

Chehalis River Basin Flood Authority

*Reducing Flood Damage and
Restoring Aquatic Species*

City of Aberdeen
November 13, 2024

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 27



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



Today's Presentation



**CHEHALIS
RIVER BASIN**
FLOOD CONTROL
ZONE DISTRICT

- Describe the “Flood Authority”
 - #1 -- Local Projects
 - #2 -- Flood Warning System
- Touch on the “Chehalis River Basin Flood Control Zone District”
 - #3 -- Proposed Flow-through Dam for Flood Control
- Allow time for discussion.



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

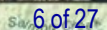
2023-25 -- \$ 3.6M

\$55.0M

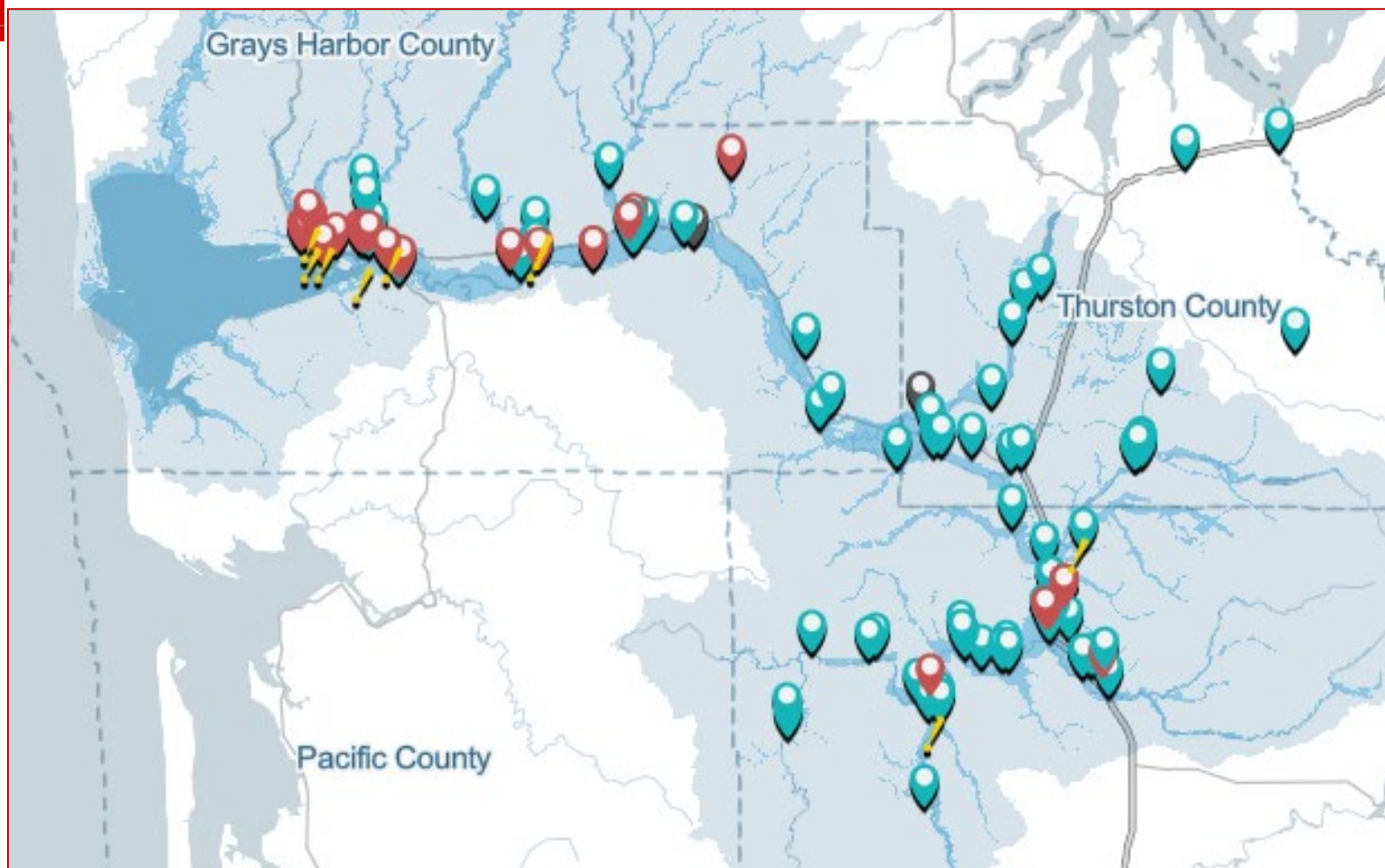
2025-27 -- \$ 3.0M

to

\$13.0M

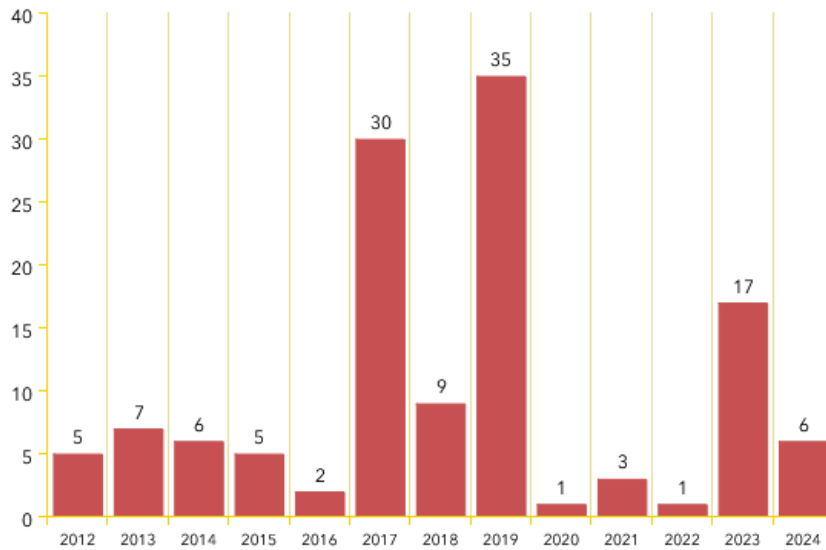
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Local Projects (100+ Projects Completed 2012-23)

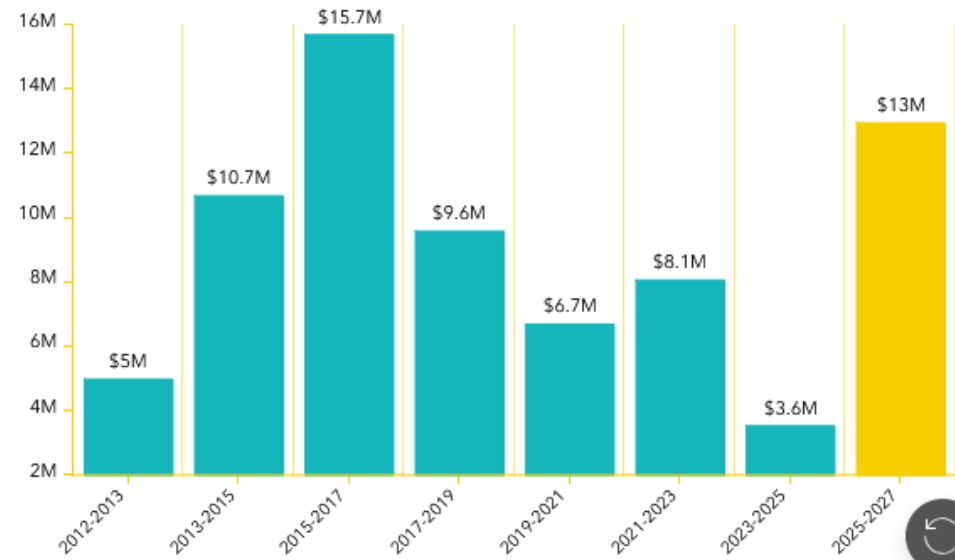


Local Projects (100+ Projects Completed 2012-23)

Projects Completed by Year



Funding by Biennium (Two-Year Periods)



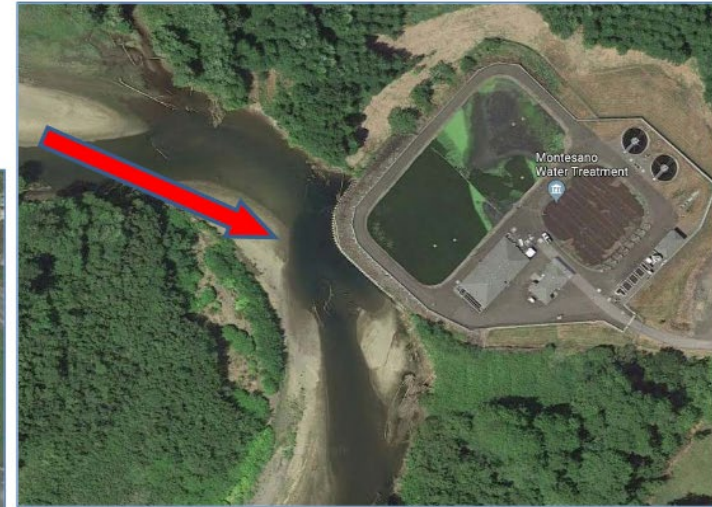
Local Projects (Montesano, 2017-2020)

- ✓ 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>



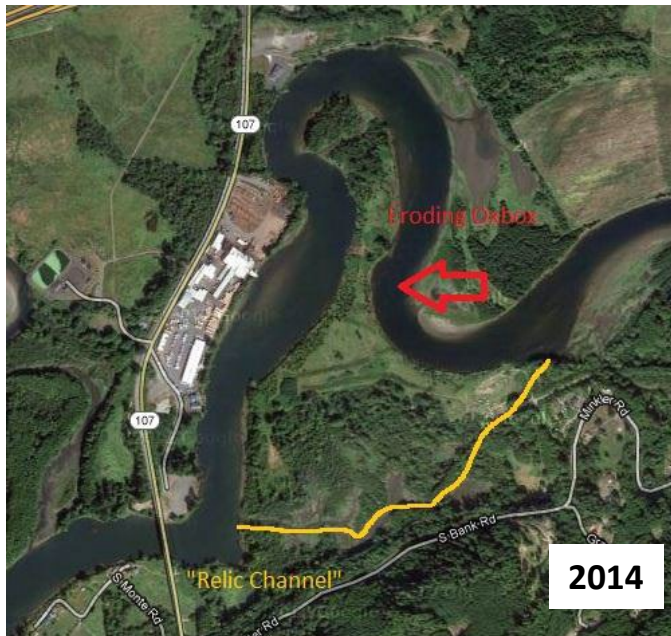
Project Start



Governor Inslee and Mayor Samuel stand overlooking the Wynoochee River.

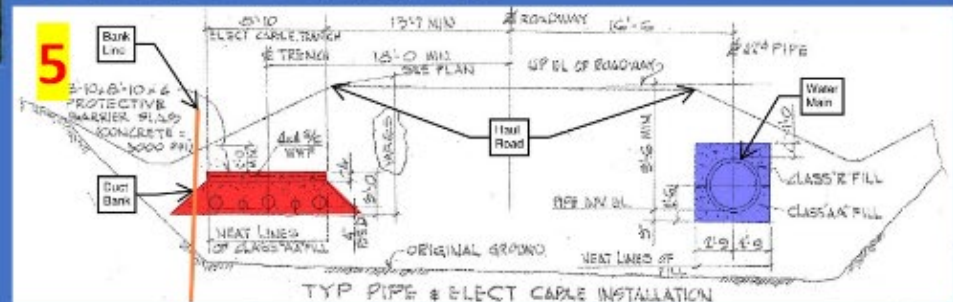
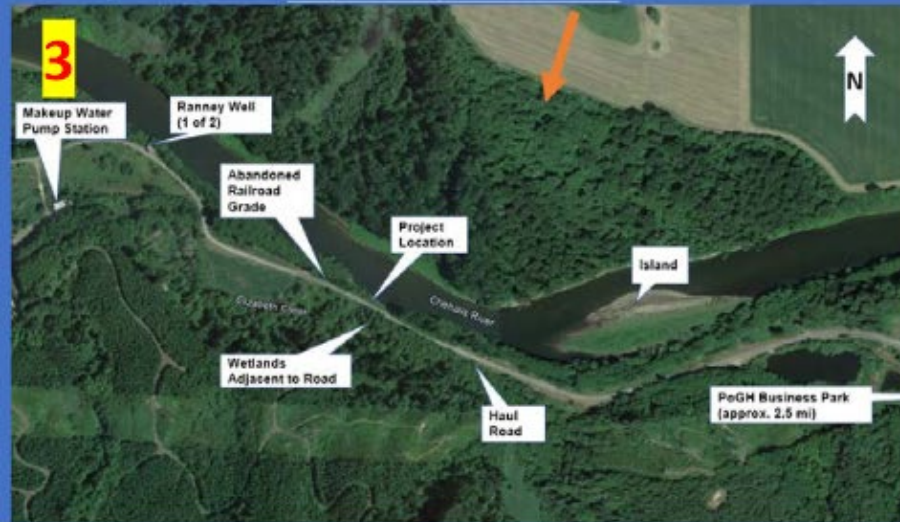
July 7, 2022 →

Local Projects (Montesano, 2012-15)



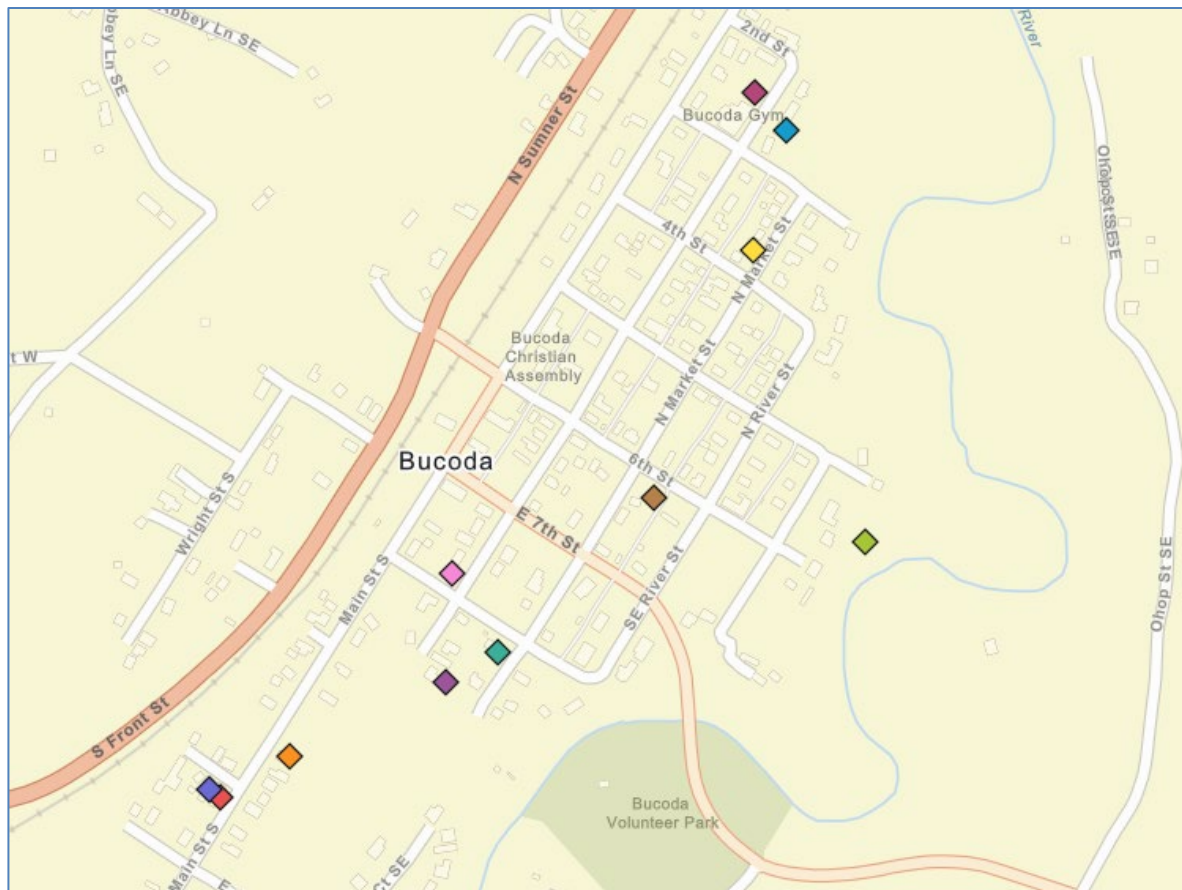
- ✓ ~\$6M protection against Chehalis River
- ✓ Funding pooled/shared.

Local Projects (Port of Grays Harbor, 2022-23)



← 9/14/2022

Local Projects (Bucoda, 2016)



| U.S. DEPARTMENT OF HOMELAND SECURITY FEDERAL EMERGENCY MANAGEMENT AGENCY Flood Insurance Program | | ELEVATION CERTIFICATE IMPORTANT: Follow the instructions on pages 3-6. | | OMB No. 1560-0008 Expiration Date: July 31, 2015 | |
|--|--|---|--|---|--|
| SECTION A - PROPERTY INFORMATION | | | | FOR INSURANCE CONTRACT USE | |
| A1. Building Owner's Name: Colleen M. Tate | | | | Policy Number: _____ | |
| A2. Building Street Address (including Apt., Suite, and/or Bldg. No.) or No. Route and Box No.: 5611 Market Street | | | | Elevation Map Number: _____ | |
| City: Bucoda State: WA ZIP Code: 98530 | | | | | |
| A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.): See Parcel No. 1190300000 | | | | | |
| A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.): Residential | | | | | |
| A5. Elevation (e.g., 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, 13th, 14th, 15th, 16th, 17th, 18th, 19th, 20th, 21st, 22nd, 23rd, 24th, 25th, 26th, 27th, 28th, 29th, 30th, 31st, 32nd, 33rd, 34th, 35th, 36th, 37th, 38th, 39th, 40th, 41st, 42nd, 43rd, 44th, 45th, 46th, 47th, 48th, 49th, 50th, 51st, 52nd, 53rd, 54th, 55th, 56th, 57th, 58th, 59th, 60th, 61st, 62nd, 63rd, 64th, 65th, 66th, 67th, 68th, 69th, 70th, 71st, 72nd, 73rd, 74th, 75th, 76th, 77th, 78th, 79th, 80th, 81st, 82nd, 83rd, 84th, 85th, 86th, 87th, 88th, 89th, 90th, 91st, 92nd, 93rd, 94th, 95th, 96th, 97th, 98th, 99th, 100th, 101st, 102nd, 103rd, 104th, 105th, 106th, 107th, 108th, 109th, 110th, 111th, 112th, 113th, 114th, 115th, 116th, 117th, 118th, 119th, 120th, 121st, 122nd, 123rd, 124th, 125th, 126th, 127th, 128th, 129th, 130th, 131st, 132nd, 133rd, 134th, 135th, 136th, 137th, 138th, 139th, 140th, 141st, 142nd, 143rd, 144th, 145th, 146th, 147th, 148th, 149th, 150th, 151st, 152nd, 153rd, 154th, 155th, 156th, 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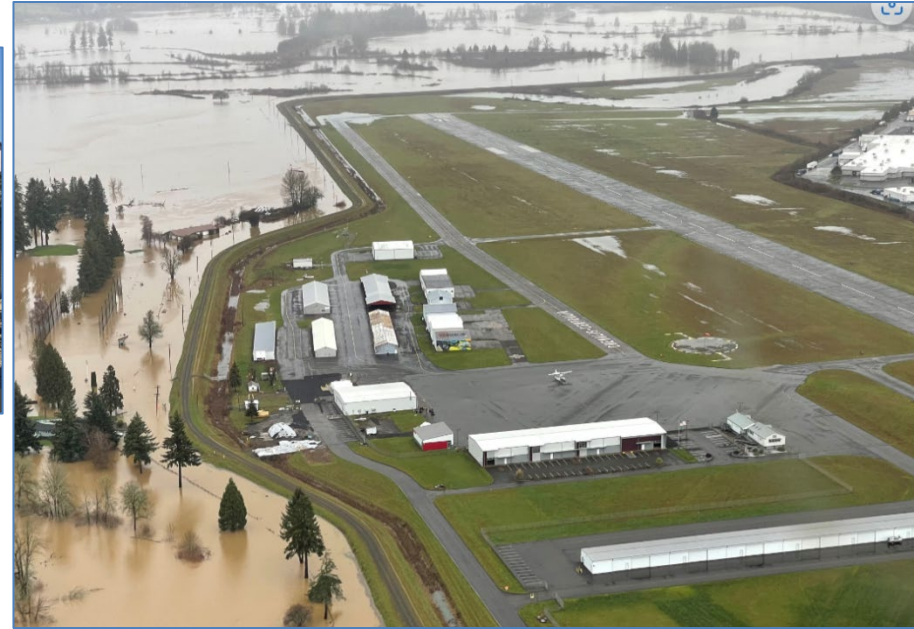
Local Projects (Hoquiam, 2016-2018)

- ✓ Completed -- February 2018.
- ✓ Cost -- \$1.3M.
- ✓ January 2022 Flood Event – Ramer basin stayed dry
(51M gallons pumped over 30 hours)
- ✓ ROI (2024) -- \$72M in assets protected.
 - ~200 homes
 - Lincoln Elementary School
 - Commercial yacht builder
 - 8 acres of prime development property
 - Large low-income residential neighborhood
 - Coastal Harvest food distribution center



Read More -- [Here](#).

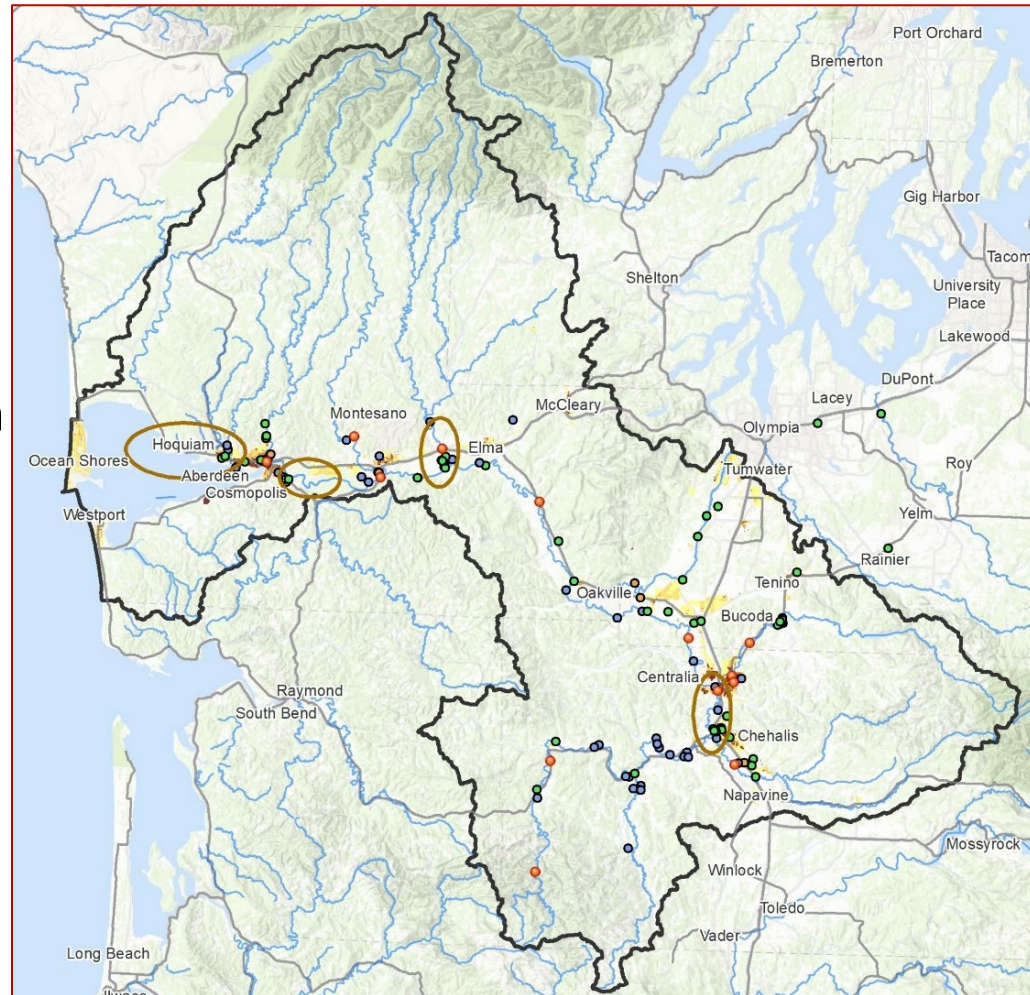
Local Projects (Chehalis-Centralia Airport, 2017)



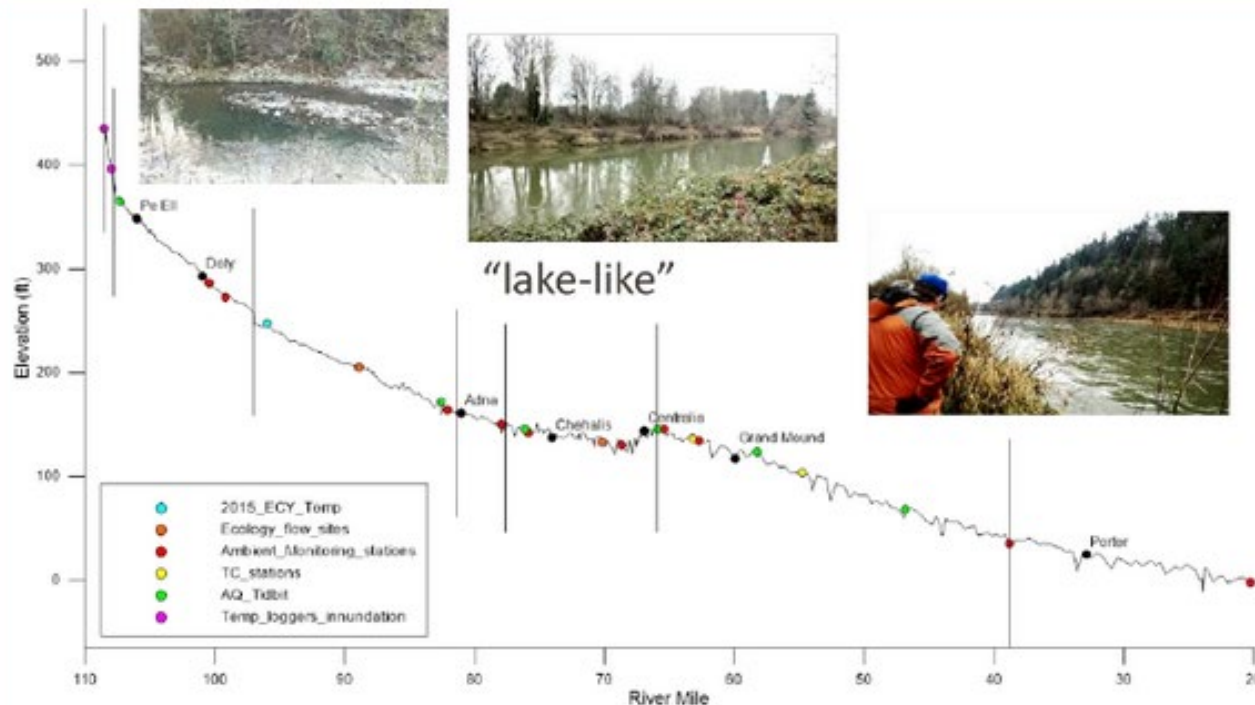
- ✓ Completed -- Fall 2017.
- ✓ Cost -- \$1.14M.
- ✓ January 2022 Flood Event – Pumped 518.4M gallons over many days to keep levee dry.
- ✓ ROI (2018) -- Protects \$45M in assets, ensures \$9M in annual tax revenue.
- ✓ Read More -- [Here](#).

Local Projects (Moving to Geographically-Based)

Identify future local projects through geographically-based, coordinated local investment planning.



Local Projects (Moving to Geographically-Based)



Basin Geography

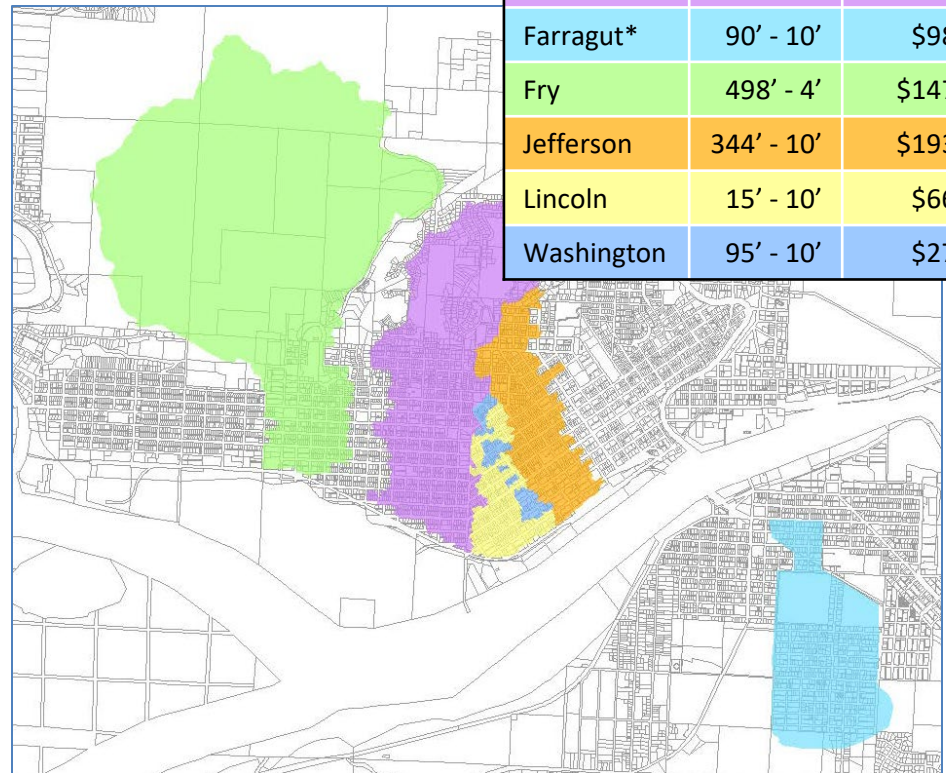
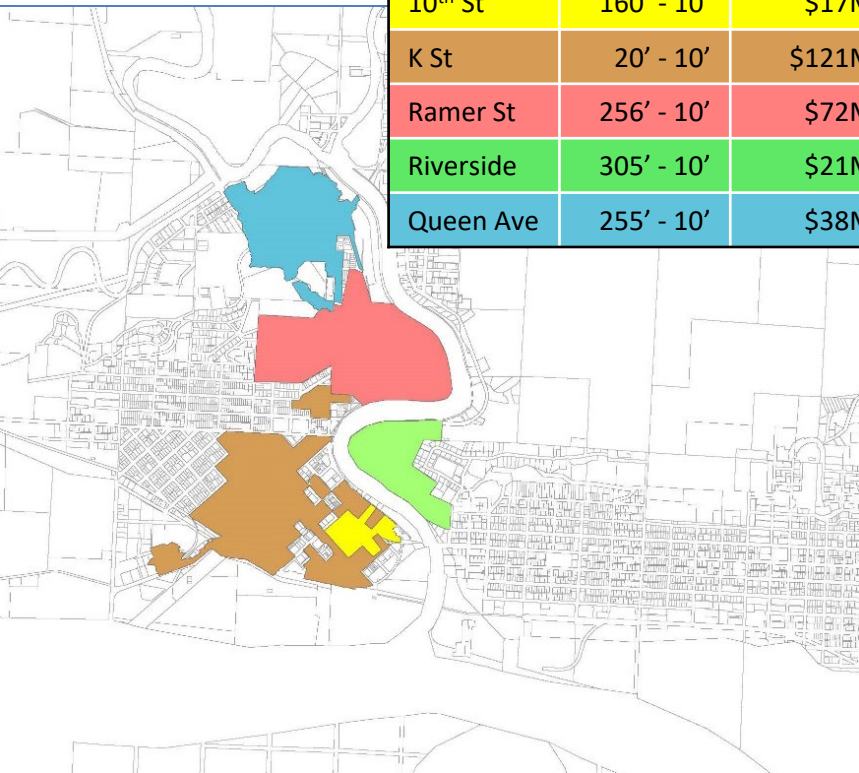
- ☐ Upper = Steep, narrow, fast flowing.
- ☐ Middle = Flat, “lake like”, slow to drain.
- ☒ Lower = Flat, coastal, difficult to drain.

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

Local Projects (Moving to Geographically-Based)

| Sub-Basin | Elevation | Assessed |
|---------------------|------------|----------|
| 10 th St | 160' - 10' | \$17M |
| K St | 20' - 10' | \$121M |
| Ramer St | 256' - 10' | \$72M |
| Riverside | 305' - 10' | \$21M |
| Queen Ave | 255' - 10' | \$38M |

| Sub-Basin | Elevation | Assessed |
|------------|------------|----------|
| Division | 345' - 10' | \$300M |
| Farragut* | 90' - 10' | \$98M |
| Fry | 498' - 4' | \$147M |
| Jefferson | 344' - 10' | \$193M |
| Lincoln | 15' - 10' | \$66M |
| Washington | 95' - 10' | \$27M |



11 urbanized low elevation sub-basins + Adverse meteorologic conditions -- high tides, heavy rain, bankfull rivers, saturated soils, SW winds = **Very difficult to drain!**
(\$1.1B assessed value at risk)

Local Projects (Pumps are Key to the Solution)

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

Read Fall 2022 [Joint Resolution](#) on Pumps
(Hoquiam, Aberdeen, Cosmopolis)

| Previously Funded (2017-2025) | Funding Requested (2025-27) | Future Funding (TBD) | Total Cost | Flood Season |
|-------------------------------------|-----------------------------------|----------------------------|------------|--------------|
|-------------------------------------|-----------------------------------|----------------------------|------------|--------------|

18%

24%

58%

| | | Construction | | | | |
|----------|--|--------------|-------------|-------------|-------------|---------|
| Aberdeen | Division | \$547,000 | \$3,500,000 | \$0 | \$4,047,000 | 2026/27 |
| | Related Division Improvements (Jeff., Lin., Wa.) | \$0 | \$0 | \$7,000,000 | \$7,000,000 | tbd |
| | Farragut | \$1,023,518 | \$5,000,000 | \$0 | \$6,023,518 | 2026/27 |
| Hoquiam | K | \$340,000 | \$3,100,000 | \$0 | \$3,440,000 | 2026/27 |

| | | Pre-Construction | | | | |
|---------|-----------|------------------|-----------|-------------|-------------|-----|
| Hoquiam | Riverside | \$0 | \$395,000 | \$2,105,000 | \$2,500,000 | tbd |

| | | | | | | |
|----------|-------------------------------------|--------------|-----|-----|--------------|---------|
| Hoquiam | Queen UNDER CONSTRUCTION | \$1,953,850 | \$0 | \$0 | \$1,953,850 | 2025/26 |
| | 10 TH UNDER CONSTRUCTION | \$3,269,942 | \$0 | \$0 | \$3,269,942 | 2024/25 |
| Aberdeen | Fry Creek CONSTRUCTED | \$20,715,466 | \$0 | \$0 | \$20,715,466 | 2024/25 |
| Hoquiam | Ramer CONSTRUCTED | \$1,300,000 | \$0 | \$0 | \$1,300,000 | 2018/19 |

| | | | |
|--------------|--------------|-------------|--------------|
| \$29,149,776 | \$11,995,000 | \$9,105,000 | \$50,249,776 |
|--------------|--------------|-------------|--------------|

Flood Warning System (#2)

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

www.chehalisriverflood.com

https://chehalis.rain.com

67%

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:

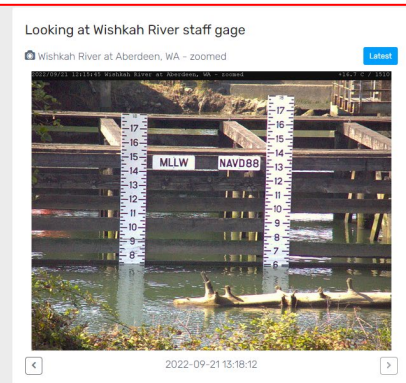
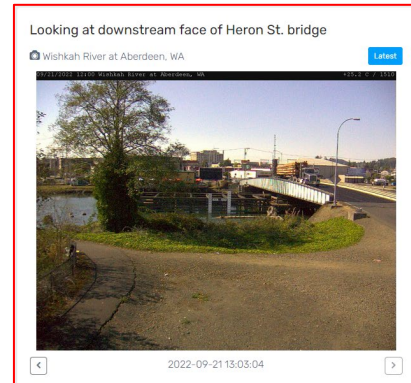
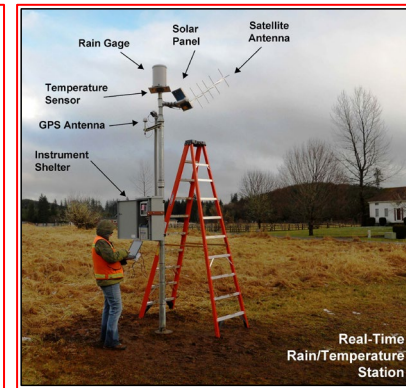
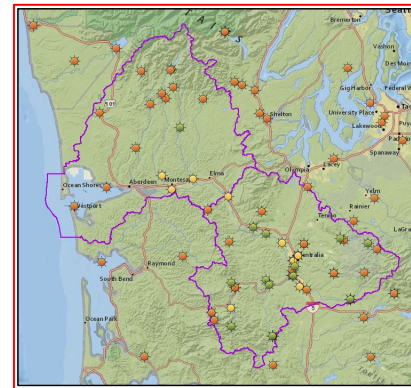
Questions?
Contact Cheryl Vincent at cvincent@westconsultants.com and Jennifer McAdoo at jennifer.mcadoo@icf.com.

Para leer esta información en español, haga clic aquí

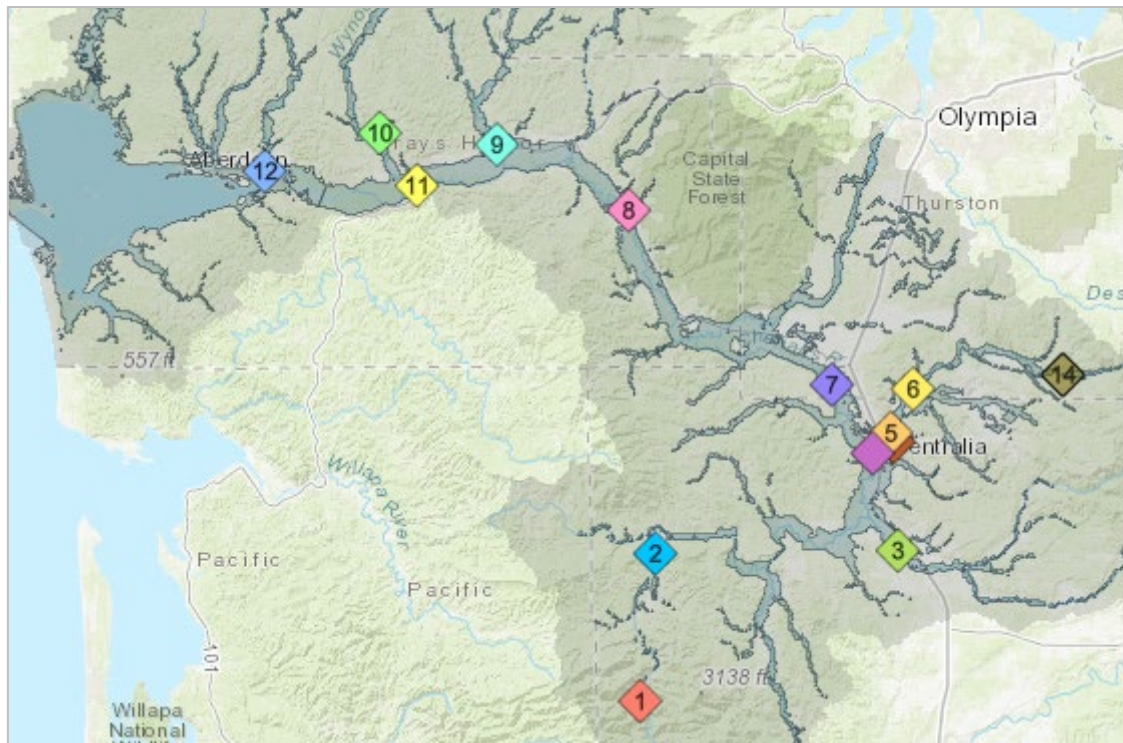
Click here on the image above to visit our Interactive ArcGIS Dashboard!

Chehalis River Basin Forecasting Tools

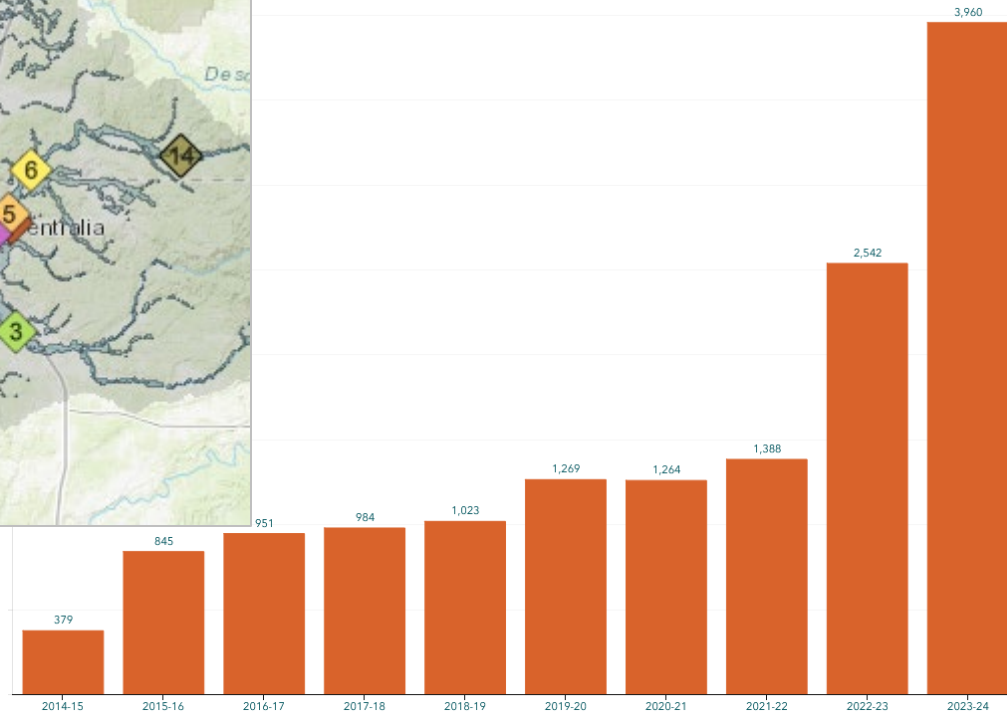
- Chehalis River (and tributaries) Dashboard
- Weather Forecast
- Rainfall Forecast
- Radar Rainfall
- River Forecast
- Flood Maps
- Atmospheric Rivers
- King Tides Calendar
- Seasonal Precipitation and Temperature Forecasts



Flood Warning System (Alert Sign-Ups)



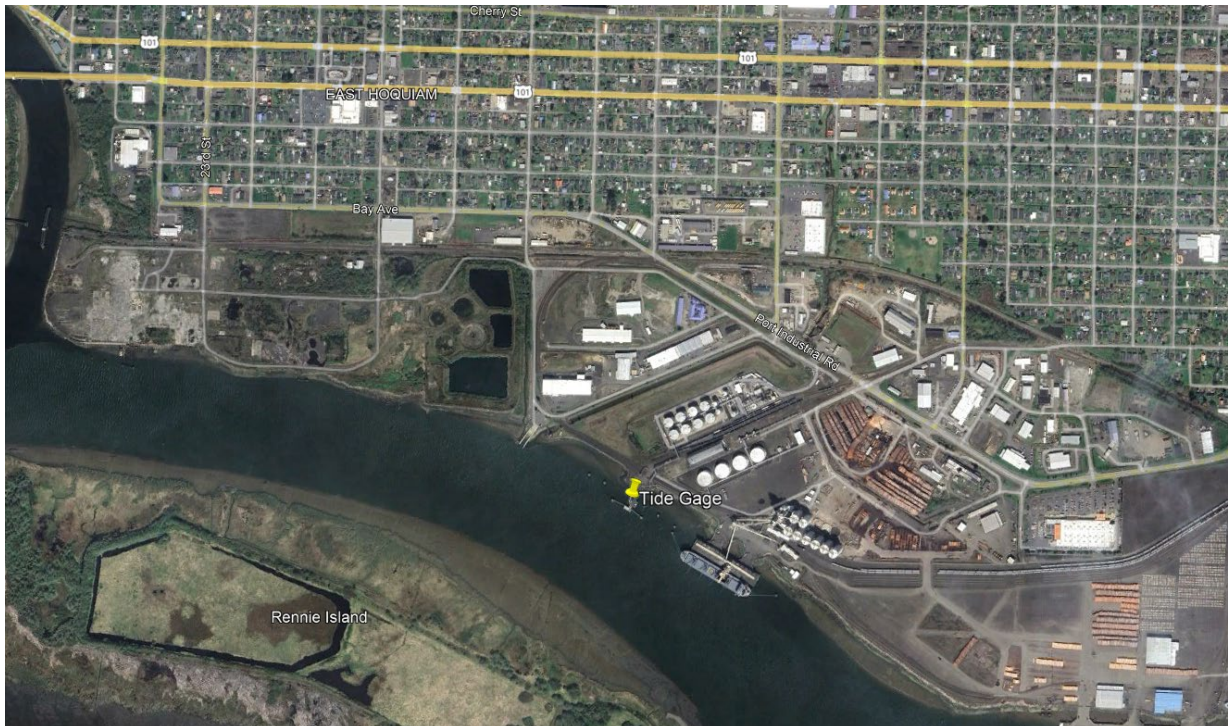
Sign-up for email high water alerts [here](#).



Flood Warning System (New Tide Gage)

Chehalis Basin Board provided funding for new Tide gage.

- ✓ Working with NWS on lower Chehalis river forecast.
- ✓ Data could help Aberdeen/Hoquiam manage North Shore Levee.



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

ABOUT THE DISTRICT

The Chehalis River Basin Flood Control Zone District works to make the basin a safer place for communities impacted by flooding. The District's goals are to:



Reduce the risk associated with flooding and preserve life



Prevent damage to property



Protect, preserve, and conserve natural resources

The District is proposing a flow-through dam for flood control as a flood risk solution that serves the needs of fish, preserves the riverine ecosystem, and protects communities.



Event Calendar

**CHEHALIS
RIVER BASIN
FLOOD CONTROL
ZONE DISTRICT**

www.chehalisriverbasinfczd.com

Upcoming Events



OCTOBER 10

**Chehalis River Basin
FCZD Advisory
Committee meeting**

**Oct 10, 2024, 8:00 AM –
9:00 AM**

Commissioners' Hearing
Room 351 NW North St.
Chehalis, WA 98532



OCTOBER 15

**Chehalis River Basin
FCZD Supervisor
meeting**

**Oct 15, 2024, 11:00 AM –
12:00 PM**

Commissioners' Hearing
Room 351 NW North St.
Chehalis, WA 98532



NOVEMBER 14

**Chehalis River Basin
FCZD Advisory
Committee meeting**

**Nov 14, 2024, 8:00 AM –
9:00 AM**

Commissioners' Hearing
Room 351 NW North St.
Chehalis, WA 98532

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](#).



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)



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/>

Key Contacts

Vickie Raines, *Grays Harbor County Representative*

Chair, Chehalis River Basin Flood Authority

Chair, Chehalis Basin Board

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vraines@graysharbor.us

Edna Fund, *Lewis County Representative*

Vice-Chair, Chehalis River Basin Flood Authority

Chair, Chehalis River Basin Flood Control Zone Advisory Board

360/269-7515

dutch@localaccess.com

Scott Boettcher

Staff, Chehalis River Basin Flood Authority

360/480-6600

scottb@sbgh-partners.com

Extra . . .

Hoquiam December 1933



Since the 1960's
Grays Harbor has
had 14 federally
declared disaster
flood events

Aberdeen January 2022



Hoquiam January 2015



Cosmopolis January 2022



Aberdeen January 2015

