

SBCLTER Swath Protocol

General Notes

General site descriptions and GPS coordinates are detailed in files “SBC-LTER Arroyo Quemado Site Description.xls”, “SBC-LTER Carpinteria Site Description.xls”, “SBC-LTER Naples Site Description.xls” or “SBC-LTER Satellite Site Descriptions.xls” in the “Site Description” folder. The permanent transects at each of the three core sites and six satellite sites are sampled annually in the late-summer to monitor the kelp forest community. Each site has 2-8 permanent 40 meter (m) transects marked at the beginning by either subsurface buoys or tygon tubing. Each transect has six permanent markers (eyebolts or rebar stakes) placed at distances of 0, 8, 16, 24, 32, and 40 meters along the transect. Hereafter, the permanent markers (bolts or rebar) will be referred to as bolts. Most transects run parallel to shore from west to east, generally at headings of 80° or 90°. Before sampling is begun, a surveyors transect tape is attached to the 0 m bolt, swum through the eyes of 8, 16, 24, 32, and 40 m bolts of the transect, pulled taut, and attached to the 40 m bolt. Sampling is then begun.

Swath Sampling

The purpose of the Swath sampling is to determine the abundance of common algae and invertebrates that can easily be counted in a 1 m-wide area on each side of the 40 m transect. Swath sampling is performed by an observer swimming the length of the 40 m transect twice, once each on the onshore and offshore sides of the transect tape. As the observer swims, he/she holds a 1 m long bar perpendicular to the transect tape and records the abundance of all targeted species encountered in each 40 x 1 m area. The total area sampled is 80 m² (Figure 1). To facilitate sampling, the abundance of each target species is recorded in each of four subsections: 0-20 m Onshore, 21-40 m Onshore, 0-20 m Offshore, and 21-40 m Offshore. The substrate beneath understory algae is searched for target species as are the undersides of ledges and crevices. No substrates or organisms are removed to expose targeted species hidden from view.

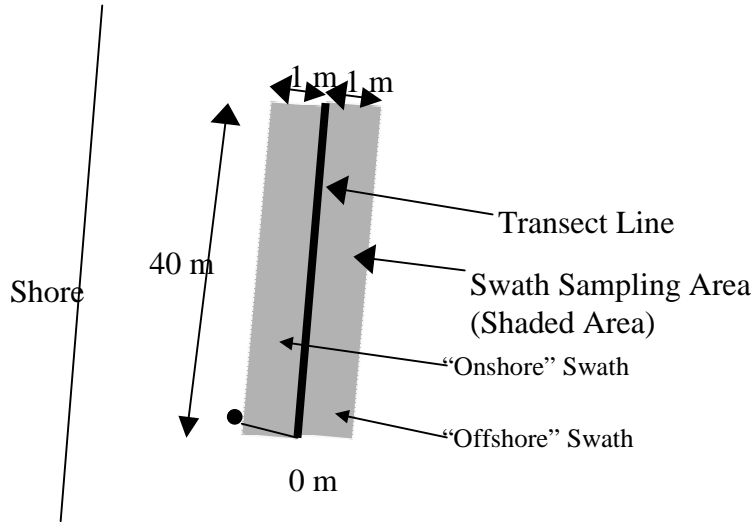


Figure 1. Diagram of Swath sampling area for permanent transects.

Swath Species List

The following species are commonly encountered in the swath sampling.

The following definitions apply to species sampling in 40 m x 2 m transects: *Macrocystis pyrifera* subadult = individual > 1 m tall having < 4 fronds. *Pterygophora californica* adult = individual > 25 cm tall, *Egregia menziesii* adult = individual < 1 m tall, *Laminaria farlowii* adult = blade width > 15 cm, *Cystoseira osmundaceae* adult = blade length > 3 cm. SKE refers to small *Kelletia* like species, which includes *Pteropurpura* spp., *Maxwellia* spp., as well as juvenile *Kelletia*. *Pisaster ochraceus*, *P. giganteus*, *P. brevispinus*, *Asterina miniata*, *Dermasterias imbricata*, *Orthosterias koehleri*, *Pycnopodia helianthoides* are individuals >25 mm in diameter.

SP_CODE	GENUS	SPECIES	SIZE
AML	<i>Asterina</i>	<i>miniata</i>	large (>25mm)
APCA	<i>Aplysia</i>	<i>californica</i>	.
APVA	<i>Aplysia</i>	<i>vaccaria</i>	.
CASP	<i>Cancer</i>	spp.	.
CRGI	<i>Crassedoma</i>	<i>giganteum</i>	.
CUKE	<i>Parastichopus</i>	<i>californicus</i>	.
CYOS	<i>Cystoseira</i>	<i>osmundacea</i>	(>10cm height)
DIL	<i>Dermasterias</i>	<i>imbricata</i>	large (>25mm)
EGME	<i>Egregia</i>	<i>menziesii</i>	(>1m height)
HACO	<i>Haliotis</i>	<i>corrugata</i>	.
HACR	<i>Haliotis</i>	<i>cracherodii</i>	.
HAKA	<i>Haliotis</i>	<i>kamtschatkana</i>	.
HARU	<i>Haliotis</i>	<i>rufescens</i>	.
KEKE	<i>Kelletia</i>	<i>kelletii</i>	.

Lafa	<i>Laminaria</i>	<i>farlowii</i>	(>15cm bld width)
LIGL	<i>Lithopoma</i>	<i>gibberosum</i>	large (>25mm)
LOCH	<i>Lophogorgia</i>	<i>chilensis</i>	.
LOGR	<i>Loxorhynchus</i>	<i>grandis</i>	.
MECR	<i>Megathura</i>	<i>crenulata</i>	.
MPS	<i>Macrocystis</i>	<i>pyrifera</i>	subadult (>1m & <4 stipes)
MUCA	<i>Muricea</i>	<i>californica</i>	.
MUFR	<i>Muricea</i>	<i>fruticosa</i>	.
OKL	<i>Orthasterias</i>	<i>koehleri</i>	large (>25mm)
PAIN	<i>Panulirus</i>	<i>interruptus</i>	.
PAPA	<i>Parastichopus</i>	<i>parvimensis</i>	.
PBL	<i>Pisaster</i>	<i>brevispinus</i>	large (>25mm)
PGL	<i>Pisaster</i>	<i>giganteus</i>	large (>25mm)
PHL	<i>Pycnopodia</i>	<i>helianthoides</i>	large (>25mm)
POL	<i>Pisaster</i>	<i>ochraceus</i>	large (>25mm)
PTCA	<i>Pterygophora</i>	<i>californica</i>	(>20 cm stipe length)
PUPR	<i>Pugettia</i>	<i>producta</i>	.
REKO	<i>Renilla</i>	<i>kollikeri</i>	.