

# Chehalis River Basin Flood Authority

*Reducing Flood Damage and  
Restoring Aquatic Species*

**City of Oakville**

**July 25, 2022**

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**Scott Boettcher**

Staff, Chehalis River Basin Flood Authority  
360/480-6600 | [scottb@sbgh-partners.com](mailto:scottb@sbgh-partners.com)

# Today's Presentation

- Describe the “Flood Authority”

- #1 -- Local Projects

- #2 -- Flood Warning System

- #3 – Role

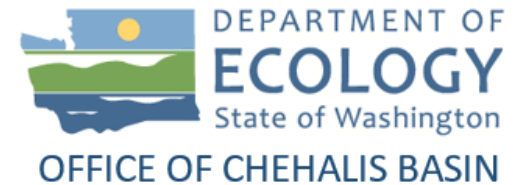


- Touch on “Office of Chehalis Basin” and “Chehalis Basin Strategy”

- Allow time for discussion

## State Law

“The primary purpose of the office is to aggressively pursue implementation of an integrated strategy and administer funding for long-term flood damage reduction and aquatic species restoration in the Chehalis river basin.”  
([RCW 43.21A.730](#))



Office of Chehalis Basin | Chehalis Basin Board

<https://chehalisbasinstrategy.com/>

# Chehalis River Basin Flood Authority

- **Formed** in 2008
- **Focused on** flood hazard mitigation
- **Decision-making**
  - informed by science
  - protective of Basin residents/communities
  - environmentally appropriate
- **Jurisdictions** represented (see [inter-local agreement](#))
  - Grays Harbor County (2008)
    - City of Aberdeen (2008)
    - City of Cosmopolis(2011)
    - City of Hoquiam (2017)
    - City of Montesano (2008)
    - City of Oakville (2008)
  - Lewis County (2008)
    - City of Centralia (2008)
    - City of Chehalis (2008)
    - City of Napavine (2011)
    - Town of Pe Ell (2008)
  - Thurston County (2008)
    - Town of Bucoda (2008)

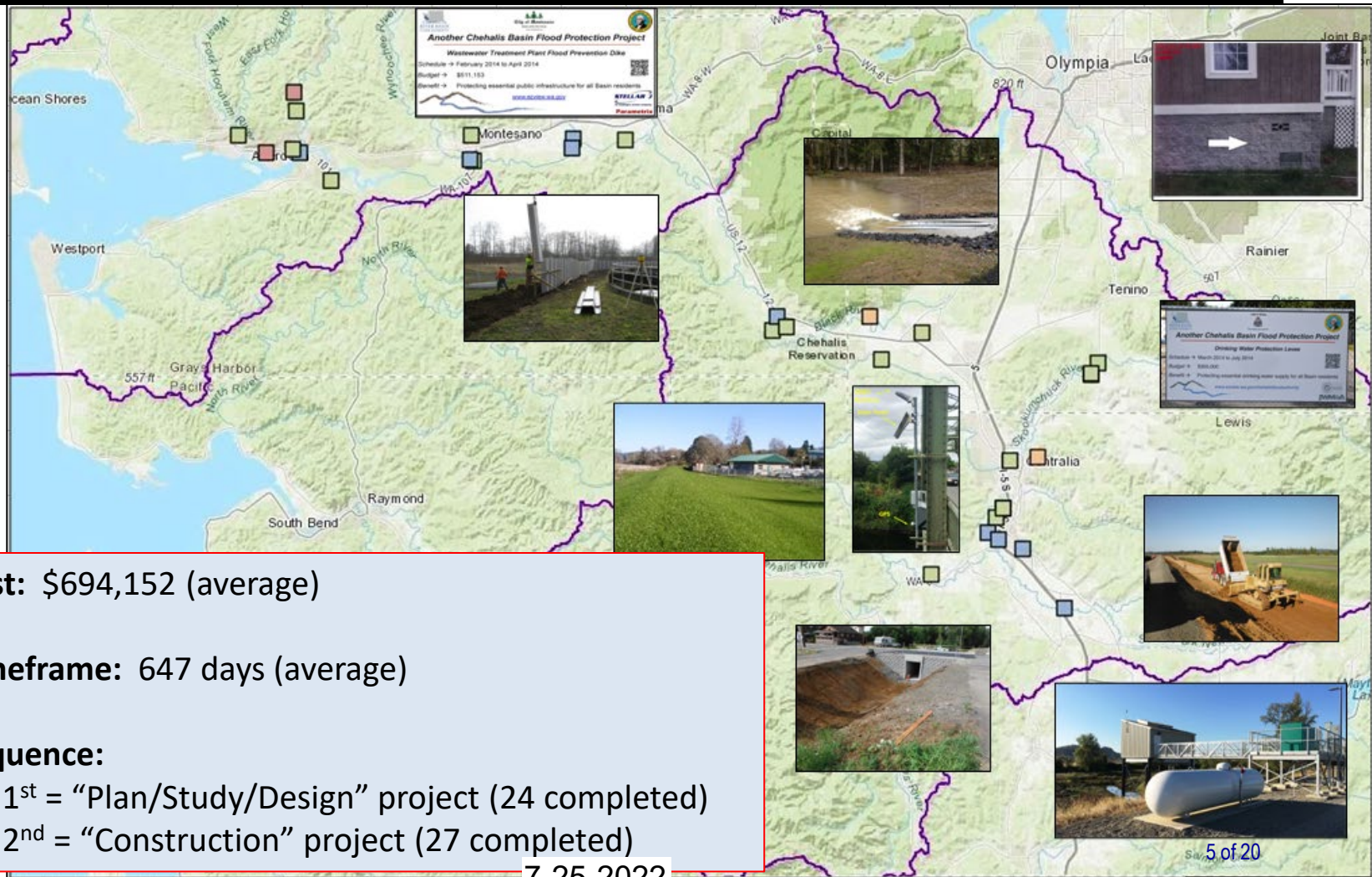


# Local Projects (#1)

1. Reduce flood damage.
2. Protect people, property, infrastructure.
3. Improve readiness, response, resiliency.
  - *Drinking Water* (Boistfort, Bucoda).
  - *Wastewater* (Montesano, Pe Ell).
  - *Emergency Response* (Grays Harbor County, Chehalis-Centralia Airport).
  - *Regional Economic Infrastructure* (Montesano, Port of Chehalis, Port of Grays Harbor).
  - *Community Protection* (Aberdeen, Adna, Bucoda, Centralia, Chehalis, Chehalis Tribe, Cosmopolis, Hoquiam, Oakville).
  - *Flood Warning* (Basin-wide).

State Capital Budget:
2012-13 -- \$ 5.0M
2013-15 -- \$10.7M
2015-17 -- \$15.7M
2017-19 -- \$ 9.6M
2019-21 -- \$ 6.3M
2021-23 -- <u>\$ 4.1M</u>
<b>\$51.4M</b>

# Local Projects (Completed 2012-23)



**Cost:** \$694,152 (average)

**Timeframe:** 647 days (average)

**Sequence:**

- 1<sup>st</sup> = "Plan/Study/Design" project (24 completed)
- 2<sup>nd</sup> = "Construction" project (27 completed)

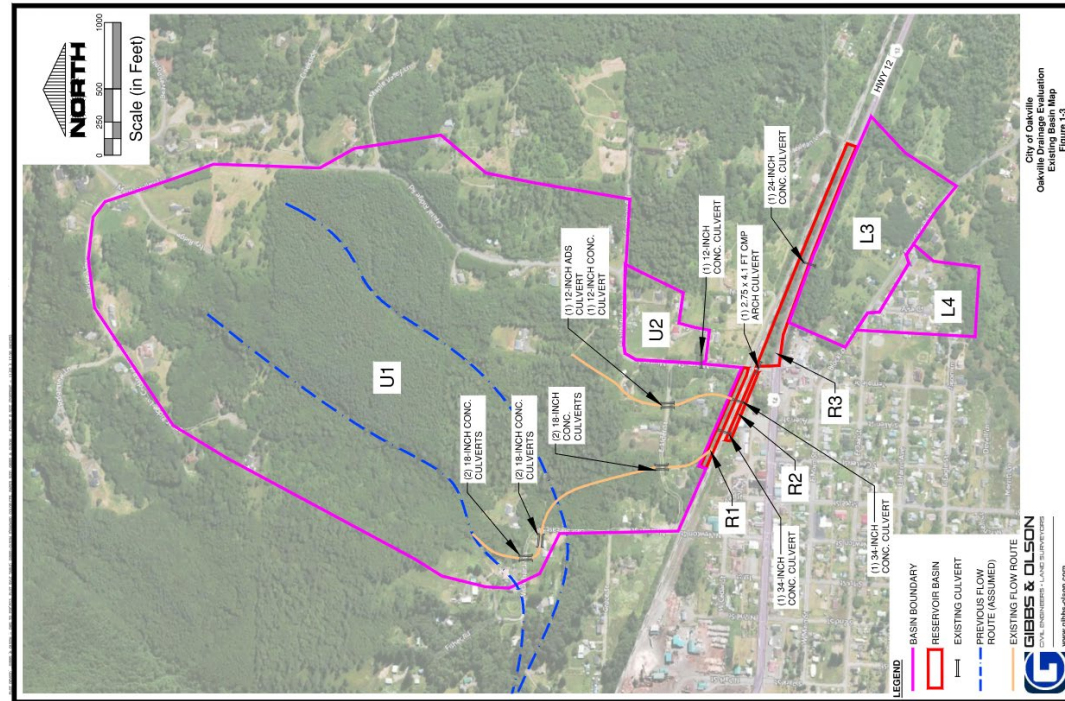
# Local Projects (Oakville)

- ✓ Project = Drainage analysis, improvements.
- ✓ Cost = \$55,000
- ✓ Flood Authority Conclusion = More stormwater than catastrophic Chehalis river basin flooding.
- ✓ Report (9/2017) = <https://secure.rco.wa.gov/prism/search/ProjectSnapshotAttachmentData.aspx?id=322518>

Figure 1-2  
Flooding Along Aria and Avarie Courts



Photo Source: Chehalis River Basin Flood Authority, Active Projects  
[https://www.eview.wa.gov/site/allas\\_1942/overview/36782/overview.aspx](https://www.eview.wa.gov/site/allas_1942/overview/36782/overview.aspx)



# Local Projects (Boistfort Valley)

## COMPLETED FLOOD – Boistfort Valley Water Pre-Sedimentation Pond

- ✓ Construct pre-sedimentation pond to settle-out flood-generated sediment before entering water treatment plant.
- ✓ Sediment choked-out treatment plant in 2007 for 6 months and drinking water had to be trucked in.
- ✓ \$332,350
- ✓ More prepared now.



7-25-2022

**COMPLETED FLOOD** – Chehalis-Centralia Airport

# Local Projects (Chehalis)



**January 2022**



**New Pump -- 2017**



**Old Pump – 1940s**



**Widening/Repairing  
Levee – 2014 7-25-2022**

- ✓ New Pump Cost = \$1.1M
- ✓ Widening Levee = \$1.2M
- ✓ ROI = Substantial:
  - Jobs: 1,658
  - Labor income: \$68 million
  - Value added: \$115.3 million
  - Business revenues: \$186.4 million
  - Annual tax revenues (local, state): ~\$9M
- ✓ 1/2022 High-water event = Airport stayed operational



**COMPLETED FLOOD AND FISH – China Creek**

# Local Projects (Centralia)

## Our Views: China Creek an Example of Success in Chehalis Basin



China Creek is seen at near the Pine Street and Rock Street intersection in Centralia.  
PETE CASTER / FILE PHOTO

Posted Friday, March 12, 2021 4:12 pm

March 12, 2021

By The Chronicle Editorial Board

## Second Phase of China Creek Flood Mitigation and Fish Habitat Improvement Work Underway in Centralia

**Dirt Work: Project Aims to Add More Water Storage, Reduce Flooding Downstream**



Signage details the Chehalis Basin Strategy for China Creek flood and habitat protection seen Friday in Centralia.  
JARED WENZELBURGER / JARED@CHRONLINE.COM

June 28, 2021

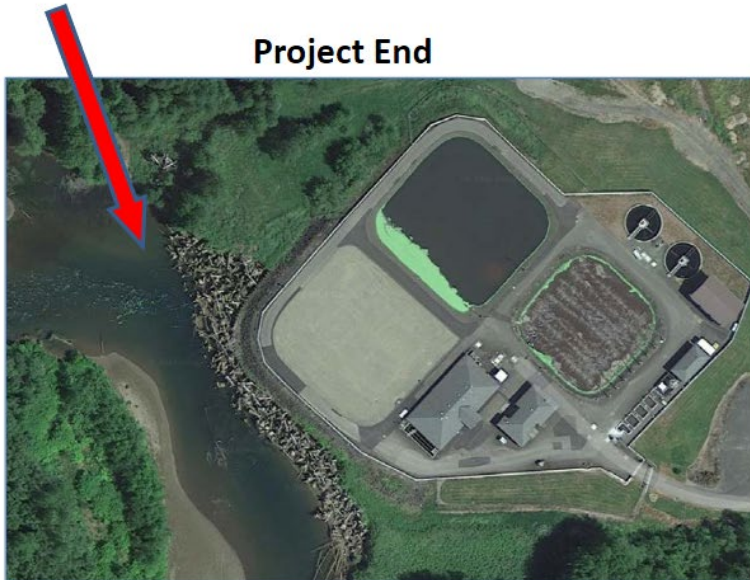
- ✓ Restore meander, incorporate storage ponds, construct flow-control weir.
- ✓ \$5 million (two phases)
- ✓ China Creek has been lengthened, floodplain increased, and riparian cover increased to reduce crippling peak flows into downtown Centralia.



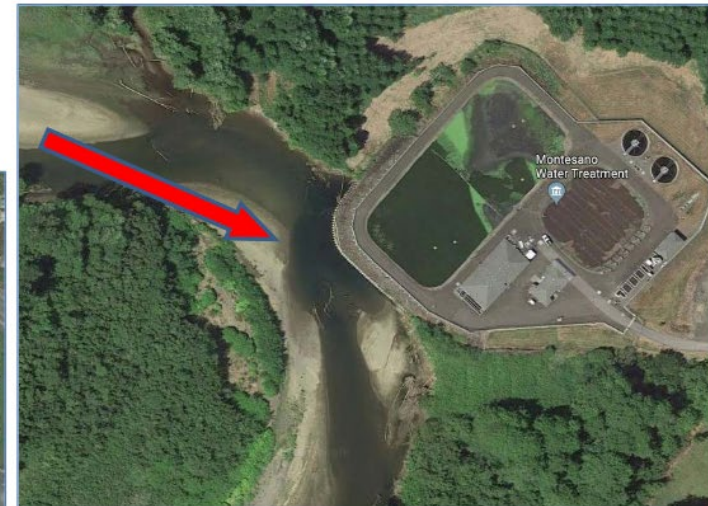
7-11-2022

# Local Projects (Montesano)

- ✓ Protect WWTP from on-coming Wynoochee river using 220+ “log-jacks.”
- ✓ \$2 million (for “log-jacks”).
- ✓ Small cost compared to WWTP relocation and environmental cleanup (in event of WWTP breaching).



**Project End**



**Project Start**

<https://www.google.com/maps/@46.9678637,-123.6077821,197m/data=!3m1!1e3>

**COMPLETED FLOOD AND FISH** –  
Cloquallam Creek Erosion Pilot (36 Lower  
Falls Creek Rd)

# Local Projects (Grays Harbor County)

Land owner Help?

 Tuttle, Megan E (DFW)  
To  Scott Boettcher;  Anthony Waldrop 9/15/2021  
 You forwarded this message on 9/22/2021 1:41 PM.

Hi Scott and Anthony,

I hope this week finds you well. I wanted to reach out for a Landowner on the Cloquallum (36 Lower Falls Creek rd) that is experiencing highly erosive banks and is about 36 ft from their home and 15ft from their septic drain field. The pervious land

*Request -- 9-15-2021*

- ✓ Highly-collaborative emergency project to protect property and septic drain field
- ✓ Property and drain field saved, environmental contamination and clean-up avoided.

\$ 15,000 Landowner  
\$ 75,000 OCB Erosion Program  
\$112,500 Flood Authority  
**\$205,500 Total**



*Construction -- 11-23-2021*



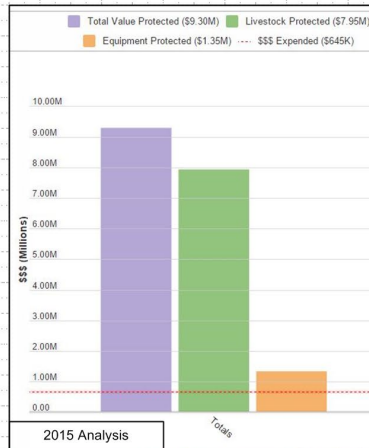
*Post-Construction -- 12-01-2021*

**COMPLETED** – Farm Pads (Lewis and Grays Harbor counties)

# Local Projects (Farm Pads)

## January 2022 Flood Event (Bob Amrine, Lewis CD):

- Farm pads worked for those who used their pads (animals did not drown like in 2007 and equipment was saved).
- Farmers were grateful that their livelihoods could continue, and their animals were out of harm's way (though in some cases they wish they had larger pads for more equipment).



1. Save lives, livelihoods.
2. Protects people, animals, equipment.
3. 26 locations throughout Basin.
4. <2 years to design, permit, construct.
5. 14:1 return-on-investment.
6. Benefit whole basin.
7. Reusable.
8. Testimonials → <http://arcg.is/2b632Ai>.

★ → Complete  
 ★ → Underway

*"local solutions to local problems"*  
**THURSTON CONSERVATION DISTRICT**

**Grays Harbor Conservation District**  
 Est. 1941

**Lewis County Conservation District**

**Animal/Equipment Now Protected:**

- Beef 4
- Bulls 3
- Calves 210
- Cows 2,480
- Goats 118
- Heifers 645
- Horses 77
- Sheep 165
- Yearlings 9
- Tractors 36
- Pieces 42

## Farm Pads, Evacuation Routes (2012-19)



[www.ezview.wa.gov/chehalisfloodauthority](http://www.ezview.wa.gov/chehalisfloodauthority)



Contact: Scott Boettcher; Staff, Chehalis River Basin Flood Authority; 360/480-6600; scottb@sbg-h-partners.com

10/17/2019

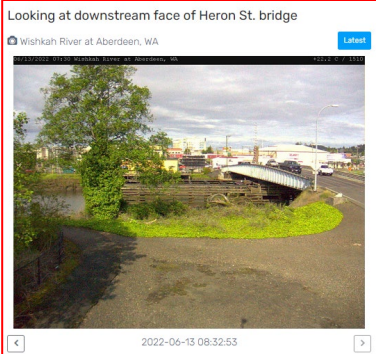
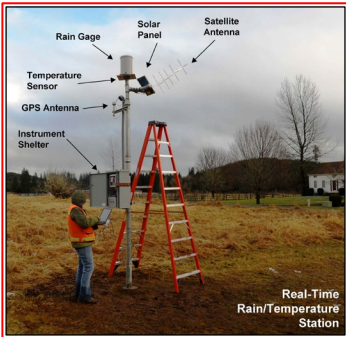
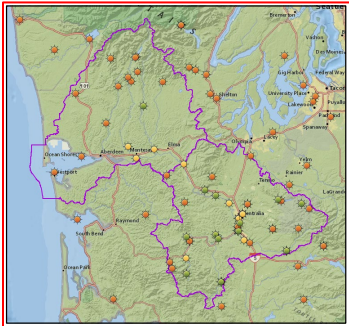


Chehalis River Basin  
Flood Warning System  
[www.chehalisriverflood.com](http://www.chehalisriverflood.com)



Click icon to sign-up  
for email gage alerts.

# Flood Warning System (#2)



CHEHALIS RIVER BASIN  
FLOOD AUTHORITY

[www.chehalisriverflood.com](http://www.chehalisriverflood.com)

Home
Map
Sites
News
Dashboards

Rainfall Summary
River Summary
Additional Resources

Weather Forecast

Rainfall Forecast

River Forecast

Flood Maps

Plot Gage Data

Gage Data Maps

Landslide

Radar Rainfall

Road Conditions

USGS Gages

Atmospheric Rivers

Chehalis Basin Gage  
Height Conversion  
Project

Photo Credit:  
[www.chehalisbasinstrategy.com](http://www.chehalisbasinstrategy.com)

- ✓ Developed with State Capital Budget \$.
- ✓ Maintained with local \$.

7-25-2022



Click icon to sign-up for email gage alerts.

# Flood Warning System (2022 Flood Event)

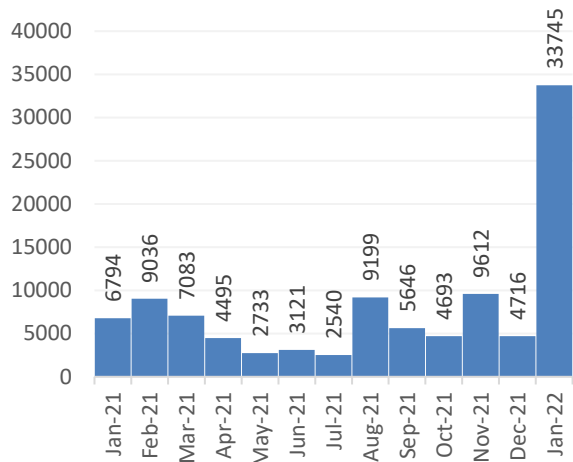
## Flood Warning System Works!

The Flood Authority's flood warning system website was incredibly active during the January flood. Nearly 25,000 individual user logins were recorded and the flood inundation maps received almost 75,000 hits, providing vital information to the community during the flood emergency. *Dave Curtis, West Consultants, 2/01/2022*

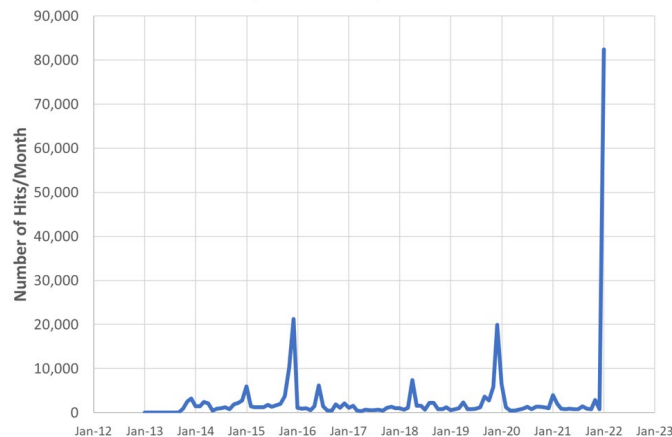
Unknown contact said:

"Our house flooded in '96 and '07--we like to be prepared The gauges and alerts give us more peace of mind. Info=peace of mind" *Survey Respondent, 2/01/2022*

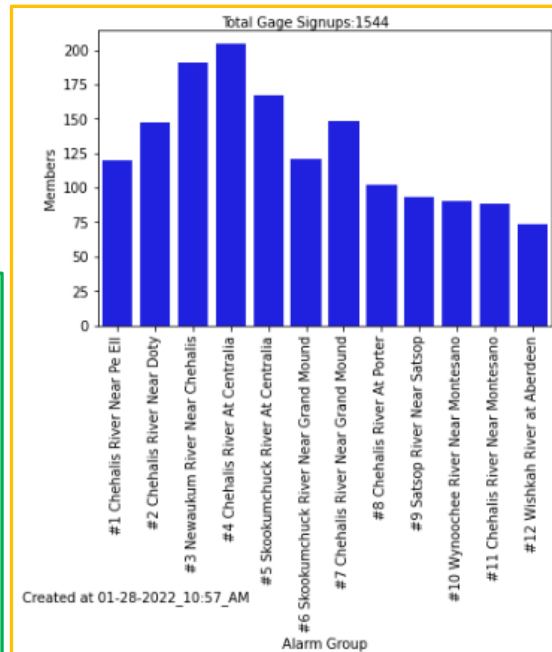
### Chehalis FA Website Visits



### Chehalis River Basin Flood Authority Flood Warning System Monthly Inundation Map Website Hits



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# Flood Authority Role (#3)

## Local Resolutions Favoring Basin-Wide Solution

File Name	File Size	Category	Date Added
<a href="#">Aberdeen -- 2020-07-29 -- 2020-14.pdf</a>	84 KB	2020	08/05/20 01:25 PM
<a href="#">Aberdeen -- 2021-01-27 -- 2021-05.pdf</a>	1.3 MB	2021	03/18/21 05:27 AM
<a href="#">Bucoda -- 2020-06-09 -- 2020-04.pdf</a>	610 KB	2020	07/15/20 10:38 AM
<a href="#">Bucoda -- 2021-02-08 -- 2021-01.pdf</a>	862.3 KB	2021	03/18/21 05:11 AM
<a href="#">Centralia -- 2016-11-08 -- 2652.pdf</a>	76 KB	2016	07/15/20 10:38 AM
<a href="#">Centralia -- 2020-05-26 -- 2718.pdf</a>	809.8 KB	2020	07/15/20 10:39 AM
<a href="#">Centralia -- 2021-02-09 -- 2733.pdf</a>	1 MB	2021	03/18/21 09:11 AM
<a href="#">Chehalis -- 2010-02-22 -- 5-2010.pdf</a>	40.8 KB	2010	07/15/20 10:39 AM
<a href="#">Chehalis -- 2016-10-24 -- 19-2016.pdf</a>	40.2 KB	2016	07/15/20 10:39 AM
<a href="#">Chehalis -- 2020-04-27 -- 6-2020.pdf</a>	239 KB	2020	07/15/20 10:39 AM
<a href="#">Chehalis -- 2021-02-08 -- 2-2021.pdf</a>	553.8 KB	2021	03/18/21 05:10 AM
<a href="#">Cosmopolis -- 2020-05-20 -- 2020-01.pdf</a>	122 KB	2020	07/15/20 10:40 AM
<a href="#">CRBFA -- 2021-01-21 -- Resolution.pdf</a>	130.3 KB	2021	03/18/21 05:09 AM
<a href="#">CRBFA Letter Re NEPA DEIS 11-13-2020 (additional 11-19-2020).pdf</a>	252.7 KB	2020	02/01/21 09:12 AM
<a href="#">CRBFA Letter Re NEPA DEIS 11-13-2020.pdf</a>	3.5 MB	2020	02/01/21 09:12 AM
<a href="#">Final CRBFA Letter Re DEIS 4-21-2020.pdf</a>	293 KB	2020	02/01/21 09:11 AM
<a href="#">Grays Harbor County -- 2016-11-14 -- 2016-129.pdf</a>	98.6 KB	2016	07/15/20 10:40 AM
<a href="#">Grays Harbor County -- 2020-05-19 -- 2020-054.pdf</a>	92.8 KB	2020	07/15/20 10:40 AM
<a href="#">Grays Harbor County -- 2021-04-06 -- 2021-031.pdf</a>	126.2 KB	2021	04/07/21 10:19 AM
<a href="#">Hoquiam -- 2021-04-12 -- 2021-12.pdf</a>	110.1 KB	2021	04/16/21 10:14 AM
<a href="#">Hoquiam -- 2020-08-10 -- 2020-12.pdf</a>	88.8 KB	2020	08/14/20 03:52 PM
<a href="#">Lewis County -- 2016-10-24 -- 16-287.pdf</a>	71.7 KB	2016	07/15/20 10:40 AM
<a href="#">Lewis County -- 2020-05-11 -- 20-154.pdf</a>	651 KB	2020	07/15/20 10:40 AM
<a href="#">Lewis County -- 2021-02-01 -- 21-046.pdf</a>	1.2 MB	2021	03/18/21 05:10 AM
<a href="#">Montesano -- 2020-06-10 -- 959.pdf</a>	503.2 KB	2020	07/15/20 10:41 AM
<a href="#">Napavine -- 2020-07-28 -- 20-07-110.pdf.pdf</a>	463.1 KB	2020	07/29/20 11:25 AM
<a href="#">Oakville -- 2020-07-20 -- 424.pdf.pdf</a>	288.5 KB	2020	07/21/20 12:06 PM
<a href="#">Pe Ell -- 2010-04-06 -- 184.pdf</a>	56.9 KB	2010	07/15/20 10:41 AM
<a href="#">Pe Ell -- 2010-12-28 -- 192.pdf</a>	56.4 KB	2010	07/15/20 10:41 AM
<a href="#">Pe Ell -- 2012-09-18 -- 201.pdf</a>	55.4 KB	2012	07/15/20 10:41 AM
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<a href="#">Pe Ell -- 2021-03-02 -- 260.pdf</a>	134 KB	2021	03/18/21 05:11 AM

7-25-2022

- ✓ **Help** local communities identify, develop, implement local flood hazard solutions.
- ✓ **Appoint** 3 of 7 members to Chehalis Basin Board (current appointees are Vickie Raines, Edna Fund, Jay Gordon).
- ✓ **Provide** local perspective to Basin-Wide solution discussions.
- ✓ **Advocate** for balanced basin-wide fish and flood solutions (see local resolutions library [here](#)).
- ✓ **Work** as a team. 15 of 20

# Chehalis Basin Strategy



Office of Chehalis  
Basin

Chehalis Basin  
Board

<https://chehalisbasinstrategy.com/>

appoints 3  
member



## Chehalis Basin Board

Community leaders, Chehalis and  
Quinault tribal representatives,  
local and state government liaisons

## Office of Chehalis Basin

Small team within the WA  
Department of Ecology

## “Network of Partners”

Organizations and local  
entities who turn ideas into  
shovel-ready reality



# Chehalis Basin Strategy

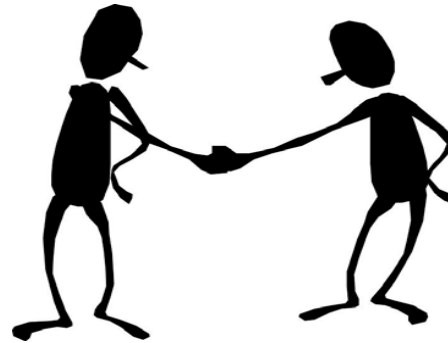
## “Network of Partners”



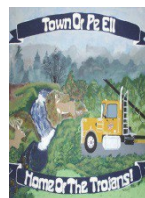
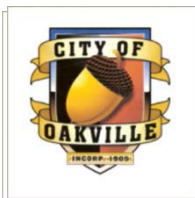
Office of Chehalis  
Basin

Chehalis Basin  
Board

<https://chehalisbasinstrategy.com/>



**Chehalis Lead Entity**



WASHINGTON STATE DEPARTMENT OF  
**Natural Resources**

TOWN of BUCODA



7-25-2022

# Looking Ahead

- ✓ **Proposed Flood Retention Facility** – DRAFT EISs were issued February 2020 (SEPA) and September 2020 (NEPA). Chehalis River Basin Flood Control Zone District (project proponent) working diligently to provide refinements and clarifications for FINAL EIS. Final EISs are currently scheduled for release in late 2022/early 2023.
- ✓ **Local Projects** – 2023-25 call for local projects issued June 30, 2022 (due 8/03/2022). [https://www.ezview.wa.gov/site/alias\\_1492/37773/2023-25-local-projects-recruitment-process.aspx](https://www.ezview.wa.gov/site/alias_1492/37773/2023-25-local-projects-recruitment-process.aspx)
- ✓ **Sign-Up For Email Gage Alerts** – [www.chehalisriverflood.com](http://www.chehalisriverflood.com)



Click icon to sign-up for email gage alerts.

# Key Contacts

**Vickie Raines, Grays Harbor County Representative**

*Chair*, Chehalis River Basin Flood Authority

*Chair*, Chehalis Basin Board

360/249-3731

[vraines@co.grays-harbor.wa.us](mailto:vraines@co.grays-harbor.wa.us)

**Edna Fund, Lewis County Representative**

*Vice-Chair*, Chehalis River Basin Flood Authority

*Member*, Chehalis Basin Board

360/269-7514

[dutch@localaccess.com](mailto:dutch@localaccess.com)

**Richard Armstrong, Oakville Representative**

*Member*, Chehalis River Basin Flood Authority

360/791-8772

[oakvillepublicworks@gmail.com](mailto:oakvillepublicworks@gmail.com)

**Scott Boettcher**

*Staff*, Chehalis River Basin Flood Authority

360/480-6600

[scottb@sbgh-partners.com](mailto:scottb@sbgh-partners.com)



# Thank You!

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## **This Presentation:**

Available at “Chehalis River Basin Flood Authority” Website at  
[https://www.ezview.wa.gov/site/alias\\_\\_1492/34490/outreach\\_education.aspx](https://www.ezview.wa.gov/site/alias__1492/34490/outreach_education.aspx)

## **Email Distribution Lists:**

**Megan Sathre (Flood Authority)**  
[megan.sathre@lewiscountywa.gov](mailto:megan.sathre@lewiscountywa.gov)

**Cindy Bradley (Office of Chehalis Basin)**  
[Cindy.Bradley@ecy.wa.gov](mailto:Cindy.Bradley@ecy.wa.gov)

# Also -- Key Links

## **Key Organizations:**

1. Chehalis River Basin Flood Authority -- [www.ezview.wa.gov/chehalisfloodauthority](http://www.ezview.wa.gov/chehalisfloodauthority)
2. Office of Chehalis Basin -- <https://ecology.wa.gov/About-us/Get-to-know-us/Our-Programs/Office-of-Chehalis-Basin>
3. Chehalis Basin Board -- [https://www.ezview.wa.gov/site/alias\\_1962/37068/chehalis\\_basin\\_board.aspx](https://www.ezview.wa.gov/site/alias_1962/37068/chehalis_basin_board.aspx)

## **Key Activity Areas:**

1. Local Projects -- [https://www.ezview.wa.gov/site/alias\\_1492/34489/local\\_projects.aspx](https://www.ezview.wa.gov/site/alias_1492/34489/local_projects.aspx)
2. Flood Warning System -- [www.chehalisriverflood.com](http://www.chehalisriverflood.com)
3. Chehalis Basin Strategy -- [www.chehalisbasinstrategy.com](http://www.chehalisbasinstrategy.com)
  - ASRP -- <https://chehalisbasinstrategy.com/asrp/>
  - CFAR -- <https://chehalisbasinstrategy.com/cfar/>
  - Proposed Retention Project -- <https://chehalisbasinstrategy.com/proposed-project/>
    - Chehalis River Basin Flood Control Zone District -- <https://www.chehalisriverbasinfczd.com/>
    - State EIS (SEPA) -- <https://chehalisbasinstrategy.com/sepa-process/>
    - Federal EIS (NEPA) -- <https://chehalisbasinstrategy.com/federal-envl-review/>
    - Flood Retention Facility (visualization) -- <https://www.youtube.com/watch?app=desktop&v=cKTejUE3WsU>
  - Skookumchuck Dam -- <https://chehalisbasinstrategy.com/skookumchuck-dam-study/>
  - LAND -- <https://chehalisbasinstrategy.com/local-actions-non-dam-alternative/>

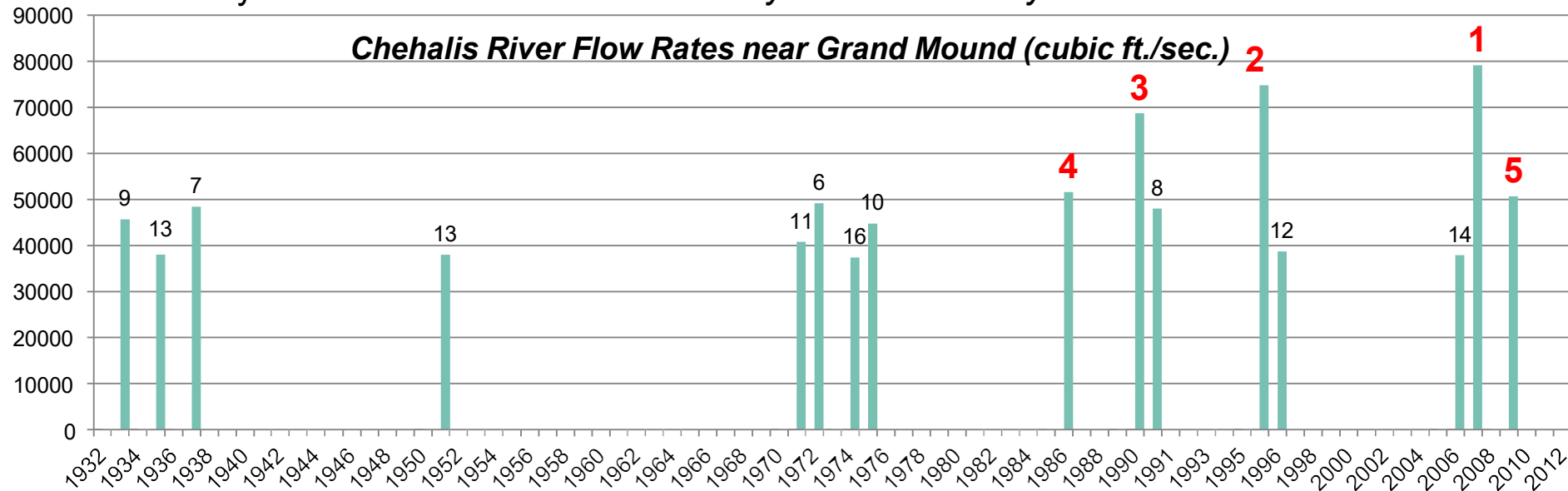
**Also** → Sign-Up for Email Gage Alerts – <https://chehalis.onerain.com/upload/files/6a9bf8e2-f04b-4165-8a9f-ce031d5db6b4.pdf>

# Also -- Background

## ■ Ranked high flow events (1932 - 2012) . . .

- I-5 closed 1990, 1996, 2007, 2009.
- Five largest events since 1986 -- *Frequent floods are getting worse and damage is increasing . . .*
- 100 year flood estimate -- *Increased by 33% in last 30 years.*

**Chehalis River Flow Rates near Grand Mound (cubic ft./sec.)**



# Also -- Background

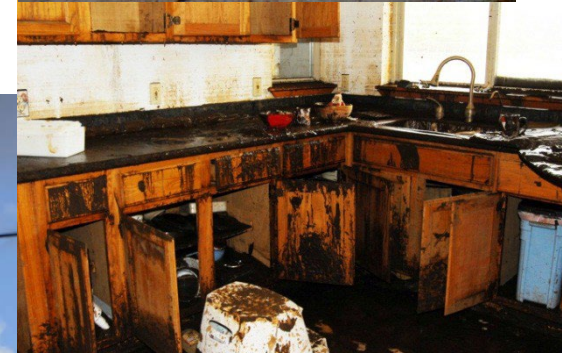
- 2007 Storm -- \$938M Basin-wide damage, \$300M lost economic activity (WA).



**Exit 77 (I-5) in Chehalis**  
STEVE RINGMAN / SEATTLE TIMES



**City of Centralia**  
STEVE RINGMAN / SEATTLE TIMES



← **Photos Source:** LEWIS COUNTY,  
DIVISION OF EMERGENCY  
MANAGEMENT



**State Route 6,  
West of Adna**  
MIKE  
SALSBURY /  
AP

