

## Ocean Wastewater Discharge and Tumors in a Southern California Flatfish

Alan J. Mearns, Marjorie Sherwood

<sup>1</sup>*Southern California Coastal Water Research Project, Costa Mesa, CA*

### ABSTRACT

Traditionally, one of the important uses of the coastal waters for man has been as a repository for his wastes. The waters within a few kilometers of shore are perhaps the most directly influenced. Considering the absence of generally accepted criteria for environmental quality control, it is not surprising that there is concern over the adequacy of present-day marine wastewater discharge practices. In southern California, much concern has been generated by the presence of tumor-bearing fishes in coastal waters.

In 1957, Russell and Kotin described lip papillomas from several white croaker (*Genyonemus lineatus*) taken from coastal waters in the Los Angeles area and postulated that this condition might be a response to an environmental irritant or pollutant. Later, Young [1964] described a number diseased and deformed fishes from other southern California trawl collections; the occurrence of skin tumors in Dover sole (*Microstomus pacificus*) was among the conditions described in this widely cited paper. By 1970, these reports and other (unpublished) data led the US Congress to call a Federal hearing in Santa Ana, California [US Congress, 1971] on water pollution, fish disease and human health.

The possibility that wastes discharged into the coastal water are damaging marine resources has contributed to more extensive monitoring requirements for waste discharge agencies and more stringent State and Federal water pollution control legislation and enforcement. A major goal of the Coastal Water Research Project is to provide scientific information on the ecological effects of wastes discharged into the sea and to identify the ecological benefits that might accrue from improved treatment of the wastewaters or reduction of discharge. More specifically, can the incidence of diseased fishes be reduced by improving waste treatment and, if so, what constituents need to be controlled? Our approach has been: (1) to identify the diseases that occur in significant frequencies; (2) to obtain the data necessary for understanding the life history of affected populations, and (3) to identify any correlations that exist between the locations of pollutant sources, the concentration of contaminants in the coastal biota, and the distribution and prevalence of diseased populations. Based on the data we have collected, we do not believe that the incidence of skin tumors in Dover sole is enhanced by southern California municipal wastewater discharges.

**Due to distribution restrictions, the full-text version of this article is available by request only.**

Please contact [pubrequest@sccwrp.org](mailto:pubrequest@sccwrp.org) to request a copy.