

Chehalis River Basin Flood Authority

*Reducing Flood Damage and
Restoring Aquatic Species*

City of Oakville
February 24, 2025

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

2 of 26



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



Today's Presentation

- “Flood Authority”

- #1 -- Local Projects

- #2 -- Flood Warning System

- “Chehalis River Basin Flood Control Zone District”

- #3 -- Proposed Flow-through Dam for Flood Control



**CHEHALIS
RIVER BASIN**
FLOOD CONTROL
ZONE DISTRICT



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)

***Help local communities identify, develop, implement
local flood hazard reduction solutions.***

Local Projects (#1)

1. Reduce flood damage.
2. Protect people, property, infrastructure.
3. Improve readiness, response, resiliency.
 - *Drinking Water* (Boistfort, Bucoda, Montesano).
 - *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, 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

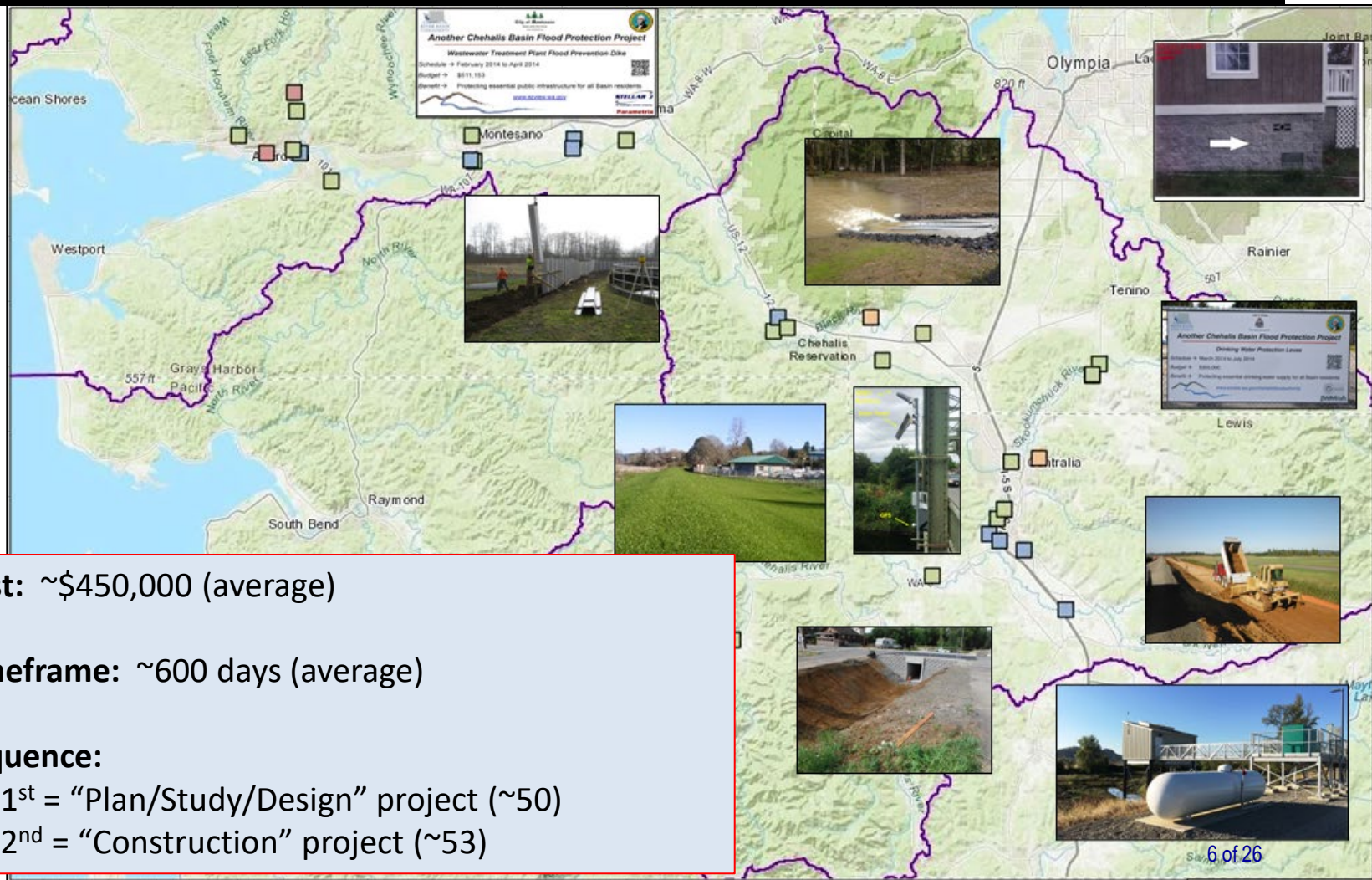
2021-23 -- \$ 4.1M

2023-25 -- \$ 3.6M

\$55.0M

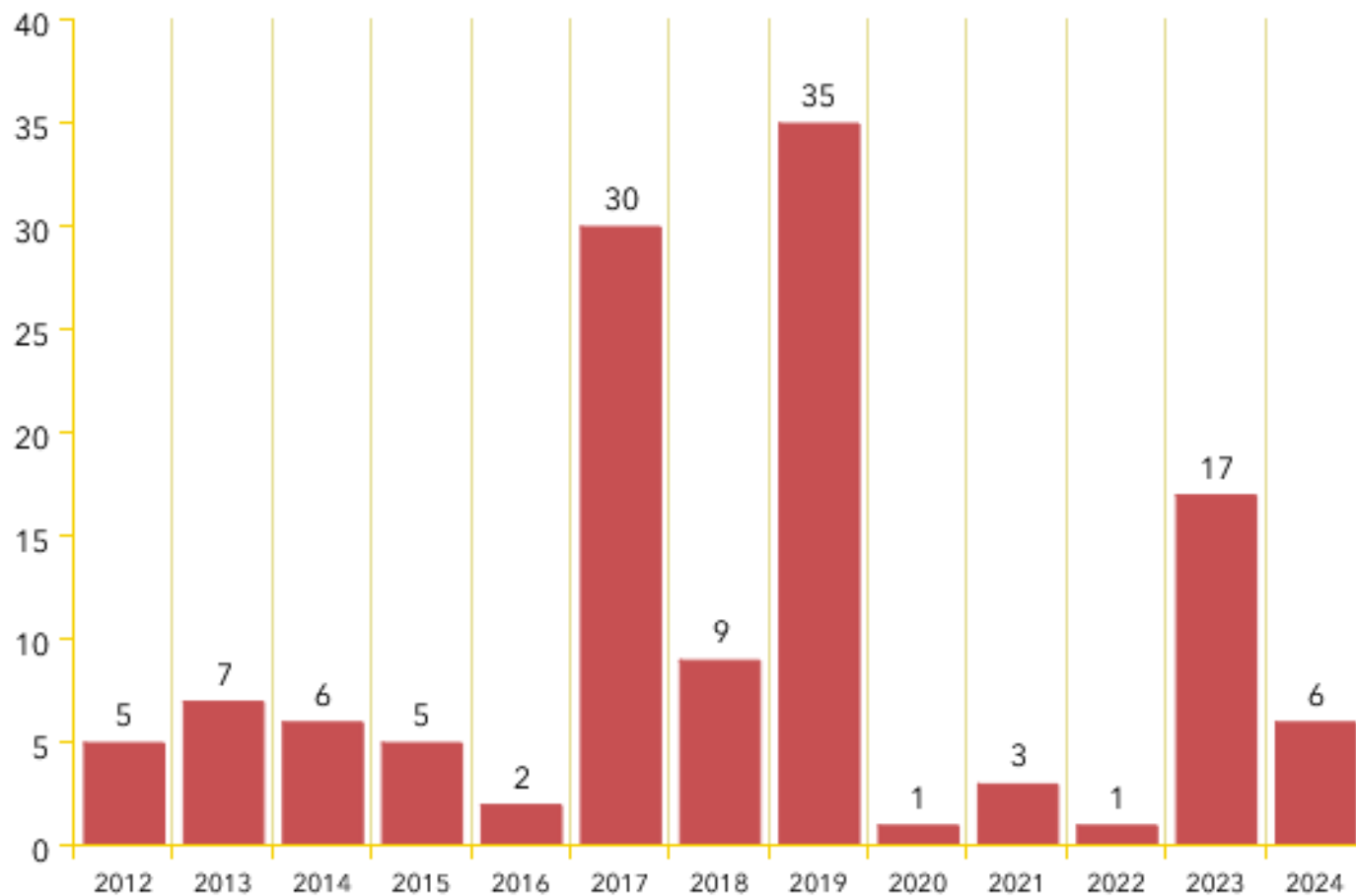
2025-27 -- \$13.0M
request

Local Projects (100+ Projects Completed 2012-23)



Local Projects (100+ Projects Completed 2012-23)

Projects Completed by Year



Local Projects (Pe Ell, 2014)



- ✓ Project = Design/construct 900' dike (between Chehalis river and WWTP).
- ✓ Cost = \$521,000.
- ✓ Photos = [Here](#).
- ✓ Website = [Here](#).

Local Projects (Boistfort Valley, 2017)

- ✓ 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.



Local Projects (Chehalis-Centralia Airport, 2017)



- ✓ Completed -- Fall 2017.
- ✓ Cost -- \$1.14M.
- ✓ January 2022 Flood Event – Pumped 518.4M gallons over many days to keep levee dry.
- ✓ ROI (2018) -- Protects \$45M in assets, ensures \$9M in annual tax revenue.

Read More -- [Here](#).



← Previous
WWII-era
pump

Local Projects (Oakville, 2017)

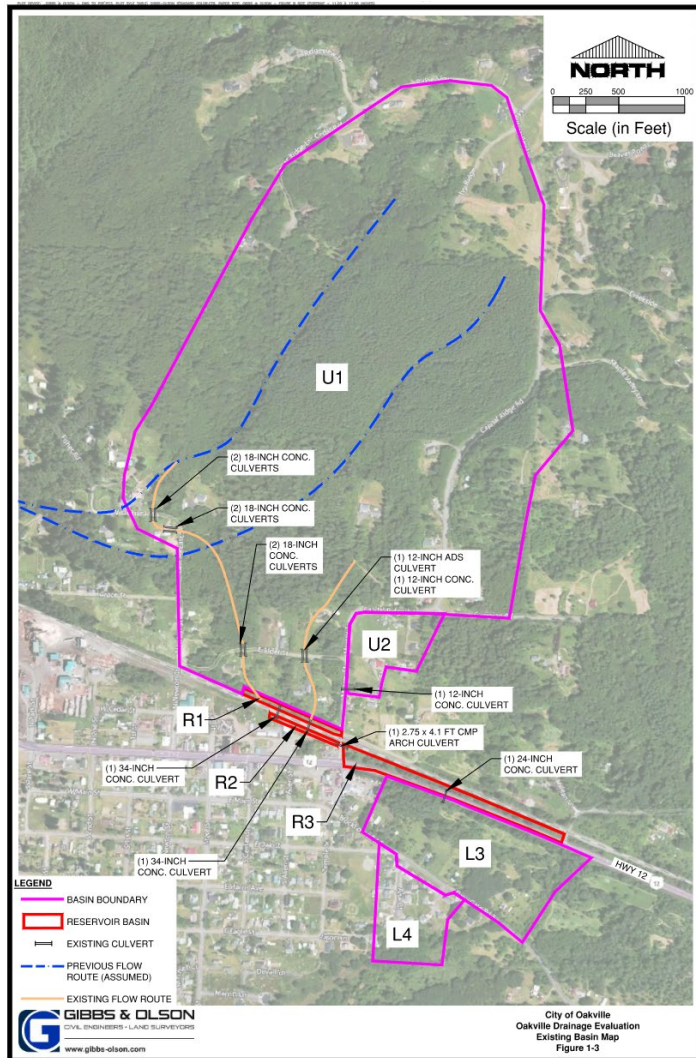


Figure 1-2
Flooding Along Arla and Avarie Courts



Photo Source: Chehalis River Basin Flood Authority, Active Projects
https://www.ezview.wa.gov/site/alias_1942/overview/36782/overview.aspx

- ✓ Project = Drainage analysis, improvements.
- ✓ Cost = \$55,000
- ✓ Flood Authority Conclusion = More stormwater than catastrophic Chehalis river basin flooding.
- ✓ Report (9/2017) = [Here](#).

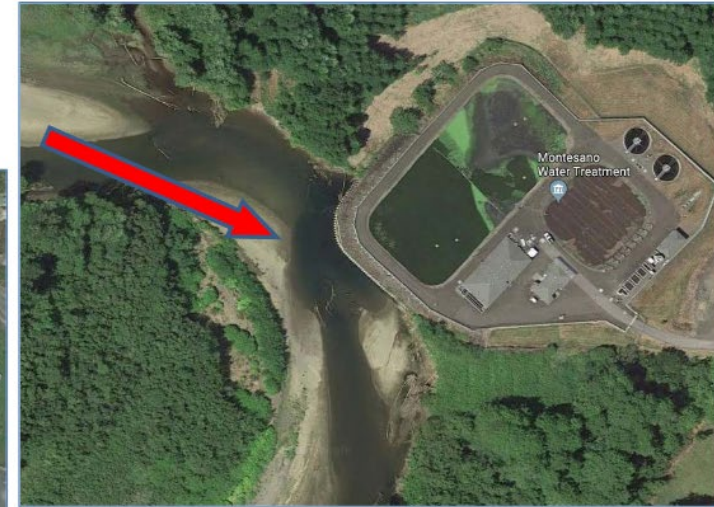
Local Projects (Montesano, 2017-2020)

- ✓ 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



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



Project Start



Governor Inslee and Mayor Samuel stand overlooking the Wynoochee River.

July 7, 2022 →

Local Projects (Cosmopolis, 2018)

Mill Creek Multi-Objective Implementation Plan:

- ✓ Part I = Reconstruct Mill Creek Dam (done).
- ✓ Phase II project = Address 4,500' of Mill Creek flow, culverts, and flood water evacuation (under development).

Read 5-24-2024 news article [here](#)



CHEHALIS RIVER BASIN FLOOD AUTHORITY
CITY OF COSMOPOLIS

Another Chehalis Basin Flood Protection Project

Mill Creek Dam Improvement Project

Schedule → October 2015 to July 2017
Budget → \$3,082,000
Benefit → Protecting and restoring essential Community flood control assets

www.ezview.wa.gov/chehalisfloodauthority

QR code and HDR logo



City of Cosmopolis, Sep 29, 2018



The Daily World
AGAIN, Voted **BEST BANK** & BEST PLACE TO GET A LOAN
It's You that makes us better. Thanks!

News Sports Life Opinion Weather Obituaries Print Editions Contests Classifieds All Sections

NEWS

New Mill Creek Dam ribbon cutting Saturday in Cosmopolis

September 28, 2018 7:00 pm

FILE PHOTO Cosmopolis Mayor Frank Chestnut (left) will officiate a ribbon cutting ceremony for the new Mill Creek Dam Saturday at noon.

<https://www.thedailyworld.com/news/new-mill-creek-dam-ribbon-cutting-saturday-in-cosmopolis/>

- ✓ 8 pump stations.
- ✓ \$50M cost.
- ✓ \$30M to date (58%).
- ✓ \$12M request (24%).

- 2,735 acres
- 4,583 parcels
- 232 businesses
- \$1.1B assessed value

EXAMPLE 10th St Pump Station

Local Projects (Hoquiam, 2024)

PUMP STATION FENCING WITH PRIVACY SLATS



PUMP STATION FENCING AND DISCHARGE PIPES INSTALLED



PROPELLER PUMP MOTORS INSTALLED



PUMPS AND DISCHARGE PIPE FLEX COUPLERS



Local Projects (Bucoda, 2016)

- ✓ 11 Properties
- ✓ Total -- \$ 85,465.43.
- ✓ Average -- \$8,550.
- ✓ Link – [here](#).
- ✓ Web map – [here](#).

U.S. DEPARTMENT OF HOUSING AND
FEDERAL EMERGENCY MANAGEMENT AGENCY

ELEVATION CERTIFICATE

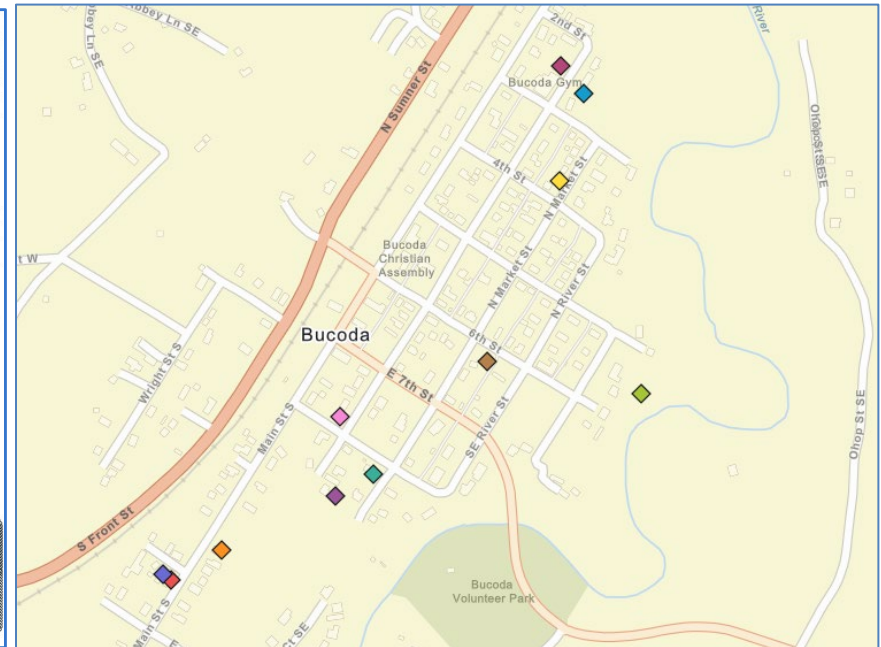
OMB No. 2560-0008
Expiration Date: July 31, 2016

IMPORTANT: Follow the instructions on pages 1-6.

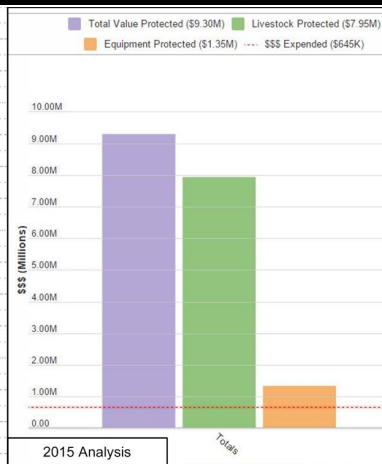
SECTION A - PROPERTY INFORMATION		FOR INFORMATION COMPANY USE	
A1. Building owner's name: Colleen M. Tate		FEMA Number: _____	
B1. Building Street Address including Apt., Unit, Suite, and/or Bldg. No. or RD. Route and Box No.: 303 N. Market Street		FEMA Sub-# Number: _____	
C1. Building type: G/Cuda		State: VA ZIP Code: 88530	
A3. Previous Flood Insurance Policy Number and Date: 1580030900		Flood Hazard Date: _____	
A4. Building Use (e.g., residential, Non-Residential, Industrial, Accessory, etc.): Residential		Flood Hazard Date: <input checked="" type="checkbox"/> NAD 1927 <input checked="" type="checkbox"/> NAD 1983	
A5. Latitude/longitude: 36.824666 -80.027816		Flood Hazard Date: _____	
A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance.		Flood Hazard Date: _____	
A7. For a building with a crawlspace or enclosures: a) Total net area of floor openings in the crawlspace or enclosure: 550 sq ft		A8. For a building with an attached garage: a) Total net area of floor openings in the attached garage: _____ sq ft	
b) Total net area of floor openings in the crawlspace or enclosure: 0 sq ft		b) Total net area of floor openings in the attached garage: _____ sq ft	
c) Total net area of floor openings in A.D.: 318 sq ft		c) Total net area of floor openings in A.D.: _____ sq ft	
d) Engineered Flood Information? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		d) Engineered Flood Information? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

SECTION B - FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

B1. NEF Company Name & Contract Number: UNITED STATES & 5301789		THURSTONE COUNTY		B3. Basis of Flood Insurance Rating: AO, base flood depth	
B2. Flood Insurance Policy Number: 330672C486		FIRM Number: 03/02/2012		B4. Basis of Flood Insurance Rating (Zone AD, base flood depth): 250.0'	
B5. Inundation Date: 03/02/2012		B6. Flood Insurance Zone: AE		B7. Basis of Flood Insurance Rating (Zone AD, base flood depth): 250.0'	
B8. Inundation Date: 03/02/2012					
B9. Inundation Date: 03/02/2012					
B10. Inundation Date: 03/02/2012					
B11. Inundation Date: 03/02/2012					
B12. Inundation Date: 03/02/2012					
B13. Inundation Date: 03/02/2012					
B14. Inundation Date: 03/02/2012					
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B78. Inundation Date: 03/02/2012					
B79. Inundation Date: 03/02/2012					
B80. Inundation Date: 03/02/2012					
B81. Inundation Date: 03/02/2012					
B82. Inundation Date: 03/02/2012					
B83. Inundation Date: 03/0					



Local Projects (Farm Pads)



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://arcb.org/2b632Ai>.

- ★ → Complete
- ☆ → Underway



Farm Pads, Evacuation Routes (2012-19)

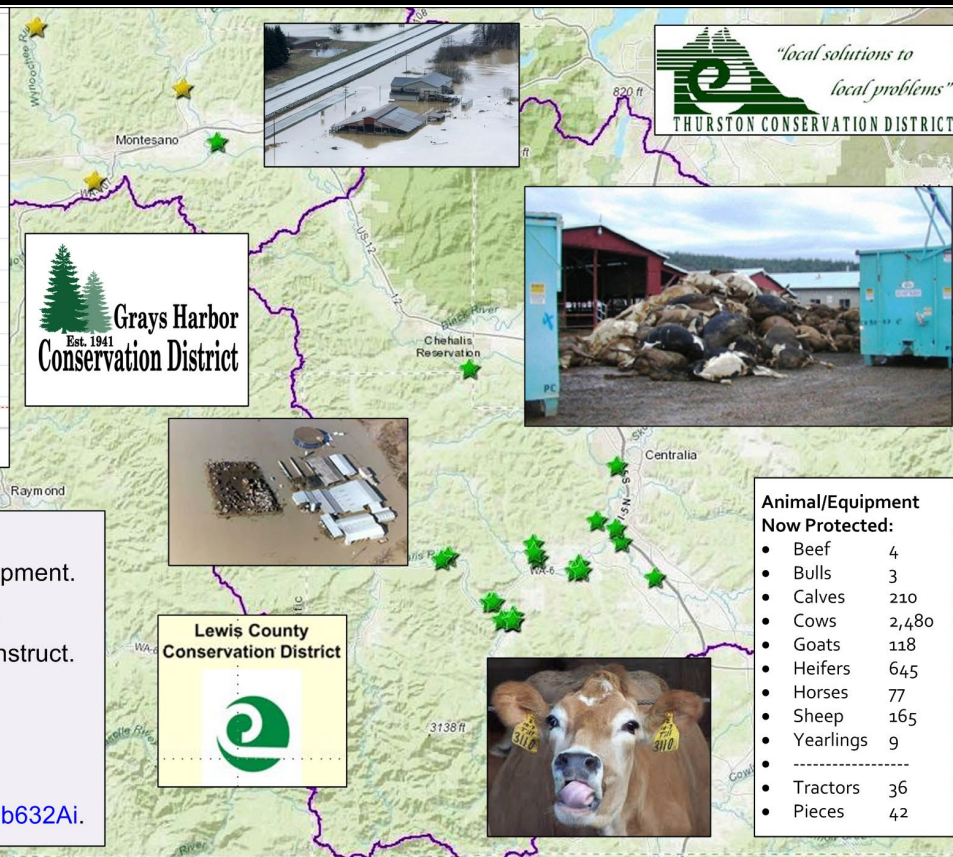
www.ezview.wa.gov/chehalisfloodauthority

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

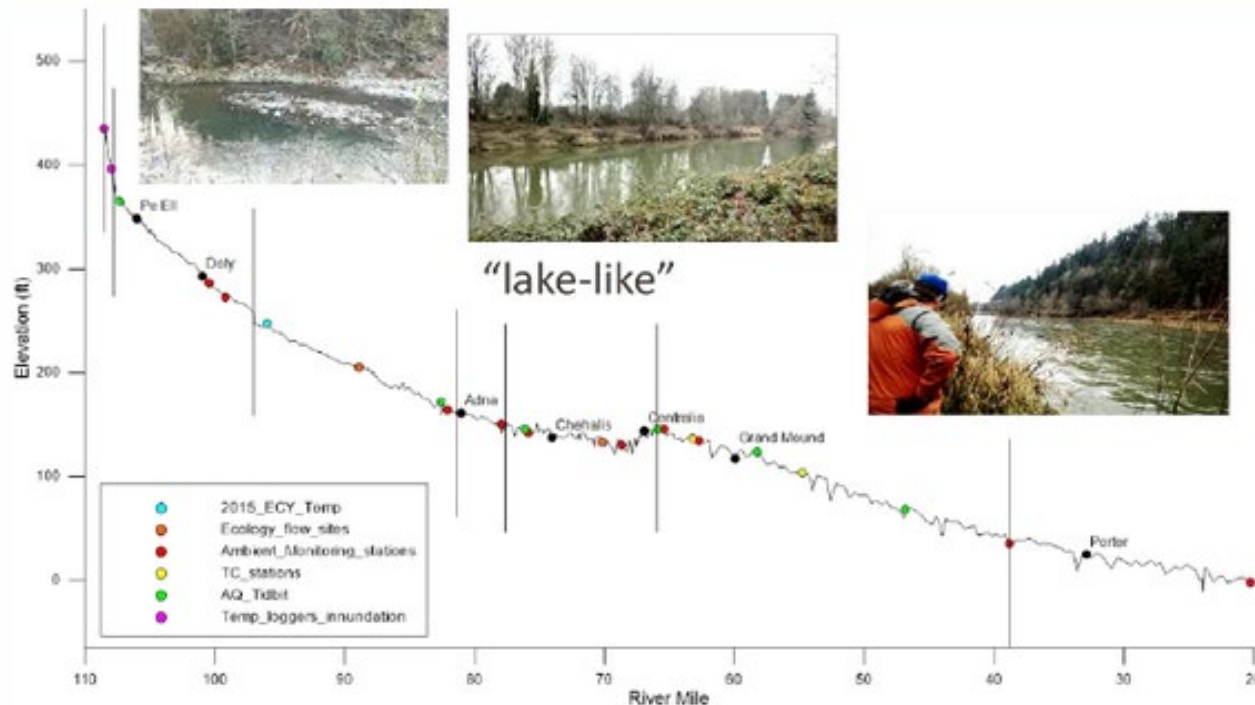


10/17/2019

16 of 26



Local Projects (Geographically-Based)



Basin Geography

- ☐ Upper = Steep, narrow, fast flowing.
- ☒ Middle = Flat, “lake like”, slow to drain.
- ☐ Lower = Flat, coastal, difficult to drain.

Shah, Mohammad. (2021). inland water-dynamics and ecology. [10.5772/intechopen.87463](https://doi.org/10.5772/intechopen.87463).

Local Projects (Mid-Basin -- Geographically-Based)

South City of Chehalis & Port of Chehalis



Geographic flooding strategy with sequenced investments:

- ✓ Increase flood storage
- ✓ Reduce flood levels
- ✓ Minimize damage, monetary losses

Mar 6th = Community workshop (VL
Community Building, 2-6 PM)

Flood Warning System (#2)

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

www.chehalisriverflood.com

https://chehalis.rain.com

67%

Home Map Sites News Dashboards Bookmarks

The Chehalis River Basin Flood Warning System

Be Aware; Be Prepared: Flood Season is here!

Sign Up Now to receive 2023-24 email high water alerts - The Chehalis Basin Flood Warning System sends automatic email alerts about rising floodwaters.

To sign up for email alerts, click the icon below:

Questions?

Contact Cheryl Vincent at cvincent@westconsultants.com and Jennifer McAdoo at jennifer.mcadoo@icf.com.

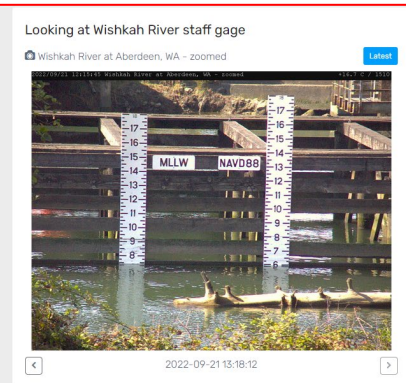
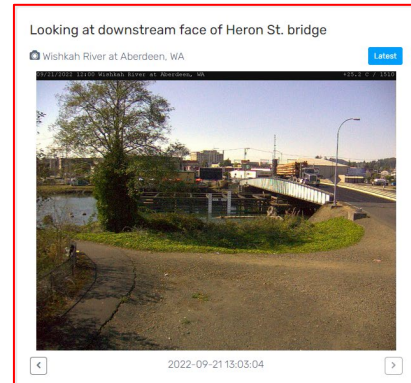
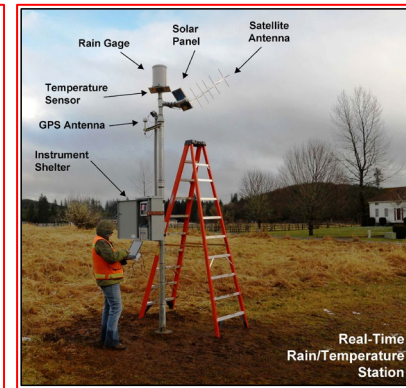
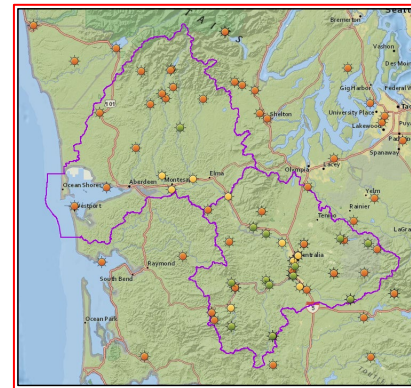
Para leer esta información en español, haga clic aquí

Click here on the image above to visit our Interactive ArcGIS Dashboard!

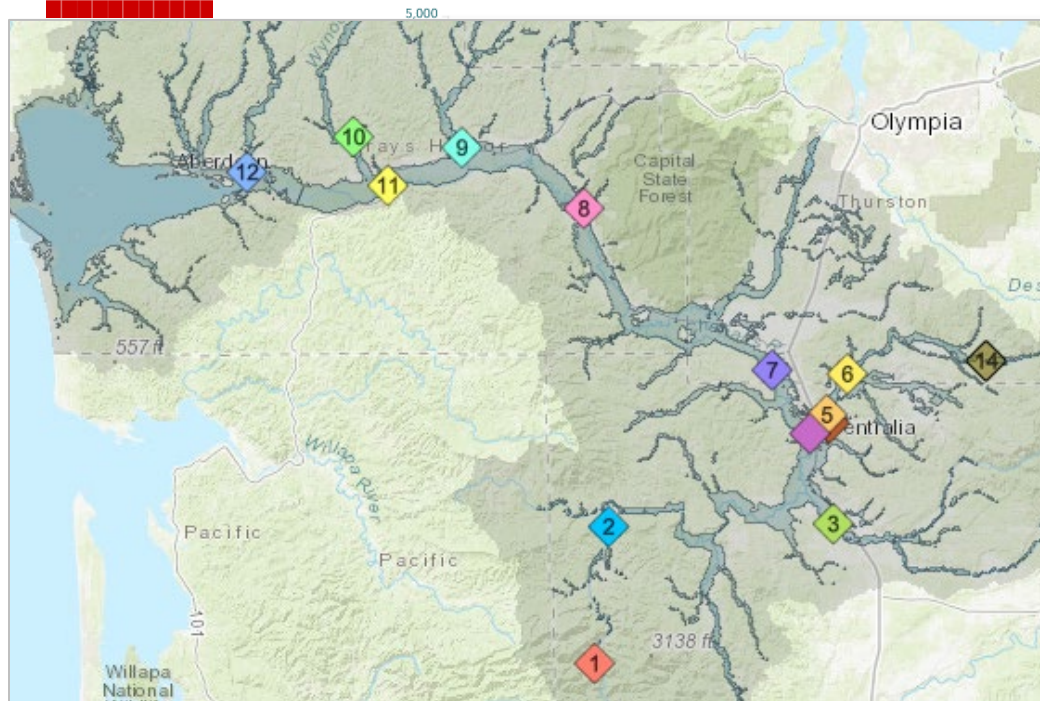
Rainfall Summary River Summary

Chehalis River Basin Forecasting Tools

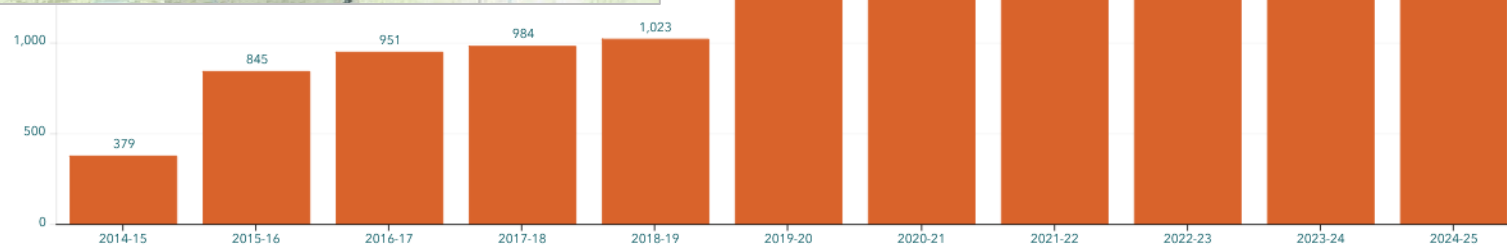
- Chehalis River (and tributaries) Dashboard
- Weather Forecast
- Rainfall Forecast
- Radar Rainfall
- River Forecast
- Flood Maps
- Atmospheric Rivers
- King Tides Calendar
- Seasonal Precipitation and Temperature Forecasts



Flood Warning System (Alert Sign-Ups)



Sign-up for
email high water
alerts [here](#).



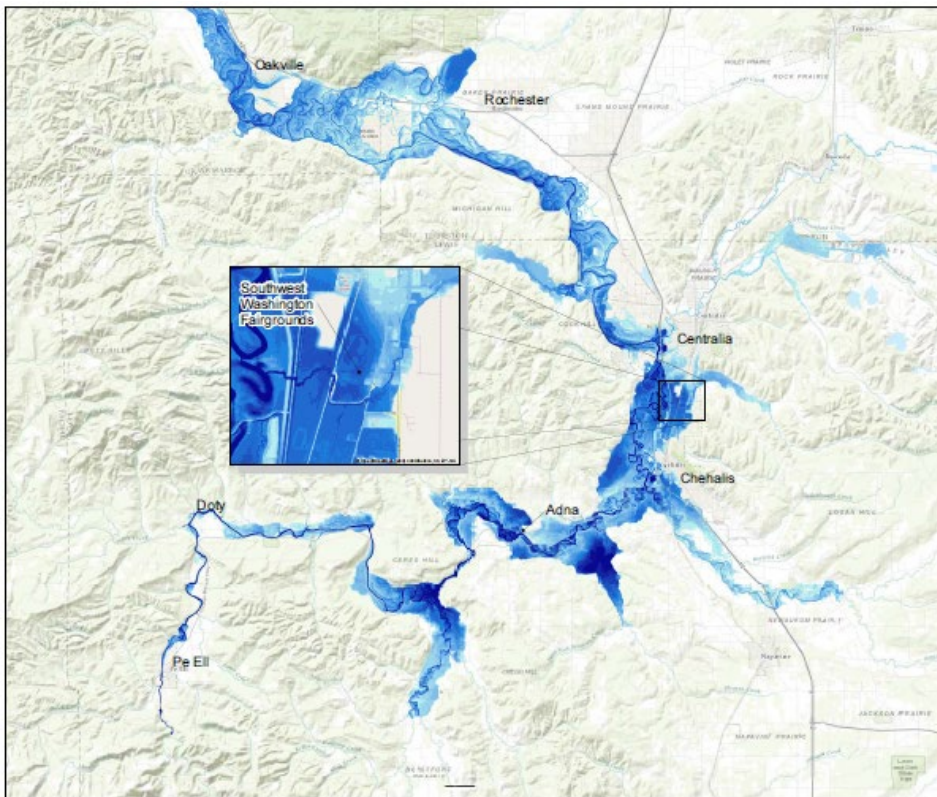
Proposed Flow-Through Dam for Flood Control (#3)

1. Move through unobstructed
 - ✓ Water
 - ✓ Fish
 - ✓ Sediment
2. Delivers top-to-bottom benefit, Pe Ell to Cosmopolis.
3. See recent presentation [here](#).



www.chehalisriverbasinfczd.com


Proposed Flow-Through Dam for Flood Control (#3)



Structures Inundated vs Protected During Mid-Century

Without Flow-Through Dam




 100 structures flooded

Protected with Flow-Through Dam



1,135 structures protected from flooding

 100 structures protected from flooding

Chehalis Basin Strategy

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 Basin Board

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

Appoints 3
member



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)



Today vs 2007

Today, we are substantially more aware, better prepared for catastrophic flooding than ever before.

- ✓ We have a state-of-the art flood warning system.
- ✓ We've completed many cost-efficient local projects and habitat projects.
- ✓ We're serving people, local governments, emergency responders, agriculture, fish, and habitat alike
- ✓ We have a governance, administrative, and funding structure that's delivering results, and is committed to a balanced basin-wide flood and fish solution (see Local Resolution Library).



<https://chehalisbasinstrategy.com/office-of-chehalis-basin/>

Thank You! and Key Contacts

Vickie Raines, Grays Harbor County Representative

Chair, Chehalis River Basin Flood Authority

Flood Authority Appointee & Chair, Chehalis Basin Board

360/590-4100

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Edna Fund, Lewis County Representative

Vice-Chair, Chehalis River Basin Flood Authority

Chair, Chehalis River Basin Flood Control Zone District Advisory Board

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Scott Boettcher

Staff, Chehalis River Basin Flood Authority

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scottb@sbgh-partners.com

Extra – Flood and Fish Articles

The Chronicle

Division of CP Publishing

<https://chronline.com/browse.html?>

Chehalis Basin Strategy progress in review: Pump station investments to protect 5,100 properties in lower Chehalis River Basin
Editor's Note: This article is part of an ongoing series highlighting projects that have been completed as part of the Chehalis Basin Strategy. These projects are implemented in cooperation ... more
By The Chronicle staff | 11/18/24

Chehalis Basin Strategy progress in review: Working together to restore nearly 5 miles of the lower Satsop River for salmon, steelhead and local communities
Editor's Note: This article is part of an ongoing series highlighting projects that have been completed as part of the Chehalis Basin Strategy. These projects are implemented in cooperation ... more
By The Chronicle staff | 8/23/24

Chehalis Basin Strategy progress in review: Bringing Stillman Creek back to life
More than 140 local fish and flood projects have been completed across the Chehalis River Basin, coordinated and funded through the Office of Chehalis Basin (OCB). The OCB board is ... more
By The Chronicle staff | 11/17/23

Chehalis Basin Strategy progress in review: Erosion management at Haul Road
More than 140 local fish and flood projects have been completed across the Chehalis River Basin, coordinated and funded through the Office of Chehalis Basin (OCB). The OCB board is ... more
By The Chronicle staff | 10/27/23

Chehalis Basin Strategy progress in review: Improving fish passage on Middle Fork Wildcat Creek in Grays Harbor County
More than 140 local fish and flood projects have been completed across the Chehalis River Basin, coordinated and funded through the Office of Chehalis Basin (OCB). The OCB board is ... more
By The Chronicle staff | 9/29/23

Chehalis Basin Strategy progress in review: Pump station paves way for economic revitalization, flood protection in Grays Harbor County
More than 140 local fish and flood projects have been completed across the Chehalis River Basin, coordinated and funded through the Office of Chehalis Basin (OCB). The OCB board is ... more
By The Chronicle staff | 8/15/23

Chehalis Basin Strategy progress in review: Log jacks protect wastewater treatment plant in Grays Harbor County
More than 140 local fish and flood projects have been completed across the Chehalis River Basin, coordinated and funded through the Office of Chehalis Basin (OCB). The OCB board is ... more
By The Chronicle staff | 8/25/23

Chehalis Basin Strategy progress in review: Chehalis-Centralia Airport pump station replacement
It has been more than 15 years since the devastating flooding of December 2007 in the Chehalis River Basin. In the time since, residents, businesses, tribes and government entities ... more
By The Chronicle staff | 8/4/23

The Chronicle

<https://www.chronline.com/stories/chehalis-basin-strategy-progress-in-review-pump-station-investm>



















Chehalis Basin Strategy progress in review: Pump station investments to protect 5,100 properties in lower Chehalis River Basin



The Fry Creek Pump Station is pictured in Aberdeen.

Extra – Local Resolutions

Local Resolutions Favoring Basin-Wide Solution

File Name	File Size	Category	Date Added▼
 Montesano -- 2025-14-1 -- Resolution 1019.pdf	1.2 MB	2024	01/30/25 04:47 PM
 Centralia -- 2025-14-1 -- Resolution 2815.pdf	229.1 KB	2024	01/30/25 04:17 PM
 Aberdeen -- 2024-26-11 -- Resolution 2024-26.pdf	180.1 KB	2024	01/17/25 07:56 AM
 Cosmopolis 2024-19-12 Resolution 2024-04.pdf	1.1 MB	2024	01/14/25 06:53 AM
 Grays Harbor County -- 2024-17-12 Resolution 2024-143.pdf	847.5 KB	2024	01/14/25 06:53 AM
 Bucoda -- 2024-10-12 Proclamation.pdf	1.4 MB	2024	01/14/25 06:53 AM
 Hoquiam -- 2024-09-12 Resolution 2024-20.pdf	317 KB	2024	12/11/24 09:46 AM
 Pe Ell -- 2024-15-10 -- 276.pdf	2.9 MB	2024	11/11/24 05:44 AM
 Chehalis -- 2024-14-10 -- Proclamation.pdf	1.6 MB	2024	11/11/24 05:44 AM
 Hoquiam -- 2021-04-12-- 2021-12.pdf	110.1 KB	2021	04/16/21 10:14 AM
 Grays Harbor County -- 2021-04-06 -- 2021-031.pdf	126.2 KB	2021	04/07/21 10:19 AM
 Centralia -- 2021-02-09 -- 2733.pdf	1 MB	2021	03/18/21 09:11 AM
 Aberdeen -- 2021-01-27 -- 2021-05.pdf	1.3 MB	2021	03/18/21 05:27 AM
 Pe Ell -- 2021-03-02 -- 260.pdf	134 KB	2021	03/18/21 05:11 AM
 Bucoda -- 2021-02-08 -- 2021-01.pdf	862.3 KB	2021	03/18/21 05:11 AM
 Chehalis -- 2021-02-08 -- 2-2021.pdf	553.8 KB	2021	03/18/21 05:10 AM
 Lewis County -- 2021-02-01 -- 21-046.pdf	1.2 MB	2021	03/18/21 05:10 AM
 CRBFA -- 2021-01-21 -- Resolution.pdf	130.3 KB	2021	03/18/21 05:09 AM

See *Local Resolutions Library* [here](#).