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**Comment Letter Re: Skagit River GI Study DEIS  
Respectfully Submitted by Larry J. Kunzler, Sedro-Woolley, Washington, 98284**

14 July 2014

Ms. Hannah Hadley  
U.S. Army Corps of Engineers  
CENWS=EN-ER  
P.O. Box 3755  
Seattle, WA 98124

**DELIVERED VIA E-MAIL:** [skagit.river@usace.army.mil](mailto:skagit.river@usace.army.mil); [Hannah.F.Hadley@usace.army.mil](mailto:Hannah.F.Hadley@usace.army.mil); [gail.m.terzi@usace.army.mil](mailto:gail.m.terzi@usace.army.mil); NWS Commander Colonel John G. Buck; NWP Commander Colonel Jose L. Aguilar; Chief of Engineers Lt. General Thomas P. Bostick; FEMA Deputy Associate Administrator; Federal Insurance and Mitigation Administration Edward L. Connor

RE: Skagit River GI Study DEIS Comments

**"If once you forfeit the confidence of your fellow citizens, you can never regain their respect and esteem." -- Abraham Lincoln**

*Dear Hannah,*

*I attended my very first public meeting on 3/22/1978 (See [Partial Transcript of Corps Skagit Public Workshop](#)). In May of 1979 I was handed a copy of my very first DEIS by a neighbor. It was the Corps of Engineers DEIS re the Levee Improvement project ("LIP"). Little did I know how that document was about to change my life for the next 35 years. As a Vietnam Veteran I found it shocking that the US Army wanted to put floodwaters in my home and call it "consequential damages". Back then I worked very closely with Corps employees including hydrologists, project managers, environmental and enforcement personnel. We didn't have e-mail back then so everything was done by telephone or at public meetings of which there were many. I had a great deal of respect for the Corps, FEMA and USGS employees even though we were on opposite sides of the issue. However, today I find that respect almost non-existent as the bureaucracy has changed from one of trying to be honest dedicated public servants to public masters. Where seemingly government agencies do not work with the public, respect the public, listen to the public and seemingly talk to only other government employees. It appears that the left hand no longer knows what the right hand is doing. Case in point, see the e-mail below:*

From: Terzi, Gail M NWS [<mailto:Gail.M.Terzi@usace.army.mil>]

Sent: Monday, September 23, 2013 5:17 PM

Cc: FOSC Office; Thompson, Kate (ECY); Betsy Stevenson; Hanson, Jana  
Subject: RE: [EXTERNAL] Nookachamps Wetland Bank excavations (UNCLASSIFIED)

Classification: UNCLASSIFIED



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Caveats: NONE

... Thank you for your interest in the **Nookachamps Wetland Mitigation Bank**. The large amount of soils being removed from the bank is from stockpiled materials set aside during the bank construction. The bank sponsors have a deadline in which to remove the stockpiled soils, so I am pleased to hear this is underway. There is no requirement to monitor this activity unless the city or county has some specific requirement, but it would be **up to them to do so**.

...

One of the main goals of the bank was to provide flood attenuation and desynchronization, by planting a large and diverse floodplain forest, and creating wetlands and channels that have a positive gradient back to the river. The wetlands would **hold water for longer periods**, as would the channels and the forested floodplain would slow those flood waters down, so if anything the site is helping the Skagit issues with flooding rather than exacerbating the problem. The bank sponsor is actively monitoring all flood events and have a series of monitoring wells measuring ground water and we have concluded to date that **the bank site is not negatively impacting adjacent properties by increasing flooding**. Please let me know if you have any further questions. Sincerely, Gail...

Gail Terzi  
Senior Scientist/Mitigation Program Manager Seattle District Corps of  
Engineers, Regulatory Branch  
(206) 764-6903  
[gail.m.terzi@usace.army.mil](mailto:gail.m.terzi@usace.army.mil)  
(All **Emphasis Added** by SkagitRiverHistory.com)

*Correct me if I am wrong but anytime you "slow flood waters down" i.e. decrease the velocity, you also back up the floodwaters and increase the deposition of sediment. Most importantly is that the "soil" that was taken from the left bank upstream of the BNSF railroad bridge was removed to the right bank of the Skagit River and given to Dike District 12 for "levee improvements" which as you well know from your current DEIS does "negatively impact adjacent properties by increasing flooding."*

*As you know the 1979 Levee Improvement Project ("LIP") went down in flames ([See 1979 Levee Improvement Project Historical Index](#)). It appears that no one involved with the current DEIS took the time to review the Historical Index because you can clearly determine that induced flooding was one of the major issues that was responsible for the lopsided vote against the LIP. 71.4% of the voters said no to flood control. Burlington and Mt. Vernon voted against the project by over 65% in both communities. (See [11/7/79 SVH](#))*

*The very next day after the election I was contacted at home by then project manager Vernon Cook. Vern began his conversation by congratulating me on the vote (after negotiating a 5 million dollar house raising, construction of cattle mounds, a levee for Clear Lake and flood gates for Beaver Lake I was happy with the project however my neighbors encouraged defeat of the project because they lost their trust in the Corps of Engineers). He said that I'd beat him fairly and squarely. That everything I did was open*



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and above board. He then asked me a question which was "What are you going to replace the project with." Over the last 35 years I have tried to replace Vern's project by the use of floodplain management, (i.e. Limiting development in areas where no development should be taking place e.g. Gages Slough) only to have local government trash every regulation and NFIP guidelines and promoting development on the bottom of the river to the tune of over 3 billion dollars' worth of infrastructure. I have served on numerous flood committees including but not limited to the Skagit County Flood Control Advisory Committee; the State Department Of Ecology Floodplain Management Advisory Committee: The Washington State Legislative Joint Select Committee On Flood Damage Reduction: and The Skagit County Flood Control District Advisory Committee. I have went to so many public meetings, often taking vacation days to attend that they must number well into the hundreds by now. I also operate the webpage [www.SkagitRiverHistory.com](http://www.SkagitRiverHistory.com) dedicated to the documented history of the flooding issue in Skagit Valley containing literally thousands of documents (with thousands more yet to be reviewed) and historical newspaper articles all in the hopes of documenting the flood issue for use by governmental bureaucracies, newspaper and other media reporters, elected officials, and most importantly individual citizens who are directly impacted by this most important issue. I've done all this as a citizen volunteer and not receiving monetary benefit for my efforts. I don't regret my efforts however, after doing all this I have to wonder where I have failed? Skagit County, mostly the cities of Mt. Vernon and Burlington continued to develop commercial and residential developments in the floodplain; **FEMA REGION 10 does not enforce any aspect of the NFIP;** dike districts continue to do work without the benefit of all the required permits; and now the Corps of Engineers Seattle District has published its most recent DEIS which is with the exception of the potential for additional storage behind the two Baker Dams, is almost identical to the 1979 LIP. The same project with the same impacts that the voters said no to by a 71.4% margin. What part of intentionally inducing flooding onto other people's property including in their homes does the Seattle District not understand?

I was so hoping that this time around I could fulfill my promise to Vernon Cook and be able to endorse the Corps project. With the exception of additional storage behind Upper and most importantly Lower Baker Dam, there is absolutely nothing that I can endorse in this DEIS. In my personal opinion your DEIS is a tremendous disappointment, poorly written, poorly researched, containing little if any true environmental analysis, breaking the spirit and intent of 44 CFR 60.3(c)(10), and misleading the public by cherry picking the results contained in Appendix I when a thorough review shows that the public actually preferred nonstructural alternatives to urban levee improvements and many other comments were completely ignored by the project team, thus skewing the results of the TSP. [See 2012 Comments to GI Study Prelim Alternatives](#)

Unless or until the Seattle District can come up with a project that includes some relief for all Skagit County citizens and not make the flooding problem worse or just keep the flooding from being worse than it already is I feel that the TSP will suffer the same fate as the 1979 levee improvement project. Such a shame, such a terrible waste of time and money.

What follows are a few additional comments on the DEIS.



### 1.1 Study Purpose and Scope\*

“The recommended plan must accomplish flood risk management within the Basin; must be technically viable and economically sound; and must be supported by the local jurisdictions and the non-Federal sponsor.” (**EMPHASIS ADDED** by [www.SkagitRiverHistory.com](http://www.SkagitRiverHistory.com))

**COMMENT:** *This cannot be accomplished until the people of Skagit County have had an opportunity to vote on the preferred alternative. This is why I and others are so very critical and disappointed with the only one public hearing on this document. In the 1979 Corps proposal the Corps went out of its way to communicate with the general public. The sooner the vote can be taken the more money that will be saved.*

### 1.4 Study Area\*

“The Basin has a total drainage area of 3,115 square miles and extends about 110 miles in a north-south direction.” (**EMPHASIS ADDED** by [www.SkagitRiverHistory.com](http://www.SkagitRiverHistory.com))

**Comment:** *There appears to be several discrepancy’s although small concerning the size of the drainage area involved. “The river originates in Canada then flows south and west through the North Cascade Range. With some 2,900 tributaries, it drains 3,130 square miles of watershed in 2,730 square miles in Washington and 400 in British Columbia.” <http://www.ecy.wa.gov/programs/wr/instream-flows/skagitbasin.html>.*

“The Skagit River basin has a drainage area of 3,140 square miles (Figure 1). The northern end of the basin extends 28 miles into Canada, and covers 400 square miles.” Source: Draft Skagit River Flood Damage Reduction Study Environmental Baseline Report Upper Basin. <http://www.SkagitRiverHistory.com/DraftComprehensiveFloodHazardManagementPlan.pdf>

*Please provide information on how many tributaries exist downstream of Gorge Dam and Lower Baker Dam and how much have they contributed to Skagit River flood flows in the past.*

#### 1.4.2 Lower Basin

The majority of the population and development in the basin is clustered around the Interstate 5 (I-5) corridor in the lower Basin, including the cities of Mount Vernon (population 32,139) and Burlington (population 8,704).

**COMMENT:** *This statement is misleading. The majority of Mt. Vernon’s population does not live in the floodplain. The only reason they need a floodwall is because of the water being forced downstream by*



*Dike District 12. A process the Seattle District evidently supports given the TSP's plan to raise DD12 levees. In the interest of public safety you should review all the documents located at [Dike District 12 Shoreline Substantial Permit](#) which like Mt. Vernon has pretty much told the rest of Skagit County to go to hell and they are going to develop their levees to provide hundred year protection which if they do before you complete your project the cost-benefit ratio as described in the DEIS for the TSP will be completely worthless. How does anyone on your project team consider that local cooperation? It appears to me that for \$14 million dollars, seven of which came from the taxpayers of Skagit County, all that has been accomplish is a subsidized engineering plan for the cities of Mt. Vernon, Burlington and the dike districts.*

### 1.6 Flood History in the Project Area

"The flood-prone area includes the cities of Burlington and Mount Vernon, with their high population densities and critical infrastructure, such as roads, hospitals, water treatment plants, and commercial and industrial development." (**EMPHASIS ADDED** by [www.SkagitRiverHistory.com](http://www.SkagitRiverHistory.com))

**COMMENT:** *Again the statement leads the reader to the conclusion that all of Mt. Vernon's "high density population" is in the floodplain when in truth and in fact by far the majority of high density population is out of the floodplain.*

The four largest documented floods on the Skagit River occurred in 1897, 1909, 1917, and 1921, before the construction of any dams in the basin.

**COMMENT:** *These four floods are anything but "documented". At best they are guesstimates. Please review [James E. Stewart Skagit River Flood Reports And Assorted Documents: A Citizen Critical Review Whitepaper, Updated and Republished 7/23/2006](#)<sup>1</sup>. Even in USGS's own words Stewarts work product would be unacceptable today. (See [Review & Comments](#)<sup>2</sup> of "Draft Evaluation of Flood Peaks Estimated by USGS" by Robert D. Jarrett, Ph.D., USGS, National Research Program 2/14/2005)*

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<sup>1</sup> Two years worth of additional research culminated in this now 90 page document. All of the "new" information gathered further supported the conclusions reached when the paper was originally published in 2004. Reasons the Stewart data should be rejected include but are not limited to: Doesn't conform to local history; Report is in conflict with Stewart's handwritten notes and field notebook; WSP 612 (1929) and WSP 1527 (1961) both use Stewart's 1918 and 1923 data. (You can't get to the 1923 figures by using 1918 data.); Reports (1923 and 1961) were never completed; Stewart paid directly by Skagit County not USGS (Skagit owns his work product); No measurements taken between Baker River and The Dalles; Stewart's work product rejected by Corps of Engineers in 1924 and 1951; Determination of "N-factor" at Sedro-Woolley inappropriate for The Dalles something Mr. Stewart himself was concerned about.

<sup>2</sup> : "Stewart's study of historical floods in the Skagit River basin had, by today's standards short-comings, simplifications, incomplete documentation, no known photographic documentation, and took decades to review and complete the evaluation of flood hydrology for the Skagit River near Concrete." . . ., "I believe much of the uncertainty in the historical flood estimates that can be evaluated now resides in factors that likely may remain



In 2003, there were again **two floods in one month**, this time in October. The Skagit River at Mount Vernon was above the zero-damage stage for 64 hours and above the major-damage stage for 47 hours. Due to reservoir regulation and sandbagging efforts, levees at Mount Vernon and Fir Island were able to withstand the flood without failing. **Based on the flood peaks at Concrete**, the 1990, 1995, and 2003 floods had annual chances of exceedance (ACEs) of approximately 10%, 4%, and 4%, respectively. **(EMPHASIS ADDED by [www.SkagitRiverHistory.com](http://www.SkagitRiverHistory.com))**

**COMMENT:** *These statements are misleading. The Skagit River at Concrete reached flood stage 5 times in 3 weeks. Only at Mt. Vernon did the Skagit reach flood stage only twice.*

DATE	C.F.S. CONCRETE	RIVER LEVEL	C.F.S. S-W	C.F.S. M.V.	RIVER LEVEL M.V. <sup>3</sup>
11/08/95	143,000	39.45	N/A	89,900	31.62 <sup>4</sup>
11/11/95	72,900	29.67	N/A	59,200	26.60
11/14/95	67,700	28.86	N/A	57,100	26.18
11/25/95	63,200	28.11	N/A	61,500	27.03
11/29/95	160,000	41.57	N/A	133,000 <sup>5</sup> 141,000 <sup>6</sup>	37.32

**2.2 Purpose and Need for Action\***

The purpose of the Federal action is to reduce flood risks, life safety threats, and damages in the Skagit River Basin as a result of flooding. The action is needed because the Skagit River Basin experiences frequent flooding resulting in damages to both rural and urban areas throughout the Basin.

**COMMENT:** *A lot of the damages are due to the mismanagement of the floods by federal, state & local government agencies, like the Corps of Engineers, Burlington, Seattle City Light and Dike Districts 12 & 17. What follows is part of an editorial I authored in 2006 titled [The Realities of Flood Control in Skagit County](#).*

unknown (unless someone can find newspaper records, diaries, or other historical documents) and need to be evaluated.

<sup>3</sup>Authors Note: Flood stage is at 28.0 feet.

<sup>4</sup> Info obtained from USGS

<sup>5</sup> First reported by the COE.

<sup>6</sup> Currently being reported by USGS (10/27/02)



### **DAM STORAGE**

Locally referred to as the “no brainer” aspect of flood control it has long been recognized that the impacts of the dams are the greatest “asset” or “liability” depending on your point of view. ([See Historical Dam Building And Their Impacts On Floods - PDF \(1924-1969\)](#)) If operated properly, the dams have the capability of storing enough flood waters to allow the crest of the Cascade and Sauk Rivers (the only totally uncontrolled rivers in the County but produce 60% of the flows during floods) to pass Concrete before waters behind the dams are released. This produces a prolonged flood event but greatly reduces the severity of the flood as was shown in 2003 when the dams were operated properly. Without the storage provided in 2003 the Skagit River, according to the Corps of Engineers, would have experienced **a flow of 209,000 cfs<sup>7</sup>** at The Dalles downstream of Concrete. The Federal Governments’ unwillingness to operate the dams in a proper manner is disconcerting at best and unfathomable at worst. The severity of the flood event and the damages incurred is directly attributable to the operation of the dams. God didn’t build the dams or operate them. Thus the severity of the floods is an act of man not God.

### **LEVEES**

In the lower valley, the severity of the flood event is directly attributable to the levee system, primarily Dike District 12 (“DD12”) around Burlington. The impacts of those levees have the effect of raising the natural flow of flood waters in the 1990 and 1995 flood events .5 feet at the Sedro-Woolley sewage treatment plant to 2-3 feet in the Clear Lake-Sterling communities, to 4 feet in the lower Nookachamp valley. Because of the placement of the levees on the edge of the river (something the Dike Districts and Skagit County have been told since 1897 they needed to set back ... ([See 1897 Capt. Harry Taylor Annual Report , and 1911 Clapp Report](#)) the impacts of DD12’s levees also sends an unnatural amount of water downstream towards Mount Vernon. Before the construction of DD12’s levees the majority of the flood waters flowed south of Burlington city limits from Gages Slough south to the river and out over the floodplain towards Padilla Bay, (the old mouth of the river). After the 1917 flood event the editor of the Burlington Journal stated, “. . . Burlington is so fortunately situated that it does not require a system of dikes to protect it from floods . . .”, however this attitude changed after the 1921 flood (the most serious flood event in the 20<sup>th</sup> century ([See 12/22/21 CT, 12/31/21 C.H.](#)) put floodwaters in downtown Burlington. The point being is that all the water that used to flow from Gages Slough south to the river is now being either stored upstream or forced downstream. God didn’t build the levees on the edge of the river, man did. God never intended for there to be 12 feet of water between the levees. Man did that. Thus, once again, the severity of the flood is directly attributable to the acts of man, not God.

### **LAND USE PLANNING**

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<sup>7</sup> Which would mean that according to your DEIS the 2003 flood would have almost equaled the flood of 1917. See [Historic Flood Flows of the Skagit River](#).



*Arguably the cities of Mt. Vernon and Burlington have the worst land use planning in the State of Washington with respect to development in floodplains. Since 1962 the amount of damages that would be incurred during a major flood event has went from an estimated \$6,000,000 (Source: 8/23/62 B.J.) to now over \$3,000,000,000 of development and infrastructure is at risk (Source: Corps of Engineers 1/22/2003). Which now begs the question, should multi-million dollar flood control projects be used as the reward for bad local land use planning? Should local governments be rewarded by the taxpayers of our country, state or for that matter even the county for trashing the SEPA, SMA, GMA, or local regulations mandated by the NFIP? Should the taxpayers foot the bill for governments on all levels not enforcing regulations? Even FEMA, perhaps the most maligned federal agency in our country's history has admitted that it bears some of the responsibility for the mismanagement of the Skagit River floodplain, "Certainly FEMA bears some responsibility for the increased flood damage potential in the Skagit Valley. . . . we are dealing with several generations of bad land-use decisions, coupled with a muddled and complex political environment." (Source: FEMA e-mail dated 10/15/2001) Which begs the question, "If government created the situation shouldn't government work together to fix it? God didn't build \$3,000,000,000 worth of development and infrastructure on the bottom of a river, man did. God didn't promulgate regulations and then refuse to enforce them, government did. Thus, once again, the severity of the flooding events in Skagit County are not an Act of God but and act of man. Those responsible should be held accountable for their actions. (See [The Realities of Flood Control in Skagit County.htm](#))*

Objective: Reduce flood damages in the Skagit River Basin over the 50 year project life from 2020 to 2070.

**COMMENT:** *Is this an admission by the Corps that the project would not be completed for 6 more years?*

### 3.1 Existing Condition in the Study Area

#### 3.1.1 Existing Flood Condition

. . . The four largest documented floods on the Skagit River occurred before stream gages were installed on the river. Based on the peak discharges at Concrete, the largest occurred in November 1897 and had a peak discharge of 265,000 cfs. The others, all with peak discharges greater than 210,000 cfs, occurred in 1909, 1917, and 1921. Between 1920 and late 1950, Ross Dam on the upper Skagit River provided only incidental flood regulation and the largest flood during this time had a peak discharge at Concrete of 154,000 cfs. Since 1953 Ross Dam has provided 120,000 acre-feet (ac-ft) of flood control storage. In 1977, Upper Baker Dam began providing 74,000 ac-ft of flood control storage. The largest flood discharges at Concrete since 1953 were a 160,000 cfs peak in 1995 and a 166,000 cfs peak in 2003. Peak discharges for selected floods, including the currently published peak discharges for the four historical floods, are listed in Appendix B (Hydraulics and Hydrology). The current natural and regulated peak flood





discharges that could occur at Concrete in floods of various ACE are listed in Table 3-1. Life loss associated with historic flood events includes one death in the 1917 flood, two deaths in a 1935 flood and one death in 1995. (**EMPHASIS ADDED** by [www.SkagitRiverHistory.com](http://www.SkagitRiverHistory.com))

Table 3-1. Current natural and regulated peak flood discharges at Concrete, in cubic feet per second.

ACE	50%	20%	10%	4%	2%	1.3%	1%	0.4%	0.2%
Natural*	77,300	120,500	153,300	201,200	229,300	255,500	272,400	325,400	363,600
Regulated**	77,300	101,100	127,700	165,300	189,100	211,400	225,400	279,700	324,400

\* Natural discharges are those that would occur without any regulation via dams/reservoirs.

\*\* Regulated discharges are regulated at Ross and Upper Baker dams according to current Water Control Manuals.

**COMMENT:** *There was a gage that was used by Stewart to determine the 1921 flood although it was upstream of the current gage. All other estimates of the 4 historical floods were taken over 2 river miles upstream of the current gage. (See [nhc Re-Evaluation of the Magnitude of Historic Floods on the Skagit River Near Concrete Revised Final Report](#)) which states in part:*



Figure 2. Location map of slope-area reach

This section examines information from Stewart’s 1922/23 field book on high water marks between Concrete and The Dalles, with emphasis on estimation of the maximum water surface elevations in the 13 December 1921 flood. We surmise that Stewart installed two staff gages at The Dalles in December 1922 – referred to in Stewart’s field book as the Upper Dalles Gage and the Lower Dalles Gage. The gage locations, as inferred from Stewart’s notes, are shown on Figure 2. The Upper Dalles gage consisted of a vertical upper section and a lower elevation inclined gage. Stewart’s notes (page 34/35) for 23 December 1922 refer to “placing foot graduation marks on inclined gage”.



...

The field book on page 22/23 under the heading "Levels at Concrete", and dated 28 November 1922, refers to measuring down from a point on a freight car to the rail below, noted as being 300 ft below the depot. From this point, the survey route has a total of 6 turning points to a "1921 flood mark at Wolfs Residence" at an elevation 184.55 ft MSL. According to research by the City of Burlington, Wolf owned several parcels of land in or near to the Crofoot Addition of Concrete. While we do not know exactly where Wolf's residence was, we assume that this flood mark provides a reasonable estimate of the 1921 high water elevation in the Crofoot Addition.

...

See also [Preliminary Historical Investigation of East Concrete and Crofoot Addition Flood Levels](#) and [Why Crofoot Matters](#).

**COMMENT:** *Is it true that according to the table 3.1 above it is the Corps position that if the 4 "historical floods" happened with the "estimated" intensity given to them by USGS that the 1897 flood would under todays conditions be a little less than a 100 year event; the 1909 flood less than a 100 year event; the 1917 flood an event closer to a 25 year event than a 50 year event; and the 1921 flood a 50 year event? If the answer to the question is yes please explain the figures that were published in the September 23, 1979 issue of the Skagit Valley Herald ([9/23/79 SVH](#)) especially since 1979 the USGS lowered the "estimated" flows of the Skagit River.*

Year	Currently published peak discharges	Gage height (ft) (current datum)	Revised peak discharges (ft <sup>3</sup> /s)	Percent difference in revised
1815	500,000	69.3	510,000	2.0
1856	350,000	57.3	340,000	-2.9
	275,000	51.1	265,000	-3.6
1909	260,000	49.1	245,000	-5.8
1917	220,000	45.7	210,000	-4.5
1921	240,000	47.6	228,000	-5.0

(Source: [Re-evaluation of the 1921 Peak Discharge at Skagit River near Concrete, Washington, 8/10/2007, USGS](#))

**COMMENT:** *Given the uncertainty of the "estimated" flood flows measured over two miles upstream of the Dalles wouldn't it be more appropriate to address the location of the flood flows as "The Dalles" or "Upstream of the Dalles" instead of Concrete?*



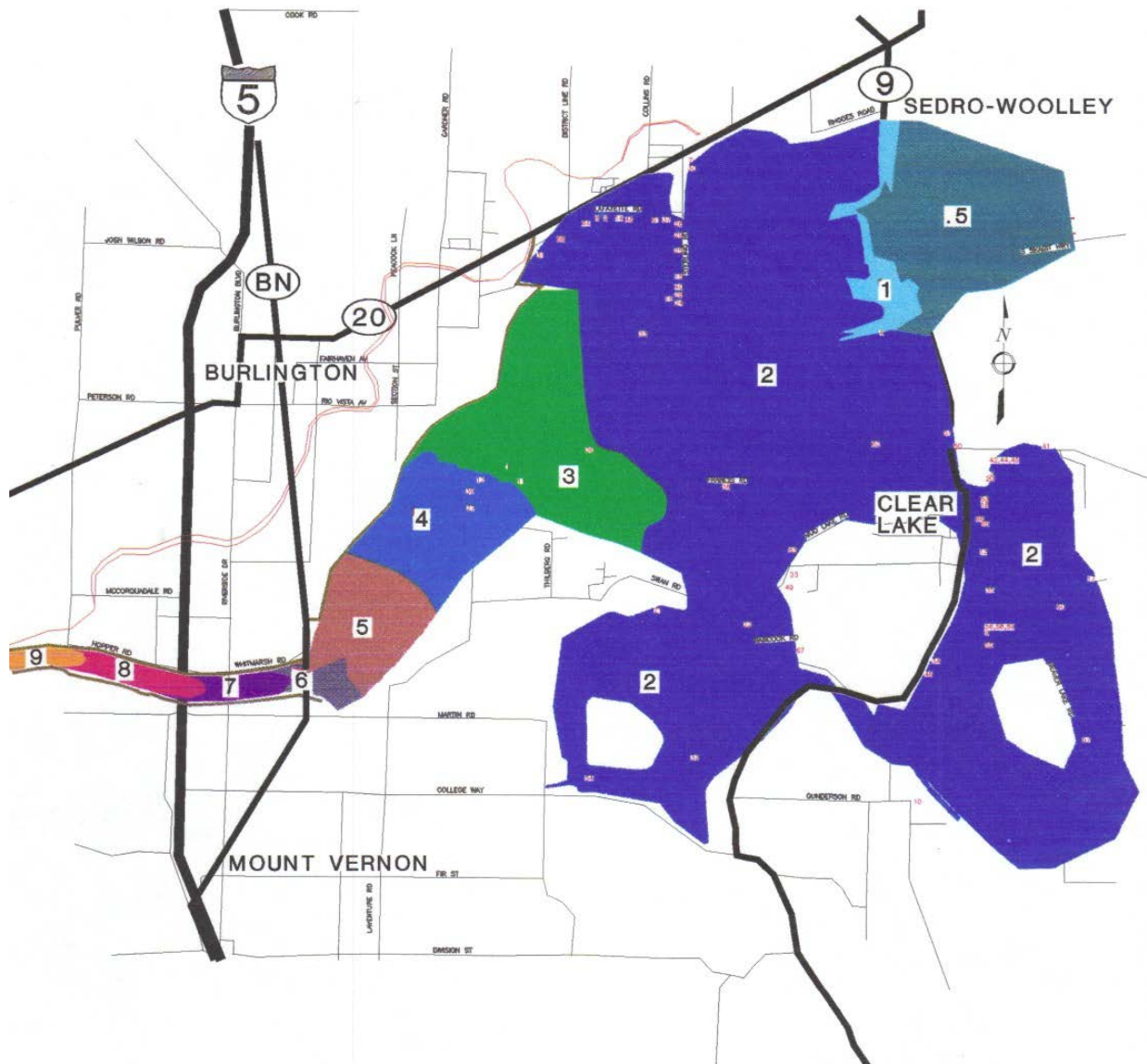
If a levee fails, flood depths could be up to 8 feet in some places for a 1% ACE flood with a 2-3 day duration.

**COMMENT:** *Historical newspaper articles indicate that “in some places” the flood waters stay around for several weeks after a major flood especially in the Samish Basin. See also testimony of [J.O. Rudene, Skagit County Property Owner Testimony for 11/26/1924 Hearing.](#)*

. . .Between Sedro-Woolley and Mount Vernon, the Nookachamps Creek Basin is an un-leveed area along the left overbank of the Skagit River (RM 19-22) that floods frequently and provides substantial natural flood storage. (**EMPHASIS ADDED** by [www.SkagitRiverHistory.com](http://www.SkagitRiverHistory.com))

**COMMENT:** *There is very little about the Nookachamps Creek Basin floods that is “natural” (includes Sterling, Sedro-Woolley and Clear Lake) as the graphic below prepared by nhc depicts the impact the man-made levees had on the 1990 flood events. Clearly it shows that the area is being used as an artificial storage basin. I strongly suggest to the Corps that any reference to “natural storage” be removed from this document, all appendices to this document and all future documents prepared by the Corps. Truth be known that it is the Dike District 12 levees which change the natural course of the river, redirects the flood flows downstream until the opening at the BNSF railroad can no longer handle the flow just like the funnel shown in the below graphic and begins to back up the waters until the DD12 levees redirect the flood flows over highway 20 and into Gages Slough. There is nothing “natural” about that. The numbers on the graphic below show the additional feet of flood waters put into the Nookachamp basin by the DD12 levees during the 1990 flood event..*





Clearly the graphic shows that the floodwaters during a 100 year event have already been raised more than one foot by the existing development in violation of 44 CFR 60.3(c)(10).

During floods greater than 4% ACE, there is the potential for the Skagit River to overflow the right bank in the Sterling area (RM 21) and in Burlington near RM 18.

**COMMENT:** Not much potential for overflow at RM 18 when DD12 continually puts up this landfill dike during multiple flood events which means it's no longer an emergency situation but part of their levee system. See photo below:





At the BNSF Bridge (RM 17.5), levees and the natural topography restrict flood flows, forcing them to pass under the bridge. . . Debris accumulations on the order of 6,000 square feet (sq ft) can cause the water surface to rise above the bridge's structural low chord and raise the upstream water surface as much as 3 feet during a 1% ACE flood. Water surface elevations at the BNSF Bridge influence flood depths upstream in the Nookachamps area and the amount of floodwater flowing onto the floodplain that occurs at Sterling. As water surface elevations rise at Sterling, more water flows out of the river there and flood discharges downstream are reduced. (EMPHASIS ADDED by [www.SkagitRiverHistory.com](http://www.SkagitRiverHistory.com))

**COMMENT:** *This entire section needs to be re-written in order to show how the scour factor was taken into account if in fact it was taken into account. The picture below is of the impact of scour on the BNSF bridge during the 1995 flood event.*





*The DD12 levees changed the natural course of the Skagit River during flood flows thus redirecting the debris and are thus responsible for any backing up of the water into the Nookachamps and across Highway 20. The bridge is not the problem; the levees that were moved in some places 4,000 feet closer to the edge of the river in 1956 are the problem which makes the TSP such a ludicrous solution that is only going to exacerbate the problems of upstream property owners from Sedro-Woolley downstream and into the Samish River Basin.. The TSP is currently the definition of insanity, doing the same thing over and over and expecting a different result.*

### **3.1.2 Existing Flood Risk Management in the Skagit River Basin**

. . . Skagit County participates in the National Incident Management System (NIMS) when faced with hazards and incidents including floods. The County has a NIMS Standing Unified Command, consisting of the Emergency Management Director, the Sheriff, the Public Works Director, and the Public Health Director. (**EMPHASIS ADDED** by [www.SkagitRiverHistory.com](http://www.SkagitRiverHistory.com))

**COMMENT:** *It should be noted in this section that it is the positions identified who have the authority to order evacuations.*

### **3.1.3 Existing Economic Overview**

Skagit County: Skagit County has 116,901 residents, 50% of whom live in unincorporated Skagit County; covers 1,735 square miles; and contains 8 incorporated jurisdictions and numerous communities (U.S. Census Bureau, 2011). The majority of the urban population is in the cities of Mount Vernon, Burlington, Sedro-Woolley, and Anacortes. From 2000 to 2010, the County's population increased by 13.5%. The population at risk from flooding in the study area is 37,000.



**COMMENT:** *So according to the above section approximately 32% of the people living in Skagit County are at risk of flooding. How many individuals who live in Mt. Vernon are at risk?*

### 3.2.3.2 Future Without-Project Economic Flood Damages

New development within the floodplain is expected to comply with land use regulation pursuant to the Federal Disaster Protection Act of 1973 (Public Law 93-234) and Skagit County Code Section 14.34, and be flood proofed with the lowest floor elevated above the 1% ACE flood level.

**COMMENT:** *Burlington is subject to 44 CFR 60.3(c)(10) and SCC 15.20.205. To my knowledge these regulations have all but fallen through the cracks by all jurisdictions in Skagit County, and with the following exception never enforced by FEMA. This would be a good section to address the cumulative impact of all the existing and anticipated development including I-5 and the levees you propose increasing the height of as well as the fill in Gages Slough you plan on putting in as well as why can you put fill in Gages Slough but BNSF Railroad cannot.*

*The Burlington Northern has violated the flood plain permit requirement and the encroachment standard of Section 60.3(c)(10). This is a very serious violation, in view of the extensive hearings and other meetings over a 4-year period that went into the negotiated agreement Skagit Valley communities **in lieu of a conventional floodway designation**. The encroachment remains a violation until either the fill is removed from the Slough, or a **scientific, technical engineering analysis is provided demonstrating that the cumulative effect of the proposed fills, combined with all existing and anticipated development, will not increase water surface elevations of the base flood more than one foot**. Such an analysis would, of course, have to apply to the entire reach of the Skagit River in the Delta, as explained at our recent negotiation session with the County and the Railroad. See [FEMA letter re BNRR fill in Gages Slough dated 2/20/1987](#).*

*This begs the question is this yet another example of **regulations only applying to private enterprise and not the government**. In the words of one former Corps project manager one existing development, I-5 has already raised the flood waters more than one foot especially in South Burlington and North Mt. Vernon. I might also add that the operative verbiage in Section 44 CFR 60.3(c)(10) that you cannot raise floodwaters more than one foot **"at any point in the community"**. Isn't that exactly what your current TSP does or at least has the potential of doing. Putting fill in Gages Slough or anything in Gages Slough will certainly raise the 100 year flood in that location let alone upstream property owners. Gages Slough is the old channel of the Skagit River. Not a sub-channel or a tributary channel but the channel of the Skagit that you can track all the way to Lyman. Part of that channel is Minkler Lake east of Sedro Woolley. A channel change in that location would be devastating to Sedro-Woolley. I'm surprised that I didn't find any mention of it in your DEIS.*



### 3.3.2 Measures Carried Forward and Eliminated From Further Consideration

Table 3-6 lists measures eliminated (screened out) from further consideration

#### Operational modifications to Ross Dam

Modification of operations would likely require reopening of Seattle City Light's FERC license and treaty negotiations with Canada. International treaty negotiations are likely to be outside the scope of this study, therefore this measure was eliminated from further consideration. (**EMPHASIS ADDED** by [www.SkagitRiverHistory.com](http://www.SkagitRiverHistory.com))

**COMMENT:** *This decision was made despite the fact that the Corps when determining the amount of storage needed behind Ross Dam used the 1923 Stewart figures from Sedro-Woolley. Something that USGS has publically stated is unreliable and cannot be used. See 8/13/1953 [Ltr to USACE Corps District Office in Portland fm USACE Seattle District Office re: Flood Control Requirement and Operating Procedure for Ross Reservoir, Skagit River, Wash.](#)*

7. The next step was to determine the amount of storage required at Ross Reservoir to provide the maximum crest reduction at Sedro Woolley. All discharges of more than 65,000 second-feet at either Sedro Woolley (1908 through 1923) and Concrete (1924 to date) occurring in October, November, and December were studied. See also: [Retyped for clarity and emphasis 8/13/1953 Corps document.](#)<sup>1</sup>

**COMMENT:** *Simply put the amount of storage behind Ross Dam was determined using a Corps mistake that should be corrected immediately. If that requires reopening the FERC hearings then so be it. Seattle City Light has had a free ride at the expense of the people of Skagit County long enough. Why did they use the SW figures? Because using the Concrete figures would have required more storage.*

#### Overtopping Levees

High residual damages of areas situated behind the levee, requires purchase of substantial acreage for flowage easements, overtopping floodwaters may be a source of pesticides or other contaminants decreasing the water quality of receiving water bodies. This measure does not address the objective of reducing life safety risk. This measure does not meet criteria of minimizing adverse impacts to environmental, agricultural, and/or cultural resources. (**EMPHASIS ADDED** by [www.SkagitRiverHistory.com](http://www.SkagitRiverHistory.com))

**COMMENT:** *So why wouldn't the same apply to further induced flooding into the Nookachamp and Samish Basins? Farmers are business people just like the irresponsible commercial developments in*





*Burlington that were misled re the risk of the flooding by local government officials. The BFE's were determined by FEMA in 1984 as if the levee system was not there thus lowering the BFE's across the floodplain while understating the risk to property owners upstream of the DD12 levee system. See [Skagit Surveyors & Engineers Benchmark Certifications for Halverson](#) for flood levels experienced by upstream property owners during the 1995 flood event due to in large part to DD12's levee system.*

#### Table 3-7. Summary of Management Measures Carried Forward to Formulation of Alternatives

Examples of non-structural measures that **may be evaluated** during alternatives formulation include: flood proofing, relocations, landscape features, and flood warning evacuation systems that could be implemented throughout the basin as needed. (**EMPHASIS ADDED** by [www.SkagitRiverHistory.com](http://www.SkagitRiverHistory.com))

**COMMENT:** *Property owners within the Samish and Nookachamp Basin have been repeatedly told by numerous Corps project managers and the Skagit County Public Works Department that those who will be hurt by any project will be the first to be helped. For the Corps to now state that non-structural measures that “**may be**” evaluated leaves a strong taste of distrust by upstream property owners. Either the Corps and County are committed to helping impacted induced flooding property owners or they are not. Which is it?*

#### 3.7.2 Urban Areas and Critical Infrastructure Protection Preliminary Alternative

... This alternative was not brought forward because it would not provide flood risk reduction for rural areas and has high residual life safety risk for residents within the urban ring levees.

**COMMENT:** *Is not a ring levee what you are proposing east of I-5 for Burlington and because I-5 will not let water over it until it gets to Gages Slough isn't the above life safety risk exactly what you will be achieving?*

#### 3.8.2.3 CULI Feature Descriptions

The following elements would be required as part of the Burlington Hill Cross Levee:

Gages Slough Culvert: A culvert structure would need to be constructed to accommodate daily flows into and out of Gages Slough **but to restrict floodwaters from flowing into the Burlington area.** (**EMPHASIS ADDED** by [www.SkagitRiverHistory.com](http://www.SkagitRiverHistory.com))



**COMMENT:** See response at **3.2.3.2** above concerning Gages Slough. You cannot restrict floodwaters from flowing in Gages Slough.

*At this point I am running out of time to continue the above format for comments. 45 days for comments for people who actually have real jobs and work for a living cannot be expected to review all the documentation you have submitted to establish your TSP in your DEIS and its 9 appendices. Suffice it to say that my concerns with the TSP as presented in your DEIS are pretty much the same concerns that I expressed with the City of Burlington & DD12 DEIS. (See comments [here](#)) Burlington, DD12, the Skagit County Planning Department have for years chosen to ignore the comments much the same as I expect the Corps to ignore them. They include such things as FEMA DC Headquarters designated the levees as part of the floodway therefore you cannot put fill material on them. Gages Slough is a "Special Flood Risk Area" which prohibits fill. (See response at **3.2.3.2** above concerning Gages Slough. See also excerpts from Burlington comment letter below.)*

*Gages Slough is the old channel of the Skagit River. Not a sub-channel or a tributary channel but the channel of the Skagit that you can track all the way to Lyman. Part of that channel is Minkler Lake east of Sedro Woolley. A channel change in that location would be devastating to Sedro-Woolley. I'm surprised that I didn't find any mention of it in your DEIS but then it doesn't seem like you care very much about the residents of Sedro-Woolley.*

#### **Excerpts from Comment Letter on Burlington/DD12 DEIS**

At that time (July 3, 1984), conventional floodways were determined not to be appropriate for the Skagit River delta area for a number of reasons (See Appendix D, Exhibit 6, page 18.) In lieu of a floodway, pursuant to additional study, FEMA accepted a "most probable failure point" analysis, which had the flood overtopping the railroad tracks at Sterling. In Burlington, FEMA helped with a compromise which was to designate Gages Slough a "Special Flood Risk Area." This area does not have all the qualities of a floodway, but the designation is quite restrictive with flow-through house designs and other elements. Now, a regulatory floodway is being proposed for "later adoption" by FEMA, following changes to the Base Flood Elevations, and it is critical to Burlington that the adopted program of protecting overbank flow paths through farmland preservation be retained as a floodway-like option. (Pages 9 & 10)

**COMMENT #6:** The comments above are nothing short of incomplete and downright misleading. The FEIS should include a much more thorough analysis based on the documentation below. The base flood elevation analysis consisted of the following: (NOTE: All documents are available for public viewing at [www.SkagitRiverHistory.com](http://www.SkagitRiverHistory.com) under FEMA.)



Skagit County, WA

As a result of meetings held in Region 10 during the week of March 15, 1982 it was determined that a conventional floodway would not be established for the communities within the Skagit Delta area. These include Skagit County, the Cities of Burlington and Mt. Vernon, and possibly others. The FIRM for these communities should show floodways delineated to include only the main channel of the Skagit river and the levees. Thus, the floodway should be delineated at the inside toe (protected side) of the levees.

Source: 4/2/1982 FEMA MFR, <http://www.SkagitRiverHistory.com/FEMA/1982-4-2%20MFR%20re%20D&M.pdf>

Despite the fact that the Federal Emergency Management Agency (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 Code of Federal Regulations 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 Flood Insurance Rate Maps, 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. While it is recognized that this determination will be difficult for reasons discussed in this letter, good faith efforts on the part of these communities will be expected by FEMA.

Source: 8/22/83 FEMA letter, <http://www.SkagitRiverHistory.com/FEMA/1983-08-22%20Mrazik%20Letter%20to%20LJK.pdf>

The basic standard FEMA must require of communities in situations where floodways are not yet established, is Section 60.3(c)(10) of the program regulations (copy enclosed):

- ③ (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 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.

Source: 12/15/1983 FEMA letter to Burlington, <http://www.SkagitRiverHistory.com/FEMA/1983-12-15%20Ltr%20to%20Burl.pdf>



First, Mr. Kunzler states that the FIS fails to accurately identify flood-flow paths. Given available topographic information for the Skagit River Delta and the uncertainties of where levee overtopping and/or failure would occur, it is impossible for the Federal Emergency Management Agency (FEMA) to predict the precise path of a 100-year flood. We estimate that approximately 130,000 cubic feet per second (cfs) of the 240,000 cfs 100-year discharge could not be handled by the Skagit River channel, but would instead travel through overbank areas. As explained in our August 22, 1983, letter to Mr. Kunzler, we cannot divide that flow with any degree of certainty between Burlington proper (Gages Slough and overbank areas) and the agricultural area north of the city. The nature of the delta is such that flooding occurs in sheetflow patterns. Topographic variation will result in some split flow at Interstate 5, but the overbank flood plain itself will not diverge into 2 distinctly separate entities until the flow reaches Bay View Ridge.

Source: 2/1/1984 FEMA letter to Burlington, <http://www.SkagitRiverHistory.com/FEMA/1984-02-01%20Mrazik%20to%20Henery.pdf>

According to Mr. Moos, our assumption that the entire overland flow of 130,000 cubic feet per second (cfs) exits the Skagit River channel upstream of Burlington is unrealistic and inconsistent with historic flooding. FEMA recognizes that the proposed base (100-year) flood elevations (BFEs) resulting from this assumption may not duplicate recorded flood events. However, because it cannot be predicted with sufficient certainty where flow breakouts caused by levee breaches and failures will occur, our modeling distributes all flow which exceeds the estimated river channel capacity of 110,000 cfs to the overbank areas. Since the Skagit River levees are inadequate to contain the total 100-year discharge of 240,000 cfs, our hydraulic analysis was performed as though the levees did not exist, in conformance with our levee policy.

Source: 5/22/1984 FEMA letter to Burlington, <http://www.SkagitRiverHistory.com/FEMA/1984-5-22%20Ltr%20to%20Burl.pdf>



In addition to our discussion on the extra foot of freeboard, we also discussed the need for a setback from the levees in the interest of protecting the public health and safety. Two separate types of zones were discussed, first a zone where all new construction would be prohibited and, second, a zone where special building techniques and engineering certifications would be required. In our discussions, we concluded that a 100 foot setback would be desirable and realistic in view of the real hazard posed by levees that could break at any point. Likewise, because of the possibility of such breaks, an additional setback necessitating special building techniques between 100 and 500 feet from the levees was judged to be appropriate. These techniques would involve use of post, pier, pile, or column construction, with water able to flow under the foundations, and would need to be certified by a registered engineer as being able to sustain at least overtopping velocities. These two strips would also serve as additional conveyance areas to complement that which is described in the next paragraph.

Concerning conveyance areas, we agreed that the work Bob Boudinot is doing to designate secondary drainage channels, such as the Gages Slough, as areas for which building cannot occur, as well as designating areas adjacent to such channels as areas in which buildings must be elevated using post, pier, pile, or column techniques, would be desirable and would probably comply with the encroachment provision found at Section 60.3(c)(10) when combined with the additional strip available along the levees discussed in the previous paragraph. We agreed that construction in these areas would not need to be certified against velocities as they would for the strip adjacent to the river and levees.

Source: 11/1/1984 FEMA letter to Skagit County: <http://www.SkagitRiverHistory.com/FEMA/1984-11-1%20ltr%20to%20SC.pdf>

Thus we can tell from a review of the above documents that FEMA performed their analysis as if the levees did not exist (thus giving the residents of Burlington a terrible false sense of security on how deep the water will be in case of a levee failure) and that the "informal floodway" in the lower valley was from the landward toe of the levees to the landward toe of the levee on the opposite side of the river. Also since a regulatory floodway was not established that Burlington was to conduct themselves under 44 CFR 60.3(c)(10) meaning that "no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30 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." The FEIS should extensively discuss and show with hydraulic analysis that the massive development east of Interstate 5 has not already raised the flood waters more than one foot at any point in the community, especially concentrating on the area east of the interstate. The FEIS should also speak with specificity to the issue of where it has or as the case may be why it has not ever enforced the verbiage of 44 CFR 60.3(c)(10).



Ms. Hannah Hadley

July 14, 2014

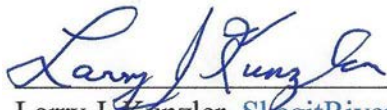
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*In lieu of all my disappointment and criticism of the current TSP DEIS you may find my next comment a little confusing. I actually want to thank the Seattle District Corps of Engineers, especially the many friends I made during the 1979 LIP. You had a profound impact on the next 3 ½ decades of my life. While the professionalism and public respect has dwindled during that time frame for government employees, your impact took a guy who had a dead-end job as a hired hand on a dairy farm and launched him on his way to being the chief investigator for one of the top 5 attorneys in the Country. So it is very fitting that the first DEIS I reviewed and the last DEIS I will review came from the Seattle District Corps of Engineers.*

*I've been told by three doctors over the last year that I have to get stress out of my life if I want to do a lot of fishing in my retirement. The work that I have done over the last 35 years on the flood issue has in truth and in fact been a labor of love. However now as I am preparing to retire at 68 (well maybe 70) I have a whole lot of fishing that I would like to do and spending weekends and vacation days sitting behind my computer or attending public meetings just doesn't belong in my retirement years.*

*So go forth young floodplain management people, try and make a difference, try and work with Mother Nature and not against Her. As I have said many times in my over 200 public presentations, "Mother Nature has left Her footprints in the sand. Walk in Her moccasins and She will tell you about your past, and in so doing She will show you your future." Knowledge is only knowledge if knowledge is shared. Let history be your teacher. Do not be dissuaded by liars, cheats, cads, scoundrels, all those people who stand to gain at others' expense. Stay true to your beliefs, let truth be your moral compass and dedication your motivation for in the end Mother Nature will have the final say.*

**Respectfully submitted,**



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