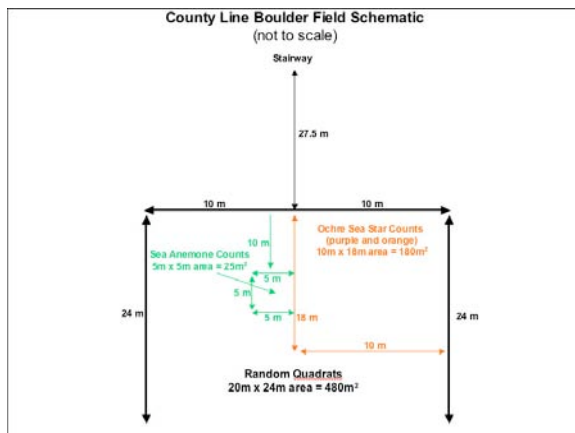


Directions:

The County Line Boulder Field is located a mile west of the Ventura/Los Angeles County line, just above Malibu along the Pacific Coast Highway. From Highway 1, park in the dirt lot across from Neptune's Net Seafood Restaurant. The monitoring site is located in the boulder field below, at the west end of the County Line Beach. Walk west along the bluff to the wooden staircase closest to the creek (not the staircase directly off the parking lot). Walk down the stairs and straight to the edge of the boulder field. Your baseline will continue into the boulder field from here.



Monitoring Protocols

Two monitoring procedures are used at County Line Boulder Field for monitoring:

- 1) Random quadrats in a permanent area
- 2) Total organism counts

1. Random Quadrats in a Permanent Plot

The designated area for random quadrat sampling is a 480m^2 area below the stairway. Survey 20 random quadrats in total.

- Lay a transect tape from the top of the boulder field toward the ocean for 24m. The sampling area is within the 10m to either side of this baseline. The transect tape should begin in the boulder field directly below the stairway. Note: It is about 27.5m from the stairs to the boulder field.
- Using the random number table, choose a number between 00.0 and 24.0. Locate this number along the base transect line.
- Choose a second random number between 0.0 and 10.0. This number indicates how

Random Quadrats (continued)

far from the base transect line you will place your quadrat. Use the third random number table to decide whether your location will be east or west of the base transect. Lay down a second transect tape, perpendicular to the first, to find this location.

- Center the quadrat over the meter tape.
- Record data for taxa within the quadrat as directed on the data sheet.
 - Some species will be counted as individuals.
 - Some species will be estimated as the number of squares in the $1/4\text{m}^2$ quadrat containing any attached portion (total possible, 25).



Note: In some cases, the random numbers will place the quadrat in a deep pool or drop-off. When this happens, place the quadrat on a level area as close to the designated coordinates as possible, or halve the random number.

2. Total Organism Count

Two species of large invertebrates can have a major impact on community organization of the rocky intertidal, but are not adequately counted in the $1/4\text{m}^2$ quadrats. These are ochre sea stars and sea anemones.

The delineated area for sea star counts is 10m by 18m, a total area of 180m^2 . The dimensions are 18m out along the 24m base transect line and east 10m from the base transect line.

Sea anemones will be counted in a 5m x 5m area, 25m^2 , beginning 10 meters down the baseline and to the west. In other words, the delineated area for sea anemone counts takes places between 10m and 15m along the 24m base transect line, and 5m out to the west.

- Mark the boundaries of the permanent area with cones or meter tapes.
- Systematically search the whole area in teams of 2 or 3. Look carefully in cracks and crevices, and under ledges.
- Record ochre sea stars as “orange” or “purple/brown.” Record all the ochre sea stars and sea anemones you can find as you go.

Note: Of course, some individuals will be missed, so total counts are just estimates of the true abundance. If 5-10 teams count the selected species in the same defined area, the average number counted provides a reasonable estimate that can be compared over time