1.8 %	30 - 34	0.0 %
70 - 79	12.5 %	70 - 79	1.8 %	35 - 39	0.0 %
80 - 89	25.0 %	80 - 89	21.4 %	40 - 44	20.0 %
90 - 99	8.3 %	90 - 99	46.4 %	45 - 49	30.0 %
> 99	8.3 %	100 - 109	23.2 %	50 - 54	50.0 %
(Cases) N =	24	110 - 119	3.6 %	55 - 59	0.0 %
mean	70	> 119	0.0 %	60 - 64	0.0 %
min size (mm)	28	(Cases) N =	56	65 - 69	0.0 %
max size (mm)	104	mean	93	70 - 74	0.0 %
		min size (mm)	43	> 75	0.0 %
		max size (mm)	116	(Cases) N =	10
				mean	47
				min size (mm)	40
				max size (mm)	51
<i>Kelletia kelletii</i>		<i>Crassedoma giganteum</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	4.2 %
60 - 69	0.0 %	30 - 39	0.0 %	30 - 39	0.0 %
70 - 79	0.0 %	40 - 49	0.0 %	40 - 49	4.2 %
80 - 89	0.0 %	50 - 59	0.0 %	50 - 59	25.0 %
90 - 99	0.0 %	60 - 69	20.0 %	60 - 69	25.0 %
100 - 109	0.0 %	70 - 79	0.0 %	70 - 79	25.0 %
110 - 119	0.0 %	80 - 89	20.0 %	80 - 89	12.5 %
120 - 129	100.0 %	90 - 99	0.0 %	90 - 99	4.2 %
130 - 139	0.0 %	100 - 109	20.0 %	> 99	0.0 %
140 - 149	0.0 %	110 - 119	20.0 %	(Cases) N =	24
> 149	0.0 %	120 - 129	20.0 %	mean	67
(Cases) N =	2	130 - 139	0.0 %	min size (mm)	25
mean	124	> 139	0.0 %	max size (mm)	98
min size (mm)	120	(Cases) N =	5		
max size (mm)	127	mean	97		
		min size (mm)	66		
		max size (mm)	121		
<i>Megastraea undosa</i>					
<10	0.0 %				
10 - 19	0.0 %				
20 - 29	0.0 %				
30 - 39	5.3 %				
40 - 49	26.3 %				
50 - 59	5.3 %				
60 - 69	26.3 %				
70 - 79	5.3 %				
80 - 89	5.3 %				
90 - 99	5.3 %				
100 - 109	15.8 %				
110 - 119	5.3 %				
> 119	0.0 %				
(Cases) N =	19				
mean	69				
min size (mm)	36				
max size (mm)	114				

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Black Sea Bass Reef

<i>Pisaster giganteus</i>		<i>Strongylocentrotus purpuratus</i>	
< 20	0.0 %	< 5	0.5 %
20 - 39	0.0 %	5 - 9	13.8 %
40 - 59	0.0 %	10 - 14	37.4 %
60 - 79	0.0 %	15 - 19	10.8 %
80 - 99	4.3 %	20 - 24	21.2 %
100 - 119	8.7 %	25 - 29	9.9 %
120 - 139	8.7 %	30 - 34	4.9 %
140 - 159	26.1 %	35 - 39	1.5 %
160 - 179	21.7 %	40 - 44	0.0 %
180 - 199	13.0 %	45 - 49	0.0 %
200 - 219	17.4 %	50 - 54	0.0 %
220 - 239	0.0 %	55 - 59	0.0 %
> 239	0.0 %	60 - 64	0.0 %
(Cases) N =	23	65 - 69	0.0 %
mean	162	70 - 74	0.0 %
min size (mm)	83	75 - 79	0.0 %
max size (mm)	211	> 79	0.0 %
		(Cases) N =	203
		mean	18
		min size (mm)	4
		max size (mm)	37
<i>Strongylocentrotus franciscanus</i>			
< 5	0.0 %		
5 - 9	2.0 %		
10 - 14	12.7 %		
15 - 19	4.1 %		
20 - 24	6.6 %		
25 - 29	3.0 %		
30 - 34	3.0 %		
35 - 39	4.1 %		
40 - 44	9.6 %		
45 - 49	20.8 %		
50 - 54	15.7 %		
55 - 59	4.1 %		
60 - 64	3.6 %		
65 - 69	4.6 %		
70 - 74	3.0 %		
75 - 79	2.0 %		
80 - 84	0.5 %		
85 - 89	0.0 %		
90 - 94	0.0 %		
95 - 99	0.5 %		
100 - 104	0.0 %		
105 - 109	0.0 %		
> 109	0.0 %		
(Cases) N =	197		
mean	42		
min size (mm)	5		
max size (mm)	96		

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Lighthouse

<i>Tethya aurantia</i>		<i>Megathura crenulata</i>		<i>Tegula regina</i>	
<10	0.0 %	<10	0.0 %	< 5	0.0 %
10 - 19	0.0 %	10 - 19	0.0 %	5 - 9	0.0 %
20 - 29	4.3 %	20 - 29	0.0 %	10 - 14	0.0 %
30 - 39	15.2 %	30 - 39	3.8 %	15 - 19	0.0 %
40 - 49	26.1 %	40 - 49	3.8 %	20 - 24	0.0 %
50 - 59	21.7 %	50 - 59	13.5 %	25 - 29	0.0 %
60 - 69	19.6 %	60 - 69	38.5 %	30 - 34	0.0 %
70 - 79	10.9 %	70 - 79	32.7 %	35 - 39	0.0 %
80 - 89	2.2 %	80 - 89	7.7 %	40 - 44	0.0 %
90 - 99	0.0 %	90 - 99	0.0 %	45 - 49	12.5 %
> 99	0.0 %	100 - 109	0.0 %	50 - 54	62.5 %
(Cases) N =	46	110 - 119	0.0 %	55 - 59	25.0 %
mean	52	> 119	0.0 %	60 - 64	0.0 %
min size (mm)	22	(Cases) N =	52	65 - 69	0.0 %
max size (mm)	82	mean	66	70 - 74	0.0 %
		min size (mm)	38	> 75	0.0 %
		max size (mm)	86	(Cases) N =	8
				mean	53
				min size (mm)	46
				max size (mm)	59
<i>Kelletia kelletii</i>		<i>Crassidoma giganteum</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	1.7 %
60 - 69	0.0 %	30 - 39	9.5 %	30 - 39	6.0 %
70 - 79	0.0 %	40 - 49	9.5 %	40 - 49	7.8 %
80 - 89	4.8 %	50 - 59	28.6 %	50 - 59	8.6 %
90 - 99	14.3 %	60 - 69	4.8 %	60 - 69	14.7 %
100 - 109	4.8 %	70 - 79	0.0 %	70 - 79	29.3 %
110 - 119	23.8 %	80 - 89	0.0 %	80 - 89	23.3 %
120 - 129	23.8 %	90 - 99	4.8 %	90 - 99	6.9 %
130 - 139	19.0 %	100 - 109	9.5 %	> 99	1.7 %
140 - 149	9.5 %	110 - 119	9.5 %	(Cases) N =	116
> 149	0.0 %	120 - 129	4.8 %	mean	67
(Cases) N =	21	130 - 139	9.5 %	min size (mm)	29
mean	118	> 139	9.5 %	max size (mm)	101
min size (mm)	82	(Cases) N =	21		
max size (mm)	143	mean	85		
		min size (mm)	30		
		max size (mm)	153		
<i>Megastraea undosa</i>					
<10	0.0 %				
10 - 19	0.0 %				
20 - 29	5.6 %				
30 - 39	1.9 %				
40 - 49	1.9 %				
50 - 59	1.9 %				
60 - 69	5.6 %				
70 - 79	9.3 %				
80 - 89	33.3 %				
90 - 99	27.8 %				
100 - 109	11.1 %				
110 - 119	1.9 %				
> 119	0.0 %				
(Cases) N =	54				
mean	79				
min size (mm)	23				
max size (mm)	111				

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Lighthouse

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	1.8 %
60 - 79	12.3 %
80 - 99	22.8 %
100 - 119	15.8 %
120 - 139	21.1 %
140 - 159	7.0 %
160 - 179	5.3 %
180 - 199	5.3 %
200 - 219	1.8 %
220 - 239	5.3 %
> 239	1.8 %
(Cases) N =	57
mean	126
min size (mm)	55
max size (mm)	250

Lytechinus anamesus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	8.3 %
15 - 19	75.0 %
20 - 24	12.5 %
25 - 29	4.2 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	24
mean	19
min size (mm)	14
max size (mm)	29

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.5 %
10 - 14	3.8 %
15 - 19	8.6 %
20 - 24	4.3 %
25 - 29	11.9 %
30 - 34	32.9 %
35 - 39	25.2 %
40 - 44	7.6 %
45 - 49	2.4 %
50 - 54	0.5 %
55 - 59	1.0 %
60 - 64	0.5 %
65 - 69	0.5 %
70 - 74	0.0 %
75 - 79	0.0 %
80 - 84	0.5 %
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 =	210
mean	32
min size (mm)	9
max size (mm)	82

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	8.0 %
10 - 14	8.0 %
15 - 19	12.2 %
20 - 24	21.1 %
25 - 29	29.1 %
30 - 34	12.7 %
35 - 39	6.1 %
40 - 44	0.5 %
45 - 49	1.4 %
50 - 54	0.9 %
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 =	213
mean	24
min size (mm)	5
max size (mm)	53

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Webster's Arch

<i>Tethya aurantia</i>		<i>Megathura crenulata</i>		<i>Tegula regina</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	20.0 %	30 - 39	0.0 %	15 - 19	0.0 %
40 - 49	20.0 %	40 - 49	0.0 %	20 - 24	0.0 %
50 - 59	0.0 %	50 - 59	21.2 %	25 - 29	0.0 %
60 - 69	40.0 %	60 - 69	19.2 %	30 - 34	3.5 %
70 - 79	0.0 %	70 - 79	17.3 %	35 - 39	5.3 %
80 - 89	0.0 %	80 - 89	26.9 %	40 - 44	36.8 %
90 - 99	20.0 %	90 - 99	9.6 %	45 - 49	50.9 %
> 99	0.0 %	100 - 109	3.8 %	50 - 54	3.5 %
(Cases) N =	5	110 - 119	1.9 %	55 - 59	0.0 %
mean	59	> 119	0.0 %	60 - 64	0.0 %
min size (mm)	37	(Cases) N =	52	65 - 69	0.0 %
max size (mm)	90	mean	75	70 - 74	0.0 %
		min size (mm)	50	> 75	0.0 %
		max size (mm)	116	(Cases) N =	57
				mean	44
				min size (mm)	32
				max size (mm)	52
<i>Megastraea undosa</i>		<i>Crassedoma giganteum</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	1.7 %	20 - 29	0.0 %	20 - 29	0.0 %
30 - 39	17.2 %	30 - 39	0.0 %	30 - 39	3.4 %
40 - 49	29.3 %	40 - 49	0.0 %	40 - 49	6.9 %
50 - 59	29.3 %	50 - 59	0.0 %	50 - 59	24.1 %
60 - 69	15.5 %	60 - 69	0.0 %	60 - 69	37.9 %
70 - 79	1.7 %	70 - 79	0.0 %	70 - 79	24.1 %
80 - 89	0.0 %	80 - 89	0.0 %	80 - 89	3.4 %
90 - 99	5.2 %	90 - 99	50.0 %	90 - 99	0.0 %
100 - 109	0.0 %	100 - 109	0.0 %	> 99	0.0 %
110 - 119	0.0 %	110 - 119	0.0 %	(Cases) N =	58
> 119	0.0 %	120 - 129	50.0 %	mean	62
(Cases) N =	58	130 - 139	0.0 %	min size (mm)	30
mean	51	> 139	0.0 %	max size (mm)	85
min size (mm)	29	(Cases) N =	2		
max size (mm)	98	mean	112		
		min size (mm)	94		
		max size (mm)	129		
<i>Lithopoma gibberosa</i>					
<10	0.0 %				
10 - 19	0.0 %				
20 - 29	0.0 %				
30 - 39	0.0 %				
40 - 49	50.0 %				
50 - 59	50.0 %				
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	49				
min size (mm)	45				
max size (mm)	52				

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Webster's Arch

<i>Pisaster giganteus</i>		<i>Lytechinus anamesus</i>		<i>Strongylocentrotus purpuratus</i>	
< 20	0.0 %	< 5	0.0 %	< 5	1.8 %
20 - 39	0.0 %	5 - 9	0.0 %	5 - 9	7.4 %
40 - 59	0.0 %	10 - 14	50.0 %	10 - 14	13.5 %
60 - 79	3.7 %	15 - 19	0.0 %	15 - 19	46.1 %
80 - 99	7.4 %	20 - 24	50.0 %	20 - 24	28.0 %
100 - 119	48.1 %	25 - 29	0.0 %	25 - 29	2.8 %
120 - 139	11.1 %	30 - 34	0.0 %	30 - 34	0.4 %
140 - 159	29.6 %	35 - 39	0.0 %	35 - 39	0.0 %
160 - 179	0.0 %	40 - 44	0.0 %	40 - 44	0.0 %
180 - 199	0.0 %	45 - 49	0.0 %	45 - 49	0.0 %
200 - 219	0.0 %	> 49	0.0 %	50 - 54	0.0 %
220 - 239	0.0 %	(Cases) N =	2	55 - 59	0.0 %
> 239	0.0 %	mean	17	60 - 64	0.0 %
(Cases) N =	27	min size (mm)	10	65 - 69	0.0 %
mean	118	max size (mm)	23	70 - 74	0.0 %
min size (mm)	70			75 - 79	0.0 %
max size (mm)	155			> 79	0.0 %
<i>Pycnopodia helianthoides</i>		<i>Strongylocentrotus franciscanus</i>			
< 20	0.0 %	< 5	0.5 %	(Cases) N =	282
20 - 39	0.0 %	5 - 9	0.0 %	mean	17
40 - 59	0.0 %	10 - 14	3.0 %	min size (mm)	2
60 - 79	0.0 %	15 - 19	5.4 %	max size (mm)	33
80 - 99	0.0 %	20 - 24	20.7 %		
100 - 119	0.0 %	25 - 29	26.6 %		
120 - 139	0.0 %	30 - 34	25.1 %		
140 - 159	0.0 %	35 - 39	11.3 %		
160 - 179	0.0 %	40 - 44	5.4 %		
180 - 199	0.0 %	45 - 49	0.0 %		
200 - 219	0.0 %	50 - 54	0.5 %		
220 - 239	100.0 %	55 - 59	0.0 %		
240 - 259	0.0 %	60 - 64	0.5 %		
260 - 279	0.0 %	65 - 69	0.0 %		
280 - 299	0.0 %	70 - 74	1.0 %		
> 299	0.0 %	75 - 79	0.0 %		
(Cases) N =	1	80 - 84	0.0 %		
mean	220	85 - 89	0.0 %		
min size (mm)	220	90 - 94	0.0 %		
max size (mm)	220	95 - 99	0.0 %		
		100 - 104	0.0 %		
		105 - 109	0.0 %		
		> 109	0.0 %		
		(Cases) N =	203		
		mean	30		
		min size (mm)	3		
		max size (mm)	74		

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Graveyard Canyon

<i>Tethya aurantia</i>		<i>Crassedoma giganteum</i>		<i>Pisaster giganteus</i>	
<10	0.0 %	<10	0.0 %	< 20	0.0 %
10 - 19	4.7 %	10 - 19	0.0 %	20 - 39	0.0 %
20 - 29	6.3 %	20 - 29	0.0 %	40 - 59	7.1 %
30 - 39	6.3 %	30 - 39	0.0 %	60 - 79	7.1 %
40 - 49	6.3 %	40 - 49	0.0 %	80 - 99	21.4 %
50 - 59	17.2 %	50 - 59	0.0 %	100 - 119	28.6 %
60 - 69	18.8 %	60 - 69	0.0 %	120 - 139	35.7 %
70 - 79	28.1 %	70 - 79	33.3 %	140 - 159	0.0 %
80 - 89	6.3 %	80 - 89	0.0 %	160 - 179	0.0 %
90 - 99	6.3 %	90 - 99	0.0 %	180 - 199	0.0 %
> 99	0.0 %	100 - 109	0.0 %	200 - 219	0.0 %
(Cases) N =	64	110 - 119	0.0 %	220 - 239	0.0 %
mean	62	120 - 129	33.3 %	> 239	0.0 %
min size (mm)	15	130 - 139	0.0 %	(Cases) N =	14
max size (mm)	97	> 139	33.3 %	mean	106
		(Cases) N =	3	min size (mm)	42
		mean	112	max size (mm)	136
		min size (mm)	72		
		max size (mm)	141		
<i>Megastrea undosa</i>		<i>Patiria miniata</i>		<i>Lytechinus anamesus</i>	
<10	0.0 %	<10	0.0 %	< 5	0.0 %
10 - 19	0.0 %	10 - 19	2.7 %	5 - 9	0.0 %
20 - 29	11.8 %	20 - 29	5.4 %	10 - 14	6.3 %
30 - 39	17.6 %	30 - 39	8.1 %	15 - 19	40.6 %
40 - 49	11.8 %	40 - 49	5.4 %	20 - 24	50.0 %
50 - 59	29.4 %	50 - 59	8.1 %	25 - 29	3.1 %
60 - 69	5.9 %	60 - 69	27.0 %	30 - 34	0.0 %
70 - 79	11.8 %	70 - 79	18.9 %	35 - 39	0.0 %
80 - 89	0.0 %	80 - 89	16.2 %	40 - 44	0.0 %
90 - 99	0.0 %	90 - 99	8.1 %	45 - 49	0.0 %
100 - 109	11.8 %	> 99	0.0 %	> 49	0.0 %
110 - 119	0.0 %	(Cases) N =	37	(Cases) N =	64
> 119	0.0 %	mean	62	mean	19
(Cases) N =	17	min size (mm)	19	min size (mm)	10
mean	56	max size (mm)	93	max size (mm)	28
min size (mm)	27				
max size (mm)	109				
<i>Megathura crenulata</i>					
<10	0.0 %				
10 - 19	0.0 %				
20 - 29	0.0 %				
30 - 39	0.0 %				
40 - 49	14.3 %				
50 - 59	0.0 %				
60 - 69	14.3 %				
70 - 79	42.9 %				
80 - 89	0.0 %				
90 - 99	14.3 %				
100 - 109	14.3 %				
110 - 119	0.0 %				
> 119	0.0 %				
(Cases) N =	7				
mean	76				
min size (mm)	43				
max size (mm)	100				

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Graveyard Canyon

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	1.0 %
10 - 14	6.0 %
15 - 19	6.5 %
20 - 24	17.4 %
25 - 29	21.9 %
30 - 34	16.4 %
35 - 39	9.0 %
40 - 44	7.5 %
45 - 49	5.0 %
50 - 54	3.0 %
55 - 59	2.5 %
60 - 64	2.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.5 %
80 - 84	1.0 %
85 - 89	0.5 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	201
mean	36
min size (mm)	9
max size (mm)	88

Strongylocentrotus purpuratus

< 5	0.4 %
5 - 9	7.6 %
10 - 14	25.1 %
15 - 19	47.1 %
20 - 24	17.5 %
25 - 29	1.8 %
30 - 34	0.4 %
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 =	223
mean	15
min size (mm)	4
max size (mm)	31

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	66.7 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	33.3 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	3
mean	61
min size (mm)	50
max size (mm)	80

Megastrea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	23.0 %
40 - 49	32.8 %
50 - 59	16.4 %
60 - 69	8.2 %
70 - 79	1.6 %
80 - 89	8.2 %
90 - 99	8.2 %
100 - 109	1.6 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	61
mean	57
min size (mm)	30
max size (mm)	104

Megathura crenulata

<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	57
min size (mm)	57
max size (mm)	57

2008 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Southeast Reef

<i>Crassedoma giganteum</i>		<i>Patiria miniata</i>		<i>Strongylocentrotus franciscanus</i>	
<10	0.0 %	<10	0.0 %	< 5	0.5 %
10 - 19	0.0 %	10 - 19	14.3 %	5 - 9	4.4 %
20 - 29	7.7 %	20 - 29	14.3 %	10 - 14	7.4 %
30 - 39	0.0 %	30 - 39	42.9 %	15 - 19	7.4 %
40 - 49	23.1 %	40 - 49	0.0 %	20 - 24	2.5 %
50 - 59	7.7 %	50 - 59	14.3 %	25 - 29	3.4 %
60 - 69	7.7 %	60 - 69	14.3 %	30 - 34	3.0 %
70 - 79	23.1 %	70 - 79	0.0 %	35 - 39	3.4 %
80 - 89	15.4 %	80 - 89	0.0 %	40 - 44	10.8 %
90 - 99	0.0 %	90 - 99	0.0 %	45 - 49	13.8 %
100 - 109	7.7 %	> 99	0.0 %	50 - 54	8.9 %
110 - 119	7.7 %	(Cases) N =	7	55 - 59	4.4 %
120 - 129	0.0 %	mean	37	60 - 64	3.4 %
130 - 139	0.0 %	min size (mm)	12	65 - 69	2.5 %
> 139	0.0 %	max size (mm)	62	70 - 74	2.5 %
(Cases) N =	13			75 - 79	3.4 %
mean	68			80 - 84	3.4 %
min size (mm)	20			85 - 89	3.0 %
max size (mm)	112			90 - 94	3.9 %
<i>Tegula regina</i>		<i>Pisaster giganteus</i>		<i>Strongylocentrotus purpuratus</i>	
< 5	0.0 %	< 20	0.0 %	< 5	2.6 %
5 - 9	0.0 %	20 - 39	0.0 %	5 - 9	23.2 %
10 - 14	0.0 %	40 - 59	1.9 %	10 - 14	11.9 %
15 - 19	0.0 %	60 - 79	0.0 %	15 - 19	8.8 %
20 - 24	0.0 %	80 - 99	13.0 %	20 - 24	6.7 %
25 - 29	0.0 %	100 - 119	35.2 %	25 - 29	5.2 %
30 - 34	5.1 %	120 - 139	22.2 %	30 - 34	5.7 %
35 - 39	8.5 %	140 - 159	20.4 %	35 - 39	12.9 %
40 - 44	28.8 %	160 - 179	5.6 %	40 - 44	12.4 %
45 - 49	42.4 %	180 - 199	1.9 %	45 - 49	6.2 %
50 - 54	15.3 %	200 - 219	0.0 %	50 - 54	3.6 %
55 - 59	0.0 %	220 - 239	0.0 %	55 - 59	1.0 %
60 - 64	0.0 %	> 239	0.0 %	60 - 64	0.0 %
65 - 69	0.0 %	(Cases) N =	54	65 - 69	0.0 %
70 - 74	0.0 %	mean	120	70 - 74	0.0 %
> 75	0.0 %	min size (mm)	46	75 - 79	0.0 %
(Cases) N =	59	max size (mm)	181	> 79	0.0 %
mean	44			(Cases) N =	194
min size (mm)	31			mean	29
max size (mm)	53			min size (mm)	3
<i>Lytechinus anamesus</i>				max size (mm)	56
< 5	0.0 %	< 5	0.0 %		
5 - 9	0.0 %	5 - 9	0.0 %		
10 - 14	0.0 %	10 - 14	0.0 %		
15 - 19	100.0 %	15 - 19	100.0 %		
20 - 24	0.0 %	20 - 24	0.0 %		
25 - 29	0.0 %	25 - 29	0.0 %		
30 - 34	0.0 %	30 - 34	0.0 %		
35 - 39	0.0 %	35 - 39	0.0 %		
40 - 44	0.0 %	40 - 44	0.0 %		
45 - 49	0.0 %	45 - 49	0.0 %		
> 49	0.0 %	> 49	0.0 %		
(Cases) N =	2	(Cases) N =	2		
mean	17	mean	17		
min size (mm)	15	min size (mm)	15		
max size (mm)	19	max size (mm)	19		

Appendix J. *Macrocystis pyrifera* Size Frequency Distributions

2008 *Macrocystis pyrifera* SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Wyckoff Ledge

<i>Macrocystis pyrifera</i> Adult (>1m) Number of Stipes		<i>Macrocystis pyrifera</i> Adult (>1m) Holdfast Diameter	
< 3	12.1 %	< 6	1.6 %
3 - 5	21.0 %	6 - 11	13.7 %
6 - 8	21.0 %	12 - 17	26.6 %
9 - 11	17.7 %	18 - 23	29.8 %
12 - 14	20.2 %	24 - 29	20.2 %
15 - 17	1.6 %	30 - 35	3.2 %
18 - 20	4.0 %	36 - 41	1.6 %
21 - 23	0.0 %	42 - 47	1.6 %
24 - 26	0.0 %	48 - 53	0.8 %
27 - 29	0.8 %	54 - 59	0.0 %
30 - 32	0.0 %	60 - 65	0.0 %
33 - 35	0.0 %	66 - 71	0.8 %
36 - 38	1.6 %	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 =	124	(Cases) N =	124
mean	9	mean	20
min size (mm)	1	min size (mm)	5
max size (mm)	38	max size (mm)	68

Santa Rosa Island - Johnson's Lee North

<i>Macrocystis pyrifera</i> Adult (>1m) Number of Stipes		<i>Macrocystis pyrifera</i> Adult (>1m) Holdfast Diameter	
< 3	17.5 %	< 6	2.5 %
3 - 5	23.8 %	6 - 11	11.3 %
6 - 8	22.5 %	12 - 17	10.0 %
9 - 11	17.5 %	18 - 23	15.0 %
12 - 14	8.8 %	24 - 29	13.8 %
15 - 17	7.5 %	30 - 35	17.5 %
18 - 20	1.3 %	36 - 41	12.5 %
21 - 23	1.3 %	42 - 47	10.0 %
24 - 26	0.0 %	48 - 53	3.8 %
27 - 29	0.0 %	54 - 59	2.5 %
30 - 32	0.0 %	60 - 65	0.0 %
33 - 35	0.0 %	66 - 71	1.3 %
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 =	80	(Cases) N =	80
mean	7	mean	28
min size (mm)	1	min size (mm)	5
max size (mm)	22	max size (mm)	67

2008 *Macrocystis pyrifera* SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee South

<i>Macrocystis pyrifera</i> Adult (>1m) Number of Stipes		<i>Macrocystis pyrifera</i> Adult (>1m) Holdfast Diameter	
< 3	6.2 %	< 6	0.0 %
3 - 5	15.5 %	6 - 11	9.3 %
6 - 8	9.3 %	12 - 17	9.3 %
9 - 11	15.5 %	18 - 23	9.3 %
12 - 14	17.5 %	24 - 29	14.4 %
15 - 17	16.5 %	30 - 35	18.6 %
18 - 20	9.3 %	36 - 41	16.5 %
21 - 23	6.2 %	42 - 47	10.3 %
24 - 26	4.1 %	48 - 53	8.2 %
27 - 29	1.0 %	54 - 59	2.1 %
30 - 32	0.0 %	60 - 65	2.1 %
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	1.0 %	84 - 89	0.0 %
> 44	0.0 %	> 89	0.0 %
(Cases) N =	97	(Cases) N =	97
mean	12	mean	31
min size (mm)	1	min size (mm)	6
max size (mm)	43	max size (mm)	65

Santa Rosa Island - Rodes Reef

<i>Macrocystis pyrifera</i> Adult (>1m) Number of Stipes		<i>Macrocystis pyrifera</i> Adult (>1m) Holdfast Diameter	
< 3	11.4 %	< 6	2.3 %
3 - 5	20.5 %	6 - 11	13.6 %
6 - 8	2.3 %	12 - 17	9.1 %
9 - 11	6.8 %	18 - 23	4.5 %
12 - 14	9.1 %	24 - 29	9.1 %
15 - 17	6.8 %	30 - 35	6.8 %
18 - 20	15.9 %	36 - 41	15.9 %
21 - 23	9.1 %	42 - 47	13.6 %
24 - 26	9.1 %	48 - 53	9.1 %
27 - 29	4.5 %	54 - 59	6.8 %
30 - 32	2.3 %	60 - 65	9.1 %
33 - 35	2.3 %	66 - 71	0.0 %
36 - 38	2.3 %	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 =	44	(Cases) N =	44
mean	15	mean	35
min size (mm)	1	min size (mm)	5
max size (mm)	36	max size (mm)	65

2008 *Macrocystis pyrifera* SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

<i>Macrocystis pyrifera</i> Adult (>1m) Number of Stipes		<i>Macrocystis pyrifera</i> Adult (>1m) Holdfast Diameter	
< 3	11.5 %	< 6	2.9 %
3 - 5	15.4 %	6 - 11	5.8 %
6 - 8	26.0 %	12 - 17	8.7 %
9 - 11	18.3 %	18 - 23	2.9 %
12 - 14	13.5 %	24 - 29	12.5 %
15 - 17	5.8 %	30 - 35	6.7 %
18 - 20	4.8 %	36 - 41	12.5 %
21 - 23	1.9 %	42 - 47	19.2 %
24 - 26	1.9 %	48 - 53	17.3 %
27 - 29	0.0 %	54 - 59	7.7 %
30 - 32	0.0 %	60 - 65	1.9 %
33 - 35	1.0 %	66 - 71	1.9 %
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 =	104	(Cases) N =	104
mean	9	mean	37
min size (mm)	1	min size (mm)	4
max size (mm)	34	max size (mm)	70

Santa Cruz Island - Fry's Harbor

<i>Macrocystis pyrifera</i> Adult (>1m) Number of Stipes		<i>Macrocystis pyrifera</i> Adult (>1m) Holdfast Diameter	
< 3	38.8 %	< 6	21.7 %
3 - 5	25.0 %	6 - 11	27.0 %
6 - 8	11.8 %	12 - 17	19.1 %
9 - 11	6.6 %	18 - 23	13.8 %
12 - 14	9.9 %	24 - 29	9.9 %
15 - 17	4.6 %	30 - 35	3.9 %
18 - 20	2.0 %	36 - 41	2.6 %
21 - 23	0.7 %	42 - 47	0.7 %
24 - 26	0.7 %	48 - 53	1.3 %
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 =	152	(Cases) N =	152
mean	6	mean	14
min size (mm)	1	min size (mm)	3
max size (mm)	25	max size (mm)	51

2008 *Macrocystis pyrifera* SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pelican Bay

<i>Macrocystis pyrifera</i> Adult (>1m) Number of Stipes		<i>Macrocystis pyrifera</i> Adult (>1m) Holdfast Diameter	
< 3	45.2 %	< 6	0.0 %
3 - 5	40.5 %	6 - 11	28.6 %
6 - 8	9.5 %	12 - 17	54.8 %
9 - 11	0.0 %	18 - 23	14.3 %
12 - 14	4.8 %	24 - 29	0.0 %
15 - 17	0.0 %	30 - 35	2.4 %
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 =	42	(Cases) N =	42
mean	4	mean	14
min size (mm)	1	min size (mm)	7
max size (mm)	14	max size (mm)	31

Santa Cruz Island - Scorpion Anchorage

<i>Macrocystis pyrifera</i> Adult (>1m) Number of Stipes		<i>Macrocystis pyrifera</i> Adult (>1m) Holdfast Diameter	
< 3	32.0 %	< 6	16.0 %
3 - 5	34.7 %	6 - 11	38.7 %
6 - 8	9.3 %	12 - 17	25.3 %
9 - 11	6.7 %	18 - 23	14.7 %
12 - 14	6.7 %	24 - 29	2.7 %
15 - 17	1.3 %	30 - 35	1.3 %
18 - 20	4.0 %	36 - 41	1.3 %
21 - 23	2.7 %	42 - 47	0.0 %
24 - 26	1.3 %	48 - 53	0.0 %
27 - 29	0.0 %	54 - 59	0.0 %
30 - 32	1.3 %	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	1.3 %	84 - 89	0.0 %
> 44	0.0 %	> 89	0.0 %
(Cases) N =	75	(Cases) N =	75
mean	7	mean	12
min size (mm)	1	min size (mm)	3
max size (mm)	42	max size (mm)	38

2008 *Macrocystis pyrifera* SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

<i>Macrocystis pyrifera</i> Adult (>1m) Number of Stipes		<i>Macrocystis pyrifera</i> Adult (>1m) Holdfast Diameter	
< 3	20.2 %	< 6	8.5 %
3 - 5	12.8 %	6 - 11	13.8 %
6 - 8	13.8 %	12 - 17	7.4 %
9 - 11	9.6 %	18 - 23	8.5 %
12 - 14	14.9 %	24 - 29	13.8 %
15 - 17	10.6 %	30 - 35	14.9 %
18 - 20	8.5 %	36 - 41	18.1 %
21 - 23	6.4 %	42 - 47	10.6 %
24 - 26	2.1 %	48 - 53	2.1 %
27 - 29	1.1 %	54 - 59	1.1 %
30 - 32	1.1 %	60 - 65	1.1 %
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 =	94	(Cases) N =	94
mean	10	mean	27
min size (mm)	1	min size (mm)	3
max size (mm)	30	max size (mm)	64

Anacapa Island - Cathedral Cove

<i>Macrocystis pyrifera</i> Adult (>1m) Number of Stipes		<i>Macrocystis pyrifera</i> Adult (>1m) Holdfast Diameter	
< 3	17.1 %	< 6	0.8 %
3 - 5	22.0 %	6 - 11	21.1 %
6 - 8	20.3 %	12 - 17	25.2 %
9 - 11	12.2 %	18 - 23	13.8 %
12 - 14	13.0 %	24 - 29	13.8 %
15 - 17	5.7 %	30 - 35	11.4 %
18 - 20	3.3 %	36 - 41	8.9 %
21 - 23	3.3 %	42 - 47	2.4 %
24 - 26	2.4 %	48 - 53	0.8 %
27 - 29	0.8 %	54 - 59	0.8 %
30 - 32	0.8 %	60 - 65	0.8 %
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 =	123	(Cases) N =	123
mean	9	mean	21
min size (mm)	1	min size (mm)	5
max size (mm)	31	max size (mm)	64

2008 *Macrocystis pyrifera* SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Landing Cove

<i>Macrocystis pyrifera</i> Adult (>1m) Number of Stipes		<i>Macrocystis pyrifera</i> Adult (>1m) Holdfast Diameter	
< 3	37.3 %	< 6	3.3 %
3 - 5	22.0 %	6 - 11	28.7 %
6 - 8	15.3 %	12 - 17	24.0 %
9 - 11	8.7 %	18 - 23	12.0 %
12 - 14	9.3 %	24 - 29	14.0 %
15 - 17	2.0 %	30 - 35	6.0 %
18 - 20	4.0 %	36 - 41	4.0 %
21 - 23	0.7 %	42 - 47	4.0 %
24 - 26	0.0 %	48 - 53	2.7 %
27 - 29	0.7 %	54 - 59	0.7 %
30 - 32	0.0 %	60 - 65	0.7 %
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 =	150	(Cases) N =	150
mean	6	mean	20
min size (mm)	1	min size (mm)	5
max size (mm)	29	max size (mm)	62

San Miguel Island - Miracle Mile

<i>Macrocystis pyrifera</i> Adult (>1m) Number of Stipes		<i>Macrocystis pyrifera</i> Adult (>1m) Holdfast Diameter	
< 3	7.0 %	< 6	0.0 %
3 - 5	14.0 %	6 - 11	0.0 %
6 - 8	16.0 %	12 - 17	17.0 %
9 - 11	13.0 %	18 - 23	19.0 %
12 - 14	10.0 %	24 - 29	18.0 %
15 - 17	8.0 %	30 - 35	6.0 %
18 - 20	1.0 %	36 - 41	5.0 %
21 - 23	5.0 %	42 - 47	5.0 %
24 - 26	4.0 %	48 - 53	11.0 %
27 - 29	3.0 %	54 - 59	4.0 %
30 - 32	6.0 %	60 - 65	8.0 %
33 - 35	4.0 %	66 - 71	2.0 %
36 - 38	2.0 %	72 - 77	1.0 %
39 - 41	3.0 %	78 - 83	0.0 %
42 - 44	2.0 %	84 - 89	2.0 %
> 44	4.0 %	> 89	2.0 %
(Cases) N =	100	(Cases) N =	100
mean	17	mean	36
min size (mm)	1	min size (mm)	12
max size (mm)	76	max size (mm)	93

2008 *Macrocystis pyrifera* SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Cluster Point

<i>Macrocystis pyrifera</i> Adult (>1m) Number of Stipes		<i>Macrocystis pyrifera</i> Adult (>1m) Holdfast Diameter	
< 3	20.1 %	< 6	0.0 %
3 - 5	28.1 %	6 - 11	22.3 %
6 - 8	25.9 %	12 - 17	25.2 %
9 - 11	12.2 %	18 - 23	24.5 %
12 - 14	4.3 %	24 - 29	15.8 %
15 - 17	3.6 %	30 - 35	7.2 %
18 - 20	2.9 %	36 - 41	1.4 %
21 - 23	0.0 %	42 - 47	0.7 %
24 - 26	0.7 %	48 - 53	1.4 %
27 - 29	0.7 %	54 - 59	0.0 %
30 - 32	1.4 %	60 - 65	1.4 %
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 =	139	(Cases) N =	139
mean	7	mean	20
min size (mm)	1	min size (mm)	6
max size (mm)	30	max size (mm)	63

Santa Rosa Island - Trancion Canyon

<i>Macrocystis pyrifera</i> Adult (>1m) Number of Stipes		<i>Macrocystis pyrifera</i> Adult (>1m) Holdfast Diameter	
< 3	14.3 %	< 6	5.1 %
3 - 5	24.5 %	6 - 11	13.3 %
6 - 8	13.3 %	12 - 17	18.4 %
9 - 11	9.2 %	18 - 23	11.2 %
12 - 14	6.1 %	24 - 29	16.3 %
15 - 17	9.2 %	30 - 35	8.2 %
18 - 20	6.1 %	36 - 41	10.2 %
21 - 23	11.2 %	42 - 47	7.1 %
24 - 26	5.1 %	48 - 53	6.1 %
27 - 29	2.0 %	54 - 59	2.0 %
30 - 32	0.0 %	60 - 65	0.0 %
33 - 35	0.0 %	66 - 71	0.0 %
36 - 38	0.0 %	72 - 77	2.0 %
39 - 41	0.0 %	78 - 83	0.0 %
42 - 44	1.0 %	84 - 89	0.0 %
> 44	0.0 %	> 89	0.0 %
(Cases) N =	98	(Cases) N =	98
mean	11	mean	26
min size (mm)	1	min size (mm)	4
max size (mm)	44	max size (mm)	73

2008 *Macrocystis pyrifera* SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Chickasaw

<i>Macrocystis pyrifera</i> Adult (>1m) Number of Stipes		<i>Macrocystis pyrifera</i> Adult (>1m) Holdfast Diameter	
< 3	4.5 %	< 6	1.8 %
3 - 5	10.9 %	6 - 11	4.5 %
6 - 8	15.5 %	12 - 17	8.2 %
9 - 11	7.3 %	18 - 23	13.6 %
12 - 14	15.5 %	24 - 29	13.6 %
15 - 17	13.6 %	30 - 35	14.5 %
18 - 20	15.5 %	36 - 41	19.1 %
21 - 23	10.0 %	42 - 47	8.2 %
24 - 26	4.5 %	48 - 53	8.2 %
27 - 29	2.7 %	54 - 59	5.5 %
30 - 32	0.0 %	60 - 65	0.9 %
33 - 35	0.9 %	66 - 71	0.9 %
36 - 38	0.0 %	72 - 77	0.0 %
39 - 41	0.0 %	78 - 83	0.9 %
42 - 44	0.0 %	84 - 89	0.0 %
> 44	0.0 %	> 89	0.0 %
(Cases) N =	110	(Cases) N =	110
mean	14	mean	33
min size (mm)	1	min size (mm)	4
max size (mm)	33	max size (mm)	78

Santa Rosa Island - South Point

<i>Macrocystis pyrifera</i> Adult (>1m) Number of Stipes		<i>Macrocystis pyrifera</i> Adult (>1m) Holdfast Diameter	
< 3	21.1 %	< 6	1.8 %
3 - 5	20.2 %	6 - 11	21.1 %
6 - 8	10.5 %	12 - 17	17.5 %
9 - 11	10.5 %	18 - 23	7.0 %
12 - 14	9.6 %	24 - 29	7.0 %
15 - 17	7.0 %	30 - 35	4.4 %
18 - 20	7.0 %	36 - 41	9.6 %
21 - 23	8.8 %	42 - 47	12.3 %
24 - 26	1.8 %	48 - 53	5.3 %
27 - 29	2.6 %	54 - 59	5.3 %
30 - 32	0.0 %	60 - 65	1.8 %
33 - 35	0.0 %	66 - 71	1.8 %
36 - 38	0.9 %	72 - 77	1.8 %
39 - 41	0.9 %	78 - 83	2.6 %
42 - 44	0.0 %	84 - 89	0.9 %
> 44	0.0 %	> 89	0.0 %
(Cases) N =	114	(Cases) N =	114
mean	10	mean	31
min size (mm)	1	min size (mm)	4
max size (mm)	39	max size (mm)	88

2008 *Macrocystis pyrifera* SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Keyhole

<i>Macrocystis pyrifera</i> Adult (>1m) Number of Stipes		<i>Macrocystis pyrifera</i> Adult (>1m) Holdfast Diameter	
< 3	30.8 %	< 6	0.0 %
3 - 5	53.8 %	6 - 11	53.8 %
6 - 8	7.7 %	12 - 17	38.5 %
9 - 11	3.8 %	18 - 23	7.7 %
12 - 14	3.8 %	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 =	26	(Cases) N =	26
mean	4	mean	12
min size (mm)	1	min size (mm)	6
max size (mm)	12	max size (mm)	20

Anacapa Island - Black Sea Bass Reef

<i>Macrocystis pyrifera</i> Adult (>1m) Number of Stipes		<i>Macrocystis pyrifera</i> Adult (>1m) Holdfast Diameter	
< 3	84.1 %	< 6	43.9 %
3 - 5	15.0 %	6 - 11	47.7 %
6 - 8	0.9 %	12 - 17	7.5 %
9 - 11	0.0 %	18 - 23	0.9 %
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 =	107	(Cases) N =	107
mean	2	mean	6
min size (mm)	1	min size (mm)	2
max size (mm)	6	max size (mm)	20

2008 *Macrocystis pyrifera* SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Lighthouse

<i>Macrocystis pyrifera</i> Adult (>1m) Number of Stipes		<i>Macrocystis pyrifera</i> Adult (>1m) Holdfast Diameter	
< 3	0.0 %	< 6	0.0 %
3 - 5	0.0 %	6 - 11	0.0 %
6 - 8	0.0 %	12 - 17	100.0 %
9 - 11	0.0 %	18 - 23	0.0 %
12 - 14	100.0 %	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 =	1	(Cases) N =	1
mean	13	mean	17
min size (mm)	13	min size (mm)	17
max size (mm)	13	max size (mm)	17

Santa Barbara Island - Southeast Reef

<i>Macrocystis pyrifera</i> Adult (>1m) Number of Stipes		<i>Macrocystis pyrifera</i> Adult (>1m) Holdfast Diameter	
< 3	32.9 %	< 6	0.0 %
3 - 5	27.1 %	6 - 11	30.6 %
6 - 8	29.4 %	12 - 17	45.9 %
9 - 11	5.9 %	18 - 23	20.0 %
12 - 14	3.5 %	24 - 29	2.4 %
15 - 17	1.2 %	30 - 35	1.2 %
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 =	85	(Cases) N =	85
mean	5	mean	14
min size (mm)	1	min size (mm)	6
max size (mm)	15	max size (mm)	32

Appendix K. Gorgonian/*Stylaster californica* Size Frequency Distributions

2008 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	0.0 %
9 - 12	0.0 %	9 - 12	4.2 %
13 - 16	0.0 %	13 - 16	7.0 %
17 - 20	2.8 %	17 - 20	18.3 %
21 - 24	1.4 %	21 - 24	9.9 %
25 - 28	8.5 %	24 - 28	14.1 %
29 - 32	11.3 %	29 - 32	15.5 %
33 - 36	2.8 %	33 - 36	7.0 %
37 - 40	14.1 %	37 - 40	9.9 %
41 - 44	15.5 %	41 - 44	7.0 %
45 - 48	8.5 %	45 - 48	4.2 %
49 - 52	12.7 %	49 - 52	1.4 %
53 - 56	9.9 %	53 - 56	0.0 %
57 - 60	7.0 %	57 - 60	0.0 %
61 - 64	4.2 %	61 - 64	1.4 %
65 - 68	0.0 %	65 - 68	0.0 %
69 - 72	1.4 %	69 - 72	0.0 %
73 - 76	1.4 %	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 =	71	(Cases) N =	71
mean	43	mean	28
min size (mm)	17	min size (mm)	10
max size (mm)	73	max size (mm)	62

<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	50.0 %	24 - 28	0.0 %
29 - 32	0.0 %	29 - 32	50.0 %
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	50.0 %	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	50.0 %
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 =	2	(Cases) N =	2
mean	43	mean	57
min size (mm)	26	min size (mm)	31
max size (mm)	59	max size (mm)	82

2008 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

<i>Stylaster californicus heights</i>		<i>Stylaster californicus widths</i>	
< 3	1.6 %	< 3	0.0 %
3 - 4	12.5 %	3 - 4	3.1 %
5 - 6	26.6 %	5 - 6	10.9 %
7 - 8	23.4 %	7 - 8	10.9 %
9 - 10	6.3 %	9 - 10	9.4 %
11 - 12	9.4 %	11 - 12	15.6 %
13 - 14	6.3 %	13 - 14	4.7 %
15 - 16	3.1 %	15 - 16	1.6 %
17 - 18	3.1 %	17 - 18	4.7 %
19 - 20	1.6 %	19 - 20	3.1 %
21 - 22	0.0 %	21 - 22	3.1 %
23 - 24	4.7 %	23 - 24	9.4 %
25 - 26	0.0 %	25 - 26	1.6 %
27 - 28	1.6 %	27 - 28	1.6 %
29 - 30	0.0 %	29 - 30	3.1 %
> 30	0.0 %	> 30	17.2 %
(Cases) N =	64	(Cases) N =	64
mean	9	mean	18
min size (mm)	2	min size (mm)	3
max size (mm)	28	max size (mm)	49

Santa Cruz Island - Pelican Bay

<i>Lophogorgia chilensis heights</i>		<i>Lophogorgia chilensis widths</i>	
< 5	1.8 %	< 5	1.8 %
5 - 8	0.0 %	5 - 8	1.8 %
9 - 12	0.0 %	9 - 12	3.5 %
13 - 16	0.0 %	13 - 16	8.8 %
17 - 20	1.8 %	17 - 20	7.0 %
21 - 24	8.8 %	21 - 24	8.8 %
25 - 28	12.3 %	24 - 28	3.5 %
29 - 32	14.0 %	29 - 32	7.0 %
33 - 36	7.0 %	33 - 36	14.0 %
37 - 40	8.8 %	37 - 40	8.8 %
41 - 44	7.0 %	41 - 44	7.0 %
45 - 48	15.8 %	45 - 48	5.3 %
49 - 52	15.8 %	49 - 52	10.5 %
53 - 56	10.5 %	53 - 56	7.0 %
57 - 60	0.0 %	57 - 60	1.8 %
61 - 64	0.0 %	61 - 64	1.8 %
65 - 68	0.0 %	65 - 68	1.8 %
69 - 72	0.0 %	69 - 72	0.0 %
73 - 76	0.0 %	73 - 76	1.8 %
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 =	57	(Cases) N =	57
mean	38	mean	35
min size (mm)	0	min size (mm)	0
max size (mm)	56	max size (mm)	74

2008 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - SE Sea Lion Rookery

Lophogorgia chilensis heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	1.8 %
25 - 28	5.3 %
29 - 32	5.3 %
33 - 36	3.5 %
37 - 40	17.5 %
41 - 44	15.8 %
45 - 48	17.5 %
49 - 52	10.5 %
53 - 56	14.0 %
57 - 60	5.3 %
61 - 64	3.5 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	1.8 %
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 =	57
mean	45
min size (mm)	22
max size (mm)	73

Lophogorgia chilensis widths

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	1.8 %
17 - 20	3.5 %
21 - 24	10.5 %
24 - 28	7.0 %
29 - 32	19.3 %
33 - 36	14.0 %
37 - 40	8.8 %
41 - 44	12.3 %
45 - 48	5.3 %
49 - 52	10.5 %
53 - 56	3.5 %
57 - 60	1.8 %
61 - 64	0.0 %
65 - 68	1.8 %
69 - 72	1.8 %
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 =	57
mean	37
min size (mm)	16
max size (mm)	70

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	25.0 %
37 - 40	25.0 %
41 - 44	8.3 %
45 - 48	16.7 %
49 - 52	8.3 %
53 - 56	8.3 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	8.3 %
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	44
min size (mm)	33
max size (mm)	70

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	8.3 %
33 - 36	0.0 %
37 - 40	0.0 %
41 - 44	0.0 %
45 - 48	0.0 %
49 - 52	8.3 %
53 - 56	8.3 %
57 - 60	16.7 %
61 - 64	16.7 %
65 - 68	8.3 %
69 - 72	0.0 %
73 - 76	16.7 %
77 - 80	16.7 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	8.3 %
> 100	0.0 %
(Cases) N =	12
mean	67
min size (mm)	32
max size (mm)	98

2008 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	1.7 %
17 - 20	1.7 %
21 - 24	12.1 %
25 - 28	8.6 %
29 - 32	15.5 %
33 - 36	17.2 %
37 - 40	15.5 %
41 - 44	10.3 %
45 - 48	8.6 %
49 - 52	1.7 %
53 - 56	3.4 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	1.7 %
69 - 72	0.0 %
73 - 76	0.0 %
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 =	58
mean	36
min size (mm)	16
max size (mm)	79

Lophogorgia chilensis widths

< 5	0.0 %
5 - 8	1.7 %
9 - 12	0.0 %
13 - 16	10.3 %
17 - 20	13.8 %
21 - 24	10.3 %
24 - 28	20.7 %
29 - 32	12.1 %
33 - 36	8.6 %
37 - 40	5.2 %
41 - 44	5.2 %
45 - 48	1.7 %
49 - 52	1.7 %
53 - 56	1.7 %
57 - 60	0.0 %
61 - 64	1.7 %
65 - 68	0.0 %
69 - 72	1.7 %
73 - 76	0.0 %
77 - 80	3.4 %
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 =	58
mean	30
min size (mm)	7
max size (mm)	78

Muricea californica heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	14.3 %
25 - 28	0.0 %
29 - 32	28.6 %
33 - 36	14.3 %
37 - 40	14.3 %
41 - 44	0.0 %
45 - 48	0.0 %
49 - 52	0.0 %
53 - 56	14.3 %
57 - 60	14.3 %
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 =	7
mean	39
min size (mm)	22
max size (mm)	60

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	14.3 %
29 - 32	0.0 %
33 - 36	0.0 %
37 - 40	0.0 %
41 - 44	14.3 %
45 - 48	14.3 %
49 - 52	0.0 %
53 - 56	14.3 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	14.3 %
73 - 76	14.3 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	14.3 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	7
mean	58
min size (mm)	28
max size (mm)	94

2008 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Cavern Point

Lophogorgia chilensis heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	2.6 %
13 - 16	5.3 %
17 - 20	6.6 %
21 - 24	2.6 %
25 - 28	7.9 %
29 - 32	7.9 %
33 - 36	6.6 %
37 - 40	9.2 %
41 - 44	6.6 %
45 - 48	14.5 %
49 - 52	21.1 %
53 - 56	5.3 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	3.9 %
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 =	76
mean	39
min size (mm)	12
max size (mm)	65

Lophogorgia chilensis widths

< 5	0.0 %
5 - 8	1.3 %
9 - 12	9.2 %
13 - 16	7.9 %
17 - 20	2.6 %
21 - 24	2.6 %
24 - 28	11.8 %
29 - 32	9.2 %
33 - 36	14.5 %
37 - 40	9.2 %
41 - 44	13.2 %
45 - 48	5.3 %
49 - 52	5.3 %
53 - 56	3.9 %
57 - 60	3.9 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	1.3 %
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 size (mm)	7
max size (mm)	75

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	16.7 %
29 - 32	0.0 %
33 - 36	50.0 %
37 - 40	16.7 %
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	37
min size (mm)	25
max size (mm)	49

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	16.7 %
29 - 32	16.7 %
33 - 36	0.0 %
37 - 40	16.7 %
41 - 44	16.7 %
45 - 48	0.0 %
49 - 52	0.0 %
53 - 56	0.0 %
57 - 60	16.7 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	16.7 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	6
mean	47
min size (mm)	26
max size (mm)	84

2008 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	0.0 %
17 - 20	0.0 %
21 - 24	0.0 %
25 - 28	0.0 %
29 - 32	7.7 %
33 - 36	3.8 %
37 - 40	3.8 %
41 - 44	11.5 %
45 - 48	19.2 %
49 - 52	7.7 %
53 - 56	26.9 %
57 - 60	3.8 %
61 - 64	11.5 %
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	3.8 %
> 100	0.0 %
(Cases) N =	26
mean	51
min size (mm)	30
max size (mm)	97

Lophogorgia chilensis widths

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	3.8 %
21 - 24	11.5 %
24 - 28	7.7 %
29 - 32	7.7 %
33 - 36	7.7 %
37 - 40	7.7 %
41 - 44	15.4 %
45 - 48	7.7 %
49 - 52	7.7 %
53 - 56	7.7 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	3.8 %
69 - 72	7.7 %
73 - 76	0.0 %
77 - 80	3.8 %
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 =	26
mean	43
min size (mm)	19
max size (mm)	80

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	0.0 %
41 - 44	100.0 %
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	42
min size (mm)	42
max size (mm)	42

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	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	100.0 %
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	78
min size (mm)	78
max size (mm)	78

2008 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pedro Reef

<i>Lophogorgia chilensis heights</i>		<i>Lophogorgia chilensis widths</i>	
< 5	1.7 %	< 5	1.7 %
5 - 8	0.0 %	5 - 8	0.0 %
9 - 12	1.7 %	9 - 12	3.3 %
13 - 16	1.7 %	13 - 16	3.3 %
17 - 20	5.0 %	17 - 20	1.7 %
21 - 24	3.3 %	21 - 24	6.7 %
25 - 28	3.3 %	24 - 28	5.0 %
29 - 32	6.7 %	29 - 32	8.3 %
33 - 36	10.0 %	33 - 36	8.3 %
37 - 40	10.0 %	37 - 40	11.7 %
41 - 44	11.7 %	41 - 44	11.7 %
45 - 48	16.7 %	45 - 48	10.0 %
49 - 52	13.3 %	49 - 52	20.0 %
53 - 56	8.3 %	53 - 56	1.7 %
57 - 60	8.3 %	57 - 60	0.0 %
61 - 64	1.7 %	61 - 64	1.7 %
65 - 68	0.0 %	65 - 68	1.7 %
69 - 72	0.0 %	69 - 72	1.7 %
73 - 76	0.0 %	73 - 76	1.7 %
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 =	60	(Cases) N =	60
mean	41	mean	39
min size (mm)	4	min size (mm)	3
max size (mm)	61	max size (mm)	74

<i>Muricea californica heights</i>		<i>Muricea californica widths</i>	
< 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	9.5 %	24 - 28	0.0 %
29 - 32	19.0 %	29 - 32	4.8 %
33 - 36	9.5 %	33 - 36	4.8 %
37 - 40	19.0 %	37 - 40	0.0 %
41 - 44	4.8 %	41 - 44	4.8 %
45 - 48	14.3 %	45 - 48	0.0 %
49 - 52	9.5 %	49 - 52	14.3 %
53 - 56	4.8 %	53 - 56	9.5 %
57 - 60	9.5 %	57 - 60	9.5 %
61 - 64	0.0 %	61 - 64	14.3 %
65 - 68	0.0 %	65 - 68	0.0 %
69 - 72	0.0 %	69 - 72	4.8 %
73 - 76	0.0 %	73 - 76	0.0 %
77 - 80	0.0 %	77 - 80	9.5 %
81 - 84	0.0 %	81 - 84	9.5 %
85 - 88	0.0 %	85 - 88	9.5 %
89 - 92	0.0 %	89 - 92	4.8 %
93 - 96	0.0 %	93 - 96	0.0 %
97 - 100	0.0 %	97 - 100	0.0 %
> 100	0.0 %	> 100	0.0 %
(Cases) N =	21	(Cases) N =	21
mean	41	mean	63
min size (mm)	26	min size (mm)	32
max size (mm)	60	max size (mm)	90

2008 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Keyhole

Lophogorgia chilensis heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	1.3 %
13 - 16	2.7 %
17 - 20	2.7 %
21 - 24	10.7 %
25 - 28	20.0 %
29 - 32	9.3 %
33 - 36	16.0 %
37 - 40	10.7 %
41 - 44	2.7 %
45 - 48	9.3 %
49 - 52	4.0 %
53 - 56	6.7 %
57 - 60	2.7 %
61 - 64	1.3 %
65 - 68	1.3 %
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 =	75
mean	35
min size (mm)	12
max size (mm)	67

Lophogorgia chilensis widths

< 5	1.3 %
5 - 8	1.3 %
9 - 12	5.3 %
13 - 16	6.7 %
17 - 20	10.7 %
21 - 24	16.0 %
24 - 28	13.3 %
29 - 32	10.7 %
33 - 36	8.0 %
37 - 40	12.0 %
41 - 44	1.3 %
45 - 48	2.7 %
49 - 52	4.0 %
53 - 56	1.3 %
57 - 60	4.0 %
61 - 64	1.3 %
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 =	75
mean	29
min size (mm)	4
max size (mm)	61

Muricea fruticosa heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	50.0 %
17 - 20	0.0 %
21 - 24	0.0 %
25 - 28	0.0 %
29 - 32	0.0 %
33 - 36	50.0 %
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	24
min size (mm)	14
max size (mm)	34

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	50.0 %
29 - 32	0.0 %
33 - 36	0.0 %
37 - 40	0.0 %
41 - 44	0.0 %
45 - 48	50.0 %
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	37
min size (mm)	25
max size (mm)	48

2008 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Keyhole

Muricea californica heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	9.1 %
25 - 28	3.0 %
29 - 32	12.1 %
33 - 36	21.2 %
37 - 40	15.2 %
41 - 44	15.2 %
45 - 48	9.1 %
49 - 52	6.1 %
53 - 56	3.0 %
57 - 60	3.0 %
61 - 64	3.0 %
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 =	33
mean	38
min size (mm)	22
max size (mm)	61

Muricea californica widths

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	3.0 %
21 - 24	0.0 %
24 - 28	0.0 %
29 - 32	0.0 %
33 - 36	0.0 %
37 - 40	3.0 %
41 - 44	6.1 %
45 - 48	9.1 %
49 - 52	9.1 %
53 - 56	15.2 %
57 - 60	12.1 %
61 - 64	12.1 %
65 - 68	6.1 %
69 - 72	9.1 %
73 - 76	6.1 %
77 - 80	0.0 %
81 - 84	3.0 %
85 - 88	3.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	6.1 %
(Cases) N =	33
mean	61
min size (mm)	19
max size (mm)	110

2008 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	4.3 %
25 - 28	0.0 %
29 - 32	0.0 %
33 - 36	8.7 %
37 - 40	13.0 %
41 - 44	21.7 %
45 - 48	4.3 %
49 - 52	43.5 %
53 - 56	8.7 %
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 =	23
mean	44
min size (mm)	24
max size (mm)	55

Lophogorgia chilensis widths

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	4.3 %
17 - 20	0.0 %
21 - 24	0.0 %
24 - 28	8.7 %
29 - 32	8.7 %
33 - 36	17.4 %
37 - 40	13.0 %
41 - 44	13.0 %
45 - 48	4.3 %
49 - 52	13.0 %
53 - 56	4.3 %
57 - 60	8.7 %
61 - 64	4.3 %
65 - 68	0.0 %
69 - 72	4.3 %
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 =	23
mean	42
min size (mm)	15
max size (mm)	72

Muricea fruticosa heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	50.0 %
21 - 24	0.0 %
25 - 28	50.0 %
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	22
min size (mm)	18
max size (mm)	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	0.0 %
24 - 28	0.0 %
29 - 32	50.0 %
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	50.0 %
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	48
min size (mm)	30
max size (mm)	66

2008 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - East Fish Camp

Muricea californica heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	4.8 %
21 - 24	0.0 %
25 - 28	0.0 %
29 - 32	9.5 %
33 - 36	23.8 %
37 - 40	4.8 %
41 - 44	28.6 %
45 - 48	9.5 %
49 - 52	9.5 %
53 - 56	9.5 %
57 - 60	0.0 %
61 - 64	4.8 %
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 =	21
mean	41
min size (mm)	17
max size (mm)	63

Muricea californica widths

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	4.8 %
21 - 24	0.0 %
24 - 28	4.8 %
29 - 32	0.0 %
33 - 36	0.0 %
37 - 40	0.0 %
41 - 44	0.0 %
45 - 48	0.0 %
49 - 52	9.5 %
53 - 56	19.0 %
57 - 60	4.8 %
61 - 64	4.8 %
65 - 68	4.8 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	14.3 %
81 - 84	0.0 %
85 - 88	4.8 %
89 - 92	4.8 %
93 - 96	4.8 %
97 - 100	4.8 %
> 100	14.3 %
(Cases) N =	21
mean	73
min size (mm)	17
max size (mm)	130

2008 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Lighthouse

<i>Lophogorgia chilensis heights</i>		<i>Lophogorgia chilensis widths</i>	
< 5	0.0 %	< 5	0.0 %
5 - 8	0.0 %	5 - 8	0.0 %
9 - 12	0.0 %	9 - 12	5.7 %
13 - 16	5.7 %	13 - 16	14.3 %
17 - 20	5.7 %	17 - 20	25.7 %
21 - 24	14.3 %	21 - 24	14.3 %
25 - 28	28.6 %	24 - 28	14.3 %
29 - 32	14.3 %	29 - 32	8.6 %
33 - 36	17.1 %	33 - 36	2.9 %
37 - 40	11.4 %	37 - 40	11.4 %
41 - 44	0.0 %	41 - 44	2.9 %
45 - 48	0.0 %	45 - 48	0.0 %
49 - 52	0.0 %	49 - 52	0.0 %
53 - 56	2.9 %	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 =	35	(Cases) N =	35
mean	29	mean	24
min size (mm)	13	min size (mm)	9
max size (mm)	56	max size (mm)	44

<i>Muricea fruticosa heights</i>		<i>Muricea fruticosa widths</i>	
< 5	0.0 %	< 5	0.0 %
5 - 8	11.1 %	5 - 8	0.0 %
9 - 12	11.1 %	9 - 12	0.0 %
13 - 16	11.1 %	13 - 16	11.1 %
17 - 20	22.2 %	17 - 20	0.0 %
21 - 24	22.2 %	21 - 24	11.1 %
25 - 28	11.1 %	24 - 28	0.0 %
29 - 32	0.0 %	29 - 32	55.6 %
33 - 36	0.0 %	33 - 36	11.1 %
37 - 40	11.1 %	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	11.1 %
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 =	9	(Cases) N =	9
mean	20	mean	32
min size (mm)	8	min size (mm)	13
max size (mm)	39	max size (mm)	62

2008 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Lighthouse

Muricea californica heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	4.2 %
21 - 24	5.6 %
25 - 28	7.0 %
29 - 32	15.5 %
33 - 36	14.1 %
37 - 40	19.7 %
41 - 44	8.5 %
45 - 48	14.1 %
49 - 52	7.0 %
53 - 56	2.8 %
57 - 60	1.4 %
61 - 64	0.0 %
65 - 68	0.0 %
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 =	71
mean	37
min size (mm)	17
max size (mm)	71

Muricea californica widths

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	1.4 %
17 - 20	0.0 %
21 - 24	1.4 %
24 - 28	2.8 %
29 - 32	2.8 %
33 - 36	4.2 %
37 - 40	0.0 %
41 - 44	5.6 %
45 - 48	5.6 %
49 - 52	4.2 %
53 - 56	7.0 %
57 - 60	8.5 %
61 - 64	1.4 %
65 - 68	8.5 %
69 - 72	15.5 %
73 - 76	11.3 %
77 - 80	5.6 %
81 - 84	5.6 %
85 - 88	7.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	2.8 %
> 100	1.4 %
(Cases) N =	71
mean	63
min size (mm)	15
max size (mm)	102

2008 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	0.0 %
21 - 24	2.6 %
25 - 28	0.0 %
29 - 32	12.8 %
33 - 36	10.3 %
37 - 40	15.4 %
41 - 44	17.9 %
45 - 48	20.5 %
49 - 52	7.7 %
53 - 56	10.3 %
57 - 60	5.1 %
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	2.6 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	39
mean	43
min size (mm)	24
max size (mm)	91

Lophogorgia chilensis widths

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	5.1 %
24 - 28	10.3 %
29 - 32	17.9 %
33 - 36	20.5 %
37 - 40	10.3 %
41 - 44	10.3 %
45 - 48	7.7 %
49 - 52	2.6 %
53 - 56	5.1 %
57 - 60	2.6 %
61 - 64	5.1 %
65 - 68	0.0 %
69 - 72	2.6 %
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 =	39
mean	39
min size (mm)	21
max size (mm)	70

Muricea fruticosa heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	50.0 %
17 - 20	0.0 %
21 - 24	0.0 %
25 - 28	50.0 %
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	21
min size (mm)	15
max size (mm)	27

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	0.0 %
29 - 32	0.0 %
33 - 36	100.0 %
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	34
min size (mm)	33
max size (mm)	35

2008 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Graveyard Canyon

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	3.3 %
29 - 32	3.3 %
33 - 36	10.0 %
37 - 40	20.0 %
41 - 44	23.3 %
45 - 48	13.3 %
49 - 52	10.0 %
53 - 56	13.3 %
57 - 60	3.3 %
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 =	30
mean	44
min size (mm)	26
max size (mm)	65

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	3.3 %
33 - 36	3.3 %
37 - 40	0.0 %
41 - 44	0.0 %
45 - 48	0.0 %
49 - 52	0.0 %
53 - 56	10.0 %
57 - 60	0.0 %
61 - 64	6.7 %
65 - 68	6.7 %
69 - 72	13.3 %
73 - 76	13.3 %
77 - 80	10.0 %
81 - 84	6.7 %
85 - 88	6.7 %
89 - 92	3.3 %
93 - 96	6.7 %
97 - 100	3.3 %
> 100	6.7 %
(Cases) N =	30
mean	74
min size (mm)	32
max size (mm)	103

Appendix L. Artificial Recruitment Modules Size Frequency Distributions

2008 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Admiral's Reef

<i>Crassidoma giganteum</i>		<i>Patiria miniata</i>		<i>Strongylocentrotus purpuratus</i>	
Number of ARMs	6	Number of ARMs	6	Number of ARMs	6
<10	0.0 %	<10	9.0 %	< 5	1.8 %
10 - 19	33.3 %	10 - 19	31.5 %	5 - 9	26.6 %
20 - 29	0.0 %	20 - 29	38.2 %	10 - 14	28.4 %
30 - 39	0.0 %	30 - 39	19.1 %	15 - 19	11.8 %
40 - 49	0.0 %	40 - 49	2.2 %	20 - 24	13.6 %
50 - 59	0.0 %	50 - 59	0.0 %	25 - 29	12.4 %
60 - 69	33.3 %	60 - 69	0.0 %	30 - 34	4.1 %
70 - 79	0.0 %	70 - 79	0.0 %	35 - 39	1.2 %
80 - 89	0.0 %	80 - 89	0.0 %	40 - 44	0.0 %
90 - 99	33.3 %	90 - 99	0.0 %	45 - 49	0.0 %
100 - 109	0.0 %	> 99	0.0 %	50 - 54	0.0 %
110 - 119	0.0 %	(Cases) N =	89	55 - 59	0.0 %
120 - 129	0.0 %	mean	23	60 - 64	0.0 %
130 - 139	0.0 %	min size (mm)	6	65 - 69	0.0 %
> 139	0.0 %	max size (mm)	42	70 - 74	0.0 %
(Cases) N =	3			75 - 79	0.0 %
mean	56			> 79	0.0 %
min size (mm)	12			(Cases) N =	169
max size (mm)	95			mean	18
				min size (mm)	4
				max size (mm)	39
<i>Megathura crenulata</i>		<i>Strongylocentrotus franciscanus</i>		<i>Tegula regina</i>	
Number of ARMs	6	Number of ARMs	6	Number of ARMs	6
<10	0.0 %	< 5	0.0 %	< 5	0.0 %
10 - 19	0.0 %	5 - 9	4.3 %	5 - 9	0.0 %
20 - 29	36.4 %	10 - 14	6.4 %	10 - 14	0.0 %
30 - 39	63.6 %	15 - 19	6.4 %	15 - 19	0.0 %
40 - 49	0.0 %	20 - 24	27.7 %	20 - 24	20.0 %
50 - 59	0.0 %	25 - 29	18.1 %	25 - 29	0.0 %
60 - 69	0.0 %	30 - 34	23.4 %	30 - 34	20.0 %
70 - 79	0.0 %	35 - 39	10.6 %	35 - 39	20.0 %
80 - 89	0.0 %	40 - 44	1.1 %	40 - 44	40.0 %
90 - 99	0.0 %	45 - 49	2.1 %	45 - 49	0.0 %
100 - 109	0.0 %	50 - 54	0.0 %	50 - 54	0.0 %
110 - 119	0.0 %	55 - 59	0.0 %	55 - 59	0.0 %
> 119	0.0 %	60 - 64	0.0 %	60 - 64	0.0 %
(Cases) N =	11	65 - 69	0.0 %	65 - 69	0.0 %
mean	31	70 - 74	0.0 %	70 - 74	0.0 %
min size (mm)	23	75 - 79	0.0 %	> 75	0.0 %
max size (mm)	38	80 - 84	0.0 %	(Cases) N =	5
		85 - 89	0.0 %	mean	36
		90 - 94	0.0 %	min size (mm)	23
		95 - 99	0.0 %	max size (mm)	44
		100 - 104	0.0 %		
		105 - 109	0.0 %		
		> 109	0.0 %		
		(Cases) N =	94		
		mean	25		
		min size (mm)	7		
		max size (mm)	49		

2008 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Cathedral Cove

<i>Centrostephanus coronatus</i>		<i>Cypraea spadicea</i>		<i>Kelletia kelletii</i>	
Number of ARMs	7	Number of ARMs	7	Number of ARMs	7
< 5	0.0 %	<30	0.0 %	< 40	100.0 %
5 - 9	50.0 %	30 - 32	8.5 %	40 - 49	0.0 %
10 - 14	0.0 %	33 - 35	12.0 %	50 - 59	0.0 %
15 - 19	0.0 %	36 - 38	23.9 %	60 - 69	0.0 %
20 - 24	0.0 %	39 - 41	22.5 %	70 - 79	0.0 %
25 - 29	0.0 %	42 - 44	19.0 %	80 - 89	0.0 %
30 - 34	0.0 %	45 - 47	9.9 %	90 - 99	0.0 %
35 - 39	0.0 %	48 - 50	4.2 %	100 - 109	0.0 %
40 - 44	0.0 %	51 - 53	0.0 %	110 - 119	0.0 %
45 - 49	0.0 %	54 - 56	0.0 %	120 - 129	0.0 %
50 - 54	50.0 %	>56	0.0 %	130 - 139	0.0 %
55 - 59	0.0 %	(Cases) N =	142	140 - 149	0.0 %
60 - 64	0.0 %	mean	39	> 149	0.0 %
65 - 69	0.0 %	min size (mm)	30	(Cases) N =	2
70 - 74	0.0 %	max size (mm)	50	mean	16
75 - 79	0.0 %			min size (mm)	15
> 79	0.0 %			max size (mm)	17
(Cases) N =	2	<i>Haliotis corrugata</i>		<i>Megastrea undosa</i>	
mean	31	Number of ARMs	7	<i>Megastrea undosa</i>	
min size (mm)	8			Number of ARMs	7
max size (mm)	53	<25	42.9 %	<10	0.0 %
		25 - 34	14.3 %	10 - 19	0.0 %
		35 - 44	14.3 %	20 - 29	0.0 %
		45 - 54	14.3 %	30 - 39	33.3 %
		55 - 64	0.0 %	40 - 49	16.7 %
		65 - 74	14.3 %	50 - 59	0.0 %
		75 - 84	0.0 %	60 - 69	0.0 %
		85 - 94	0.0 %	70 - 79	16.7 %
		95 - 104	0.0 %	80 - 89	33.3 %
		105 - 114	0.0 %	90 - 99	0.0 %
		115 - 124	0.0 %	100 - 109	0.0 %
		125 - 134	0.0 %	110 - 119	0.0 %
		135 - 144	0.0 %	> 119	0.0 %
		145 - 154	0.0 %	(Cases) N =	6
		155 - 164	0.0 %	mean	61
		165 - 174	0.0 %	min size (mm)	32
		175 - 184	0.0 %	max size (mm)	89
		185 - 194	0.0 %		
		>195	0.0 %		
		(Cases) N =	7		
		mean	35		
		min size (mm)	19		
		max size (mm)	67		
<i>Crassidoma giganteum</i>					
Number of ARMs	7				
<10	6.3 %				
10 - 19	31.3 %				
20 - 29	0.0 %				
30 - 39	0.0 %				
40 - 49	0.0 %				
50 - 59	6.3 %				
60 - 69	6.3 %				
70 - 79	0.0 %				
80 - 89	6.3 %				
90 - 99	0.0 %				
100 - 109	0.0 %				
110 - 119	12.5 %				
120 - 129	12.5 %				
130 - 139	6.3 %				
> 139	12.5 %				
(Cases) N =	16				
mean	78				
min size (mm)	9				
max size (mm)	149				

2008 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Cathedral Cove

<i>Megathura crenulata</i>		<i>Pisaster giganteus</i>		<i>Strongylocentrotus purpuratus</i>	
Number of ARMs	7	Number of ARMs	7	Number of ARMs	7
<10	0.0 %	< 20	56.0 %	< 5	1.0 %
10 - 19	0.0 %	20 - 39	44.0 %	5 - 9	27.9 %
20 - 29	0.0 %	40 - 59	0.0 %	10 - 14	15.5 %
30 - 39	0.0 %	60 - 79	0.0 %	15 - 19	15.4 %
40 - 49	0.0 %	80 - 99	0.0 %	20 - 24	8.6 %
50 - 59	100.0 %	100 - 119	0.0 %	25 - 29	4.8 %
60 - 69	0.0 %	120 - 139	0.0 %	30 - 34	3.3 %
70 - 79	0.0 %	140 - 159	0.0 %	35 - 39	2.1 %
80 - 89	0.0 %	160 - 179	0.0 %	40 - 44	3.6 %
90 - 99	0.0 %	180 - 199	0.0 %	45 - 49	2.3 %
100 - 109	0.0 %	200 - 219	0.0 %	50 - 54	4.5 %
110 - 119	0.0 %	220 - 239	0.0 %	55 - 59	4.6 %
> 119	0.0 %	> 239	0.0 %	60 - 64	3.8 %
(Cases) N =	1	(Cases) N =	25	65 - 69	1.8 %
mean	58	mean	21	70 - 74	0.8 %
min size (mm)	58	min size (mm)	11	75 - 79	0.0 %
max size (mm)	58	max size (mm)	37	> 79	0.0 %
				(Cases) N =	1119
				mean	34
				min size (mm)	4
				max size (mm)	73
<i>Patiria miniata</i>		<i>Strongylocentrotus franciscanus</i>			
Number of ARMs	7	Number of ARMs	7		
<10	22.5 %	< 5	0.2 %		
10 - 19	47.9 %	5 - 9	7.9 %		
20 - 29	18.3 %	10 - 14	10.6 %		
30 - 39	7.0 %	15 - 19	10.8 %		
40 - 49	4.2 %	20 - 24	5.8 %		
50 - 59	0.0 %	25 - 29	4.8 %		
60 - 69	0.0 %	30 - 34	6.0 %		
70 - 79	0.0 %	35 - 39	6.9 %		
80 - 89	0.0 %	40 - 44	3.5 %		
90 - 99	0.0 %	45 - 49	5.8 %		
> 99	0.0 %	50 - 54	5.2 %		
(Cases) N =	71	55 - 59	4.0 %		
mean	16	60 - 64	5.6 %		
min size (mm)	4	65 - 69	5.2 %		
max size (mm)	47	70 - 74	5.2 %		
		75 - 79	4.6 %		
		80 - 84	4.2 %		
		85 - 89	2.3 %		
		90 - 94	0.8 %		
		95 - 99	0.0 %		
		100 - 104	0.0 %		
		105 - 109	0.0 %		
		> 109	0.4 %		
		(Cases) N =	480		
		mean	44		
		min size (mm)	4		
		max size (mm)	117		

2008 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Landing Cove

Crassedoma giganteum

Number of ARMs	6
<10	0.0 %
10 - 19	3.3 %
20 - 29	10.0 %
30 - 39	16.7 %
40 - 49	3.3 %
50 - 59	10.0 %
60 - 69	10.0 %
70 - 79	10.0 %
80 - 89	13.3 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	10.0 %
120 - 129	6.7 %
130 - 139	3.3 %
> 139	3.3 %
(Cases) N =	30
mean	71
min size (mm)	15
max size (mm)	142

Cypraea spadicea

Number of ARMs	6
<30	2.0 %
30 - 32	0.0 %
33 - 35	12.2 %
36 - 38	10.2 %
39 - 41	18.4 %
42 - 44	24.5 %
45 - 47	16.3 %
48 - 50	8.2 %
51 - 53	4.1 %
54 - 56	4.1 %
>56	0.0 %
(Cases) N =	49
mean	42
min size (mm)	21
max size (mm)	55

Haliotis corrugata

Number of ARMs	6
<25	0.0 %
25 - 34	0.0 %
35 - 44	50.0 %
45 - 54	0.0 %
55 - 64	50.0 %
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 =	2
mean	48
min size (mm)	35
max size (mm)	60

Kelletia kelletii

Number of ARMs	6
< 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 =	1
mean	35
min size (mm)	35
max size (mm)	35

Megastrea undosa

Number of ARMs	6
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	20.0 %
40 - 49	20.0 %
50 - 59	0.0 %
60 - 69	20.0 %
70 - 79	20.0 %
80 - 89	0.0 %
90 - 99	20.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	5
mean	64
min size (mm)	38
max size (mm)	97

Megathura crenulata

Number of ARMs	6
<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	26
min size (mm)	26
max size (mm)	26

2008 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Landing Cove

Patiria miniata

Number of ARMs	6
<10	21.2 %
10 - 19	54.5 %
20 - 29	24.2 %
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 %
> 99	0.0 %
(Cases) N =	33
mean	16
min size (mm)	6
max size (mm)	29

Pisaster giganteus

Number of ARMs	6
< 20	40.0 %
20 - 39	60.0 %
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 =	10
mean	24
min size (mm)	13
max size (mm)	39

Strongylocentrotus franciscanus

Number of ARMs	6
< 5	0.0 %
5 - 9	7.0 %
10 - 14	8.1 %
15 - 19	11.6 %
20 - 24	5.9 %
25 - 29	7.8 %
30 - 34	5.1 %
35 - 39	6.8 %
40 - 44	4.6 %
45 - 49	3.8 %
50 - 54	3.2 %
55 - 59	4.3 %
60 - 64	5.7 %
65 - 69	3.8 %
70 - 74	4.3 %
75 - 79	4.9 %
80 - 84	4.3 %
85 - 89	5.7 %
90 - 94	0.8 %
95 - 99	1.6 %
100 - 104	0.5 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	370
mean	46
min size (mm)	5
max size (mm)	103

Strongylocentrotus purpuratus

Number of ARMs	6
< 5	0.5 %
5 - 9	17.6 %
10 - 14	15.4 %
15 - 19	13.6 %
20 - 24	10.8 %
25 - 29	7.0 %
30 - 34	7.2 %
35 - 39	4.2 %
40 - 44	4.5 %
45 - 49	5.1 %
50 - 54	4.2 %
55 - 59	4.3 %
60 - 64	2.8 %
65 - 69	1.7 %
70 - 74	0.8 %
75 - 79	0.2 %
> 79	0.0 %
(Cases) N =	1089
mean	35
min size (mm)	4
max size (mm)	77

Crassedoma giganteum

Number of ARMs	7
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	50.0 %
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	25.0 %
120 - 129	0.0 %
130 - 139	25.0 %
> 139	0.0 %
(Cases) N =	4
mean	77
min size (mm)	30
max size (mm)	137
max size (mm)	137

Haliotis rufescens

Haliotis rufescens

Number of ARMs	7
<25	9.1 %
25 - 34	36.4 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	9.1 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	9.1 %
125 - 134	9.1 %
135 - 144	0.0 %
145 - 154	18.2 %
155 - 164	9.1 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	11
mean	86
min size (mm)	21
max size (mm)	162

2008 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Miracle Mile

Lithopoma gibberosa

Number of ARMs	7
<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

Pisaster giganteus

Number of ARMs	7
< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	100.0 %
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	74
min size (mm)	74
max size (mm)	74

Strongylocentrotus franciscanus

Number of ARMs	7
< 5	0.0 %
5 - 9	0.0 %
10 - 14	8.3 %
15 - 19	0.0 %
20 - 24	8.3 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	8.3 %
40 - 44	0.0 %
45 - 49	2.8 %
50 - 54	2.8 %
55 - 59	5.6 %
60 - 64	5.6 %
65 - 69	2.8 %
70 - 74	0.0 %
75 - 79	0.0 %
80 - 84	2.8 %
85 - 89	5.6 %
90 - 94	8.3 %
95 - 99	19.4 %
100 - 104	8.3 %

Patiria miniata

Number of ARMs	7
<10	0.0 %
10 - 19	13.0 %
20 - 29	37.0 %
30 - 39	14.8 %
40 - 49	18.5 %
50 - 59	9.3 %
60 - 69	5.6 %
70 - 79	1.9 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	54
mean	35
min size (mm)	12
max size (mm)	72

Pycnopodia helianthoides

Number of ARMs	7
< 20	0.0 %
20 - 39	27.3 %
40 - 59	63.6 %
60 - 79	9.1 %
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 =	11
mean	47
min size (mm)	27
max size (mm)	63

105 - 109	0.0 %
> 109	11.1 %
(Cases) N =	36
mean	73
min size (mm)	12
max size (mm)	121

Strongylocentrotus purpuratus

Number of ARMs	7
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	33.3 %
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	33.3 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	33.3 %
(Cases) N =	3
mean	53
min size (mm)	18
max size (mm)	90

2008 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Fry's Harbor

Megathura crenulata

Number of ARMs	5
<10	0.0 %
10 - 19	0.0 %
20 - 29	50.0 %
30 - 39	25.0 %
40 - 49	25.0 %
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 =	8
mean	32
min size (mm)	21
max size (mm)	47

Pisaster giganteus

Number of ARMs	5
< 20	22.2 %
20 - 39	44.4 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	0.0 %
100 - 119	0.0 %
120 - 139	22.2 %
140 - 159	11.1 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	9
mean	56
min size (mm)	14
max size (mm)	140

Strongylocentrotus franciscanus

Number of ARMs	5
< 5	0.0 %
5 - 9	0.0 %
10 - 14	5.9 %
15 - 19	18.6 %
20 - 24	14.4 %
25 - 29	11.0 %
30 - 34	6.8 %
35 - 39	4.2 %
40 - 44	6.8 %
45 - 49	1.7 %
50 - 54	2.5 %
55 - 59	6.8 %
60 - 64	8.5 %
65 - 69	4.2 %
70 - 74	4.2 %
75 - 79	3.4 %
80 - 84	0.8 %
85 - 89	0.0 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %

Patiria miniata

Number of ARMs	5
<10	6.9 %
10 - 19	24.1 %
20 - 29	13.8 %
30 - 39	27.6 %
40 - 49	17.2 %
50 - 59	3.4 %
60 - 69	3.4 %
70 - 79	3.4 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	29
mean	32
min size (mm)	8
max size (mm)	73

Pycnopodia helianthoides

Number of ARMs	5
< 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	235
min size (mm)	235
max size (mm)	235

105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	118
mean	40
min size (mm)	12
max size (mm)	81

Strongylocentrotus purpuratus

Number of ARMs	5
< 5	0.0 %
5 - 9	2.6 %
10 - 14	3.9 %
15 - 19	22.1 %
20 - 24	29.9 %
25 - 29	11.7 %
30 - 34	14.3 %
35 - 39	6.5 %
40 - 44	5.2 %
45 - 49	2.6 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	1.3 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	77
mean	27
min size (mm)	6
max size (mm)	61

2008 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

<i>Crassedoma giganteum</i>		<i>Megathura crenulata</i>		<i>Pisaster giganteus</i>	
Number of ARMs	14	Number of ARMs	14	Number of ARMs	14
<10	0.0 %	<10	0.0 %	< 20	0.0 %
10 - 19	47.9 %	10 - 19	45.5 %	20 - 39	35.9 %
20 - 29	27.1 %	20 - 29	45.5 %	40 - 59	48.7 %
30 - 39	8.3 %	30 - 39	9.1 %	60 - 79	7.7 %
40 - 49	0.0 %	40 - 49	0.0 %	80 - 99	5.1 %
50 - 59	0.0 %	50 - 59	0.0 %	100 - 119	2.6 %
60 - 69	4.2 %	60 - 69	0.0 %	120 - 139	0.0 %
70 - 79	4.2 %	70 - 79	0.0 %	140 - 159	0.0 %
80 - 89	2.1 %	80 - 89	0.0 %	160 - 179	0.0 %
90 - 99	2.1 %	90 - 99	0.0 %	180 - 199	0.0 %
100 - 109	0.0 %	100 - 109	0.0 %	200 - 219	0.0 %
110 - 119	4.2 %	110 - 119	0.0 %	220 - 239	0.0 %
120 - 129	0.0 %	> 119	0.0 %	> 239	0.0 %
130 - 139	0.0 %	(Cases) N =	11	(Cases) N =	39
> 139	0.0 %	mean	21	mean	48
(Cases) N =	48	min size (mm)	13	min size (mm)	26
mean	32	max size (mm)	33	max size (mm)	104
min size (mm)	12				
max size (mm)	110				

<i>Cypraea spadicea</i>		<i>Patiria miniata</i>		<i>Pycnopodia helianthoides</i>	
Number of ARMs	14	Number of ARMs	14	Number of ARMs	14
<30	0.9 %	<10	7.8 %	< 20	0.0 %
30 - 32	1.8 %	10 - 19	40.8 %	20 - 39	0.0 %
33 - 35	1.3 %	20 - 29	33.0 %	40 - 59	0.0 %
36 - 38	13.4 %	30 - 39	7.8 %	60 - 79	0.0 %
39 - 41	17.4 %	40 - 49	3.9 %	80 - 99	0.0 %
42 - 44	21.4 %	50 - 59	1.9 %	100 - 119	0.0 %
45 - 47	26.8 %	60 - 69	4.9 %	120 - 139	0.0 %
48 - 50	10.3 %	70 - 79	0.0 %	140 - 159	0.0 %
51 - 53	5.4 %	80 - 89	0.0 %	160 - 179	0.0 %
54 - 56	1.3 %	90 - 99	0.0 %	180 - 199	66.7 %
>56	0.0 %	> 99	0.0 %	200 - 219	0.0 %
(Cases) N =	224	(Cases) N =	103	220 - 239	33.3 %
mean	43	mean	24	240 - 259	0.0 %
min size (mm)	29	min size (mm)	5	260 - 279	0.0 %
max size (mm)	56	max size (mm)	67	280 - 299	0.0 %
				> 299	0.0 %
				(Cases) N =	3
				mean	198
				min size (mm)	180
				max size (mm)	225

2008 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

<i>Strongylocentrotus franciscanus</i>		<i>Crassidoma giganteum</i>		<i>Lytechinus anamesus</i>	
Number of ARMs	14	Number of ARMs	6	Number of ARMs	6
< 5	0.0 %	<10	0.0 %	< 5	0.0 %
5 - 9	0.3 %	10 - 19	8.8 %	5 - 9	0.0 %
10 - 14	15.5 %	20 - 29	20.6 %	10 - 14	0.0 %
15 - 19	17.7 %	30 - 39	14.7 %	15 - 19	0.0 %
20 - 24	10.1 %	40 - 49	5.9 %	20 - 24	0.0 %
25 - 29	4.6 %	50 - 59	5.9 %	25 - 29	100.0 %
30 - 34	6.5 %	60 - 69	5.9 %	30 - 34	0.0 %
35 - 39	6.0 %	70 - 79	5.9 %	35 - 39	0.0 %
40 - 44	9.5 %	80 - 89	2.9 %	40 - 44	0.0 %
45 - 49	8.7 %	90 - 99	2.9 %	45 - 49	0.0 %
50 - 54	5.7 %	100 - 109	8.8 %	> 49	0.0 %
55 - 59	3.8 %	110 - 119	5.9 %	(Cases) N =	4
60 - 64	3.0 %	120 - 129	5.9 %	mean	28
65 - 69	4.9 %	130 - 139	0.0 %	min size (mm)	27
70 - 74	1.9 %	> 139	5.9 %	max size (mm)	29
75 - 79	1.4 %	(Cases) N =	34	<i>Megastrea undosa</i>	
80 - 84	0.3 %	mean	63		
85 - 89	0.3 %	min size (mm)	14		
90 - 94	0.0 %	max size (mm)	151		
95 - 99	0.0 %				
100 - 104	0.0 %	<i>Cypraea spadicea</i>		<10	0.0 %
105 - 109	0.0 %			10 - 19	0.0 %
> 109	0.0 %			20 - 29	0.0 %
(Cases) N =	368			30 - 39	0.0 %
mean	35			30 - 39	0.0 %
min size (mm)	6	<30	0.0 %	40 - 49	75.0 %
max size (mm)	88	30 - 32	0.0 %	50 - 59	25.0 %
<i>Strongylocentrotus purpuratus</i>		33 - 35	0.0 %	60 - 69	0.0 %
		36 - 38	11.1 %	70 - 79	0.0 %
		39 - 41	25.9 %	80 - 89	0.0 %
		42 - 44	18.5 %	90 - 99	0.0 %
		45 - 47	25.9 %	100 - 109	0.0 %
		48 - 50	7.4 %	110 - 119	0.0 %
		51 - 53	7.4 %	> 119	0.0 %
		54 - 56	3.7 %	(Cases) N =	4
		>56	0.0 %	mean	44
		(Cases) N =	27	min size (mm)	41
		mean	44	max size (mm)	51
		min size (mm)	37		
		max size (mm)	54		
	</				

2008 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pelican Bay

Megathura crenulata

Number of ARMs	6
<10	0.0 %
10 - 19	0.0 %
20 - 29	33.3 %
30 - 39	33.3 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	33.3 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	3
mean	43
min size (mm)	28
max size (mm)	71

Pisaster giganteus

Number of ARMs	6
< 20	33.3 %
20 - 39	66.7 %
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 =	3
mean	27
min size (mm)	12
max size (mm)	38

Strongylocentrotus purpuratus

Number of ARMs	6
< 5	0.0 %
5 - 9	0.0 %
10 - 14	1.6 %
15 - 19	4.7 %
20 - 24	12.5 %
25 - 29	20.3 %
30 - 34	23.4 %
35 - 39	26.6 %
40 - 44	7.8 %
45 - 49	3.1 %
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 =	64
mean	31
min size (mm)	10
max size (mm)	48

Patiria miniata

Number of ARMs	6
<10	4.3 %
10 - 19	19.4 %
20 - 29	32.3 %
30 - 39	23.7 %
40 - 49	17.2 %
50 - 59	3.2 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	93
mean	28
min size (mm)	8
max size (mm)	53

Strongylocentrotus franciscanus

Number of ARMs	6
< 5	0.0 %
5 - 9	5.9 %
10 - 14	2.5 %
15 - 19	5.0 %
20 - 24	16.8 %
25 - 29	17.6 %
30 - 34	16.8 %
35 - 39	14.3 %
40 - 44	10.9 %
45 - 49	4.2 %
50 - 54	2.5 %
55 - 59	3.4 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
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 =	119
mean	31
min size (mm)	7
max size (mm)	58

2008 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Scorpion Anchorage

Crassedoma giganteum

Number of ARMs	7
<10	0.0 %
10 - 19	0.0 %
20 - 29	9.5 %
30 - 39	9.5 %
40 - 49	19.0 %
50 - 59	4.8 %
60 - 69	4.8 %
70 - 79	0.0 %
80 - 89	9.5 %
90 - 99	19.0 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	9.5 %
130 - 139	0.0 %
> 139	14.3 %
(Cases) N =	21
mean	84
min size (mm)	29
max size (mm)	154

Cypraea spadicea

Number of ARMs	7
<30	2.4 %
30 - 32	6.0 %
33 - 35	12.0 %
36 - 38	26.5 %
39 - 41	18.1 %
42 - 44	19.3 %
45 - 47	9.6 %
48 - 50	6.0 %
51 - 53	0.0 %
54 - 56	0.0 %
>56	0.0 %
(Cases) N =	83
mean	39
min size (mm)	23
max size (mm)	48

Haliotis corrugata

Number of ARMs	7
<25	0.0 %
25 - 34	100.0 %
35 - 44	0.0 %
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 = 1

mean 32

min size (mm) 32

max size (mm) 32

Megathura crenulata

Number of ARMs	7
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	25.0 %
40 - 49	25.0 %
50 - 59	25.0 %
60 - 69	0.0 %
70 - 79	25.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	4
mean	55
min size (mm)	36
max size (mm)	77

Patiria miniata

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 %
> 99	0.0 %
(Cases) N =	1
mean	20
min size (mm)	20
max size (mm)	20

Pisaster giganteus

Number of ARMs	7
< 20	21.4 %
20 - 39	35.7 %
40 - 59	28.6 %
60 - 79	7.1 %
80 - 99	7.1 %
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 =	14
mean	42
min size (mm)	15
max size (mm)	95

2008 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Scorpion Anchorage

Pycnopodia helianthoides

Number of ARMs	7
< 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 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	1
mean	26
min size (mm)	26
max size (mm)	26

Strongylocentrotus purpuratus

Number of ARMs	7
< 5	0.3 %
5 - 9	5.0 %
10 - 14	7.5 %
15 - 19	12.1 %
20 - 24	9.0 %
25 - 29	7.6 %
30 - 34	5.3 %
35 - 39	6.0 %
40 - 44	9.6 %
45 - 49	13.2 %
50 - 54	15.4 %
55 - 59	7.9 %
60 - 64	1.1 %
65 - 69	0.1 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	721
mean	34
min size (mm)	2
max size (mm)	65

Crassedoma giganteum

Number of ARMs	15
<10	0.0 %
10 - 19	0.0 %
20 - 29	11.1 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	11.1 %
60 - 69	11.1 %
70 - 79	0.0 %
80 - 89	44.4 %
90 - 99	11.1 %
100 - 109	11.1 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	9
mean	75
min size (mm)	23
max size (mm)	106

Strongylocentrotus franciscanus

Number of ARMs	7
< 5	0.0 %
5 - 9	1.5 %
10 - 14	1.5 %
15 - 19	6.2 %
20 - 24	7.7 %
25 - 29	15.4 %
30 - 34	6.2 %
35 - 39	4.6 %
40 - 44	9.2 %
45 - 49	6.2 %
50 - 54	13.8 %
55 - 59	12.3 %
60 - 64	7.7 %
65 - 69	4.6 %
70 - 74	0.0 %
75 - 79	0.0 %
80 - 84	1.5 %
85 - 89	0.0 %
90 - 94	1.5 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	65
mean	42
min size (mm)	8
max size (mm)	94

Cypraea spadicea

Number of ARMs	15
<30	0.0 %
30 - 32	1.2 %
33 - 35	7.0 %
36 - 38	27.9 %
39 - 41	19.8 %
42 - 44	20.9 %
45 - 47	12.8 %
48 - 50	9.3 %
51 - 53	0.0 %
54 - 56	1.2 %
>56	0.0 %
(Cases) N =	86
mean	41
min size (mm)	32
max size (mm)	54

2008 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

<i>Megathura crenulata</i>		<i>Pisaster giganteus</i>		<i>Strongylocentrotus purpuratus</i>	
Number of ARMs	15	Number of ARMs	15	Number of ARMs	6
<10	8.3 %	< 20	50.0 %	< 5	1.2 %
10 - 19	33.3 %	20 - 39	41.7 %	5 - 9	5.3 %
20 - 29	50.0 %	40 - 59	0.0 %	10 - 14	4.1 %
30 - 39	8.3 %	60 - 79	4.2 %	15 - 19	6.9 %
40 - 49	0.0 %	80 - 99	4.2 %	20 - 24	12.3 %
50 - 59	0.0 %	100 - 119	0.0 %	25 - 29	21.2 %
60 - 69	0.0 %	120 - 139	0.0 %	30 - 34	16.3 %
70 - 79	0.0 %	140 - 159	0.0 %	35 - 39	12.2 %
80 - 89	0.0 %	160 - 179	0.0 %	40 - 44	7.1 %
90 - 99	0.0 %	180 - 199	0.0 %	45 - 49	3.6 %
100 - 109	0.0 %	200 - 219	0.0 %	50 - 54	2.8 %
110 - 119	0.0 %	220 - 239	0.0 %	55 - 59	3.1 %
> 119	0.0 %	> 239	0.0 %	60 - 64	2.5 %
(Cases) N =	12	(Cases) N =	24	65 - 69	1.0 %
mean	21	mean	26	70 - 74	0.3 %
min size (mm)	8	min size (mm)	7	75 - 79	0.0 %
max size (mm)	30	max size (mm)	92	> 79	0.0 %
				(Cases) N =	2796
				mean	35
				min size (mm)	2
				max size (mm)	75
<i>Patiria miniata</i>		<i>Strongylocentrotus franciscanus</i>			
Number of ARMs	15	Number of ARMs	6		
<10	11.2 %	< 5	0.0 %		
10 - 19	56.1 %	5 - 9	2.7 %		
20 - 29	16.3 %	10 - 14	9.7 %		
30 - 39	9.2 %	15 - 19	25.5 %		
40 - 49	1.0 %	20 - 24	23.0 %		
50 - 59	3.1 %	25 - 29	13.5 %		
60 - 69	1.0 %	30 - 34	7.2 %		
70 - 79	2.0 %	35 - 39	3.0 %		
80 - 89	0.0 %	40 - 44	3.8 %		
90 - 99	0.0 %	45 - 49	2.3 %		
> 99	0.0 %	50 - 54	0.4 %		
(Cases) N =	98	55 - 59	1.5 %		
mean	20	60 - 64	1.5 %		
min size (mm)	5	65 - 69	0.4 %		
max size (mm)	75	70 - 74	0.4 %		
		75 - 79	1.1 %		
		80 - 84	0.8 %		
		85 - 89	0.6 %		
		90 - 94	0.4 %		
		95 - 99	1.0 %		
		100 - 104	0.6 %		
		105 - 109	0.8 %		
		> 109	0.0 %		
		(Cases) N =	526		
		mean	37		
		min size (mm)	5		
		max size (mm)	107		

2008 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee North

<i>Crassedoma giganteum</i>		<i>Megathura crenulata</i>		<i>Pisaster giganteus</i>	
Number of ARMs	8	Number of ARMs	8	Number of ARMs	8
<10	0.0 %	<10	0.0 %	< 20	30.0 %
10 - 19	0.0 %	10 - 19	66.7 %	20 - 39	10.0 %
20 - 29	0.0 %	20 - 29	0.0 %	40 - 59	50.0 %
30 - 39	0.0 %	30 - 39	0.0 %	60 - 79	10.0 %
40 - 49	0.0 %	40 - 49	33.3 %	80 - 99	0.0 %
50 - 59	0.0 %	50 - 59	0.0 %	100 - 119	0.0 %
60 - 69	0.0 %	60 - 69	0.0 %	120 - 139	0.0 %
70 - 79	0.0 %	70 - 79	0.0 %	140 - 159	0.0 %
80 - 89	0.0 %	80 - 89	0.0 %	160 - 179	0.0 %
90 - 99	0.0 %	90 - 99	0.0 %	180 - 199	0.0 %
100 - 109	0.0 %	100 - 109	0.0 %	200 - 219	0.0 %
110 - 119	100.0 %	110 - 119	0.0 %	220 - 239	0.0 %
120 - 129	0.0 %	> 119	0.0 %	> 239	0.0 %
130 - 139	0.0 %	(Cases) N =	3	(Cases) N =	10
> 139	0.0 %	mean	25	mean	39
(Cases) N =	2	min size (mm)	14	min size (mm)	15
mean	113	max size (mm)	46	max size (mm)	74
min size (mm)	112				
max size (mm)	113				
<i>Cypraea spadicea</i>		<i>Patiria miniata</i>		<i>Pycnopodia helianthoides</i>	
Number of ARMs	8	Number of ARMs	8	Number of ARMs	8
<30	0.0 %	<10	2.4 %	< 20	0.0 %
30 - 32	0.0 %	10 - 19	11.9 %	20 - 39	12.5 %
33 - 35	0.0 %	20 - 29	38.1 %	40 - 59	0.0 %
36 - 38	2.6 %	30 - 39	19.0 %	60 - 79	0.0 %
39 - 41	7.9 %	40 - 49	11.9 %	80 - 99	25.0 %
42 - 44	21.1 %	50 - 59	7.1 %	100 - 119	50.0 %
45 - 47	32.9 %	60 - 69	0.0 %	120 - 139	0.0 %
48 - 50	17.1 %	70 - 79	9.5 %	140 - 159	0.0 %
51 - 53	13.2 %	80 - 89	0.0 %	160 - 179	12.5 %
54 - 56	5.3 %	90 - 99	0.0 %	180 - 199	0.0 %
>56	0.0 %	> 99	0.0 %	200 - 219	0.0 %
(Cases) N =	76	(Cases) N =	42	220 - 239	0.0 %
mean	46	mean	33	240 - 259	0.0 %
min size (mm)	38	min size (mm)	8	260 - 279	0.0 %
max size (mm)	54	max size (mm)	77	280 - 299	0.0 %
				> 299	0.0 %
				(Cases) N =	8
				mean	100
				min size (mm)	35
				max size (mm)	160

2008 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee North

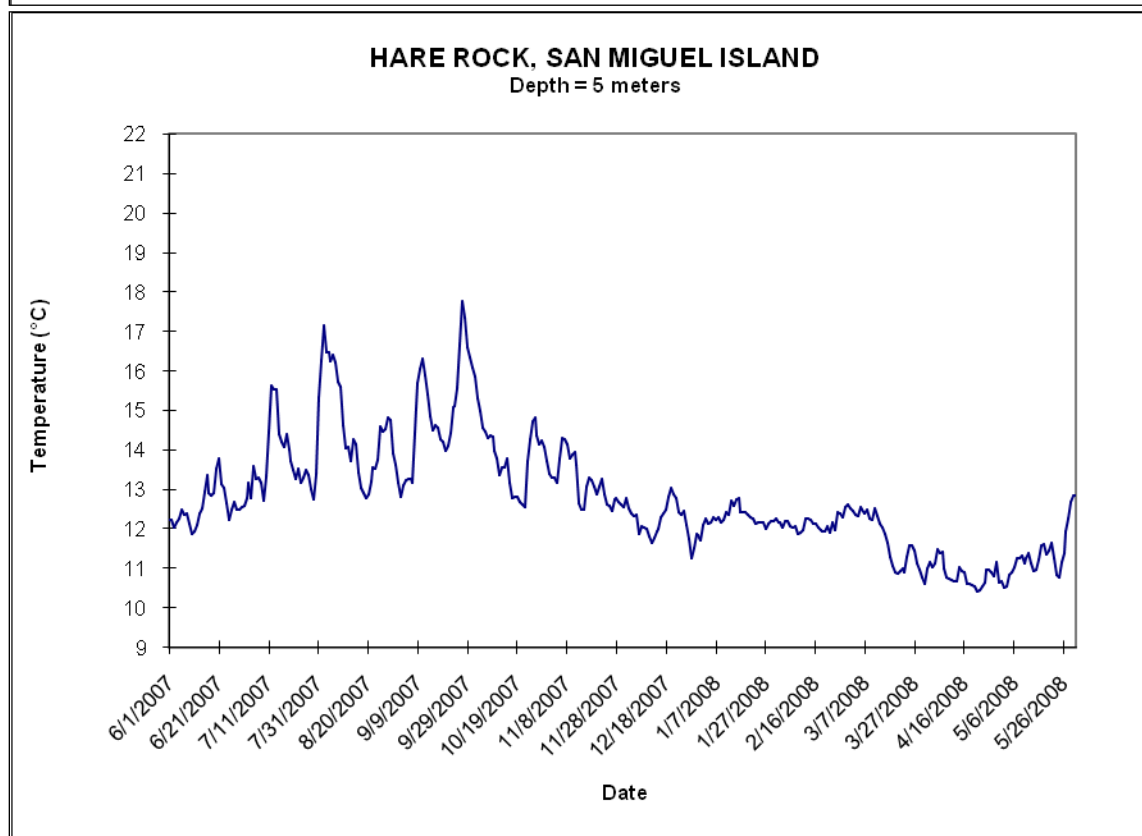
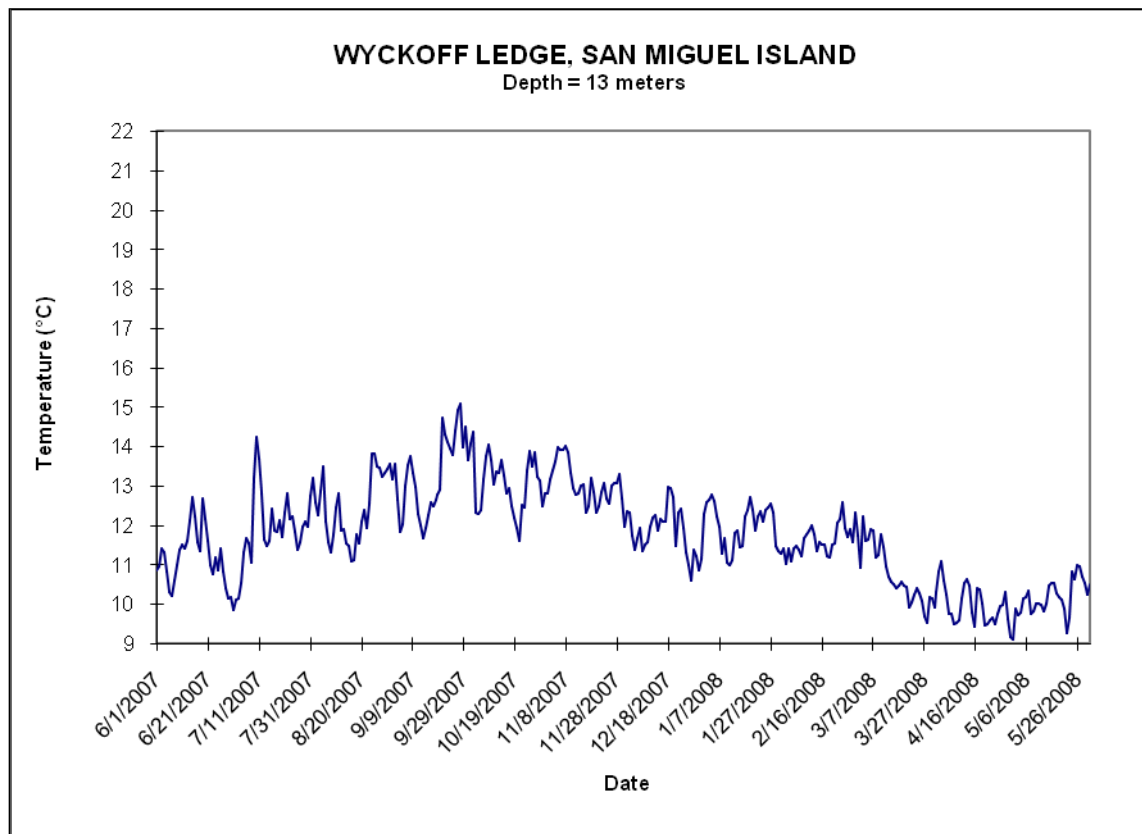
[illegible]

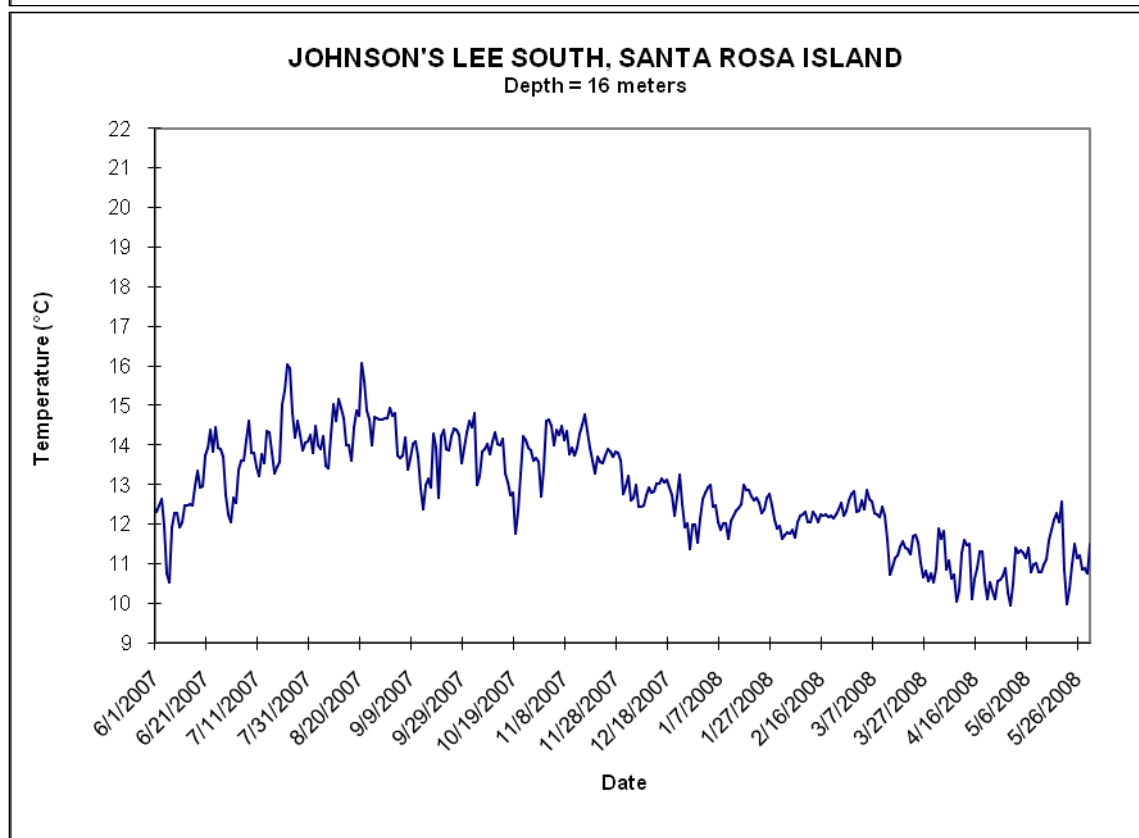
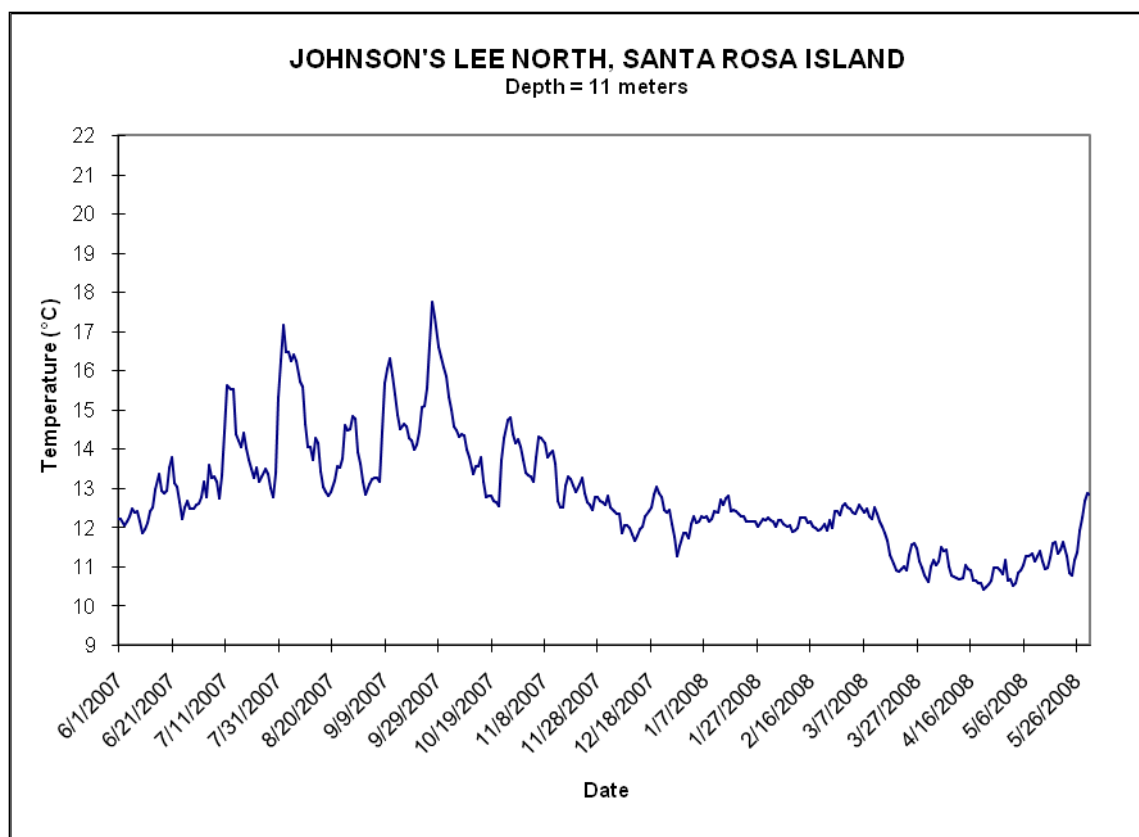
2008 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

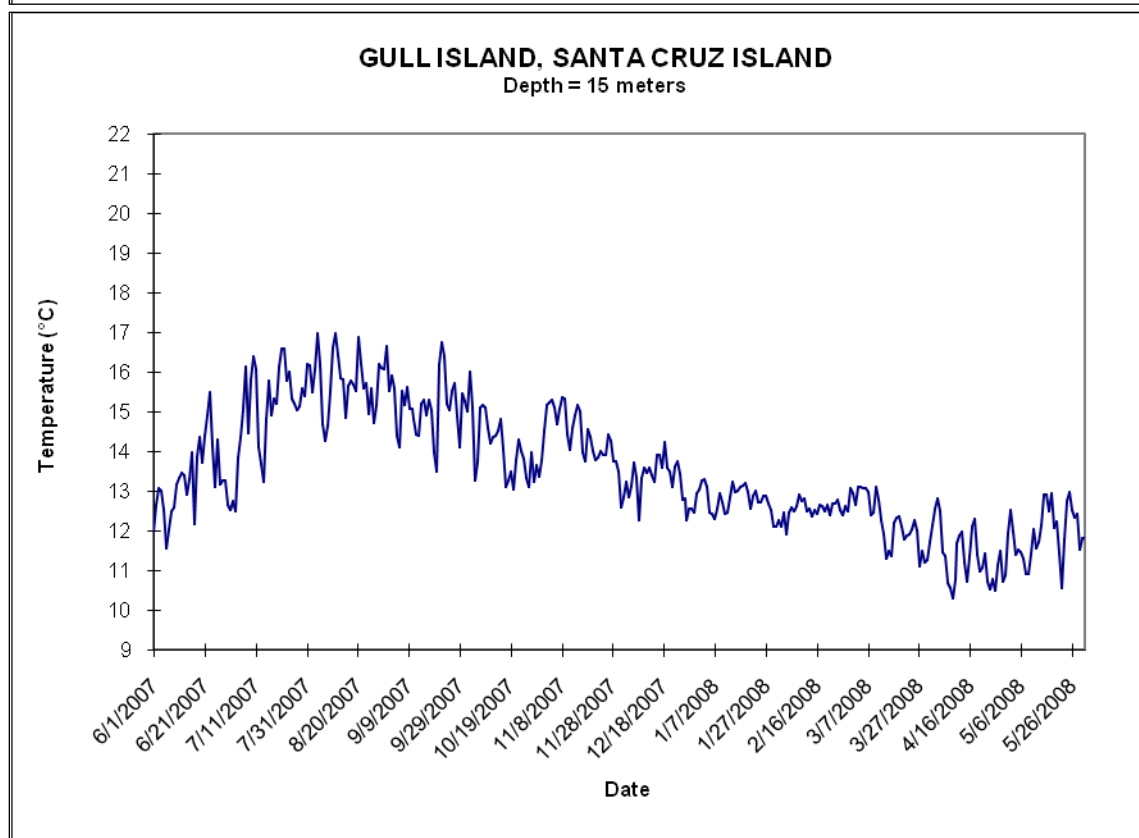
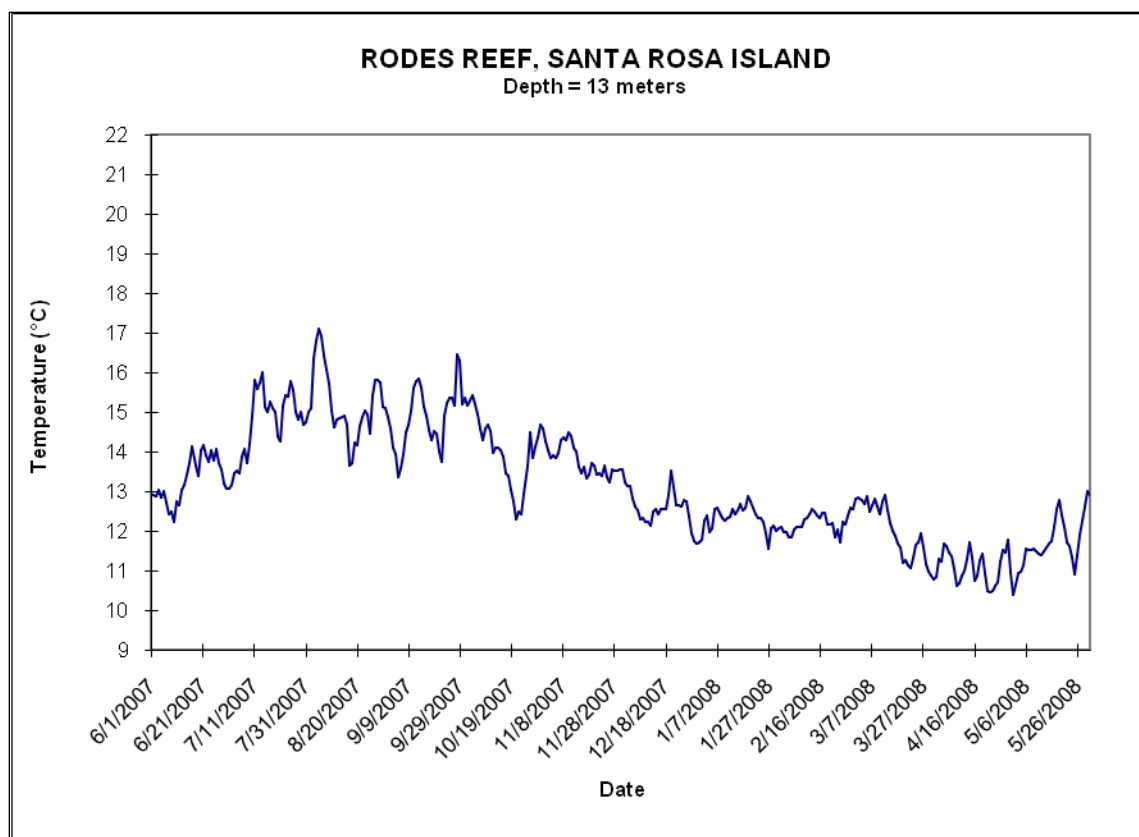
Santa Rosa Island - Johnson's Lee South

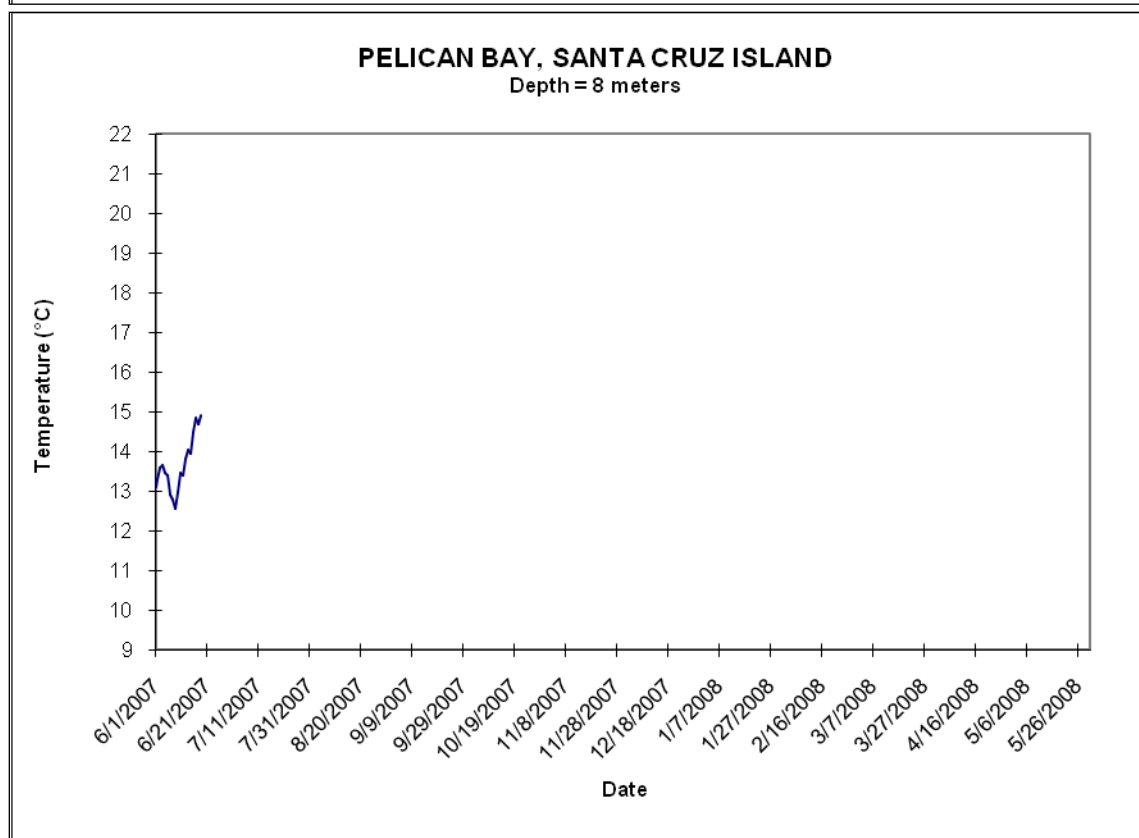
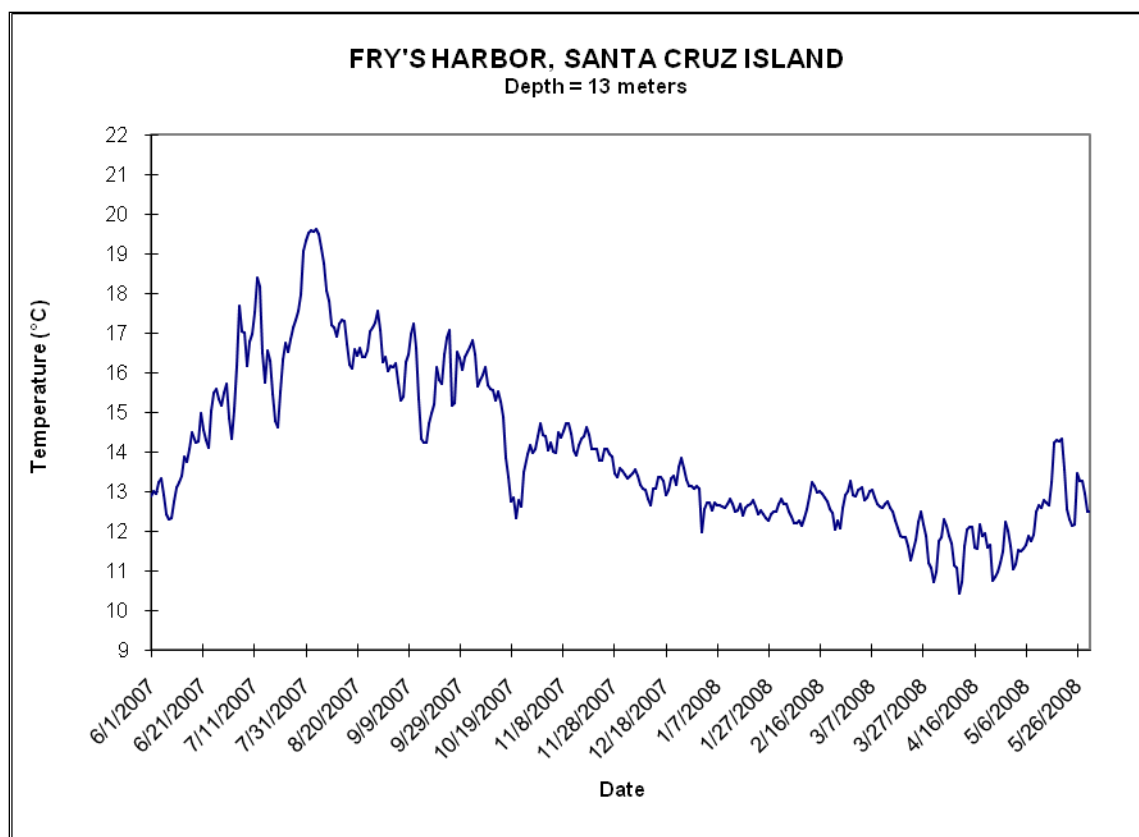
<i>Patiria miniata</i>		<i>Pycnopodia helianthoides</i>		<i>Strongylocentrotus purpuratus</i>	
Number of ARMs	7	Number of ARMs	7	Number of ARMs	7
<10	0.0 %	< 20	0.0 %	< 5	0.0 %
10 - 19	17.6 %	20 - 39	0.0 %	5 - 9	0.0 %
20 - 29	26.5 %	40 - 59	16.7 %	10 - 14	2.4 %
30 - 39	14.7 %	60 - 79	58.3 %	15 - 19	4.8 %
40 - 49	14.7 %	80 - 99	25.0 %	20 - 24	7.9 %
50 - 59	11.8 %	100 - 119	0.0 %	25 - 29	10.3 %
60 - 69	8.8 %	120 - 139	0.0 %	30 - 34	7.9 %
70 - 79	5.9 %	140 - 159	0.0 %	35 - 39	17.0 %
80 - 89	0.0 %	160 - 179	0.0 %	40 - 44	17.0 %
90 - 99	0.0 %	180 - 199	0.0 %	45 - 49	12.7 %
> 99	0.0 %	200 - 219	0.0 %	50 - 54	10.9 %
(Cases) N =	34	220 - 239	0.0 %	55 - 59	5.5 %
mean	37	240 - 259	0.0 %	60 - 64	2.4 %
min size (mm)	10	260 - 279	0.0 %	65 - 69	1.2 %
max size (mm)	72	280 - 299	0.0 %	70 - 74	0.0 %
		> 299	0.0 %	75 - 79	0.0 %
		(Cases) N =	12	> 79	0.0 %
		mean	71	(Cases) N =	165
		min size (mm)	46	mean	38
		max size (mm)	94	min size (mm)	11
				max size (mm)	69
<i>Pisaster giganteus</i>		<i>Strongylocentrotus franciscanus</i>			
Number of ARMs	7	Number of ARMs	7		
< 20	0.0 %	< 5	0.0 %		
20 - 39	100.0 %	5 - 9	0.0 %		
40 - 59	0.0 %	10 - 14	0.8 %		
60 - 79	0.0 %	15 - 19	2.8 %		
80 - 99	0.0 %	20 - 24	6.0 %		
100 - 119	0.0 %	25 - 29	2.0 %		
120 - 139	0.0 %	30 - 34	2.4 %		
140 - 159	0.0 %	35 - 39	5.2 %		
160 - 179	0.0 %	40 - 44	2.0 %		
180 - 199	0.0 %	45 - 49	6.9 %		
200 - 219	0.0 %	50 - 54	9.7 %		
220 - 239	0.0 %	55 - 59	7.3 %		
> 239	0.0 %	60 - 64	8.1 %		
(Cases) N =	8	65 - 69	5.6 %		
mean	30	70 - 74	4.4 %		
min size (mm)	24	75 - 79	6.0 %		
max size (mm)	38	80 - 84	4.8 %		
		85 - 89	8.5 %		
		90 - 94	5.2 %		
		95 - 99	4.8 %		
		100 - 104	4.4 %		
		105 - 109	2.0 %		
		> 109	0.8 %		
		(Cases) N =	248		
		mean	64		
		min size (mm)	12		
		max size (mm)	120		

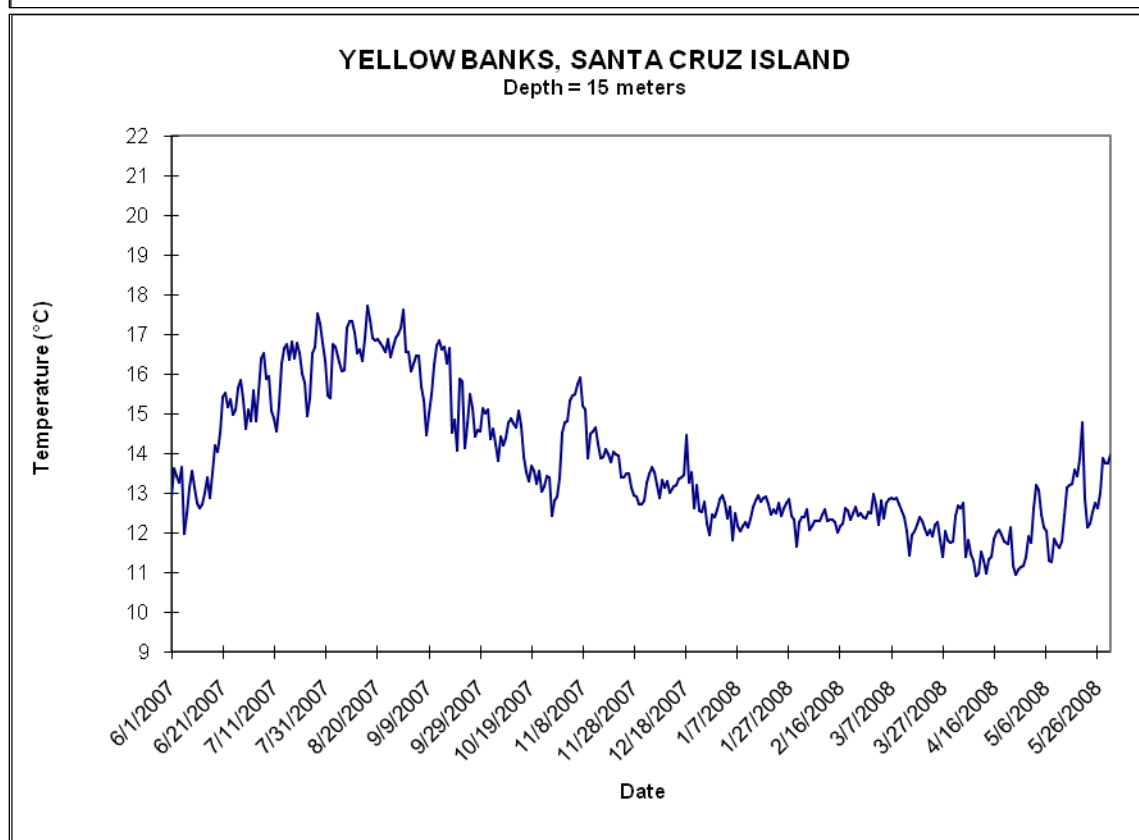
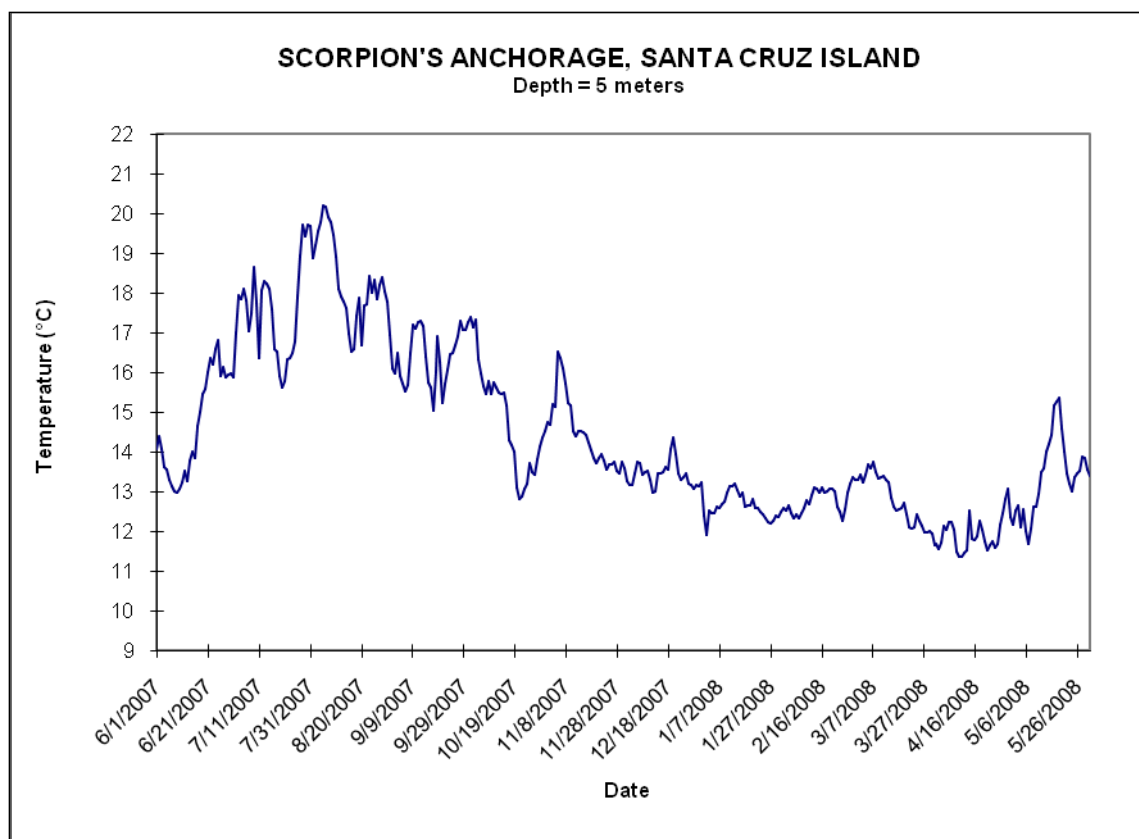
Appendix M. Temperature Data Graphs

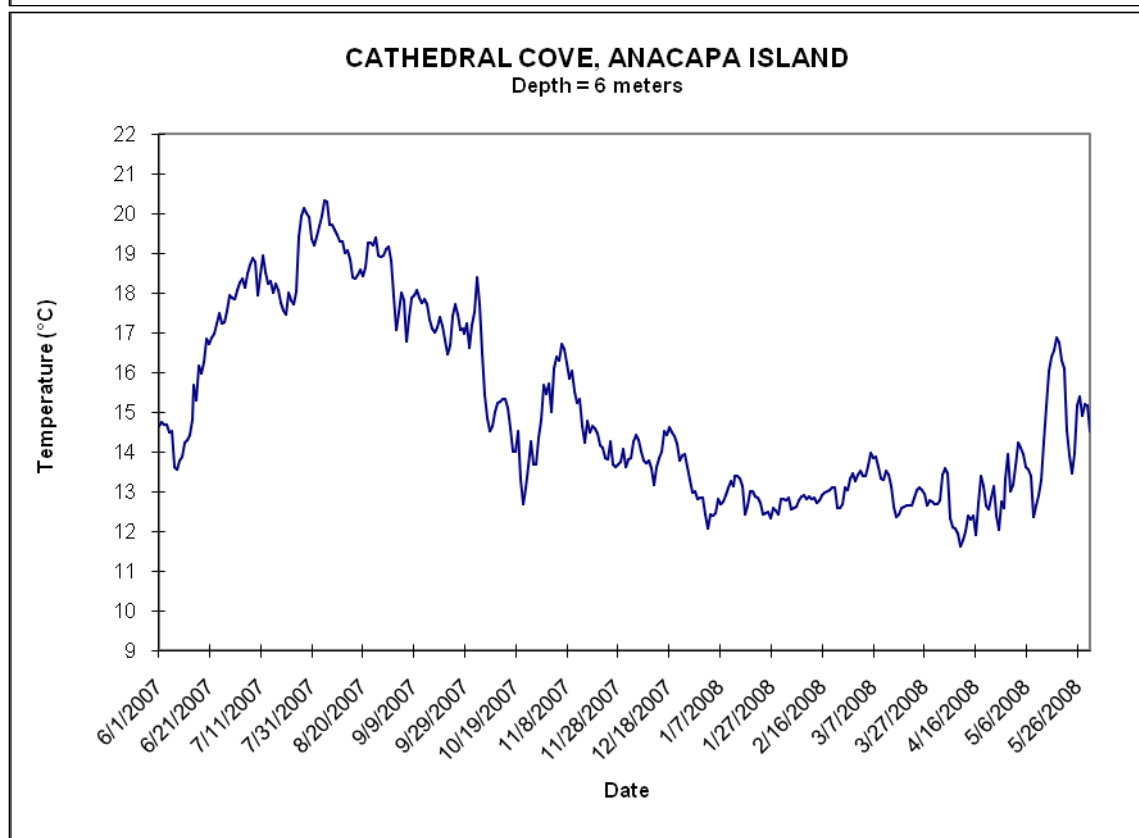
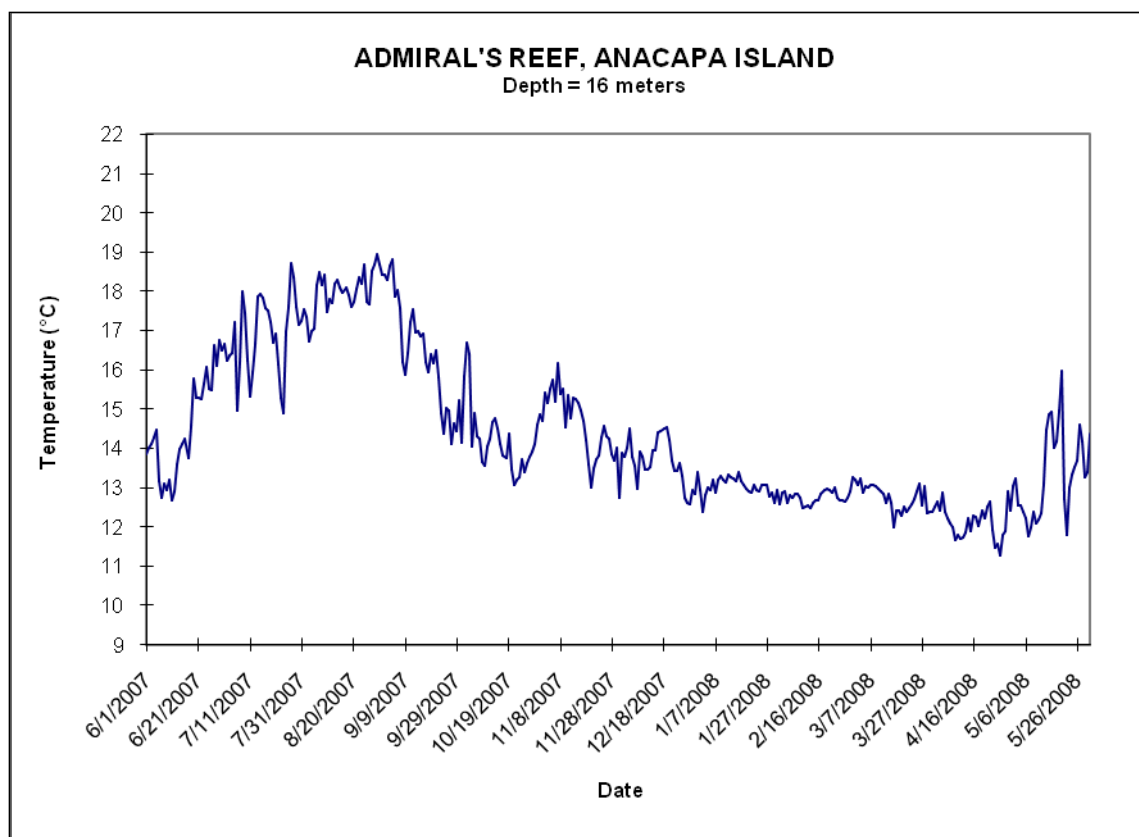


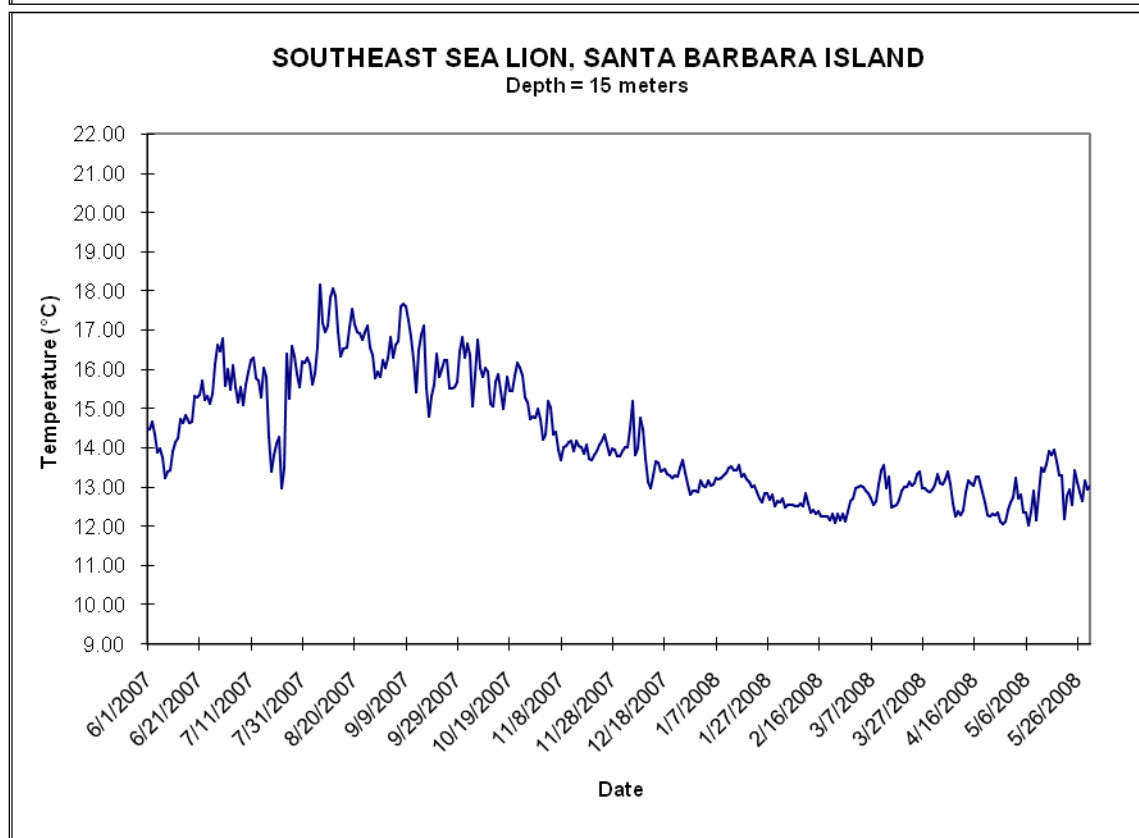
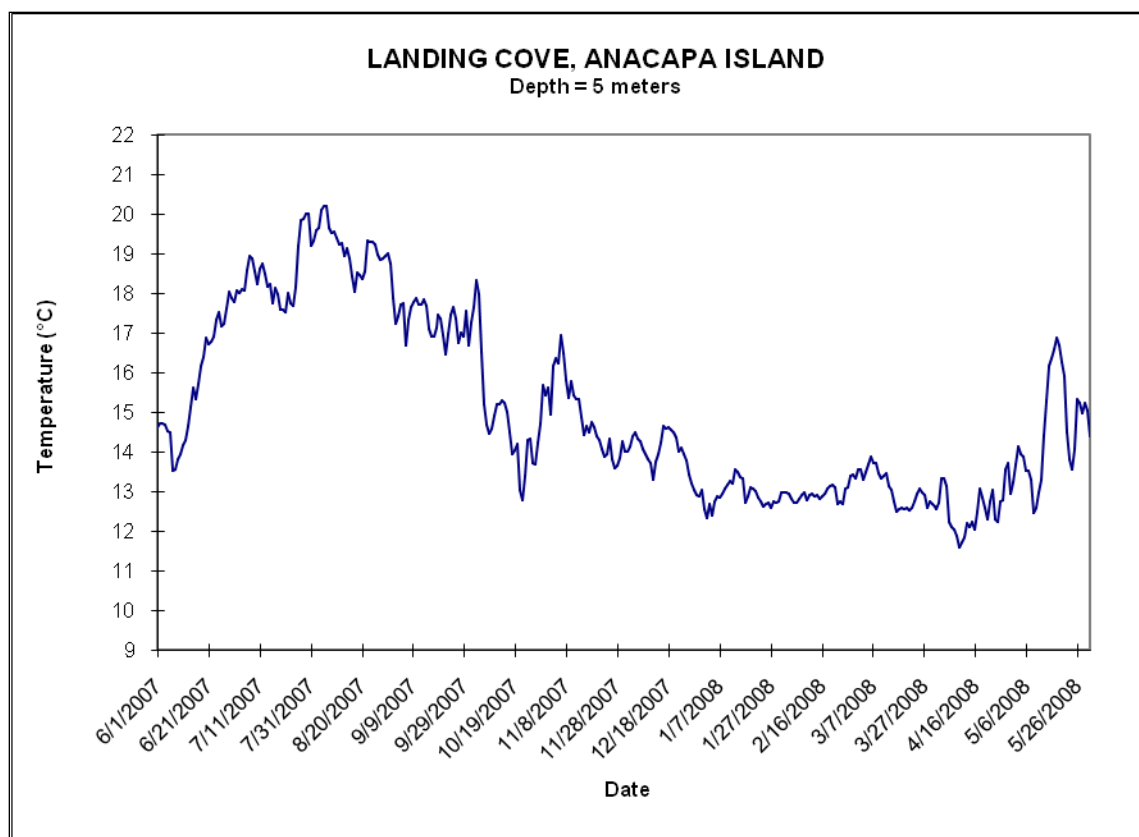


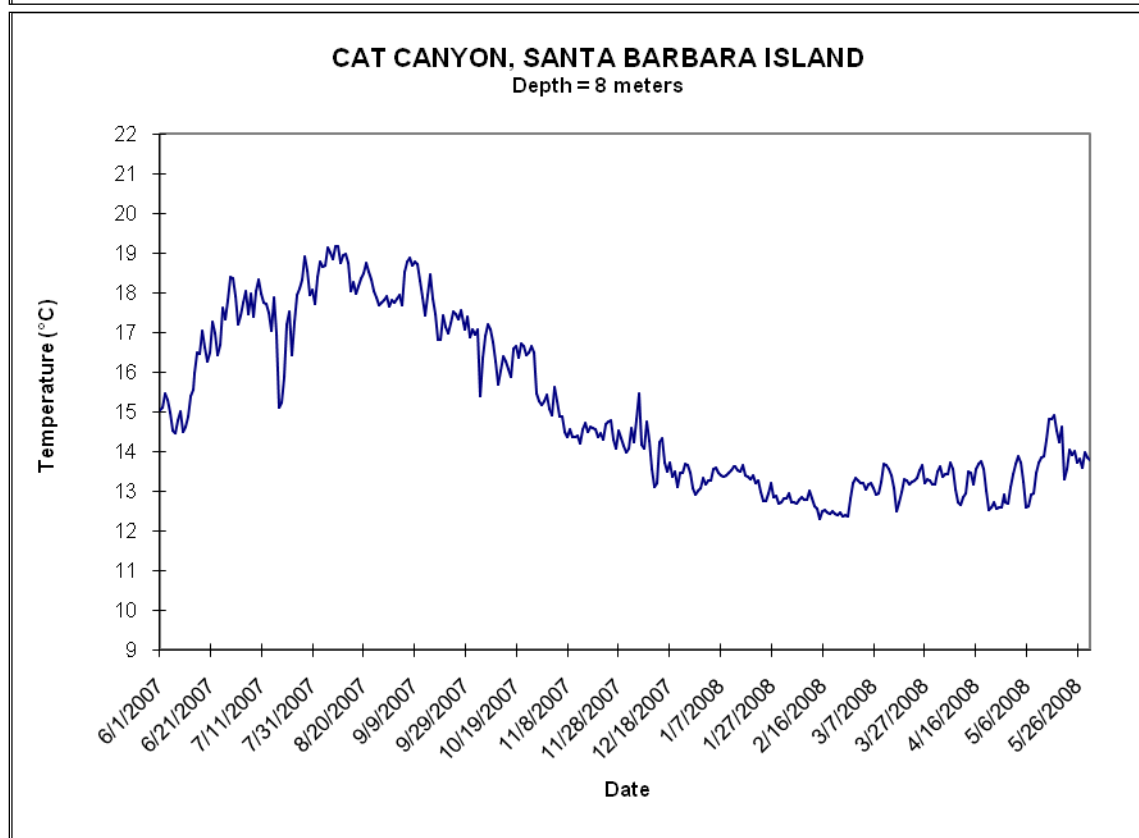
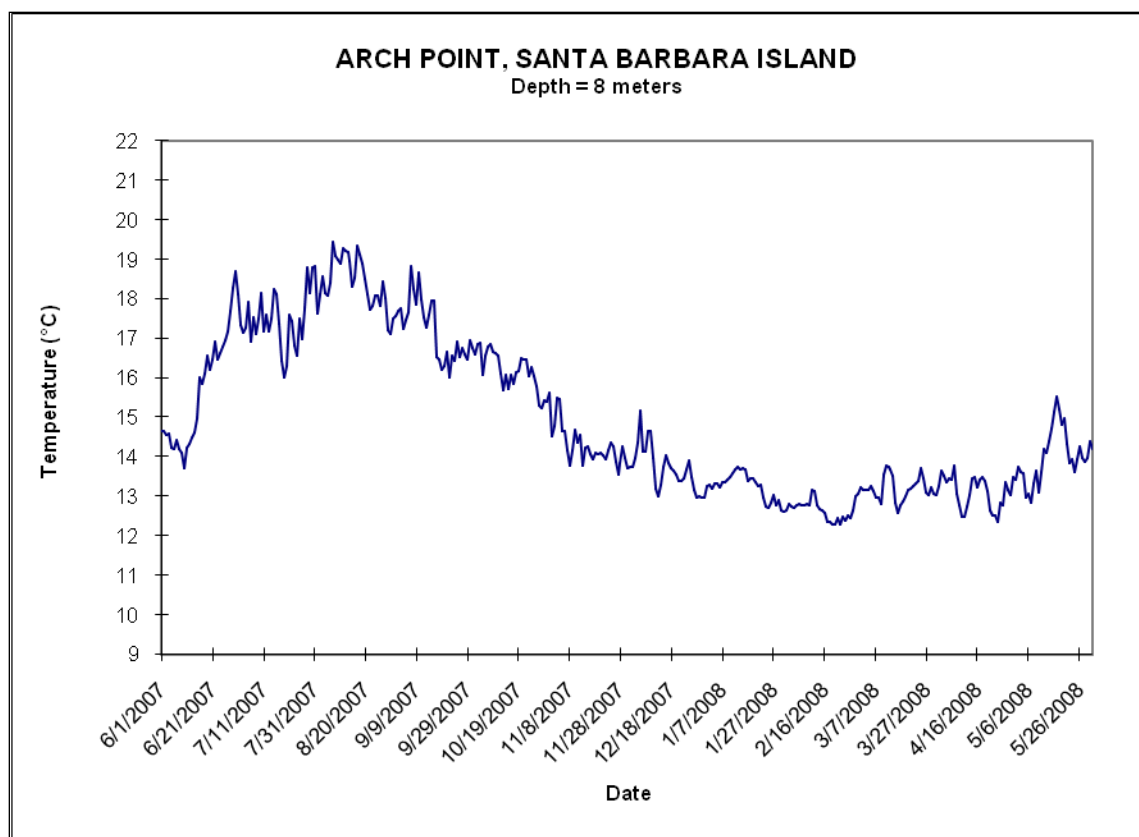


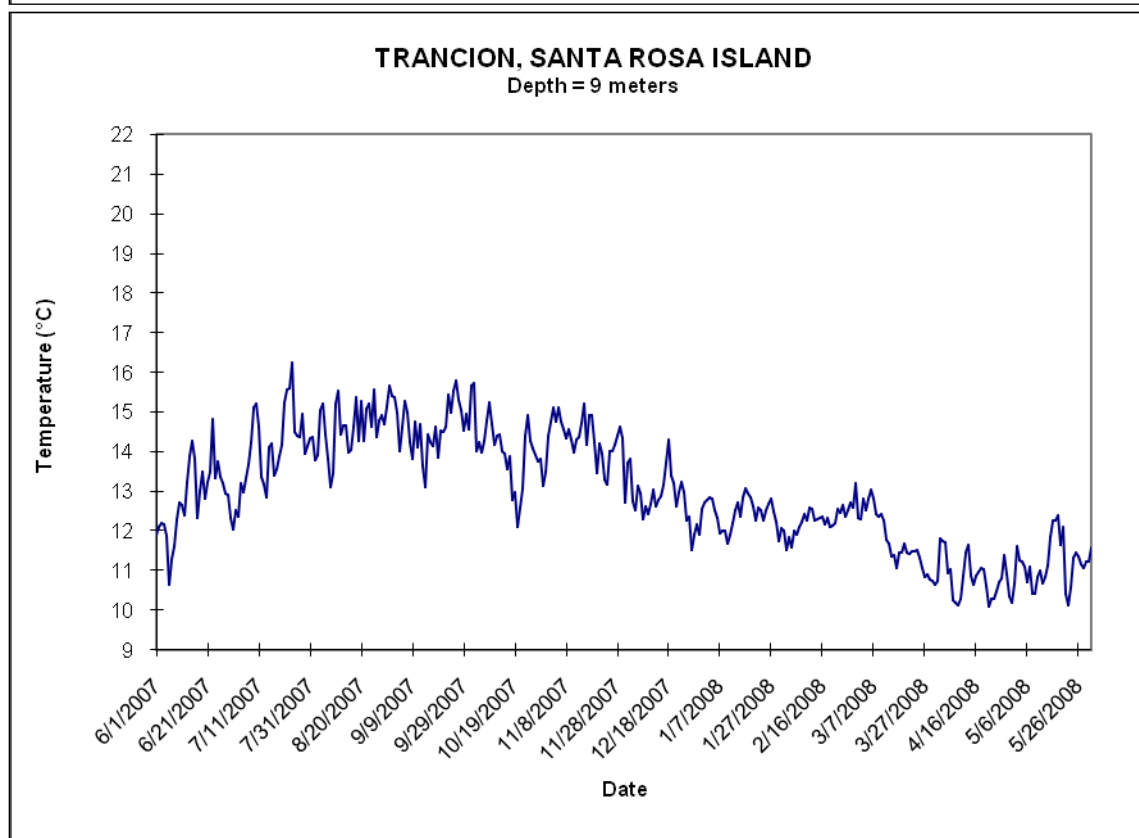
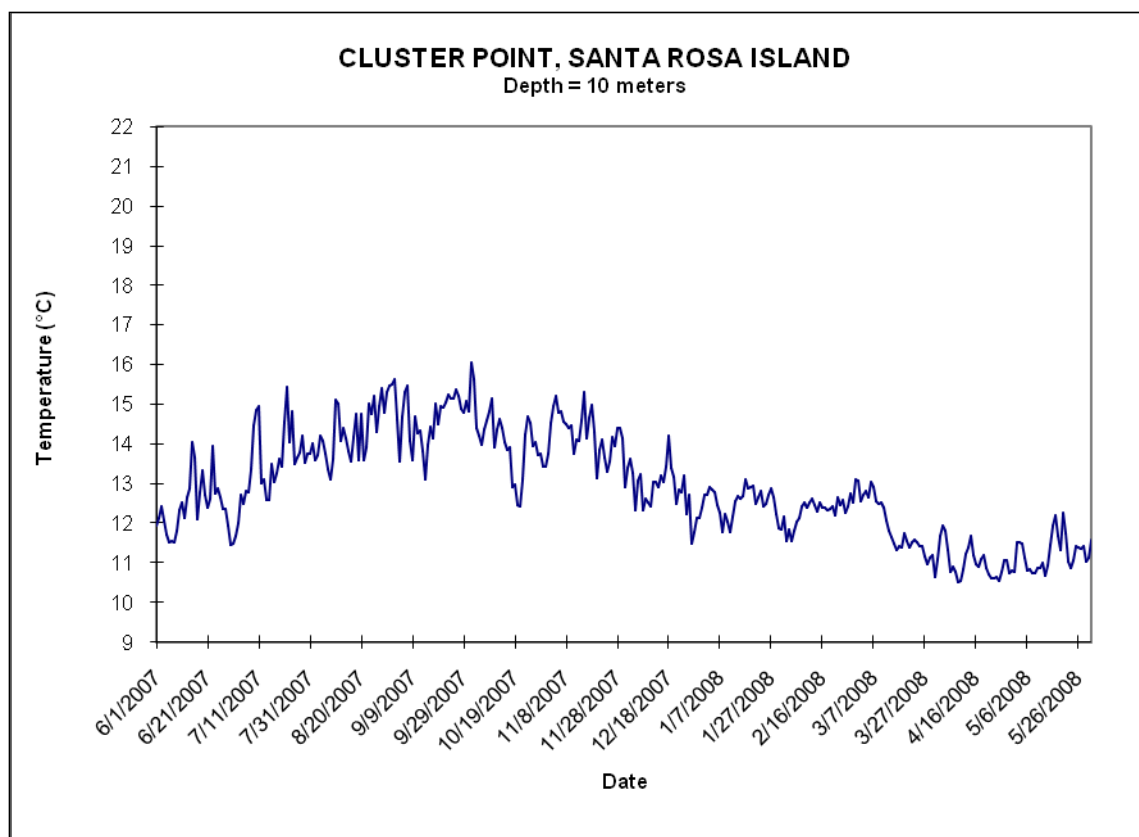


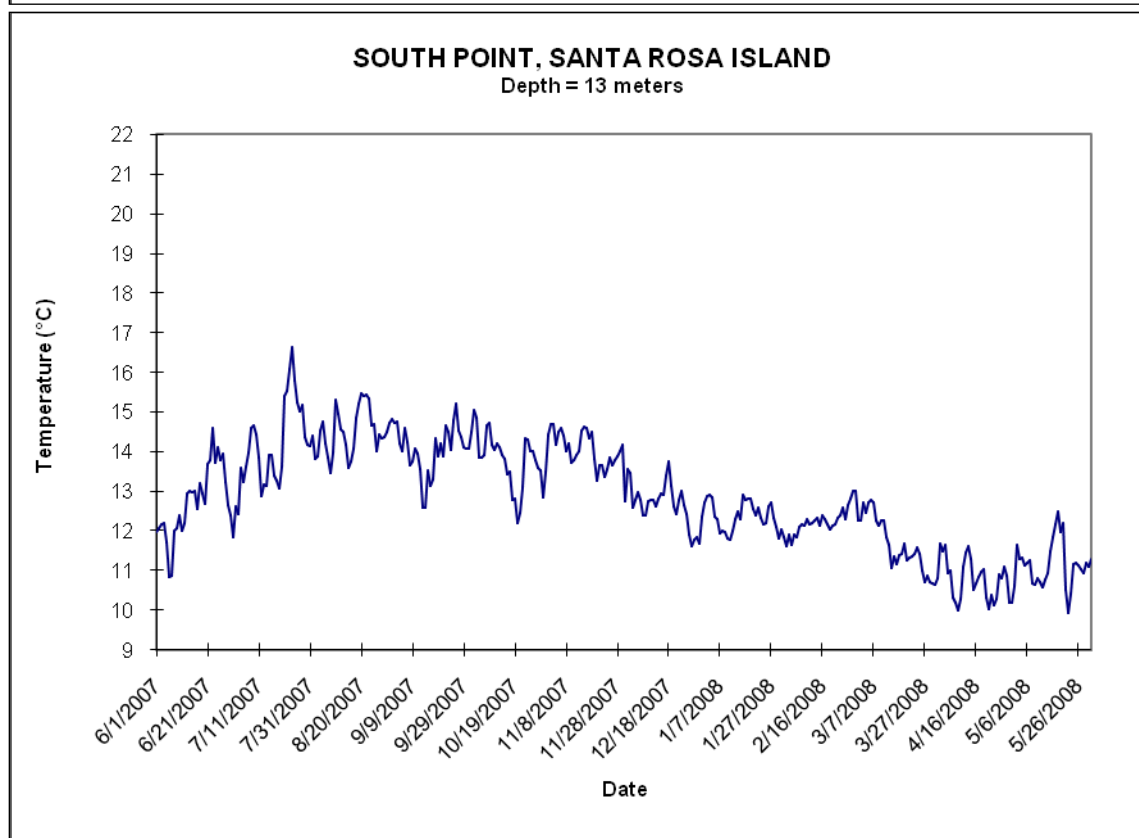
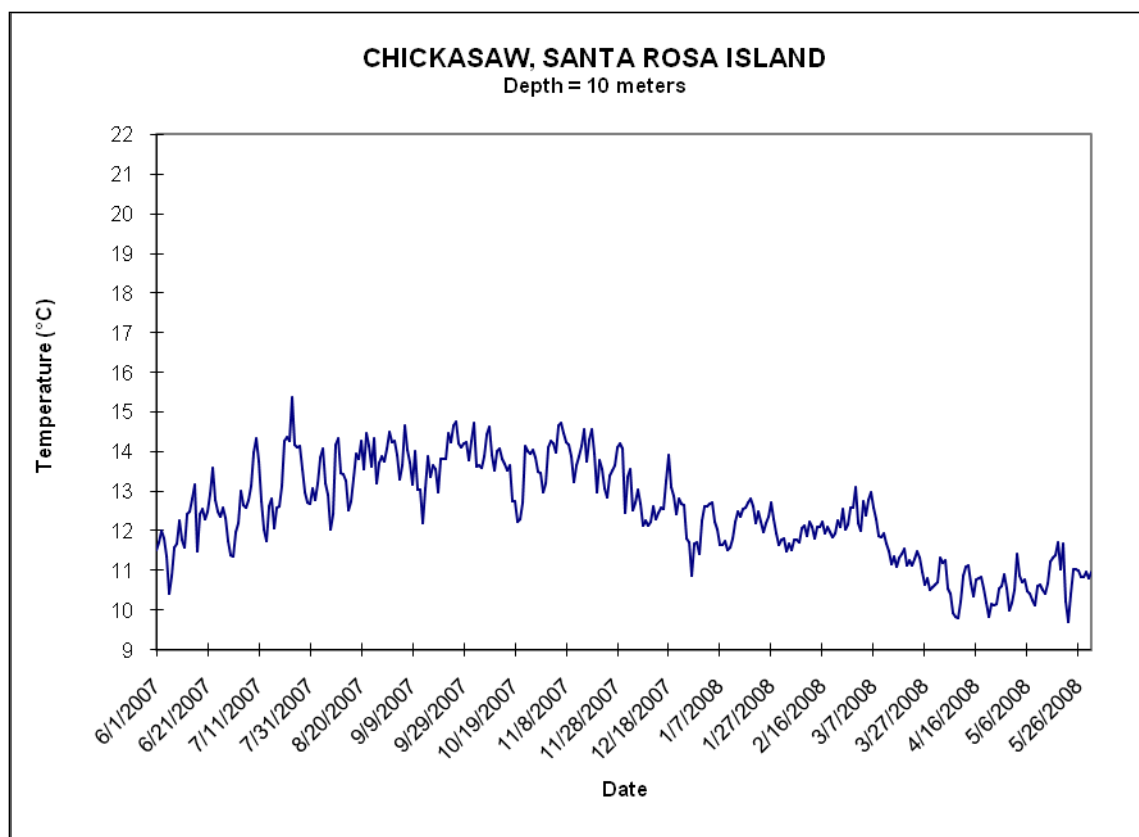


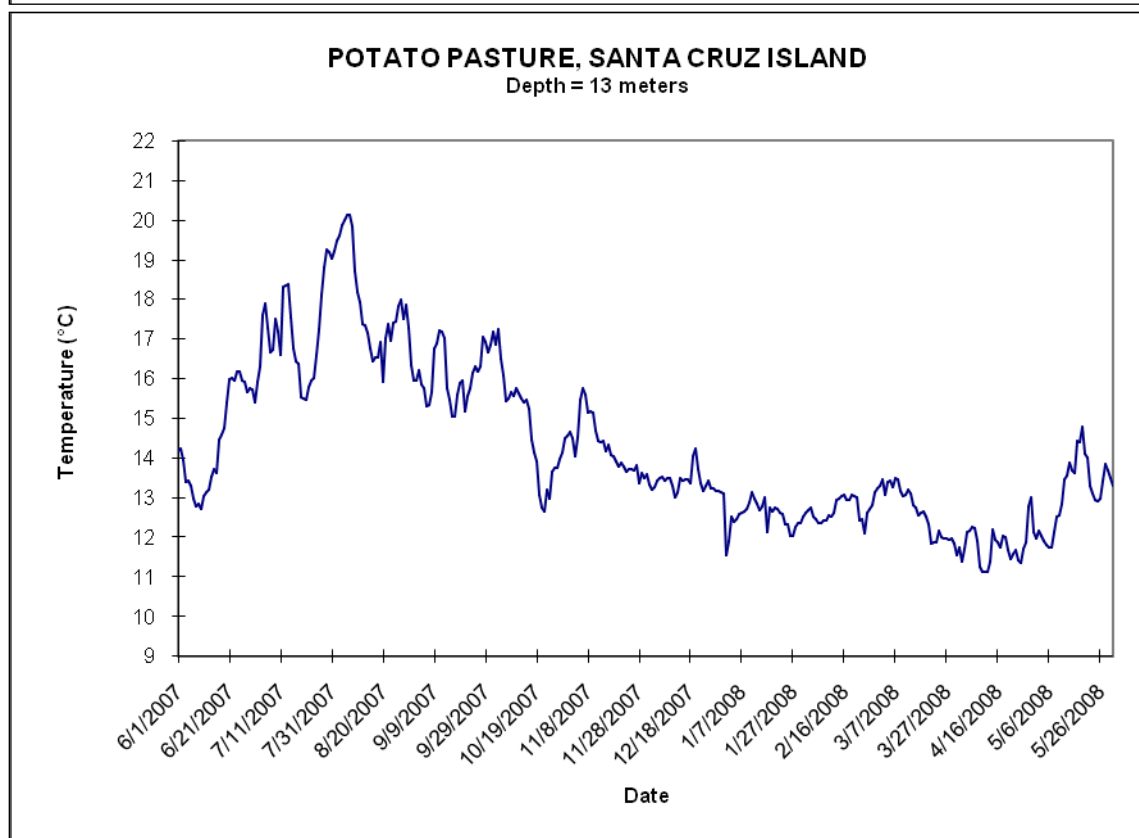
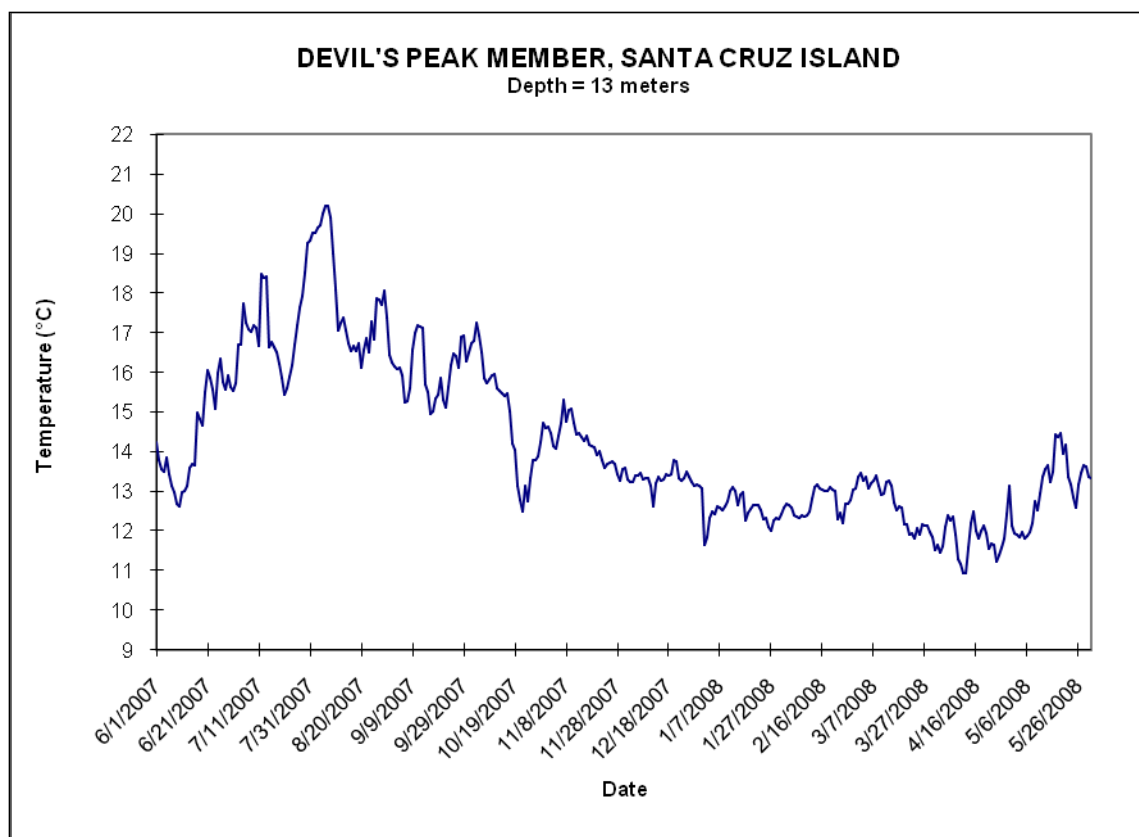


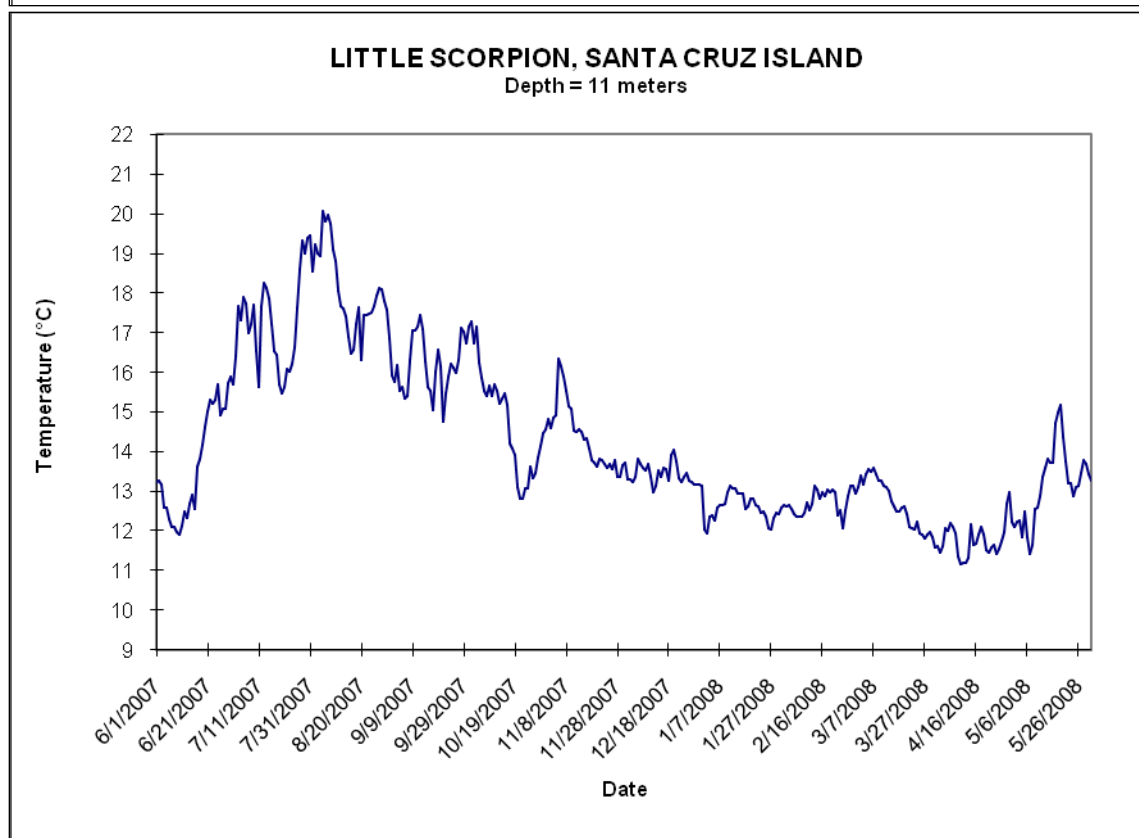
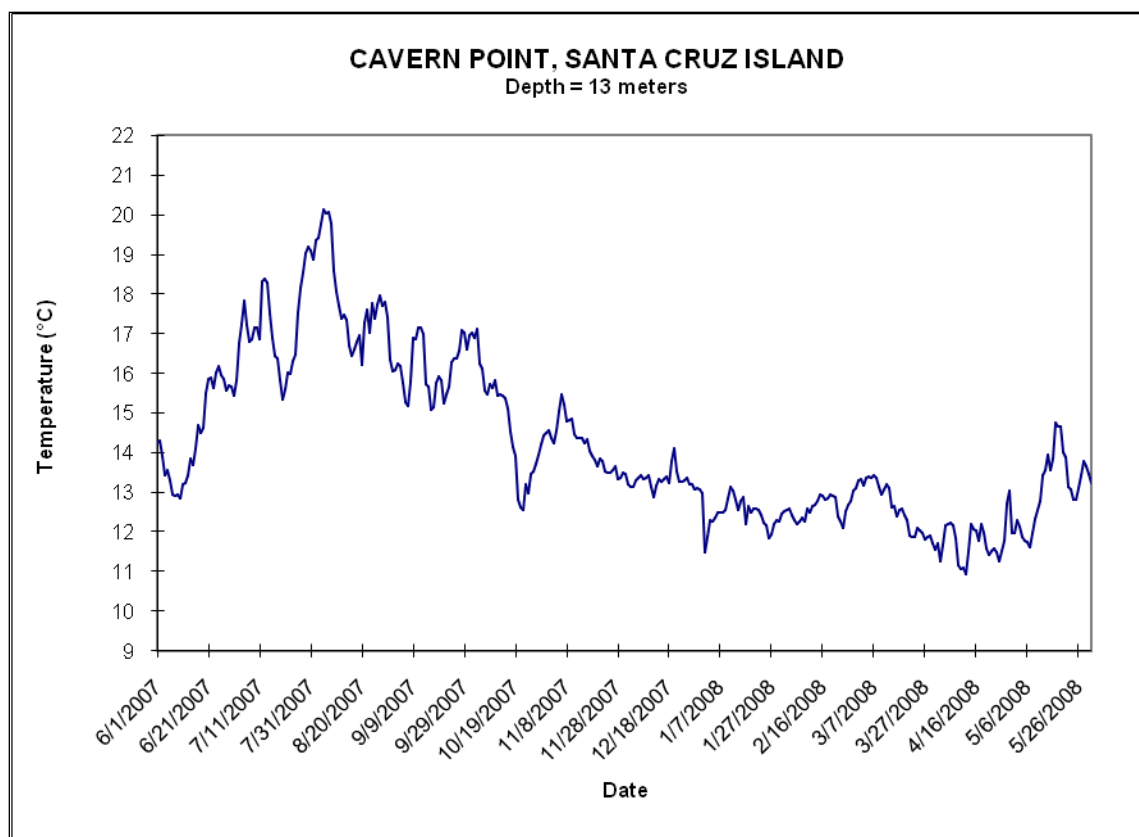


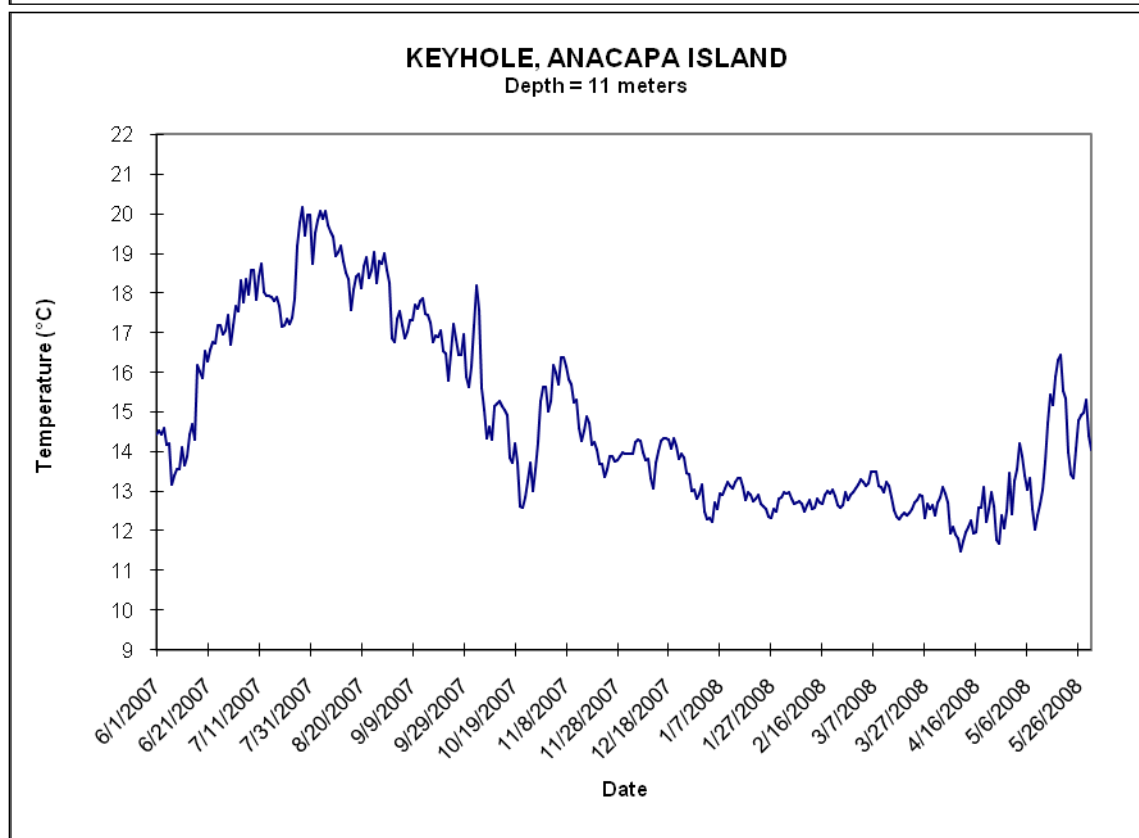
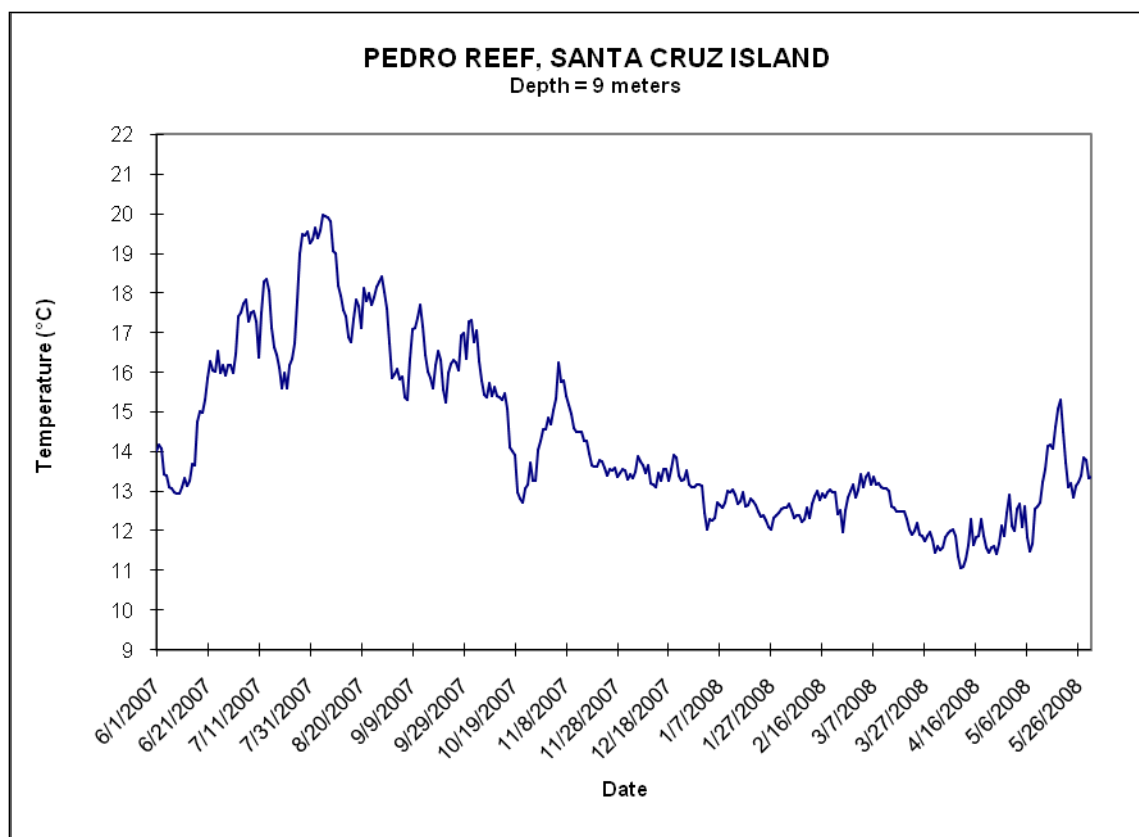


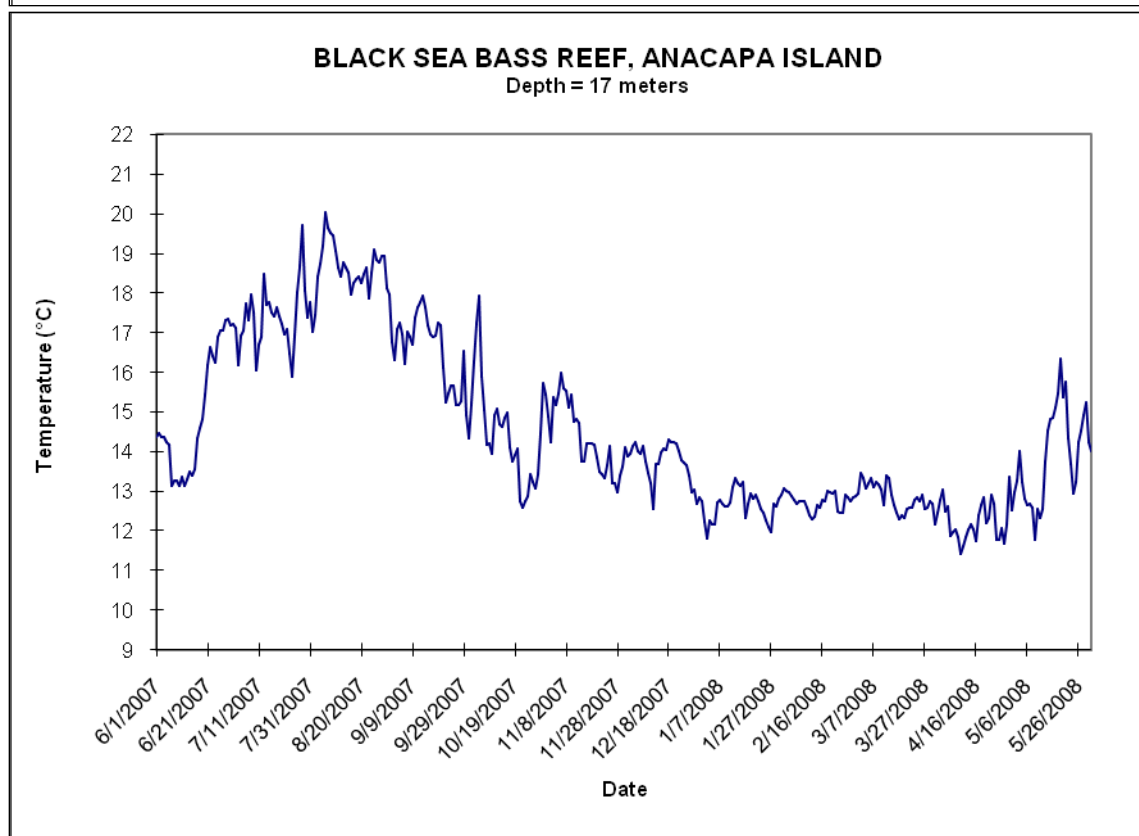
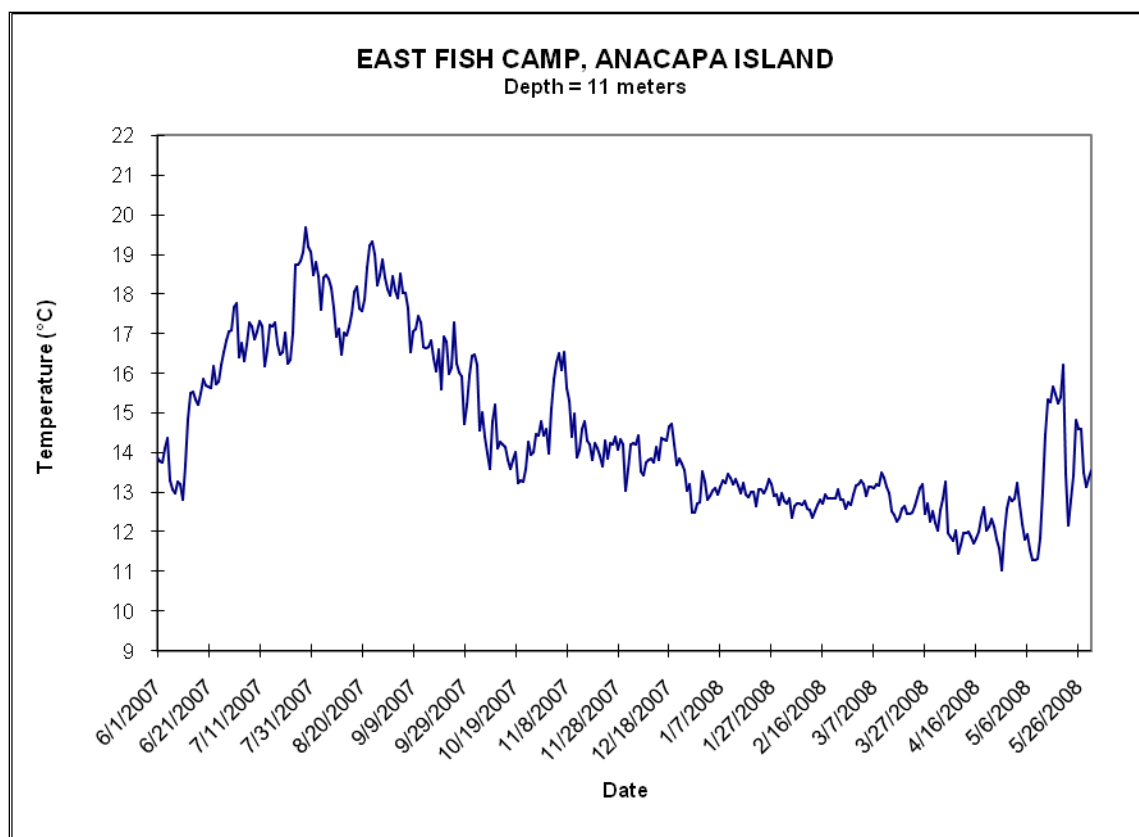


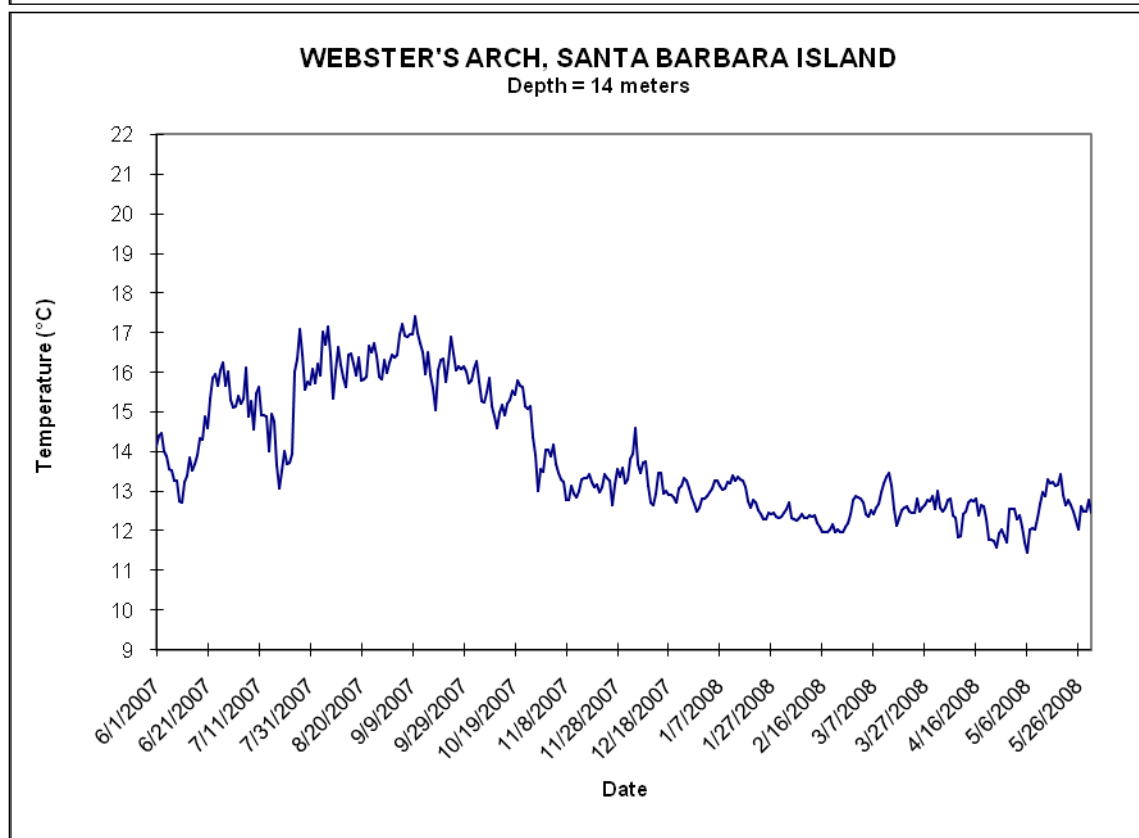
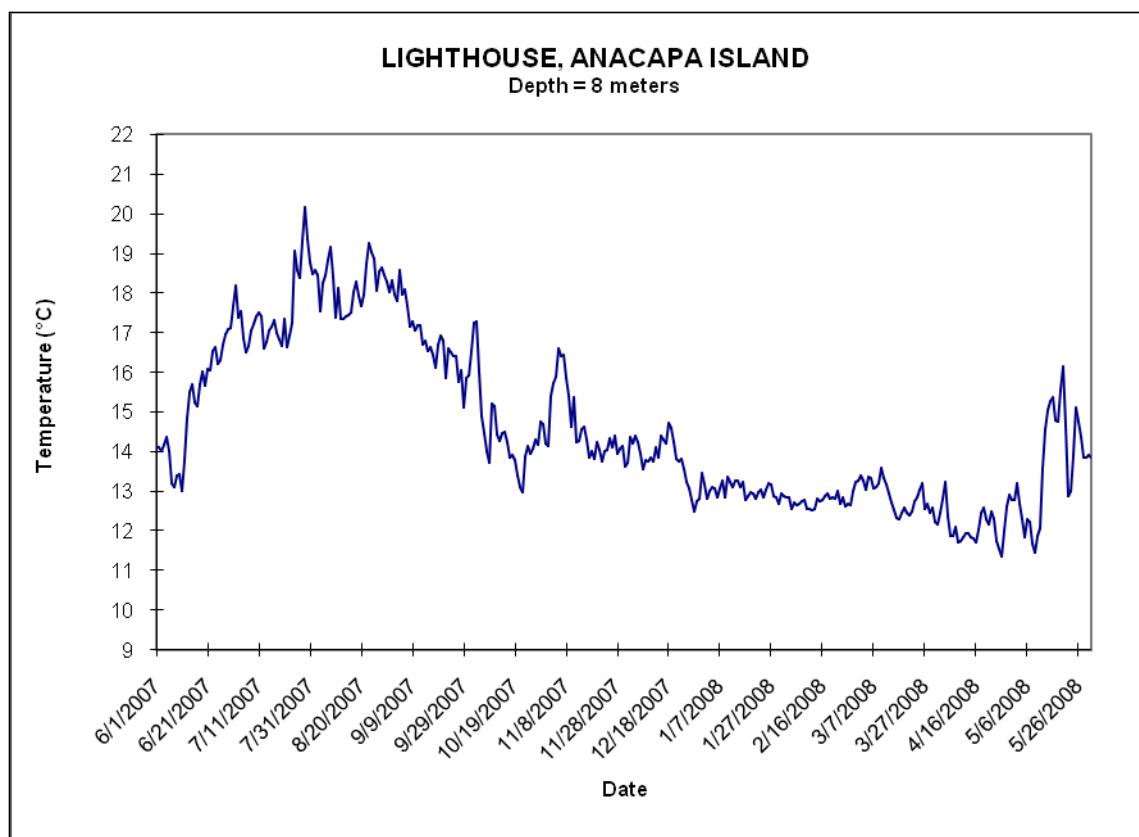


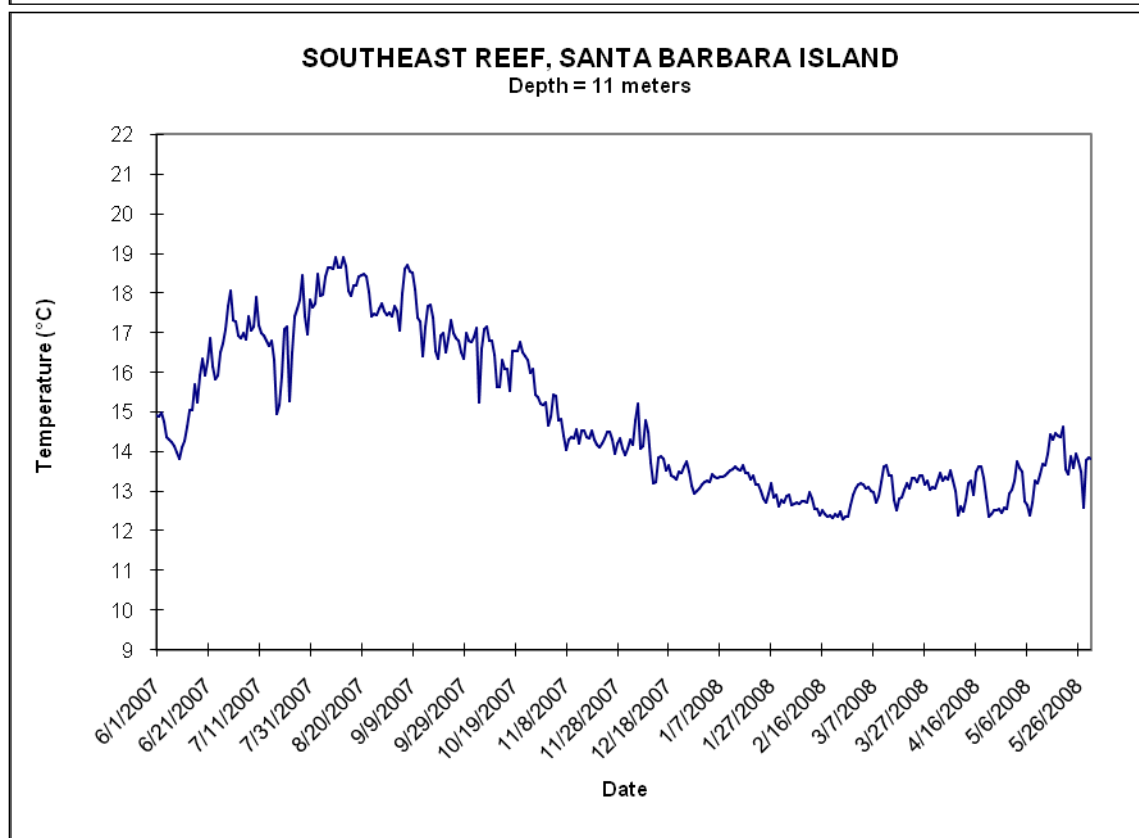
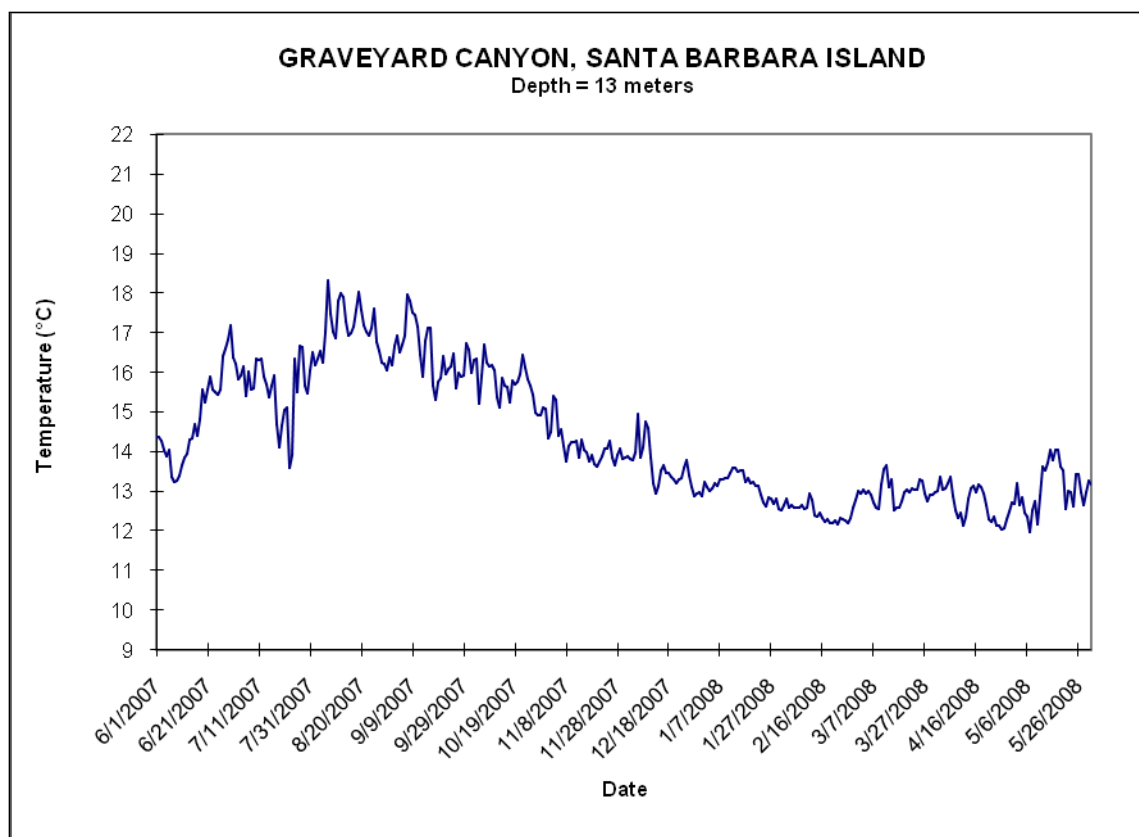












Appendix N. Protocol Modifications, Data Management, and Additional Projects Information

Protocol Changes

Girella nigricans used to be recorded as adult, all, and juvenile counts. Juveniles are typically known to reside in tide pools or very shallow water, and are therefore not observed at KFM sites. On July 2008 we removed the adult and juvenile *G. nigricans* counts and now record them only as an “all” category.

Corrections in the Database

There was a small data entry error found from band transects at SMWL in 2002 for *Pycnopodia helianthoides*. The density was changed from 0.0083/m² to the correct density of 0.0097/m². Overall, this change in density is minor.

New/Other Projects

There were no new projects this year. This was the second year of a two year agreement to conduct benthic CRANE surveys at select sites. This project was supported by CDFG and funded by the California Coastal Conservancy. This project is jointly conducted with the UCSB/PISCO. In 2008, the KFM staff conducted benthic CRANE surveys at 18 sites. The data from these surveys was provided to CDFG and they are responsible for the reporting and archiving of this information.

Appendix O. KFM Program Data Usage for 2008

Data Requests

In 2008 we filled 4 requests for data from the Park's kelp forest monitoring program. These requests were as follows:

Jerry Kashiwada with CDFG was sent *Haliotis rufescens* size frequency and density data for Miracle Mile. Dr. Jarrett Byrnes of UCSB was sent *Strongylocentrotus* spp. size frequency data. Andrew Rassweiler, a PhD candidate at UCSB, was sent percent cover and density data for *Pachythyone rubra* and *Pycnopodia helianthoides* for Fry's Harbor. Marco Hatch, a graduate student at UCSD, was sent data for *Haliotis rufescens* at all sites.

Presentations

The following presentation was given at the Seventh California Islands Symposium:

Moss, Michael D., David J. Kushner, Donna M. Schroeder. 2008. A Temporal Analysis of *Rhinogobiops nicholsii* Densities and Temperature at the Northern Channel Islands. Seventh California Islands Symposium, Oxnard, California

Publications

The following publications using KFM data were published in 2008:

California Department of Fish and Game, Partnership for Interdisciplinary Studies of Coastal Oceans, Channel Islands National Marine Sanctuary, and Channel Islands National Park. 2008. Channel Islands Marine Protected Areas: First 5 Years of Monitoring: 2003-2008. Aïramé, S. and J. Ugoretz (Eds.). 20 pp. www.dfg.ca.gov/marine

Information Requests

The kelp forest monitoring handbooks and annual reports are available in PDF format on the web at: <http://www.nps.gov/chis/rm/Index.htm>

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