

Bay Area King Tide Photo Initiative: Preview Sea Level Rise with Upcoming Winter “King Tides”

Seasonal high tides occurring within the San Francisco Bay and along the outer coast on January 19th and 20th and February 16th to 18th will provide a preview of what residents might experience regularly in the future as a result of rising sea levels.

INTRODUCTION

King Tides (also known as perigean spring tides) are extreme high tide events that occur when the sun and moon’s gravitation forces reinforce one another at times of the year when the moon is closest to the earth. They happen twice a year, but they are typically more dramatic during the winter.

While tides are not affected by climate change, the climate and weather do influence coastal sea levels through storm surges, the El Niño/La Niña-Southern Oscillation (ENSO) and Pacific Decadal Oscillation (PDO) cycles and other factors. When combined with high tides (especially King Tides) these conditions can cause widespread damage due to flooding and erosion, a risk that will increase with sea level rise.

HOW TO PARTICIPATE

You are invited to share photographs of areas that are known to flood and erode and / or areas where the high water levels can be gauged against sea walls, jetties, bridge supports, dikes, buildings or other coastal infrastructure around the Bay Area. Members of the public who photograph these high tide events along beaches, roads, parks and estuaries are invited to submit their images to a [Flickr site](#) maintained by the San Francisco Bay National Estuarine Research Reserve (NERR). The NERR and its partners are interested in using the images to document the coastal impacts Bay Area residents are likely to face with increasing frequency as sea level continues to rise. "Before and after" pictures showing average water levels and the extreme high water levels for the same location will be particularly useful.

Submission details: Please include your contact information and geographically reference the photos with specific locations (GPS position, if possible), orientation, date and time of day. Consider what kind of licensing to add to your photos. We suggest the ["Attribution-NonCommercial-ShareAlike License."](#) This license will allow us to feature your photography in presentations, websites, publications, etc.

WHEN IS THE BEST TIME TO TAKE PICTURES?

High-tide events will vary by location around the Bay Area. NOAA provides detailed information on tide heights and timing, although these can vary significantly depending on weather conditions. Visit [NOAA’s tide prediction website](#) for complete information on upcoming high-tide events around the state. A selection of some local tide predictions around the Bay Area are listed in the table below. The [National](#)

[Weather Service](#) provides local weather conditions.

HOW WILL THE PHOTOS BE USED?

The photographs and associated information will be used to create a map that will catalog coastal areas that are currently affected by extreme water levels. A report containing a selection of the submissions will be available after the event. Photos may be used in presentations, websites and publications on sea level rise impacts, coastal initiatives and climate action.

CLIMATE CHANGE, SEA LEVEL RISE AND THE KING TIDE

Increases in global sea levels have been recorded by NOAA tide gauges for many years, and more recent observations have been collected by NASA satellites. The steady rise has been attributed to both a warming of the oceans and contributions from melting glaciers and land-based ice sheets. Climate modeling combined with these direct observations suggest sea level rise will continue well into the future with significant implications for the Bay Area's shoreline. [Analyses](#) conducted by BCDC show that increases in sea level in San Francisco Bay could be as high as 16 inches by mid-century, with upper estimates of more than 55 inches of rise by 2100.

Understanding the future impacts from sea level rise and creating tools and information to assist local governments and California citizens is a priority for BCDC and federal partners at the NOAA Coastal Services Center, Gulf of the Farallones National Marine Sanctuary, California Coastal Commission and the San Francisco Bay NERR. For additional information on Bay Area climate change impacts, preparation, and adaptation please see

http://www.bcdc.ca.gov/planning/climate_change/climate_change.shtml.

FOR MORE INFORMATION

E-mail us at sfbaynerr@gmail.com

Find us on Flickr at <http://www.flickr.com/groups/bayareakingtides/>

Find us on the web at www.sfbaynerr.org/ctp/KingTides/



NOAA Coastal Services Center
LINKING PEOPLE, INFORMATION, AND TECHNOLOGY



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KING TIDE PREDICTIONS FOR SAN FRANCISCO BAY AREA

This table only includes a sample of San Francisco Bay Area and coastal locations with tide information. If your location is not included in the table, you can access a comprehensive list at the [NOAA Tides and Currents](#) link below.

[NOAA Tides and Currents](#)

	19-Jan	20-Jan	16-Feb	17-Feb	18-Feb
California	Tide height (ft) / time				
Alameda	7.5 10:55a	7.5 11:44a	7.2 9:54a	7.3 10:46a	7.2 11:48a
San Francisco	6.8 10:24a	6.8 11:13a	6.6 9:23a	6.6 10:15a	6.5 11:07a
Hunters Point	7.8 10:49a	7.8 11:39a	7.5 9:48a	7.6 10:40a	7.5 11:33a
San Leandro Marina	8.3 11:20a	8.3 12:08a	8.0 10:15a	8.1 11:08a	8.0 12:01p
San Mateo Bridge	8.7 11:18a	8.7 12:07p	8.4 10:17a	8.6 11:10a	8.5 12:02p
Redwood City	9.3 11:25a	9.3 12:15p	9.0 10:24a	9.1 11:17a	9.1 12:10p
Dumbarton Bridge	9.6 11:35a	9.6 12:25p	9.3 10:34a	9.5 11:27a	9.4 12:20p
Coyote Creek	10.8 7:56p	11.0 8:45p	10.0 6:51p	10.3 7:48p	10.4 8:40p
Richmond	7.1 10:45a	7.0 11:33a	6.7 9:46a	6.8 10:37a	6.7 11:29a
Mare Island	6.7 11:55a	6.7 12:44p	6.3 10:56a	6.4 11:48a	6.4 12:41p
Port Chicago	5.8 12:49p	5.7 1:40p	5.6 11:52a	5.6 12:45p	5.5 1:38p
Bradmoor Island	6.4 1:15p	6.3 2:01p	6.2 12:13p	6.2 1:04p	6.1 1:54p
Antioch	4.7 1:39p	4.6 2:28p	4.6 12:43p	4.6 1:34p	4.4 2:26p
Point Reyes	6.9 9:32a	6.8 10:20a	6.5 8:32a	6.6 9:23a	6.5 10:14a
Ocean Beach	6.9 9:35a	6.9 10:24a	6.7 8:34a	6.7 9:26a	6.6 10:18a
Bolinas Lagoon	4.8 10:15a	4.8 11:03a	4.6 9:14a	4.6 10:06a	4.5 10:57a
Marshall, Tomales Bay	6.2 11:03a	6.2 11:51a	6.0 10:02a	6.0 10:54a	5.9 11:45a
Santa Cruz, Monterey Bay	6.2 9:05a	6.1 9:51a	5.9 8:06a	5.9 8:55a	5.8 9:45a