



California King Tides Photo Initiative FAQ's

Coastal Terminology

- 1. What are tides?** Tides are very long-period waves that move through the ocean in response to the forces exerted by the moon and sun.
- 2. What is a king tide?** Scientists and practitioners have varying understandings of what constitutes a “king tide,” and of when and how the term should be used. The California King Tides Photo Initiative uses the term to refer to an extreme high tide event that occurs when the sun and moon’s gravitational forces reinforce one another. King tides tend to be more dramatic in the winter when storms cause increased wind and wave activity along the coast.
- 3. What are the differences between all the terms describing high tides?**
 - A **100-year tide** is the maximum high tide level that has occurred over a period of 100 years.
 - A **storm surge** is a temporary increase in ocean and estuary water levels associated with storm conditions that are caused by the combination of low barometric pressure and winds blowing onshore or alongshore, causing water to ‘pile up’ against the coast.
 - The **Mean Higher High Water (MHHW)** is the average of the elevations of the higher of the two daily high tides over a specific 19-year period.
- 4. Will my city’s coastline flood during king tides?** Not necessarily. Although some areas of the coast are prone to flooding and king tides combined with winter storms or storm surges can lead to flooding. Check the California King Tides Flickr page to view a list of coastal areas that experienced flooding during the 2011 king tides events.

King Tides & Climate Change

- 1. What causes sea levels to rise?** The two primary processes that lead to sea level rise are the increase of ocean temperature, which leads to thermal expansion, and the melting of mountain glaciers and large land-based ice sheets, which add fresh water to the ocean.
- 2. Are sea levels rising?** Yes. Global average sea level estimates from the past 100 years indicate that the average sea level has risen by 8 inches, and that the rate of sea level rise may have increased in the past twenty years (IPCC 2007, Ablain et al. 2009).
- 3. How much sea level rise is expected for the California coast in the next 40 to 90 years?** Relative to sea level in 2000, sea level rise projections for the state of California range from 10 to 17 inches (about one foot) by 2050 and 31 to 69 inches (three to five feet) by 2100. See <http://cal-adapt.org/>.
- 4. What is the relationship between king tides and climate change?** It is important to understand that tides, including king tide events, are not caused by climate change. King tides are a naturally occurring phenomena caused by the sun and moon’s gravitational forces. The purpose of the California King Tides Photo Initiative, however, is to encourage the public to use king tides events as an opportunity to think about and visualize how inundation and flooding from projected sea level rise will impact the coast.

5. **What are the potential impacts of a 3 foot increase in sea level (the conservative estimate projected sea level rise by 2100)?** An estimated 480,000 people and \$100 billion worth of property in California—approximately half of which are located in the San Francisco Bay Area—are potentially vulnerable to sea level rise which can be exacerbated by changes in precipitation and extreme weather events. Sea level rise is expected to have the following negative consequences for shoreline communities and ecosystems:
- Permanent or periodic inundation of low-lying areas
 - Increase in coastal flooding during extreme storms and high tides
 - Increase in erosion rates and shoreline recession in erosion-prone areas
 - Loss of coastal wetlands
 - Erosion of some barrier dunes, exposing previously protected areas to flooding
 - Movement of saltwater into storm water systems and groundwater basins

About the California King Tides Initiative

1. **Where can I take photos?** You can take photos anywhere along the California coastline. We recommend taking photos of coastal areas that are subject to flooding and erosion, or areas where high water levels can be gauged against familiar landmarks such as buildings, jetties, bridge supports, sea walls and dikes. Some areas prone to flooding include beaches, roads, parks, piers, and estuary shorelines. If you can, take “before and after” photos showing average water levels and the extreme high water levels for the same location. Check the California King Tides Flickr page for the best king tides viewing areas.
2. **How do I know when a King Tide will occur?** The tide schedule shows when extreme high tides will occur. For California, king tides are scheduled to occur in the 2011- 2012 winter over the following dates: Dec 23-24, Jan 21-22, and Feb 6-8.
3. **How can I get my group involved?** All you need to get involved is a camera and access to the coastline, bay, or other tidally influenced areas. Grab your camera and friends and take photos during the time when the tide is highest on Dec 23-24, Jan 21-22, and Feb 6-8. If you would like assistance organizing a group, please contact cakingtides@gmail.com and check out our website, <http://californiakingtides.org>.
4. **How do I upload photos?** Go to the [California King Tides Flickr group](#) to upload photos. Local Flickr groups also exist in the San Francisco Bay Area, and areas of Southern California, and are linked to the main Flickr page. Please include your contact information and geographically reference the photos with specific locations (GPS position, if possible), orientation, date and time of day. We suggest the [Attribution-Non Commercial-Share Alike License](#). This license will allow us to feature your photography in websites, publications, etc.
5. **I’m doing a presentation. Can I use the photos in my report?** Yes, we would love for you to use the photos in your report! The photos are publicly available on the [California King Tides Flickr group](#) and can be downloaded according to the rights assigned to each photo.
6. **What is done with the photos?** 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.
7. **How can the media cover king tides events, the Initiative, and climate adaptation issues?** Media inquiries should be directed to cakingtides@gmail.com. The photos on the [California King Tides Flickr group](#) are available for use by the media. Please be sure to give credit to the photographer and to let us know if you have questions about the Initiative. You can get more information at californiakingtides.org.