DRAFT TIMELINE OF HISTORICAL EVENTS ON THE SKAGIT RIVER 1815 -- 1939

Prepared by: Larry J. Kunzler, February 23, 1996

DATE	EVENT/ Document	COMMENTS
1815	**FLOOD** J.E. Stewart Report, 3/3/23	500,000 cfs Concrete, 400,000 cfs Sedro Woolley.
1856	**FLOOD** J.E. Stewart Report, 3/3/23	350,000 cfs Concrete, 300,000 cfs Sedro Woolley.
2/11/1875	EXAMINATION COE Report 2/8/28	River first "officially examined". Published in P. 791, A.R., C. of E. Recommended removing log jam, snags and some bank protection at estimated cost of $15,000.
1879	**LOG JAM REMOVAL** COE Taylor Report 12/11/1897	Log jam by Mt. Vernon removed by "private interest". Most floated away and dammed and closed "Old Main River" channel by South Fork. No Federal funds involved.
12/14/1879	**FLOOD** COE Report 3/29/37	No record of cfs.
7/14/1881	EXAMINATION COE Report 2/8/28	River again "examined". Published in P.2603, A.R. COE, 1881. Recommended construction of snag boat at cost of $15,000. $10,000 per year for operation.
1882	SNAG BOAT OPERATION COE Cavanuagh Report 12/6/12	Snag boat began operations on the Skagit River.
12/8/1890	REPORT Preliminary examination of the Nooksack, Skagit & Snohomish Rivers authored by Capt. Thomas W. Symons and E.H. Jefferson	1st known investigation of the Skagit River. Determined river was navigable for 110 miles, fringed with heavy growth of timber and subject to "...periodical freshets, which invariably cause some changes in the channel...". Principle difficulties to navigation were snags, drift piles, and shoals.
1/1896	**FLOOD** COE Taylor Report 12/11/1897	River reportedly was 22 ft on Great Northern Railroad Bridge 6 miles above Mt. Vernon. River bank was 21 feet. Flooded property above Mt. Vernon.
6/1896	**FLOOD** COE Taylor Report 12/11/1897	River reportedly was 20 ft on Great Northern Railroad Bridge 6 miles above Mt. Vernon.

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6/3/1896	**CONGRESSIONAL ACT**	Congress passes River and Harbors Act. Was used by Corps as authorization to study Skagit.
11/16/1896	**FLOOD** J.E. Stewart Report, 3/3/23 COE Taylor Report 12/11/1897 COE Report 3/29/37	 185,000 cfs Sedro Woolley River reportedly was 24 ft on Great Northern Railroad Bridge 6 miles above Mt. Vernon. This report references 3 floods in 1896.
11/19/1897	**FLOOD** J.E. Stewart Report, 3/3/23 COE Report 12/11/1897 COE Report 1/31/25, 3/29/37; Madison Rpt 12/40	 275,000 cfs Concrete, 190,000 cfs Sedro Woolley. Greatest damage was from West Mt. Vernon to Avon Bend. 190,000 cfs Sedro Woolley
12/11/1897	<u>REPORT</u> Survey of Skagit River From Its mouth to the Town of Sedro, Washington, authored by Capt. Harry Taylor, COE	1st Survey of River. River navigable to Mt. Vernon. First report referring to "Chinook" winds causing floods "at any time of the year." Snag boat had been removing snags since 1882. Dredging only beneficial at mouth of river for navigational purposes only and would require redredging at very frequent intervals. Recommended "cutoff channel at Sterling Bend" on April 28, 1897 to avoid "perpetual snagging". Settlers refused to give "required releases from damage". Damage suits would have resulted and project was abandoned. <u>Diking attributed to increasing height of floods in lower valley.</u> Attributed trouble on the Skagit River to the incomplete system of dikes and dikes too high and too close to the river. Recommended formation of one diking district to manage river.

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1899	STERLING "DAM" BUILT Floods in the Skagit River Basin, by James E. Stewart and G. Lawrence Bodhaine; Geological Survey Water-Supply Paper 1527, 1961	Sterling Dam was constructed at the head of Gages Slough. This is the location where the 1897 flood busted out from Sterling Bend (Hart's Is.) and went overland. "Dam" is still in place today and can be viewed along Highway 20.
11/16/06	**FLOOD** COE Report 3/29/37	180,000 cfs Sedro Woolley. States flood higher than 1897 because of dikes. Elsewhere flood was lower.
11/30/09	**FLOOD** J.E. Stewart Report, 3/3/23	260,000 cfs Concrete; 220,000 cfs Sedro Woolley.
6/13/10	DIKE DISTRICT 17 FORMED Finding and Decree of the Court	First Board of Commissioners was James Gilligan, S.P. Holt and Charley Harmon. Court found that construction of dike would "increase the value of said lands for the purpose of public revenue.
10/11/10	PUBLIC HEARING COE Report 11/5/10	Hearing held at Sedro Woolley Commercial Club to hear local concerns on improving river from Sedro Woolley to Concrete. Citizens wanted 6ft deep channel dredged up to Concrete.
11/5/10	<u>REPORT</u> Preliminary Examination of Skagit River, Washington From Sedro Woolley To Baker (Concrete), Captain Arthur Williams, COE	Capt. went upriver 45 miles in flat bottomed stern-wheel towboat. Established low water flow at 4,000 cfs. Felt there was sufficient water to establish a 6ft deep channel upriver. Estimated standing timber at 1,200,000,000 board feet with annual cut 30,000,000 board feet. River subject to floods during all seasons of the year. Reach 19' above low water and inundate considerable portion of the lowlands. Fall of river 3 to 4 feet per mile. Recommended survey to confirm.
1910-1911	TRAINING DIKE CONSTRUCTION COE Cavanaugh Report 12/6/12 & COE Woodruff Report 10/10/19 COE Butler Report 2/8/28	 COE constructed training dike at the mouth of South Fork, 10,450' long at a cost of $100,000. Expected results were not secured. South Fork depth 1½ at low tide.

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11/1911	**FLOOD** COE Cavanuagh Report 12/6/12	River cut a channel across Sterling Bend but not at a location entirely eliminating the bend. Created fall of 5 feet within 3,000 feet which developed swift current and marked lowering of water surface.
2/29/12	REPORT Survey Of The Skagit River From Sedro Woolley to Baker (Concrete), Major J.B. Cavanaugh, COE	Survey showed that slope of this section of river was greater than anticipated, shoals more numerous, available depths less, and fully demonstrated that no improvement of value could be secured by methods or regulation. Due to low banks of river and frequent floods improvement by canalization would be unusually expensive. Recommended no improvements between Sedro Woolley and Concrete and continued snagging.
12/6/12	REPORT Preliminary Examination of Skagit River, Wash., Major J.B. Cavanaugh, COE	Sterling cut began. Improper location of dikes and weak construction caused them to be overtopped. Recommended survey of Skagit City bar and Sterling be authorized.
1/26/14	REPORT Survey of Skagit River, Wash., Major J.B. Cavanaugh, COE	Recommended removal of huge sand bar at Skagit City (6 mi. above mouth of river) by installation of 6,200' dikes, and "training walls" because it interfered with navigation. Rapid changes taking place at Sterling Bend. Recommended no improvements in Sterling area. Improvements might cause "extensive local damage for which the works might be held responsible" and would be very costly.
4/21/14	REPORT Report Of The Board Of Engineers For Rivers And Harbors On Survey, Colonel W.M. Black, COE	Modified Cavanaugh report to reduce project to "combined dredging operations and training walls" with main reliance on dredging. Training walls to be used only to hold back spoils. Cost limited to $30,000.
1914	**FLOOD** COE Report 3/29/37	104,000 cfs Sedro Woolley

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1916	REPORT COE Report 2/8/28	USGS published Water Supply Paper No. 419. Skagit River begins in Beaver Lake, British Columbia, 20 mi. north of Canadian line. 3,100 sq mile drainage basin. Drains Mt. Baker, Glacier Peak and Mt. Shuksan.
12/30/17	**FLOOD** J.E. Stewart Report, 3/3/23	220,000 cfs Concrete; 195,000 cfs Sedro Woolley.
1918	Gorge Wood Crib Dam Started The Skagit Dams, Josef Kunzler, 1991	Built by Seattle City Light.
7/1918	REPORT Skagit River Flood Report by James E. Stewart, USGS	First known hydraulic study prepared for the Skagit River. Compared 1897, 1909, and 1917 floods.
10/10/19	REPORT Report on Reexamination of Skagit River, Wash., Lt. Colonel J.A. Woodruff, COE	Took second look at Skagit City bar project. Project cost escalated to $45,000 to $95,000. Dredging could be done for $30,000 but would need continued maintenance. Skagit "has been known to rise 18 feet in 24 hours and a rise of 10 feet in 24 hours is not unusual. Maximum fluctuation is about 25 feet." Custom of diking districts to raise dikes "about 6 inches above the known high-water mark of past years". Worried project would cause damage upstream to dikes and COE would be held liable. Recommended project only if local interest would release US from damages.
12/13/21	**FLOOD** J.E. Stewart Report, 3/3/23 COE Report 3/29/37	240,000 cfs Concrete; 210,000 cfs Sedro Woolley. 180,000 cfs Mt. Vernon, decrease due to "overbank storage areas".
9/22/22	CONGRESSIONAL ACT COE Report 5/1/28	Congress amends Rivers and Harbors Act which authorized preliminary examination of Skagit River.

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1922	REPORT Proposed Flood Control Skagit River, Robert Herzog, Assistant Engineer, Great Northern Railroad	This report is unique because not only is it the first report dealing solely with flood control, it is the only report written by private enterprise. Herzog recommended either straighten, widen and improved river bed from Sedro Woolley to Skagit Bay (which would mean removing all current dikes and build new ones) or build a "relief channel" 2000 ft wide to handle 5ft per second at a depth of 10 feet, to Padilla Bay. He justified location of channel by stating "that's where the water goes anyway". Channel would have been in close location of later proposed COE Avon By-Pass.
3/3/23	REPORT Stage & Volume of Past Floods In Skagit Valley and Advisable Protective Measures Prior to the Construction of Permanent Flood Controlling Works, James E. Stewart	First "Flood Control Proposal" by government agency in Skagit Valley. Stewart built on his 1918 report and made some minor revisions. Determined that diking to provide against "maximum floods" was not feasible. Further recommended "ring dike" around Burlington to prevent floods running through town. Determined that 1815 flood would cover Burlington with 13 feet of water and floods tend to flow past Burlington to Padilla Bay.
11/30/23	PUBLIC HEARING COE Report 2/8/28	Held at Mt. Vernon for securing desires and views of local interests on flood control. 75 people attended. One suggestion was to devise a comprehensive plan for the entire river length of the river and form a drainage district covering the portion of the county affected to carry out such a plan.
1924	Gorge Wood Crib Dam Completed The Skagit Dams, Josef Kunzler, 1991	Dam was 25' high. Power tunnel was 12 miles long and 25 feet in diameter.
1925	FLOOD GAUGE AT THE DALLES COE Report 2/8/28	USGS and Skagit County maintain automatic gauge at The Dalles, 2 miles below Baker River.

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1/31/25	REPORT Preliminary Examination of Skagit River, Wash., Colonel W.J. Barden, COE	1st survey dealing specifically with floods. Local interest requested Federal assistance in controlling floods. Skagit subject to floods of considerable intensity.
6/1927	Diablo Dam The Skagit Dams, Josef Kunzler, 1991	Construction began.
2/8/28	REPORT Preliminary Examination of Skagit River, Wash., Major Jno. S. Butler, COE	Updated 1925 Barton report with most emphasis on navigation. Stated "...high water usually occurs in May, June, July, and November." Lower river affected by tides to Great Northern Railway Bridge (BNRR). South Fork deterioration began in 1896 when flood widened and shoaled river channel. Most flow shifted to North Fork. Dike construction at mouth of South Fork may have decreased the gradient. South Fork not being used for navigation any longer. No trips above Mt. Vernon by commerce boats other than by log rafts. Stated Stewart Report was not yet completed. Frequent breaks in diking system due to lack of consideration for passage of water. Floods of 1909, 1917 & 1921 broke dikes above Burlington; water flowed to Padilla Bay. Flood problem independent of navigation. Opined that current rate of commerce did not warrant "any modification or enlargement of the existing project (continue snagging).
1929	Diablo Dam Completed The Skagit Dams, Josef Kunzler, 1991	389 feet tall.

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2/27/32	**FLOOD** COE Report 3/29/37 COE Report 7/30/40 COE ltr 9/27/46	 147,000 cfs at Concrete. No estimates at Sedro Woolley. Estimated 135,000 cfs Sedro Woolley, would have been 160,000 cfs w/o upstream storage behind Diablo Dam. Further confirmed effects of storage.
3/17/32	REPORT Skagit River Flood Control River Enlargement and Dikes, Charles B. Smith, COE, Civil Works Branch	Determined combination of channel enlargement and dikes was more feasible than just enlarging dikes. Project was designed to handle 220,000 cfs. Was going to widen BNRR 900', interurban & Riverside bridge 600'. Estimated cost $4,454,000.
5/18/32	REPORT Report of the District Engineer Containing A General Plan for the Improvement of Skagit River, for the Purposes of Navigation and Efficient Development of its Water Power, the Control of Floods, and the Needs of Irrigation; Lt. Col. C.L. Sturtevant, District Engineer, COE	Most comprehensive report to date performed by COE. Final recommendation included that local interest should improve dikes & levees to carry 140,000 cfs; levees be prohibited in the Nookachamps basin; install a flood early warning system; no change to navigation projects; no reservoirs be constructed for irrigation; federal government spend no money to accomplish any flood control activities due to lack of national benefits.
6/13/34	ACT OF CONGRESS See 9/25/47 ltr.	Examination & survey of Skagit River authorized by Congress.
6/12/35	FLOOD CONTROL Letter to COE fm County Commissioner Hugo Esuman Contains agmt btwn Skagit County & COE.	First known application from Skagit County Board of Commissioners to Federal government for flood control work. Requested work on revetments and rip-rapping.
6/22/36	ACT OF CONGRESS See 9/25/47 ltr.	Examination & survey of Skagit River authorized by Congress.
1937	Ross Dam Construction Began The Skagit Dams, Josef Kunzler, 1991	Variable arch type. 1st phase was 300 feet high.

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3/2/37	PUBLIC HEARING Transcript of proceedings of public hearing 3/2/37. Lt. Col. H.J. Wild, COE presiding.	First record of public hearing held in Skagit County by COE. Purpose of hearing was "to ascertain the desires of local interests as to a flood control project upon" the Skagit River. Opposition to Avon By-Pass, support & opposition for dredging mouth of river, some wanted to straighten river & build dam on Sauk, others wanted spillways, Dike 12 wanted to dredge it. Only one woman attended hearing, did not speak.
3/29/37	REPORT Report on Preliminary Examination of Skagit River and Tributaries by Seattle District Engineer for COE to North Pacific Division Engineer for COE, Portland 3/29/37	Recommended COE be authorized to study the river.
8/28/37	ACT OF CONGRESS See 9/25/47 letter.	Examination & survey of Skagit River authorized by Congress.
10/7/37	PHOTOS	Aerial photographs taken of lower Skagit River Valley.