

Date of Hearing: April 18, 2023

ASSEMBLY COMMITTEE ON WATER, PARKS, AND WILDLIFE

Rebecca Bauer-Kahan, Chair

AB 966 (Davies) – As Amended March 2, 2023

SUBJECT: Division of Boating and Waterways: report to the Legislature: shoreline erosion control and public beach programs

SUMMARY: Requires that the Division of Boating and Waterways (DBW), in cooperation with the State Coastal Conservancy (SCC), prepare and submit a report on shoreline erosion and public beach restoration programs. Specifically, **this bill:**

- 1) Requires that the report:
 - a) Detail the restoration, nourishment, and enhancement activities undertaken through these programs;
 - b) Discuss the need for continued shoreline erosion and public beach restoration projects;
 - c) Evaluate the effectiveness of these programs in addressing that need;
 - d) Discuss methods to increase natural sediment;
 - e) Evaluate if application requirements for the programs needs to be altered to allow for more applicants;
 - f) Identify beaches of the state that contain a critically eroded shoreline; and
 - g) Be submitted to the Legislature no later than January 1, 2025.

EXISTING LAW:

- 1) Establishes DBW within the Department of Parks and Recreation (State Parks) and the powers, functions, and jurisdiction of DBW [Harbors and Navigation Code (HNC) § 50].
- 2) Establishes that DBW shall, independently or in cooperation with an entity, study and report on problems of beach erosion and means for the stabilization of beaches and shoreline areas (HNC § 65).
- 3) Establishes the California Public Beach Restoration Program for the purpose of the planning, design, and permitting of the restoration, enhancement, and nourishment of public beaches (HNC § 69.9).
- 4) Tasks the Boating and Waterways Commission to prepare and submit a program report every three years that addresses the status of any regulations adopted or being considered by DBW and any loan or grant that has been or is being considered for a determination of eligibility by DBW [HNC § 82.3 (g)].

- 5) Establishes the California Coastal Act that tasks the California Coastal Commission, in partnership with other State agencies and local governments, with maximizing public access to and along the coast and increasing public recreational opportunities in the coastal zone (PRC § 3000 *et seq.*).
- 6) Requires that the California Natural Resources Agency update the Safeguarding California Plan every three years and that the plan shall include, among other things, vulnerabilities to ocean and coastal resources caused by climate change (Public Resource Code § 71153).

FISCAL EFFECT: Unknown. This bill is keyed fiscal.

COMMENTS:

- 1) **Purpose of this bill.** The purpose of this bill is to task DBW, in cooperation with SCC, with the preparation and submission of a report on shoreline erosion control and public beach restoration programs, as described. According to the author, “California has a large population living in coastal areas. Coastal erosion can threaten the safety of homes and infrastructure, leading to economic and social disruption. Studying coastal erosion helps scientists understand how changes in coastal environments affect the ecosystem, and develop strategies to preserve these habitats. AB 966 is a common-sense measure to find out how existing state programs can be enhanced or changed as well as get a firm grasp on what beaches in our state are the most in danger of eroding.”
- 2) **Background.** The National Oceanic and Atmospheric Administration estimates that 68% of Californians live in coastal areas.¹ While many coastal communities contain affluent neighborhoods, many of those communities include vulnerable populations who also face the risk of more frequent flooding and damage from erosion. The 2018 California Ocean Protection Council (OPC) State guidance on sea-level rise (SLR) forecasts 2 feet of SLR by 2050 and 6.6 feet of SLR by 2100. A 2009 study found that flooding from four and a half feet of SLR combined with a 100-year storm in California would affect 56,000 people who earn less than \$30,000 annually, 45,000 renters, and 4,700 individuals who are linguistically isolated and less likely to understand flood warnings. Additionally, a recent report estimated that four feet of SLR would cause daily flooding for nearly 28,000 socially vulnerable residents in the San Francisco Bay Area region.² Damage caused by erosion, although more incremental, may also displace or harm these same populations.

A number of different sources estimate beach visitation days in California. These estimates of annual beach visitation range from 150 million to more than 378 million beach visits.³ Visitors to California beaches spent over \$61 billion in 2001, of which approximately 36% was spent by out-of-state visitors. California’s beaches generate over \$15 billion annually in tax revenue. Two sectors of California’s ocean economy—tourism and recreation and marine transportation—are significant both at the state and national scale. A 2022 report explains

¹ Office for Coastal Management. NOAA. <https://coast.noaa.gov/states/california.html>.

² LAO. What Threat Does Sea-level Rise Pose to California? August 2020.

³ Pendleton, Linwood Kildow, Judith, 2006. The Non-Market Value of Beach Recreation in California. In: *Shore & Beach Shore* Vol. 74, No. 2, pp. 34-37

that tourism and recreation is the largest of California's six ocean-dependent sectors, accounting for 54% of the ocean economy's GDP (\$27.8 billion), 75% of the ocean economy's employment (449,000), and 52% of the ocean economy's wages (\$13.7 billion).⁴ Ensuring protection of California's beaches supports recreational opportunities, tourism, coastal access, public health and safety, wildlife habitat, and protects public property.

California DBW. DBW is responsible for planning, developing, and improving facilities on state-owned and state-managed waterways and coastlines (including those on State Parks and State Water Project properties) and providing local assistance grants and loans primarily to cities and counties for improvements to harbors and ports. DWB also provides financial aid and training to local law enforcement agencies, conducts invasive species control activities in the Delta, and operates beach erosion control and replacement programs. Additionally, DBW is involved in research on climate change and wave prediction as they relate to navigation and coastal protection. Funding for DWB is generated through state gas taxes, vessel registration fees, and loan proceeds through the Harbors and Watercraft Revolving Fund.

Wave-ing goodbye to California's beaches: Coastal erosion. Coastal erosion is the process by which local sea level rise, strong wave action, and coastal flooding wear down or carry away rocks, soils, and/or sands along the coast. All coastlines are affected by storms and other natural events that cause erosion; the combination of storm surge at high tide with additional effects from strong waves (conditions commonly associated with tropical storms) create the most damaging conditions. Projected impacts of climate change will accelerate sea level rise and coastal erosion, and likely make storms more frequent and powerful.

Estimates have indicated that around 85% of California's 1,120 miles of shoreline are actively eroding due to natural and anthropogenic causes (California has 840 miles of open ocean coastline and 1,120 miles of shoreline).⁵ Generally, natural sources of sediment (primarily from rivers and streams) supply against the constant coastal erosion, but dams and other flood control measures have decreased the natural sediment supply to the coast. Rivers are estimated to provide 70 to 90% of the beach-size material to the coast, with the remaining 10 to 30% of sand provided by gully, terrace, and bluff erosion.⁶

So erosion doesn't get out of sand. Historically, California has responded to coastal erosion and storms through beach replenishment projects and by building seawalls, bulkheads, revetments, and other armoring structures along the coast. While these "hard" structures intend to safeguard coastal communities, they offer only temporary protection, eventually accelerate long-term erosion and leaving homes and property at risk. When put on an eroding or retreating beach, these structures prevent coastal ecosystems from migrating inland and cut off sand movement and supply by preventing natural erosion processes—eventually causing the beach to narrow and disappear.^{7,8}

⁴ National Oceanic and Atmospheric Administration, Economics: National Ocean Watch (NOAA ENOW). 2022. Marine Economy Report. <https://coast.noaa.gov/data/digitalcoast/pdf/marine-economy-california.pdf>

⁵ Griggs, Gary. "California's Coastline: El Niño, Erosion and Protection, in California's Coastal Natural Hazards." Living with the Changing California Coast. 1998.

⁶ Bowen, A.J. and Inman, D.L., 1966. *Budget of littoral sands in the vicinity of Point Arguello, CA.* U.S. Army Coastal Engineering Research Center Tech. Memo. 19: 41pp.

⁷ Loughney Melius, Molly and Caldwell, Margaret. "2015 California Coastal Armoring Report: Managing Coastal Armoring and Climate Change Adaptation in the 21st Century." Environmental and Natural Resources Law &

Hard structural means of beach retention were common more than 50 years ago, but beach nourishment has become the preferred method in recent decades. Beach nourishment represents a “soft” method of shoreline stabilization. Beach nourishment or replenishment is the introductions of sand onto beaches to supplement diminished supply of natural sediment. Soft stabilization alternatives, such as sand or cobble beach fills, mimic nature and are intended to be dynamic, responding to changes in wave and current conditions. In the case of beach nourishment with sand, the dry beach may become narrow during winter storms and then recover much or all of its original width under milder summer wave conditions. Ideally, a beach nourishment project is designed so that this range of seasonal shoreline fluctuation remains within acceptable limits during the project design life. Ultimately, however, nourishment material is sacrificial in nature and will require periodic maintenance.

According to a 2003 study, 102 miles of the state’s coastline (10%) are presently armored; 58 miles (57%) of this armor lines coastal lowlands and dunes while the remaining 44 miles (43%) of armor protect sea cliffs.⁹ According to a 2002 report by DBW and SCC, it was estimated that the State of California needs to invest \$120 million in one-time beach nourishment costs and \$27 million in annual beach maintenance costs. Through cost-sharing partnerships with the U.S. Army Corps of Engineers, federal funding for these shoreline projects could reduce the state’s burden to \$42 million (65% reduction) and \$13.5 million (50% reduction) for restoration and maintenance costs, respectively.¹⁰

Beyond traditional hard and soft shore stabilization methods, living shorelines provide an innovative, cost-effective, nature-based method to ameliorate the climate risks related to coastal erosion, sea level rise, and ecosystem degradation. Living shorelines can stabilize the shore using a variety of structural and organic materials such as wetland plants, submerged aquatic vegetation, oyster reefs, sand fill, fiber, and stone. While stabilizing the shoreline and protecting public access to coastal resources, living shorelines also offer benefits including the protection of surrounding riparian and intertidal environment, the filtration of runoff and improvement of water quality, the creation of habitat for coastal species, and long-term cost savings. Living shoreline projects are being planned and implemented in Arcata, San Francisco, Newport, and San Diego by the State Coastal Conservancy. It is unclear if DWB funds living shorelines as a part of either its Shoreline Erosion Control or Public Restoration Programs.

Shoreline Erosion Control and Public Beach Restoration Programs. The general objective of these coastal erosion programs is to protect public safety along the California shoreline and reduce the public costs of shoreline erosion. The Shoreline Erosion Control Program can assist in the planning and construction of many types of beach erosion control and shoreline stabilization measures, including hard structures like seawalls (HNC § 65–67.4). This program can fund up to 50% of nonfederal project costs. The Public Beach Restoration

Policy Program, Stanford Law School. <http://law.stanford.edu/wp-content/uploads/2015/07/CalCoastArmor-FULL-REPORT-6.17.15.pdf>.

⁸ National Oceanic and Atmospheric Administration (NOAA). “Guidance for Considering the Use of Living Shorelines.” 2015. <http://www.habitat.noaa.gov/restoration/techniques/livingshorelines.html>

⁹ Kiki Runyan, & Griggs, G. B. (2003). The Effects of Armoring Seacliffs on the Natural Sand Supply to the Beaches of California. *Journal of Coastal Research*, 19(2), 336–347.

¹⁰ California Department of Boating and Waterways and State Coastal Conservancy, 2002. *California Beach Restoration Study*. Sacramento, California.

Program can assist in the planning and construction of engineered placement of sand on the beach or in the nearshore environment (HNC § 69.5–69.9). This program can fund up to 85% of nonfederal project costs at non-state beaches. Each individual projects must be approved through the state budget process.

Since 2013, an estimated 30 projects have been funded by these grants. Between 2013 and 2016, 19 projects were funded across both programs with a total of around \$7.6 million—primarily from the Harbors and Watercraft Revolving Fund. For the funding years between 2016 and 2022, 53 applications were received and 14 were funded across both programs. DBW actively recruits applicants and reasons for projects to ultimately not receive funding are myriad.

The 2002 California Beach Restoration Study. AB 64 (Duchney, Chapter 798, Statutes of 1999), established the California Public Beach Restoration Program that included a report to be completed by DBW and SCC detailing the restoration, nourishment, and enhancement activities undertaken through the program, evaluating the need for public beach restoration projects, the effectiveness of the program in addressing that need, and ways to increase natural sediment. This report, which was published in 2002, included content such as tracking sediment supply and the value of California’s beaches for economic benefits and tourism. The 2002 report concluded with recommendations to plan erosion control on a region-by-region basis because of the diversity of coastal environments, to remove or bypass dams to increase natural sedimentation, and develop a method to monitor projects including: develop an appropriate maintenance schedule, assess environmental impacts, and quantify the economic benefits of the project. The report concluded that it was too premature to evaluate projects funded through the Public Beach Restoration Program. No report from DBW, for this purpose, has been published since.

Other sediment and erosion reports:

Triennial Program Report, July 2018. The California Boating and Waterways Commission is required to prepare a report that addresses the status of any regulations adopted or being considered by DBW, and any loan or grant that has been or is being considered for a determination of eligibility. The latest report included a list of approved projects and funds granted through the DBW beach restoration programs. This report should be released every three years. The last report was published in 2018.

California Coastal Sediment Master Plan. DBW also funds ongoing project management for the Coastal Sediment Management Workgroup (CSMW), a federal/state partnership that works with local and regional governments to document coastal erosion issues and potential solutions. These collaborations usually involve cost-sharing between DBW and its partners; pooling financial resources to achieve common objectives. The Sediment Master Plan is a collaborative effort by CSMW to evaluate California's coastal sediment management needs and promote regional, system-wide solutions. This integrated approach to sediment management enables agencies to work together to leverage financial and intellectual resources. By developing regional sediment management support tools and through extensive outreach, the Sediment Master Plan provides coastal managers with information needed to address coastal erosion and excess sediment problems through beneficial reuse of sediment.

Safeguarding California: Reducing Climate Risk. In response to Executive Order S-13-08, California released the 2009 California Climate Adaptation Strategy, the state's first comprehensive plan for adapting to climate change. The report summarized the science on climate change impacts, assessed vulnerabilities, identified strategies, and outlined possible solutions to promote resiliency. The report has been updated in 2014 and again in 2018, identifying hundreds of ongoing actions and next steps by state agencies to adapt to climate impacts within a framework of 81 policy principles and recommendations. Currently, CNRA is working with the Office of Planning and Research and other state agencies to prepare the next iteration.

This report includes plans to reduce hazards and increase the resilience of coastal communities, infrastructure, development and other resources (Objective 1) and design and implement nature-based projects to protect and enhance the adaptive capacity of coastal and marine ecosystems including beaches and wetlands (Objective 2).

Programs that shore have a lot to say about beaches. The OPC is supporting the Coastal Storm Modeling System (CoSMoS), which makes detailed predictions of coastal inundation, storm-induced coastal flooding, erosion, and cliff failures over large geographic scales and can be used for to analyze future climate scenarios (sea level rise and storms). The SCC is leveraging OPC's investment in CoSMoS by supporting outreach workshops for local communities through the USC Sea Grant program.

University of California San Diego's Coastal Data Information Program (CDIP) provides ongoing beach change measurements and wave research, with funding contributed by California State Parks' DBW Oceanography Program. CDIP includes research projects on sea level rise facilities vulnerability and flood modeling, beach and cliff erosion, and tide, sea level, and coastal storm surge variability.

State Parks in partnership with the National Ocean and Atmospheric Administration, the National Parks Service, Native American Tribes, professional organizations like the Society for California Archaeology, and academic institutions like Sonoma State University has identified tools that would be needed to support SLR adaptation work, which also assesses erosion risk.

SCC's Climate Ready Program supports planning, project implementation and multi-agency coordination to advance actions that will increase the resilience of coastal communities and ecosystems. In 2009 SCC adopted a comprehensive Climate Change Policy that informs all aspects of its work and amended its Project Selection Criteria to ensure that all SCC projects are designed with climate change in mind. The Climate Ready Program helps natural resources and human communities along California's coast and San Francisco Bay adapt to the impacts of climate change, such as rising sea levels, beach and bluff erosion, extreme weather events, and many other climate hazards.

- 3) **Arguments in support.** The California Association of Realtors writes in support saying this bill will "facilitate thoughtful, long term planning efforts necessary to protect life and property from loss due to coastal erosion."

- 4) **Related legislation.** AB 64 (Duchney), Chapter 798, Statutes of 1999, established the California Public Beach Restoration Program that included a report to be completed by the DBW and SCC to detail a report detailing the restoration, nourishment, and enhancement activities undertaken through the program, evaluating the need for public beach restoration projects, the effectiveness of the program in addressing that need, and ways to increase natural sediment.

AB 1384 (Gabriel), Chapter 338, Statutes of 2022, updates requirements for Safeguarding California, both in the content of the plan and in the process to prepare the plan, to prioritize considerations of equity and the needs of vulnerable communities. It should be noted that the last update to Safeguarding California began to touch on issues of equity by including climate justice principles, but AB 1384 makes equity a bigger consideration. AB 1384 also requires the plan to include metrics to measure and evaluate the state's progress in implementing the plan.

REGISTERED SUPPORT / OPPOSITION:

Support

California Association of Realtors

Opposition

None on file

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