

Chehalis River Basin Flood Authority

*Reducing Flood Damage and
Restoring Aquatic Species*

City of Napavine

July 12, 2022

Scott Boettcher

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Today's Presentation

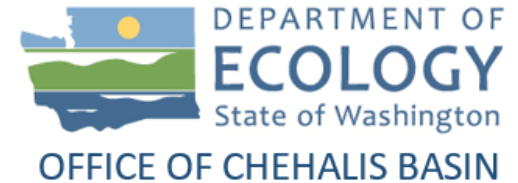
- Describe the “Flood Authority”
 - #1 -- Local Projects
 - #2 -- Flood Warning System
 - #3 – Role



- 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)

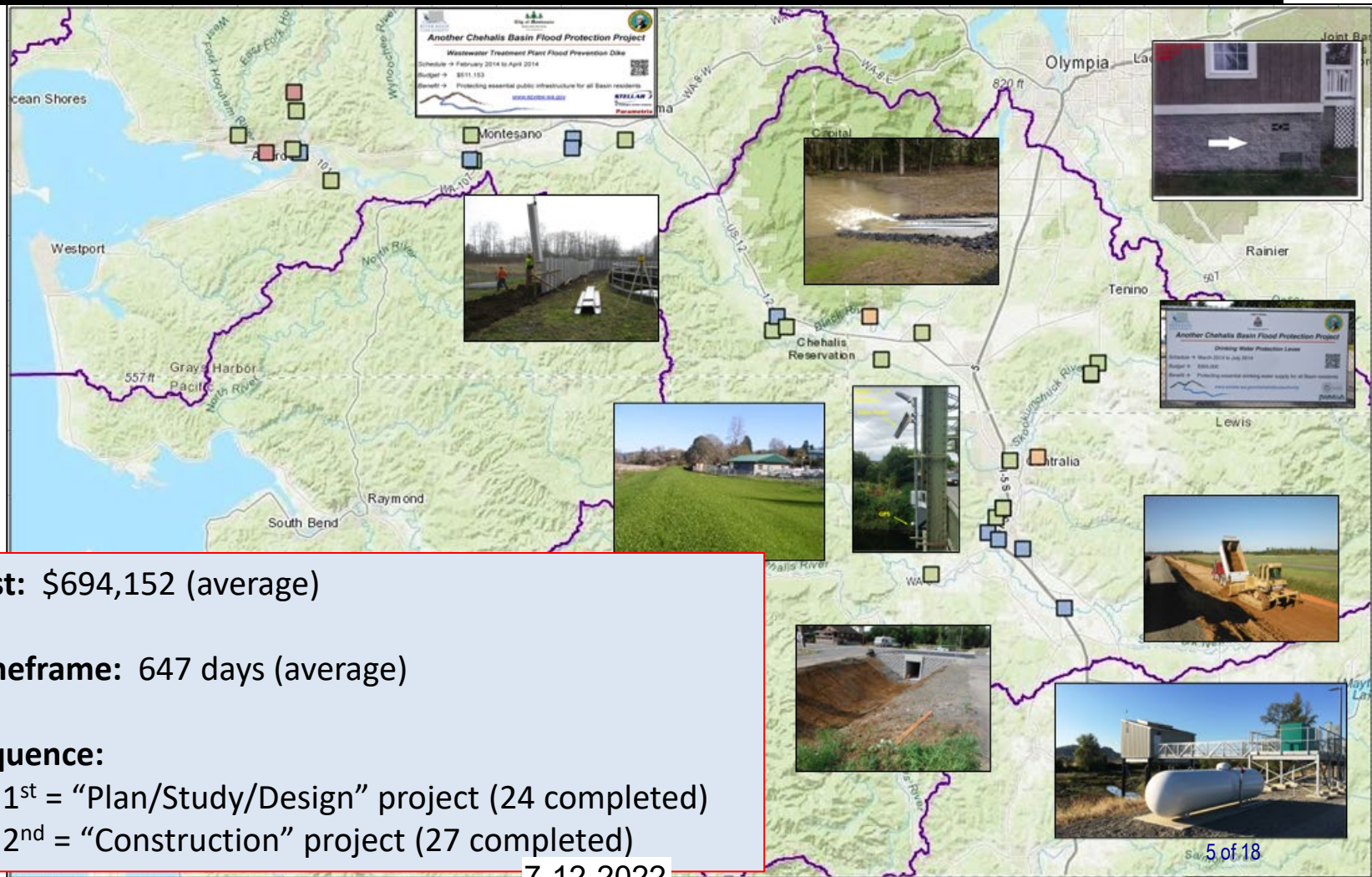


Local Projects (#1)

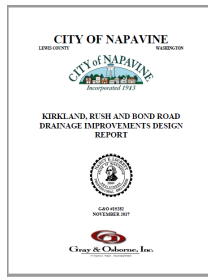
1. Reduce flood damage.
2. Protect people, property, infrastructure.
3. Improve readiness, response, resiliency.
 - *Drinking Water* (Boistfort, Bucoda).
 - *Wastewater* (Montesano, Pe Ell).
 - *Emergency Response* (Grays Harbor County, Chehalis-Centralia Airport).
 - *Regional Economic Infrastructure* (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>
\$51.4M

Local Projects (Completed 2012-23)



COMPLETED – Kirkland Road Flood Study



Local Projects (Napavine)

- ✓ Project = Study drainage improvements.
- ✓ Cost = \$37,684
- ✓ Conclusion = Focus on:
 - maintenance (ditch and culvert cleaning, including minor ditch reshaping, mowing, and clearing vegetation).
 - coordination with WSDOT additionally on future drainage infrastructure design.
- ✓ Report (11/2017) = <https://secure.rco.wa.gov/prism/search/ProjectSnapshotAttachmentData.aspx?id=323090>.



Local Projects (Chehalis)



New Pump -- 2017

January 2022



Old Pump – 1940s



Widening/Repairing

Levee – 2014 7-12-2022

- ✓ New Pump Cost = \$1.1M
- ✓ Widening Levee = \$1.2M
- ✓ ROI = Substantial (~\$9M annual in local and state tax revenues)
- ✓ 1/2022 High-water event = Airport stayed operational

UNDERWAY – Chehalis Industrial Park: “Regionalized Floodwater Management Approach”

Local Projects (Chehalis Industrial Park)

BEFORE THE BOARD OF COUNTY COMMISSIONERS LEWIS COUNTY, WASHINGTON

RESOLUTION NO. 20-163

IN THE MATTER OF:

APPROVE A .09 (“DISTRESSED COUNTIES”) GRANT
AGREEMENT WITH LEWIS COUNTY FLOOD CONTROL
DISTRICT #1

WHEREAS, by Resolution the Lewis County Board of County Commissioners approve funding in the amount of \$156,000.00 for the Flood Reduction Projects in the LCFCF #1 a project to serve future demand, a project that meets the definition of a “public facility” under RCW 82.14.370; and

WHEREAS, the Comprehensive Economic Development Strategy (CEDS) is a list of projects maintained by the Lewis County Economic Development Council (EDC) (RCW 82.14.370); and

WHEREAS, Lewis County Flood Control District #1 application for funding of the Flood Reduction Projects in the LCFCF #1 project has been recommended for approval and listing in the CEDS by the Distressed Counties/Rural Economic Development Public Facilities Advisory Committee, the Committee created to recommend projects for listing in the CEDS; and

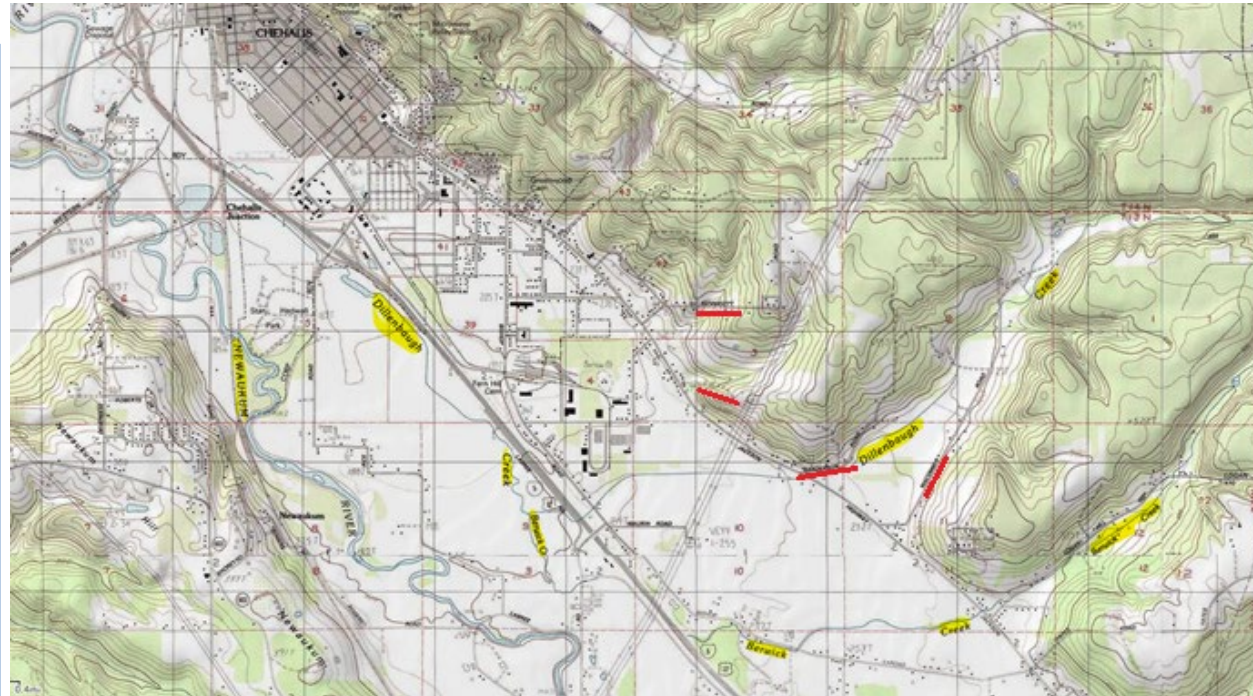
WHEREAS, the Lewis County Flood Control District #1 application is also supported by the attached Grant Agreement prepared by the EDC pursuant to the CEDS, which Agreement is incorporated herein by reference; and

WHEREAS, it is in the best interest of the citizens of Lewis County that the funds requested by CEDS be authorized in order to allow completion of the “Flood Reduction Projects in the LCFCF #1” a project that supports economic development in our community.

NOW THEREFORE BE IT RESOLVED that the Lewis County Board of County Commissioners (BOCC) approves the Flood Reduction Projects in the LCFCF #1 project as a public facility for purposes of RCW 82.14.370 and amends the Community Economic Development Strategies (CEDS) list to include that project in the county’s overall economic development plan; and

NOW THEREFORE BE IT FURTHER RESOLVED that the BOCC authorizes Lewis County to enter into the attached Grant Agreement with the Lewis County Flood Control District #1, for the Flood Reduction Projects in the LCFCF #1 project, in the amount of \$156,000.00 using monies from the “Distressed Counties Fund,” all in accordance with RCW 82.14.370 and applicable law.

DONE IN OPEN SESSION this 18th day of May, 2020.



Vicinity Topography, Lewis County GIS Web Map



2019 Flooding, Rick Rouse

7-12-2022

COMPLETED – Boistfort Valley Water Pre-Sedimentation Pond

Local Projects (Boistfort Valley)



7-12-2022

COMPLETED (2014) – WWTP Flood Prevention Dike Project

Local Projects (Pe Ell)



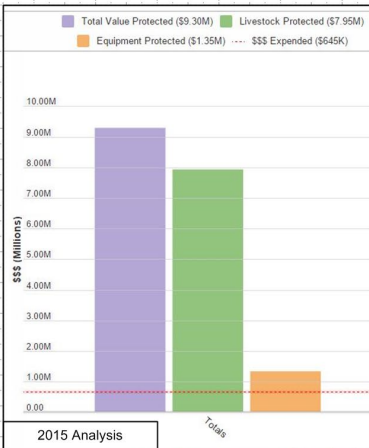
- ✓ Project = Design/construct 900' dike (between Chehalis r. and WWTP).
- ✓ Cost = \$521,000.
- ✓ Photos = https://www.ezview.wa.gov/site/alias_1492/35040/default.aspx#peell.
- ✓ Website = https://www.ezview.wa.gov/site/alias_1782/34858/overview.aspx

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



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

7-12-2022



Click icon to sign-up for email gage alerts.

Flood Warning System (#2)

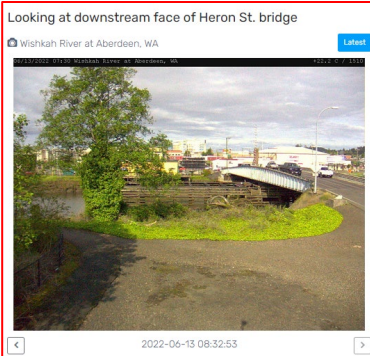
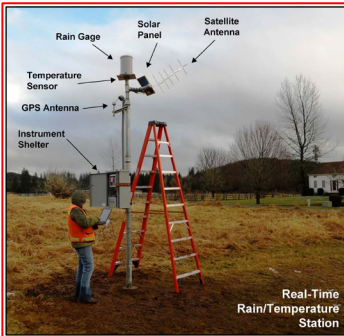
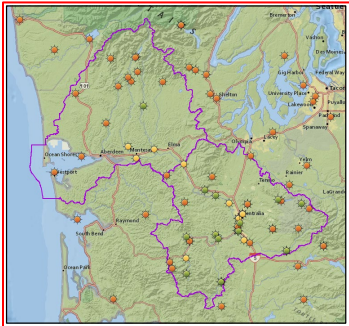
CHEHALIS RIVER BASIN FLOOD AUTHORITY www.chehalisriverflood.com

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



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

7-12-2022



Click icon to sign-up for email gage alerts.

Flood Warning System (2022 Flood Event)

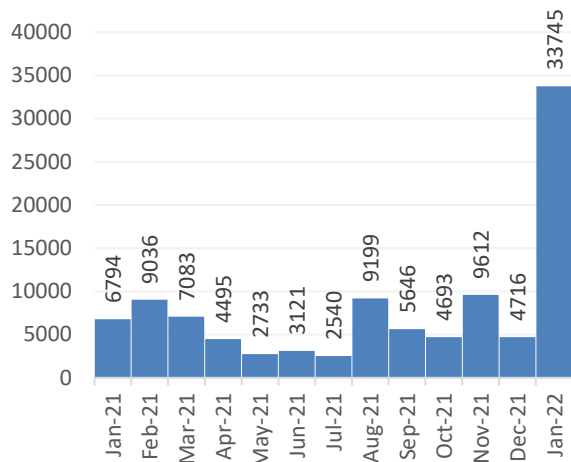
Flood Warning System Works!

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*

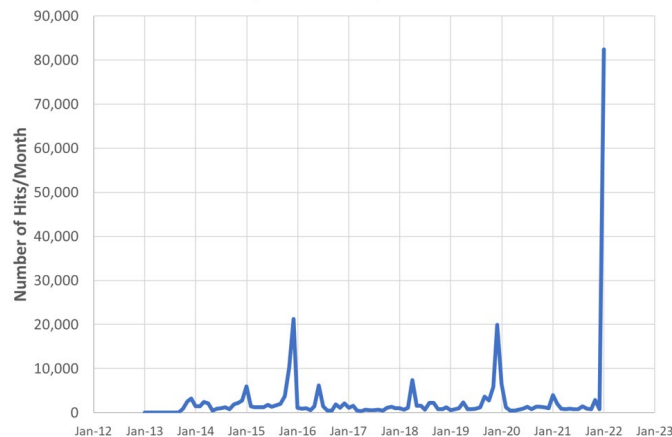
Unknown contact said:

"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*

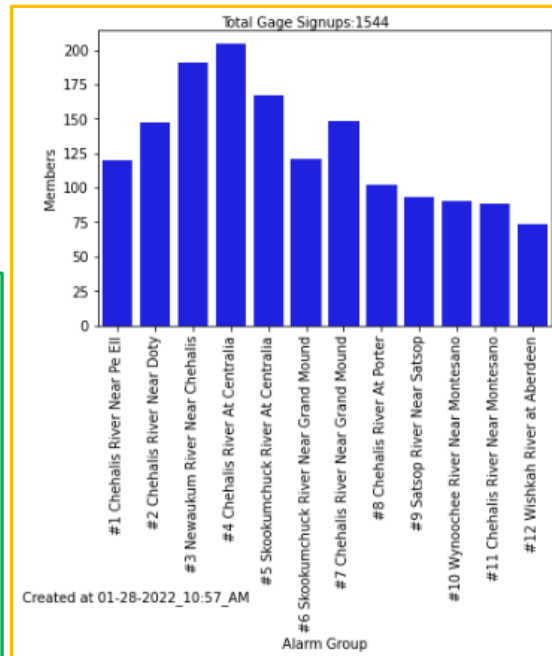
Chehalis FA Website Visits



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



7-12-2022



Flood Authority Role (#3)

Local Resolutions Favoring Basin-Wide Solution

File Name	File Size	Category	Date Added
Aberdeen -- 2020-07-29 -- 2020-14.pdf	84 KB	2020	08/05/20 01:25 PM
Aberdeen -- 2021-01-27 -- 2021-05.pdf	1.3 MB	2021	03/18/21 05:27 AM
Bucoda -- 2020-06-09 -- 2020-04.pdf	610 KB	2020	07/15/20 10:38 AM
Bucoda -- 2021-02-08 -- 2021-01.pdf	862.3 KB	2021	03/18/21 05:11 AM
Centralia -- 2016-11-08 -- 2652.pdf	76 KB	2016	07/15/20 10:38 AM
Centralia -- 2020-05-26 -- 2718.pdf	809.8 KB	2020	07/15/20 10:39 AM
Centralia -- 2021-02-09 -- 2733.pdf	1 MB	2021	03/18/21 09:11 AM
Chehalis -- 2010-02-22 -- 5-2010.pdf	40.8 KB	2010	07/15/20 10:39 AM
Chehalis -- 2016-10-24 -- 19-2016.pdf	40.2 KB	2016	07/15/20 10:39 AM
Chehalis -- 2020-04-27 -- 6-2020.pdf	239 KB	2020	07/15/20 10:39 AM
Chehalis -- 2021-02-08 -- 2-2021.pdf	553.8 KB	2021	03/18/21 05:10 AM
Cosmopolis -- 2020-05-20 -- 2020-01.pdf	122 KB	2020	07/15/20 10:40 AM
CRBFA -- 2021-01-21 -- Resolution.pdf	130.3 KB	2021	03/18/21 05:09 AM
CRBFA Letter Re NEPA DEIS 11-13-2020 (additional 11-19-2020).pdf	252.7 KB	2020	02/01/21 09:12 AM
CRBFA Letter Re NEPA DEIS 11-13-2020.pdf	3.5 MB	2020	02/01/21 09:12 AM
Final CRBFA Letter Re DEIS 4-21-2020.pdf	293 KB	2020	02/01/21 09:11 AM
Grays Harbor County -- 2016-11-14 -- 2016-129.pdf	98.6 KB	2016	07/15/20 10:40 AM
Grays Harbor County -- 2020-05-19 -- 2020-054.pdf	92.8 KB	2020	07/15/20 10:40 AM
Grays Harbor County -- 2021-04-06 -- 2021-031.pdf	126.2 KB	2021	04/07/21 10:19 AM
Hoquiam -- 2021-04-12 -- 2021-12.pdf	110.1 KB	2021	04/16/21 10:14 AM
Hoquiam -- 2020-08-10 -- 2020-12.pdf	88.8 KB	2020	08/14/20 03:52 PM
Lewis County -- 2016-10-24 -- 16-287.pdf	71.7 KB	2016	07/15/20 10:40 AM
Lewis County -- 2020-05-11 -- 20-154.pdf	651 KB	2020	07/15/20 10:40 AM
Lewis County -- 2021-02-01 -- 21-046.pdf	1.2 MB	2021	03/18/21 05:10 AM
Montesano -- 2020-06-10 -- 959.pdf	503.2 KB	2020	07/15/20 10:41 AM
Napavine -- 2020-07-28 -- 20-07-110.pdf.pdf	463.1 KB	2020	07/29/20 11:25 AM
Oakville -- 2020-07-20 -- 424.pdf.pdf	288.5 KB	2020	07/21/20 12:06 PM
Pe Ell -- 2010-04-06 -- 184.pdf	56.9 KB	2010	07/15/20 10:41 AM
Pe Ell -- 2010-12-28 -- 192.pdf	56.4 KB	2010	07/15/20 10:41 AM
Pe Ell -- 2012-09-18 -- 201.pdf	55.4 KB	2012	07/15/20 10:41 AM
Pe Ell -- 2016-11-15 -- 232.pdf	76.7 KB	2016	07/15/20 10:42 AM
Pe Ell -- 2020-06-01 -- 251.pdf		2020	07/15/20 10:42 AM
Pe Ell -- 2021-03-02 -- 260.pdf	134 KB	2021	03/18/21 05:11 AM

7-12-2022

- ✓ **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. 14 of 18

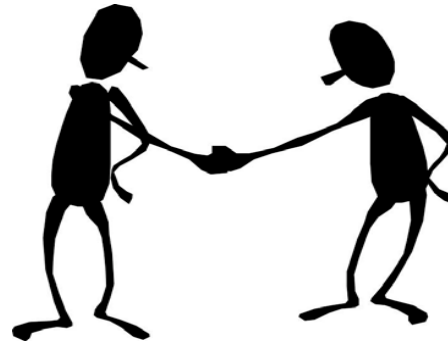
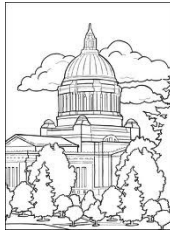
Office of Chehalis Basin, Chehalis Basin Strategy



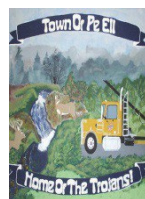
Office of Chehalis
Basin

Chehalis Basin
Board

<https://chehalisbasinstrategy.com/>



Chehalis Lead Entity



WASHINGTON STATE DEPARTMENT OF
Natural Resources

TOWN of BUCODA



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
- ✓ **Sign-Up For Email Gage Alerts** – 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

Edna Fund, Lewis County Representative

Vice-Chair, Chehalis River Basin Flood Authority

Member, Chehalis Basin Board

360/269-7514

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Member, Chehalis River Basin Flood Authority

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Thank You!

This Presentation:

Available at “Chehalis River Basin Flood Authority” Website at
https://www.ezview.wa.gov/site/alias__1492/34490/outreach_education.aspx

Email Distribution Lists:

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megan.sathre@lewiscountywa.gov

Cindy Bradley (Office of Chehalis Basin)
Cindy.Bradley@ecy.wa.gov

Also -- Key Links

Key Organizations:

1. Chehalis River Basin Flood Authority -- 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

Key Activity Areas:

1. Local Projects -- https://www.ezview.wa.gov/site/alias_1492/34489/local_projects.aspx
2. Flood Warning System -- www.chehalisriverflood.com
3. Chehalis Basin Strategy -- 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/>

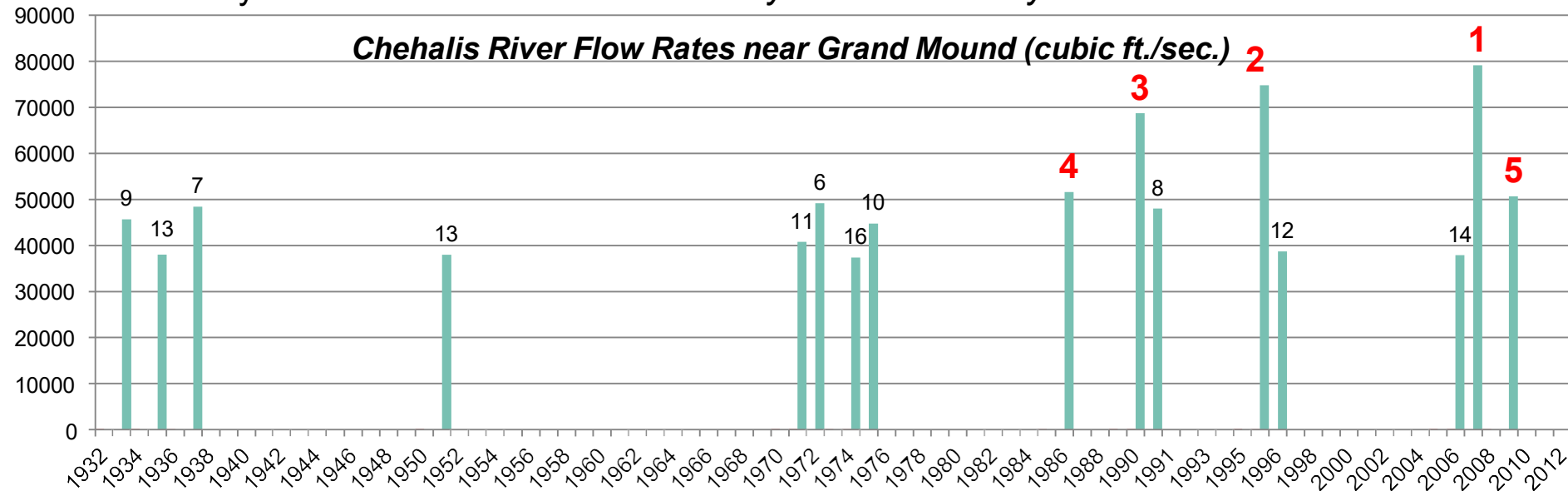
Also → Sign-Up for Email Gage Alerts – <https://chehalis.onerain.com/upload/files/6a9bf8e2-f04b-4165-8a9f-ce031d5db6b4.pdf>

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

