Plate Tectonics and the Sea Floor

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Navigate to the* [*OOI Plate Tectonics and the Sea Floor data lab*](https://datalab.marine.rutgers.edu/explorations/2019/techtonics.php?level=exploration)*. Spend a few minutes orienting yourself with the map, then answer the questions below.*

1. What area is shown in the map?
2. What does the size of each circle represent?
3. What does the color of each circle represent?

Red:

Yellow:

Blue:

A snow covered mountain

Description automatically generated

D

C

B

A

*Figure 1. Image Source: Google Earth*

1. For each of the areas outlined above, write down your observations about earthquake frequency, depth, and magnitude.

|  |  |  |  |
| --- | --- | --- | --- |
| **Area** | **Frequency (Low, Medium, High)** | **Earthquake Depth (Shallow, Moderate, Deep)** | **Earthquake Magnitude (Low, Medium, High)** |
| **A** |  |  |  |
| **B** |  |  |  |
| **C** |  |  |  |
| **D** |  |  |  |

1. Judging by your observations, where do you expect “the big one” to originate from? Why?
2. Conduct research online to determine what types of earthquakes are typically found at the different plate boundary types.

|  |  |  |
| --- | --- | --- |
| **Boundary Type** | **Earthquake Depth (Shallow, Moderate, Deep)** | **Earthquake Magnitude (Low, Medium, High)** |
| **Transform** |  |  |
| **Subduction** |  |  |
| **Divergent** |  |  |

1. According to your research, what type of tectonic boundary is most likely to cause “the big one”?

A picture containing text, sign, outdoor

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1. See the map above for the names of each area. Research each fault online to determine what type of boundary it is – Divergent, transform, subduction, or mix.

|  |  |
| --- | --- |
| **Area** | **Boundary Types (Transform, Subduction, Divergent, Mix)** |
| **Blanco Fracture Zone** |  |
| **Gorda Ridge** |  |
| **Medocino Triple Junction** |  |
| **Cascadia Subduction Zone** |  |

1. Revisit your answer to Question 5. Knowing what you know now, where do you think “the big one” will originate from?

A

B

C

D

1. Subduction zones typically produce the highest magnitude and deadliest earthquakes. Why didn’t this show up in the data?