



The Skagit River

When History Meets Technology

Presentation by: Larry Kunzler,
NORFMA Annual Conference, 9/13/05

08/20/2005 7:36 am

LABELS

An aerial photograph of a wide, muddy river. A large steel truss bridge spans across the river in the middle ground. The riverbanks are green with grass and some trees. In the background, there are some buildings and a road. The overall scene is somewhat desaturated, giving it a historical or documentary feel.

- Leading State Floodplain Management Advocate
- Skagit River Historian
- Other Terms Include: Professional Hemorrhoid, Radical Environmentalist, No-Growth Nut, Fascist, Communist

FLOOD CONTROL

An aerial photograph showing a wide, muddy river flowing through a landscape. The river is surrounded by flooded fields and some trees. In the background, there are some buildings and more trees. The overall scene depicts a significant flooding event.

➤ JUMBO SHRIMP

➤ MILITARY INTELLIGENCE

➤ GOVERNMENT EFFICIENCY

➤ CATASTROPHIC SUCCESS

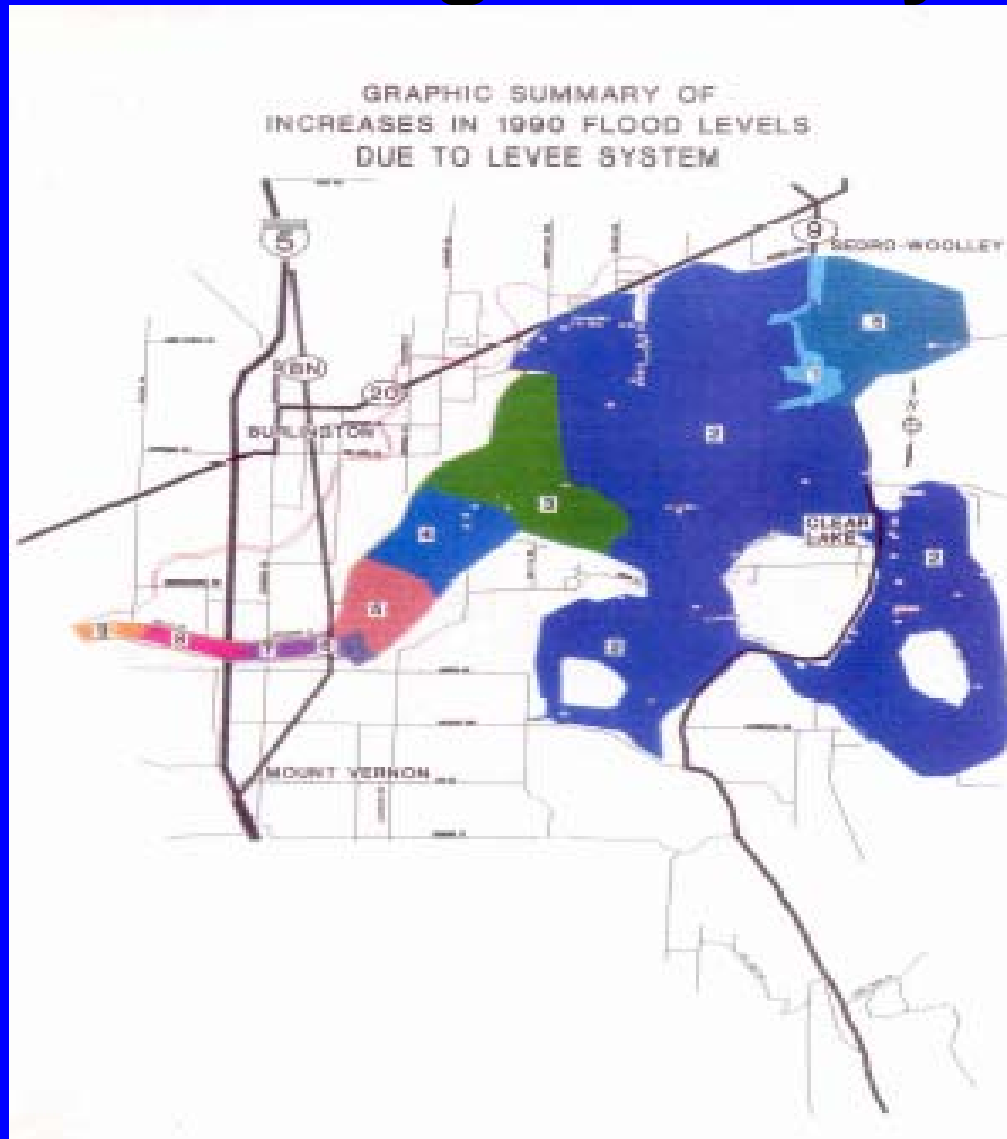
FLOOD CONTROL

An aerial photograph showing a rural landscape heavily affected by flooding. A wide, muddy river flows through the center, with water overflowing its banks and inundating surrounding fields, pastures, and some buildings. The water is a turbid brown color, contrasting with the green of the land. In the foreground, a large blue barn and other structures are partially submerged. The background shows more flooded fields and a road that has become a waterway.

➤ “One man’s flood control, is another man’s flood problem.” *(Source: Testimony of Ed Manary, Legislative Liaison for Washington State Department of Fisheries, 10/14/91)*

➤ This is really just the basic principle of physics, “For every action there is an equal and opposite action.”

FLOOD CONTROL In Skagit County





FLOODPLAIN MANAGEMENT

- Is not solely an engineering responsibility; it is a land use responsibility.
- Plans flood plain use from a standpoint that balances resource protection, environmental enhancement, flood damage protection and land use development.
- In the long run, it is cheaper to prevent and/or remove the problem instead of protecting it and creating more problems.

FLOODPLAIN MANAGEMENT FAILURE IN SKAGIT COUNTY



- In 1962 Corps of Engineers estimated flood in excess of 1951 flood would have caused \$6,000,000 in damages to the floodplain.
(Source: Burlington Journal, 8/23/62)
- Today, the estimated value of the facilities within the (Skagit River) floodplain is \$3 billion dollars. *(Source: Letter Report , Alternatives for Compensation for Flood Storage Capacity, Upper Baker Reservoir, 22 January 2003 Review Copy)*

PURPOSE

“The farther backward you can look, the farther forward you are likely to see.” – Winston Churchill

The purpose is to preserve the past for the future for use in the present.

Our written past was being lost.

Skagit Valley Herald, Skagit Argus, Concrete Herald and the Courier Times all have lost the 1909 flood event articles.

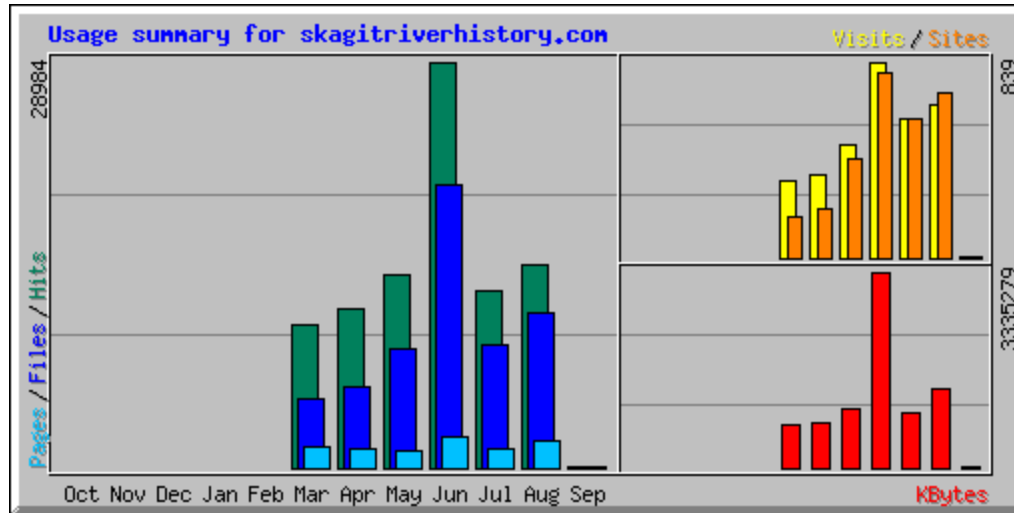
STATUS

- **Skagit Argus & Burlington Journal – 1909-1969 – Published**
- **Courier Times – 1904-1951 Published**
- **Skagit Valley Herald – 1894-1969 Published**
- **Concrete Herald – 1920-1944 Re-typed**
- **Final Index – Available www.skagitriverhistory.com**

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Summary by Month										
Month	Daily Avg				Monthly Totals					
	Hits	Files	Pages	Visits	Sites	KBytes	Visits	Pages	Files	Hits
Aug 2005	469	358	64	21	709	1347933	657	1988	11098	14553
Jul 2005	409	284	45	19	592	941328	594	1420	8809	12686
Jun 2005	966	674	75	27	793	3335279	839	2255	20223	28984
May 2005	445	275	40	15	421	1009262	484	1251	8548	13814
Apr 2005	379	191	47	11	209	781104	357	1420	5730	11372
Mar 2005	636	304	89	20	179	715641	326	1429	4867	10189
Totals						8138062	3259	9773	59290	91627

ISSUES

- All flood events
- Flood Control Meetings
- Fish Related Articles
- Dam Building In Skagit County
- History of Agriculture
- History of Logging
- Erosion Control Projects
- Community History
- Diking and Drainage Issues
- Interesting Anecdotes

Price of Groceries

Chase and Sanborn's		
Coffee	1-lb. Bag...	25c
COFFEE DEMONSTRATION SATURDAY!		
<hr/>		
Tenderleaf		
Tea	Black, Large Size.....	29c
<hr/>		
Seedless	Snolike	
Raisins	Toilet Tissue	
4-lb. Pkg.	3 rolls.....	10c
19c	Baker's	
	Cocoa	
	1/2-lb. Can.....	10c

Source: Courier Times 4/9/36

Crossman's Market		
FREE DELIVERY EVERY DAY		
FRIDAY, SATURDAY	:	Phone 3881
<hr/>		
GOOD LOCAL BEEF		
Roast	Lb.	15¢
<hr/>		
GOOD MILD CURE		
Bacon	In Piece, Lb.	19¢
<hr/>		
FANCY CLEAR		
Salt Pork	Lb.	15¢
<hr/>		
GOOD LOCAL BEEF		
Short Ribs	Lb.	10¢
<hr/>		
SEASONING		
Bacon	Pound	15c
BULK PICKLED		
Pig Feet	2 pounds	25c
<hr/>		
... Better Meats ... Better Service ...		
at CROSSMAN'S		

Source: Courier Times 8/17/39

IMPORTANCE OF HISTORICAL RESEARCH ON THE FLOOD ISSUE

An aerial photograph showing a flooded area. A multi-lane bridge spans across the water. On the left side of the bridge, there is a large pile of debris, including logs and branches. Several vehicles, including a white truck and a dark car, are on the bridge. People are visible walking along the bridge's edge. In the background, there are trees and a building with a white roof. The water is a murky brown color.

- **Can help clear up public's perception of what must be done.**
- **Can help government agencies correct mistakes passed down through the decades.**

STEWART WHITEPAPER

JAMES E. STEWART

**SKAGIT RIVER
FLOOD REPORTS AND
ASSORTED DOCUMENTS**

**A CITIZEN CRITICAL REVIEW
WHITEPAPER**

By:

Larry J. Kunzler

2/14/04

River Flood Report

RIVER FLOOD REPORT REPORT TO BE MADE

A public hearing will be held in the Commercial Club at Mt. Vernon, Washington at 1 p. m., Wednesday, November 26, in connection with a report on preliminary examination of Skagit River with reference to its floods which was directed by the Act of Congress of May 31, 1924.

The purpose of the hearing is to give interested parties an opportunity to present their views and any facts that may have a bearing on the solution of this problem.

The information desired includes the following items:

(a) Frequency, duration and height of floods including (preferably shown on maps) areas subject to floods of different heights.

(b) Detailed estimates of the damage caused by floods to various interests.

(c) Cost of levees (dikes) already constructed and annual cost of maintaining same.

(d) Suggestions as to the methods considered most desirable for flood relief.

(e) Amount of cooperation to be expected on the part of local interests in carrying out any comprehensive scheme for flood relief.

While for accuracy of record all important facts and arguments should be submitted in writing, oral evidence will be heard.

NOVEMBER 20, 1924

While for accuracy of record all important facts and arguments should be submitted in writing, oral evidence will be heard.

Source: Courier Times 11/20/24

E. L. KNAPP STATEMENT

COUNTY OF SHAGHT
State of Washington
Office of County Engineer

Shaw's Tavern, Washington
November 26th, 1924.

W. J. Hayden, Colonel,
Office of Engineers
War Department
Seattle, Washington.

Sir:

In compliance with the request of Mr. G. H. Willis, Chairman of the Shaght River Improvement Committee, I have prepared a brief outline covering two of the subjects upon which you desired information for your hearing Wednesday, November 26th, in the question of flood control of the Shaght River system.

The two subjects upon which I have been requested to prepare data are: First, the frequency, duration and heights of floods, including area subject to floods of different heights; and second, suggestions as to the methods considered most desirable for flood protection or prevention.

Before taking up these two subjects in detail, I wish to present a brief review of the work which has been carried on through my office along the lines of solving the problem of flood control in this valley.

In the winter of 1918, immediately following the flood of 1911, a mass meeting was held to discuss a system at which was formed a citizens committee on flood investigation. To this committee in a large extent, must go the credit for investigating and presenting the work which has already been done. They appeared before the Board of County Commissioners and urged that a levy of one mill be placed as the necessary valuation of Shaght County to provide a fund in accordance with law, known as the River Improvement Fund. It was this plan in the fall of 1918 that this fund was to be used for the purpose of investigation by competent engineers, into the past record of the floods in this valley, a systematic examination of the Shaght itself, and to gather such hydrographic data as was possible, in order that some comprehensive and practical development could be undertaken to as far as possible meet and successfully cope with future floods and minimize their damage.

In accordance with the wishes of this Citizens Committee above mentioned, a specialist engineer of wide reputation, Mr. James H. Dineen, was employed and in the fall of 1922 and the winter of 1923, he made a thorough preliminary examination of the valley and river system, and the substantive report is now on file in my office.

He has recommended, first that a flood warning system be installed second, that the silted out of the Spokane be delayed third, that certain lower spots be protected fourth, obtain additional hydrographic data; and fifth, form a conservancy district.

"Because of the limited funds available in time past, such technical data as has been gathered in this vicinity, has been very meager and calculations of stream flow are at best only an estimate and accurate to within only 10 to 20%. The technical data so far gathered, has been done entirely by the USGS Department of Water Resources, and they have had to rely upon intermittent gage readings, observations and recollections of residents, and more or less disconnected precipitation records."

Colonel Barden Testimony

MINUTES OF HEARING
held at Mt. Vernon, Wash., Nov. 26, 1924,
on Preliminary Examination of
"SKAGIT RIVER, WASHINGTON, WITH A
VIEW TO THE CONTROL OF ITS FLOODS."
(Flood Control Act of May 31, 1924)

*I would like to emphasize the point that Mr. Knapp brought out in his paper, that **before any really scientific plan can be prepared** for the protection of this valley from floods, **it is necessary to have more authoritative information than we now have as to the amount of water carried by the river in time of floods.** . . . The information that was collected by Mr. Stewart and given in his report to the committee was excellent so far as the data that he had to work upon permitted, **but that data was necessarily more or less inaccurate.***

1921 Flood Larger Than 1909?

DECEMBER 22, 1921

BIGGEST FLOOD IN SKAGIT HISTORY SAY OLD-TIMERS

The flood of 1921 is the biggest flood in the history of the Skagit, according to old timers, who recall the floods of 1879, 1888, 1907 and on up to the big flood of 1909 and the 1917 freshet.

Mrs. Dreyer, who lives west of town, tells of the big flood of 1888, when in some places the river backed up higher than this year. She says that not so much damage was done then because there were practically no dikes and the water spread over the lowlands more gradually.

Measurements at the Dalles, near Concrete, show that the flood water this year reached a point two feet higher than at any previous time in the memory of the oldest settler. Charley Moses says that it was the biggest flood, with the biggest volume of water ever carried in the Skagit.

At Van Horn the water was 14½ inches higher than it had ever been. In 1909 the river in the upper valley was only about two-thirds as wide as it is now. Hundreds of acres of land are being washed away every year, by both Skagit and Sappo rivers. W. A. Ellison says he has been on the upper river for 21 years and this is the biggest flood he has seen or heard old timers tell about.

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THE CONCRETE HERALD

Formerly the Hamilton Herald Established Nov. 23, 1901. Oldest Paper in the Upper Skagit.

December 31, 1921

FLOOD WAS HIGHEST IN SKAGIT COUNTY HISTORY

Old timers in the Skagit valley, who have seen all the floods in the Skagit valley since the early 80's say that the recent flood carried a greater volume of water than any previous flood since the county was settled, surpassing even the famous high water of 1897. The fact that the river did not reach marks set in former years at some points in the upper valley is accounted for by the widening of the river since that time. In all places where the banks of the river have remained unchanged the 1921 mark is considerably above that of any previous flood known to settlers.

Burlington 1909 Flood



along the Skagit. Burlington had about one foot of water in some of the streets, and there were many buildings over the town that were not even surrounded by water. Neither the

Thursday was a great day in Burlington and many talked of camping on the heights Tuesday night, but the change came about noon, the water went down rapidly and Burlington has perhaps received less damage than any other town on the Skagit.

Source: Burlington Journal 12/3/09

Burlington 1921 Flood

1921 December Flood

Monday night, December 12, the dikes east and southeast of Burlington broke. Tuesday morning at six o'clock the flood water covered Fairhaven Avenue, and in part the residence districts of the city. At this time the entire lowlands lying east, west, south and in part northwest of Burlington were inundated. The depth of water is on relative, the lamentable fact being that the area of low lands covered with water was wide-spread. That certain spots

Source: Burlington Journal 12/16/21

An aerial photograph of a wide river, likely the Skagit River, with a bridge crossing it. The surrounding area is densely forested with trees showing autumn colors. The text is overlaid on the top half of the image.

**Robert D. Jarrett, Ph.D., USGS, National
Research Program, 2/14/2005**

SUMMARY

“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.

. . . thus the USGS has every reason to believe that the 1921 value is as good as could be obtained.”

1932 vs. 1921 Flood Elevations

THE CONCRETE HERALD

Formerly the Hamilton Herald Established Nov. 23, 1901. Oldest Paper in the Upper Skagit.

March 3, 1932

FLOOD IN SKAGIT DOES NO DAMAGE IN THE COMMUNITY

LOWER VALLEY BEARS BRUNT OF HIGH WATER WHEN SKAGIT GOES ON RAMPAGE-BRIDGES OUT IN UPPER VALLEY

With the heaviest snowfall in the mountains that has been known in twenty years, a raging Chinook wind accompanied by heavy rains, found conditions just right to bring on a flood and do it quickly. The rains started last Thursday and continued steadily until Saturday afternoon, and during most of that time the rain was heavy as well as steady. The Chinook continued through the greater part of the day. It was exceptionally warm for this season, raising the temperature almost to summer level during the afternoon.

Flood Comes Quickly

All the streams in the Skagit valley began rising Thursday afternoon, and had already reached about the highest stage of the winter by the time the Chinook struck Friday. Then the smaller streams became raging torrents and the Skagit began a steady climb that did not reach its peak until late Saturday night. **When the river began to drop Saturday night, it still lacked six to eight feet of being up to the record level of 1921,** but it was high enough to cause some worry among the residents of Crofoot's addition and East Concrete. Low-lying gardens on the east side were covered but Crofoot was not even dampened. The Baker River dam held back the flood waters of the Baker for over 24 hours, and then only a comparatively small amount of the stream came over the dam. Had

this stream been added to the water already in the Skagit, Crofoot would have been flooded by Friday night and the communities of the lower valley suffered much damage.

Jackman Bridge Out

Jackman creek at Van Horn reached about the highest point in the history of the valley, and for a time threatened much damage. A log jam a short distance up the stream from the new wagon bridge threatened to tear out all three bridges and also to divert the stream through the community. The jam was blasted out, but the stream had already washed out the piling under the west end of the bridge, and as the bridge was likely to fall in at any moment, the structure was torn out. The old bridge, condemned some years ago, is being used for up-river travel until the main bridge can be rebuilt, which will likely take several weeks. The Lorentzen and Muller places were flooded during the high water, but only small damage was done.

On the new Faber road, a large slide came down, crossed the new road and completely blocked the old road and the Great Northern tracks. The old wagon road was cleared on Monday, but the railroad is still under the slide. Few details as to damage further up the valley have been to . . . Birdview the greatest damage was to the Great Northern railroad, with the Grandy

➤ When the river began to drop Saturday night, it still lacked six to eight feet of being up to the record level of 1921,

➤ 1932 Flood 39.99

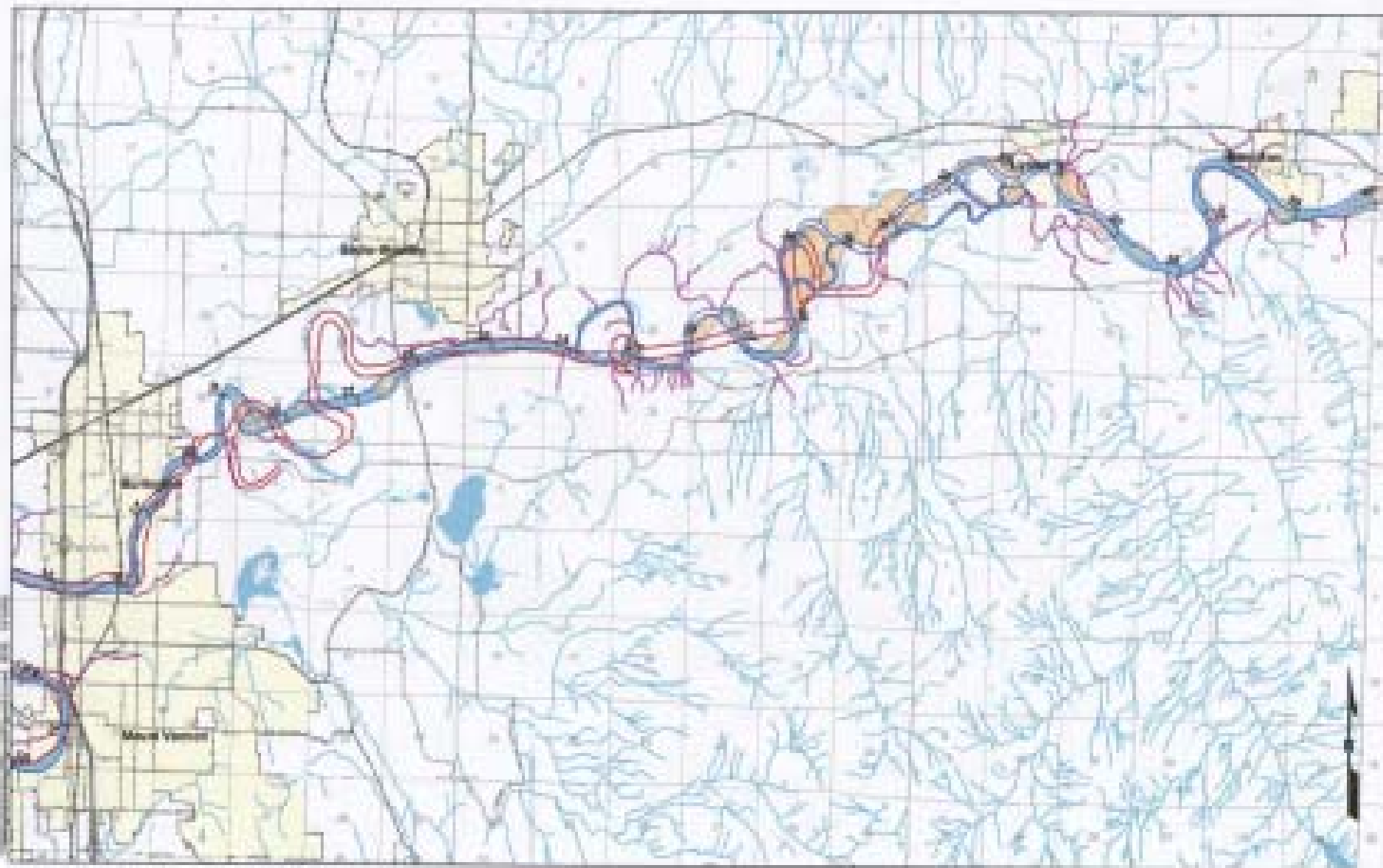
➤ Add 8 feet = 47.99

➤ USGS 1921 Flood 47.6

➤ 1909 49.1

➤ 1897 51.1

Recent and Historic (1894) Channel Boundaries



Note: Riparian riparian boundary follows New Hampshire State (NHS) boundary. The boundary of the riparian zone is shown in yellow.

- Boundary
- Riparian Zone
- Riparian Zone (1894)
- Riparian Zone (1894)
- Riparian Zone (1894)



WHAT ELSE HAVE WE LEARNED?

- FLOODS WERE NOT ALWAYS VIEWED AS SOMETHING WE NEEDED TO FEAR
- These floods are fraught with no great danger and throughout the county where the dikes gave way there has been no loss of life and but little damage to property and the farmers are not at all discouraged or alarmed about the future. (Source: [The Skagit News-Herald, 11/19/06](#))

. . . The citizens take the freaks of the river in a philosophical manner and are not in the least discouraged. *(Source: The Skagit News-Herald, 11/19/06)*

We have done a little wading and done a little swimming, And we hit for good tall timber when the river got to raging, But we didn't lose our horses, our cattle, nor our women, Though the water was rather wet and quite above its staging. . . .So here's to good ole Mt. Vernon and the fertile Skagit valley, We don't care for the river if she does go on a spree, Let her fill her banks and gurgle, and boil, and foam, and sally, It's the land of milk and honey she is kissing, don't you see? *(Source: The Skagit News-Herald, 11/19/06)*

THINGS TO BE DONE

After all, it might have been far worse. No irretrievable damage has been done. The thing to be done now is to clean up, begin the work of repair, and proceed as though nothing had happened. Skagit county has a glorious future and not even extraordinary misfortune can set it back for any length of time. The weak-kneed brothers will move out; those made of sterner stuff will stay and reap the rewards of grit and energy. It is no time for calamity howlers, and they should not be tolerated. Let them go their way; their places will be filled by better men.

No expense should be spared to put the county back to its

Source: Dec. 4, 1909 issue of "The Herald-Recorder," Skagit county's official paper published at Hamilton . Republished in the Courier Times 12/1/49)



TOWN OF HAMILTON 2003 FLOOD EVENT

**The Rewards of
Grit & Energy**

**No Calamity
Howlers Allowed!**

1922 Attitudes Towards Floods Changed

JANUARY 5, 1922.

FIRE FIRST GUN IN FLOOD FIGHT

Permanent Organization To Be
Formed "To Improve
Skagit River."

"Let's do the job ourselves."

That the people of the county should take the burden of providing adequate protection on their own shoulders, was the opinion of H.L. Willis, who cited the accomplishment of the city of Galveston [Galveston, TX], which built its mammoth sea wall by bonding its own citizens without any outside assistance. He urged the adoption of organized effort as soon as possible and concluded with, "Let's do the job ourselves." (Source: *The Mount Vernon Argus*, 1/5/22)

1st Flood Committee Formed

Seven Men Will Investigate the Problem of Flood Protection In Skagit County.

The second step toward flood protection in the Skagit valley was taken this week by the appointment by J. Z. Nelson, of a committee of seven to form an organization for the improvement of the Skagit river. Mr. Nelson was named chairman of a mass meeting held here last week and was instructed to name this committee as soon as possible. After studying the problem carefully he has announced the following as composing the group for investigation of the problem: H. L. Willis, Mount Vernon, chairman; John Finstad, Conway; Charles A. Nelson, LaConner; Augustus Brawley, Mount Vernon; Hiram Stump, Edison; Charles Callahan, Burlington, and Will Knutzen, North Avon.

JANUARY 12, 1922.

problem: H. L. Willis, Mount Vernon, chairman; John Finstad, Conway; Charles A. Nelson, LaConner; Augustus Brawley, Mount Vernon; Hiram Stump, Edison; Charles Callahan, Burlington, and Will Knutzen, North Avon.

Source: Mt. Vernon Argus, 1/12/22

THE MORE THINGS CHANGE THE MORE THEY STAY THE SAME

WRITES ABOUT FLOOD CONTROL

John Finstad of Conway Offers Material for Citizens' Consideration.

John Finstad of Conway has written the following article for the Argus in which he takes up the control of the Skagit river. It is well worth the consideration of every citizen of Skagit county and even of the whole Northwest.

In recent years there has been some agitation for the purpose of controlling the floodwaters of the Skagit river, but as time passes on after a disastrous flood, the people of the valley easily forget that they ever had a flood, until another comes along. Then they will have meetings for some time figuring on dredging and straightening the channel, but in the end nothing comes out of it.

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Dams and Flood Control

➤ People recognized the importance of dam storage for flood control. John Finstad of Conway wrote: *“Supposing the upper 20 feet of this dam (Ross Dam) was reserved for flood control it would take care of the maximum flow of 50,000 (cfs) for at least twelve days. Stone & Webster are going to build a dam across the Baker canyon back of Concrete in the near future (Lower Baker). Here another lake will be created up to six or seven miles long. If 20 feet was reserved for flood control at this dam, Baker river would be eliminated from any flood danger from that source.”*

(Source: John Finstad letter, Mt. Vernon Argus, 3/20/24)

➤ In the 1932 flood, at Baker River before the flood, water was 36 feet below the top of the dam, and at the peak of high water it flowed nine feet deep over the top of the dam. *(Source: Courier Times, 3/3/32)*

OTHER POINTS OF INTEREST

- Downtown Mt. Vernon went underwater twice, once in 1894 and again in 1897. *(Sources: The Skagit News, 10/21/1895, Mt. Vernon Argus, 10/15/21)*
- Avon By-Pass proposal was dead on arrival at Skagit County because County could not afford it. *(Source: Mt. Vernon Daily Herald 5/21/37)*
- There have been fish hatchery's on the Skagit River since 1898. *(Source: Concrete Herald 1/17/20)*
- Dredging mouth won't stop high tides therefore concept was never implemented. *(Source: Mt. Vernon Argus, 11/5/36)* The tide at the mouth of the Skagit acts as a dam against the outflow of the flood river, slowing down the flow of water ... *(Source: Skagit Valley Herald 11/5/55)*

First Avenue, 1897 Flood



SUGGESTIONS

- AGENCIES: Try and change your agency processes from within your agency.
- PRIVATE CONSULTANTS: Do historical research for your clients.
- larry@skagitriverhistory.com

