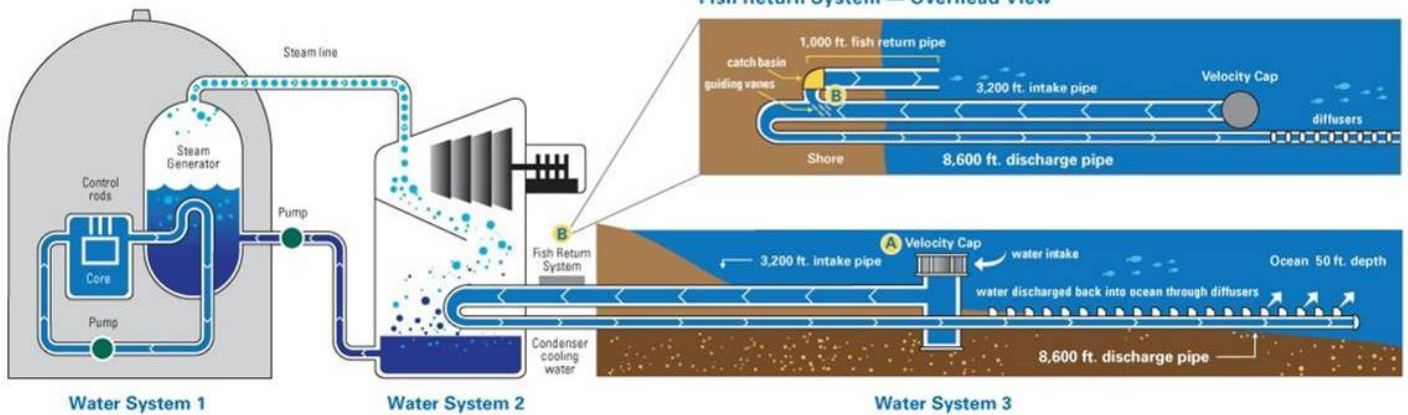


## The San Onofre Nuclear Generating Station's Ocean Water Cooling System



The San Onofre Nuclear Generating Station powers more than 1.4 million California homes using abundant, economical ocean water for cooling and innovative environmental measures to protect valued Southern California marine ecosystems.

### “Once-Through Cooling”

Many U.S. power plants are built near rivers, lakes and oceans to take advantage of these economical sources of cooling water. California has a very limited supply of fresh water and an abundant supply of ocean water. So its electricity grid has grown up around 19 coastal power plants including the large San Onofre facility. These plants can generate 40 percent of the state’s power.

### Advanced Technologies Reduce and Offset Marine Impacts

Innovative features of the San Onofre plant’s ocean water intake system prevent harm to 94 percent of local marine life. Its 3,200-foot intake pipe is equipped with a unique “velocity cap” (“A” in graphic above) that allows most fish to swim away. The velocity cap is located at a depth and distance from the shore where fewer fish are found. For the small amount of marine life that does enter the intake pipe, a special system (“B”) returns most to the ocean unharmed. Then three major marine enhancement projects developed by SCE – a hatchery, kelp reef and wetlands project – more than restore the balance of fish impacted by the cooling system.

### Water System #1

The “primary” reactor cooling system passes pure water through the nuclear reactor under pressure to transfer its heat to the steam generators, thus removing heat from the reactor. This system is radioactive, so it is contained completely within the plant containment dome.

### Water System #2

The “secondary” system uses pure water to take the heat created in the primary system and create steam in the steam generators. The steam from the generators turn the turbines to produce electricity. The water in the secondary system does not come into direct contact with the water in the primary system and is not radioactive.

### Water System #3

The “circulating” system, also called a “once-through” circulating water system, uses ocean water to cool and condense the steam in the secondary plant for its return to the steam generators. Like the secondary system, the water in the circulating water system never comes in contact with the reactor and is not radioactive.



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