

# Fish Like the Warmer Waters of PG&E Plants

Fishermen rarely criticize utility companies for the warmer temperature of water near thermal power plants. That's where the fishing is likely to be best.

This is one finding in studies by the California Department of Fish and Game, various colleges and the power companies in the state. The studies show that many species, including striped bass, perch and catfish, seem to prefer the slightly warmer water temperature. Fishermen often cluster near power plant discharge points to take advantage of this.

Pacific Gas and Electric Company began investigating effects of thermal power plants on aquatic life in 1951. Using increasingly sophisticated equipment, the company has found through the years that warmer water, a result of its use as a coolant in power plant condensers, is measurable in only small areas close to the point of discharge.

On the basis of intensive studies at nine power plants, PG&E's James R. Adams, aquatic biologist, recently reported:

"A projection based on these measurements indicates that if all 16,972,000 kilowatts of capacity in tidewater thermal stations in California were operated at the same time at maximum capacity, the area in which the surface temperature would be raised 10 degrees F or more above normal would be only 6 square miles.

"Similarly, the area in which surface temperatures could be raised 10 degrees F or more would be less than one half square mile.

"The affected areas are small in relation to California's 1205 miles of ocean shoreline as well as bays and estuaries, which have a total surface area of about 400 square miles.

"Another factor lessens the impact. The power plants operate at only 50 to 60 per cent of maximum possible generation on a yearly basis.

"Part of the public misunderstanding about the thermal effect of power plants arises from laboratory tests on fish and other marine life under conditions more severe and of longer duration than actual field conditions. Too often the lab studies overlook the size of the area influenced by the cooling water discharge and the time in which an organism is subjected to a particular temperature increase.

"Evidence indicated that in the immediate vicinity of thermal power plant discharges, southern California warm water forms of aquatic life tend to predominate over cold water Northern California forms, and that their total quantity is much increased." The sun itself creates more heat in Morro Bay waters than PG&E's power plant, according to a PG&E study cited by the biologist. "The sun-warmed shallows of Morro Bay, when carried by the outgoing tide to the Pacific Ocean, added 5.7 times as much heat to the ocean as the power plant," he said. The same holds true for San Francisco Bay and many other areas.

The heating of water in power plant condensers does not cause a change in the dissolved oxygen level of the water. This conclusion is based on studies conducted independently at El Segundo and Morro Bay.

As for the impact of nuclear power plant water discharges, Adams says that PG&E's Humboldt Bay nuclear unit at Eureka has stayed far below the U. S. Atomic Energy Commission's conservative limits. "No harm could come to man even if he derived his entire protein intake from oysters growing in the discharge canal of the Humboldt Bay plant," Adams said.



**ANGLER'S FAVORITE** -- Barely visible in the background, half a dozen fishermen ignore a PG&E research team measuring current direction, velocity and temperature of water discharged from Potrero Power Plant in San Francisco. A concentrated dye permits accurate measurements at different depths.

## Prime Rate Drop by Banks

Drop in the prime interest rate from 8-1/2 to 8 per cent will eventually effect Santa Cruz County, three bankers agreed today.

However, they could not see any immediate loosening of the tight money market for home buyers as a result of the drop. The prime rate is that paid by blue chip investors on large loans.

"We don't have many people borrowing in \$1 million amounts here," said R.J. Seller, president of County Bank.

Seller said the only immediate effect would be psychological which might spark an upswing in activity.

Bill Cooks of Crocker Citizens said there would prob-

ably be some effect on short term commercial loans by next week.

"It will be three or four months before any change is foreseen in real estate loans. They might drop by one quarter of one percent," Cooks said.

A wait and see policy is being taken by Warren Cottrell at Wells Fargo.

"Funds are still tight and money just isn't available for loaning," Cottrell said. He commented things were still in a state of flux and the prime rate could change again.

## Files for Board

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## Cold Air Expert to Get

Air conditioning expert Joseph Loudon of Pacheco may finally get his money out of