



Marine Life Protection Act Initiative



Water Quality in the MLPA South Coast Study Region

Mr. Dominic Gregorio, MLPA Master Plan Science Advisory Team

Presentation to the MLPA Blue Ribbon Task Force
January 22, 2009



Southern California Bight

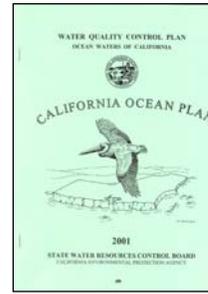
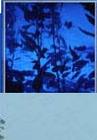
- 17 million people living within coastal watersheds
- Much of coastal land use is urban and industrial
- Busy coastal ocean:
 - ports and marinas
 - dredging and ocean disposal
 - commercial shipping
 - military bases and operations
 - offshore oil drilling/production





California Ocean Plan (COP)

- EPA-approved water quality control plan
 - Standards for ocean waters to three nautical 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



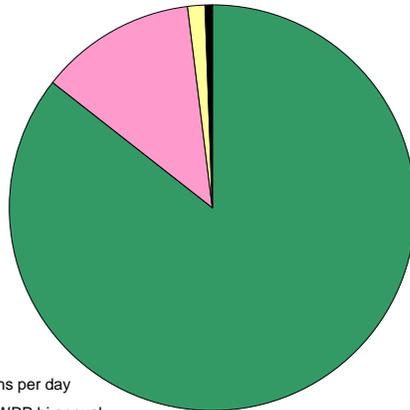
Discharges into the Southern California Bight



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)

mgd = million gallons per day
Data Source: SCCWRP bi-annual reports 2001-2006



Power Plants

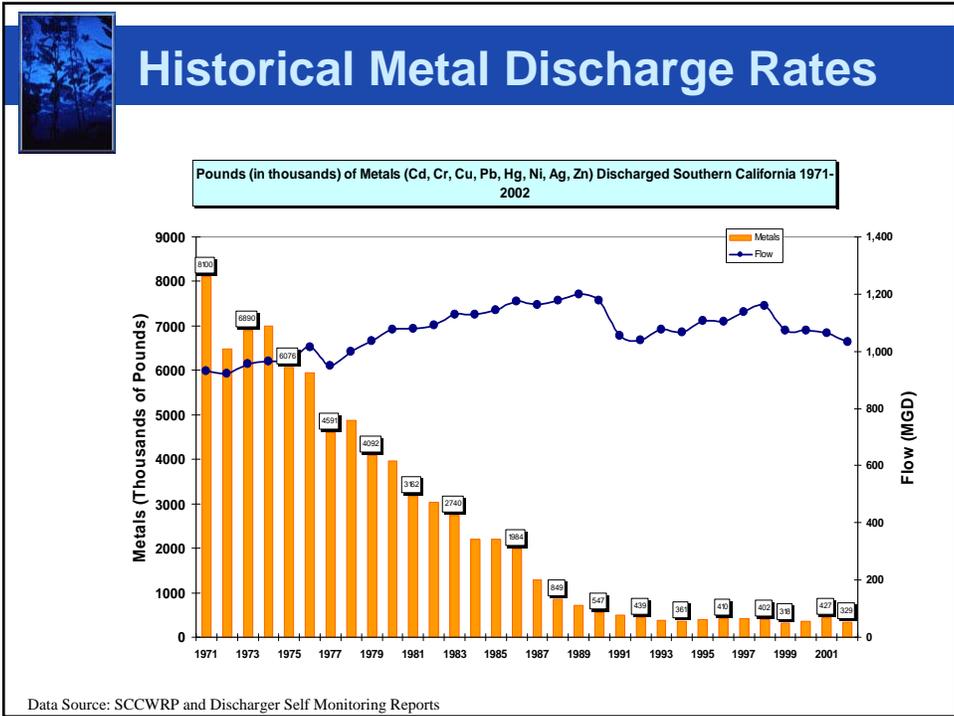
6.3 billion gallons per day

- 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



Offshore Oil Drilling and Production

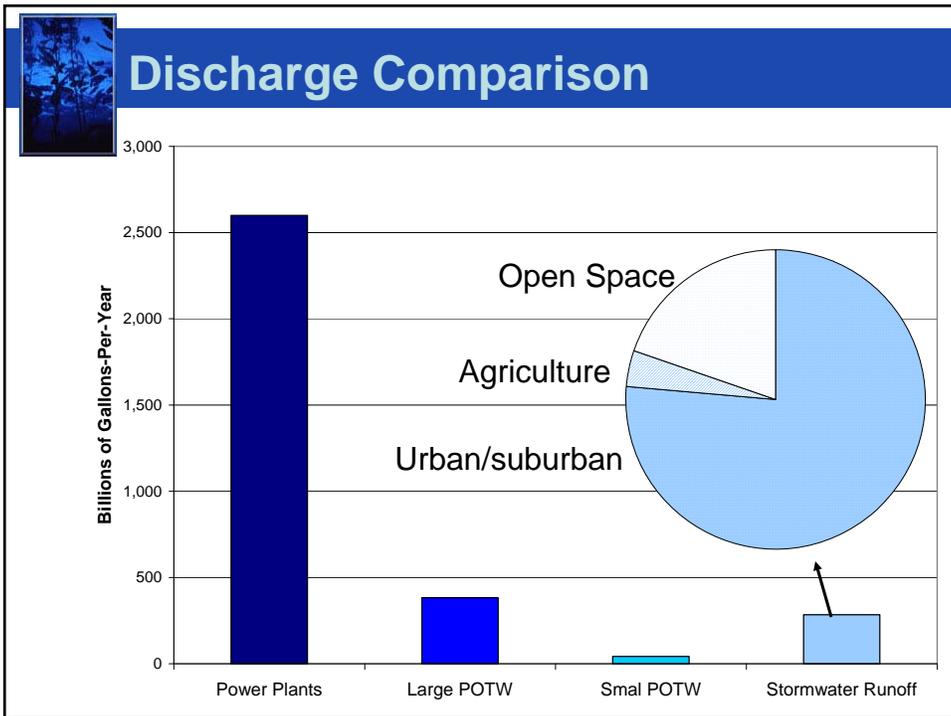
- Most in federal outer continental shelf, some in state waters
- Small volume and loading in comparison to publicly owned treatment works
- Wastes streams include produced water, sanitary wastes, drilling mud and cuttings

Oil Spill Threats



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

Photo Courtesy: OSPR





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

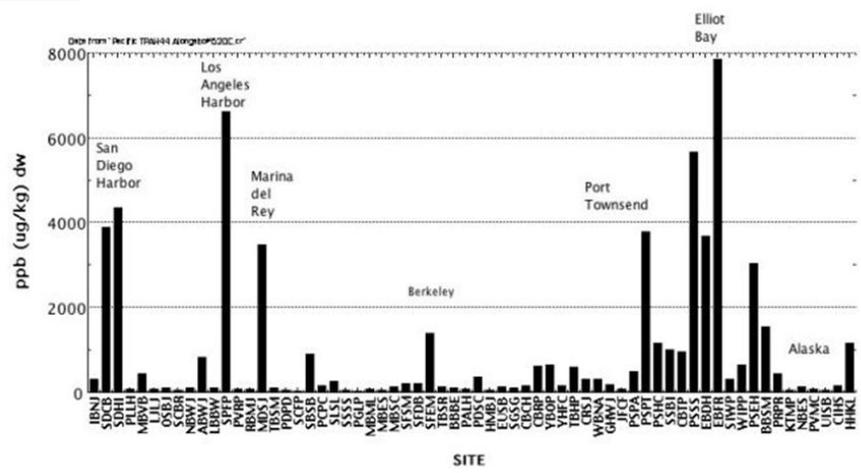


Eutrophication

- Harmful Algal Blooms
 - Domoic acid poisoning
- Hypoxia
 - More pronounced threat in enclosed bays than in coastal waters
- Monitoring Efforts
 - Harmful Algal Bloom Monitoring and Alert Program
 - Southern California Coastal Water Research Project Bight '08 Nutrient Study



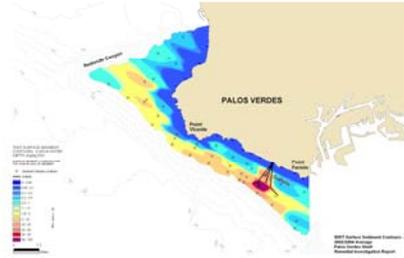
Mussel Watch Total PAH (44) '01-'02





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/sfund/pvshell/>.



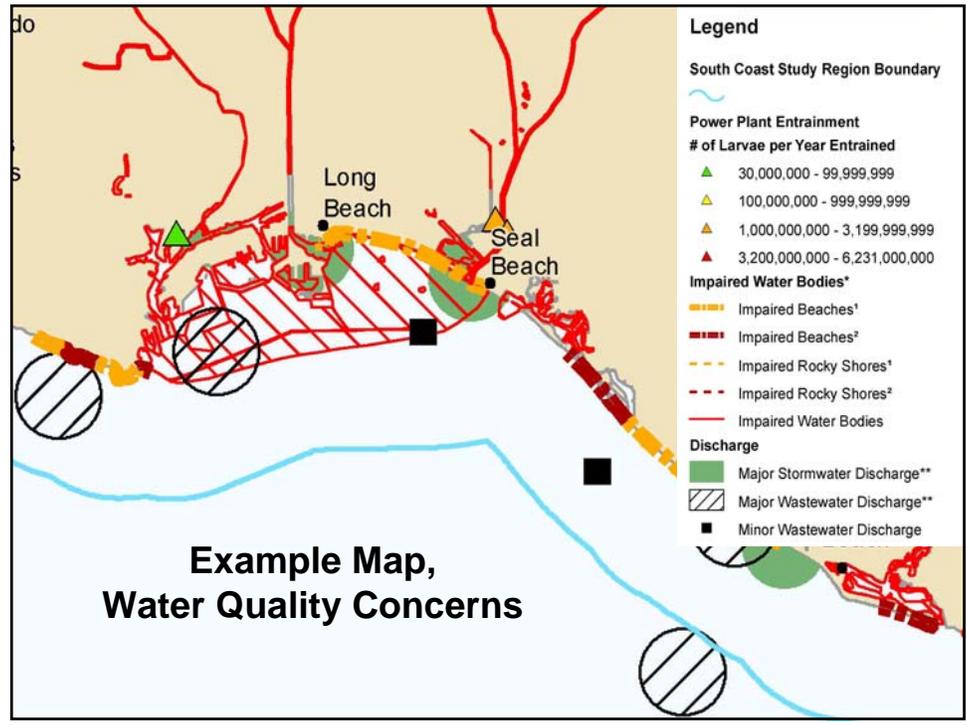
Emerging Issues

- 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 a 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.