



GUIDANCE FOR THIN-LAYER SEDIMENT PLACEMENT AS A STRATEGY TO ENHANCE TIDAL MARSH RESILIENCE TO SEA-LEVEL RISE

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PLACEMENT AS A STRATEGY
TO ENHANCE TIDAL MARSH
RESILIENCE TO SEA-LEVEL RISE

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Researchers from eight National Estuarine Research Reserves (NERRs) collaborated on a two-year NERRS Science Collaborative-funded field experiment investigating thin-layer placement of sediment in tidal marshes, beginning in Fall 2017. An expert Advisory Committee for the two-year project was convened that helped prepare these guidance documents.

For more information:

nerrsciencecollaborative.org/project/Raposa17

Or:

www.nerra.org/reserves/science-tools/tlp

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The Little River, Wells NERR. Courtesy of the Chesapeake Bay VA NERR.

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An aerial photograph of a tidal marsh system. The image shows a complex network of winding water channels and oxbow-like features, interspersed with areas of sediment deposition and marsh vegetation. The water appears dark, while the sediment areas are lighter, creating a high-contrast, textured landscape. The overall scene is captured from a high angle, providing a clear view of the intricate patterns of the water and land.

**GUIDE TO NAVIGATING THE PERMITTING PROCESS
FOR THIN-LAYER SEDIMENT PLACEMENT PROJECTS
IN TIDAL MARSHES**

FOUNTAIN

CHAPTER 3: GUIDE TO NAVIGATING THE PERMITTING PROCESS FOR THIN-LAYER SEDIMENT PLACEMENT PROJECTS IN TIDAL MARSHES

Permitting large-scale thin-layer sediment placement (TLP) projects that involve wetland fill can be complex and challenging. It is not uncommon to have to obtain multiple permits, particularly if the project is in an area with county, regional, state and federal jurisdictions. Each agency has one or more laws that serve as the nexus for their jurisdiction, with different agencies often enforcing different sections of a law as is the case with the Clean Water Act (33 U.S.C. §1251 et seq. (1972)). In general, the laws that are most often triggered by TLP are in place to protect water, habitat, species, and cultural resources. While each project location will be unique and have distinct circumstances, federal laws will cover all projects in the United States.

STEP-BY-STEP GUIDE FOR PERMITTING TLP PROJECTS

Step 1 – Determine which permits are needed

The first step in planning a large-scale TLP project is to determine which permits are needed. This is to ensure that as the next steps are worked through, the specific requirements of each applicable permit are being met. For example, marine mammal surveys would not be needed in step 3 if no marine mammals are present in the area. See the accompanying Permitting Table for a list of Federal and State permits likely needed for a large-scale TLP project. While California was used as a State example, other states are likely similar but could have other types of special districts or regulatory bodies with permitting oversight. Contact regional offices to check for updated permit requirements.

Step 2 – Clarify project goals

It is important at this step to have well-articulated project goals to provide clarity to funders on what is being attempted. It is standard practice to use SMART goals (Specific, Measurable, Attainable, Relevant and Timely). This is a good time to engage the entire project team, including stakeholders, in reviewing and agreeing to project goals.

Step 3 – Develop a clear picture of existing conditions

The first step in determining the potential project impacts is to characterize the existing conditions with initial monitoring and assessments. This will include characterizing the extent

of the project, current land use, and physical conditions and processes (such as topography and hydrology, sediment type, and impacts of sea-level rise). It will also include characterization of the existing habitat and species with special attention on both state and federally listed species. During this step it is important to review the guidelines from various permitting agencies and work with staff to ensure the proposed project is characterized relevant to permit needs.

Step 4 – Design project and determine construction sequencing

This step of the process will allow the project team to inform the design through setting ecological as well as physical parameters (e.g., a range of allowable elevations or a range of tidal creek densities). An important component is setting thresholds for ecological outcomes that may be translated into engineering designs. These parameters may be relatively simple such as setting minimum and maximum elevations, or may be more complex and include hydrologic modeling of water flow over the marsh and through tidal creeks. This is a good time to bring in experts in TLP and other aspects of tidal marsh restoration.

Step 5 – Outline potential impacts

Construction sequencing is important to think through and characterize in order to determine potential impacts when applying for permits. For example, different types of containment needed during larger-scale TLP projects will use different equipment (e.g., from hay bale containment of slurry to sheet pile containment of tidal channels), which may have varying temporal and spatial impacts. In general, this is also an opportunity to characterize equipment that will be needed and how the use of that equipment could impact the water, land, species or cultural resources of the site.

Step 6 – Explore different mitigation measures

Use best management practices to determine which mitigation measures are most appropriate to reduce the impact of your project to less than significant. For example, project timing may be changed to avoid nesting birds or pupping marine mammals (if applicable), biological surveys may be done to ensure no special status species are present, or water quality protection measures such as installing straw bales may be applied to protect against increased turbidity.

Step 7 – Establish a compliance monitoring plan

This is sometimes called a Mitigation, Monitoring and Reporting Plan (MMRP) and summarizes the permitting requirements in one document for use as a guide throughout the project.

While these guidelines are by no means exhaustive, the ultimate goal is to ensure that when TLP projects are

considered, the permit hurdles are identified early on. As project leads get deeper into the planning process and contact regional agency offices through the links provided (see Permitting Table), a clearer picture will emerge on area-specific permits needed and any streamlined processes already in place to facilitate restoration projects.

OVERVIEW OF FEDERAL & STATE NATURAL RESOURCE LAWS AND REGULATIONS THAT MAY BE APPLICABLE TO THIN-LAYER SEDIMENT PLACEMENT PROJECTS (USING CALIFORNIA AS THE STATE EXAMPLE)*							
	LAW	FEDERAL OR STATE	RESPONSIBLE AGENCY	IMPLEMENTING AGENCY	PERMIT, AUTHORIZATION, STUDY OR AGREEMENT	REGULATED ACTIVITY AND RESOURCE	ADDITIONAL INFORMATION
WATER	Section 401, Clean Water Act (CWA) (33 USC 1341)	Federal	State water board (EPA Oversight)	State or regional water board	Water Quality Certification	Discharges requiring a federal license or permit to comply with state or federal water quality standards	https://www.epa.gov/cwa-401/clean-water-act-section-401-state-certification-water-quality
	Section 404, Clean Water Act (CWA) (33 USC 1344)		USACE (EPA oversight)				
	Section 10, Rivers and Harbors Act (RHA) (33 USC 403)	Federal	USACE	USACE	Section 10 Permit	Work in, under, or over a navigable	http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx
WATER/ LAND	Coastal Zone Management Act (CZMA) (16 USC 1451)	Federal	NOAA	CCC / BCDC	Federal Consistency Determination	Project modifies land or water use in the coastal zone of a state with an approved CMP	https://coast.noaa.gov/czm/act/
SPECIES	Section 7 & 10, Endangered Species Act (16 USC 1531-1544)	Federal	USFWS / NMFS	USFWS / NMFS	Incidental Take / Biological Opinion (BO) (Section 7); Incidental Take Permit (Section 10)	Activities affecting species listed as threatened or endangered under the ESA	https://www.fws.gov/endangered/
	Marine Mammal Protection Act (MMPA) (16 USC 1361 et. seq.)	Federal	USFWS / NMFS	USFWS / NMFS	Letter of Authorization (LOA); Incidental Harassment Authorization (IHA)	Activities affecting marine mammals and their products	http://www.fws.gov/international/permits/by-species/marine-mammals.html
	Section 305(b)(4)(A) of Magnuson-Stevens Fishery Conservation and Management Act (MSA)	Federal	NMFS	NMFS	Essential Fish Habitat (EFH) Consultation	Activities affecting eelgrass and other essential fish habitat	https://www.fisheries.noaa.gov/national/habitat-conservation/consultations-essential-fish-habitat

OVERVIEW OF FEDERAL & STATE NATURAL RESOURCE LAWS AND REGULATIONS THAT MAY BE APPLICABLE TO THIN-LAYER SEDIMENT PLACEMENT PROJECTS (USING CALIFORNIA AS THE STATE EXAMPLE)*

	LAW	FEDERAL OR STATE	RESPONSIBLE AGENCY	IMPLEMENTING AGENCY	PERMIT, AUTHORIZATION, STUDY OR AGREEMENT	REGULATED ACTIVITY AND RESOURCE	ADDITIONAL INFORMATION
CULTURAL RESOURCES	National Environmental Policy Act (NEPA) (42 USC 4312)	Federal	CEQ and EPA oversight	Federal Lead Agency	Environmental Assessment (EA); Finding of No Significant Impact (FONSI); Environmental Impact Statement (EIS)	Major federal actions significantly affecting the quality of the human environment	https://www.whitehouse.gov/ceq/
	National Historic Preservation Act (NHPA) (16 USC 470)	Federal	ACHP / SHPO	Federal Lead Agency	Memorandum of Agreement / Programmatic Agreement	Activities affecting cultural resources	http://ohp.parks.ca.gov/ http://www.achp.gov/
WATER	Porter-Cologne Water Quality Control Act (Division 7, California Water Code)	State	SWRCB	RWQCB	Waste Discharge Requirement (WDR)	Activities that may affect surface or groundwater quality	http://www.waterboards.ca.gov/water_issues/programs/land_disposal/waste_discharge_requirements.shtml
WATER/ LAND	California Coastal Act (CCA) (PRC §30000 et. seq.)	State	CCC / BCDC	CCC / BCDC / Local Govt	Coastal Development Permit (CDP)	Activities that modify land or water use in the coastal zone	http://www.coastal.ca.gov/cdp/cdp-forms.html http://www.bcdc.ca.gov/forms/forms.html
SPECIES	California Endangered Species Act (CESA) (FGC § 2081 & 2090)	State	CDFW	CDFW	Incidental Take Permit (Section 2081) or Consistency Determination (Section 2080.1)	Activities affecting state-listed species	http://www.dfg.ca.gov/habcon/cesa/
	Section 1600-1616, California Fish and Game Code (FGC § 1602 et. seq.)	State	CDFW	CDFW	Lake or Streambed Alteration Agreement	Activities that divert or obstruct the natural flow or substantially change the bed, bank or channel of a river, stream or lake, or use material from a streambed	http://www.dfg.ca.gov/habcon/1600/
ALL		State	OPR and SCH (oversight)	State Lead Agency	Initial Study (IS); Negative Declaration (ND); Mitigated Negative Declaration (MND); Environmental Impact Report (EIR)	Discretionary actions proposed to be carried out or approved by California public agencies	http://resources.ca.gov/ceqa/ 2019 CEQA Handbook: http://resources.ca.gov/ceqa/docs/2019_CEQA_Statutes_and_Guidelines.pdf

ACRONYMS

ACHP – Advisory Council on Historic Preservation	OCRM – Office of Ocean & Coastal Resource Management
BCDC – San Francisco Bay Conservation and Development Commission	OPR – Office of Planning and Research
CCC – California Coastal Commission	RWQCB – Regional Water Quality Control Board
CDFW – California Department of Fish and Wildlife	SCH – State Clearinghouse
CEQ – Council on Environmental Quality	SHPO – State Historic Preservation Officer
EPA – Environmental Protection Agency	SWRCB – State Water Resources Control Board
NMFS – National Marine Fisheries Service	USACE – U.S. Army Corps of Engineers
NOAA – National Oceanic & Atmospheric Administration	USFWS – U.S. Fish and Wildlife Service

* Modified from a table developed for an Elkhorn Slough NERR Coastal Training Program Workshop in 2013 titled "Navigating the Rules for Environmental Compliance with Wetlands Restoration in Coastal California" with April Zohn, Lux Environmental.