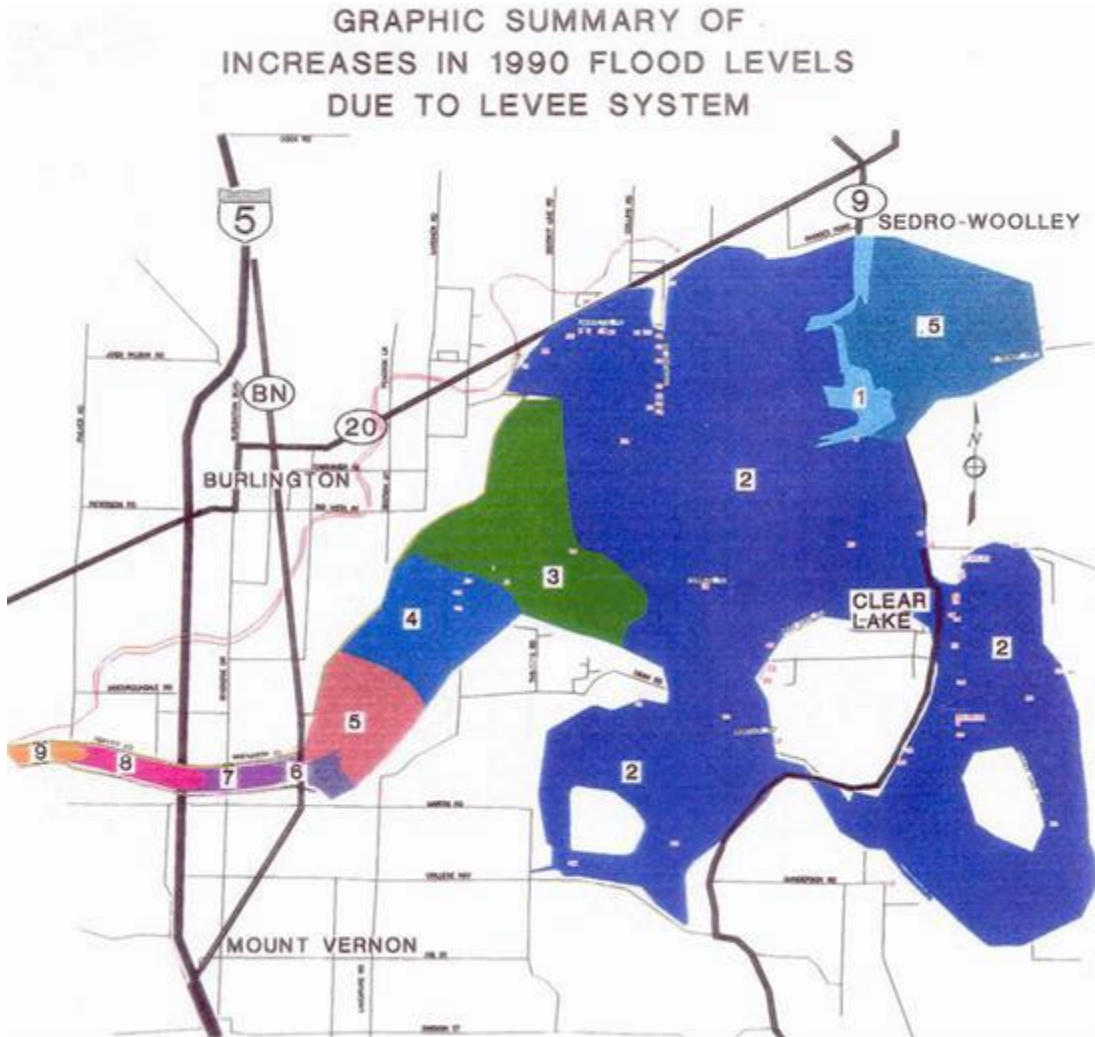


SKAGIT RIVER FLOODS

AFTER 40 YEARS THE FINAL PAPER



Larry J. Kunzler

“Angry Citizen”

June 2022

ACKNOWLEDGEMENTS

Over the last forty years there are numerous people I owe many thanks to who assisted me in one shape form or another.

First and foremost, my wife of 41 years, Linda, and my son Josef, without their love, moral and technical support I wouldn't have been able to do any of this.

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PURPOSE

The purpose of this paper is to ask questions and memorialize the history in order to preserve the truth concerning the Skagit River flood issue. Spoiler alert, not all questions have answers. All opinions expressed are entirely my own based on experience and documentation.

Electronic copies of this paper are available at www.skagitriverhistory.com.

ABOUT THE COVER PAGE

The graphic was an exhibit in the Halverson vs Skagit County trial. It represents the impact the levee system had on flood flows in and upstream of the three-bridge corridor artificial flood channel during the 1990 flood event. For a complete transcript of all the hydraulic testimony please go to https://www.skagitriverhistory.com/Halverson_Trial_Issues_Page.htm.

INTRODUCTION

Fifty years ago, a recently discharged Vietnam Vet from Ft. Lauderdale, Florida drove his brand-new jeep to Skagit Valley in search of the future and all that it would hold. He had been stationed on Whidbey Island in 1967 and fell in love with the Pacific Northwest. A few years thereafter he had the opportunity to buy a small farm and fulfill his lifetime dream of being a farmer. He was your stereotypical Vietnam Vet, just wanted to be left alone, raise a few animals, and live the country life. Little did he know how his life was going to change. After being in three floods (1975, 1979, 1980) authoring five books about flooding of the Skagit River, numerous individual papers, several hundred individual public presentations, serving on several flood control committees, and running a web page devoted entirely to the Skagit River flood issue, as well as the preservation of the history of Skagit County (www.skagitriverhistory.com), he retired in 2016 as a legal investigator for one of the top one hundred attorneys in the country. Quite a ride after starting as a “hippy hog farmer”/hired hand on a dairy farm.

After burning the candle at both ends and the middle for way too many years, he suffered from massive burnout. So, retirement was supposed to be about bass fishing, growing tomatoes and learning how to have fun again. No more public meetings, no more research papers, no more taking vacation days in order to attend flood meetings, no more going through thousands of government documents, no more testifying, no more spending countless hours in front of a computer. So why this paper, why now after five years?

After the November 16, 2021 flood, a couple of very good friends asked me to take a look at the flood event because one experienced the highest flood levels they had ever experienced including the 1921 flood event, the other felt he had more water and that it was a smaller flood. How do you get more water with less water? Thus, I started with just that event and then one issue led to another, and I decided to try one last time to convince local residents, local government, State and Federal agencies that they are not doing a very good job with respect to managing one of the most dangerous volcanic floodplains on the west coast.

2021 FLOOD EVENT

So, let’s look at the 2021 November 16th flood event. What does the compilation of data show us? Well first off, the Sedro Woolley (“SW”) gauge had the highest gauge reading (43.51) of any major flood since 1990. Which translated into the highest water any of the Upstream Property Owners (“UPO’s”) had ever experienced. Yet the Mt. Vernon gauge in the artificial flood corridor received less water. Why?

DATE	C.F.S. CONCRETE	RIVER LEVEL	C.F.S. S-W	C.F.S. M.V.	RIVER LEVEL M.V. ¹
11/11/90	142,000	40.20	N/A	142,000	36.60
11/24/90	146,000	39.89 ²	196,000 ³	152,000	37.37
11/29/95	160,000	41.57	N/A	133,000 ⁴ 141,000 ⁵	37.32
10/21/03	166,000 ⁶	42.21	42.02	129,000	36.19
11/07/06	145,000	39.79	42.21	110,000	33.85
11/16/21	133,000	38.93	43.51	120,000	36.78

During the first 1990 flood event the Mount Vernon (“MV”) gauge registered 36.6 feet and 142,000 cfs. Yet during the 2021 flood, according to Preliminary figures, only 120,000 cfs made it to the MV gauge. Where did the extra 22,000 cfs go to? Why didn’t it make it to the gauge? The UPO’s could tell you. It was in their homes, farms and business at levels never experienced before.

The same holds true when comparing the second flood of 1990 to the 1995 flood event at the MV gauge. Both were 37.3 however there is almost a difference of 11,000 to 19,000 cfs between the two events depending on whose gauge reading you want to believe. And comparing 2003 to 2006, again 19,000 cfs never made it to the gauge in MV

A fallacy put forth by the Dike District community is that the log jams on the BNRR Bridge back up the water. For trial testimony concerning the impacts of log jams on the BNRR Bridge please see testimony in 1997 Halverson et. al. vs. Skagit County et. al. [RE: Impacts of BNSF Bridge](#) on flood flows.

¹ Authors Note: Flood stage is at 28.0 feet.

² Flooding in Western Washington from 21 to 26 November 1990, COE MFR, 11/29/90

³ INFO OBTAINED FROM COE 1993 RECON STUDY FAX DATED 3/29/93.

⁴ First reported by the COE.

⁵ Currently being reported by USGS (10/27/02)

⁶ Sauk River crested 107,000 cfs 18.89, 100 yr flood per USGS 11/10/03 Skagit Flood Control Meeting

Here is a picture of the log jam during the 1995 event:



Army Corps of Engineers November 1995 Photo of the Burlington Northern Railroad Bridge

Now here is a picture of the November 2021 event:



https://www.goskagit.com/gallery/photos-skagit-valley-flooding-from-the-air-11-17-21/collection_b8c46a29-f3cf-5e49-b5b5-a2f67474e4f1.html

The picture above was reportedly taken just eight hours after the Skagit crested while the river was still at 33.14 feet at Mt. Vernon and 40.13 feet at SW. As you can readily see there was no evidence of a severe log jam on the BNRR bridge and yet less water made it to the gauge. No obstruction on the part of the bridge yet less water to the gauge. Why? Is there anything different in the 3-bridge corridor artificial flood channel that has taken place since the 1990 flood events?

CHANGES TO THE ARTIFICIAL FLOOD CHANNEL

Right after the 1990 flood DD12 raised the right bank levee four feet along Whitmarsh Road on the riverward side of the levee⁷. To date no NFIP cumulative impact analysis or permit has been produced. FEMA was notified about the illegal landfill on the levee and did nothing to have it removed. Copies of the notification were sent to DD12, COE, Skagit County Commissioners, the Burlington Mayor, and others. No response was ever received. (See [Letter from Nookachamp resident to DD12 requesting information about permits](#)). The COE felt that the fill material would back up water onto the UPO's property. (See [Letter From Flood Plain Program Manager to LJK, RE: Effects of Fill](#))



4 feet of fill material placed on the riverward side of the levee in 1990, in the floodway just 6 years after the adoption of the local flood ordinance.

In 2003 DD17 raised their levees on the left bank (note the dump truck on the levee). To date no NFIP related cumulative impact permit has been provided for the impacts of the fill.



3 Bridge Corridor, courtesy Skagit County Public Works Department 2003

⁷For those reviewing this paper electronically, enlarge the aerial picture above. The fill in question can be seen as the green area riverward of Whitmarsh Road.

And then there are all those “maintenance and rehabilitation projects” performed by the COE over the last thirty years. To date no cumulative impact backwater analysis has been completed on all the work performed by the COE’s/DD’s in the artificial flood channel the DD’s have constructed.



Collage of four 2011 photos taken by SkagitRiverHistory.com of 3 Bridge Corridor Levee Repair Work

BACKWATER ANALYSIS

Following the 1990 flood events a lawsuit was filed in Snohomish County Superior Court and later appealed to the [Washington State Supreme Court](#), concerning the impacts the levee system had on the UPO’s. The below graphic is the result of a backwater hydraulic analysis performed by **nbc** on the impacts of the levee system during the 1990 flood events.⁸ Over the last two decades, this graphic has been presented to the Skagit County Commissioners, Skagit County Public Works Department, Skagit County Planning Department, Skagit County Hearing Examiner, City of Burlington, City of Sedro-Woolley, Skagit County Flood Control Advisory Committee, and Dike District’s 12 & 17. To date, except for the Flood Committee, the document has not been mentioned or referenced by any governmental agency, in any minutes, decision, staff report, DEIS or FEIS. Like the property rights of the UPO’s, the scientific technical hydraulic analysis has been ignored.

⁸ The numbers on the graphic indicate the amount of induced flooding in feet. For a complete transcript of the testimony concerning the hydraulic analysis please see [skagitriverhistory.com/Halverson Trial Issues Page.htm](http://skagitriverhistory.com/Halverson_Trial_Issues_Page.htm).



Clearly, the floodwater levels have already been raised six to nine feet within the artificial flood channel and one to five feet for the UPO's. You would think that there would be Federal Regulations that prohibit any additional flood levels? You would think that FEMA would have thought that flooding someone else's property would be morally and legally wrong.

FEDERAL REGULATIONS

Another item that has been ignored numerous times over the past decades is the lack of enforcement of NFIP regulations. More specifically, 44 C.F.R. §60.3(c)(10) which states:

(10) Require until a **regulatory floodway** is designated, that no new construction, substantial improvements, or other **development** (including fill) shall be permitted within Zones A1-30 and AE on the **community's FIRM**, unless it is demonstrated that the cumulative effect of the proposed **development**, when **combined with all other existing and anticipated development**, will not increase the **water surface elevation** of the **base flood** more than one foot **at any point within** the **community**.

Early in the NFIP/FEMA discussions it was determined that a conventional floodway would not be established in the Skagit Delta area. However, through a series of letters and MFR's they did designate the flood channel and the levees as being part of the floodway.

On June 19, 1981 [the Mt. Vernon City Building Official wrote to FEMA and asked:](#)

“If the designated floodway included all of our existing dikes, would we be able to maintain the dikes, repair the dikes or increase the dikes as needed or would we be precluded from doing so by including them in the designation.?” [(Emphasis added.)

On July 17, 1981 [FEMA responded:](#)

“. . .if a floodway is designated in the future and the dikes are included in that zone, you would be able to maintain and repair the dikes to their present profile elevations. Raising the dikes is another matter. Hydraulic studies of the river have shown that increasing the height of the dikes would cause an increase in flood levels upstream.” (Emphasis added.)

On March 24, 1982 [FEMA wrote to the Mayor of Burlington](#) and stated:

“. . .we have decided to build on and refine your thoughts regarding density criteria, in conjunction with establishing a minimum floodway that will encompass the channel and overbank areas including levees.” (Emphasis added.)

On August 22, 1983, [FEMA stated the following:](#)

“Despite the fact that the FEMA has not designated a regulatory floodway, it is still recognized that there is a need for development to be regulated in order that flood hazards are not significantly increased. Section 60.3C of the CFR is designated for areas where 100 year flood elevations have been established but no regulatory floodway identified. The City of Burlington and Skagit County will be required to adopt ordinances which comply with the requirements of Section 60.3C in order to maintain participation in the NFIP. Part of this requirement will be to ensure that no new construction, substantial improvements, or other development (including fill) is permitted within Zones A1-A30 on the FIRM, unless it is demonstrated that the cumulative effect of proposed development, when combined with all other development, will not increase the water-surface elevations of the base flood more than 1.0 foot at any point within the community. . . .” (Emphasis added.)

On February 1, 1984, [FEMA again wrote](#) to the Mayor of Burlington and stated the following:

“Thus, only lands within and including the Skagit River levees were designated as floodways in the conventional manner.” (Emphasis added.)

On July 3, 1984, FEMA published [FEMA Flood Insurance Study, City of Burlington.](#)

For the study area downstream of Sedro Woolley, flood plain encroachment must be restricted in certain definitive areas. For the Skagit River proper, the levees confining the channel and adjacent areas have been designated as floodways. In the vicinity of Whitmarsh Road and the old U.S. Highway 99 Bridge (Garl Street), the most landward levees were used to establish the floodway boundary. The purpose of these floodway designations is to preclude any encroachment which would reduce the capacity of the river channel or jeopardize the integrity of the levee system.

The information above was [memorialized in a Corps of Engineers email](#) dated October 10, 1996.

CENPS-EN-HH-HF 10 Oct 1996

MEMORANDUM FOR CHIEF PM, ATTN: Forest Brooks

SUBJECT: Skagit River Levee Repairs

- 1) Because of the unique characteristics of the Skagit River Delta, conventional **floodways** were not adopted for the entire delta downstream of Sedro Wooley. In this area, for the Skagit River proper, the levees confining the channel and adjacent areas have been designated as **floodways**.
- 2) In the vicinity of Whitmarsh Road and the old U.S. Highway 99 bridge, the most landward levees were used to establish the **floodway**. These are not the conventional one-foot rise **floodways** normally used by FEMA. The purpose of these **floodways** is simply to preclude any encroachment which would reduce the capacity of the river channel or jeopardize the integrity of the levee system.

...

- 3) Kunzler is pressing that we adhere to the following National Flood Insurance Program standard:

"Require until a regulatory **floodway** is designated, that no new construction, substantial improvement, or other development (including fill) shall be permitted within Zones A1-30 and AE on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base (100-year) flood more than one foot at any point in the community."

- 4) As long as any repairs we make to the Skagit River levees replace them in kind, we comply with the standard. If we raise the levees or add material to their riverbank or landward sides, then in my opinion, we must conduct an analysis to comply with the standard. I think we could reasonably argue that the analysis be limited to the cumulative effects of all anticipated levee improvements, since our work only concerns levees.

Joseph T. Weber, Jr.
Program Manager, Flood Plain
Management Services

As late as 2012 Dike District 12 submitted a Shorelines permit to Skagit County. Contained in that application was the following verbiage from the National Marine Fisheries Service in September 2008:

The "Floodway" (or "Flood-like Tool", Exhibit 6, pages 9 and 17) in Burlington and adjacent to the City, in accordance with the 1984 flood insurance study, is specifically limited to the area between the levees and extending landward from the toe a distance of 300 feet in the City and 500 feet in the County ...

Why did FEMA on behalf of the NFIP think that controlling the placement of fill in the flood channel corridor and the floodplain was so important? FEMA felt that obstructing flood flows to the Samish River Valley would be "morally and legally wrong". (See [Floodway Meetings](#)). They stated that dike improvements and construction will be prohibited. (See 3/25/81 [SVH Article](#))

And what has been Burlington/DD12 response to FEMA concerns? Besides planning to raise portions of their levees five feet (three feet above the 100 year floodplain), they constructed a levee during the 2021 flood event along Highway 20: ...



...in a failed attempt to stop the Skagit River from flowing into its ordinary flood channel as the picture below shows. Water flowing out of the artificial lake into its flood channel, Gages Slough.



YouTube Still from KING 5: "AERIALS: Flooding and storm damage in Skagit County"

Does FEMA have any legal obligations to the UPO's to ensure that their regulations are complied with by local governments? What about their responsibility to the taxpayers of the United States to lessen flood damages when in fact they are increasing them? How about the State Department of Ecology, they took over enforcement of the NFIP and evidently did very little to enforce the NFIP in the most dangerous volcanic floodplain on the west coast. At any point does the lack of enforcement of government regulations in the instant case constitute insurance fraud? What about nonfeasance, misfeasance, or malfeasance?

WHAT HAVE THE SUPREME COURTS SAID ABOUT INDUCED FLOODING?

HALVERSON ET AL. vs. SKAGIT COUNTY, 139 Wash 2nd 1, 983 P.2d 643 (1999)

The levees constructed protected against overbank floodwaters which were surface waters and, thus, were of the type which the landowners could properly protect against. Under the common enemy doctrine, the landowners were entitled to build levees to repel these surface waters back into the river channel. Finally, the levees here did not artificially collect and discharge the floodwaters, as proscribed under [DiBlasi, 136 Wash.2d at 879, 969 P.2d 10](#), and [Colella, 72 Wash.2d at 389, 433 P.2d 154](#). Consequently, we find that had the County been responsible for the existence of levees, the common enemy doctrine would have provided a defense to the County's liability.

Pretty much they stated that any water outside of the ordinary flood channel is surface water and therefore falls under the Common Enemy Doctrine and induced flooding as a result is okay. Really? Its okay to change the course of the river and put your floodwaters in someone else's home, milking parlors, business? It's okay to block off natural flow channels that used to flood from the river. Maybe not.

FITZPATRICK ET AL., v. OKANOGAN COUNTY, 169 Wn.2d 598; 238 P.3d 1129; 2010 Wash. LEXIS 716

This case involved a dike referred to as the "Sloan-Witchert Slough Dike" lies one-half mile upstream from the subject property on the opposite bank of the Methow River. The dike was originally built in the early 1970s by other private landowners. Starting in 1978, following a series of floods that damaged Washington State Highway 20 and other property, the County **began making improvements to the dike**. After the 1999 improvements, Al Wald, a hydrogeologist for the Washington State Department of Ecology, provided a memorandum to the County shoreline permits coordinator. In it, Wald explained that, in his view, the dike work impacted the Methow River **by cutting off natural overflow channels**. He indicated that this had the effect of compressing more flood flow into the main channel and reducing the natural flood conveyance capacity of the river.

Defined the elements of an inverse condemnation cause of action as (1) a taking or damaging (2) of private property (3) for public use (4) without just compensation being paid (5) by a governmental entity that has not instituted formal proceedings.

Appeared to agree with **Halverson** in that water must meet the definition of "**surface water**" to be regarded as an outlaw and a common enemy that may be defended against, even if, by doing so, injury may result to others. The common enemy rule provides that, if one in the lawful exercise of the right to control,

manage, or improve one's own land, finds it necessary to protect that land from surface water flowing from higher land, one may do so, and if damage thereby results to another, it is damage without a remedy.

Then they point out an exception to the Common Enemy Doctrine. Under the **natural watercourse rule**, the common enemy doctrine does not shield a landowner from liability for damage to the property of others caused by the landowner's diversion of water from **a natural watercourse**. The natural watercourse rule is based on the principle that watercourses must be kept open to carry water into streams and lakes.

Their complaint contained claims for inverse condemnation, trespass, negligence, and wrongful injury or waste to property. The County and State each responded by moving for summary judgment. In response to the motions, the owners presented evidence to the trial court that the Sloan-Witchert Slough Dike blocked several naturally defined watercourses that were side channels to the main stem of the river. According to the owners' expert, Dr. Jeffrey Bradley, "[t]hese side channels relieve flow from the main channel as the water level rises during a high flow event."

Then they state, "Works that cut off a river's natural overflow channels in the river's floodplain, thereby forcing all of the river's flow during high-water events into the river's main channel and onto the property of others, is not protected by the common enemy rule unless the diverted water constitutes "surface water." **Where the diverted water constitutes water in a natural watercourse, the common enemy doctrine does not apply and the party responsible for the works is exposed to liability for property damage caused by the diverted water.**"

ARKANSAS GAME AND FISH COMMISSION, v. UNITED STATES, 568 U.S. (2012)

Periodically from 1993 until 2000, the U. S. Army Corps of Engineers (Corps) authorized flooding that extended into the peak growing season for timber on forest land owned and managed by petitioner, Arkansas Game and Fish Commission (Commission). Cumulative in effect, the repeated flooding damaged or destroyed more than 18 million board feet of timber and **disrupted the ordinary use and enjoyment of the Commission's property**. The Commission sought compensation from the United States pursuant to the Fifth Amendment's instruction: "[N]or shall private property be taken for public use, without just compensation." **The question presented** is whether a taking may occur, within the meaning of the Takings Clause, when government-induced flood invasions, although repetitive, are temporary.

Ordinarily, this Court's decisions confirm, if government action would qualify as a taking when permanently continued, temporary actions of the same character may also qualify as a taking. In the instant case, the parties and the courts below divided on the appropriate classification of temporary flooding. Reversing the judgment of the Court of Federal Claims, which awarded compensation to the Commission, the Federal Circuit held, 2 to 1, that compensation may be sought only when flooding is "a permanent or inevitably recurring condition, rather than an inherently temporary situation." 637 F. 3d 1366, 1378 (2011). **We disagree and conclude that recurrent floodings, even if of finite duration, are not categorically exempt from Takings Clause liability.**

...

The Court first ruled that **government-induced flooding can constitute a taking** in *Pumpelly v. Green Bay Co.*, 13 Wall. 166 (1872). The Wisconsin Legislature had authorized the defendant to build a dam which led to the creation of a lake, permanently submerging the plaintiff's land. The defendant argued that the

land had not been taken because the government did not exercise the right of eminent domain to acquire title to the affected property. Moreover, the defendant urged, the damage was merely “a consequential result” of the dam’s construction near the plaintiff’s property. Id., at 177. Rejecting that crabbed reading of the Takings Clause, the Court held that “where real estate is actually invaded by superinduced additions of water, earth, sand, or other material . . . so as to effectually destroy or impair its usefulness, it is a taking, within the meaning of the Constitution.” Id., at 181.

DISCUSSION

Are all flood waters surface water? In a reading of the above I feel that the issue is ripe for litigation. Are all waters that escape from the channel of the Skagit River surface waters? Or should those waters be classified as Skagit River floodwaters headed toward its old flood channel (i.e. water going to Gages Slough)? Before this issue could be relitigated on behalf of the UPO’s they would have to show the following:

1. Gages Slough is a natural drainageway.
2. That floodwater flowing towards and in Gages Slough is water that constitutes water in a natural watercourse.
3. That Gages Slough is a natural overflow channel of the Skagit River.

There is a plethora of historical information concerning Gages Slough. In 1983, a citizen's group tried to have the conveyance characteristics of Gages Slough recognized as a floodway under the State's Shoreline Management Act (SMA). The presentation before the Skagit County Planning Commission, on June 13, 1983, is republished in its entirety and attached hereto as Appendix A.⁹ Once again government on all levels ignored them.

It would be appropriate here to remind the reviewer that during large flood events the mouth of the river is Sedro-Woolley. Sterling is the pivot point for channel changes. As the river floods, it seeks out its old flood channels. The Skagit Delta is anything but flat at least from the Avon Bend back to Sedro-Woolley. It’s not like this subchannel of the Skagit River is trying to hide from anyone.

⁹ For other historical information concerning Gages Slough please go to www.SkagitRiverHistory.com and search the website.



Top left: In 1982 FEMA published the [Dames & Moore Report](#). I believe the graphic from that report clearly shows the flood channel. The green areas are Zone B's or areas out of the 100 year flood plain. Gages Slough in purple and the Skagit River in blue.

Top right: The subchannel of the Skagit River can be easily recognized by Google Maps.

Bottom left: Or you could drive over to Holtcamp Road and walk in the channel. Or you could drive over to the United General Hospital and view the old flood channels across the street. Not exactly the best place you could have located a critical facility.

Bottom right: Its not like no one notices where the water goes during catastrophic flood events. Mr. Herzog who was here in 1921 stated it very clearly in his hydraulic analysis on behalf of the GNR:

As mentioned before, the waters flowing through the breaks in the dyke ahead of bridge #36 flow west to Swinomish Slough and Padilla Bay; they follow the Anacortes Branch of the Great Northern Railway. [GNRR letter and Robert Herzog Report \(1st Avon By-Pass Proposal\)](#)

The Herzog report was written a hundred years ago. Now please go to the home page at www.skagitriverhistory.com. Click on the [nhc](https://youtu.be/UOTbqWc7CUQ) 100-year Flood Simulation at <https://youtu.be/UOTbqWc7CUQ>. The water goes exactly where Mr. Herzog said it was going to go. There is no big secret here. A hundred years of history. Everyone knows where the water goes during catastrophic flood events and government continues to obstruct and ignore its flow paths and continues to issue questionable building permits in and around the flow path. Burlington put in their EIS under Additional Storage *"The existing condition for storage in the delta area is that Hart Slough and De Bay Slough fill, the Nookachamps basin fills, the Sterling area fills and overtops the railroad heading north to farmland and west in the Gages Slough corridor."* There's no secret here.

Well, the levees are safe, aren't they? No chance they could ever fail? After all, the Corps of Engineers, State Department of Ecology, FEMA, Skagit County and the Dike Districts have spent millions of

taxpayers dollars on the levee system in the last 40 years. Take a look at how the levees of Dike District 12 and 17 appeared after the 1995 flood event. Both levee systems were damaged.



1995 flood damage Dike Dist. 12 levee-bank off Bennett Rd

1995 flood scour of Dike District 17 levee just downstream of BNRR Bridge

As late as April 1, 2021, the Corps of Engineers downgraded the Dike 12 levee fifty-year protection¹⁰ to 1 year protection when the levee bench began to fail from the effects of a 2-year flood in February 2020:

At DD 12, the Sponsor noted cracking in the bench between the levee and the river during the February flood event (Appendix B, Figures 3 and 4). This bench and the associated riprap armoring is critical to the levee performance and has been evaluated as an appurtenant levee component in previous levee inspections. The purpose of the emergency repair was to temporarily provide supplemental protection to prevent levee failure. . . . This cracking indicated that the riverward slope of the bench is unstable and continues to slide into the river. In all, the damaged area is approximately located between Stations 298+00 and 305+00. In the damaged condition, the DD 12 levee is providing a 1-year flood (100% ACE) level of protection. [Notice of Preparation/Clean Air Act Public Notice](#)

¹⁰ If they have never raised their levees how did we go from 12-15 year protection in the 1960's to 50 year protection in 2021?



While researching this paper I was happy to see how my arguments concerning Gages Slough have remained consistent since the beginning of this journey. What I am not happy about is that all the government agencies on all levels have failed to manage the Skagit River floodplain and act in the best interest of the future generations that will inherit the man-made disaster that has been left behind. Whether its government not exercising their authority, not issuing permits when permits are required, looking the other way (i.e. “just call everything you do as maintenance and you don’t need permits”), not being restrictive in any meaningful manner with respect to development, holding secret meetings where the public is not allowed, allowing 3 billion dollars’ worth of infrastructure, subdivisions, multifamily housing, and commercial buildings in this most dangerous volcanic floodplain, the government failed and continues to fail.

Let’s look at how business is done in Skagit County. We don’t have to go any further than a local agreement between municipalities. [Settlement Agreement Between Burlington, Dike District 12 and Sedro-Woolley.](#)

...

L. This Agreement is also for the purpose of settling, resolving and terminating the Sedro-Woolley appeal to allow DDID12 to continue with all work approved under the permit, without disruption, delay or interference of DDID12’s statutory rights and powers under RCW 85 et seq. for protection of life and property.

...

WITHDRAWAL OF APPEAL. Sedro-Woolley shall withdraw its appeal currently pending on remand before the Skagit County Hearing Examiner and further agrees during the term of this Agreement to not oppose, delay, interfere with, or appeal DDID12’s and/or Burlington’s projects that are part of Alternative 2 permit scope of work more particularly

described in permit, Exhibit "A" and Exhibit "B" (hereafter "EIS 2.2b"), provided that EIS 2.2b shall not include any tie back to higher ground.

...

4. UGH DISTRICT 304 PROTECTION PROJECT. In consideration of this settlement, DDID12 agrees. . . to move forward with planning, preparation and performance of work for ultimate completion of the United General Hospital/Public Hospital District 304 vicinity flood control project, including a ring dike and possible adjacent properties within DD12's District. . . . Burlington will not oppose or appeal, permits for this project.

So, you don't oppose my project and I won't oppose your future project that we haven't done any kind of a public analysis on. Does that mean that if there were severe impacts to Burlington residents that their city government won't oppose the project? Is this even legal?

...

G. The parties acknowledge that nothing herein prevents any party from taking any and all emergency measures it deems necessary during an emergency event, or declaration of emergency, or flood event, or as directed by the U.S. Army Corps of Engineers regarding flood protection, emergency repairs under PL84-99, or any disaster response required by any party under its statutory authorities or any other customary flood protection, or necessary measures for the protection of life and property.

Nothing prevents any party from taking any and all emergency measures it deems necessary during a flood event? Any and all? The acceptable legal definition of emergency is:

An emergency event is a sudden, urgent, usually unexpected incident or occurrence that requires an immediate reaction or assistance for emergency situations faced by the recipients of public assistance. The main purpose of such assistance is to bring the situation under control and to restore normality. It usually poses a threat to the health or safety of those involved, responders, and people in the surrounding area. In Glass v. Board of Common Council, 262 Ky. 471 (Ky. 1936), the court observed that "An emergency is any event or occasional combination of circumstances that calls for immediate action or remedy; pressing necessity; exigency; a sudden or unexpected happening; an unforeseen occurrence or condition. Existing and continuing conditions are never considered emergencies." (Emphasis added.)

<https://definitions.uslegal.com/e/emergency-event/>

There is nothing unexpected, or unforeseen about the Skagit River flood waters going to Gages Slough. Especially since the levee system has created an artificial lake/storage basin and the water flowing out of it is going towards Gages Slough. As stated earlier there is a plethora of historical information regarding the functions of Gages Slough. See Appendix A.

...

13. COMPLIANCE WITH LAWS. The parties to this Agreement shall comply with all applicable federal, state and local laws, rules and regulations in carrying out the terms and conditions of this Agreement. The parties shall obtain and comply with any and all necessary permits, approvals, consents and notice from or to all applicable jurisdictions prior to commencing any work or action related to this Agreement.

You must wonder if compliance with **all laws and regulations** includes 44 C.F.R. §60.3(c)(10)? One regulation that I have not seen any evidence they have ever enforced.

7. NEUTRAL AUTHORSHIP. Each of the terms and conditions of this Agreement have been reviewed and negotiated with resort to legal counsel, and represents the combined work product of the parties hereto, and this Agreement shall not be interpreted for or against parties herein. The parties represent that they have had a full and fair opportunity to seek legal advice with respect to the terms of this Agreement, and have either done so or have voluntarily chosen not to do so.

Wouldn't it be interesting to know which party to this agreement "voluntarily" chose not to seek legal advice? You had three attorneys' representing three municipalities in settlement negotiations. Who chose not to listen to their attorney or which attorney was not asked for his advice? We perhaps will never know but to me it clearly shows the contempt local municipalities have for the public hearing process.

CONCLUSION

I started this research on behalf of family friends in the Sterling area, one experienced the highest flood levels they had ever experienced including the 1921 flood event, the other felt he had more water and that it was a smaller flood.

I would answer the first friend in the following way: Yes, your family's farmhouse had way more water in 2021 than in 1921, by several feet. In the 1921 flood, which according to local residents in historical documents, was one of the largest floods in the County's history, the Burlington levees failed in more than just a few locations and the levees in 1921 were, in its most northly location, almost a mile west from their current location. The levees did not break in 2021, although it appears without the work performed by the Corps in 2021 they very well might have (that's emergency work). If the levees were at 100-year flood levels in 1921 in their current location, and they held, well in my opinion your family farmhouse might have had the same amount or more water like you did in 2021. Some good news though, according to the "New Hydrology" it appears you just came very close to having a 100-year flood. As I hope this paper shows you, the raising of the levees, has created an artificial lake/storage basin by backing up the Skagit River onto the UPO's property. Something the 1984 FEMA Flood Insurance Study was supposed to stop from getting worse.

I would answer the second friend by stating that according to the research contained herein, the Sedro-Woolley gauge experienced the largest flood since 1990 but the Mt. Vernon gauge did not. There are only two explanations for this. Either we just can't rely on the USGS gauges or there have been changes to the artificial flood channel as shown herein that maybe slowed the volume down? I don't know and until someone performs the proper investigation, we'll just look the other way.

To the future generations of Skagit Valley residents, I have nothing but apologies. I'm sorry that my efforts to bring about responsible land use planning in one of the most dangerous volcanic floodplains on the west coast and to stop the induced flooding into the artificial lake/storage basin, fell short, like so many good people who have went before me. It wasn't due because of lack of effort.

I titled my first book [Skagit River Valley: The Disaster Waiting to Happen](#). It should have been more appropriately named Skagit River Valley the Man-Made Disaster Waiting to Happen. For as the editorial I wrote in 2006 titled [The Realities of Flood Control in Skagit County](#) clearly states, there is nothing remotely resembling an Act of God here. They've known about the two active earthquake faults under the City of Burlington, they've known about the volcanic eruption's effects on the Skagit Delta from Glacier Peak, they sure as hell know about the flood history, and yet government continues to not enforce federal regulations, allow shopping malls, subdivisions, commercial development, and infrastructure improvements that will end up costing taxpayers billions of dollars to replace.

Forty years is a long time doing anything. I retired in 2016 and I plan on going back to retirement after I publish this paper. What has happened in this Valley should never have been allowed to happen. Putting your floodwaters into someone else's house is unconscionable. However, it's what happens when the wrong element of society infiltrates and takes over local government. Developers are motivated by only one word, profit, and when profit comes up against the environment, well it appears that the environment and the taxpayers will suffer the consequences.

I offer you one of my more often public comments, Mother Nature has left Her footprints in the sand, walk in Her moccasins. She will show you your past, and in so doing She will show you your future. May your fields be ripe and budding and your rivers full and flooding, because that is the only time government listens. This may be my final paper, but it will be Mother Nature who will write the final chapter.

I leave you with the editorial words of Chuck Dwelley, Editor/Publisher of the Concrete Herald, authored on July 24, 1952:

. . . A usual leisurely way of life is being speeded up by the urgency of progress. The restlessness of the pioneer is easily understandable – find, build, welcome the newcomers and then realize that what you have sought is lost through your own enthusiasm. Therein lies the charm of the phrase, “the good old days.” We liked it as it was, didn't we? And so we move along, reluctant, to that next bit of promotion. Where to from here?

<https://www.skagitriverhistory.com/PDF-BIN/Concrete%20Herald/1952-07-24%20Editorial.pdf>

APPENDIX A

Presentation to the Skagit County Planning
Commission, June 13, 1983

**GAGES SLOUGH
ANALYSIS OF THE FLOODWAY ISSUE**

Mr. Chairman, members of the Planning Commission:

My name is Larry J. Kunzler. On behalf of the Citizens for Orderly Growth, I have been asked to address the issue of whether or not GAGES SLOUGH is a WETLAND by virtue of it being a FLOODWAY. Before one could pursue this train of thought we must first define FLOODWAY. I have taken the liberty of putting together a FLOODWAY Portfolio for each of the members of the planning commission as well as the Skagit County Planning Department Staff.

On the left-hand side of your portfolio you will find copies of all the legal documents pertaining to the legal definitions of the term FLOODWAY. They include the Skagit County Shoreline Master Plan, the State of Washington Shoreline Management Act of 1971, Washington Administrative Code Chapter 173-22 titled Adoption of Designations of Wetlands Associated with Shorelines of the State, and lastly Chapter 508-60 Administration of Flood Control Zones again of the Washington Administrative Code.

After analyzing each legal definition, one is left with a list of criteria questions. If GAGES SLOUGH meets the necessary criteria that the questions pose than GAGES SLOUGH is indeed a FLOODWAY and under the law all FLOODWAYS are automatic WETLANDS. I feel it also appropriate to point out that under the law all DRAINWAYS are considered to be and administered as FLOODWAYS.

For lack of a better name I have assigned the title, "THE FLOODWAY NINE" to the list of questions of criteria that one has to answer in order to justify calling GAGES SLOUGH a FLOODWAY. You will find those questions under the title page on the right hand side of your files along with all of the documentation needed for the FLOODWAY NINE answers.

For the benefit of the audience the FLOODWAY NINE questions are as follows:

THE FLOODWAY NINE

- 1. IS THERE A CHANGE IN THE TYPES OR QUALITY OF VEGETATIVE GROUND COVER CONDITIONS**
- 2. IS THE GAGES SLOUGH AREA A WATERCOURSE THAT CARRIES FLOODWATERS?**
- 3. DOES THE GAGES SLOUGH AREA SERVE AS A DRAINWAY?**
- 4. IS THE GAGES SLOUGH AREA SUBJECT TO THE 100 YEAR FLOOD?**
- 5. DO THE FLOODS HAPPEN WITH REASONABLE REGULARITY?**
- 6. IS THE GAGES SLOUGH AREA REASONABLY PROTECTED FROM FLOODWATERS?**
- 7. DOES GAGES SLOUGH INFLUENCE THE SKAGIT RIVER?**

8. DOES THE SKAGIT RIVER INFLUENCE GAGES SLOUGH?

9. DO FLOODWATERS IN GAGES SLOUGH TRAVEL AT MORE THAN 0.5 MPH?

Others in the audience tonight will address the wetlands, vegetative cover question. In order to answer the FLOODWAY NINE, we are going to take a look at a lot of historical engineering and technological data that is available for review on the GAGES SLOUGH issue. In order to meet a self imposed time limitation on my presentation here tonight I'm only going to read to you very short excerpts from the evidence presented. It should be obvious that any one of the pieces of evidence could be used to justify answers to several of the questions.

Let us begin with the historical evidence.

I would like to submit to you several newspaper articles concerning past floods in GAGES SLOUGH. It is appropriate at this time to tell you that GAGES SLOUGH hasn't always been called GAUGES. It used to be called VARNEY SLOUGH after the interurban railroad depot at Burlington next to the slough.

DEC 15, 1921 ... MT VERNON DAILY HERALD

At Mt Vernon Saturday, the fury of the waters caused alarm for the safety of the dikes and a close watch was kept over them. The first break occurred at McKays place in Burlington. The low lying land was soon covered with water. On Tuesday morning the scene north of the city (Mt Vernon) was one broad expanse of water, with dwelling houses, barns, hay stacks, fences and trees standing in it. From three to six feet of water was recorded in this section of the flood area, the lower floors of the houses being flooded, the inhabitants taking to the second story. The flood waters reached as far west as Avon of houses between here and Burlington were reported to have been lifted from their foundations and otherwise damaged by the flood. The most serious one reported was that of Lee Davis, whose house floated off its foundation and broke in to. The family had been warned to seek safety but were slow in taking heed to the warning interrupted (on the interurban) by the washing out of a bridge just outside of city limits and damage to the bridge over VARNEY SLOUGH.

FEB 29, 1932 ... MT VERNON DAILY HERALD

The mighty Skagit River, one of the largest in the west, went on a rampage over the weekend, crashed through the dikes in at least three places south of Burlington sent a torrent of water westward down VARNEY SLOUGH, which overflowed, flooding some land. Water three and four feet deep covered the Pacific Highway (GARL STREET) in at least two places between the Riverside bridge and the Hanson Greenhouse. Traffic was cut off. The breaking of the dike caused a washout of the Great Northern railway tracks. The water from this break extended to north Avon and went as far as Whitney. . . . The river overflowed east of Burlington flooding scores of acres of land, but was prevented from entering Burlington by a high dike. VARNEY SLOUGH prevented water from entering Burlington on the south. . . . Scores of men worked all night to save the dike which is southeast of the VARNEY SLOUGH bridge, but it was a losing battle. At about noon yesterday, the river tore a gap 200 feet long in the dike and within a few minutes the water was running westward in a raging torrent. It was not long until the Great Northern railway tracks were washed out for a short distance as the waters swept onward towards the Pacific Highway (GARL STREET) . As the water spread toward Burlington, it finally reached VARNEY SLOUGH and was diverted westward.

JAN 28, 1935 ••• MT VERNON DAILY HERALD

Excitement during the high water reached its peak, at about 3:30 Saturday afternoon when Burlington residents prepared to "move out" when it was learned that the dike had collapsed near the Cleveland ranch, northeast of Burlington. Hundreds gathered at VARNEY SLOUGH, a short distance east of Burlington hospital, to watch the water as it roared down the passage but most of it raced down the SLOUGH, flooding a small section in the southern part of the town. It continued down VARNEY SLOUGH finally reaching the lowlands at North Avon. The water reached within a few hundred feet of the hospital.

JAN 31, 1935 ... MT. VERNON ARGUS

The largest of the breaks occurred northeast of Burlington when a portion of the dike road gave way. The water found its way into VARNEY SLOUGH and was slowly carried off by way of North Avon into the bay without much damage.

Historically speaking there have been seven floods go through GAGES SLOUGH since 1906 for an average of once every 11 years. 1906, 1909, 1917, 1921, 1932, 1935, and 1951.¹¹

Pictures from a local historical book called SKAGIT SETTLERS TRIALS AND TRIUMPHS 1890-1920. Page 173, the caption by the top picture reads:

" VARNEY was a station on the interurban between the Skagit River bridge and Burlington. Floods in 1917 and in 1921 broke the dikes below Sedro-Woolley and washed out a large section of the track as it dug out the SLOUGH just north of Willards Greenhouse, sometimes called GAGES SLOUGH and sometimes VARNEY SLOUGH. This view is looking south along the tracks.

As I mentioned earlier the historical data as well as the following engineering and technological data could be used to answer or applied to many of the FLOODWAY NINE questions. Again because of time limits self-imposed I'm going to just grab the highlights of each piece of evidence and just apply it to one question.

IS GAGES SLOUGH A WATERCOURSE THAT CARRIES FLOODWATERS?

Department of Ecology letter dated October 5th, 1979:

∴ . . The Department of Ecology considers GAGES SLOUGH as a floodwater conveyance system. This means it would be used for floodwaters during 100 year frequency floods or less.

Federal Emergency Management Agency letter dated June 10, 1983:

Another key effective flow area is the GAGES SLOUGH which is a floodwater conveyance system consisting of lower ground throughout the city and into the county.

¹¹ **1990 UPDATE:** On November 25, 1990, the Skagit River crossed Highway 20 and began flowing into Gages Slough. This would increase the average occurrence to once every 10.5 years.

DOES GAGES SLOUGH SERVE AS A DRAINWAY?

According to the front page of the Skagit Valley Herald dated May 13, 1983, the Burlington City Council believes the slough is a "drainage area". One quote in the article reads:

"The city of Burlington and the adjacent property owners have used the SLOUGH as a DRAINAGEWAY for many years."

GAGES SLOUGH Public Hearing June 14, 1978, 7:30 PM Skagit County Commissioners at Burlington:

Mr Johnson (county engineer):

"GAGES SLOUGH has been asset for a long time. The city of Burlington uses the County uses it for drainage, the State uses it well as many individuals.

County Commissioner Howard Miller:

"I can remember as a kid, four or five years old, down here by the hospital, my uncle lived there and I used to go down that SLOUGH and watch the river run through there. And I always talked to a man who said he remembered when he used to bring shingle boats through there.....

Mr. Bob Hulbert representing the Soil Conservation District:

"...I have seen the slough function as an emergency water course during floods exceeding 155,000 cfs at Sedro Woolley and receive runoff from the City of Burlington and surrounding lands.

GAGES SLOUGH Public Hearing 25 July 1978, Burlington Wash., conducted by the Skagit County Commissioners.

Mr Don Nelson, (Flood Control Section Manager)

"Looking at the SLOUGH, its been pretty well neglected from a hydraulic standpoint; the DRAINAGEWAY itself has become clogged with weeds and growth. Also there seems to be NO JURISDICTION over the SLOUGH since it existed, I suppose. And as a consequence, things are done to it that shouldn't be done to a DRAINAGEWAY of this type. A great deal of people use this SLOUGH for their DRAINAGEWAY, NATURAL DRAINAGEWAY created by the Skagit River many, many years ago."

IS GAGES SLOUGH SUBJECT TO THE 100 YEAR FLOOD?

Skagit County Storm Drainage Management Plan dated August 1982, commonly referred to as the Brown and Caldwell report:

"The GAGES SLOUGH watershed is part of the Skagit River floodplain and includes the cities of Sedro-Woolley and Burlington.

**DO THE FLOODS HAPPEN WITH REASONABLE REGULARITY?
IS GAGES SLOUGH REASONABLY PROTECTED FROM FLOODWATERS?**

Back to the GAGES SLOUGH Public Hearing on the 25th of July 1978 page 20. Mr Lee Lindamood:

"...I lived down there at the tail end of GAGES SLOUGH for practically all my life ... And I've seen the floods of 1909 and 1917, 1921, 1932, and 1934. And I had to learn to swim in every one of them."

Skagit River. Wash. General Design Memorandum Levee Improvements Volume One July 1979:

"...levees could withstand flows corresponding to floods with probable recurrence ranging from once in 3 years to once in 14 years..."

U.S. Dept of Agriculture. Forest Service. River Management Analysis of Skagit River Vol 1, page 42:

"...Existing flood control measures and structures mitigate potential flood damage somewhat, but maximum protection is only achieved for floods occurring at a frequency of once every 14 years.

Comprehensive Land Use Planning Alternatives For The Skagit River Floodplain and Related Uplands, page 107:

"...The levee capacity in the Burlington area is only 108,000 cfs which is considered to be below minimal protection for urban areas... page 110, "...dikes only provide protection from flows below 91,000 cfs to 143,000 cfs or 3 to 14 year flood frequency."

Coordination during Flood Insurance Studies. Community Assistance Series #2. published by the Federal Insurance Administration page 11. The chart proves that GAGES SLOUGH stands approximately a 90% or more chance of being inundated by floodwaters in any 50 year period of time.

**DOES GAGES SLOUGH INFLUENCE THE SKAGIT RIVER?
DOES THE SKAGIT RIVER INFLUENCE GAGES SLOUGH?**

Floodplain Information Study. Skagit River Basin, a Technical Report prepared by the US Army Corp of Engineers, page 18:

"...Water escaping from the same reach of levee that was breached above Burlington in 1909 would flow through the city, follow the general course of GAGES SLOUGH, and flood the entire area between Bayview and Pleasant Ridges."

DO FLOODWATERS IN SLOUGH TRAVEL AT >0.5 MPH?

The significance of this question is that in a floodplain an area is considered either FLOODWAY or floodway fringe. According to the definition provided by the Skagit County Shoreline Master Plan the floodway fringe is limited to flood-surge storage of water currents moving at a negligible velocity of less than 0.5 mph.

According to the Norman Report (a hydraulic investigation for a proposed development in the GAGES SLOUGH area) GAGES SLOUGH will carry under existing conditions 17,000 cfs. and have a flow of anywhere between 2.7 and 22.4 feet per second. That translates to between 1.8 to 15 mph depending on where you're at on the SLOUGH. Now I might add that I personally am not endorsing the Norman Reports figures, for I feel the report grossly understates the significance the SLOUGH plays however if you accept that data than you must designate the SLOUGH as a FLOODWAY.

While we have the Norman Report before us, I'd like to draw your attention to the map on the wall. The map was prepared by an engineering firm in Washington DC called Dames and Moore. The areas highlighted in green represent high ground. When you transpose the information from the Norman Report onto the Dames and Moore map you can begin to see the significance that the SLOUGH plays. By the way, is there anyone on the planning commission that knows how much water 17,000 cfs represents? Well according to a Flood Insurance Study page 21, 17,000 cfs is a little more than twice the amount of water that just flooded the Samish River Basin last January.

And to show you the effects of allowing landfill development in and adjacent to FLOODWAY areas, that one proposed development will move approximately 60,000 gallons of water per second into and south of GAGES SLOUGH. 60,000 gallons of water per second is approximately the same amount of water that flooded the Samish River Basin last January.

One last piece of evidence. The Draft Environmental Impact Statement for the Burlington Annexation and Sewer Extension dated August 3rd, 1979, Page 23:

"GAGES SLOUGH ALSO SERVES AS A FLOODWAY IN ANY EVENT GREATER THAN 145,000 cfs."

The sum total of the information gathered to support the answers to the FLOODWAY NINE questions, without any doubt, supports the statement: GAGES SLOUGH is a readily identifiable, easily recognizable, historically proven, FLOODWAY. Since GAGES SLOUGH is a FLOODWAY, and since GAGES SLOUGH is a DRAINWAY, and since GAGES SLOUGH supports a WETLAND, MARSHLIKE habitat, and since GAGES SLOUGH is within the Skagit River 100 year floodplain, then GAGES SLOUGH is and deserves the status of a WETLANDS designation as required by law under the State of Washington Shorelines Management Act of 1971.

Ladies and Gentlemen of the Skagit County Planning Commission, designation of GAGES SLOUGH as a WETLAND because it is a FLOODWAY is not a violation of property rights. It is simply a statement of admission of existing conditions. To call GAGES SLOUGH by any other name than a FLOODWAY is to display a degree of arrogance and ignorance for the powers of mother nature. GAGES SLOUGH is

a natural hazard that if left unnoticed will become a natural disaster. Thank you very much for your time and attention.

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

Subsequent to the foregoing presentation, the Skagit County Planning Commission, Skagit County Commissioners, Burlington City Council, and the State Shoreline Hearings Board refused to designate Gages Slough as an associated wetland by virtue of the floodway functions the slough performs.