



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: CA3841

Title: Is Urban Runoff a Source of Human Pathogenic Viruses to Recreational Beach Waters?

Focus Categories: Water Quantity, Surface Water

Keywords: RT-PCR, PCR, Hepatitis A virus, enterovirus, adenovirus, viruses, urban runoff, bacteria

Start Date: 03/01/2001

End Date: 02/28/2002

Federal Funds: \$14,580

Non-Federal Matching Funds: \$15,495

Congressional District: 47

Principal Investigator:

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Abstract

The closure of heavily used public beaches due to bacterial contamination during the summer of 1999 has drawn both state and national attention. The object of this study is to refine current methods for the detection of human viruses in urban runoff and to understand the prevalence, distribution and seasonal pattern of viruses in urban waterways. Since So. CA displays distinct dry and wet seasons, the runoff viral load is expected to be the highest during the first heavy rainstorm of the wet season. A sequential sampling of storm water after the first "storm flush" of the wet season will provide information on the supply, transport and fate of viruses in urban waterways. A molecular technique based method will be used for the sensitive detection of several types of human pathogenic viruses. Water samples will be collected from waterways throughout So. CA. The viral abundance and distribution will be correlated with the temperature, level of precipitation and other biological parameters to create a model on the source, fate and transport of human viral pollutants in urban runoff. The results of this study will answer the question as to if urban runoff can be a major source of beach contamination and thereby assist with the development of proper strategies to manage urban runoff.