

DRAFT Chehalis Basin Flood Regions Supporting Matrix

10/15/20

The draft flood regions map and supporting matrix provides a broad overview of the different kinds and causes of flood damage by subarea across the Chehalis River Basin. The map and supporting matrix may be used by the Chehalis Basin Board in determining if and how they may want to tailor their goals and outcomes for reducing flood damages.

Flood damages described in this matrix represent geographic areas that have relatively more structures and acres of land that could be flooded and could therefore experience greater economic damage. Some areas may experience more or less flood damage than is described in this matrix. The Chehalis River floodplain, for example, has historically experienced a majority of flood damage within the basin. Areas in the basin not highlighted on the map may also experience flooding and flood damage. In most cases, areas not shown on the map are largely rural and may experience some residential, commercial and agricultural flood damage. This information has been reviewed with local officials.

The matrix can be used to frame and summarize more detailed information once it becomes available. This includes but is not limited to understanding the extent and frequency of damages, confirming flooding types (slow or fast velocities in areas, urban drainage/stormwater flooding, etc.), and opportunities and constraints for each subarea.

This preliminary draft supporting matrix provides more detail on each of the areas highlighted on the map. See map legend for description of color codes in matrix.

Area or Region	Source/Cause of Flooding	Flooding Type	Common type of flood damage
<i>Chehalis River floodplain including lower reaches of tributaries that experience flooding from high Chehalis River water levels</i>			
<ul style="list-style-type: none"> From Pe Ell to Adna, up to Boistfort 	High Chehalis River flows	Overbank river flooding, including backwater effect in lower South Fork; floodplain flows are generally lower velocity, but there may be some areas with higher velocities where there are constrictions.	Significant flood damage to agriculture and residential structures/contents, some commercial, road closures
<ul style="list-style-type: none"> Adna to Grand Mound (or Lewis/Thurston County line) 	High Chehalis River flows with additional contributions from Newaukum River, Dillenbaugh, Coal, China, Salzer Creeks, and the Skookumchuck River.	Overbank river flooding, varying floodplain flow depths, backwater flooding up tributaries	Extensive structures/contents, commercial, residential, some agricultural, road closures, sedimentation. Interstate-5 closures.
<ul style="list-style-type: none"> Grand Mound to Aberdeen 	High Chehalis River flows with additional contributions from the Satsop and Wynoochee Rivers and other tributaries	Overbank river flooding, deep floodplain flow, Bank erosion	Structures/contents, residential, agricultural, some commercial, road closures, channel migration/bank erosion, sedimentation
<i>South Fork Chehalis River upstream of extent of flooding caused by Chehalis River (RM 5)</i>	High South Fork Chehalis River flows	Overbank river flooding, floodplain flow, bank erosion	Structures/contents, agricultural, roads, channel migration/bank erosion, sedimentation
<i>Newaukum River above RM 4 (Labree Road)</i>	High Newaukum River flows	Bank erosion, overbank river flooding between the confluence of the North Fork and South Fork Newaukum River and Labree Road	Structures/contents, residential, agricultural, roads, bank erosion causing loss of land
<i>Skookumchuck River upstream of Centralia (RM 4)</i>			
<ul style="list-style-type: none"> Skookumchuck River between 	Skookumchuck River near Bucoda regularly overflows its	Overbank river flooding	Structures/contents, residential, some commercial, road closures

Area or Region	Source/Cause of Flooding	Flooding Type	Common type of flood damage
RM 10 and 12 – Town of Bucoda	banks and has several significant overbank flooding areas. High Skookumchuck River flows.		
<ul style="list-style-type: none"> • Skookumchuck River above Bucoda (RM 12+) • Note that the Skookumchuck Dam is located at approximately RM 18 but is not a flood control facility 	High Skookumchuck River flows River has lost floodplain conveyance that may be related to incision and confinement	Overbank river flooding	Structures/contents, residential, agricultural, road closures
<ul style="list-style-type: none"> • Skookumchuck River downstream of Bucoda (RM 4 – RM 10) exceeding protection provided by current levee system 	High Skookumchuck River flows	Overbank flooding, potential left bank levee outflanking. Potential for levee failure.	Structures/contents, residential, agricultural, road closures
<ul style="list-style-type: none"> • Hanaford Creek 	Low gradient wetland system that can flood from high precipitation events	Overbank flooding	Few structures in floodplain, residential, agricultural, road closures
<i>Tributaries between Newaukum and Skookumchuck Rivers that flow through Chehalis-Centralia area</i>			
<ul style="list-style-type: none"> • Dillenbaugh Creek 	High creek flows exacerbated by overflow from Newaukum River and backwater from	Local flooding at culverts compounded by Newaukum	Road closures, localized flooding

Area or Region	Source/Cause of Flooding	Flooding Type	Common type of flood damage
	major Chehalis River floods, undersized culverts and bridges	overflows and backwater from Chehalis river overbank flooding	
<ul style="list-style-type: none"> Coal Creek 	High creek flows in urban corridor, undersized culverts, backwatering during major Chehalis River floods	Urban drainage / stormwater compounded with Chehalis river backwater flooding	Localized flooding, some structure/contents damage, road closures
<ul style="list-style-type: none"> Salzer Creek 	High Salzer Creek flows/overbank flooding; backwatering during major Chehalis River floods	Urban drainage / stormwater compounded with Chehalis river backwater flooding	Localized flooding, some structure/contents damage, road closures
<ul style="list-style-type: none"> China Creek 	High flows in urban corridor, channel confinement and loss of floodplains, undersized culverts, backwatering during major Chehalis River floods	Urban drainage / stormwater compounded with Chehalis river backwater flooding	Localized flooding, some structure/contents damage, road closures
Scatter Creek upstream of Chehalis River floodplain	High Scatter Creek flows, high groundwater, limited channel capacity	Creek overbank flooding	Structures/contents, residential, some commercial, road closures
Black River upstream of SR 12	High Black River flows, undersized bridges and road culverts	Overbank river flooding	Localized flooding, road closures
Smaller Tributaries between Pe Ell and Aberdeen on East Side (like Black Hills Ecoregion)			
<ul style="list-style-type: none"> Porter Creek, Mox Chehalis, Cloquallum creeks, other smaller creeks 	High creek flows, undersized culverts or bridges	Overbank creek flooding; floodplain flow	Localized flooding, some agricultural and structure/contents damage, road closures
Smaller Tributaries between Pe Ell and Aberdeen on West Side (like Central Lowlands ecoregion but adding Elk Creek)			
<ul style="list-style-type: none"> Elk Creek, Bunker Creek, Lincoln Creek, Independence, 	High creek flows, undersized culverts or bridges Lower Garrard is incised and cut-off from its floodplain	Overbank creek flooding; floodplain flow	Localized flooding, some agricultural and structure/contents damage, road closures.

Area or Region	Source/Cause of Flooding	Flooding Type	Common type of flood damage
Garrard, Delzene creeks, other smaller creeks			
Satsop River	High Satsop River flows	Overbank river flooding; bank erosion; channel migration.	Structures/contents, residential, agricultural, roads, loss of land caused by channel migration/bank erosion
Wynoochee River Note that the Wynoochee Dam is located approximately 43 miles north of Montesano on the Wynoochee River	High Wynoochee River flows may be reduced by dam Wynoochee Dam hydropower ramping may cause bank saturation and accelerate erosion.	Overbank river flooding; bank erosion may be caused by bank saturation and channel migration.	Structures/contents, residential, agricultural, roads, loss of land caused by channel migration/bank erosion Specific problem area: Bank erosion at WWTP
Aberdeen/Hoquiam and streams flowing through (Wishkah, Hoquiam rivers)	Tidal flooding, local drainage, high flows on Wishkah and Hoquiam rivers	Tidal and overbank river/creek flooding, sometimes combined	Structures/contents, roads, emergency vehicle access
Humptulips	High flows on Humptulips River	Overbank river flooding, bank erosion and channel migration	Structures/contents, roads, agricultural, loss of land from bank erosion
South Aberdeen	Levee protects area from tidal flooding, local drainage can cause flooding during high tides and storms		Roads, flooding in low areas
Cosmopolis	Mill Creek and high tides; levee protects area from tidal flooding, local drainage can cause flooding during high tides and storms	Urban drainage/stormwater	Flooding along Mill Creek, flooding in low lying areas behind levees when tides are high