San Diego sea level has risen by nearly 1 ft since 1906.
Establish observing capabilities now to better understand future risks.
Extremes become more extreme
Chronic tidal flooding
Saltwater Inundation
Higher water tables impede drainage
Damage to coastal infrastructure
Increased beach and cliff erosion
Stress on wetlands and coastal ecosystems
ADAPTIVE PATHWAYS

**Action A**
- Transfer station to new policy action
- Adaptation Tipping Point of a policy action (Terminal)
- Policy action effective

**Action B**
- Signal

**Action C**
- Decision node

**Action D**

Changing conditions

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<th>Benefits</th>
<th>Co-benefits</th>
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**Time horizon 100 years**

Pathways that are not necessary in the low-end scenario

Jayantha Obeysekera
Monitoring:
- Wave heights and period
- Currents/wave directions
- Wave run-up
- Tides
- Location, duration and depth of flooding during events
- Groundwater elevation changes & salinity
- Beach width changes
Historic Flooding Events

2018

2016

March 8, 2016

Jan. 12, 2016

Total Water Level: Seacoast Dr. 12/12/2015

Photos taken around 6:30am PST
EXTREME TOTAL WATER LEVELS – EXAMPLE IMPERIAL BEACH
SAN DIEGO BAY
OBSERVATIONS TO TRACK FOR FLOOD RISK AND MODEL SEA LEVEL RISE

Waves & Circulation: Sea and swell models + circulation models

Water levels: How various locations around the Bay response to tides/waves

Winds: wind-driven waves

Land elevation: sea levels rising or subsiding

Groundwater

Shoreline/beach changes

https://cdip.ucsd.edu/?nav=recent&sub=nowcast&units=metric&tz=UTC&pub=public
San Diego Airport Flood Alert and Sea Level Rise Network

A state-of-the-art coastal observational network to track and forecast flooding events and sea level rise at the San Diego International Airport Authority, California.
OTHER MONITORING APPLICATIONS FOR SAN DIEGO BAY

Beach Erosion

Sand Replenishment

Inform Ocean Planning and Maritime Operations

Living Shorelines

https://www.conservationgateway.org
VALIDATION INFORMATION FOR SLR TOOLS

https://coast.noaa.gov/slr/


https://cal-adapt.org/tools/slr-calflood-3d/
A MODERNIZED COASTAL SEA LEVEL OBSERVING SYSTEM WILL PROVIDE...

- forecasts for today’s inundation threats
- understanding of the drivers of flooding and their joint probabilities
- framework for adaptation triggers
- testbed for model development
- means to evaluate adaptation projects
- context for SLR projections