

Chehalis River Basin Flood Authority

*Reducing Flood Damage and
Restoring Aquatic Species*

City of Napavine

March 25, 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 23



**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).
 - *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

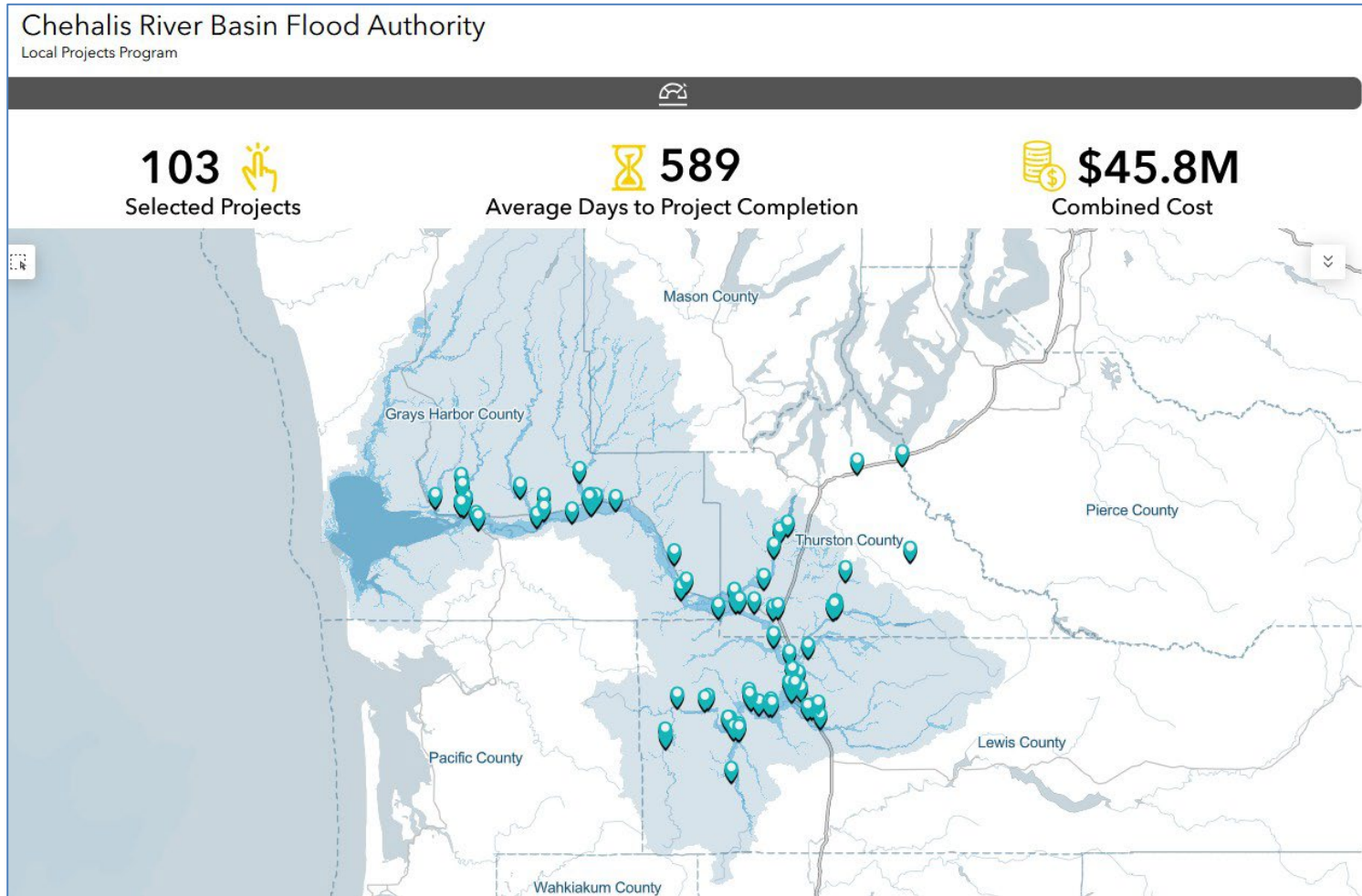
\$55.0M

2025-27 -- \$ 3.0M

to

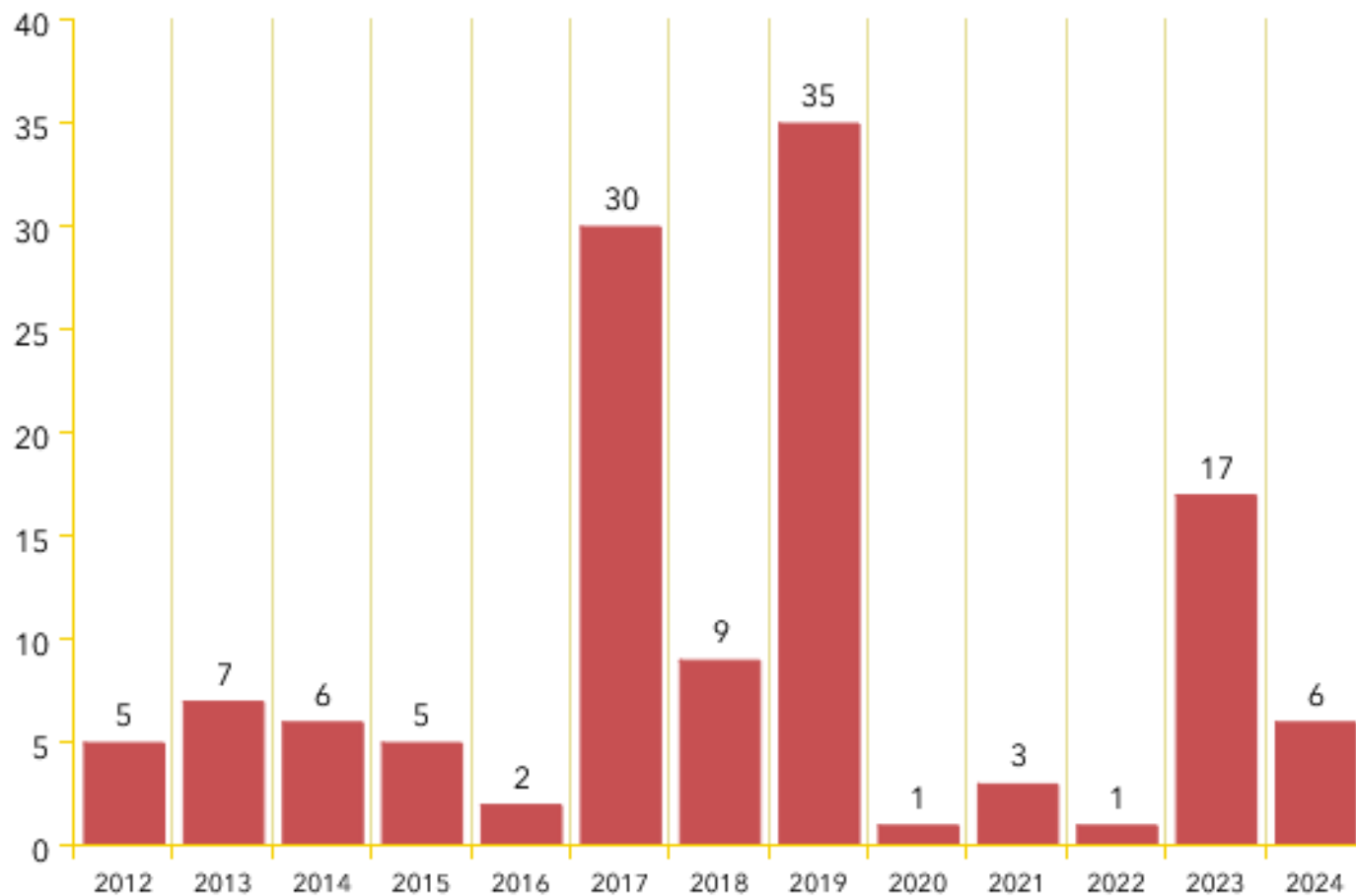
\$13.0M

Local Projects (100+ Projects Completed 2012-24)



Local Projects (100+ Projects Completed 2012-23)

Projects Completed by Year

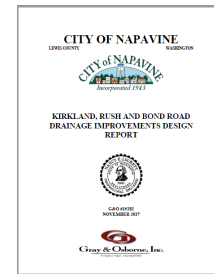


Local Projects (Pe Ell, 2014)



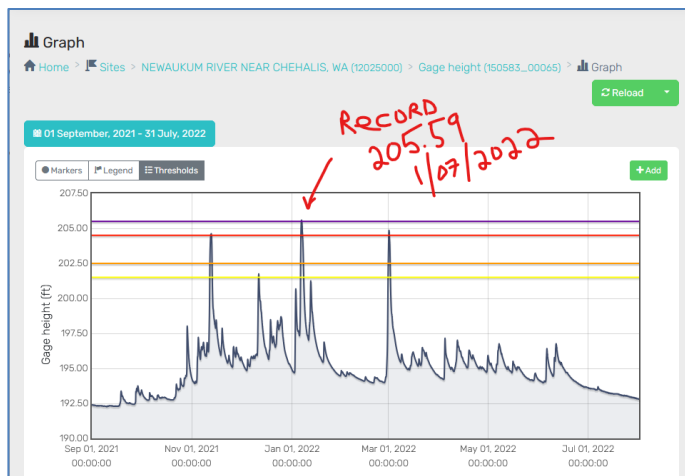
- ✓ Project = Design/construct 900' dike (between Chehalis river and WWTP).
- ✓ Cost = \$521,000.
- ✓ Photos = [Here](#).
- ✓ Website = [Here](#).

Local Projects (Napavine)



Here (11/2017)

- ✓ 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 on future drainage infrastructure design.



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 (China Creek, 2015-2022)

March 12, 2021 →

- ✓ \$5.2M
- ✓ Multiple phases
- ✓ Flood, fish, recreation
- ✓ Benefits today, tomorrow

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
By The Chronicle Editorial Board



← CHINA CREEK
ABOVE FCS AT
CENTRALIA, WA
(CCCW1)
https://chehalis.oregonrain.com/site/?site_id=24631&site=01fd47cb-3203-4be3-9c68-ba0afb33e72c

Officials Celebrate Completion of Phase Two of the China Creek Project in Centralia



← December 28, 2022

July 13, 2022 →

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 →

- ✓ 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)

ELEVATION CERTIFICATE
U.S. DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY
National Flood Insurance Program

OMB No. 1560-0008
Expiration Date: July 31, 2015

SECTION A - PROPERTY INFORMATION

A1. Building Owner's Name: **Colleen M. Tee**

A2. Building Name: **Bucoda Christian Assembly**

A3. City: **Bucoda** State: **WA**

A4. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.):
Tax Parcel No. **6180030050**

A5. Building use (e.g., Residential, Non-Residential, Addition, Accessory, etc.): **Residential**

A6. Address (Latitude/Longitude): **Lat. 46.090945 N, Long. -122.024945 W**

A7. Building Diagram Number: **88530**

A8. For a building with a crawlspace or enclosure:
a) Square footage of crawlspace or enclosure: **550** sq ft
b) No. of permanent flood openings in the crawlspace or enclosure within 1.0 foot above adjacent grade: **4**
c) Total net area of flood openings in A8.b: **312** sq in
d) Engineered flood openings? ☒ Yes ☐ No

A9. For a building with an attached garage:
a) Square footage of attached garage: **50** sq ft
b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade: **0**
c) Total net area of flood openings in A9.a: **0** sq in
d) Engineered flood openings? ☐ Yes ☒ No

SECTION B - FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

B1. FIRM Community Name and Community Number: **BUCODA, WA 1501000**

B2. FIRM Flood Zone: **AE**

B3. FIRM Effective Date: **10/16/2012**

B4. Map/Parcel Number: **530570486**

B5. Base Flood Elevation (BFE): **255.0'**

B6. Flood Zone: **AE**

B7. FIRM Flood Zone: **AE**

B8. Base Flood Elevation (BFE): **255.0'**

B9. Base Flood Elevation (BFE): **255.0'**

B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in item B9:
☒ FIRM ☐ Other Source: **NOV 1929**

B11. Indicate elevation datum used for BFE in item B9:
☒ NGVD 1929 ☐ NAVD 1988 ☐ Other Source: **NO**

B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)?
☐ Yes ☒ No

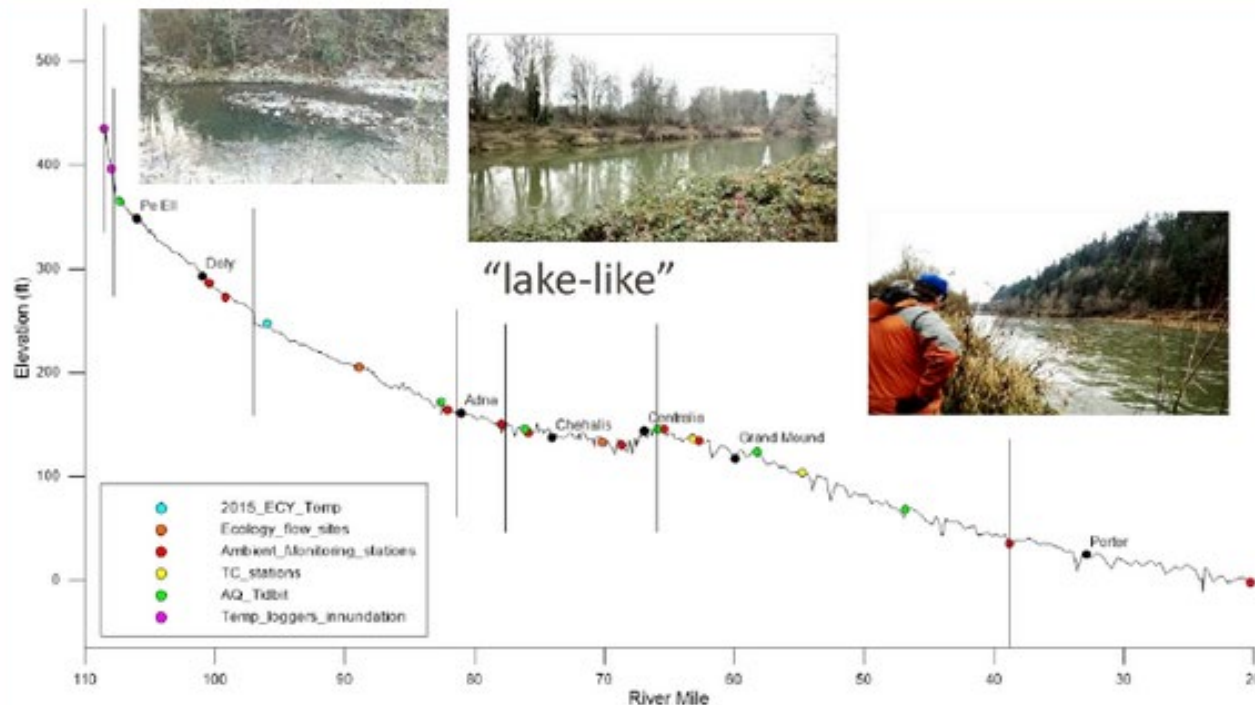
Designation Date: **09/02/1981**

SECTION C - BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)

C1. Building elevations are based on:
☐ Construction Drawings ☐ Building Under Construction ☒ Personal Construction

C2. Elevations - Zones AE, AH, AI, A1, A2, A3, A4, A5, A6, A7, A8, A9, A10, A11, A12, A13, A14, A15, A16, A17, A18, A19, A20, A21, A22, A23, A24, A25, A26, A27, A28, A29, A30, A31, A32, A33, A34, A35, A36, A37, A38, A39, A40, A41, A42, A43, A44, A45, A46, A47, A48, A49, A50, A51, A52, A53, A54, A55, A56, A57, A58, A59, A60, A61, A62, A63, A64, A65, A66, A67, A68, A69, A70, A71, A72, A73, A74, A75, A76, A77, A78, A79, A80, A81, A82, A83, A84, A85, A86, A87, A88, A89, A90, A91, A92, A93, A94, A95, A96, A97, A98, A99, A100, A101, A102, A103, A104, A105, A106, A107, A108, A109, A110, A111, A112, A113, A114, A115, A116, A117, A118, A119, A120, A121, A122, A123, A124, A125, A126, A127, A128, A129, A130, A131, A132, A133, A134, A135, A136, A137, A138, A139, A140, A141, A142, A143, A144, A145, A146, A147, A148, A149, A150, A151, A152, A153, A154, A155, A156, A157, A158, A159, A160, A161, A162, A163, A164, A165, A166, A167, A168, A169, A170, A171, A172, A173, A174, A175, A176, A177, A178, A179, 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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

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.

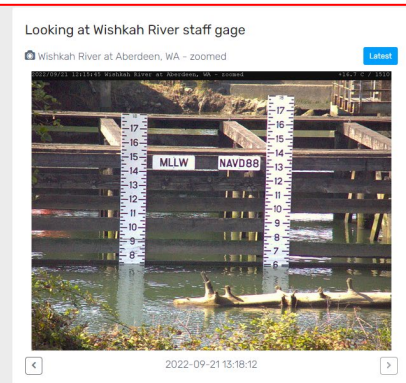
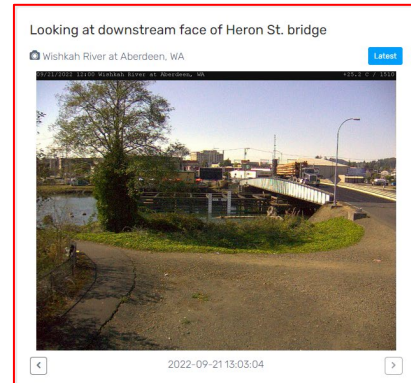
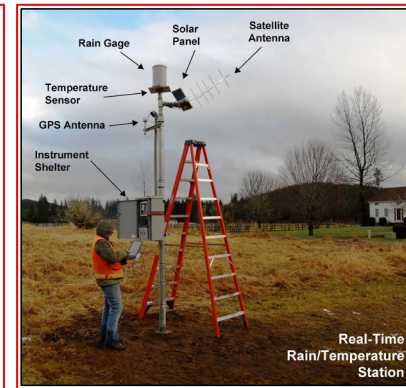
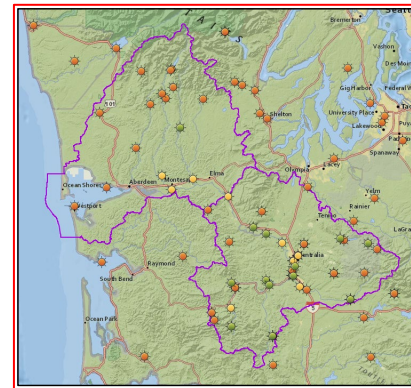
Para leer esta información en español, haga clic aquí

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

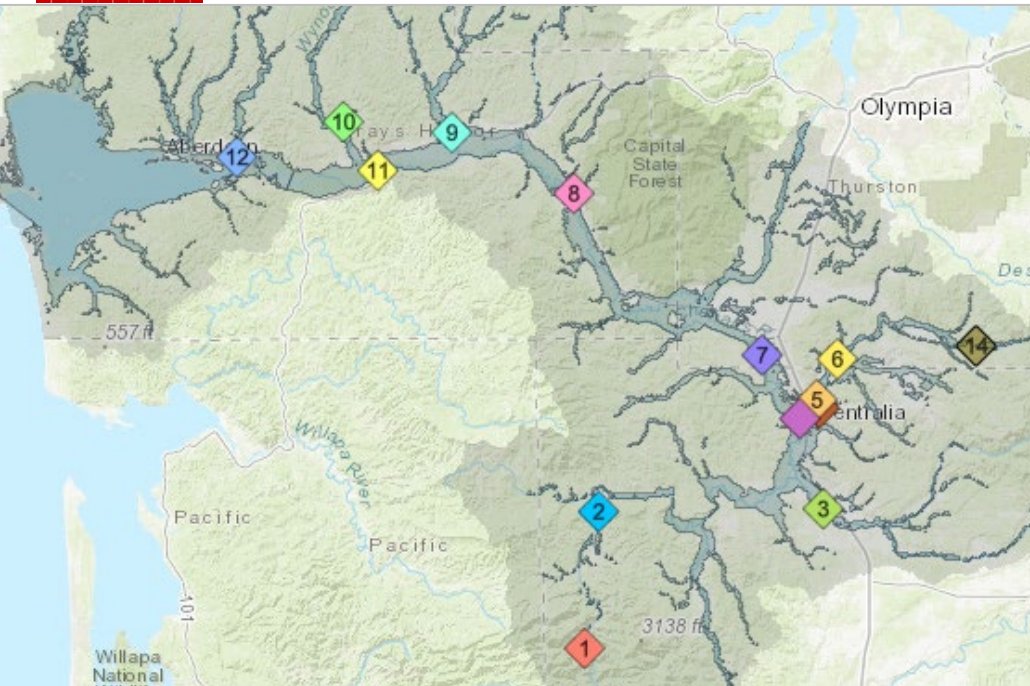
Rainfall Summary River Summary

Chehalis River Basin Forecasting Tools

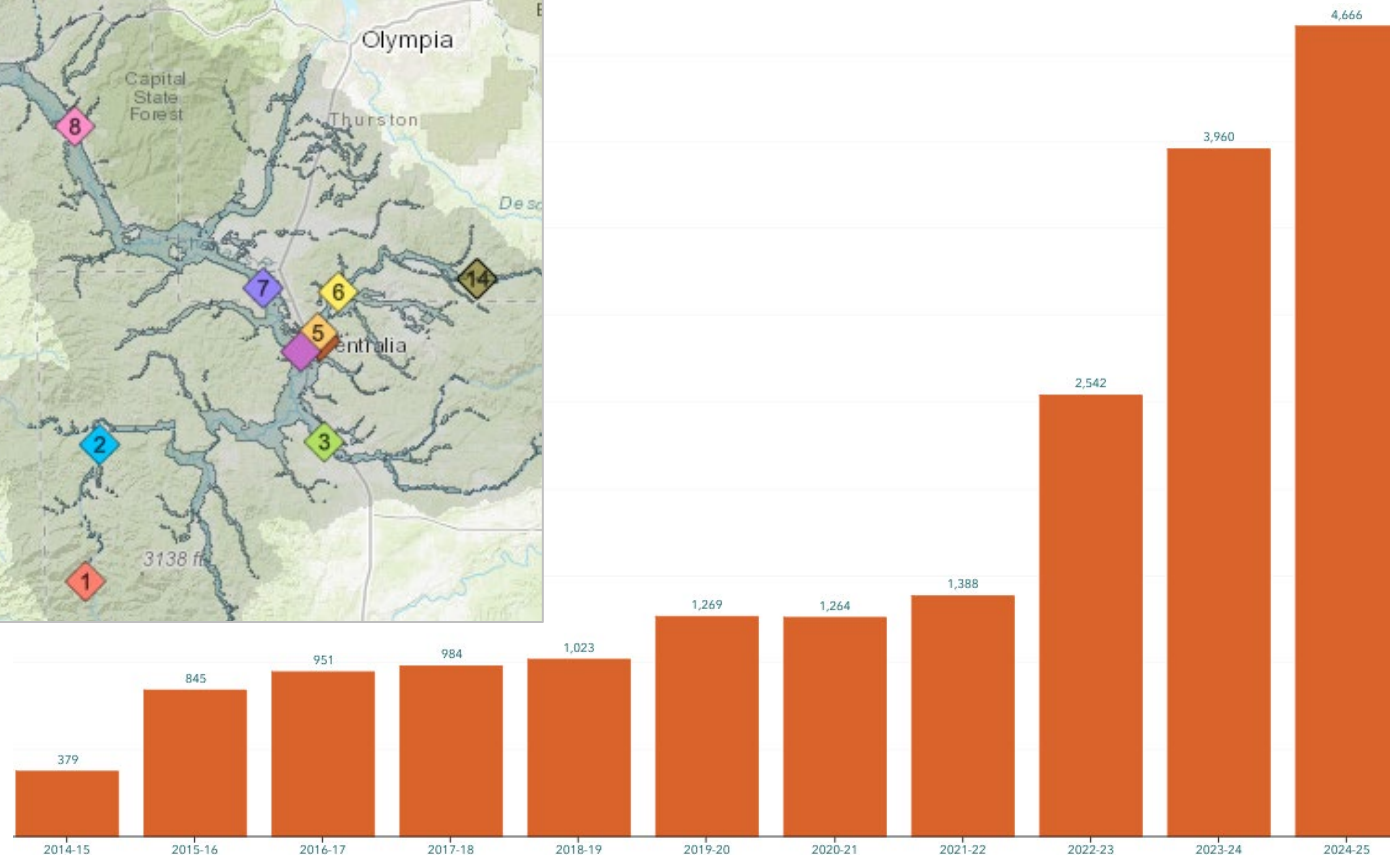
- Chehalis River (and tributaries) Dashboard
- Weather Forecast
- Rainfall Forecast
- Radar Rainfall
- River Forecast
- Flood Maps
- Atmospheric Rivers
- King Tides Calendar
- Seasonal Precipitation and Temperature Forecasts



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

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/>

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The Fry Creek Pump Station is pictured in Aberdeen.