Fred Siegel was born in Slocom, Pennsylvania. After he came to Seattle in 1888, he worked as a logger, a pile driver and even a gold miner for one year in Alaska. He found his calling in 1898 when he took a job as mate on the U. S. Corps of Engineers snagboat SKAGIT. A snagboat was a special kind of vessel meant to float very high on the water and pull up large pieces of underwater debris that could damage boats on the surface. In 1905, the captain of the SKAGIT retired, and Fred Siegel replaced him.

According to one member of his crew, Captain Siegel was a hard worker and expected the same from everyone else on the boat. If he did have free time, he loved to go on shore with his dog Skagit and hunt ducks, pheasant, and quail for dinner.

By 1915, the hull of the SKAGIT had almost rotted away, and the new boat SWINOMISH replaced it. When Captain Siegel and the rest of the SKAGIT crew moved over to the SWINOMISH, they also took some of the furniture and the whistle from the SKAGIT with them.

Extra Note: If you are ever in Anacortes, you can see the snagboat W. T. PRESTON at the Anacortes Museum. This boat contains much of the equipment that was used on the SWINOMISH.
Shoreline Map: Lake Washington Ship Canal

### Map Key

<table>
<thead>
<tr>
<th>Symbols for historical map</th>
<th>Features</th>
<th>Symbols for present-day map</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoreline</td>
<td>Shoreline</td>
<td>Corresponds to the line of mean high water level (saltwater) or mean lake level.</td>
<td></td>
</tr>
<tr>
<td>Mean lower low-water line</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Streams</td>
<td>Intermittent Perennial</td>
<td>The historical mapping made no distinction between intermittent and perennial streams. Streams indexed with solid, inverted triangles are historical channels that have been filled, diverted to sewers, or significantly modified. Open triangles indicate historical streams that today enter the lakes or bays in a near-natural state.</td>
<td></td>
</tr>
<tr>
<td>Wetland</td>
<td></td>
<td>The historical wetlands were freshwater marsh except in Salmon Bay, where salt and brackish marsh existed.</td>
<td></td>
</tr>
<tr>
<td>Forested upland</td>
<td></td>
<td>The historical forest vegetation was predominantly a mixture of Douglas fir, western red cedar, and western hemlock.</td>
<td></td>
</tr>
<tr>
<td>Grassland</td>
<td></td>
<td>The historical grasslands included land that was logged prior to the surveys but not then developed for agricultural or urban use.</td>
<td></td>
</tr>
<tr>
<td>Agricultural land</td>
<td></td>
<td>Limits of land cleared for agricultural use. The polygons represent plots of different ownership or fields for different crops.</td>
<td></td>
</tr>
<tr>
<td>Urban land</td>
<td></td>
<td>Piers, wharves, warehouses, and mills extending from the shoreline.</td>
<td></td>
</tr>
<tr>
<td>Shoreline structures</td>
<td></td>
<td>Sites of filled or modified land where the filling has included general waste and demolition waste (Sources: Wilson, 1975; Phelps, 1978, p. 208).</td>
<td></td>
</tr>
</tbody>
</table>

"Change Over Time: The Lowering of Lake Washington" was developed by Eastside Heritage Center in collaboration with the Bellevue School District.

"Change Over Time: The Lowering of Lake Washington" was developed by Eastside Heritage Center in collaboration with the Bellevue School District.
conclusion that the cost of the work in Bachelors Slough is excessive when compared with the probable resulting benefits, and that a channel through this slough, while convenient, is not essential for the boats engaged in traffic on Lake River, as that stream is accessible at its mouth from the Columbia River. The board concurs with the district officer, however, in the opinion that it is advisable to undertake the improvement of Lake River. In the manner proposed, at an estimated cost of $1,600.

I concur with the views of the Board of Engineers for Rivers and Harbors, and therefore report that the improvement by the United States of Lake River, Wash., is deemed advisable to the extent of providing a channel 50 feet wide and 6 feet deep at low water, from the mouth to Ridgefield, at an estimated cost of $1,600 for first construction and $500 annually for maintenance.

PUGET SOUND AND ITS TRIBUTARY WATERS, WASH.

Location and description.—Puget Sound is an arm of the Pacific Ocean, located in the western part of the State of Washington. This improvement includes maintenance work on all the larger rivers emptying into Puget Sound, the principal ones being the Skagit, Snohomish, Snoqualmie, Skykomish, Stilaguamish, Nooksak, Puyallup, and Duwamish, and connecting navigable sloughs.

Existing project.—The present project was adopted by the river and harbor act of July 13, 1892, and contemplates maintenance work on the rivers tributary to Puget Sound by snagging and dredging. The latest map of the locality is published in Annual Report of the Chief of Engineers for fiscal year 1913.

Condition at the end of fiscal year.—The work has consisted of snagging and dredging in the principal tributaries of Puget Sound. The snag boat Skagit, constructed in 1893, was operated practically continuously to March 1, 1915, when she was dismantled and sold. The snag boat Swinomish, constructed under contract, was placed in operation on March 1, 1915, and snagging was carried on in the rivers and sloughs tributary to Puget Sound and dredging was done to restore channel depths. No permanent results are obtainable, but the maintenance of existing channels requires continuous operation of the boat. A dike has been built at Hat Slough to reduce the flow from that outlet of the Stilaguamish River, and a low-water dike was built at the north fork of the Skagit River to reduce the stream flow through that mouth and reduce deterioration of the south channel of the Skagit. Repairs to these dikes have been made as necessary. The total expenditures, under the existing project, are $45,356.92 for new work and $41,204.13 for maintenance, making a total of $86,561.05.

Local cooperation.—There has been no local cooperation on this work.

Effect of improvement.—There has been no direct effect on freight rates, but the snagging and dredging by the snag boat has kept the rivers open to navigation for steamers and for the towing and rafting of timber.

Proposed operations.—The snag boat Swinomish will be operated on Puget Sound and its tributary waters as may be necessary to maintain existing channels. Funds now available will be expended in operation of the boat by March 1, 1917. The funds for which estimate of $85,000 is submitted will be required for operating the snag boat between March 1, 1917, and June 30, 1918. The normal cost of operation of the snag boat is $1,500 per month.
Commercial statistics.—The water traffic on Puget Sound and its tributary waters is very large and is rapidly growing. It includes vessels of every type and size in use throughout the world. The foreign commerce consists mostly of the exportation of lumber, grain, fish, flour, and dairy products, and the importation of tea, silks, and hemp.

Comparative statement of commerce of tributary waters not included in statistics for specific improvements.

<table>
<thead>
<tr>
<th>Calendar year</th>
<th>Short tons</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1913</td>
<td>105,139</td>
<td>$1,084,813</td>
</tr>
<tr>
<td>1914</td>
<td>113,900</td>
<td>$1,593,009</td>
</tr>
<tr>
<td>1915</td>
<td>55,665</td>
<td>$483,181</td>
</tr>
</tbody>
</table>

Amount expended on all projects from August 2, 1882, to June 30, 1916:
- New work ............................................. $43,336.92
- Maintenance .......................................... 478,609.71

Total .............................................. $522,036.63

Amount that can be profitably expended in fiscal year ending June 30, 1918, for maintenance of improvement ........................................ 25,000.00

APOON MOUTH, YUKON RIVER, ALASKA.—NEW PROJECT.

Report of the Chief of Engineers, printed in House Document No. 991, Sixty-third Congress, second session:

The Apoon mouth is the most easterly of the delta channels into which the Yukon River divides, and is used by all vessels plying between points on the river and the port of St. Michael. The original and existing project for improvement of this branch of the river, adopted by the act approved July 25, 1912, provides for a channel 6 feet deep at mean low water, 150 feet wide through the bars, and 200 feet wide at the heads. The present improvement extends to the mouth of Pastolik River, and the improvement contemplated by the act is understood by the district officer to extend from the mouth of that river to deep water for river vessels, or to a depth of approximately 6 feet below mean lower low water. He states that not only would the first cost of a suitable channel across these extensive flats at the mouth of the river be excessive, but its maintenance would also be impracticable within reasonable limits of cost. He therefore expresses the opinion that the additional improvement now proposed is not worthy of being undertaken by the General Government, and in this view the division engineer concurs.

These reports have been referred, as required by law, to the Board of Engineers for Rivers and Harbors, and attention is invited to its report herewith, dated May 6, 1914. At a hearing held by the board on February 24, 1914, interested parties expressed a desire for the widening of the channel at the turn opposite the mouth of the Pastolik River, the removal of such shoaling as had occurred in the improved reaches, and the dredging of a shallow channel through the so-called "hogback" or crest of the shoal a short distance beyond the mouth of the river, and these improvements are discussed in the supplemental report of the district officer, dated April 17, 1914. The board states that the work of restoring the channel where dredging has been done, and of easing the point complained of, can be done under the existing project with funds now on hand. The removal of the "hogback" would be new work, and its cost is considered excessive when compared with resulting benefits. The board therefore expresses the opinion that it is not advisable for the United

Snag Steamer Swinomish Enters Lake Union, Being First Craft to Navigate New Waterway

Clears Out Timbers and Debris, and Small Boats May Now Go Through, but Channel Is Yet to Be Deepened by Dredging.

The snag steamer Swinomish, of the United States engineering department, entered Lake Union at 1:30 o'clock yesterday afternoon and is the first steamer or craft thus far to enter that lake through the Lake Washington canal from Salmon Bay.

When the Swinomish left her berth just outside the Lake Washington canal lock, Monday morning to make her way through the canal as far as Lake Union for the purpose of clearing away the debris caused by the blowing up of the cofferdam at the east end of Lake Union last Friday. It was not expected that the steamer would be able to enter Lake Union.

Several hours were spent in nosing about the huge timbers which had been hurled into the cut by last Friday's explosion, and at 1:30 such progress had been made in removing these timbers that the Swinomish had reached Lake Union, and her entrance into that body was hailed with cheers and shouts by a large crowd of people who had gathered in the vicinity to watch the work of clearing the way into the lake.

Crowd Cheers Entrance.

The shouts and cheers were met with three sharp blasts from the Swinomish's siren whistle, and as the steamer pushed her way through the clearing of the spectators continued. Being unable to proceed farther the steamer circled about in the vicinity and later Lieut. Col. Cavanaugh, of the United States engineering corps, Assistant Engineer W. T. Preston and Chief Clerk A. A. Oles were landed at Fremont bridge.

Open for Small Boats.

Lieut. Col. Cavanaugh, after the trip, said that small vessels that can pass under the Stone Avenue bridge may enter Lake Union, although the channel will not be thrown open to navigation until after the dredging now in progress in that vicinity is finished. The clearing of Lake Union of debris, he said, is to afford an easy discharge of the water from Lake Washington through Lake Union.

The second boat to enter Lake Union from the Salmon Bay locks was the Hazel B., owned by George W. Roberts, 1419 1/2 Fourth avenue. The Hazel B. is a thirty-foot pleasure boat, with a draft of four feet. Leaving the lock at 12 o'clock last night, the boat passed from the canal into Lake Union at 10 o'clock. Some difficulty was experienced in passing through the swift water near Fremont, where the water empties from the lake. Capt. Johnson was at the wheel.

A federal report of October 17, 1916 speaks of snags and rocks exposed because of the lowering of the water. "Last week three launches were disabled 200 or 300 feet out from the landing at Rhodesa on the south end of Mercer Island, not far from where the passenger steamer Triton was snagged and sunk. With approaching stormy winter weather the lake in its present condition is a menace to life. Mr. Rhoads said, "I myself cross the lake daily in a small boat and since the lowering have twice disabled the wheel on my boat from hitting a snag.|\n
Reproduction of October 1916 correspondence, found in historian Lucile McDonald's files. Source: University of Washington Special Collections. Lucile Saunders McDonald Papers.
SUMMARY OF RESULTS.—Triangulation: 60 square miles of area covered, 45 signal poles erected. 36 stations in main scheme occupied for horizontal measures, 9 stations in supplemental scheme occupied for horizontal measures, 95 geographic positions determined. Topography: 50 square miles of area surveyed; 110 miles of general coast line surveyed; 6 topographic sheets finished, scales 1:10,000 and 1:20,000. Hydrography: 5 square miles of area dragged; 40 miles run while dragging; 1,742 positions determined (double angles); 118 soundings made; 2 tidal stations established; 102 trees felled for removal; 2 hydrographic sheets finished, scales 1:10,000 and 1:20,000.

Between July 24, 1919, and March 26, 1920, a wire-drag survey was made of Lake Washington and Lake Union, Washington, with such triangulation and topography as was required for the purposes of the survey.

The work undertaken included the revision of shore line and topography, Lake Washington; wire-drag work, Lake Washington and Lake Union; work on launches to prepare for Lake Washington and Alaska seasons; and development of new methods.

Owing to reasons given later, it was not possible to start the wire-drag work till the middle of November. Practically nothing was known about the best means of locating trees for removal, and new methods became necessary.

Instructions were to drag areas of submerged forest to a depth of 45 feet wherever practicable. It soon developed that in addition to this general program something else must be done in order that the proposed work might be of any value. It was further learned that the parts outlined on the charts were only part of the area needing investigation.

The following method of work was developed: The local United States Engineers' office which had cleared out the trees in Lake Washington, which appeared when the lake was first lowered, arranged to temporarily assign the snag boat Scio from time to time, as she could be spared from her regular work on the rivers, to remove trees in Lake Washington. The arrangements were made locally between the engineer officer for the district and the inspector at Seattle, this plan leaving considerable latitude as to the times and methods of cooperation. This feature was especially desirable, as both parties had to discontinue work for short periods for various reasons.

This work was absolutely necessary and of great importance and value. In every area trees 6 feet or less beneath the surface were found. In the area of the thickest trees where a steamer and launch were formerly lost, several dangerous trees were found directly in the path of excursion steamers.

Another dangerous tree with 4 feet of water over it was found directly in the path of tow boats engaged in towing rafts of spruce logs from Lake Washington to Lake Union. On the west side of Mercer Island two dangerous trees were found, one directly in the customary path of a steamer, with 4 feet least depth; and another close to shore, with the same depth, was found by striking it with the Scandinavia, fortunately running at slow speed.

A tree with 4 feet on it in 120 feet of water in the north end of Lake Washington was perhaps the most remarkable find. Some of the trees removed were leaning, and several were nearly 140 feet in length. As nearly 200 trees in all were removed, the size of the project becomes evident.

The cooperation in this work was excellent. The engineer in charge of the work of the snagboat did everything to make the work a success. The officer in command of the Scio found opportunity to use every part of his extensive experience, and their work, development of methods, and results were most efficient and of the greatest interest to all who observed the work in progress.

In addition to the location and removal of trees, a considerable portion of the lake was dragged and proved free from obstruction. A dangerous log, which had been struck by an excursion steamer, was found and removed later by the snagboat.

Little hydrography was done except to sound on places where the drag struck bottom and where the charts indicated greater depth. The most important case was a shoal area in the region of submerged forest, with depths of 16 to 22 feet where the chart indicated at least 30 feet.