

AVIATION FORECASTS AND OBSERVATIONS

Our forecasters produce aviation forecasts for general aviation purposes including flight planning and in-route operations. The Terminal Aviation Forecast (TAF) provides a concise 24-hour forecast for significant weather conditions that affect aviation operations within 5 statute miles of an airport. Forecasted weather elements include cloud cover amount, cloud ceilings, visibility, precipitation type and intensity, and wind direction and speed. In addition, our Area Forecast Discussion (AFD), includes an aviation specific section that addresses the overall weather pattern and concerns geared towards the aviation community. A sub-section addresses Sea-Tac airport to directly speak to those using the Pacific Northwest's aviation hub. The AFD is updated 4 times daily.

At the Seattle WFO, we prepare TAFs for the following terminals:

TAFs (airports)	METARs
Bellingham	KBLI
Boeing Field	KBFI
Everett	KPAE
Hoquiam	KHQM
Olympia	KOLM
Port Angeles	KCLM
Seattle-Tacoma	KSEA

Aviators not only rely on our forecasts, they use Meteorological Aviation Reports (METAR) to find out specific weather information at an airport for their operations. An observing system called Automated System Observation System (ASOS) or a trained weather observer produces observations once an hour or more frequently during rapidly changing weather events. Pilots can use radio signals to obtain data directly from the observing system at the end of the runway. The ASOS unit measures the following weather elements:

METAR Observation Elements	
Wind Velocity (speed and direction)	Temperature
Visibility	Dew Point Temperature
Weather Conditions and Obscurations	Altimeter (atmospheric pressure)
Sky Cloud Cover	Precipitation

MARINE FORECASTS

WFO Seattle is responsible for all marine forecasts and warnings for the north and central Washington coast from Cape Flattery to Cape Shoalwater out to 60 nm. WFO Seattle is also responsible for forecasts and warnings for the inland waterways of Western Washington which include the Strait of Juan de Fuca, Admiralty Inlet, Northern Island Waters from Camano Island to Point Roberts, and Puget Sound / Hood Canal. Our marine forecasts are designed to serve a wide variety of mariners, ranging from crews of the large ocean-going vessels to fishermen and recreational boaters.

Spot forecasts for a particular point or coordinate, are available for marine areas along the same vein as fire weather spot forecasts over land areas. These detailed marine forecasts can be used for a variety of purposes at specific points, such as NOAA Hazmat Teams working at wreck sites and by the U.S. Coast Guard operations.

When significant weather conditions occur, special advisories and warnings are issued which address the potentially dangerous and damaging sea conditions offshore as well as near the coast. The watches, warnings, and advisories are listed below.

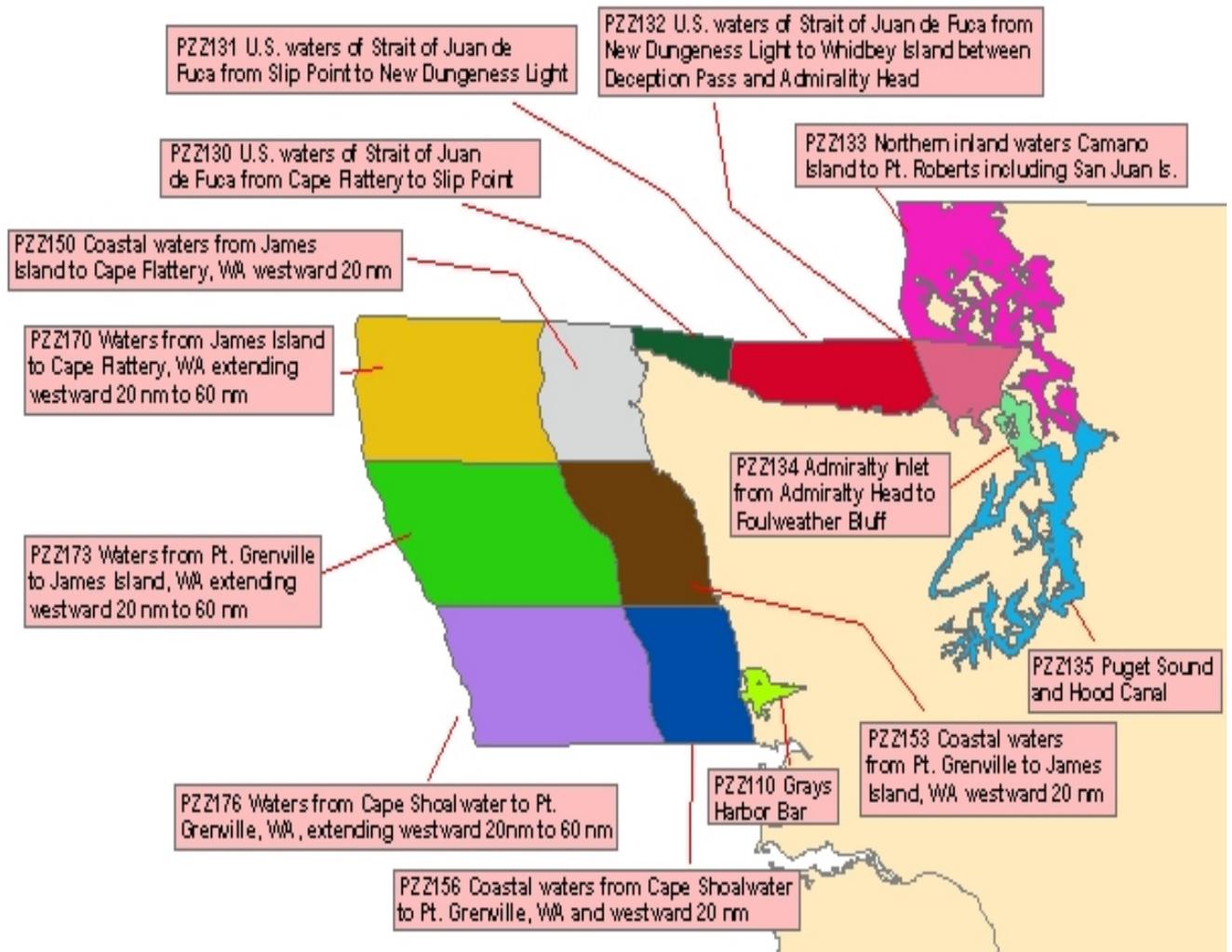
ADVISORIES	CRITERIA
HIGH SURF ADVISORY	Large waves breaking in the surf zone with sufficient energy to erode beaches, move large logs, and wash over jetties or exposed rocks
TIDAL OVERFLOW ADVISORY	Flooding of low-lying areas due to unusually high water near the time of high tides, but is not occurring in combination with damaging waves
SMALL CRAFT ADVISORY	These conditions: <ul style="list-style-type: none"> • Sustained wind speed and/or frequent gusts of 21 – 33 kts, • Hazardous Seas, • Rough Grays Harbor Bar, are expected within the 12 to 24 hour period
WARNINGS	CRITERIA
COASTAL FLOOD WATCH / WARNING	A combination of very high surf and high water, with waves traveling beyond the beach, producing damaging results
GALE WARNING	Sustained wind speed and/or frequent gusts of 34 – 47 kts are expected within the 24 to 36 hour period
STORM WARNING	Sustained wind speed and/or frequent gusts of 48 – 63 kts are expected within the 24 to 36 hour period
HURRICANE FORCE WARNING	Sustained wind speed and/or frequent gusts of greater than 63 kts are expected between the 24 hour period
	Sustained wind at least 34 kts with either a severe

SPECIAL MARINE WARNING	thunderstorm, waterspout, or non-severe thunderstorm producing winds at least 34 kts imminent or occurring
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Coastal Waters Forecast & Bar Forecast

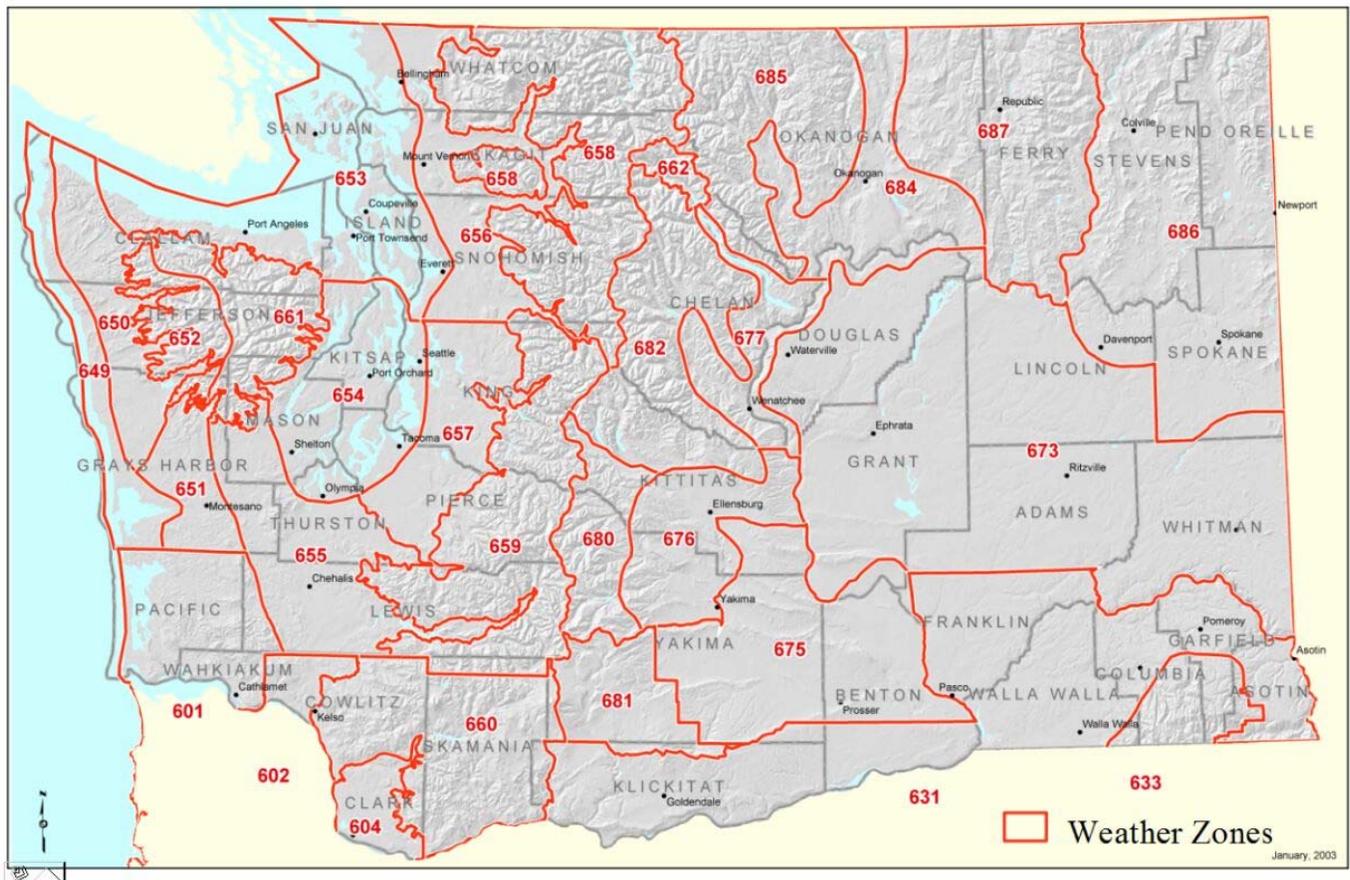
The Coastal Waters Forecast (CWF) is designed to give mariners the forecast sea conditions, including predominant wind direction and speed, sea conditions, and significant weather. The sea conditions include forecasted swell period, wind wave height, and swell height and direction. The CWF is our standard marine forecast product and is issued four times daily – 9 am/pm and 3 am/pm. The Bar Forecast provides forecast conditions for the Grays Harbor Bar. The forecast includes the sea conditions as well as the time of the ebb currents. The Bar Forecast is issued with the Coastal Waters Forecast.

Marine Zone Forecast Map



FIRE WEATHER

Washington State Fire Weather Zones



WFO Seattle produces fire weather forecasts, watches and Red Flag warnings for Western Washington. WFO Seattle also provides fire weather spot forecasts for a specific site for prescribed burns ignited on Federal Lands, for wildfires on Federal Lands, or a non-Federal Land prescribed burn that is declared a wildfire. To request a spot forecast, please visit: <http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=sew>

During fire season special forecasts are prepared twice a day for users like the U.S. Forest Service (USFS), Bureau of Land Management (BLM), National Park Service (NPS), and Bureau of Indian Affairs to provide meteorological information that is critical to fire behavior and where potential starts may occur. Some specific items we forecast for include relative humidity changes, temperature changes, drainage and general winds, Haines index and lightning activity.

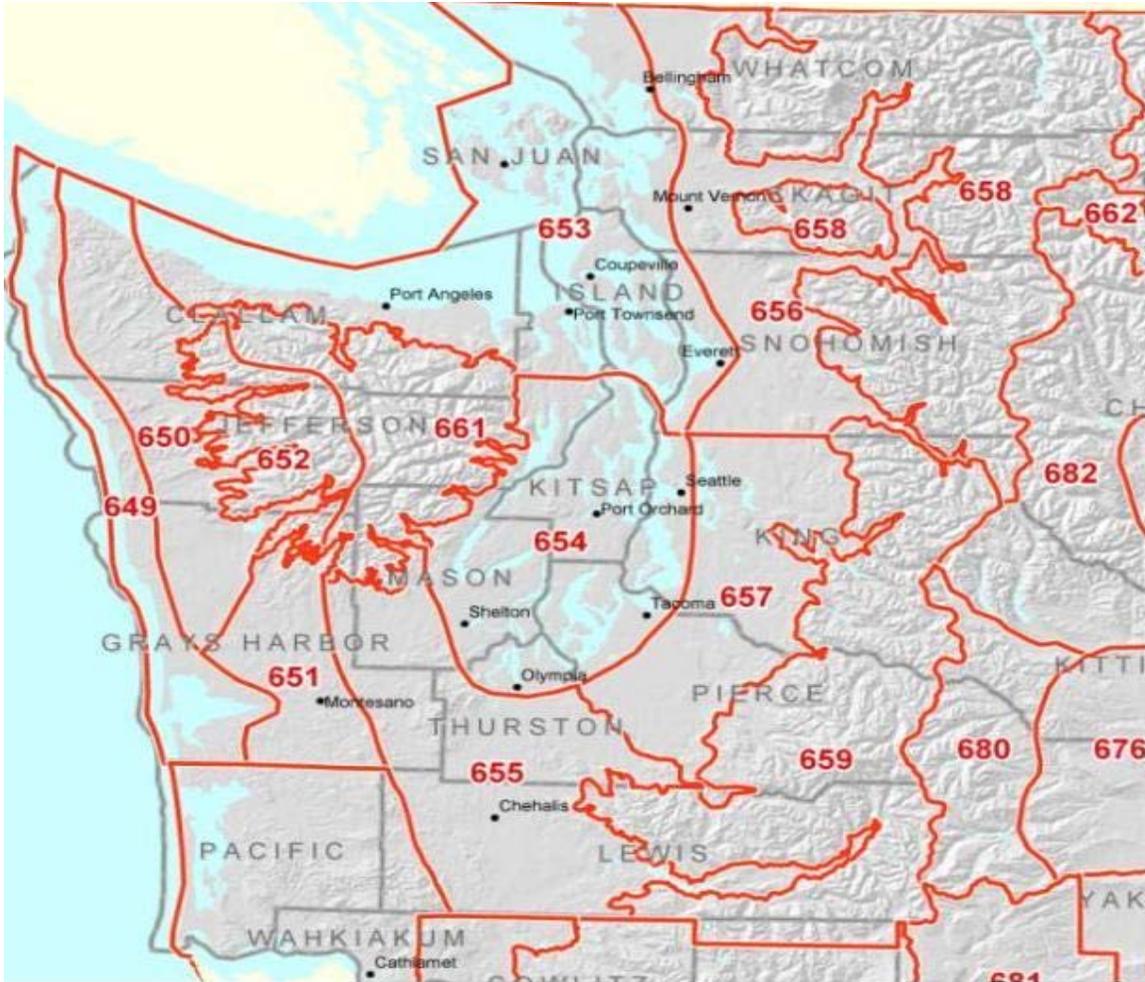
When significant weather conditions occur along with high to extreme fire danger, special watches and warnings are issued which address the potential for wild fires across Western Washington. Fuels must be critically dry and fire danger high before a watch or warning is issued. Watches and warnings are issued when these factors occur: critically dry and

unstable air mass present in the area, dry lightning occurrences, and zone specific combinations of strong winds and low humidities. The watches and warnings are listed below, along with zone specific conditions.

WFO Seattle has two Incident Meteorologists (IMET) on staff. As a part of a national team of IMETs, they can be deployed to support wildfire teams at the wildfire site nationwide. **WFO Seattle also provides weather support for “all-hazards”, such as hazardous material releases, oil spills, search and rescue, and terrorism events. IMETs can be deployed to command sites for major events to provide on-site weather support.**

PRODUCT		TIME PERIOD
FIRE WEATHER WATCH		Criteria below is forecasted to occur within 24 – 72 hours
RED FLAG WARNING		Criteria below is forecasted to occur within 0 – 24 hours
ZONE	WIND AND HUMIDITY CONDITION	
ZONES 649-661	<p>East winds and low humidity...</p> <p>Nighttime hours (12 A.M. - 7 A.M.)</p> <ol style="list-style-type: none"> 1) 10-minute wind speed greater than or equal to 10 mph for at least 5 hours 2) Relative humidity 35% or less <p>Daytime hours (7 A.M. - 12 A.M.)</p> <ol style="list-style-type: none"> 1) 10-minute wind speed of 10 mph or more for at least hours in an 8 hour block 2) Relative humidity 30% or less <p><i>Note: A Red Flag Warning during East Wind episodes will verify if the above-mentioned wind criteria is reported by at least 3 of the following stations: Ellis Mountain, Minot Peak, Greenwater, Lester, Stampede Pass, or Kosmos Mountain.</i></p>	
ZONE 662	<p>West winds and low humidity...</p> <ol style="list-style-type: none"> 1) 10-minute wind speed of 15 mph or more for at least 4 hours 2) Relative humidity 25% or less <p><i>Note: Both the Stehekin and the Camp Four RAWS sites need to reach Red Flag criteria to verify a warning in Zone 662.</i></p>	

Fire Weather Zone Forecast Map Seattle WFO



**Western Washington
Fire Weather Forecast Zones**

Weather Zones

January, 2003