

Marine Life Protection Act Initiative



Water Quality in the MLPA South Coast Study Region

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Southern California Bight

- 17 million people living within coastal watersheds
- Much of coastal land use is urban and industrial
- Busy coastal ocean:



- ports and marinas
- dredging and ocean disposal
- commercial shipping
- military bases and operations
- offshore oil drilling/production

California Ocean Plan (COP)

- EPA-approved water quality control plan
 - Standards for ocean waters to three 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 (ASBS)
- Triennial reviews
- Amendments in progress



Areas of Special Biological Significance

- **ASBSs are water quality opportunities**
- **16 in southern California, 6 mainland and 10 island**
- **All ASBS are marine managed areas - state water quality protection areas**
- **Waste discharges are prohibited**
- **2003 survey found storm water and other discharges**
- **Currently being regulated to maintain “natural water quality”**
- **Natural Water Quality Committee and ASBS Monitoring**
http://www.waterboards.ca.gov/water_issues/programs/ocean/asbs_nwqcommittee.shtml

Discharges

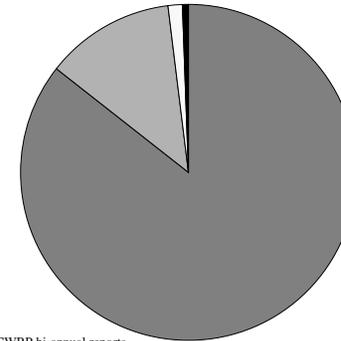
Discharges into the Southern California Bight



National Pollutant Discharge Elimination System

NPDES Waste Water Permits

Waste water sources:



■ Power Plants	(7120 mgd)
■ Large Publicly Owned Treatment Works	(1049 mgd)
□ Small Publicly Owned Treatment Works	(116 mgd)
■ Offshore Oil Production	(34 mgd)
■ Laboratory and Industrial	(9 mgd)

Data Source: SCCWRP bi-annual reports 2001-2006

Power Plants

6.3 billion gallons per day

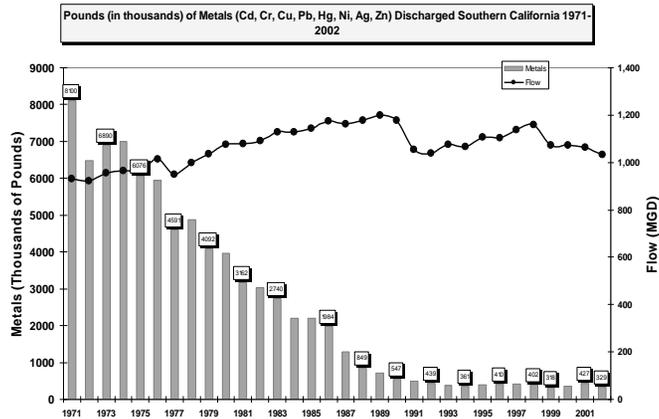
- Entrainment and impingement, regulated through National Pollutant Discharge Elimination System permits
- Thermal wastes
- In-plant wastes (sewage, chemicals - varies by plant)
- Much greater volume but generally much lower loading than publicly owned treatment works (POTWs)



Publicly Owned Treatment Works

- 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 bight
 - International waste water plant (Tijuana)
- Other small POTWs discharge to coastal streams

Historical Metal Discharge Rates



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

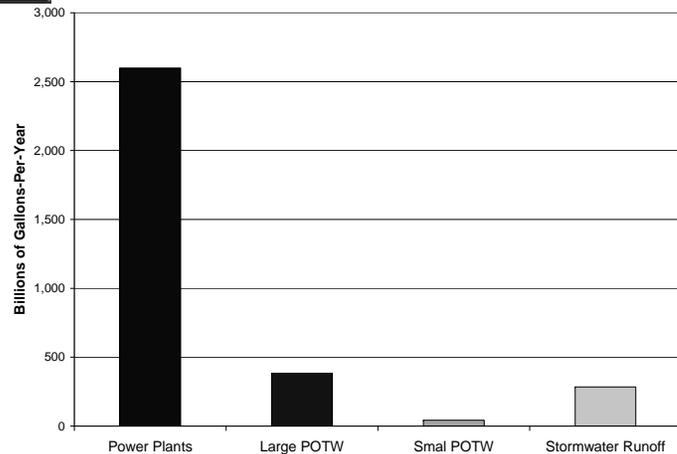
- Tankers and other shipping
- Military operations
- Offshore platforms
- Pipelines
- Onshore oil production
- Refineries and terminal

Photo Courtesy: OSPR

NPDES Storm Water Permits

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

Discharge Comparison



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:

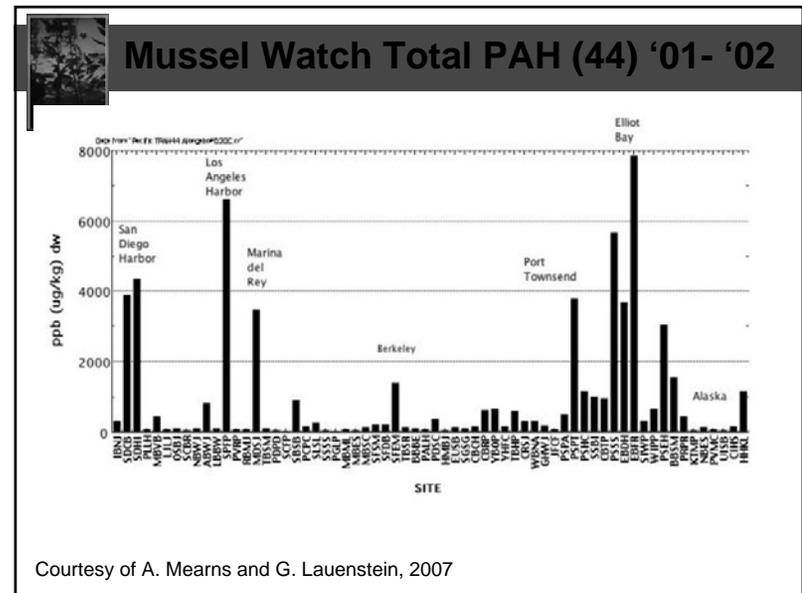
- Los Angeles River
- Dominguez Channel
- San Gabriel River





- ### Commercial Vessel Discharges
- Ballast water- non-indigenous species introductions
 - Graywater – source of pathogens and other pollutants
 - Sewage disposal
 - SB 771 prohibitions on certain vessel wastes – cruise ships and 300 gross ton vessels
 - US Environmental Protection Agency Vessel General Permit

- ### Eutrophication
- Harmful Algal Blooms
 - Domoic acid poisoning
 - Hypoxia
 - More pronounced threat in enclosed bays than in coastal waters
 - Monitoring Efforts
 - HABMAP
 - SCCWRP Bight '08 Nutrient Study



Sediment Pollution

Legacy pollutants

- DDT, PCB
- Persistent
- bioaccumulation

- DDT at White Point
- Sediment pollution in bays and estuaries

- Heavy metals, persistent organics
- Maps at

http://www.waterboards.ca.gov/water_issues/programs/bptcp/docs/sediment/072208_appendix_d.pdf

- Harbor dredge spoils discharged offshore



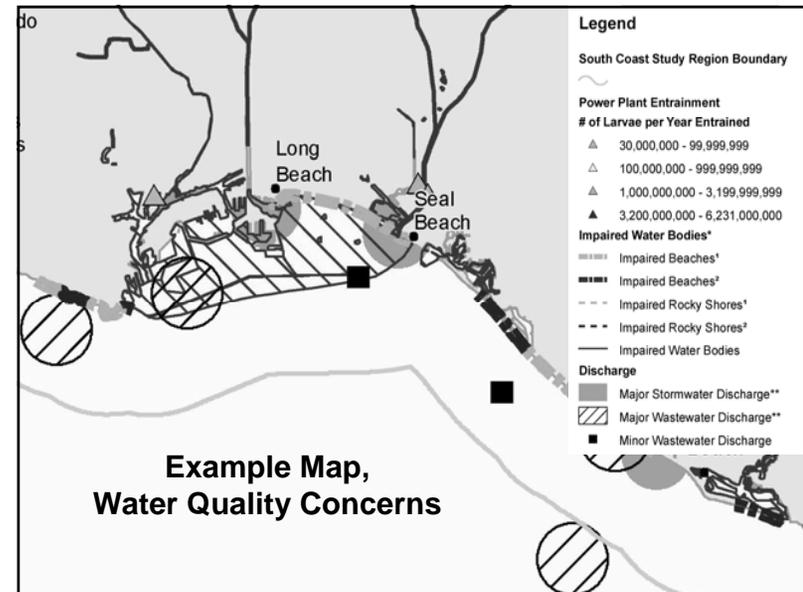
Data Source: EPA 2008. <http://www.epa.gov/region09/waste/sludg/pvshell/>

Emerging Issues

- PBDEs flame retardants
 - New pesticides (e.g. pyrethroids)
 - Endocrine disruptors and other pharmaceuticals
 - Climate Change
 - Global issue
 - Sea level rise and temperature
 - Ocean acidification
1. Ocean Plan standards: (no more than 0.2 ph unit change allowable from "natural")

Opportunities and Concerns

- Water Quality Opportunities
 - ASBS
- Major Water Quality/Industrial Concerns
 - Power plant intakes and discharges
 - Large storm drains
 - POTW and industrial waste water outfalls





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:**

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