

# ENVIRONMENTAL ISSUES ASSOCIATED WITH MAINTENANCE DREDGING IN SOUTHERN CALIFORNIA

LARRY SMITH  
ECOLOGIST  
ENVIRONMENTAL RESOURCES BRANCH  
LOS ANGELES DISTRICT  
U.S. ARMY CORPS OF ENGINEERS  
LAWRENCE.J.SMITH@USACE.ARMY.MIL

*"The views, opinions and findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation."*



US Army Corps  
of Engineers®



# Los Angeles District

Harbors and Ports

Legend



Google earth

Data SIO, NOAA, U.S. Navy, NGA, GEBCO  
 Image Landsat / Copernicus  
 Data LDEO-Columbia, NSF, NOAA  
 Data MBARI



# OUTLINE

Sediment sampling and testing protocols

SC-DMMT consultation

Recent contaminants of concern

Eelgrass

*Caulerpa taxifolia*

Special status species



US Army Corps  
of Engineers<sup>®</sup>



# SEDIMENT SAMPLING AND TESTING PROTOCOLS

## Beach nourishment

### Dredged sediments

grain size

sediment chemistry of composite area samples

archives of individual cores for chemistry

archives of composites for optional bioassay

### Beach/nearshore placement site

grain size

### Threshold

ER-L and ER-M

Human RSL

Human CHHSL

## Ocean disposal

Full Tier III Green Book testing



US Army Corps  
of Engineers ®



# SC-DMMT CONSULTATION

## Membership

Los Angeles District (Planning and Regulatory)\*

U.S. Environmental Protection Agency\*

U.S. Fish and Wildlife Service

National Marine Fisheries Service

Regional Water Quality Control Boards\*

California Coastal Commission\*

California Department of Fish and Wildlife

\* voting member

Monthly meetings, meeting notes serve as concurrence correspondence

Out of cycle reviews possible



US Army Corps  
of Engineers<sup>®</sup>



# SC-DMMT CONSULTATION

Z-layer

Archived samples

Beach sediment chemistry



US Army Corps  
of Engineers<sup>®</sup>



# RECENT CONTAMINANTS OF CONCERN

## Arsenic

Elevated arsenic concentrations occur commonly from natural as well as from anthropogenic sources in California dredge sediments and soils.

Estimated background concentration (3.5 mg/kg) for soils throughout California (Bradford et al., 1996)

Concentration (12 mg/kg) that the Department of Toxic Substance Control (DTSC) considers dangerous to human health (Dr. William Bosan, Personnel Communication).



US Army Corps  
of Engineers<sup>®</sup>



# RECENT CONTAMINANTS OF CONCERN

## PCB

Port Hueneme June 2017

EPA proposed Consensus Threshold Effect Concentrations (TEC) of 48 ppb for total PCB, Superfund Threshold

Harbor Deepening

2001 Ecological Risk Assessment

2003 Model 95% UCL 89.6 ppb total PCB

2017 Bioaccumulation showed no ecological accumulative potential

DOTS request

July 2017

October 2017



US Army Corps  
of Engineers<sup>®</sup>



# RECENT CONTAMINANTS OF CONCERN

DDT

ER-L and ER-M

	ER-L	ER-M
DDD	2	20
DDE	2.2	27
DDT	1	7
Total DDT	1.58	46.1

ppb

EPA agreement that the ER-L value is not predictive of toxicity



US Army Corps  
of Engineers<sup>®</sup>



# RECENT CONTAMINANTS OF CONCERN

## Pyrethroids

Relatively new class of pesticide that is showing up in southern California sediments.

<b>Pyrethroids</b>
Fenpropathrin (Danitol)
Fenvalerate (sanmarton)
Fluvalinate
Permethrin (cis and trans)
Resmethrin (Bioresmethrin)
Resmethrin
Sumithrin (Phenothrin)
Tetramethrin
Tralomethrin



US Army Corps  
of Engineers<sup>®</sup>



# EELGRASS

Special aquatic site

Eelgrass defined as Essential Fish Habitat

NMFP Policies

1991 Southern California Eelgrass Mitigation Policy

2014 California Eelgrass Mitigation Policy

Recommendations made by NMFS as part of Essential Fish Habitat, including the CEMP, are advisory only and do not require compliance.

Not implemented in LAD Civil Works:

The spatial distribution of eelgrass habitat should be delineated by a contiguous boundary around all areas of vegetated eelgrass cover extending outward a distance of 5 m.

Mitigation includes this boundary area.

Mitigation delay penalties



US Army Corps  
of Engineers<sup>®</sup>



# ***CAULERPA TAXIFOLIA***

Invasive algal species

Discovered in summer 2000 in Agua Hedionda Lagoon, San Diego County and Huntington Harbor, Orange County

Eradicated at great expense by National Marine Fisheries Service

*CAULERPA* CONTROL PROTOCOL issued by NMFS in 2003

Essential Fish Habitat conservation recommendation

LAD does not conduct surveys where:

open coastal projects

deep, federal navigation channels that are -45 feet MLLW or deeper



US Army Corps  
of Engineers<sup>®</sup>



# SPECIAL STATUS SPECIES

Marine mammals

Marine Mammal Protection Act

Endangered Species Act

Dredging

Structure repair (jetty, breakwater)

Generally, no effect determination due to other areas available and species can easily move and use those other areas

NMFS response varies from acceptance to attempts to impose take restrictions and monitoring.

NMFS prepared EA for reef restoration that included rationale similar to ours for no effect in 2016



US Army Corps  
of Engineers<sup>®</sup>



# SPECIAL STATUS SPECIES

## California least tern

Endangered, migratory bird species, may be downlisted to threatened in 2018

Nesting season April 15-September 15

Nests on beaches and sand islands

Forages in coastal waters and estuaries

Dredge window September 15-April 15 when species not present in California

Study completed in 2013, published by ERDC as Technical Report in 2016

California Least Tern Foraging Ecology in Southern California

A Review of Foraging Behavior Relative to Proposed Dredging

Locations

ERDC/EL CR-16-3 May 2016

Dredging and beach nourishment have no effect on California least tern, unless equipment is in close proximity to nest site. Dredge window not supported.



US Army Corps  
of Engineers<sup>®</sup>



# SPECIAL STATUS SPECIES

Western snowy plover

Threatened shore bird

Winters on sandy beaches above high tide

Nests on beaches, prefers area close to dune vegetation

Nesting season March 1-September 1

May be affected by on-beach nourishment activities (placement, grading)

Use of monitors and equipment guides precludes impacts



US Army Corps  
of Engineers<sup>®</sup>



# SPECIAL STATUS SPECIES

California grunion

Spawning season March 15-September 1

Four night runs each full and new moon

Schedule published by California Department of Fish and Wildlife

No legal protections other than as a fishery resource

Added protections added by National Marine Fisheries Service, California Department of Fish and Wildlife, and California Coastal Commission.

Corps policy to avoid where possible

Many beaches being nourished are too badly eroded to support grunion

No effect from nearshore placement, placement restricted to times outside scheduled runs

Runs of Walker Scale 0 and/or 1 do not warrant avoidance measures



US Army Corps  
of Engineers<sup>®</sup>



LARRY SMITH  
ECOLOGIST  
ENVIRONMENTAL RESOURCES BRANCH  
LOS ANGELES DISTRICT  
U.S. ARMY CORPS OF ENGINEERS  
LAWRENCE.J.SMITH@USACE.ARMY.MIL

# QUESTIONS



*“The views, opinions and findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation.”*



US Army Corps  
of Engineers®

