

WATERSHED MANAGEMENT AND SOURCE REDUCTION SUBCOMMITTEE  
POLLUTANTS OF CONCERN  
(November, 1998)

Objective

Review recent sediment chemistry data (past 3-5 years) to identify pollutants of concern found in sediments within four areas: Ballona Creek, Los Angeles River, Dominguez Channel, San Gabriel River.

Criteria

Existing sediment quality guidelines were used to screen the sediment chemistry data and identify pollutants of concern (Table 1). Although guidelines have been established for many toxicants of interest, they are not available for some of the substances that can be measured in sediment samples.

1) National Oceanographic and Atmospheric Administration (NOAA) Guidelines

Effects range - low (ERL) = below this level, adverse biological effects are rarely observed (@ 10% of the time)

Effects range - median (ERM) = above this level, adverse biological effects are frequently observed (more than 75% of the time)

2) State of Florida Guidelines

Threshold effects level (TEL) = below this level, adverse biological effects are rarely observed (@10% of the time)

Probable effects level (PEL) = above this level, adverse biological effects are frequently observed (more than 50% of the time)

3) Puget Sound Sediment Disposal Authority Guidelines

SL = below this level, adverse biological effects are rarely observed

ML = above this level, adverse biological effects are frequently observed

Ballona Creek Watershed

We reviewed results of sediment sampling conducted in December 1997 (MEC, February 1998 report) and September 1995 (COE Environmental Assessment, February 1996). One station (44024.0) was sampled on January 14, 1993 for the Bay Protection and Toxic Cleanup Program.

Several trace metals exceeded the sediment quality guidelines. However, lead was the only metal that exceeded the Effect Level (ERM, PEL).

Several individual PAH compounds exceeded the sediment quality guidelines, with most of them exceeding the Effect Level (ERM and/or PEL).

PCB and DDT exceeded the sediment quality guidelines, although only DDT exceeded the Effect Level (ERM, PEL). Chlordane also exceeded the Effect Level (ERM, PEL), while dieldrin exceeded one of the guidelines (TEL). Tributyltin and chlorpyrifos exceeded the threshold of concern established by the Bay Protection and Toxic Cleanup Program (higher than the 95th percentile of the database); there are no other sediment quality guidelines for these compounds.

Comparison of 1997 sediment chemistry results to 1995 results: in 1997, the primary pollutant of concern appeared to be lead; no other trace metals exceed sediment quality guidelines, nor did any of the PAHs; DDT and chlordane exceeded guidelines at a few sampling locations.

TABLE 2. POLLUTANTS EXCEEDING SEDIMENT QUALITY GUIDELINES.  
BALLONA ENTRANCE CHANNEL

Parameter	Exceeded "No-effect" level	Exceeded "Effect" level
Cadmium	Yes (TEL)	No
Copper	Yes (ERL, TEL)	No
Lead	Yes (ERL, TEL, SL)	Yes (ERM, PEL)
Mercury	Yes (ERL, TEL, SL)	No
Nickel	Yes (TEL)	No
Zinc	Yes (ERL, TEL, SL)	No
Silver	Yes (ERL, TEL)	No
Acenaphthene	Yes (ERL, TEL, SL)	Yes (PEL)
Anthracene	Yes (ERL, TEL, SL)	Yes (PEL)
Benzo(a)anthracene	Yes (ERL, TEL, SL)	Yes (ERM, PEL)
Chrysene	Yes (ERL, TEL, SL)	Yes (PEL)
Fluoranthene	Yes (ERL, TEL, SL)	Yes (PEL)
Fluorene	Yes (ERL, TEL)	No
Benzo(a)pyrene	Yes (ERL, TEL, SL)	Yes (PEL)
Phenanthrene	Yes (ERL, TEL, SL)	Yes (ERM, PEL)
Pyrene	Yes (ERL, TEL, SL)	Yes (PEL)
Total PAH	Yes (ERL, TEL)	No
PCB	Yes (ERL, TEL)	No
DDT	Yes (ERL, TEL, SL)	Yes (ERM, PEL)
Tributyltin	Yes (BPTCP)	
Chlordane	Yes (ERL, TEL, SL)	Yes (ERM, PEL)
Dieldrin	Yes (TEL)	No

#### Los Angeles River Watershed

We reviewed results of sediment sampling conducted in January 1997 and July 1998 (MEC, September 1998 report). The Bay Protection and Toxic Cleanup Program samples stations (40013.1, 40013.2, 40013.3) within Inner Queensway Bay at the mouth of the Los Angeles River in September 1992.

Several trace metals exceeded the sediment quality guidelines. However, lead and zinc were the only metals that exceeded the Effect Level (PEL).

Several individual PAH compounds exceeded the sediment quality guidelines, with most of them exceeding the Effect Level (ERM and/or PEL).

PCB, DDT and chlordane exceeded the sediment quality guidelines, including the Effect Level (ERM, PEL). Note that the detection limits for many of the pesticides were too high to allow comparisons with the "No-effect" thresholds.

Comparison of 1998 sediment chemistry results to 1997 results: the results were similar during both surveys (i.e., most of the pollutants of concern exceeded sediment quality guidelines on both occasions)

TABLE 3. POLLUTANTS EXCEEDING SEDIMENT QUALITY GUIDELINES.  
LOS ANGELES RIVER ESTUARY

Parameter	Exceeded "No-effect" level	Exceeded "Effect" level
Cadmium	Yes (ERM, TEL, SL)	No
Copper	Yes (ERL, TEL)	No
Lead	Yes (ERL, TEL, SL)	Yes (PEL)
Mercury	Yes (ERL, TEL, SL)	No
Nickel	Yes (ERL, TEL, SL)	No
Zinc	Yes (ERL, TEL, SL)	Yes (PEL)
Silver	Yes (ERL, TEL)	No
Acenaphthene	Yes (ERL, TEL, SL)	Yes (PEL)
Benzo(a)anthracene	Yes (ERL, TEL, SL)	Yes (ERM, PEL)
Chrysene	Yes (ERL, TEL, SL)	Yes (PEL)
Dibenzo(a,h)anthracene	Yes (TEL)	No
Fluoranthene	Yes (ERL, TEL, SL)	Yes (PEL)
Benzo(a)pyrene	Yes (ERL, TEL, SL)	No
Fluorene	Yes (ERL, TEL, SL)	Yes (PEL)
Phenanthrene	Yes (ERL, TEL, SL)	Yes (ERM, PEL)
Pyrene	Yes (ERL, TEL, SL)	Yes (ERM, PEL)
Anthracene	Yes (ERL, TEL, SL)	No
Total PAH	Yes (ERL, TEL, SL)	Yes (PEL)
HMW PAH	Yes (ERL, TEL, SL)	Yes (ERM, PEL)
LMW PAH	Yes (ERL, TEL, SL)	Yes (PEL)
PCB	Yes (ERL, TEL, SL)	Yes (ERM, PEL)
DDT	Yes (ERL, TEL, SL)	Yes (ERM, PEL)

#### Dominguez Channel Watershed

The Bay Protection and Toxic Cleanup Program sampled several stations within Dominguez Channel in July 1992. The station in the Lower Main Channel (40004) exceeded the ERM threshold for p',p-DDE and Total PCB. The station at the entrance to the West Basin (40003) exceeded the ERM threshold for p',p-DDE. The station in the East Basin Turning Basin (48005, in the upper channel) exceeded the ERM threshold for p',p-DDE, Total PCB, chlordane and the BPTCP 95th percentile for tributyltin. Stations near the Hugo Neu Proler site (46001.0, 46002.0, 46003.0), which are near the East Basin Turning Basin site, exceeded the ERM threshold for Total PCB.

#### San Gabriel River Watershed

Monitoring is conducted annually offshore from the mouth of the San Gabriel River for the Haynes/Alamitos Power Generating Stations; however, sediment analyses are limited to trace metals (copper, chromium, nickel, zinc). Sediment concentrations have not exceeded sediment quality guidelines.

Los Angeles County Sanitation Districts collects sediment samples quarterly at one station (R-6) within the lower San Gabriel River (tidal prism). Sediment concentrations occasionally exceeded the sediment quality guidelines for copper (TEL) and DDT (ERL, TEL, SL).