Fish Ecology

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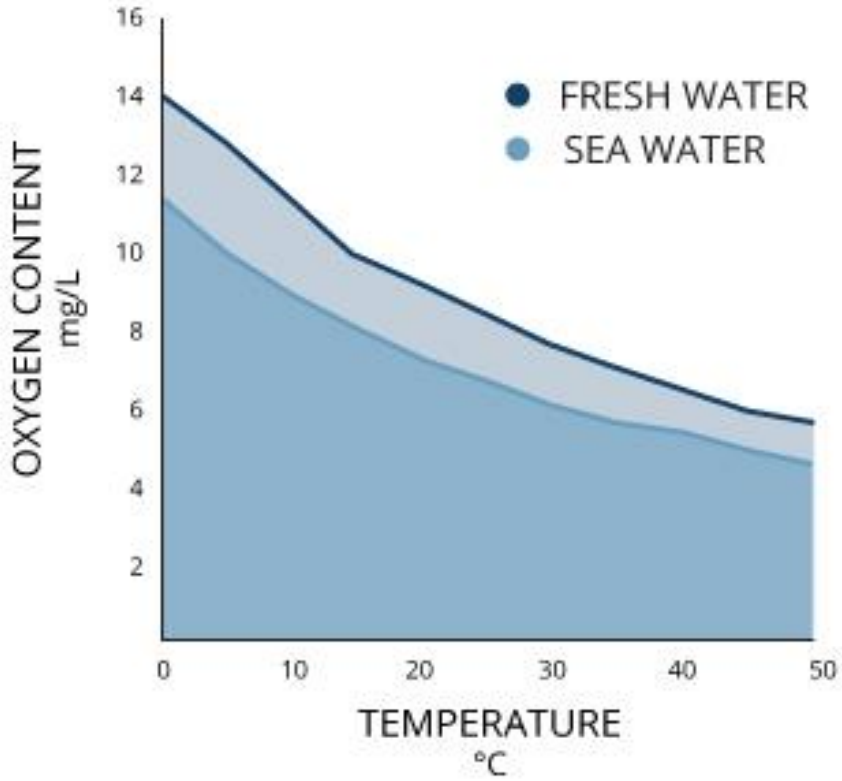
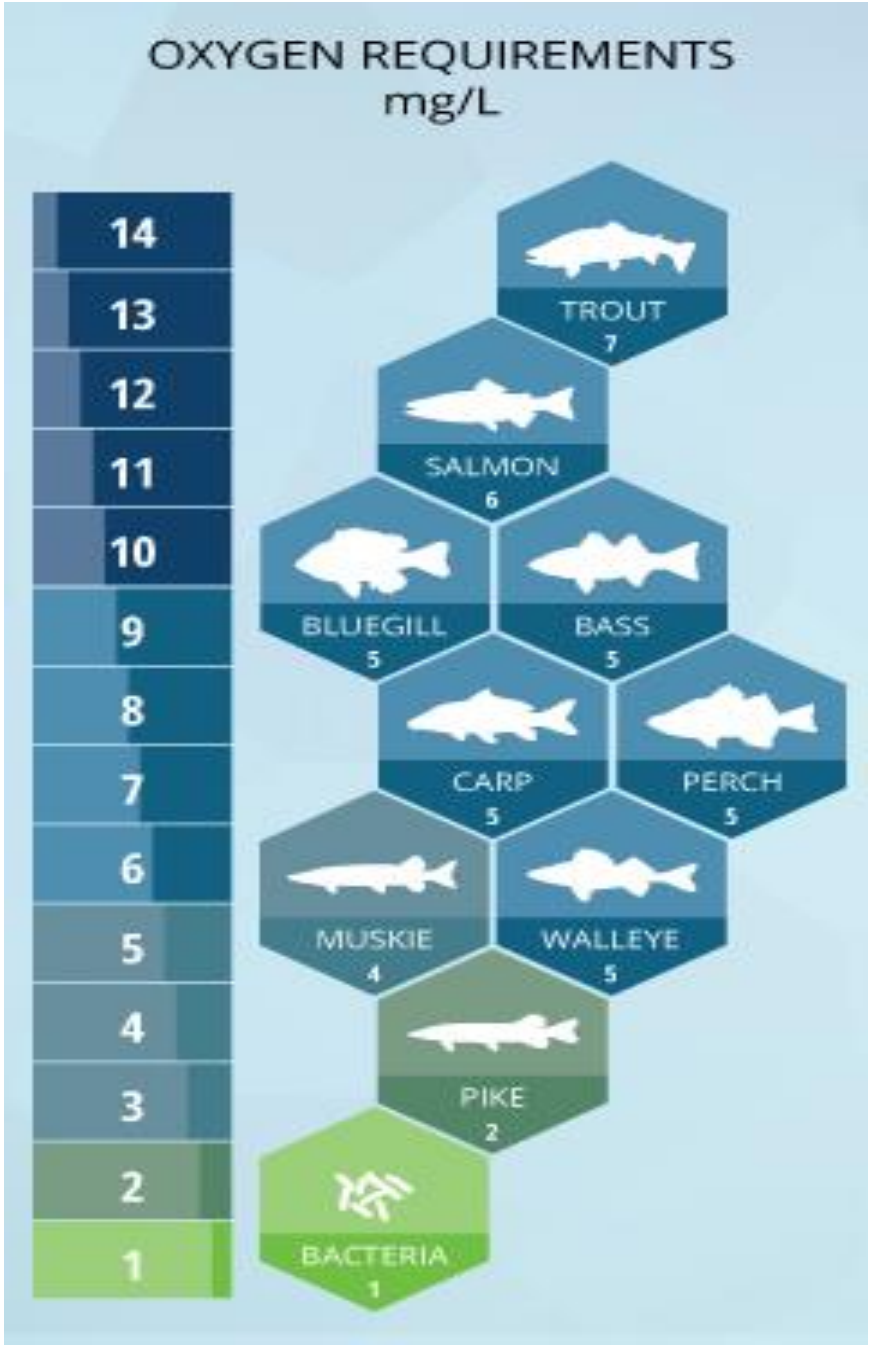
Dissolved Oxygen

- dissolved oxygen will increase as pressure increases. This is true of both atmospheric and hydrostatic pressures. Water at lower altitudes can hold more dissolved oxygen than water at higher altitudes. This relationship also explains the potential for “supersaturation” of waters below the thermocline – at greater hydrostatic pressures, water can hold more dissolved oxygen without it escaping. Gas saturation decreases by 10% per metre increase in depth due to hydrostatic pressure. This means that if the concentration of dissolved oxygen is at 100% air saturation at the surface, it would only be at 70% air saturation three meters below the surface.

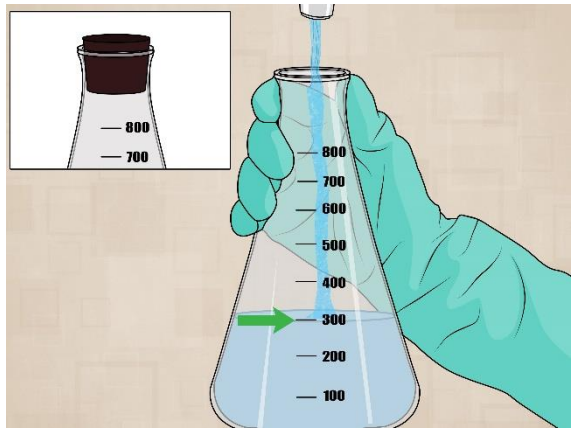


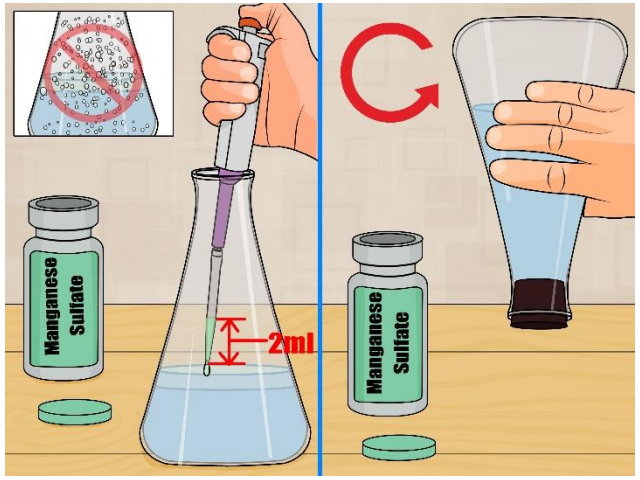
Dissolved Oxygen

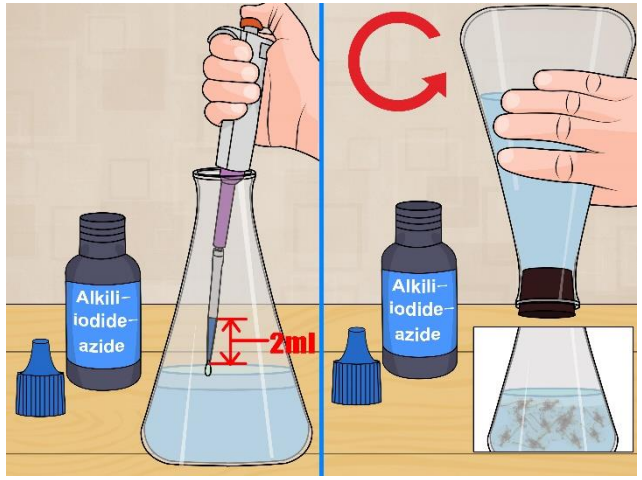
- Coldwater fish like trout and salmon are most affected by low dissolved oxygen levels . The mean dissolved oxygen level for adult salmonids is 6.5 mg/L, and the minimum is 4 mg/L. These fish generally attempt to avoid areas where dissolved oxygen is less than 5 mg/L and will begin to die if exposed to levels less than 3 mg/L for more than a couple days. For salmon and trout eggs, dissolved oxygen levels below 11 mg/L will delay their hatching, and below 8 mg/L will impair their growth and lower their survival rates. When dissolved oxygen falls below 6 mg/L (considered normal for most other fish), the vast majority of trout and salmon eggs will die.

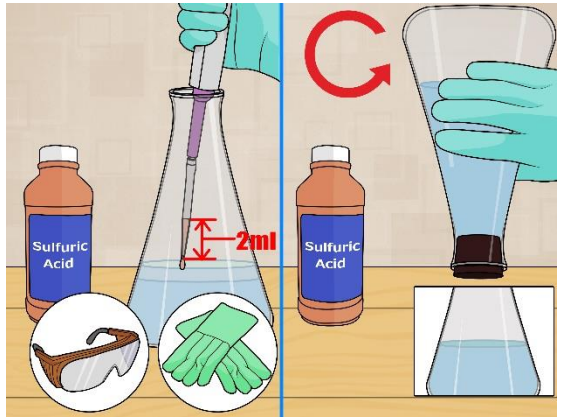


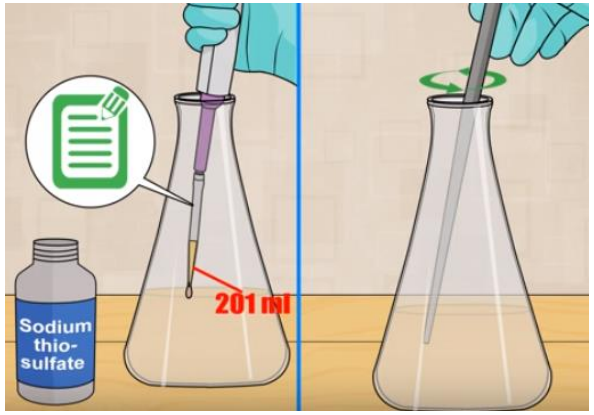
The Winkler Method - Measuring Dissolved Oxygen

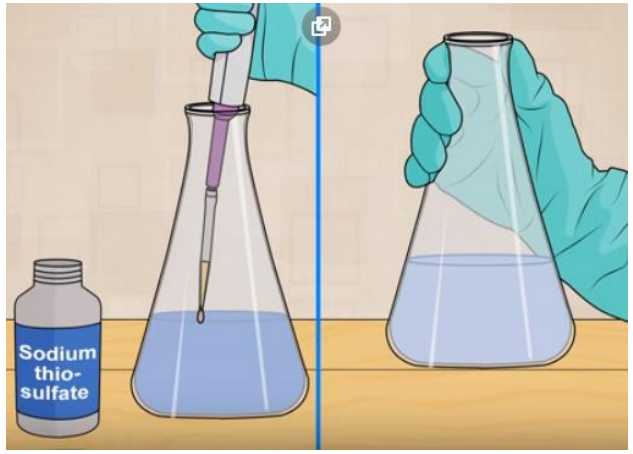












Amount of sodium thiosulfate left = 8 ml
Initial amount of sodium thiosulfate = 16 ml
= 16-8
= 8 ml
therefore, 8 ml of sodium thiosulfate correspond 8mg/l oxygen content