In shallow waters of a stable body of water, dissolved oxygen will stay at 100% air saturation. This means that the water has as many gas molecules it can carry. In most cases, the water is at equilibrium, which means that the percentage of gas in the air is equal to the amount in the water. This happens over time as the when the water slowly absorbs the oxygen from the air when not at equilibrium; however, this process is sped up but wind-driven waves (November 19, 2013. “Dissolved Oxygen.” *Fondriest Environmental, Inc.*).

**Figure 1: Dissolved Oxygen Levels at a certain temperature.** All data is in the salinity levels of 25ppt. The dissolved oxygen in water is dependent on the temperature and salinity.

In Figure 1, the data shows the with the deeper the water, the lower the temperature. This also concludes that the colder the water, the less dissolved oxygen is available in the water. This explains the reason that there are less animals living in the deep. The salinity level of 25ppt was chosen because the average levels in the ocean is between 25-35. “Dissolved Oxygen is usually reported in milligrams per liter (mg/L) or as a percent of air saturation” (November 19, 2013. “Dissolved Oxygen.” *Fondriest Environmental, Inc.*). “To calculate dissolved oxygen concentration from air saturation, it is necessary to know the temperature and salinity of the sample” (November 19, 2013. “Dissolved Oxygen.” *Fondriest Environmental, Inc.*).

|  |  |  |  |
| --- | --- | --- | --- |
| 12 pm each day | date | Temperature (°C) | Saturation of DO |
| 11/01/17 | 14.732 | 76.2 |
| 12/01/17 | 10.593 | 81.5 |
| 1/01/18 | -0.403 | 74.2 |
| 2/01/18 | 3.921 | 82.1 |
| 3/01/18 | 9.662 | 86.4 |
| 4/01/18 | 10.763 | 96.6 |

**Figure 2: Data taken at Hull Springs.** Data was collected every 15 minutes for 6 months at the same depth and as a comparison, once a month at noon everyday day was used for equilibrium.

In Figure 2, it shows that as the months get colder, there is less dissolved oxygen available, which is also true for deeper waters. “Dissolved oxygen concentrations will vary by season, location and depth” (November 19, 2013. “Dissolved Oxygen.” *Fondriest Environmental, Inc.*). During the day, due to photosynthesis, the air saturation of dissolved oxygen reaches over 100%, however, at noon, it is at equilibrium (November 19, 2013. “Dissolved Oxygen.” *Fondriest Environmental, Inc.*).