

## PROFILE OF THE SOUTHERN CALIFORNIA BIGHT

The following data points were taken from a nautical chart of southern California. A straight line was drawn to the southwest through Laguna Beach (distance 62.5 in the data). The elevations of the land or the depths of the ocean were recorded in meters at intervals every 2.5 nautical miles. Use 2 sheets of your graph paper turned horizontally and taped together to make one graph. Plot "distance" on your x-axis and "elevations/depths" on your y-axis.

distance nautical miles	elevations (+) and depths (-) meters	distance nautical miles	elevations (+) and depths (-) meters
0	+2134	105	-622
2.5	+3048	107.5	-914
5	+3501	110	-1143
7.5	+2134	112.5	-183
10	+1829	115	+610
12.5	+1219	117.5	-91
15	+914	120	-366
17.5	+610	122.5	-796
20	+305	125	-1244
22.5	+300	127.5	-1061
25	+300	130	-1097
27.5	+300	132.5	-1353
30	+305	135	-1090
32.5	+305	137.5	-914
35	+610	140	-640
37.5	+600	142.5	-914
40	+300	145	-1225
42.5	+762	147.5	-1207
45	+1219	150	-622
47.5	+610	152.5	-91
50	+305	155	-18
52.5	+300	157.5	+ 5
55	+122	160	-366
57.5	+ 61	162.5	-457
60	+ 15	165	-914
62.5	0	167.5	-1280
65	-183	170	-1728
67.5	-640	172.5	-1646
70	-549	175	-1006
72.5	-503	177.5	-1317
75	-510	180	-1664
77.5	-732	182.5	-1682
80	-823	185	-1719
82.5	-869	187.5	-1737
85	-549	190	-1884
87.5	-503	192.5	-1828
90	-914	195	-1920
92.5	-1052	197.5	-2743
95	-1097	200	-2835
97.5	-1116	202.5	-3658
100	-1090		
102.5	-914		

data continued in 2nd column above

## ANALYSIS OF DATA:

1- Using a nautical chart or topographic map neatly print the correct name of each peak and depression on your graph, both on land and at sea.

2- Write a short paragraph comparing the similarities and/or differences between the general appearance of the land topography with the undersea topography.

3- Many coastlines are characterized by a well defined continental shelf, slope, and rise leading down to the abyssal sea floor. Write a short paragraph comparing the "typical" shelf/slope/rise scenario with the southern California bight.

4- On most coastlines the organic detritus and nutrients required for life run off the land and out to sea. They generally drift down the slope and come to rest on the abyssal plains. Here they are too deep to be returned to the surface and cannot be utilized again by photosynthetic organisms.

Considering the fact that the southern California bight is a region of great upwelling, write a short paragraph explaining how our undersea topography helps contribute to our high marine biological productivity. (HINT: what happens when rivers and streams deposit organic detritus and nutrients into our waters? How is this different from most coastlines? How does this interact or relate to the process of upwelling and photosynthesis?)

TEACHER'S GUIDE

Southern California Bight Topography  
Transect running SW (210° mag)

