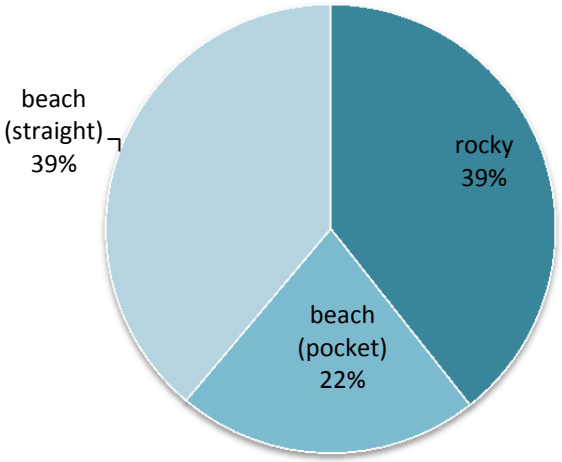
San Mateo County

Coastal Zone

San Mateo County includes 59 miles of shoreline and supports significant agricultural lands, a commercial fishing harbor, and major public access to parks, beaches and other recreational lands, substantial marine and other natural resource areas, and extensive scenic resources. The 98,000 acres (153 sq. miles) of terrestrial coastal zone area includes unincorporated San Mateo County lands and 3 incorporated cities: the Cities of Daly City, Pacifica and Half Moon Bay. San Mateo County has many popular coastal visitor destinations for millions of residents of the Bay Area. The rugged northern coast of the County through the suburban cities of Daly City and Pacifica contain rocky bluff tops and significant beach resources that provide important recreational opportunities but present significant hazards challenges. The City of Half Moon Bay supports urban development and services as well as wetland resources. South of the City of Half Moon Bay to the Santa Cruz County line, mountains drop down to rolling agricultural and grasslands on marine terraces, with redwood forests, oak woodland and chaparral found inland. This area includes the communities of San Gregorio and Pescadero, and contains significant access and recreation areas, agricultural resources, extensive scenic resources, and a major wetland feature, the Pescadero Marsh.

Outer Coast Shoreline



Coastal Zone Resources

Ports & Harbors: Princeton and Pillar Point Harbor
Publicly Owned/Accessible: 16,500 acres
Public Access Coastal Areas: 70 locations
CZ Wetlands: 3,100 acres

Ocean Economy

2013 County Ocean Sectors GDP	$1.4 B
2013 Major Ocean Economic Sectors	
Tourism and Recreation GDP	$1.3 B
Construction GDP	$0.028 B
Transportation GDP	$0.020 B

4%

of State Ocean Sector GDP

Source: National Ocean Economics Program, 2016

San Mateo's ocean sector gross domestic product (GDP) makes up 4% of the State's total ocean sector GDP. Bay Area residents contribute greatly to San Mateo County's GDP as 94% of the ocean economy comes from tourism and recreation dollars. Public access and natural resources are assets with the highest vulnerabilities in the county, making the extremely large ocean economy also vulnerable to rising sea levels.

San Mateo County

Hazards and Vulnerability

Through its Sea Change San Mateo County Program, the San Mateo County initiated a sea level rise vulnerability assessment as part of a long-term resilience strategy to ensure that communities, ecosystems, and the economy are prepared for risks from climate change and rising sea levels. San Mateo County has been identified as one of the most vulnerable regions of the Bay Area, especially to the risks associated with rising sea levels. The vulnerability assessment underway use the National Research Council's (NRC) west coast projections of 2-12 inches of sea level rise by 2030, 5-24 inches by 2050 and 17-66 inches by 2100.

Pacifica, photo by Lesley Ewing

Pacific coast Population at risk to 100yr Flood
4,700 = current risk|5,900 = future w/1.4m SLR
Source: Heberger et al., 2009

Sea Change San Mateo used Pacific Institute data to report that the county has $24 billion in assets at risk from sea level rise [1]. Transportation networks (such as Highway 1), communities in low lying areas (such as Le Mar Trailer Park), and bluff top communities (especially in Pacifica) have all been identified as vulnerable. Public access is highly vulnerable, especially at Surfer's Beach and along most of the shoreline of Half Moon Bay [1]. Wetlands and coastal habitats across the county are vulnerable to sea level rise.

There are gaps in vulnerability information for Daly City, which could be addressed by Sea Change San Mateo County efforts. One known problem area that would benefit from sea level rise planning is Thornton State Beach, currently closed due to cliff erosion threatening trails to the beach [2]. The City of Pacifica has many assets that are threatened by sea level rise and/or shoreline erosion, including historical assets (e.g., Dollaradio), residential development and multi-unit housing complexes (e.g., bluff edge development along Esplanade Avenue), public access visitor-serving and recreational assets (e.g., RV resorts, parking lots, and trails), public infrastructure (e.g., Beach Boulevard/roads, and outfalls), and natural habitats (e.g., wetlands, creeks, and beaches) [2]. Many of these assets already experience the effects of sea level rise through erosion, flooding, and habitat loss. Additional study is needed to assess risks of critical public infrastructure assets like the wastewater treatment and water recycling plant at Calera Creek.

Potential Pacific coast Bluff Erosion Risk w/ 1.4m SLR
1,900 properties | 2,900 people
Source: Heberger et al., 2009, County parcel data

In and around Half Moon Bay, many natural resources are vulnerable to sea level rise. Coastal trails are already disappearing, beaches are vulnerable, and erosion also threatens riparian corridors, associated wetlands, and public access locations [2]. Many important beaches like Surfer's Beach, Maverick's Beach, and Martin's Beach have been identified as vulnerable to erosion and eventual beach loss with sea level rise [2,3]. Many of the accessways (such as trails, stairways, and parking lots) to these and other beaches are already experiencing problems that will be exacerbated with rising sea levels. Pescadero Marsh and Highway 1 are also vulnerable in the southern part of the county [2, 3].

San Mateo County

LCP and Sea Level Rise Planning

Local Coastal Programs (LCPs) are planning tools used by local governments to guide development in the coastal zone, in partnership with the Coastal Commission. LCPs specify the appropriate location, type, and scale of new or changed uses of land and water and include a land use plan and measures to implement the plan (such as zoning ordinances). The Coastal Commission has awarded three rounds of the Local Assistance Grant Program to support certification and updates of LCPs, with an emphasis on addressing the impacts of climate change, since January 2014. Within this county, the Cities of Pacifica (Round 3) and Half Moon Bay (Rounds 1 and 3) have been awarded grants from the Coastal Commission to address the impacts of sea level rise within their LCP jurisdictions. Table 1 below shows whether jurisdictions have LCPs that address sea level rise. “In progress" refers to jurisdictions with LCP grants for addressing sea level rise.

Table 1. LCP Planning in San Mateo County (as of Dec. 2016)

Jurisdiction/Segment	Certified LCP?	Grant?	Vulnerability Assessment?	Updated for SLR?	Shoreline by Jurisdiction
San Mateo County	1981	No	In progress [1]	No	73%
City of Daly City	1984	No	No	No	5%
City of Pacifica	1984	CCC	In Progress	In Progress	10%
City of Half Moon Bay	1996	OPC, CCC	Yes [3]	In Progress	10%
Federal Lands and Ports					<2%

Coastal Act Management Priorities

San Mateo County’s Pacific coast faces multiple sea level rise vulnerabilities especially for public access, visitor-serving and recreational resources. Public infrastructure (including Highway 1) and natural resources are also vulnerable to sea level rise.

Public Access and Recreation (Coastal Act Sections 30210, 30211, 30213, 30220, 30221)
One of the highest priorities in the Coastal Act is the mandate to protect and maximize public access to the coast. Sea level rise in San Mateo County could lead to a loss of public access and recreational opportunities due to permanent inundation, episodic flooding or erosion of beaches, recreational areas, and trails. More recently, emergency situations have required coastal armoring in threatened areas, much of which has the potential to interfere with sandy beach access by taking up beach real estate and lessening sand supply. Priority areas for addressing sea level rise impacts on access include Beach Boulevard and the Sharp Park area in the City of Pacifica, Highway 1 and the Coastside Trail at Surfer's Beach, and Perched Beach at Pillar Point Harbor in Princeton-by-the-Sea. Planning for the West Trail at Pillar Point Harbor and the CCT at Mirada Road in Half Moon Bay is also a priority.

Coastal Habitats, ESHA, and Wetlands (Coastal Act Sections 30230, 30231, 30233, 30240)
Inundation from flooding and increased erosion from sea level rise could convert habitats from one type to another and generally reduce the amount of nearshore habitat, such as sandy beaches and rocky intertidal areas. Planning for the migration of sandy beaches and tidal salt marsh (e.g., Pillar Point Marsh and Pescadero Marsh) should also be a county priority. There is also a need for collaboration with State Parks to understand potential vulnerabilities at state beaches and how threats might be addressed in the future.

San Mateo County

Coastal Development and Hazards (Coastal Act Sections 30235, 30236, 30250, 30253)

Pacifica has experienced significant bluff erosion over time. Most recently in early 2016, erosion induced by higher seas resulted in emergency evacuations for blufftop development with insufficient setbacks from the bluff edge. The old landfill at Mussel Rock in Daly City is also threatened and the city is required by the Coastal Commission to devise a long-term managed retreat plan. Consequently, assessing the feasibility of various adaptation approaches for blufftop residential development and the supporting public infrastructure should be a high priority. A feasibility analysis of adaptation options could include evaluating the costs and benefits of managed retreat or removal for blufftop structures against more traditional protection options like shoreline armoring. While sea level rise impact projections and data are available for much of the county, a significant data gap exists south of Half Moon Bay for coverage by more dynamic and robust sea level rise modeling tools (i.e., CoSMoS). The county might consider conducting a targeted vulnerability assessment of potential assets in this area (especially for Daly City).

Additional Considerations

- As many communities in San Mateo face beach loss with sea level rise, accounting for natural resource benefits and value in exploring adaptation strategies should be considered.
- Threats to public access and critical infrastructure (such as Highway 1 at Surfer's Beach in Half Moon Bay) exemplify the importance of multi-agency collaboration and coordination to develop feasible adaptation solutions to minimize/avoid hazards while protecting coastal resources like wetlands and other natural habitats.

References

[1] San Mateo County. 2015. "San Mateo County Sea Level Rise Vulnerability Assessment."

[2] California Coastal Commission North Central Coast District Staff Interview. May 26, 2016.

[3] Noble Consultants Inc. and Dyett & Bhatia. 2016. "Plan Half Moon Bay Sea Level Rise Vulnerability Assessment."