



Power Plants

6.3 billion gallons per day

- Entrainment and impingement, regulated through National Pollutant Discharge Elimination System permits
- Thermal wastes
- In-plant wastes (sewage, chemicals - varies by plant)
- Much greater volume but generally much lower loading than publicly owned treatment works



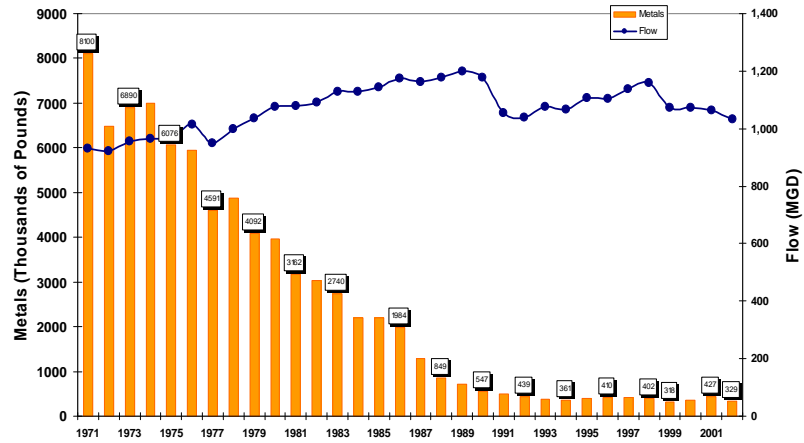
Publicly Owned Treatment Works (POTWs)

- Four large POTWS
 - Los Angeles City (Hyperion) secondary treatment
 - Los Angeles County (White Point) secondary treatment
 - Orange County - primary treatment with chlorination
 - San Diego (Point Loma) - primary treatment to begin chlorination
- 15 small POTWs directly discharging to Southern California Bight
- Other small POTWs discharge to coastal streams



Historical Metal Discharge Rates

Pounds (in thousands) of Metals (Cd, Cr, Cu, Pb, Hg, Ni, Ag, Zn) Discharged Southern California 1971-2002



Data Source: SCCWRP and Discharger Self Monitoring Reports



Offshore Oil Drilling and Production

- Most in federal outer continental shelf, some in state waters
- Small volume and loading in comparison to publicly owned treatment works
- Wastes streams include produced water, sanitary wastes, drilling mud and cuttings





Oil Spill Threats

- Tankers and other shipping
- Offshore platforms
- Pipelines
- Onshore oil production
- Refineries and terminal



NPDES Storm Water Permits

- Phase I and Phase II Municipal Permits
- Caltrans Statewide Permit
- Industrial and Construction General Permits



Typical Annual Storm Water Runoff

Land Use	Gallons (billions)
Urban/suburban	217
Agriculture	11
Open space	56
Total	284

Annual volume comparable to POTWs, but largely untreated



Storm Water Considerations

- Pollutants include trash/plastic debris, heavy metals, nutrients, PAHs, pesticides, pathogens and others
- Dry weather flow
- Atmospheric deposition - air pollution and transportation sources

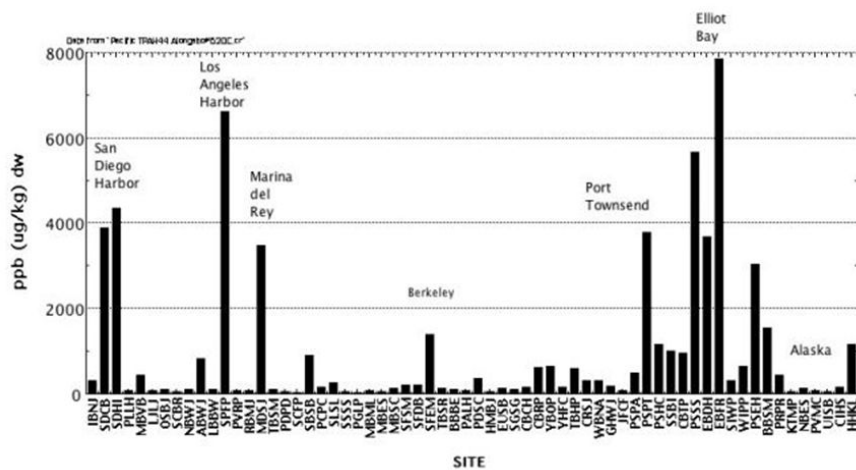


Effluent Dominated Streams

- Discharges from publicly owned treatment works and industries, dry weather runoff, and storm water
 - Examples from southern L.A. County:
 - Los Angeles River
 - Dominguez Channel
 - San Gabriel River



Mussel Watch Total PAH (44) '01- '02

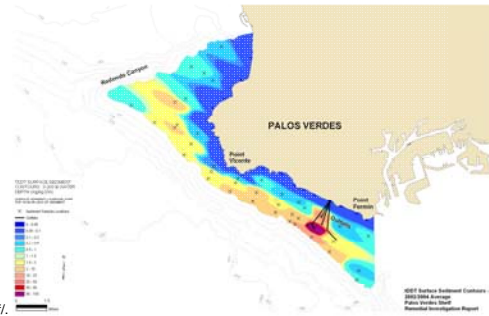


Courtesy of A. Mearns and G. Lauenstein, 2007



Sediment Pollution

- Legacy pollutants: DDT, PCB – bioaccumulation
- Montrose DDT and White Point
- Sediment pollution in harbors, bays and estuaries
- Heavy metals



Data Source: EPA 2008. <http://www.epa.gov/region09/waste/sfund/pvsshelf/>.



Emerging Contaminants

- PBDEs flame retardants
- Endocrine disruptors
- Other pharmaceuticals



Commercial Vessel Discharges

- Ballast water- non-indigenous species introductions
- Graywater – source of pathogens and other pollutants
- Sewage disposal – not currently regulated under Clean Water Act
- SB 771 prohibitions on certain vessel wastes – cruise ships and 300 gross ton vessels
- U.S. EPA Vessel General Permit



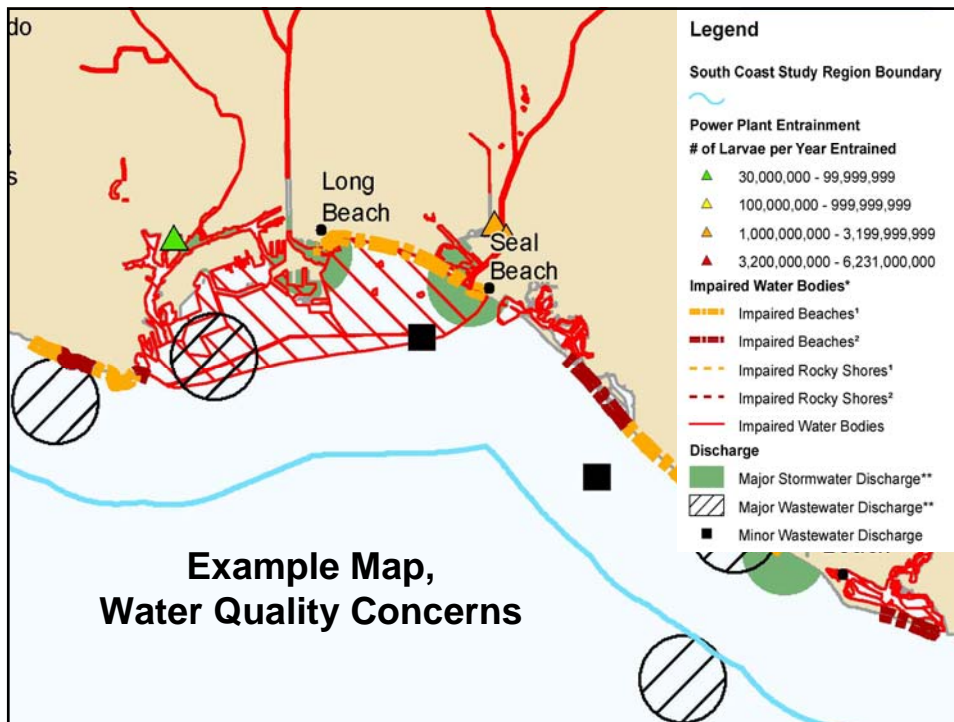
California Ocean Plan

- EPA-approved water quality control plan
 - Near coastal ocean waters to 3 mile limit
 - Discharges outside are regulated to ensure “no violation” within state waters
 - Beneficial uses of ocean waters – human health and marine life receptors
 - Water quality objectives
 - Program of implementation

Areas of special biological significance (ASBSs)

- Triennial reviews
- Amendments in progress





Areas of Special Biological Significance

- ASBSs can be considered water quality opportunities
- 16 in Southern California, 6 mainland and 10 island
- All ASBSs are marine managed areas and subset of state water quality protection areas
- Waste discharges are prohibited
- 2003 survey found storm water and other discharges, currently being regulated



Next Steps

- Potential SAT approval of maps, guidance document, and evaluation process
- Maps may show areas of water quality concerns, and water quality opportunities; the guidance document will expand on this
- Evaluation process may consist of qualitative scoring system
- Three areas may be identified by SAT as of particular concern:
 - Los Angeles and Long Beach Harbor
 - San Onofre Nuclear Generating Station
 - San Diego Harbor and vicinity of South Bay Power Plant*

*South Bay Power Plant intake may be discontinued in the future due to lease status.