

**Ocean Grove Emergency Group  
Hazard Report HZ-1a**

## **DAMAGING WINDS<sup>1</sup>**

### **SUMMARY**

**The Hazard:** Damaging winds are a result of an atmospheric disturbance manifested in strong winds, tornadoes, rain, snow, or other precipitation, and often accompanied by thunder or lightning. The National Weather Service defines high winds as sustained winds of 40 mph or gusts of 58 mph or greater, not caused by thunderstorms, expected to last for an hour or more. Areas most vulnerable to high winds are those affected by a strong pressure difference from deep storms originating over the Pacific Ocean; an outbreak of very cold, Arctic air originating over Canada.

**Previous Occurrences:** *October 12, 1962 – The Columbus Day Wind Storm<sup>2,3</sup>*

The top weather event in Washington during the 20th Century, according to the National Weather Service, Seattle Forecast Office.

This storm is the greatest windstorm to hit the Northwest since weather recordkeeping began in the 19th century, and called the “mother of all wind storms” in the 1900s. All windstorms in the Northwest are compared to this one.

The Columbus Day Storm was the strongest widespread non-tropical windstorm to strike the continental U.S. during the 20th century, affecting an area from northern California to British Columbia.

The storm claimed seven lives in Washington State; 46 died throughout the impacted region. One million homes lost power. More than 50,000 homes were damaged. Total property damage in the region was estimated at \$235 million (1962 dollars). The storm blew down 15 billion board feet of timber worth \$750 million (1962 dollars); this is more than three times the timber blown down by the May 1980 eruption of Mount St. Helens, and enough wood to replace every home in the state.

Highest recorded wind speeds (before power went out at recording stations):

Naselle, Washington Coast – gust to 160 mph.

Bellingham and Vancouver – gusts of 113 mph.

Renton – gust of 100 mph.

Tacoma – gust of 88 mph

**Probability of Future Events:** High – Jefferson County experiences damaging winds every year during the storm season from October to April. Storms have been so severe in recent years that Presidential Disaster Declarations were issued to include Jefferson County in 2007, 2008, 2009, and 2011. In 2012, a

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<sup>1</sup> Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan (Rev. 2009), “Damaging Winds,” pp. 100-101.

<sup>2</sup> Chris Hill et al., *Top Ten 20th Century Weather Events In Washington State*, National Weather Service, Seattle Forecast Office, December 1999, <http://www.wrh.noaa.gov/pqr/paststorms/washington10.php> (25 March 2010).

<sup>3</sup> Eric Sorensen, *Columbus Day 1962, Memories of Storm That Roared Still Vivid*, Seattle Times, October 6, 2002.

Disaster Declaration was issued for all of the counties surrounding Jefferson County, but not Jefferson County itself.



*2012 Presidential Disaster Declaration for Severe Storms in Washington Counties<sup>4</sup>*

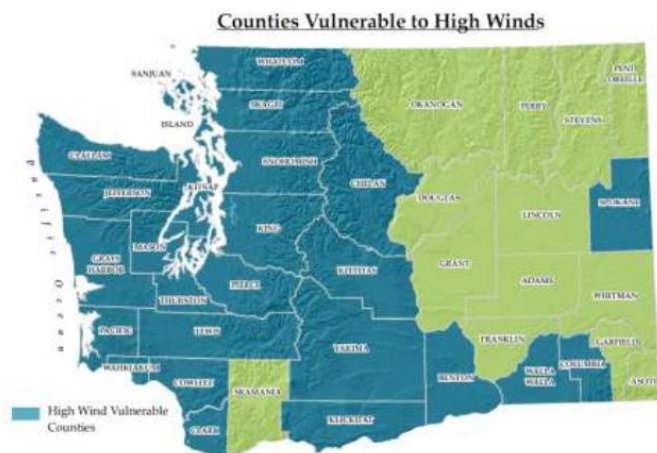
## HAZARD IDENTIFICATION AND VULNERABILITY ASSESSMENT

The Washington State Hazard Mitigation Plan identifies the probability of a severe windstorm in Jefferson County as high or at 125% - intending to mean that the county is certain to experience one or more severe windstorms every year.

Most storms move into Washington from the Pacific Ocean with a southwest to northeast airflow. Maritime air reaching the Olympic Mountains rises upwards and cools. As this airflow reaches higher elevations and cools, there is less ability to hold moisture and precipitation occurs. Impacts and effects include loss of life damage to homes, businesses and critical transportation infrastructure; loss of timber resources; delays in emergency responses; damage or loss of recreation facilities; disruption of utilities; loss of jobs due to damaged equipment and facilities; school closures and business closures resulting in economic impacts.

Jefferson County is subject to several severe local storms each year. These storms have included high wind, snow, ice, rain, and hail. Snowstorms or blizzards are the most likely and potentially devastating phenomena, with the ability to isolate people from emergency services and to interrupt utility services and other lifelines. In 1996-1997, snowstorms were also associated with other natural hazards such as flooding and landslides. Figure DW-1 shows the vulnerability of Washington counties to severe wind storms.<sup>5</sup>

**Figure DW-1: Wind Storm Risk in Washington State**



<sup>4</sup> <http://www.fema.gov/disaster/4056>

<sup>5</sup> Washington State Hazard Mitigation Plan, Tab 5.7, October 2010, p. 13

## **OCEAN GROVE**

Ocean Grove is protected geographically by the Olympic Mountains and by Hurricane Ridge, in particular. On September 29, 2013, for example, Hurricane Ridge recorded an 85 mph wind gust, while the highest in the area was 64 mph at the paper mill. The direction that a wind storm comes from plays a significant role in its threat to Ocean Grove. Most often storms will sweep around the Olympics and hit the Puget Sound area from the South. As these storms move, their counter-clockwise winds can sweep around and down the strait from the ocean, giving them a straight shot at Ocean Grove. The key is to watch Tatoosh Island off the coast of Washington. If a storm center hits Tatoosh, Ocean Grove will likely get heavy winds. The September 29 storm was modeled to hit this area with 75 mph gusts, but veered into Vancouver Island and reduced its effect on Ocean Grove.

## **CONCLUSION**

Damaging windstorms are a fact of life in Jefferson County, which experiences multiple severe storms every year. The Department of Emergency Management meets with the Public Utility District, and the city and county public works departments for pre-storm season planning and coordination. The civilian population should be encouraged to have a “storm kit” to be able to sustain themselves for multiple days without power for heating and cooking in the event a severe storm causes power outages.

As a matter of policy, the Jefferson County Department of Emergency Management will activate the Emergency Operations Center whenever forecasts indicate sustained or gusts of wind at 75 mph or higher. This is intended to prepare to coordinate multiple agencies dealing with downed trees, road closures, power outages, etc. in East Jefferson County and especially along the Pacific coastal region, which gets the brunt of wind storms.