Item 4j

CALIFORNIA OCEAN PROTECTION COUNCIL

Staff Recommendation
October 17, 2016

Assessment of Significant Sand Resources in Federal and State Waters

Chris Potter, Program Manager

RECOMMENDED ACTION: Authorization to disburse up to $256,000 to the U.S. Geological Survey (USGS) to conduct an assessment and inventory of sand and gravel resources in federal and state waters for potential use in future beach nourishment projects along stretches of the coast where critical erosion hotspots have been identified. This authorization is subject to the condition that prior to execution of an agreement, the USGS and OPC shall come to agreement on an indirect cost rate that is consistent with OPC's grant guidelines by December 1, 2016.

LOCATION: San Francisco, Oceanside, and Silver Strand Littoral Cells, California

STRATEGIC PLAN OBJECTIVE(S): The proposed project addresses OPC Strategic Plan Objective 11.2 (Increase the availability of data and tools that can influence sediment-related planning decisions).

EXHIBITS

Exhibit A: Project Location and Site Maps

FINDINGS AND RESOLUTION:

Staff recommends that the Ocean Protection Council (OPC) adopt the following findings:
"Based on the accompanying staff report and attached exhibit(s), the Ocean Protection Council hereby finds that:

1) The proposed projects are consistent with the purposes of Division 26.5 of the Public Resources Code, the Ocean Protection Act.
2) The proposed projects are consistent with the Ocean Protection Council's grant program funding guidelines (Interim Standards and Protocols, August 2013).
3) The proposed projects are not 'legal projects' that trigger the California Environmental Quality Act pursuant to Public Resources Code section 21068 and Title 14 of the California Code of Regulations, sections 15304 and 15306.

Staff further recommends that the OPC adopt the following resolution pursuant to Sections 35500 *et seq.* of the Public Resources Code:

"The California Ocean Protection Council hereby approves the disbursement of up to $256,000 to the U.S. Geological Survey to conduct an assessment and inventory of sand and gravel resources in federal and state waters for potential use in future beach nourishment projects along stretches of the coast where critical erosion hotspots have been identified.

This authorization is subject to the condition that prior to disbursement of funds, the U.S. Geological Survey (USGS) shall submit for the review and approval of the Executive Director of the OPC detailed work plans, schedules, staff requirements, budgets, and the names of any contractors intended to be used to complete the projects, as well as discrete deliverables that can be produced in intervals to ensure the projects are on target for successful completion. All projects will be developed under a shared understanding of process, management and delivery."

PROJECT SUMMARY:

The USGS will review and synthesize existing geological data and conduct surveys and sampling to map sand and gravel resources in marine settings in federal and state waters offshore California for the purpose of determining whether and where suitable sand for beach nourishment may exist. These study areas could potentially provide sand resources to nearby Beach Erosion Concern Areas as identified by the California Coastal Sediment Management Workgroup's Beach Erosion Assessment Survey (CSMW, 2010) and the California Regional Sediment Management Plans. The three study areas are: 1) the San Francisco Littoral Cell (San Francisco open coast), 2) the Oceanside Littoral Cell (Orange County coast), and 3) the Silver Strand Littoral Cell (San Diego County coast).

The objective of this sand resource assessment is to produce maps with the locations, thicknesses, and sediment grain-size information of sand and gravel deposits. Maps will be constructed using a combination of new and existing information, including high-resolution bathymetry, seafloor characteristics derived from side-scan sonar, sub-bottom geophysical surveys, seafloor sediment grab samples, and sediment cores. The USGS will conduct new surveys and coring to fill gaps in existing data.

It is important to note that, OCS sand resources may be utilized to rebuild beaches and assist coastal recovery from acute events such as El Niño-related storms as well as chronic erosion from currents, wave activity, tides, sea-level rise and human interventions that have impeded natural sediment transport along the coast. These sand resources may exist within either federal or California state jurisdiction, and several sand deposits may extend across these jurisdictional boundaries.

Sand resources within Federal waters are managed and leased by the Department of the Interior's Bureau of Ocean Energy Management (BOEM). BOEM's mission involves providing access to outer continental shelf (OCS) energy and mineral resources to meet both national and local needs while ensuring protection of the environment. However, before offshore sand resources can be used in coastal restoration projects the deposits must first be identified and evaluated by conducting geophysical and geotechnical studies to determine their quality and quantity (i.e., grain size and chemical composition) and compatibility with sand at potential onshore or nearshore receiver sites.

To evaluate sand resources on the California OCS, the USGS and BOEM developed an Intra-Agency Agreement (IA) to facilitate the project during 2016-2020. This IA will provide $499,000 in funding from BOEM, and the USGS will provide a contribution of $465,000 in staffing resources. A contribution of $256,000 from OPC will allow the study to extend into California state waters and cover a much larger area than allowed from the IA.

The specific objectives include:

- The USGS will conduct data syntheses, geophysical surveys, and sediment coring and sampling as needed to address the locations and amounts of offshore sand resources in study areas that have both a high likelihood to produce useable sand deposits and a recognized need for sand on the shoreline.
- Annual meetings will be held with project partners and an expert review panel to provide feedback and recommendations for the project.
- All data and interpretations will be published in USGS publications that will be freely available to the partner agencies and the public.

The overarching goal of this project is to provide better inventories of the sand and gravel resources available in federal and state waters offshore of the California coast for the potential use in future coastal restoration and beach nourishment projects. In addition, coastal sand and gravel supplies can be used in projects that help mitigate the effects of sea-level rise.

Site Description: The three study areas were defined through discussions between the USGS, BOEM, and the Coastal Sediment Management Workgroup[1] (CSMW). Several constraints on study areas were defined during this process. For example, study areas could extend to maximum water depths of 60 meters (200 feet) due to expected limitations of dredging

[1] The CSMW is a statewide workgroup co-chaired by USACE and CNRA that is dedicated to protecting, enhancing and restoring California's coastal beaches and watersheds through federal, state and local cooperative efforts.

technology in the future (current U.S. dredging technology can access 100 feet, future technologies may significantly extend this limit). Sand resources must also be at water depths greater than the depth of closure[2] so that future uses of these resources will not negatively impact littoral cell sediment budgets. It is generally understood that the depth of closure for California beaches is approximately 10 m. Additionally, the areas were required to be within 48 kilometers (30 miles) of CSMW Beach Erosional Concern Areas to ensure that future dredging and transport of sand resources would not be cost prohibitive. Lastly, a significant portion of each area was required to lie within federal waters; i.e., beyond three nautical miles of the state shoreline.

On July 7th, 2016, a 12-member group of USGS, BOEM and CSMW used these criteria and existing knowledge of the California coast to define two-to-three high priority study areas. Consensus was found, and three study areas were defined: 1) the San Francisco Littoral Cell, 2) the Oceanside Littoral Cell, and 3) the Silver Strand Littoral Cell. Further details of these study areas are provided in Exhibit A.

Project Timeline: Implementation of the project will begin in October 2016 (with BOEM funding) and will take approximately four years to complete. The first year will focus on discovery and synthesis of existing data for the three study sites. The second year of the project will focus on geophysical and coring cruises in the Oceanside Littoral Cells. The third year of the project will focus on the laboratory analysis and final synthesis and reporting for the Oceanside Littoral Cells. The fourth, and final, year of the project will focus on the laboratory analysis and final synthesis and reporting for the San Francisco Littoral Cell.

PROJECT FINANCING:

Staff recommends that the Ocean Protection Council (OPC) authorize disbursement of up to $256,000 to the U.S. Geological Survey to conduct an assessment and inventory of sand and gravel resources in federal and state waters for potential use in future beach nourishment projects along stretches of the coast where critical erosion hotspots have been identified.

[2] Coastal engineers and scientists divide the submerged beach profile into two discrete zones. The nearshore zone is sedimentologically active, while the offshore zone is inactive with regard to beach dynamics. The hypothetical point dividing the two zones, usually at about 10 meters of depth along the California coast, is called the “depth of closure”.

Ocean Protection Council	$256,000
Bureau of Ocean Energy Management (BOEM)	$499,000
U.S. Geological Survey (USGS)	$465,000
TOTAL	**$1,220,000**

The anticipated source of funds will be from the Ocean Protection Council's appropriation of the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Proposition 84). Proposition 84 authorizes the use of funds for purposes consistent with Section 35650 of the Public Resources Code, establishing the California Ocean Protection Trust Fund (Pub. Res. Code § 75060(g)). Under Section 35650(b), Ocean Protection Trust Fund monies may be expended for projects authorized by the OPC that are identified as appropriate Trust Fund purposes, as specified. The project is consistent with the Trust Fund purposes as discussed in the following section.

Leverage of OPC funds:

The USGS and BOEM developed an Intra-Agency Agreement (IA) to facilitate this project during 2016-2020. This IA will provide $499,000 in funding from BOEM, and the USGS will provide a contribution of $465,000 in staffing resources. A contribution of $256,000 from OPC will allow the study to extend into California state waters and cover a much larger area than allowed from the IA.

CONSISTENCY WITH CALIFORNIA OCEAN PROTECTION ACT:

The proposed project is consistent with the Ocean Protection Act, Division 26.5 of the Public Resources Code, because it is consistent with trust-fund allowable projects, defined in Public Resources Code Section 35650(b)(2) as projects which:

1) Eliminate or reduce threats to coastal and ocean ecosystems, habitats, and species.
2) Improve management, conservation, and protection of coastal waters and ocean ecosystems.
3) Protect, conserve, and restore coastal waters and ocean ecosystems.
4) Fund adaptive management, planning, coordination, monitoring, research, and other necessary activities to minimize the adverse impacts of climate change on California's ocean ecosystem.

This project will promote the activities of the California Coastal Sediment Management Workgroup (CSMW). The CSMW is a state-federal collaborative co-chaired by the California Natural Resources Agency and the U.S. Army Corps of Engineers. Work group members collaborate on planning, funding, and implementation of projects that reduce shoreline erosion and coastal storm damage, restore and protect beaches, and other coastal environments. The CSMW also focuses restoring natural sediment supply to the coast (e.g., dam removal) and optimizing the beneficial reuse of sand (e.g., harbor deepening projects).

CONSISTENCY WITH THE OPC'S STRATEGIC PLAN:

This project implements Focal Area "Coastal and Ocean Impact from Land", the goal of which is to reduce the negative impacts of land-based activities on marine ecosystems and the state's coastal and ocean economy. Continental shelf sand resources may be utilized to rebuild beaches and assist coastal recovery from acute events such as El Nino-related storms as well as chronic erosion from currents, wave activity, tides, sea-level rise and human interventions (e.g., dams and stream channelization) that have impeded natural sediment transport along the coast.

CONSISTENCY WITH PROPOSITION 84 (The Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006; Public Resources Code §75060(g)

This project is consistent with the purposes of Proposition 84 because it provides data that allows the state to adaptively manage it marine resources. (see Public Resources Code section 75702). Specifically, this project will provide data regarding the availability and profile of sand and gravel resources at three key areas off the California coast. These sand and gravel resources can be used for adaptive management of the coastal and marine ecosystems including, but not limited to, coastal erosion, wetland restoration, and beach nourishment projects.

CONSISTENCY WITH THE OPC'S GRANT PROGRAM FUNDING GUIDELINES:

The proposed project is consistent with the OPC's Grant Program Funding Guidelines for Proposition 84 funds, in the following respects:

Required Criteria

1. Directly relate to the ocean, coast, associated estuaries, or coastal-draining watersheds: This project would benefit the coastal communities within the San Francisco Littoral Cell, the Oceanside Littoral Cell, and the Silver Strand Littoral Cell (Exhibit A).
2. This project is supported by the federal Bureau of Ocean Energy Management.
3. Greater-than-local interest is demonstrated by the fact that the sand and gravel resources identified in this project could be used by communities across the State as

dictated by logistics and economics. Additionally, there are three study sites spread across the state to balance the information provided.

Additional Criteria

4. Improvements to management approaches or techniques: This project will lead to improvements in coastal sediment management in three key areas of the California coast.
5. Resolution of more than one issue: This project will improve the body of information relating to the availability of sand and gravel resources off the coast of California as well as identify resources that have the best potential for use in future coastal restoration and beach nourishment projects necessary to reduce the effects of shoreline erosion.
6. Leverage: This project is being leveraged with funding from the BOEM ($499,000) and the USGS ($465,000).
7. Timeliness: The USGS has secured funding from the federal Bureau of Ocean Energy to conduct this study in areas in federal waters beginning in October 2016. This grant will give the state the opportunity to leverage funds provided by the federal government and conduct a complementary study in state waters.
8. Coordination: The primary outlet for project coordination will be the CSMW which is co-chaired by the OPC/CNRA and the U.S. Army Corps of Engineers. The CSMW is a statewide workgroup that is dedicated to protecting, enhancing and restoring California's coastal beaches and watersheds through federal, state and local cooperative efforts.

COMPLIANCE WITH CEQA:

The proposed project is categorically exempt from review under the California Environmental Quality Act ("CEQA") pursuant to 14 Cal. Code of Regulations Section 15306 because the project involves only data collection, research and resource evaluation activities that will not result in a serious or major disturbance to an environmental resource. Staff will file a Notice of Exemption upon approval by the OPC.

Exhibit A: Project Location and Site Maps

Figure 1. Map of the three study area sites along the continental shelf of California.

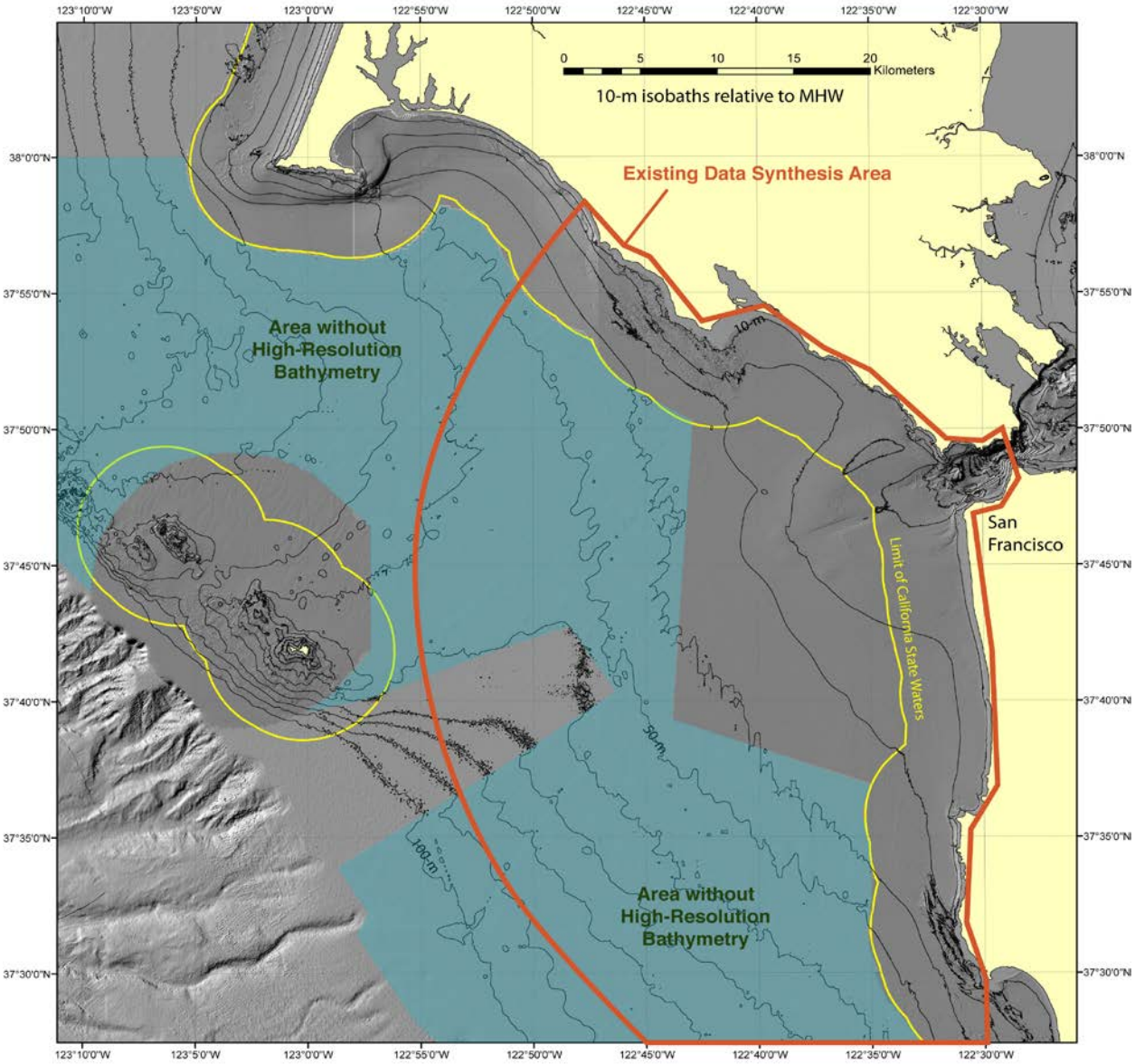

Figure 2. Map of the San Francisco Littoral Cell study site.

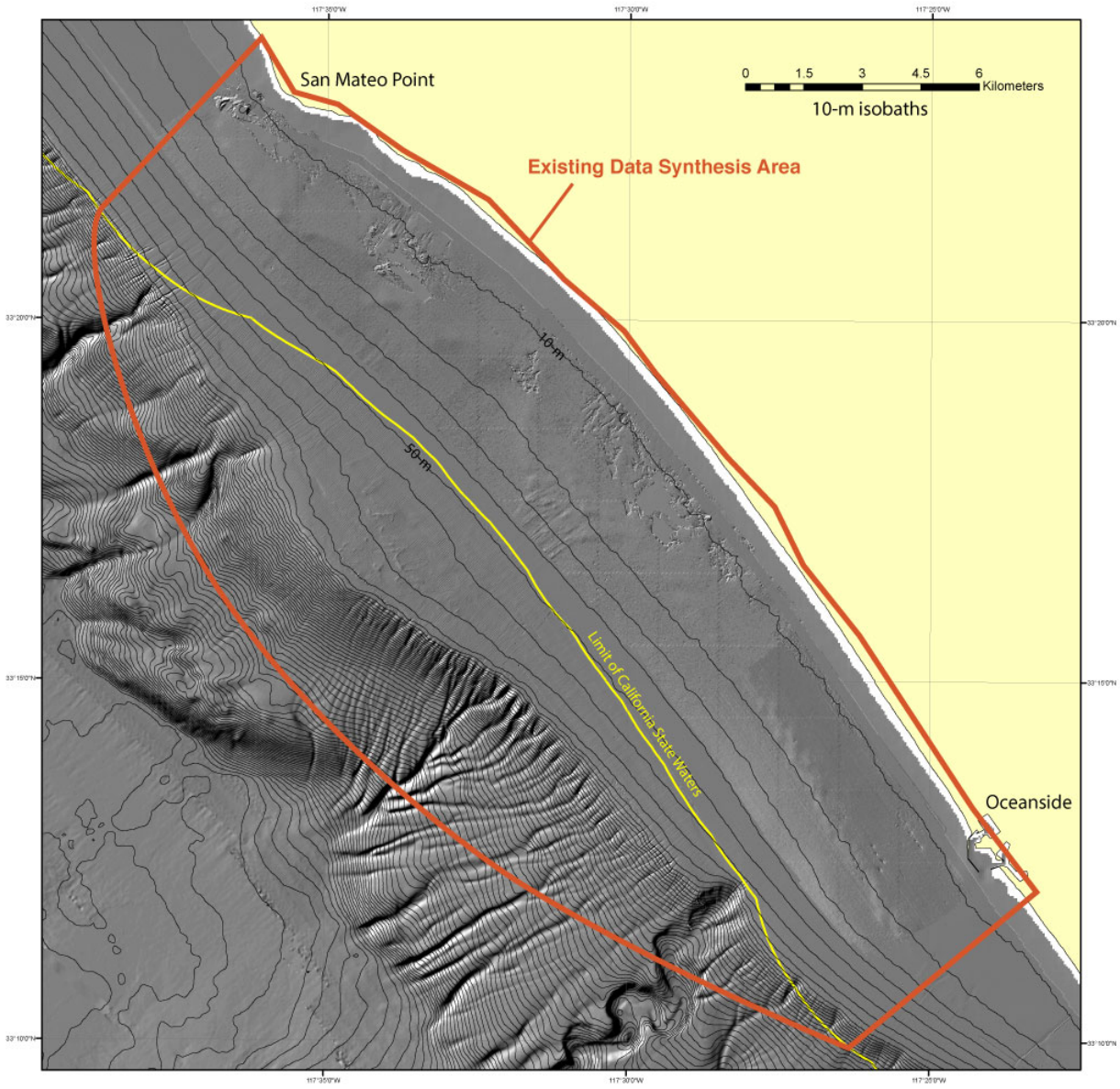

Figure 3. Map of the Oceanside Littoral Cell study site

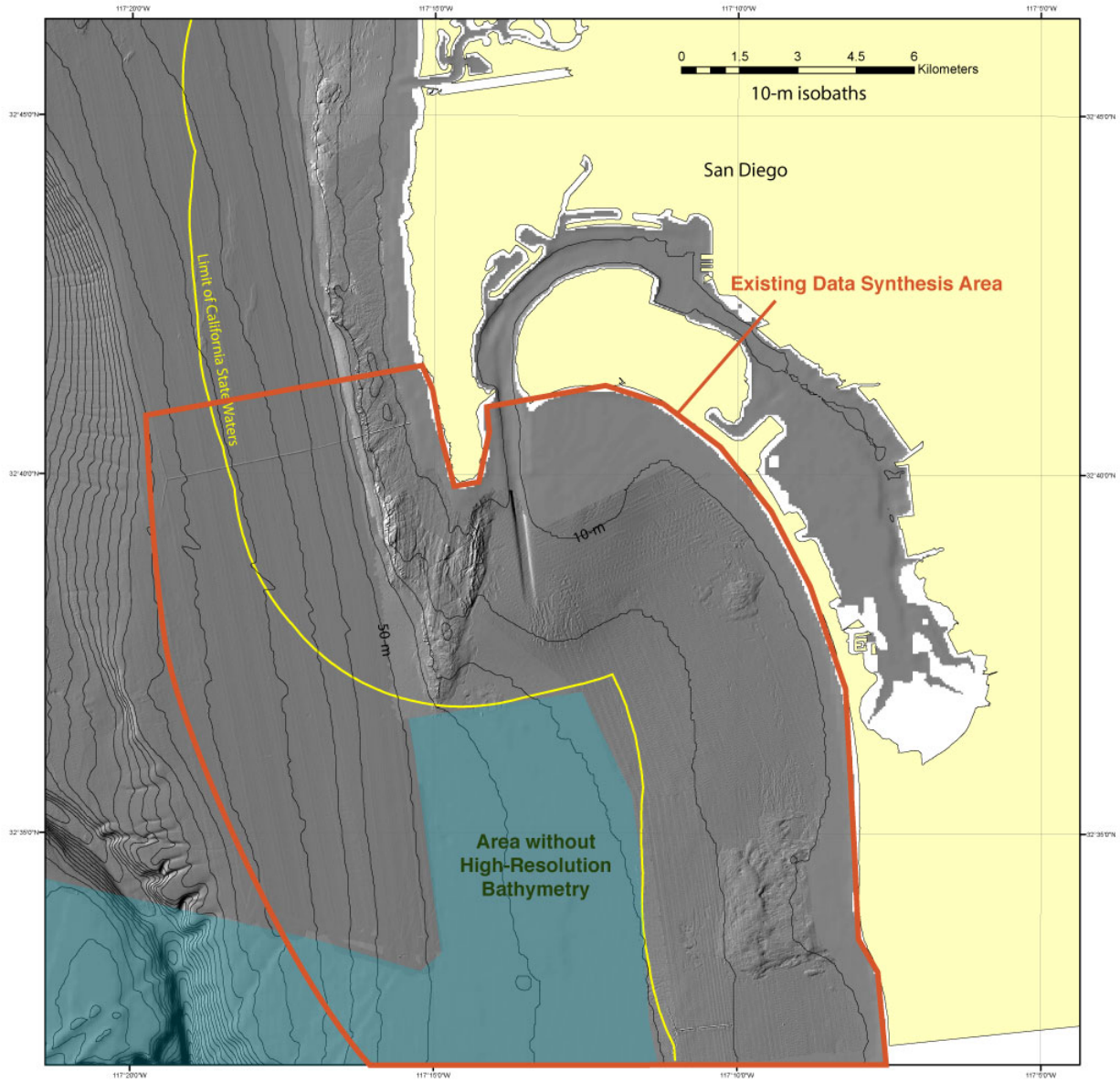

Figure 4. Map of the Silver Strand Littoral Cell study site