

29 May 2008

SUBJECT: Winter 08-09 Extreme Tide Analysis

The following two tables are a basic comparison of the predicted winter high tides (September 08 thru April 09) for eight coastal locations around Whidbey and Camano Islands. Like last year, the comparison is made between the high tide predictions from “www. Saltwatertides.com” and the predicted tides for 4 February 2006 (Super Bowl Windstorm) referred to as the reference tides.

TABLE 1 lists the eight locations and all the dates on which the predicted tides will equal or exceed the reference tides. TABLE 2 lists those dates on which predicted tides will exceed the reference tides. It also shows the maximum predicted tide level for that period. The TABLE 2 dates will have a higher likelihood of producing floods and beach erosion.

It should be remembered that none of these tides by themselves would produce flooding or other damage unless combined with a strong on-shore wind. The February 2006 storm was such an occasion with an extreme high tide and 30-45 MPH sustained winds - peaking at almost the same time. While this near perfect coincidence is rare, winds and a moderate high tide on 20 December 2007 produced enough of a storm surge to push water across roads on the west coast of Whidbey Island. Data from the National Weather Service indicates that a sustained wind across water may raise water levels. The following chart is provided for illustration. The wind speed is in knots.

<b>HOURS</b>	3	6	9	12	18+
<b>Speed</b>					
15kt	2 Ft	2	3	3	3 Ft
20 kt	3	4	4	4	4
25 kt	4	5	6	6	6
30 kt	5	7	7	7	7
35 kt	7	9	9	9	9
40 kt	9 Ft	10	10	10	10 Ft

Based on wind over water for 35 nautical miles

The information presented is meant only to be a guide to recognizing dates and locations of increased risk for tidal flooding and shoreline damage. Other risk factors may also increase the potential for tidal flooding and those should be included in any storm preparation decisions.

Finally, Annex B, Severe Weather response Plan – Storm Plan to the Island County CEMP was issued in January 2008. This plan includes information related to preparation and response to severe weather.

Questions and Comments related to this information should be addressed to Island County DEM at [dem@co.island.wa.us](mailto:dem@co.island.wa.us)

**TABLE 1** All dates forecasted to **EQUAL** or **EXCEED** February 2006 storm tides

Location	Admiralty Head	Bush Point	Coupeville Penn Cove	Crescent Harbor	Glendale	Hansville*	Sandy Point	Stanwood-Stilligumish
Reference Tide in Feet	9.7	10.6	12.5	12.8	11.9	11.8	12.2	7.6
<b>Month</b>	<b>Days in Month</b>							
<b>Sept 08</b>								
<b>Oct 08</b>								
<b>Nov 08</b>	15-16	15-16	15, 16	13-18	14-17		14-18	
<b>Dec 08</b>	13-17	15-18, 26, 27	12-19, 30-31	10-17, 26-31	12-19, 27-31	13-17	10-19, 26-31	1, 8, 9, 12-20, 25-31
<b>Jan 09</b>	11-15	10-16	1-2, 10-17, 29-31	1-4, 10-17, 28-31	1-3, 10-17, 28-30	11 16	1-4, 10-16, 28-31	1-5, 10-17, 26-31
<b>Feb 09</b>			9-13	1, 8-14	1, 8-14	10-15	1, 8-14	1, 2, 8-14, 27, 28
<b>Mar 09</b>				11, 12			11, 12	10-13

\* Hansville is the nearest tide reporting station to Double Bluff and Mutiny Bay. Hansville is on Kitsap Peninsula, south of Double Bluff Point

TABLE 1 lists the locations where extreme high tide levels were measured and where tidal flooding damage occurred in February of 2006. The "Reference Tide" levels are the extreme high tides measured on 4 Feb 2006. The tides that day resulted in flooding due to the wind induced "storm surge" which added height to the extreme high tide. The sustained high wind probably added 2-3 feet of additional height to the predicted tide level.

**TABLE 2** Dates and locations when predicted high tides will **EXCEED** the reference high tide levels.

Location	Admiralty Head	Bush Point	Coupeville Penn Cove	Crescent Harbor	Glendale	Hansville*	Sandy Point	Stanwood Stilligumish
Reference Tide in Feet	9.7	10.6	12.5	12.8	11.9	11.8	12.2	7.6
<b>Month</b>	<b>Days of Month</b>							
<b>Sept 08</b>								
<b>Oct 08</b>								
<b>Nov 08</b>		15, 16 10.7	15 12.6	13 12.9	15, 16 12.1		15, 16 12.4	
<b>Dec 08</b>	14-16 9.8	15-17 10.9	13-18 13.0	13-19 13.3	12-18 12.5	14, 15 11.9	12-18 12.8	12-18 8.0
<b>Jan 09</b>	12-14 9.8	11-15 10.9	10-17 13.2	10-17 13.5	10-16, 30 12.7	12-15 12.1	10-16 13.0	10-17 8.1
<b>Feb 09</b>			9-13 12.9	9-14 13.2	9-13 12.4		9-13 12.7	9-13 7.9
<b>Mar 09</b>								

\* Hansville is the nearest tide reporting station to Double Bluff and Useless Bay. Hansville is on Kitsap Peninsula, due south of Double bluff

TABLE 2 indicates those locations and dates when the predicted high tide is expected to exceed the “Reference Tide” levels. The result is a greater risk of tidal flooding if there is a coinciding strong on-shore wind. Again, these tide levels alone will not cause tidal flooding. Also listed with each set of dates is the maximum predicted tide for those dates. Please remember that days on either side of the dates shown may have a significant tide level as the tides build and subside from the peak dates.