Seawater Desalination On-Site Demonstration Fish Tank

This tank has been set up to demonstrate the lack of adverse environmental effects to the marine biota resulting from the proposed desalination plant. The reverse osmosis process used to desalinate seawater generates a by-product with an elevated concentration of natural sea salts. The flow of concentrated seawater from the desalination facility to the marine environment would result in increased salinity of between 1 to 8% in the immediate vicinity of the point of discharge (a maximum of 2.7 parts per thousand [ppt]) and then quickly defuse to background levels after mixing with the surrounding seawater.

Marine fishes and invertebrates are well adapted to deal with changes in their environment. These changes include temperature, salinity, and pressure (resulting from moving to different depths). Changes in salinity can be due to rainfall runoff, which decreases salinity, or conversely, evaporation in shallow lagoons, which increase salinity. Based on existing scientific literature, the maximum salinity levels that will be experienced at the point of discharge are within the tolerance levels of our coastal marine biota.

Tank Set-up: Seawater leaving the Encina Power station's cooling system (33.5 ppt) and the concentrated seawater produced by the desalination process (67 ppt) are combined in the tank to provide a salinity concentration within the expected range of the combined power plant/desalination facility discharge (35.7-36.2 ppt). An overflow drain has been provided to keep the tank level constant.

The species displayed in this tank have been recorded in the vicinity of discharge channel. The species selected for this demonstration are of economic or sport interest, or representative of a diverse and healthy environment. ■

POSEIDON RESOURCE

DESALINATION DEMONSTRATION FISH TANK

Species of Economic and Sports Fishing Importance:

Kelp Bass
(Paralabrax clathratus)

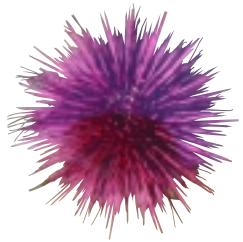
The kelp bass ranges from Washington to southern Baja California. It is a solitary fish found mainly in or near kelp beds and is mostly found at depths between 8-70 feet. Prey items include anchovies, octopi, squid, crabs, and shrimp. The kelp bass is an important sport fishing resource.

California halibut
(Paralichthys californicus)

The California halibut ranges from Washington to southern Baja California and is found mostly on sand bottoms or near rocks from the surf zone to a depth of 600 feet. Juveniles mainly inhabit sandy or mud bottoms of bays and estuaries. Prey items consist of anchovies, queenfish, and other small fish species. This species will move inshore during late winter and early spring to spawn. The California halibut is an important resource to both the sport and commercial fishing industries.

Barred sand bass
(Paralabrax nebulifer)

The barred sand bass ranges from Central California to southern Baja California and is usually found on sand bottoms near rocks in waters less than 100 feet. Prey items include small fish and invertebrates.
The barred sand bass is an important sport fishing resource and is one of the most common fish caught in the industry.



Red sea urchin
(Strongy locentrotus franciscanus)

The Red sea urchin is found on exposed rocky shores from low intertital to 300 feet. The color of the spines can range from red to black. Brown algae, primarily the giant sea kelp are their primary food source. This species is an important commercial fishing resource.

Other Species:

Yellow Crab
(Cancer Anthonyi)

Bay Blenny
(Hypsoblennius Gentilis)

Sea Cucumber
(Parastichopus Parvimensis)

Aggregating Anemone
(Anthropleura Elegantissima)

Ochre Starfish
(Pisaster Ochraceus)

Bat star
(Asterina Miniata)

Giant Rock Scallop
(Crassadoma Gigantea)

Bay Mussel
(Mytilus Galloprovincialis)

Brown Gorgonian
(Muricea Fruticosa)

Sand Castle Wor m
(Phragmatopoma Californica)

Wavy Turban Snail
(Lithopoma Undosum)

Chestnut Cowrie
(Cypraea Spadicea)

Giant Keyhole Limpet
(Megathura Crenulata)

conceived and maintained by M-Rep Consulting