Chehalis River Basin Flood Authority

Reducing Flood Damage <u>and</u>
Restoring Aquatic Species

Town of Bucoda June 14, 2022

Scott Boettcher

Staff, Chehalis River Basin Flood Authority 360/480-6600 scottb@sbgh-partners.com

Today's Presentation

- Describe the "Flood Authority."
 - **#1 -- Local Projects**
 - #2 -- Flood Warning System
 - #3 Role
- Touch on "Chehalis Basin Strategy."
- 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



- ➤ Grays Harbor County (2008) ➤ Lewis County (2008)
 - City of Aberdeen (2008)
 - City of Cosmopolis(2011)

 - City of Montesano (2008)
 - City of Oakville (2008)

- - City of Centralia (2008)
 - City of Chehalis (2008)
- City of Hoquiam (2017)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, Hoquiam, Oakville).

State Capital Budget:

2012-13 -- \$ 5.0M

2013-15 -- \$10.7M

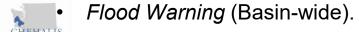
2015-17 -- \$15.7M

2017-19 -- \$ 9.6M

2019-21 -- \$ 6.3M

2021-23 -- \$ 4.1M

\$51.4M



Local Projects (Completed 2012-23)



Samon 5 of 14

Cost: \$694,152 (average)

Timeframe: 647 days (average)

Sequence:

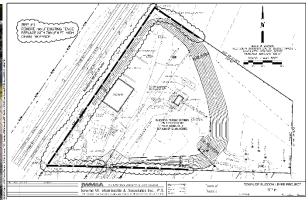
- 1st = "Plan/Study/Design" project (24 completed)
- 2nd = "Construction" project (27 completed)



Local Projects (Bucoda)

COMPLETED 2014
Drinking Water
Protection Levee – Read
more.







ON-HOLD 2016 Main Street
Regrade Project – Read more
ver BASIN (and here).



COMPLETED 2016 Foundation Flood Opening Pilot (11 properties) – Read more (and here)

Iriand Flool Innessor Program	ELEVATION CERTIFICATE IMPORTANT: Follow the instructions on pages 1–9.			OMB No. 1660-0008 Expiration Date: Asly 31, 2015	
	SECTION A - PROPERTY	INFORMATION	R	OF INSURANCE COMPANY USE	
A1. Building Owner's Name College M. Tee					
Building Street Address (Including Apt., Unit, Suite, and/or Bldg, No.) or RO. Route and Box No. 303 N. Market Street				orcury NAC Number	
City Bucoda	S1	and WA	232	Code 98530	
A3. Property Description (Lot and Black Number Tax Parcel No. 61800300900					
A4. Balding Use (e.g., Residential, Non-Residen A5, Lathtuck) regitater, Lnt. <u>A6</u> degrees A7 A6. Aftech of loast 2 photographs of the building A7. Balding Diagram Number B. A8. For a building with a craelispace or enclosus a) Square Sorage of craelispace or enclosus b) No. of permanent flood openings in the	12.62° N. Long, 122 degrees g if the Certificate is being used to d 1000: 100	a 51° 53.65°W. obtain flood insurar A0, for a buildi a) Squore	ce. ng with an attac footage of attac		
enclosure(s) within 1.0 foot above adjace	orit grade 4	within 2	.0 foot above a	djacent grade	
 c) Total net area of flood openings in ABJo d) Engineered flood openings? XYes 	□ No		t area of flood o ned flood open	openings in A9.5 sq in injec? Yes D0 No	
d) Engineered flood openings? Sizes	□ No	d) Enginee	med flood opan	ings7 Yes 20 No	
SECTION	B - FLOOD INSURANCE RATE	MAP (FIRM) II	FORMATION		
B1. NFP Comprunity Name & Community Number Town of Bucoda WA & 5331189 B4. Nep/Ponel Number B5. Suffix B6. 53087C0486 E	FRM Index Date 87, FRM Pans G9/02/1981 10/16/		Flood Zone(s)	BS, State WASHINGTON B9, Base Rood Devetion(s) (Zone AQ, use base flood depth) 255.0°	
810.Indicate the source of the Base Flood Elevel					
☐ RIS Profile ☐ FIRM ☐ Community 0	Determined 0ther/Source:				
B11. Indicate elevation datum used for BFE in its			Other/Source: .		
512. Is the building located in a Coastal Barrier R	esources System (CBRS) area or Ot	therwise Protected	Area (OPA)?	☐ Yes 図 No	
Designation Date: 0 / 0 / 0	CERSOPA				
SECTION C	BUILDING ELEVATION INFOR				
	BUILDING ELEVATION INFOR	RMATION (SURV	YEY REQUIRE	D)	
C1. Building elevations are based on: "A new Devation Certificate will be required C2. Elevations – Zones A1–A30, AE, AH, A (with)	onstruction Drawings* Buil when construction of the building is BFE), VE, V1–V30, V (with BFE), AR,	Iding Under Constru Lorrolete. ARVA, ARVAE, ARVA	uction* B	Finished Construction	
C1. Building aboutings are based on:	bestruction Drawings* Bull when construction of the building is EFE), VE. V1–VSO, V (with BFE), AR., ram specified in Bern AT. In Puerto I	Iding Under Constru Lorrolete. ARVA, ARVAE, ARVA	uction* B 1.–A30, A8/AH, lens.	Finished Construction	
C1. Building elevations are based orc CA new Elevation Certificate will be required C2. Elevations – Zones A1–A30, AE, AH, A (with C2.a–h below according to the building diagnostic C2.a–h below according to the building diagnostic C3.a–h below according to the building diagnostic C4.a–h below ac	onstruction Drawings* Bull when construction of the building is EPE), YE. YZYSD. Y (with EPE), ARI, was specified in Item AT. In Puerto It In/TIC: Bucoda & 221 cons in Homa a) through h) below.	lding Under Constr i complete. AR/A, AR/AE, AR/A Rico only, enter me al Doture: NAVD I	action* 8 11–A30, A9/AH. Hrs. 38 NWO 1988 [Finished Construction AR/AO, Complete Items	
C.I. Budding sheustions are based on: A new Elevation Certificate will be required. Call-invitions— Forms AL-930, AE, AH, A (with Call-in-below according to the budding display budding display budding display budding display budding display. Includes elevation datum used for the elevation budding display of budding development, by Tay of budding several properties. a) Top of budding several budding busement, by Tay of the nesh higher floor: budding of the blowst to recopstall shoutcast.	onstruction Drawings* Dail when construction of the building is when construction of the building in EPE), NY, UPA 2002, I (with EPE), ARI, was specified in Bern AT, in Puerto 5 (InTC: Buooda & 221 Wento cons in form a) through in) below. The same as that used for the BTE, creedepaon, or enclosure floor)	lding Under Constru complete. AR/A, AR/AE, AR/A Roc cely, enter me all Denurs: NAVD I □ NGVD 1929 S 251 . 7 258 . 7 NA . NA	action* 8 11–A30, A8/AH, lens, 88 NWO 1988 C Check the mea So feet So feet	Phrished Conditution AR/AO. Complete Items Other/Source: United to the condition of t	
CL. Budding elevations are toxed one: CLC A fine General Conference with one CLC Clc Elevations— Zeroe AL—AGO, AZ—AL A (AND CL2—In below according to the budding disposition of the CL2—In below according to the budding disposition of the CL2—In below according to the budding disposition of the Clc Indiana deviations for the colours elevation statum used for budding elevations must be Datient used for budding elevations must be 20 floor of the three flowers for circ and the general colours and the colours and the colours according to the media flowers for circ and the colours according to the media flowers for colours and the colours according to the media flowers for colours and colours according to the colours according to the colours and the colours according to the colours according	contention Creatings* Duta when construction of the halding is EPEN, NY, VILLED, VI (with EPEN, ARI, when specified in leien XI is Proven in EUTO: Bucodia A 221 Venture EUTO: Bucodia A 222 Venture EUTO: Bucodia A 221 Venture EUTO: Bucodia	iding Under Constitution of Co	action* © 11_A30, A8/AH, sers. 38 NAVD 1988 C Check the mea S feet S feet S feet	Prinshed Construction API/AO, Complete Items Other/Source: Instance Inst	
CL. Building alwaysions are towed one:	contraction Creatings* But when construction of the building is PET), NE, VEL-VIO, VI (with BET), ARI, NE PET), ARI, VEL-VIO, VI (with BET), ARI, VI (VIII) BET), ARI, VI (VIII) BET), ARI, VI (VIII) BET), ARI, VI (VIII) BETON B	liding Under Constitution on complete. ARIVA, ARIVA, ARIVAE, ARIVAE CONSTITUTION OF CONST	action* B 1.1–A30, A8/AH, ers. 38 NWO 1988 C Check the mee S feet S feet S feet S feet	Prinshed Construction AR/AO, Complete literies Other/Source: surmand used. meters	
CL. Budding elevations are toxed one: CLC A fine General Conference with one CLC Clc Elevations— Zeroe AL—AGO, AZ—AL A (AND CL2—In below according to the budding disposition of the CL2—In below according to the budding disposition of the CL2—In below according to the budding disposition of the Clc Indiana deviations for the colours elevation statum used for budding elevations must be Datient used for budding elevations must be 20 floor of the three flowers for circ and the general colours and the colours and the colours according to the media flowers for circ and the colours according to the media flowers for colours and the colours according to the media flowers for colours and colours according to the colours according to the colours and the colours according to the colours according	contention Creatings*	iding Under Constitution of Co	action* © 11_A30, A8/AH, sers. 38 NAVD 1988 C Check the mea S feet S feet S feet	Prished Construction AR/AO, Complete Barris Other/Source:	
Lb. Bulking developmes are leased or A none Demotion Certification will be required. Colonial Certification will be required. Colonial Certification will be required. Colonial Certification will be required. A set A note. Bestimant, National Wilson Modern Wilson Modern Moder	contention Creatings*	leing Under Constitution on the constitution of the constitution	action* S 11_A30, A8/AH, sers. 38 NAWD 1988 C Check the max S feet	Previous Construction AF/AC. Complete thems Othery Source: Incomment used. Immeters Immeter	
Lb. Bulking developmes are leased or A none Demotion Certification will be required. Colonial Certification will be required. Colonial Certification will be required. Colonial Certification will be required. A set A note. Bestimant, National Wilson Modern Wilson Modern Moder	contention Drawings* Date	leing Under Constitution or specific. ARYA, ARYA, RAYA ARYA, ARYA, RAYA BOO or RAYA, entre was a bount or specific or spec	action* S 11-A30, A8/AH, Series 38 NewD 1988 C Check the mea 39 feet 49 feet 49 feet 50 feet 60 f	Presided Construction ARIAC Complete Berns Orbers/Source:	
Ell, habiting devices are traced or "Aware Description Charles" and some content or a content or "Aware Description Charles" and the solution of the Charles Charles Content on the Charles Ch	contention Drawings* Debt the building in PETE, N. C. 1–100. Yearth PETE, AM. P. 1–100. The building in PETE, N. C. 1–100. Yearth PETE, AM. P. 100. The PETE, N. C. 1–100. The Peter Drawing of PETE, N. C. 100. The Peter Drawing of PETE, N. C. 100. The Peter Drawing of Peter Same as and value of the Peter Drawing Peter Same as and value of the Peter Drawing In some peter Drawing In Peter Drawing In Commence of Peter Peter Drawing In Commence of Peter Peter Drawing In Commence of Peter Peter Drawing In Commence of In	long Uniter Constitution Controlled. APPL ARPA ARPA ARPA ARPA ARPA ARPA ARPA	action* S 11-430, A8/AH, bers. 38 NewD 1988 C Check the read S feet S	Preside Construction AF/AC. Complete thems Other/Source: Extrement used. moders moders meters meters meters meters meters moders moders	
Ch. Subting deviations or broad for "Assign Change	interestination forwages* which was a first product of the product	Series Lindar Committee	action* S 11-430, A8/AH, bers. 38 NewD 1988 C Check the read S feet S	Preside Constantion AP/AC Const	
En. building deviations on trained and "All-sing Deceases" of the Section 1. All-sing Deceases of the Section 2. All-sing Deceases of the Section 2. C. 22 - 1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	mentherization Drawings* Date by the building in performance of the building in commence of th	leng Lander Constitute Constitut	action* i.1—830 AB/AH, series. i.1—830 AB/AH, series. ii.3 NAWO 1988 [Check the rives of series. iii.4 Series. iii.5 Series. iii.	Preside Constantion AP/AC Const	
Etc. building deviations are trained and "Asian Character Conference of the residence of th	controlled to receipt a controlled to receipt a controlled to controlled to the cont	leng Lander Constitute Constitut	action* S 11-A30, A8/AH, sins, sins	Preside Constantion AP/AC Const	
Limited and eventure are better for the control for the contro	interprision forwards But get a	Integrated Constitution Constit	action* B i.1_10. A8/AH, i.1_20. A8/AH, B Nevo 1048 [Section of the record of the	Presided Construction ARIAC Complete Berns Orbers/Source:	

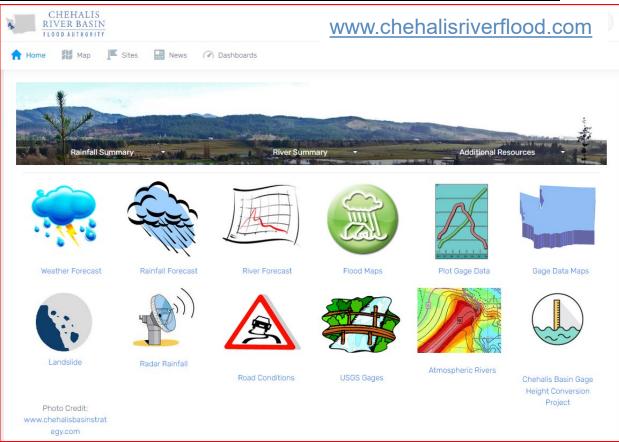
6 of 14

Flood Warning System (#2)









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



Flood Warning System (2022 Flood Event)

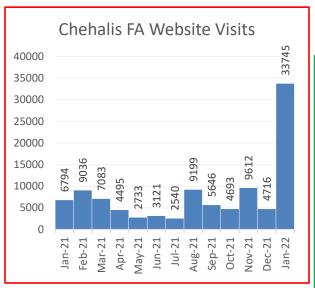
Flood Warning System Works!

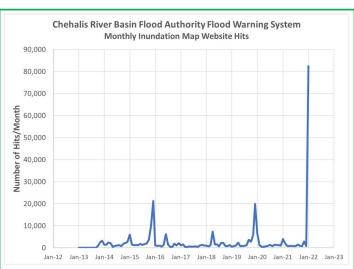
The Flood Authority's flood warning system website was incredibly active during the January flood. Nearly 25,000 individual user logins were recorded and the flood inundation maps received almost 75,000 hits, providing vital information to the community during the flood emergency. Dave Curtis, West Consultants,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

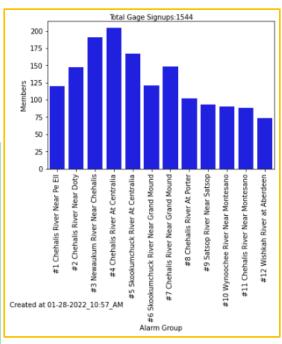
Unknown contact said:

"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









Flood Authority Role (#3)

Role of the Flood Authority is to:

- ✓ Help local communities identify, develop, and implement local flood hazard solutions.
- ✓ Appoint three of seven members to <u>Chehalis Basin Board</u> (current appointees to this policy, funding body are Vickie Raines, Edna Fund, Jay Gordon).
- ✓ Provide <u>local perspective</u> to Basin-Wide solution discussions.
- ✓ Advocate for <u>balanced basin-wide</u> <u>solutions</u> for flood and fish (see local resolutions library <u>here</u>).

Local Resolutions Favoring Basin-Wide Solution

<u>File Name</u> ▲	File Size	<u>Category</u>	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	
Aville 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	126 KB	2020	07/15/20 10:42 AM	
Pe Ell 2021-03-02 260.pdf	134 KB	2021	03/18/21 05:11 AM	
	0 of 14			



Chehalis Basin Strategy



Office of Chehalis Basin

Chehalis Basin **Board**

https://chehalisbasinstrategy.com/































CHEHALIS RIVER BASIN FLOOD CONTROL ZONE DISTRICT























TOWN of BUCODA





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.
- ✓ We have a governance, administrative, and funding structure that's delivering results.





11 of 14

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 will follow July 7, 2022 Chehalis Basin Board meeting.
- ✓ Flood Authority Meetings Third Thursday of January, February, March, May, July, September, and November from 10 AM to 11:15 AM (11:30 AM).
- ✓ Chehalis Basin Board Meetings First Thursday of every month from 9 AM to 2 PM.



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

dutch@localaccess.com

Scott Boettcher

Staff, Chehalis River Basin Flood Authority 360/480-6600

scottb@sbgh-partners.com

Steve Lyle, Bucoda Representative

Member, Chehalis River Basin Flood Authority 360/880-8800

counlyle@scattercreek.com



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:

Megan Sathre (Flood Authority)

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:

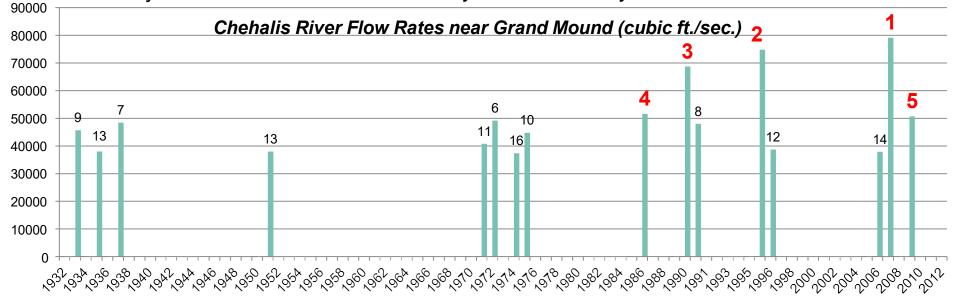
- 1. Local Projects -- https://www.ezview.wa.gov/site/alias 1492/34489/local projects.aspx
- 2. Flood Warning System -- <u>www.chehalisriverflood.com</u>
- 3. Chehalis Basin Strategy -- <u>www.chehalisbasinstrategy.com</u>
 - ASRP -- https://chehalisbasinstrategy.com/asrp/
 - CFAR -- https://chehalisbasinstrategy.com/cfar/
 - Proposed Retention Project -- https://chehalisbasinstrategy.com/proposed-project/
 - Chehalis River Basin Flood Control Zone District -- https://www.chehalisriverbasinfczd.com/
 - o 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/

<u>Also</u> → 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*.





Also -- Background

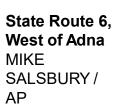
■ 2007 Storm -- \$938M Basin-wide damage, \$300M lost economic activity (WA).



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
17 of 14

