



Flood and emergency preparedness

CARNATION DUVALL CITIZEN CORPS

DUVALL KING COUNTY FIRE DISTRICT 45

SEPTEMBER 11, 2018

Let's get started

- ▶ Important info!
- ▶ Presenters
 - ▶ Kathy Brasch, Carnation-Duvall Citizen Corps
 - ▶ Maria Mahowald, Carnation-Duvall Citizen Corps, Riverview School District
 - ▶ BC Greg Bawden, Duvall King County Fire District 45
- ▶ Have you experienced Snoqualmie Valley Flooding?
- ▶ Handouts
- ▶ Sign up for email w/links



Tonight

You will learn about:

- ▶ Flood frequency and severity
- ▶ Other winter weather hazards
- ▶ Where to look for flood and road information
- ▶ How to sign up for alerts
- ▶ Emergency preparedness basics



River Road, Duvall Feb. 10, 1951 (Photo courtesy of Jeanette Owen Dickinson)

Why?

Flooding is....

- ▶ Inconvenient
- ▶ A popular topic of conversation and speculation
 - ▶ “Is 124th open??”
- ▶ *Can be deadly*



Flood history

- ▶ The valley floods every winter.
 - ▶ Several times each year
 - ▶ Early November through March
 - ▶ One or more roads closed
 - ▶ Significant traffic disruptions





The Valley View

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INSIDE THE VALLEY VIEW | Santa Train page 2 | Valley Chicks Market page 2 | Local Girl Scout page 8 |

The 1990 flood: One life, hundreds of dairy cows lost

25 years later, for mom and baby rescued from floodwaters, an emotional reunion

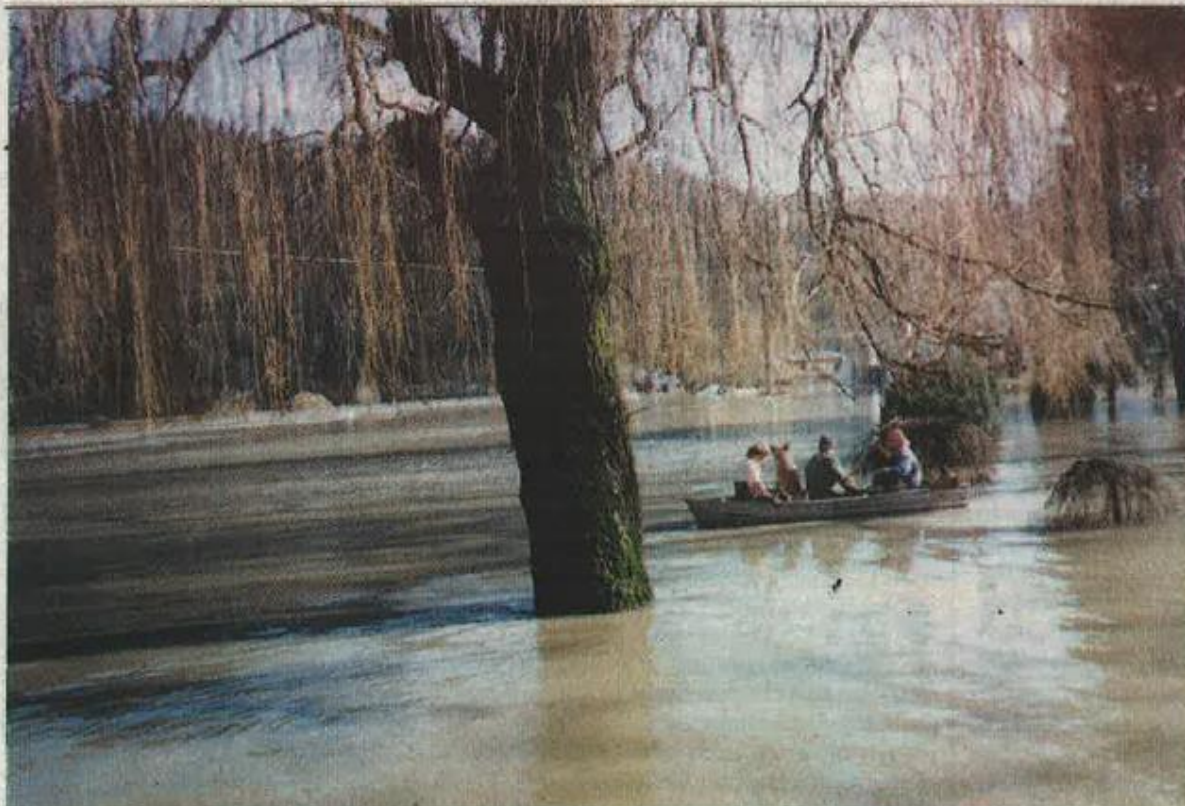
BY LISA ALLEN
VALLEY VIEW EDITOR

A fatal mistake

"We made a bad choice," Amie Vaughn admits.

She was Amie Scott then, 25 years ago this month. It was late in the evening on the Saturday after Thanksgiving, when she, her husband Scot and their 6-month-old baby boy were on their way home to Duvall from a trip to see her father on Whidbey Island. When they reached the intersection of Woodinville-Duvall Road and West Snoqualmie Valley Road, they made a fateful decision to follow the lights of other cars and trucks that were going around barricades that had been placed there to block the flooded road from traffic.

As they were heading across the valley, they watched the vehicles ahead of them make it through the rapidly rising water. But as the



have to make life the best you can. Even though he never really knew his dad, the loss has been hard for him."

Mitchell, a quiet but chipper 25-year-old, works as a landscaper. He was delighted to meet the firefighter who had saved him, but, he added, "Of course, I don't remember anything about it." Amie said it was ironic that both of her and Scot's fears were realized that night. "Scot's worst fear was water and mine was being a single parent," she said.

A long night

Now-retired Duvall Police Chief Glenn Merryman had spent the day watching the rising water and checking flood alerts. As the water began to cover the Woodinville-Duvall Road he set up a "command post" at the end of the bridge which consisted of the police cars, fire department vehicles and a burn barrel that was used to warm up rescue crews. "You can't get more basic than that," he recalled

Flood history

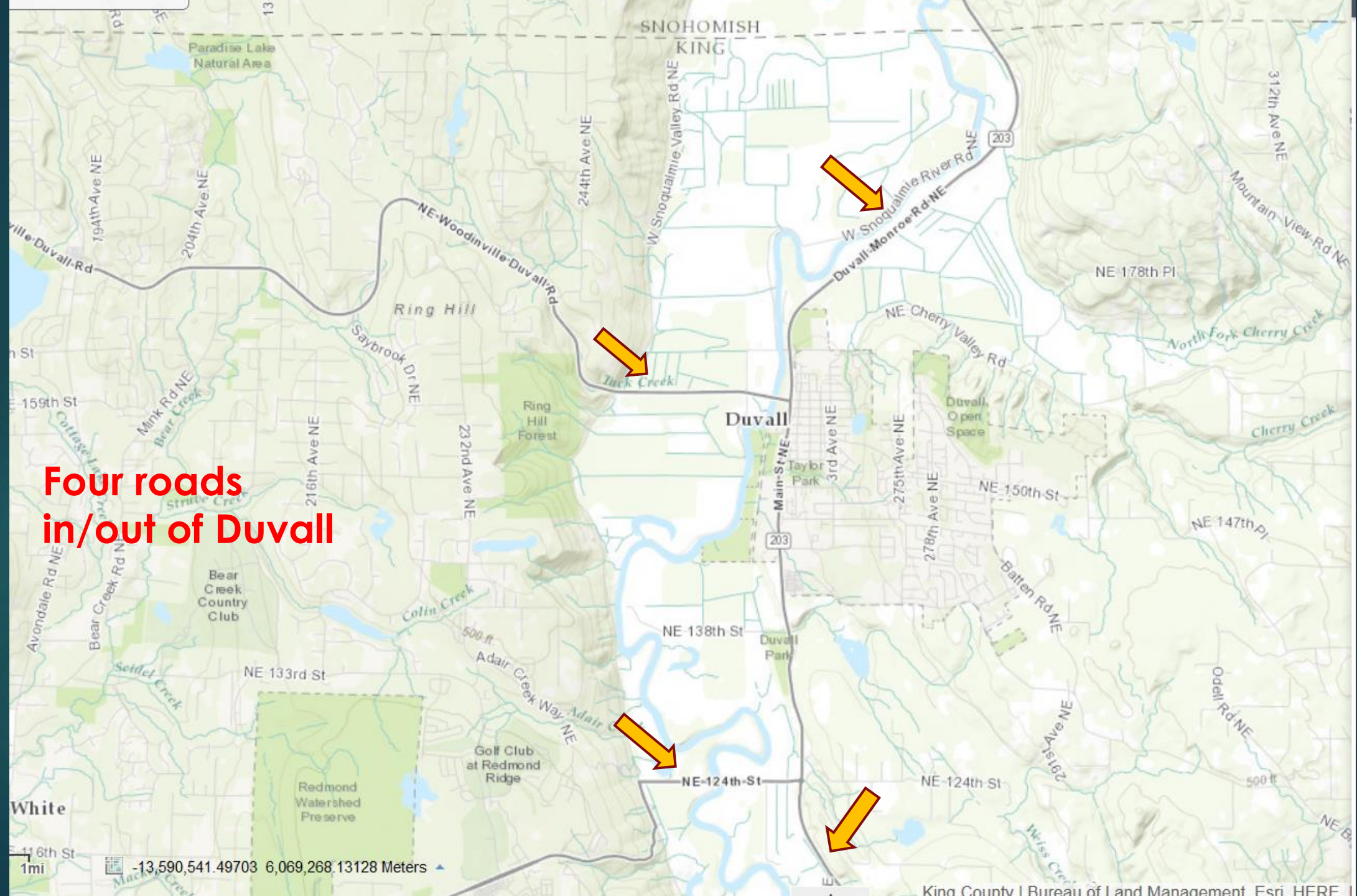
- ▶ Major floods approx. 5 year intervals
- ▶ No road access
 - ▶ 1990
 - ▶ 1995*
 - ▶ 1996
 - ▶ 2006
 - ▶ 2009
- ▶ So we're due for a big one!



Predictable road closures

- ▶ 1) NE Tolt Hill Road
- ▶ 2) NE 124th
- ▶ 3) NE Carnation Farm Road
- ▶ 4) 203 south of Carnation
- ▶ 5) 203 north of Duvall
- ▶ 6) Woodinville-Duvall Road. *Note, the Woodinville Duvall Road rarely closes*

**Four roads
in/out of Duvall**



Complete isolation

Some roads closed 4 to 5 days.

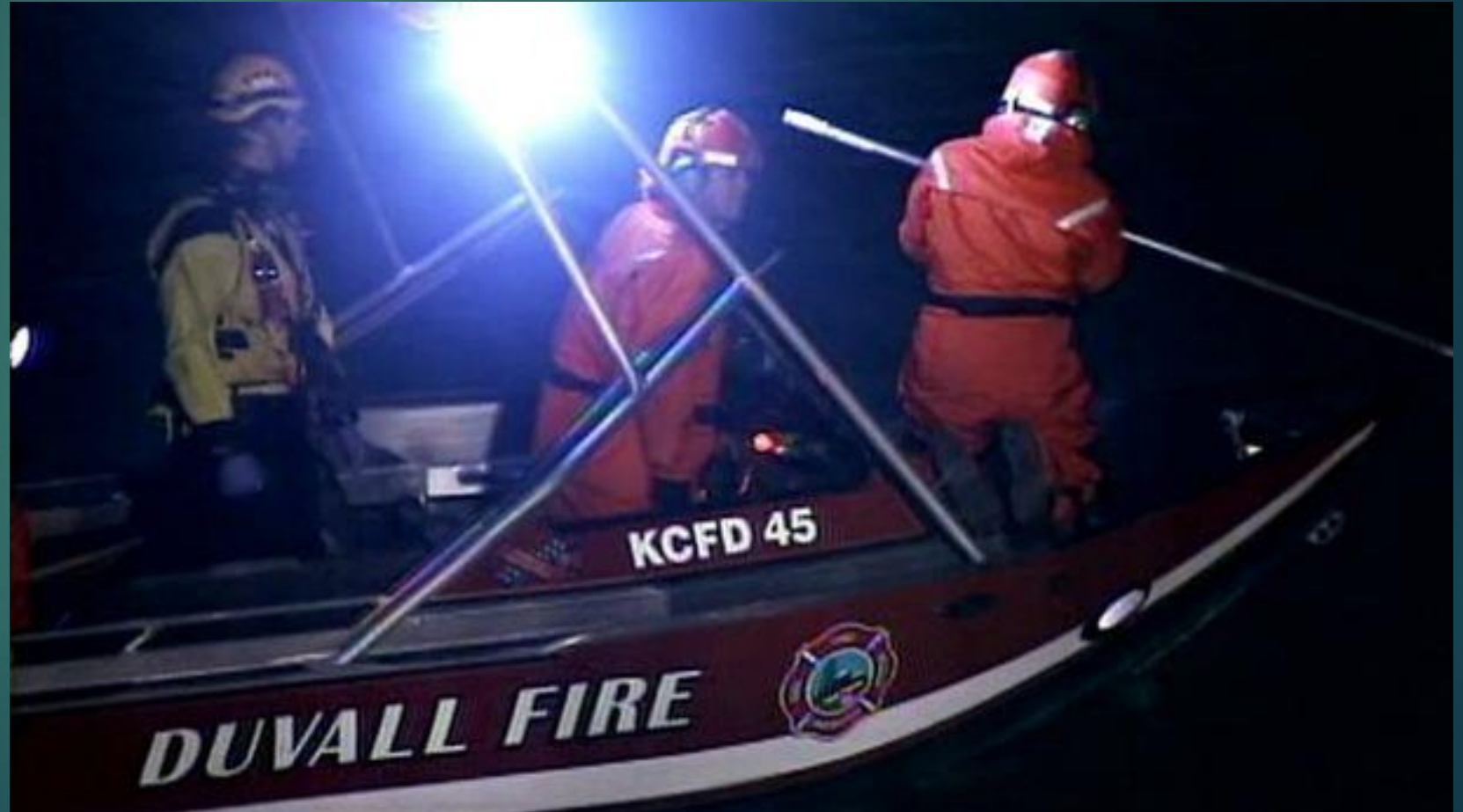
All roads closed:

- ▶ Generally between 24 to 36 hours (plus repairs)
- ▶ NO ALTERNATIVES
- ▶ Re-open south to north
- ▶ Many factors
 - ▶ Rainfall quantity and duration
 - ▶ Snohomish/Skykomish River
 - ▶ Tides



Flood consequences

- ▶ Disruptive
- ▶ In Duvall/lower valley some flooded homes and farms
- ▶ Most flood plain residents know the routine
- ▶ Risk to life



Flood consequences

History

- ▶ 1990 Wood-Duvall Rd
- ▶ 1995 Tolt Hill Road
- ▶ 2005 – 268th Ave NE
- ▶ 2006 Wood-Duvall Bridge
- ▶ 2015 West Snoq River Road



Flood warning

- ▶ Unlike earthquakes and fires....
- ▶ *We know when floods will occur!*
- ▶ *Approx. 2 to 3 days notice*

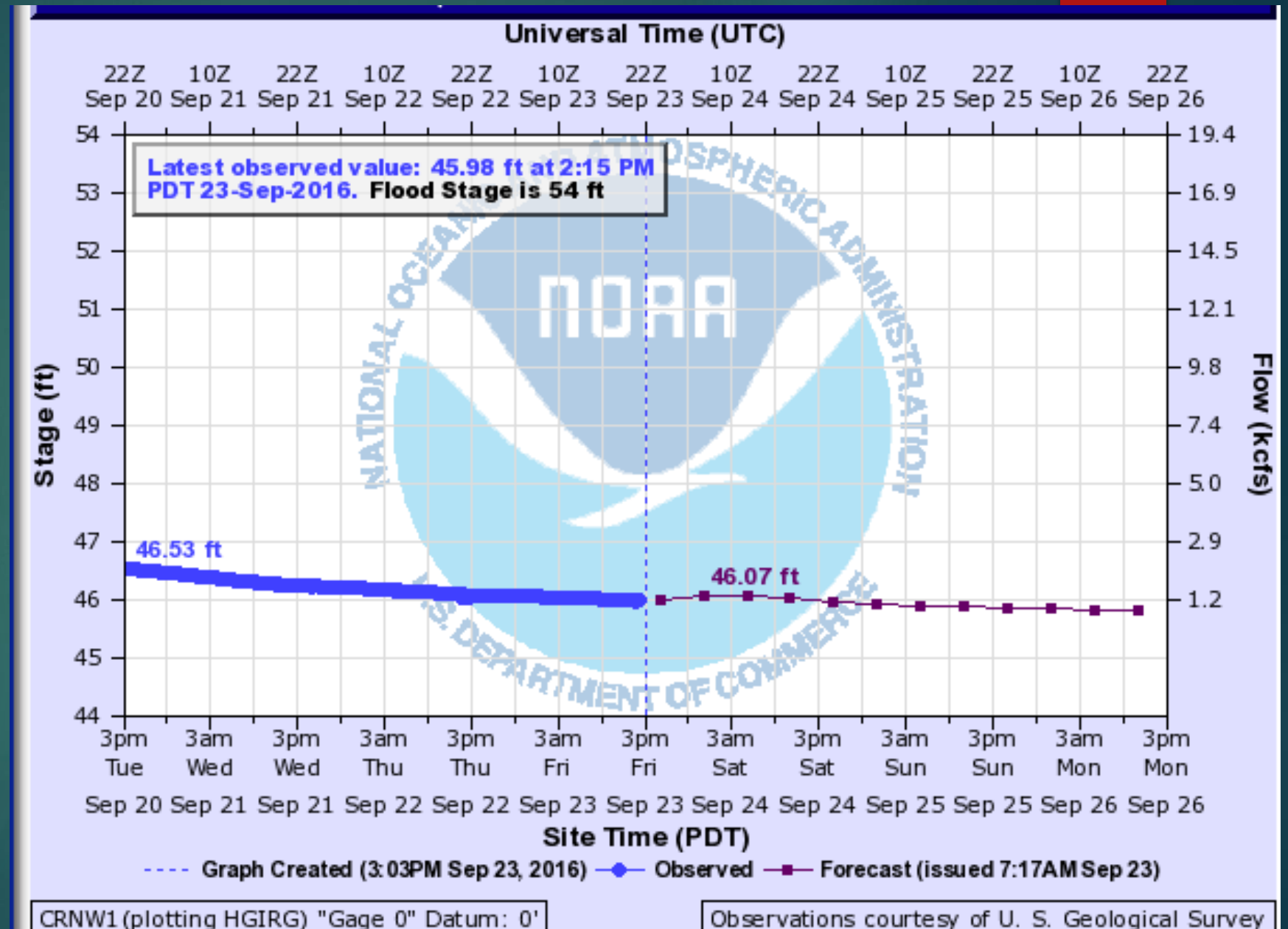


National Weather Service

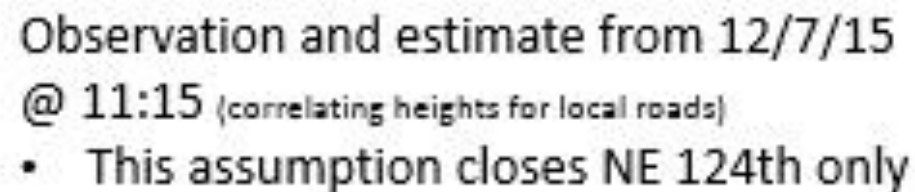
Summer flows

Snoqualmie River at Carnation

Sept 2016



Limited road closures

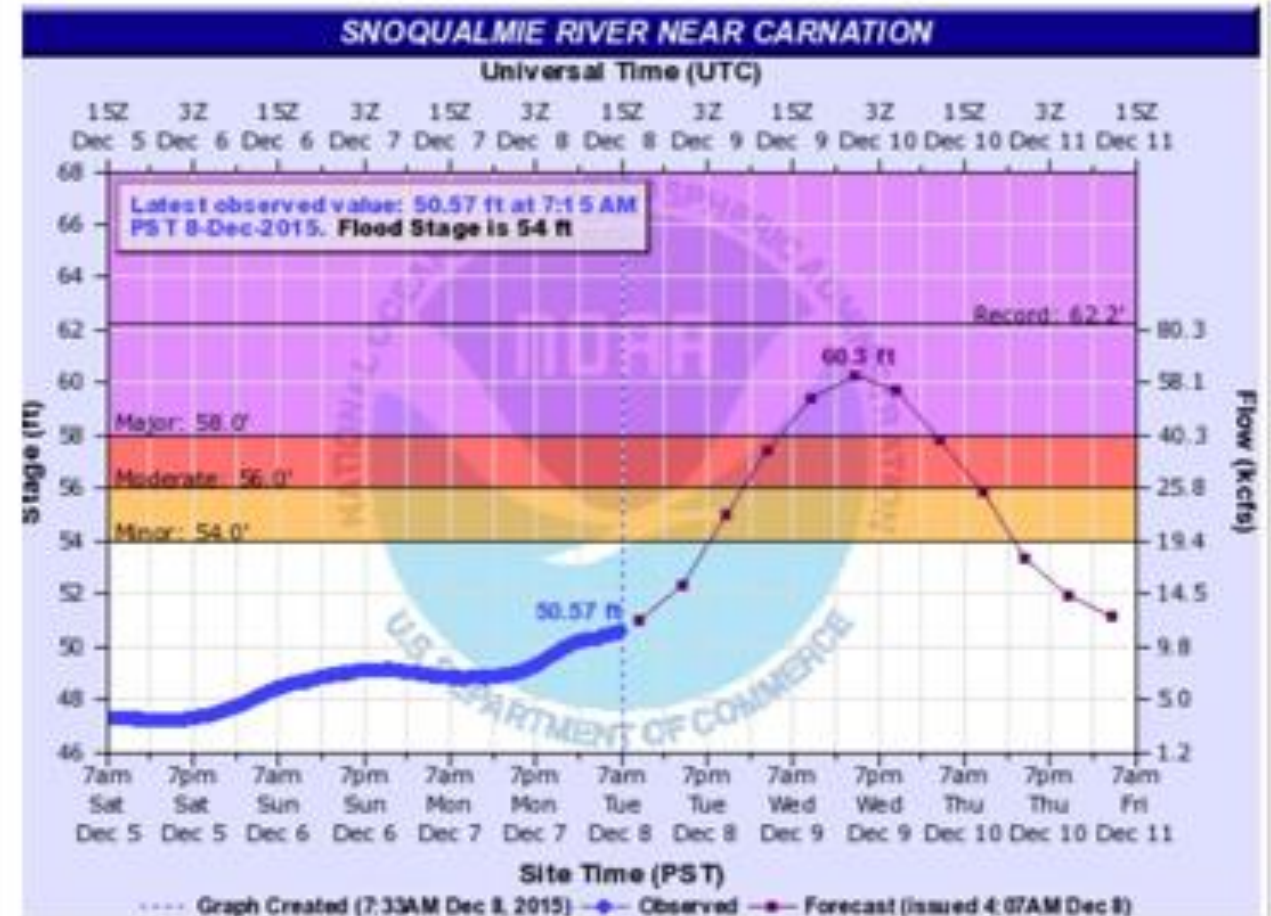


National Weather Service

Major flooding

December 2015

Woodinville Duvall Road predicted to close



Observation and estimate from 12/8/15 @ 07:15 (correlating heights for local roads)

- This assumption closes NE 124th @ 56.3 +/-
- This assumption closes SR203 N @ 58.6 +/-
- This assumption closes WD Rd @ 60.2 +/-

King County

- ▶ Alerts
- ▶ Website

Snoqualmie River Flooding Information

USGS gage data, map, alert phases, and recent high flows

- « [List of rivers](#)
- » [Snoqualmie River Basin Weather Stations](#)
- » [King County Flood Alerts](#)



Flood Warning Mobile App
Try our award-winning app
& Windows Phone

New: Click on a gage name for graph and additional data.

USGS Gage Name	Time, Date	Stage (feet)	Flow (c.f.s.)	Flow Change (c.f.s./hr)
North Fork Snoqualmie River	3:15 PM, 9/23/2016	2.39	120	0
Middle Fork Snoqualmie River	3:15 PM, 9/23/2016	1.83	350	+3
South Fork Snoqualmie River	3:15 PM, 9/23/2016	9.46	49	+1
Sum of Snoqualmie River Forks	3:15 PM, 9/23/2016	n/a	519	+4
Snoqualmie River near Snoqualmie	2:30 PM, 9/23/2016	3.53	818	0
Snoqualmie River near Carnation	3:15 PM, 9/23/2016	45.92	1,040	-20
Snoqualmie River at Duvall	2:00 PM, 9/23/2016	29.29	n/a	0 (stage, in feet)

Notes:

This data was requested from USGS at 9/23/2016 3:23:41 PM.

The next request for USGS data is expected in approximately 1 minutes from when this page was loaded.

King County

Recent High Flow Data

High Flow Event	Sum of the Forks	Snoqualmie River near Snoqualmie	Snoqualmie River near Carnation	
December 8-9, 2015	41,120 c.f.s.*	49,500 c.f.s.*	56,200 c.f.s.*	59.28 ft*
November 17-18, 2015	42,700 c.f.s.*	48,000 c.f.s.*	46,600 c.f.s.*	58.85 ft*
January 5-6, 2015	44,210 c.f.s.	50,100 c.f.s.	53,900 c.f.s.	59.24 ft
January 7-8, 2009	54,110 c.f.s.	60,700 c.f.s.	82,900 c.f.s.	62.21 ft
November 6-7, 2006	53,500 c.f.s.	55,000 c.f.s.	71,800 c.f.s.	61.28 ft
February, 1996	43,740 c.f.s.	51,700 c.f.s.	61,600 c.f.s.	60.34 ft
November, 1995	47,960 c.f.s.	50,200 c.f.s.	62,400 c.f.s.	60.30 ft
November, 1990	48,250 c.f.s.	78,800 c.f.s.	65,200 c.f.s.	60.70 ft

*provisional data

[King County flood warnings and alerts](#)

Recent High Flow Data				
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<i>For comparison, river levels in September</i>				
Date	Sum of the forks	Near Snoqualmie	Near Carnation, CFS	Near Carnation Ft
Sept 4, 2018	203 cfs	375	594	45.17



Photo: Seattle Times, January 2009

Emergency services

When major floods are expected:

- ▶ Duvall Fire – extra staff
- ▶ Redmond Medic One – sends a crew
- ▶ Woodinville Fire – will meet us and transport urgent patients
- ▶ Airlift NW – will fly critical patients
- ▶ Private ambulances – will meet us and transport less critical patients







Loading a patient for transport to Harborview

Medical evacuations

- ▶ Normal medical procedures on a normal day – you drive.
- ▶ Normal medical procedures during a major flood – we drive!
- ▶ Call 911, explain it is not an emergency.



Community Preparedness

Shelters

- Last major flood, City, CERT, and Red Cross opened a shelter
- Mostly for people *trapped* in Duvall



Traffic control

- ▶ Barricades
- ▶ Main light – controlled by Duvall Police
- ▶ West Snoqualmie lights = *King County*



Flood advice

- ▶ Sign up for flood and road alerts
- ▶ Learn where to look for flood information
- ▶ Monitor flood and weather information
- ▶ Practice good emergency preparedness by stocking supplies year round
- ▶ *DO NOT DRIVE THROUGH FLOOD WATERS!*



Windstorm frequency

Major storms every 10 to 10 years. Some of the biggest:

- ▶ Hanukkah Eve Storm in December 2006
- ▶ Inauguration Day Storm, January 1993
- ▶ Columbus Day Storm 1962

Smaller, but disruptive storms happen almost yearly.

And usually on Thanksgiving!



Windstorm impacts

Hanukkah Eve Storm in December 2006

- Winds up to 89 mph
- 14 deaths in Western Washington*
- Power out in Duvall 7 days
- Power out longer in outlying areas
- Grocery stores closed
- No gasoline
- Schools closed 11 days



* 8 killed by carbon monoxide

Snow and ice storms

- ▶ January 2012 snow storm
- ▶ January 2004 ice storm
- ▶ December 1996-January 1997 snow storm



Snow and ice storm impacts

- ▶ Roads closed for days, *especially in east portion of the district*
- ▶ No power
- ▶ Frozen water lines
- ▶ Downed (live) wires
- ▶ Property damage from freezing temps and falling trees



Earthquakes

Not winter related...

but preparation is essential!

Date	Name	Magnatude	Deaths	Injuries	Damage
Feb 2, 2001	Nisqually	6.8	1	400	\$1 to 4 billion
July 3, 1999	Satsop	5.8	0	7	\$8.1 million
May 2, 1995	Duvall	5.6	0	1	None reported
April 29, 1965	Puget Sound	6.7	7		\$12.5 million
November 11, 1962	Clark County	5.2			Minor
April 13, 1949	Olympia	6.7	8	64+	\$25 million

Links

- ▶ [Alert King County](#)
- ▶ [King County Flood Alerts](#)
- ▶ [King County Road Alerts](#)
- ▶ [King County Flood Warning Center](#)
- ▶ [Duvall Mobile Flood and Snowmagedddan Page \(Jim Gale\)](#)
- ▶ [King County Traffic Cameras](#)



More links

- ▶ [City of Duvall road closure info](#)
- ▶ [National Weather Service Seattle](#)
- ▶ [National Weather Service River Observations](#)
- ▶ [Duvall Fire - emergency prep](#)
- ▶ [Tolt Reservoir](#)



Emergency preparedness information

- ▶ [Carnation Duvall Citizen Corps](#)
- ▶ [King County Emergency Management](#)
- ▶ [WA State Emergency Management](#)



CERT



Questions?

