

## Sea Floor Graveyard - Student Worksheet #2

### Hypoxia - Measuring Ocean Conditions

**Explore how ocean conditions are measured and their importance.**

1. In a small group, make a list of things about the ocean that scientists might want to measure to investigate the phenomenon they saw in the video of the seafloor.

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2. For three of the items on your list, answer the following questions based on what you think.

Item from list	How often should it be measured?	Where in the ocean should it be measured?	Who should make the decisions about measurements?

3. Read about the [Ocean Observatories Initiative](#) and answer the following questions.

- a. How long has the ocean observatory been deployed? \_\_\_\_\_
- b. What are some types of equipment that are used to measure ocean conditions?

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- c. What does OOI measure? \_\_\_\_\_
- d. How might OOI help scientists? \_\_\_\_\_
- e. Examine the pictures on the OOI page. Describe at least two challenges you think they might have to overcome to deploy their equipment. \_\_\_\_\_

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- f. Watch the short video on the OOI page and make a connection as to how the data that is collected could be useful to fishermen. \_\_\_\_\_

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- g. Define transect. Why do you think scientists use transects when taking measurements?

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4. One of the items measured by the OOI is dissolved oxygen in the water, which is a condition with a great impact on living things. Read about [dissolved oxygen](#) and summarize why it's so important in 2-3 sentences.

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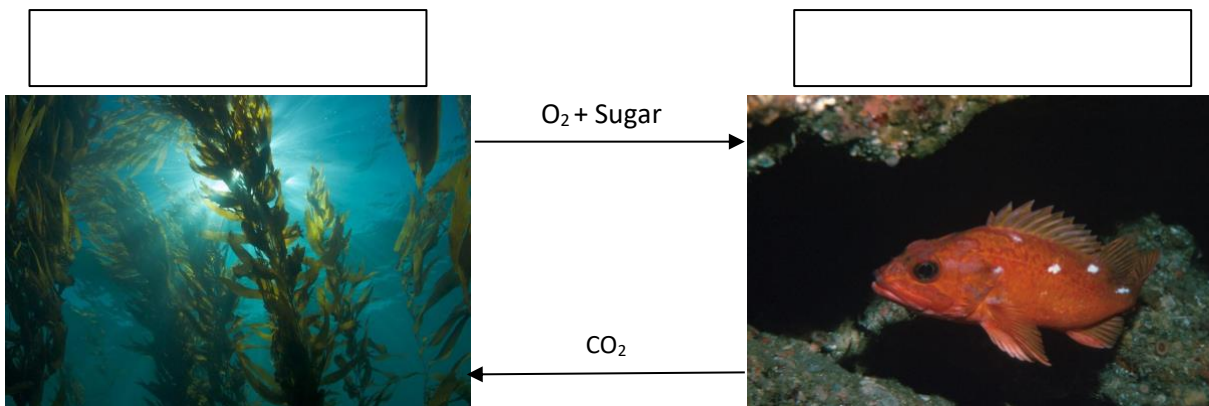


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5. Define the terms listed using the [dissolved oxygen](#) information.

- a. Hypoxia: \_\_\_\_\_  
 b. Anoxia: \_\_\_\_\_

6. Finish the diagram about the energy cycle by filling in the blank boxes with the correct term - either Photosynthesis or Cellular Respiration.



7. Given the diagram above, predict what might happen in an environment that is experiencing hypoxia.

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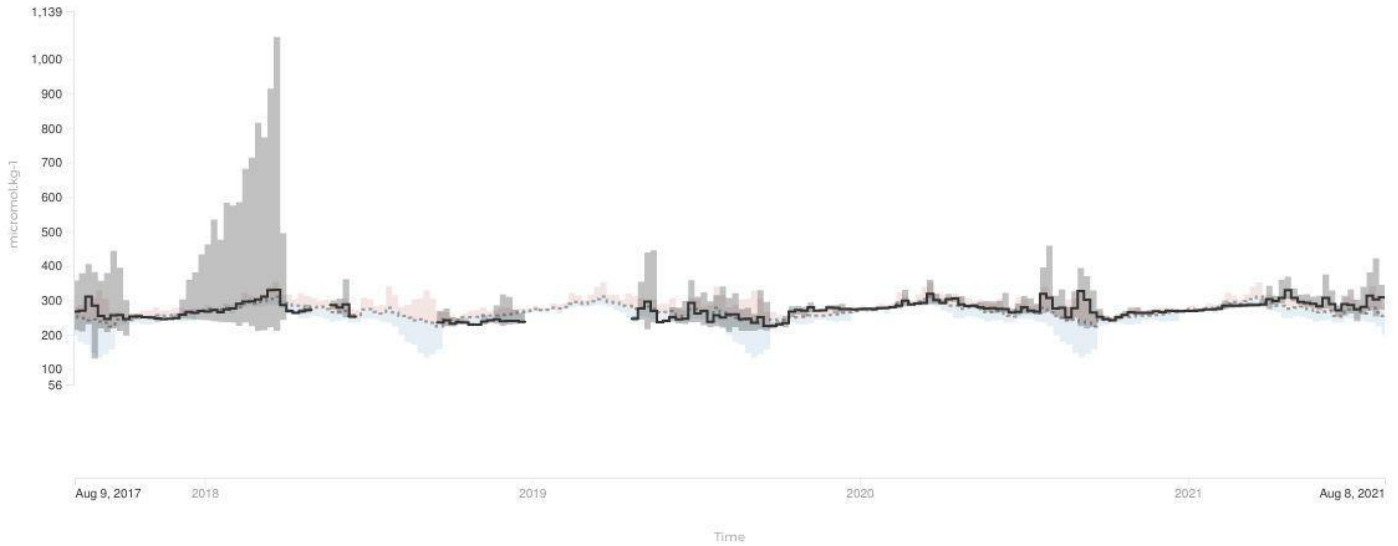


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8. Examine the graph below of dissolved oxygen and answer the questions that follow.

### Oxygen: Mole Concentration Of Dissolved Molecular Oxygen In Sea Water

Time bin **Weeks**



<b>Observations</b> <span style="display: inline-block; width: 10px; height: 10px; background-color: #ccc; border: 1px solid #000;"></span> Min/max envelope <span style="display: inline-block; width: 10px; height: 1px; background-color: #000; border: 1px solid #000;"></span> Mean	<b>Seasonal statistics</b> <span style="display: inline-block; width: 10px; height: 10px; background-color: #f8d7da; border: 1px solid #000;"></span> Mean to 90th percentile <span style="display: inline-block; width: 10px; height: 10px; background-color: #d1ecf1; border: 1px solid #000;"></span> Mean to 10th percentile <span style="display: inline-block; width: 10px; border-bottom: 1px dashed #000;"></span> Mean	<b>QARTOD</b> <span style="display: inline-block; width: 10px; height: 10px; background-color: #28a745; border: 1px solid #000;"></span> Pass <span style="display: inline-block; width: 10px; height: 10px; background-color: #ffc107; border: 1px solid #000;"></span> Suspect <span style="display: inline-block; width: 10px; height: 10px; background-color: #dc3545; border: 1px solid #000;"></span> Fail <span style="display: inline-block; width: 10px; height: 10px; background-color: #6f42c1; border: 1px solid #000;"></span> Missing data
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- a. How many years of data is shown on the graph? \_\_\_\_\_
- b. Why do you think the amount of dissolved oxygen might be changing over time?  
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- c. Ask a question about what you're seeing on the graph. \_\_\_\_\_  
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- d. Long term data will help scientists better understand and predict ocean conditions. It can also help them see changes or anomalies. How might data like this help scientists understand the unexpected dead animals on the seafloor in the video?  
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