

5 m Quadrats

Access Table Design Structure for 5 m Quadrat

Field Name	Data Type
ProgramCode	Text
Year	Number
EventCode	Text
IslandCode	Text
SiteCode	Text
Species	Number
Quadrat	Number
Count	Number

Sample Size and Database Anomalies

This protocol was implemented in 1996, and there have been no changes or anomalies incurred.

Table 17. Number and size of 5 m² quadrats 1996 – present.

Year	# transects sampled	Transect size	Count A
1996 – present	40	5m ²	yes

Quadrat Placement

The 5 m² quadrats run directly parallel to the transect line.

Organisms Sampled Information

Table 18. 5 m² quadrat species sampling history 1996 – present.

Scientific Name	Species Code	Comments
<i>Macrocystis pyrifera</i> adult	2002.25	Sampling began in 1996
<i>Macrocystis pyrifera</i> subadult	2002.75	Sampling began in 1996
<i>Undaria pinnatifida</i> adult	2009.00	Sampling began in 2016*
<i>Undaria pinnatifida</i> juvenile	2009.50	Sampling began in 2016*
<i>Sargassum horneri</i> adult*	2016.00	Sampling began in 2010*
<i>Sargassum horneri</i> juvenile*	2016.50	Sampling began in 2010*
<i>Pisaster giganteus</i>	11002.00	Sampling began in 1996
<i>Pisaster ochraceus</i> *	11011.00	Sampling began in 2012*

*see below

Sargassum horneri adult and juveniles were added in 2010. This species is invasive and was first documented in CINP in 2009. It was added to this protocol to better document its spread within the park. This species may be removed from this protocol when densities become too great and it can be adequately sampled on 1 m² quadrats only.

Pisaster ochraceus was added in 2012. This species was rarely observed at KFM sites prior to 2010. We began counting this species intermittently in 2010 and 2011 as it became more common at several KFM sites. Data for 2010 and 2011 can be found in the site results section of the annual reports.

Undaria pinnatifida was added as a write in species in 2016, after it was seen for the first time on Anacapa Island Keyhole. In the first year of sampling, *U. pinnatifida* was separated into adult and subadult categories based solely on whether the plants possessed reproductive sporophylls, regardless of size class. In 2017, it was decided to make the distinction of juvenile, subadult, and adult plants based on the size class of the plant and the level of sporophylls development. The definition for the different *U. pinnatifida* life stages in 2017 were: juveniles have no midrib present, subadults have midrib but not fluted sporophylls, adults have fluted sporophylls. This posed challenges in keeping the data consistent across all years, so it was decided to enter subadults as juveniles in the database. In 2018, the categorization of juvenile, subadult and adult plants was further refined to include size classes. The current size classes are: juveniles are less than 0.5 m tall, reproductive sporophyll absent, subadults are greater than 0.5 m tall and not reproductive (can have frills on either side of blade above the holdfast, but lacks mature, dark brown sporophyll), and adults are greater than 0.5 m tall and have with well developed/reproductive sporophylls. The data continues to be collected at a finer scale than it is entered in case these distinctions are deemed useful in the future. All subadults are entered as juveniles.

Sites Sampled Information

Table 19. 5 m² quadrat site sampling history.

Dates Available	Island Name	Site Code
1996 – Present	San Miguel	WL, HR
	Santa Rosa	JLNO, JLNO, RR
	Santa Cruz	GI, FH, PB, SA, YB
	Anacapa	AR, CC, LC
	Santa Barbara	SESL, AP, CAT
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