



Development of a Sediment Management Strategy for Implementing a Regional Remediation Program at the Ports of Long Beach and Los Angeles

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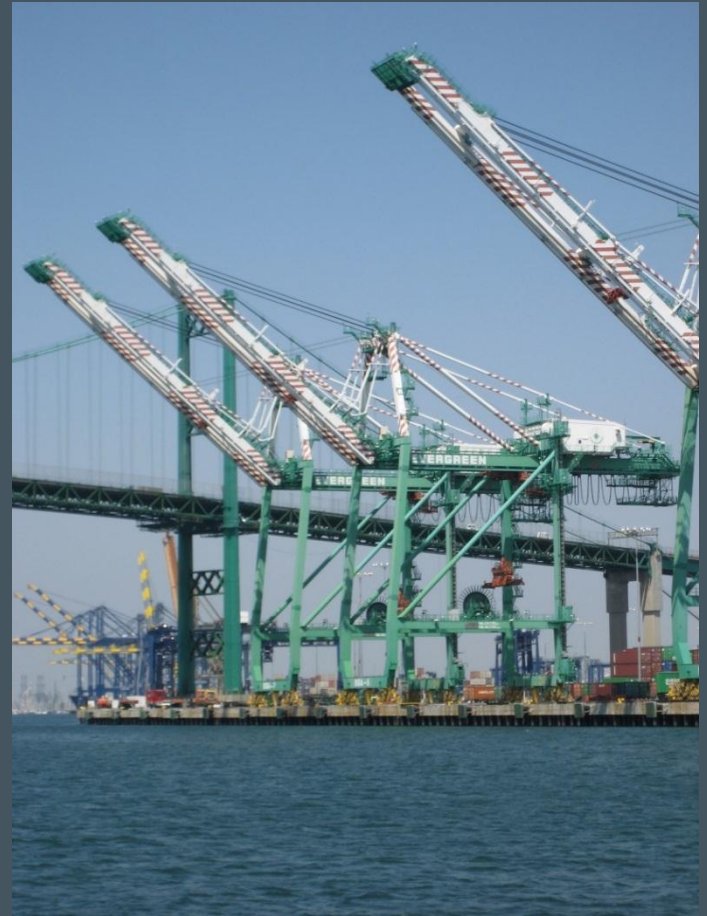
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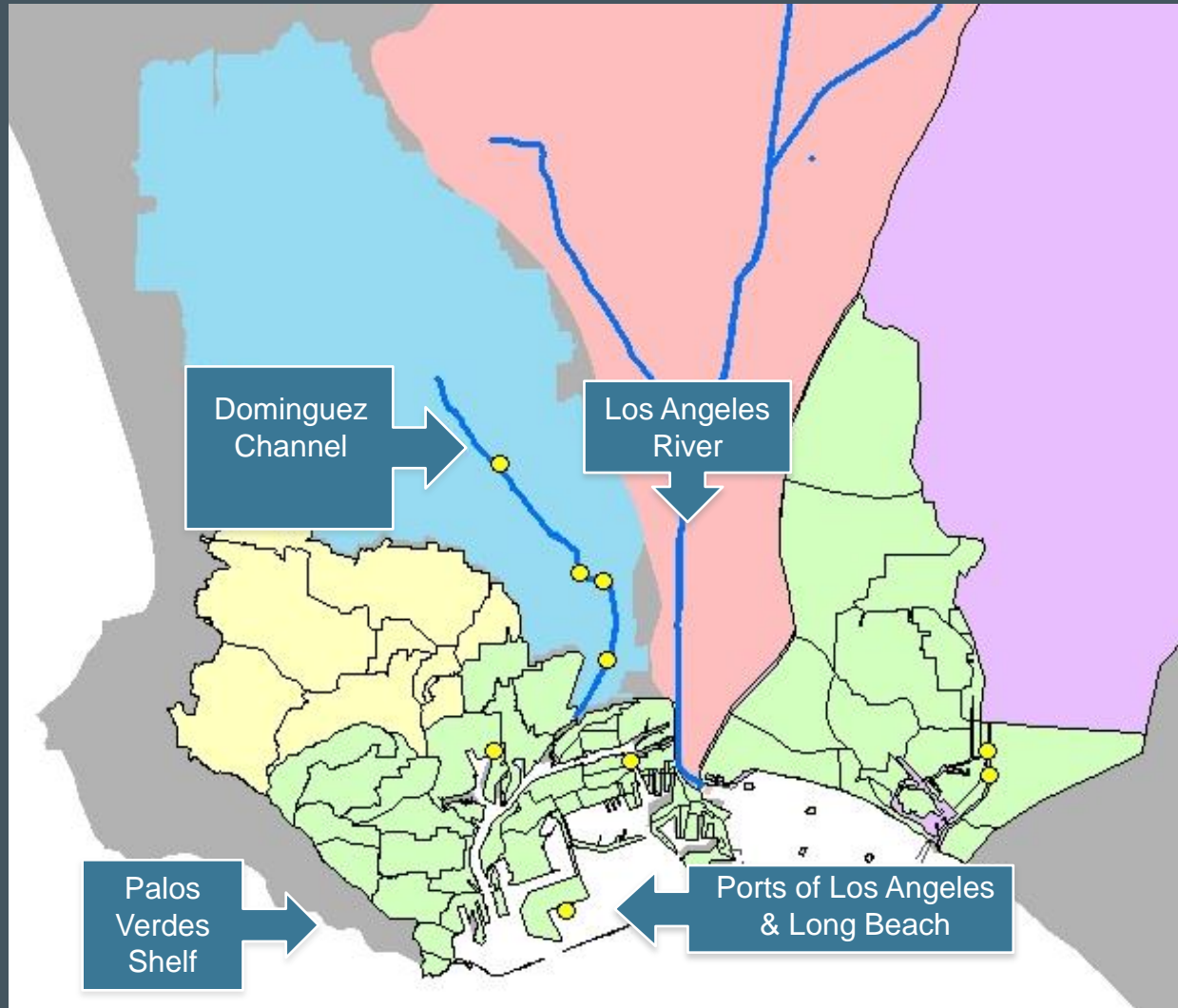
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Balancing Port Operations and Environmental Stewardship

- Balance the need to maintain and grow operations in a large industrial port complex with the need to preserve and enhance the harbor's ecosystem health

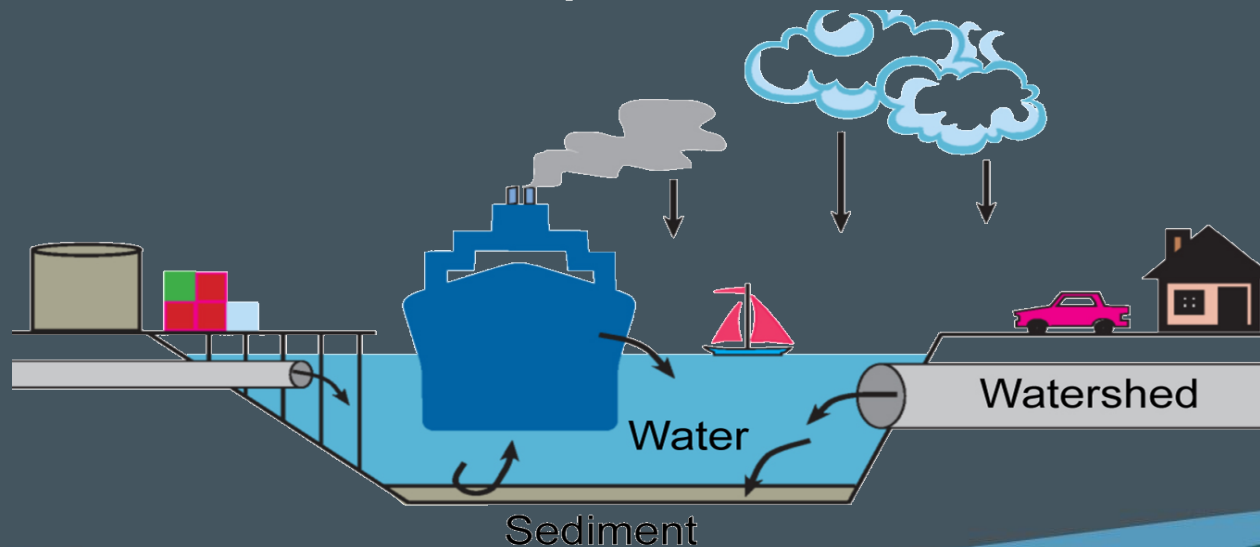


Geographic Setting



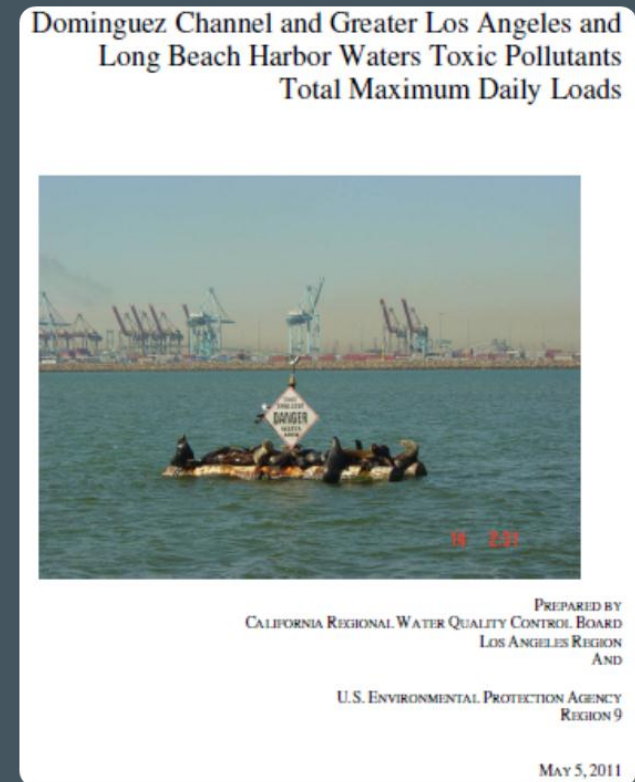
Potential Sources of Pollutants

- Sources inside ports: stormwater, ships, and existing legacy sediment contamination
- Sources outside ports: Dominguez Channel, Los Angeles River, storm drains, treatment plants, and air deposition



Total Maximum Daily Loads (TMDLs)

- Clean Water Act regulation
 - Requires states to develop TMDLs for water bodies listed as “impaired” for one or more pollutants
 - Impairment can be related to water column, sediment, or fish tissue
- LA/LB Harbor Toxics TMDL promulgated in 2012
 - Metals/organic compounds
 - 20 year compliance timeframe
 - Reopener in 6 years



LA/LB Harbors Toxics TMDL

- Sediment quality impaired
 - Sediment-bound contaminants
 - Benthic health impacts
 - Sediment toxicity
- Fish tissue quality impaired
 - Fish tissue for human consumption
 - Sediment contaminant limits for fish tissue



Effects Range Low Values for the Protection of Benthic Health



Fish Contaminant Goals for the Protection of Human Health



Approach Moving Forward

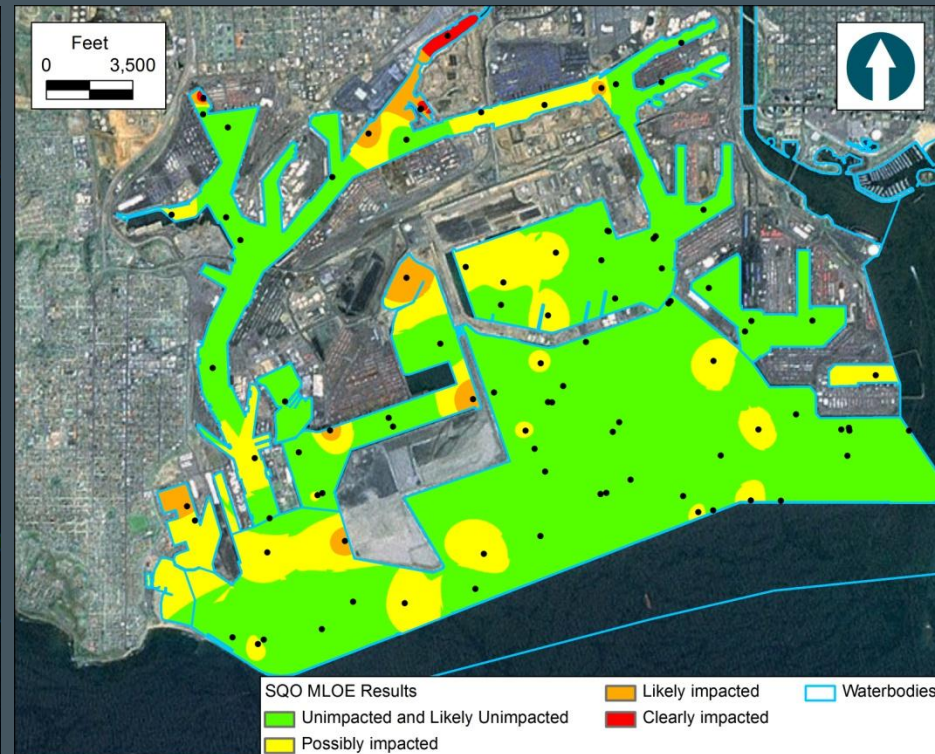
- Ecologically meaningful
 - Ensure ongoing sources are stopped
 - Ensure actions will result in measurable recovery of beneficial use
 - Ensure actions do not cause more damage
- Economically responsible
 - Ensure responsible parties share in implementation
 - Alignment with ongoing port development projects
 - Low risk of recontamination
 - Measurable environmental improvement



Bedded Sediment Compliance: Benthic Health

ERL Sediment Target

SWRCB's SQO Part 1 Assessment



Bedded Sediment Compliance: Fish Tissue for Human Consumption

Fish Contaminant Goal Sediment
Target



Potential areas for management through
SWRCB's SQO Part 2 Assessment process



Sediment Management Strategy

Monitor Sediments
Conduct SQO Evaluation
Confirm Chemical Stressor
Confirm link to sediment

Stressor Confirmation Not Necessary

Site Characterized To Determine Effective Management Alternatives
Alternatives include: MNR, ENR, source control, remediation, capping, revision of targets, revision of compliance timelines

Commence Management Actions

Opportunistic Management Opportunity

Confirmation of Effectiveness of Management

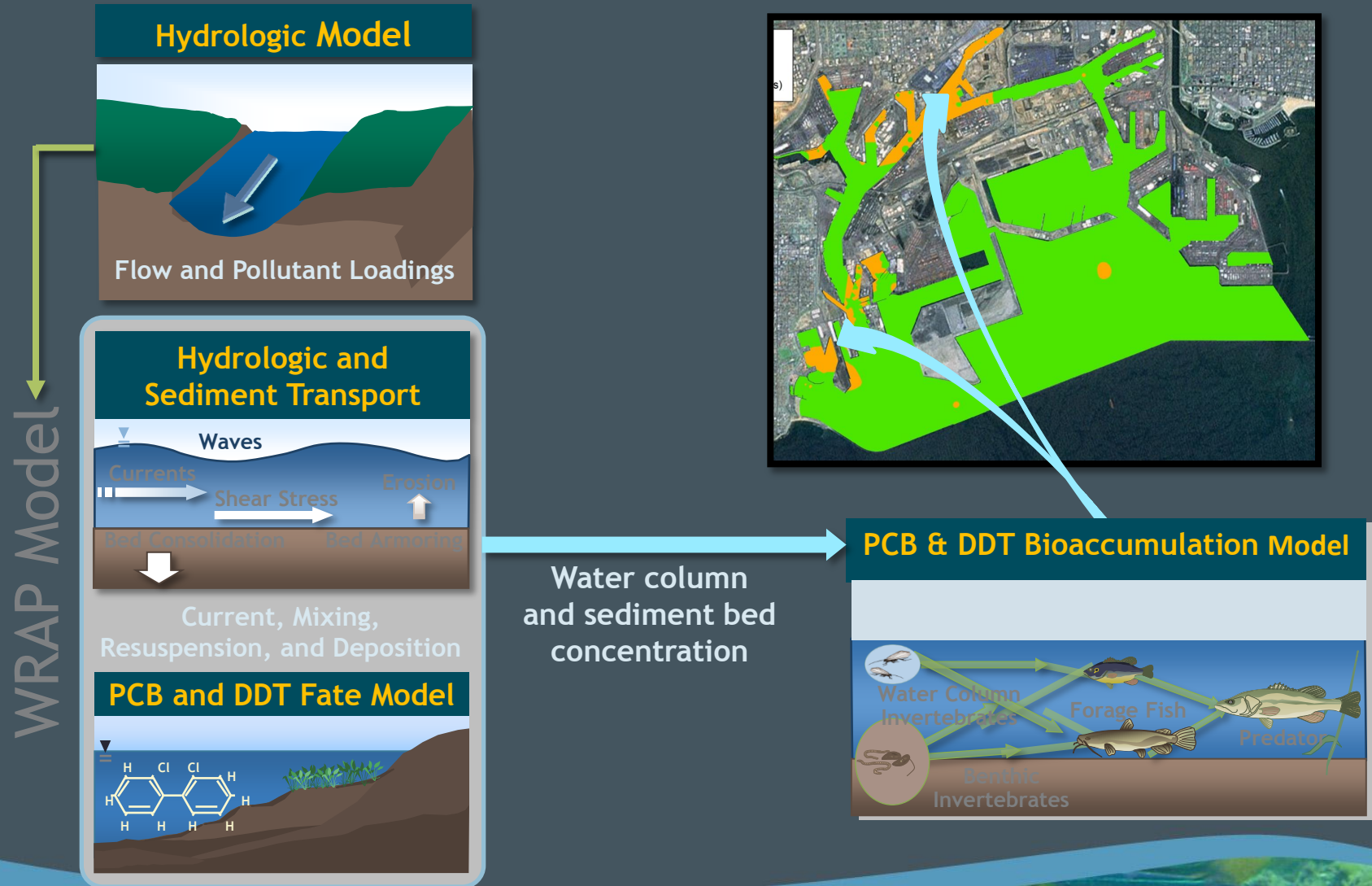


Current Efforts

- Agency Coordination
 - Harbor Technical Working Group
- Special Studies & Monitoring
- Modeling



Model to Guide Management Actions



Potential Management Solutions

- Source reduction - stormwater treatment
- Natural recovery
- Enhanced natural recovery
- Dredging and removal with onsite or offsite disposal/beneficial reuse
- Capping
- In-situ treatment



Confirmation of Effectiveness

- Confirm post-dredge surface
- Continued regional monitoring
- Ongoing adaptive management
- Ongoing coordination with regulators
- Set expectations for regulators and contractors



QUESTIONS?

