



## **Desalting Plant Siting Raises Fears**

*Locating desalination facilities next to coastal power generators could extend the use of intakes that kill marine life, environmentalists say.*

**By Sara Lin**  
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**Saturday, February 12, 2005** - Standing tall on the seashore, the AES power plant, with its naked steel frame, has long been a generator of electricity in Huntington Beach and a killer of marine life.

For decades, environmentalists have looked forward to the day when AES and other aging coastal power plants would close, eliminating the cooling water pipes that suck in and destroy tons of fish, seals, crustaceans, larvae and microorganisms every year.

But a renewed interest in using old generating stations as bases for turning seawater into drinking water has activists worried that the opportunity for eliminating a chronic environmental problem might slip away.

Like the power stations that precede them, proposed desalination plants in Huntington Beach, Carlsbad and San Onofre would need the large pipes — ranging from 12 to 45 feet in diameter — to draw in ocean water for their operations.

Environmentalists say that by setting up shop at power stations, desalination plant operators will continue to use the vintage pipes rather than investing in new technology that might be less harmful to marine life.

"There are too many unanswered questions about marine life mortality," said Joe Geever of the Surfrider Foundation, an environmental group. "We should first maximize water conservation and reclamation ... not turn to the most destructive solution to our water demands as the first course of action."

Millions of gallons of seawater are pulled into the power plants to cool steam generators. Animals, including sea lions, rays, crustaceans and adult fish are caught on mesh screens as they are pulled into the intake pipes.

Organisms too small to be caught on the screens, including fish eggs, larvae and plankton, are sucked into the plant itself and killed. Environmentalist say there are gentler alternatives for harnessing the ocean.

Burying pipes under sand uses the sediment as a natural filter to keep out marine life, while diversion structures at the San Onofre Nuclear Generating Station in northern San Diego County help larger animals escape.

Technology available for new power plants uses large fans to cool the steam generators, an environmentally safer alternative to ocean water, said Craig Shuman, an environmental scientist for Heal the Bay, a Santa Monica-based group.

Poseidon Resources, the private company proposing to build desalination plants next to the power stations in Huntington Beach and Carlsbad, says its operation won't worsen the ecological threat, and that proposed seawater-to-drinking-water plants are necessary to support population growth and development over 20 to 30 years.

The desalination plants won't significantly increase the amount of water pulled in from the ocean, but, rather, will use a portion of the power station's cooling water before it is discharged back into the sea, said Billy Owens, a senior vice president for Poseidon. The salt remaining after the water is purified would be expelled along with the rest of the power station's discharge.

Poseidon officials said that if the Carlsbad or Huntington Beach power plants closed, they would have the first opportunity to buy the plant's intake and outfall structures.

Recent studies of Northern California power plants show that their intakes have a significant impact on local marine populations — much more than previously thought. In some cases, 10% to 20% of some fish populations were killed.

Similar assessments for most Southern California plants haven't been updated since the 1970s.

"We know we've lost trillions of fish larvae, but no one's ever quantified their value to the food chain, other than to say the loss is probably important," said Pete Raimondi, professor of ecology and evolutionary biology at UC Santa Cruz. He has worked as a consultant for the state Energy Commission, studying the effects of intake pipes on marine life.

"We know that they're killed, and at what rate, but beyond that — what is the long term effect to the rest of the ecosystem? We don't have a clue. We've never looked at that," he said.

At Diablo Canyon nuclear power plant near San Luis Obispo, research shows that its intake pipes affect larval fish populations for three miles up and down the coast and 1 1/4 miles offshore. Recognizing the effects these pipes have on the marine environment, the U.S. Environmental Protection Agency in 2002 banned the use of seawater for cooling at new power plants.

But some fear that locating desalting projects with power plants will extend the power plants' lifespan and slow the power industry's transition away from the coast.

"One of the concerns is that if a desalination plant is there and dependent on the intake, would that somehow weigh the decision to let power plants continue using ocean water," said Tom

Luster, a staff member with the California Coastal Commission.

Power plant operators said they intended to stick around whether desalination happens or not. "If AES is not running a power plant here, someone else will be," said Eric Pendergraft, plant manager for AES in Huntington Beach. "Ideally you could put all the [power] structures in the desert, but the electrical system doesn't work like that."

Environmentalists point out that there are still ways to benefit from desalination without using the power plant pipes.

Beach wells, or under-sand pipes, allow water to be collected with sand acting as natural filter, preventing marine life from being caught. Beach wells are being used for smaller desalting operations such as Morro Bay and Santa Catalina Island.

But both methods can pull in just thousands of gallons per day — not the tens of millions of gallons being proposed by Poseidon.

Water officials in Long Beach, however, hope their design for perforated pipes buried under sand reaching several hundred feet into the surf zone will be able to draw in enough ocean water to produce 10 million gallons of drinking water per day.

"Environmentally it's very benign. At 20 to 30 feet underneath the ocean, the sand keeps out fish and eggs and larvae — everything that we don't need anyway," said Diem Vuong, assistant general manager of the Long Beach Water Department, who came up with the design.

Long Beach Water has partnered with the Los Angeles Department of Water and Power and the U.S. Bureau of Reclamation to build a 300,000-gallon-per-day plant to test an alternative desalting procedure that uses one-third less energy than Poseidon's method.

If successful, Long Beach water officials plan to build a 10-million-gallon-per-day desalination plant by 2012.

Long Beach officials hope their energy-efficient and environmentally friendly designs will help reduce the cost of desalinated water from its current \$800 an acre-foot.

Groundwater from an underground aquifer costs about \$200 an acre-foot, while the price of imported supplies is about \$500 an acre-foot. An acre-foot is about 326,000 gallons, enough water for two families for a year.

Poseidon recently resubmitted to Huntington Beach a revised environmental report, hoping to win approval for the desalting project next to the AES power plant.

In 2003, the city rejected Poseidon's original proposal for a desalination plant next to the AES plant because officials believed the environmental report understated the projects effects.

City staff members are reviewing the revised report, which should be released for public review in a few weeks.

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### Seawater straw

Environmentalists warn that plans to convert coastal power plants into desalination plants require closer scrutiny, because their current intake pipes - used to carry ocean water to cool generators - are harmful to marine life.

#### Open ocean intake pipe

Seawater is drawn in through mesh screen at tip of intake pipe that lies atop sea floor.

Pros: Seawater pulled in faster.

Cons: Marine life also pulled into pipe. Water requires more pretreatment, increasing cost of desalination. Waste is produced.

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#### Subsurface intake pipes

Vertical: Seawater is drawn in through the sand.

Pros: Minimal effect on marine life. Uses natural, slow sand filtration negating additional pretreatment. Low maintenance.

Cons: Numerous wells are needed, since volume of intake is limited to bottom of the well.

Horizontal: Seawater is drawn in through the sand.

Pros: Same as vertical intake, but the horizontal pipes draw in higher volume of seawater.

Cons: Amount of water drawn into plant is still much lower than for an open ocean intake pipe.

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Sources: Long Beach Water Department. Graphics reporting by Paul D. Rodriguez

**GRAPHIC:** GRAPHIC: Seawater straw CREDIT: Los Angeles Times PHOTO: ON WATCH: Janel Grebel, a civil engineering assistant, checks the gauges of the pilot desalination unit at the

Long Beach Water Department. Its intake is filtered through bottom sand. PHOTOGRAPHER: Photographs by Robert Lachman Los Angeles Times PHOTO: WATER'S FUTURE: Diem Vuong, of the Long Beach Water Department, shows desalinated water at the city's pilot plant. PHOTO: POWERED UP: A report has been resubmitted to Huntington Beach for a desalting project next to the AES power plant. PHOTOGRAPHER: Robert Lachman Los Angeles Times