

RECOVERY OF SANTA MONICA BAY FROM SLUDGE DISCHARGE

The City of Los Angeles' Hyperion sludge outfall, which has been discharging since 1957 at a 97-meter depth at the head of the Santa Monica submarine canyon, is scheduled to cease operation before 1988. Because this is the only active sludge outfall in the U.S., the termination of discharge provides a rare opportunity to study the recovery of the benthic receiving area from its current condition to normal background conditions for Santa Monica Bay.

SCCWRP biologist Bruce Thompson and Hyperion biologist John Dorsey are directing a three-year multidisciplinary study that includes pre-termination and post-termination sampling in the outfall area and in a reference area in northern Santa Monica Bay (Figure 1). This sampling design is optimal for detecting changes resulting from termination of sludge discharge. The researchers will measure changes in a wide range of oceanographic, sediment chemistry, and biological parameters (Table 1).

An advisory committee consisting of six representatives from government environment agencies, university scientists, and citizens' environmental groups has been established to provide guidance for sampling design and data interpretation.

Two pre-termination samplings were completed in 1986, one in February and the second in August. Processing of biological samples and sediment chemical analyses are now underway. One more set of pre-termination samples will be taken just prior to the date of final sludge discharge. Post-termination samples will be taken at quarterly intervals for the first year

following the termination of sludge discharge, with additional samples to be taken the second year.

Past studies of recovery in shallow water indicate that initial recovery may be rapid. This may be true par-

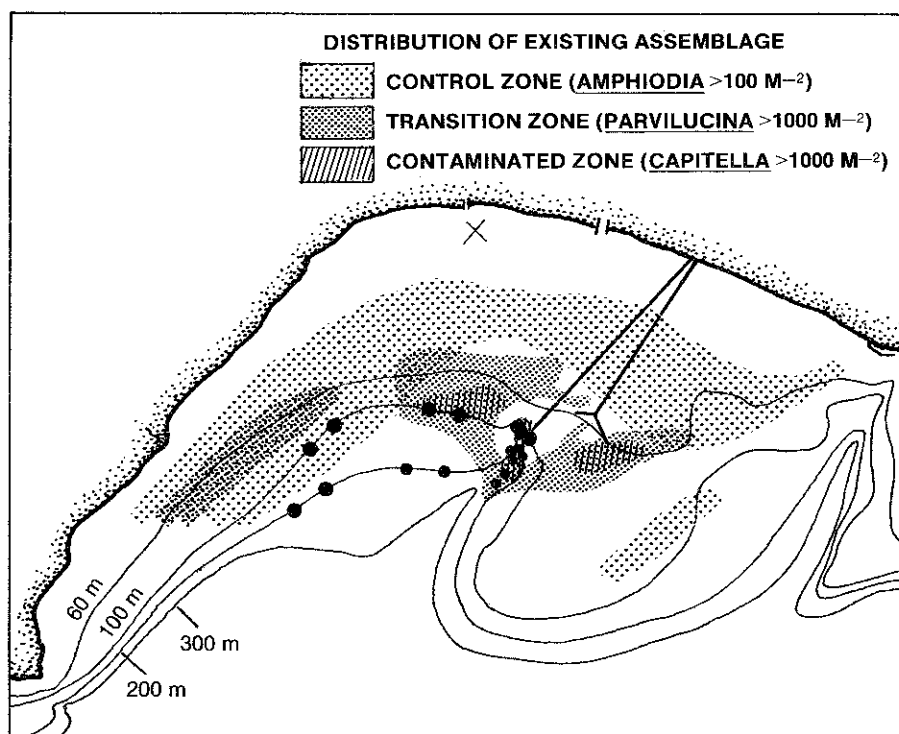


Figure 1. Hyperion Recovery Study: 1986-1988

ticularly for the Santa Monica Bay outfall because sediment transport down the canyon could accelerate changes by removing old material and/or burying it with cleaner sediment from the shelf. Other studies suggest that complete recovery of sediment and biological conditions to "background" levels may require a long period of time (up to five years). Thompson and Dorsey expect the

Oceanography

1. Conductivity - Temperature - Depth - Dissolved Oxygen profiles
2. Current meter deployments
3. Sedimentation traps

Sediments

1. Sediment grain-size analysis
2. Organic material
3. Hydrogen sulfide (H₂S)
4. Trace metals (Zn, Cd, Pb, Ag)
5. Organic contaminants (DDTs, PCBs, PAHs)

Biology

1. Van Veen Grab samples (Infaunal analysis)
2. Otter trawls (megafauna and fish)
3. Tissue contaminants
 - a) *Sicyonia ingentis* (prawn)
 - b) Dover sole

Table 1. Listing of Parameters Measured in the Hyperion Recovery Project.

changes at non-canyon sites may also proceed slowly.

Information on rates and processes of change is necessary to understand the impact of 29 years of sludge disposal on Santa Monica Bay's ability to return to background conditions. The information will also enable researchers and dischargers to evaluate future options and choices for sludge disposal.