

## **MPA Lesson Plan for Valley Christian High School: Cerritos, CA**

**By Dan DeKraker**

**Background:** Lesson Plan for 9<sup>th</sup> Grade biology to be used within the unit on Fish. This lesson plan will take one block (85 minutes).

**Content Standards:** Our school uses the McReal standards

Standard 6. Understands relationships among organisms and their physical environment

1. Knows how the interrelationships and interdependencies among organisms generate stable ecosystems that fluctuate around a state of rough equilibrium for hundreds or thousands of years (e.g., growth of a population is held in check by environmental factors such as depletion of food or nesting sites, increased loss due to larger numbers of predators or parasites)

3. Knows that as matter and energy flow through different levels of organization in living systems and between living systems and the physical environment, chemical elements (e.g., carbon, nitrogen) are recombined in different ways

5. Knows ways in which humans can alter the equilibrium of ecosystems, causing potentially irreversible effects (e.g., human population growth, technology, and consumption; human destruction of habitats through direct harvesting, pollution, and atmospheric changes)

**Objectives:** Students should be able to answer the following essential questions.

What are MPA's?

Where are MPA's in Southern California?

What is the biology in and outside of MPA's for Southern California?

Why are MPA's important?

**Relevant Terms:** MPA, Biomass, Density, Size, Biodiversity, Spillover

**Materials:** Ruler, Southern California Coastal Map (NOAA San Diego to Santa Rosa #18740), String, Overhead transparency, overhead pen, Candy (assortment of sizes)

**Procedures:**

1. Hand out MPA Survey. The pre-lesson survey assesses the prior knowledge the student has of the subject. (see attached survey)
2. MPA Location Activity: Students will determine how much of the Southern California coast is an MPA. (see attached student handout)
3. Coastal Sampling Activity: Students sample candy from two buckets and compare candies sampled to sea organisms that live in and outside of MPA's. One bucket has a