

Natural Habitat Size Frequency

Access Table Design Structure for SizeFreqNatHab

Field Name	Data Type
ProgramCode	Text
Year	Number
EventCode	Text
IslandCode	Text
SiteCode	Text
Observer	Number
Technique	Text
Species	Number
Size	Number
Count	Number

Sample Size and Database Anomalies

This protocol was fully implemented in 1985. The target sample size varies for each species, site, and year depending on species abundance and the sampling time available for the search effort [KDJI].

Beginning in 1993, the data fields “Observer” and “Technique” were added to the database. Although no data are entered into these fields prior to 1993 (1995 for *Lophogorgia chilensis*, *Muricea fruticosa*, *M. californica* and *Stylaster californica*), it can be assumed that the general search method was the technique used to locate the organisms to be measured. Since 1993, the technique used is listed and is most often the band transect method, entered as “B”. For a detailed description of the different search methods, please refer to the protocol section of this handbook.

In 2015, *Macrocystis pyrifera* holdfast diameter measurements were discontinued.

In 2015, Height measurements were discontinued for *Stylaster californica*, *Lophogorgia chilensis*, *Muricea fruticosa*, *M. californica* and *Stylaster californica*.

In the database, there are flagged data for *Macrocystis pyrifera* Stipe Count to Holdfast Diameter ratios greater than 1. At ratios of greater than 1 it is likely that some of the *M. pyrifera* plant Stipe Count and Holdfast Diameter measurements were superimposed on the data sheets. At a ratio of 1.5 and greater it is even more likely and we suggest using caution when using these measurements for analysis.

Size and Count Fields

The Size Field is the size of the animal measured and the Count is the number of individuals of that species measured at that size. For example, if *Strongylocentrotus purpuratus* size field reads 22 mm, and the count field reads 11, this means that for this site and sampling event there were 11 *S. purpuratus* that were measured at 22 mm.

Organisms Sampled Information

Size frequencies for *Cypraea spadicea* were discontinued in 1990 because emergent individuals have a limited size distribution and the KFM non-invasive sampling methods were not effective at determining recruit abundances. This species, however, is still recorded during Artificial Recruitment Modules sampling (see section on ARMs).

Size frequencies for *Parastichopus parvimensis* were discontinued in 1990. No *Parastichopus parvimensis* data exists from Pelican Bay, Santa Cruz Island in 1983. During sampling in 1983, *Parastichopus parvimensis* were mistakenly not added to the data sheets, thus, no data was collected for this species at this site. *P. parvimensis* were added to the remaining data sheets for that year.

Tegula regina, queen tegula, was added to the size frequency data sheets in 2006.

Prior to 1998, some KFM divers removed abalone shells from the sites in order to observe the appearance of fresh shells. In 1998, we decided that it would be useful to collect size data on the shells as well as note if they were from a recent mortality (fresh shells) or old mortality (old shells). There is no doubt from our observations that as *Haliotis* spp. abundances declined at the sites, shell abundances also declined. Fresh shells are particularly important to document since small juvenile *Haliotis* spp. are rarely seen and the presence of fresh shells indicate their presence and recent recruitment. Divers now collect abalone shells for size frequency measurements at all sites. In 2018, shell sheets were removed and inspected after it was noticed that not all data may have been entered. Shells that were believed to be from outplanted aquacultured abalone in 1989 were sized and recorded on datasheets, but the sizes were not entered in the database. Black and flat abalone shells were similarly not entered. In 2018 categories for aquacultured *Haliotis rufescens* and *Haliotis wallenesis* were put in the database and the shells were entered along with all other not previously entered shell data. Aquacultured red abalone shells that were not explicitly stated fresh or old were assumed to be old due to the high mortality directly after outplanting and the elapsed time until finding them. Many black abalone shells were also entered as old due simply to not knowing.

See the protocol section for the list of species sampled.

Sites Sampled Information

Table 33. Size frequency site sampling history.

Dates Available	Island Name	Site Code
1985 – Present	San Miguel	WL, HR
	Santa Rosa	JLNO, JLNO, RR
	Santa Cruz	GI, FH, PB, SA
	Anacapa	AR, CC, LC
	Santa Barbara	SESL, AP
1986 – Present	Santa Barbara	CAT
	Santa Cruz	YB
2001 – Present	San Miguel	MM
2003 – 2004	San Clemente	NWH, BSC, EP, HBC
2005 – Present	Santa Rosa	CP, TC, CSAW, SP
	Santa Cruz	DPM, PP, CVP, LS, PRF
	Anacapa	KH, EFC, BSB, LH

Santa Barbara	WA, GC, SER
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