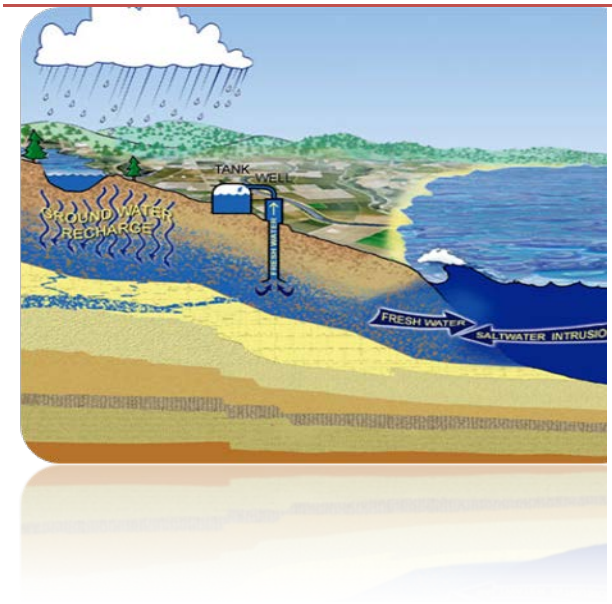

SALTWATER INTRUSION – BAY DELTA

TITLE

DESCRIPTION	California is heavily impacted by salt in some basins. Some salts naturally occur through percolation in the underground aquifer. Other times, it is a result of groundwater overdraft that allows sea water to intrude. The 'mixing' is due to the different densities of salt water and fresh water.
OBJECTIVES	Metropolitan Water District periodically tests the water in our reservoirs (and water supplies) to ensure proper "balance." At times, salt water seeps into our fresh water supply. In the Bay Delta, some salt water is needed to maintain the eco-balance. But, too much salt causes problems, such as: - endangered species (animals) - poor water quality - ecology damage to plants & trees - increased water bills (due to equipment repairs)
MATERIALS NEEDED	Pipette, Vial, Food Coloring (blue and yellow), Salt, Spoon, Small Cup of Water
PROCEDURE	1. Mix the blue and yellow food coloring in separate containers. Include ½ tablespoon of salt in the cup of yellow water.

2. Use the pipette to fill the test tube with 3 ml. of the blue liquid. Rinse pipette with clear water.
3. Use the pipette to fill the test tube with 3 ml. of yellow liquid
4. Observe the reaction – what color is the water in the test tube?
5. Empty the test tube and rinse with clean water
6. Use the pipette to fill the test tube with 3 ml. of yellow water.
7. Use the pipette to fill the test tube with 3 ml.l of blue water. Add it s-l-o-w-l-y one drop at a time (down the side of the test tube).
8. Observe the reaction. What are the colors in the test tube?
9. There should be a subtle line of demarcation between the water on the bottom and the water on the top.

CONCLUSION: The reason for the "separation" is because the yellow salt water is denser than the plain blue water. This is the ideal atmosphere for the Sacramento Bay Delta – the brackish water has a balance of salt water and fresh water. The balance usually occurs when there is a viable snowpack in Northern California