



# GRAPHING THE BEACH PROFILE

After completing profiling on the beach, use the numbers from the profiling data collection sheet to make a graph illustrating a side view of the beach. If the numbers are graphed and this data gathered throughout the year, you can see and plot changes to the beach over time. Different seasons have different effects on the shoreline and your graphs will reflect these changes.

To explain how to go about making this graph we used as an example a sample of data collected from a school group at North Beach in October. The beach profile data collection sheet shows the first reading at site one as  $-5$ . This is a critical reading because all of the data on the graph will be adjusted starting from this number. The reading from site two is  $0$ . There has been no change from the first reading. To graph this, the first point would be  $-5$  and the second point would also be  $-5$ . There was no change in elevation between the first two readings. The reading from site three is also  $0$  and represents no change. Site four has a reading of  $-2$ . This means the elevation at site four dropped two centimeters. This two-centimeter drop is in addition to the initial five-centimeter drop from the reading at the first site. To accurately graph this as the fourth point you would plot the point at  $-7$ .

$$-5 + (-2) = -7$$

The reading from site five is  $-10$ . Remember each site reading is actually an adjustment, either plus or minus, from the previous reading. In our example, site four is  $-7$  and our current reading at site five is  $-10$ .

$$-7 + (-10) = -17$$

We will plot our fifth reading at  $-17$  on the graph. Continue in this manner until the data stops at the edge of the water. If you look at the rest of the readings on the sample graph below, you will notice that there are some numbers that are not negative or zero. For example the reading at site ten is  $2$ . How would you graph this?

| Site # | Reading | Observations                  |
|--------|---------|-------------------------------|
| 1      | -5      | Base of Dunes                 |
| 2      | 0       | Flat Beach                    |
| 3      | 0       | More Flat Beach, Few Shells   |
| 4      | -2      | Bird Foot Prints              |
| 5      | -10     | Tire Tracks, Scattered Shells |

Using the same technique as before, rely on the previous data and add the new reading. Site nine reads 0, there is no change from the cumulative elevation loss of -35. With an adjustment of 2 at site ten we get the following:

$$-35 + 2 = -33$$

Your point for site ten will be plotted at -33. Before beginning your graph, please look at the profile elevation data and graph provided to be certain you understand how the data is processed into a graph using the collected data. If you plan on collecting data from a particular spot on the beach over time or seasonally, be sure to identify a non-moving landmark. Use this as the starting point of your readings each time you collect data. This will provide a more accurate representation of how the beach is changing over time. As readings are made, observe and note anything of interest at each of the sites. The data you accumulate will be a record of the dynamic changes to the beach seasonally or yearly. If you have access to the Internet, we have a spreadsheet online. You can enter your profile data information and generate a graph. Go to the website [www. NJMSC.org](http://www.NJMSC.org) and look under teacher resources, beach profile zip.

|    |     |                             |
|----|-----|-----------------------------|
| 6  | -10 | Footprints of people        |
| 7  | 0   | Seagulls on the beach       |
| 8  | -8  | Plastic trash on beach      |
| 9  | 0   | Old log washed up           |
| 10 | 2   | Half buried shoe            |
| 11 | 10  | Horseshoe crab shell        |
| 12 | 2   | Lots of surf clam shells    |
| 13 | -10 | Poles marking nesting area  |
| 14 | 0   | Plastic bag in sand         |
| 15 | 0   | Strapping tape in sand      |
| 16 | -2  | Lots of moon snail shells   |
| 17 | 6   | Tide line of grass, shells  |
| 18 | 10  | Darker sand right here      |
| 19 | -15 | Fishers using clams as bait |
| 20 | -40 | Sand wet more shells        |
| 21 | -18 | Sand very wet               |
| 22 | -15 | Almost in the water         |
| 23 |     |                             |
| 24 |     |                             |

Site# Graph Plot

|    |      |
|----|------|
| 1  | -5   |
| 2  | -5   |
| 3  | -5   |
| 4  | -7   |
| 5  | -17  |
| 6  | -27  |
| 7  | -27  |
| 8  | -35  |
| 9  | -35  |
| 10 | -33  |
| 11 | -23  |
| 12 | -21  |
| 13 | -31  |
| 14 | -31  |
| 15 | -31  |
| 16 | -33  |
| 17 | -27  |
| 18 | -17  |
| 19 | -32  |
| 20 | -72  |
| 21 | -90  |
| 22 | -105 |



The New Jersey Marine Sciences Consortium/New Jersey Sea Grant (NJMSC/NJSG) is an affiliation of colleges, universities and other groups dedicated to advancing knowledge and stewardship of New Jersey's marine and coastal environment. NJMSC/NJSG meets its mission through its innovative research, education and outreach programs. For more information about NJMSC/NJSG, visit [njmsc.org](http://njmsc.org).