

Chehalis Basin Strategy: Reducing Flood Damage and Enhancing Aquatic Species

Policy Workshop
November 13, 2013



Agenda

- 8:30 Welcome and Introductions
- 8:45 Charge to the Governor's Chehalis Basin Work Group and the process to develop recommendations to the Governor and Legislature by November 2014
- 9:15 The history of floods in the Basin and discussion of what floods should be analyzed as the focus for reducing damage.
- 10:00 Break
- 10:15 Aquatic species in the Basin, latest findings and strategy for creating an enhancement plan
- 11:15 Alternatives that will be considered for flood damage reduction
- 11:40 Public Comment
- 12:00 Lunch
- 1:00 Research on innovative dam designs and fish passage
- 2:00 Methods for comparing alternatives
- 3:00 Break
- 3:15 Public comment
- 3:45 Conclusions and next steps
- 4:30 Adjourn

Challenge: History of Flood Damage



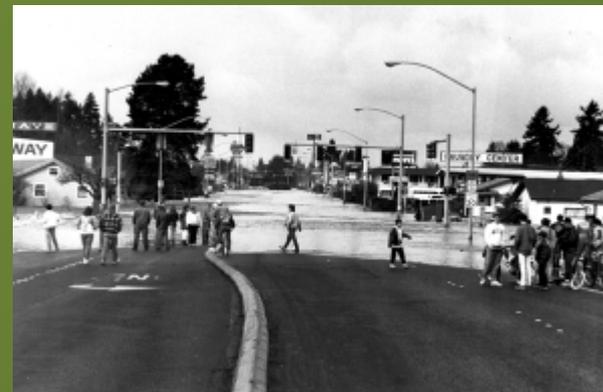
March 1910



December 1933



January 1974



November 1990

Source: www.dipity.com/nickrobertgeorge/personal/#timeline

2007 Storm: \$938M Basin-wide Damage



Exit 77 (I-5) in Chehalis
Steve Ringman/The Seattle Times



City of Centralia
Steve Ringman/The Seattle Times



← Photos Source: Lewis County,
Division Of Emergency Management



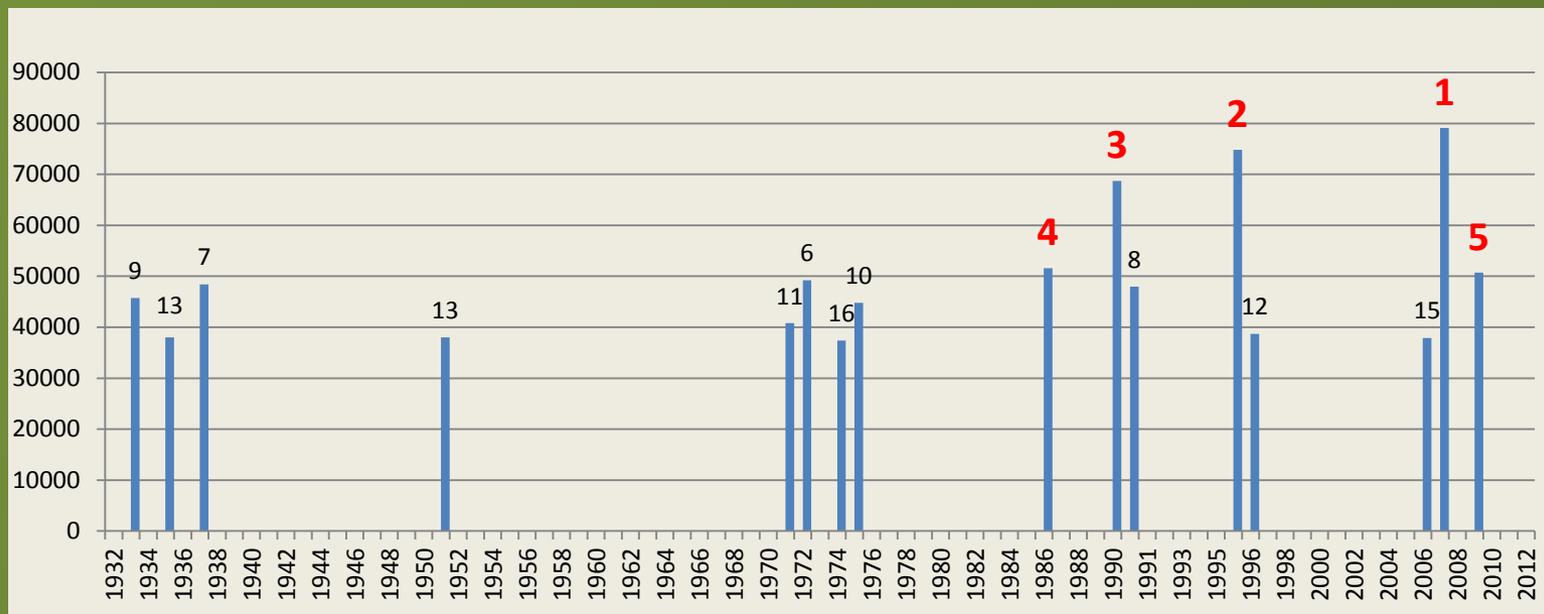
I-5 at Hwy 507 Interchange looking south – December 4, 2007



Need caption

Ranked High Flow Events (1932 to 2012)

- I-5 closed 1990, 1996, 2007, 2009
- Five largest events since 1986 – *Frequent floods are getting worse and damage is increasing . . .*
- Chart – *Chehalis River Flow Rates near Grand Mound (cfs)*



Need for Aquatic Species Enhancement

- Salmon populations are 15-25% of historic levels
- Other important aquatic species
- Water quality is poor seasonally



Upper Chehalis (May 31, 2010)
James E. Wilcox/Wild Game Fish Conservation
International

CHEHALIS BASIN SALMON & TROUT

OCEAN PHASE

The salmonid lifecycle involves adults maturing in the ocean, migrating back to their home streams and spawning, embryos incubating, fry emerging, juveniles growing, and smolts migrating to the estuary to acclimate to saltwater and moving out into the ocean.

WHAT SALMON NEED IN FRESHWATER HABITAT

- Cool, clean water
- Appropriate water depth, quantity and flow velocities
- Upland and riparian (stream bank) vegetation to stabilize soil & provide shade
- Clean gravel for spawning and egg-rearing
- Large woody debris to provide resting and hiding places
- Adequate food
- Varied channel forms

SPAWNING PHASE

Chinook
Oncorhynchus tshawytscha
Also known as king, silver salmon
Spawning runs: 26-27° in 11 days, up to 27° for full spawning run, in winter runs

Coho
Oncorhynchus kisutch
Spawning runs: 26-27° in 11 days, up to 27° for full spawning run, in winter runs

Chum
Oncorhynchus keta
Spawning runs: 26-27° in 11 days, up to 27° for full spawning run, in winter runs

Steelhead
Oncorhynchus mykiss
Spawning runs: 26-27° in 11 days, up to 27° for full spawning run, in winter runs

Salmon
Oncorhynchus nerka
Spawning runs: 26-27° in 11 days, up to 27° for full spawning run, in winter runs

Trout
Oncorhynchus tshawytscha
Spawning runs: 26-27° in 11 days, up to 27° for full spawning run, in winter runs

Source: www.chehalisbasinpartnership.org

Governor's Chehalis Basin Work Group

- Appointed by Gov. Gregoire (2012); Re-confirmed by Gov. Inslee (2013)
- Members are:
 - David Burnett (Chairman Chehalis Tribe)
 - Karen Valenzuela (Thurston County Commissioner , Vice-Chair Flood Authority)
 - Vickie Raines (Mayor Cosmopolis, Chair Flood Authority)
 - J Vander Stoep (Private Attorney, Pe Ell Alternate Flood Authority)
 - Jay Gordon (President Washington Dairy Federation and Chehalis Farmer)
 - Sandi Triggs (Capital Budget Advisor to Governor)
 - Keith Phillips (Governor's Energy and Environment Advisor)

Chehalis River Basin Flood Authority

- Formed in 2008
- Developed up to date information on the flooding in the Basin
- Created small project list
- Continues to oversee implementation of capital projects



- Grays Harbor County
- Lewis County
- Thurston County
- City of Aberdeen
- City of Centralia
- City of Chehalis
- City of Cosmopolis
- City of Montesano
- City of Napavine
- City of Oakville
- Town of Pe Ell
- Town of Bucoda

Forging a Basin-wide Strategy

Local, tribal, state, and federal governments working together over the next year to create the long-term strategy and implementing solution.

Elements of a Basin-wide Strategy

- Significant reduction in flood damage and enhancement of aquatic resources
- Solving one problem doesn't increase another.
- Maintain focus in five areas:
 1. Major capital projects
 2. Localized projects
 3. Land use management
 4. Aquatic species and habitat enhancements
 5. Flood warning, emergency response



Dam Feasibility 2013-2014

- Evaluate dam designs throughout the world
- Determine the design(s) that could accomplish the flood control goals of this project and be technically feasible with site conditions
- Investigate and determine the feasibility of the dam structure from a geotechnical perspective (i.e., will the dam design be safe?)
 - Identify best options for fish passage which maintain flood control integrity
 - Identify the likely species and habitats that would be impacted by the flood control options being evaluated

Protecting I-5

- Four alternatives under consideration with/without dam, with/without I-5 widening:
 - I-5 Levees and Walls, Raise Airport Levee, New Southwest Chehalis Levee
 - I-5 Raise and Widen Only
 - I-5 Express Lanes
 - I-5 Temporary Bypass

Smaller Scale Actions and Programs

- Programs and Smaller Scale Actions
 - Additional flood proofing and home elevation
 - Additional home buy out programs in the floodplain
 - Additional livestock and farm evacuation areas
 - Refinements to forest practices
 - Improving riparian areas
 - Additional bank erosion control
 - Review of local land use policies: no additional risk

Aquatic Species Enhancement Plan

- Assess the current use by aquatic species
- Develop a strategy and set of projects/programs to enhance the current populations
- Determine the benefits to aquatic species from restoration measures

Scenario of Smaller Scale Flood Damage Reduction Projects

- Evaluate the benefits of smaller flood reduction projects in the Basin
 - Home elevations and buyouts
 - Small levee projects
 - Bank erosion control
 - Stormwater management
 - Removal of constrictions like road culverts

Governor's Work Group Process Overview

- First 6 months involve:
 - Determine alternatives for dam design and operation, I-5, and small project scenario
 - Guidance on aquatic species plan and benefit/cost methodology
- Second 6 months involve:
 - Finalize dam design/operation plan, and assessment of benefits and impacts
 - Finalize species enhancement plan
 - Finalize all other technical analyses

Workshops

- Prior to guidance from Work Group in November 2013, February 2014, and final recommendations in November 2014

Workshop	Schedule		
Technical	October 30-31, 2013	Spring 2014	Mid September 2014
Policy	November 13, 2013	Spring 2014	Late September 2014
Public Meetings		Spring 2014	Late September 2014
Work Group Recommendations to Governor and Legislature			Mid November 2014

Decision November-December 2014

- Water Retention Permitting?
- Protection of I-5?
- Aquatic Species Enhancement?
- Smaller Scale Projects and Program Changes?