

Juneau Aurora Harbor

Condition of Improvements
31 December 2022
Aurora Harbor
Juneau, Alaska
(CWIS No. 020960)

Authorization Rivers and Harbors Act, 3 July 1958 (House Doc. 286, 84th Congress, 2nd Session) as adopted, provides for an adjacent basin 19 acres in area dredged to depths of -12 feet MLLW and -14 feet MLLW, protected by a jetty 530 feet long and a breakwater 1,150 feet long.

Table 1

Existing Project	Length ft.	Width ft.	Depth ft.
Basin	19 acres		-12 & -14
Main Breakwater	1500		
North Jetty	670		

Project Usage Aurora harbor provides protected moorage for approximately 550 small craft and seaplanes. The combined Juneau-Douglas complex (see also Douglas Harbor and Harris Harbor) gives protection and moorage to approximately 1,000 vessels, half of which are active in commercial fishing. All transportation to the area is by sea or air.

Progress of Work

1962	Aurora Harbor: Design modifications increase the length of the jetty to 670 feet and the main breakwater to 1500 feet. Work commences on the North Jetty in August and is completed in September. Dredging of the new basin begins in December.
1963	Dredging of Aurora Basin is completed in March with the exception of the most northerly corner where hard bottom prevents dredging. Contract for the main breakwater is awarded in June and begins in July.
1964	The main breakwater for Aurora Harbor is completed in February.
2002	A condition survey of the harbor is conducted in April.

Progress of Work

2003	Vertical and oblique aerial photography is taken of Aurora harbor.
2005	A condition survey of the harbor is conducted in April.
2009	A condition survey of the harbor is conducted in August.
2012	USACE Comprehensive Evaluation of Project Datums Compliance report completed and recorded in September.
2013	A condition survey of the harbor is conducted in May.
2014	A control survey was performed to update all horizontal and vertical project control.
2016	Sediment sampling in the north half of the harbor (project depth -12 feet MLLW) is completed in September.
2017	A condition survey of the harbor is conducted in June. An inspection of the wooden wave barrier on the main breakwater is conducted in August and reveals the wood on the lower portion of the wave barrier is deteriorating and should be repaired.
2018	Additional sediment sampling for mercury and methylmercury concentrations in sediment and porewater is performed in the north half of the harbor in April by NewFields Government Services. Two borings sampled in 2016 were re-sampled by the Alaska District in August to determine if phthalates previously detected are actually present in the harbor sediment or could be attributed to laboratory contamination and the wood of the wave barrier wall is sampled.
2019	A condition survey of the harbor is conducted in March. Contract W911KB19C0031 is awarded to Western Marine Construction in September to replace the Aurora Harbor wood wave barrier and dredge the northern half of the harbor where the project depth is -12 feet MLLW. The contract also includes work in Harris Harbor. Contract amount for Aurora Harbor work is \$2,412,000. Section 106 consultation with the State Historic Preservation Office (SHPO) results in a determination of no adverse effect for the 2019-2020 maintenance work based on the assumption the project is eligible for National Register of Historic Properties however a determination of eligibility is required prior to any future maintenance projects.
2020	Under contract W911KB19C0031, Western Marine Construction removes the deteriorating wood wave barrier protecting Aurora Harbor and completes a new wood wave barrier of similar construction. Work was accomplished from April to June.
2021	Under contract W911KB19C0031, Western Marine Construction dredges the north half of Aurora Harbor in April and removes 9,807 cubic yards of dredge material. Bedrock in the northeast corner of the harbor prevents dredging to the required depth of -12 feet MLLW in that area. Dredged material was placed in a Gastineau Channel open water placement site located southeast of Douglas Harbor and south of the Douglas Harbor capped placement site. A Determination of Eligibility for the National Register of Historic Properties is started.

Table 2 Cost to Date

Project	Description	Cost \$
087219/087227	CG Appropriations	1,910,563
087219/087227	CG Costs	1,910,563
087219/087227	O&M Appropriations (prior to FY78)*	429,023
087219/087227	O&M Costs (prior to FY78)*	429,023
020960	O&M Appropriations	3,998,018
020960	O&M Costs	3,023,479

**Cost prior to FY78 shared with Harris Harbor*

Table 3 Range of Tides in feet

Tide Station	Mean Range	Diurnal Range	Extreme Range
945 2210 Juneau AK	13.74	16.31	30.71

NOAA Publication Date: 02/16/2018

Controlling Depth In May 2021 at Aurora Harbor, a depth of -9.0 feet controls the -12 feet MLLW area along the northern float at the gangway and a depth of -11.3 feet controls the -14 feet MLLW area at the southernmost float. There is minor shoaling along the harbor perimeter.

Maintenance Dredging Supplement

A. General

1. The first maintenance dredging of this project is conducted in April 2021 (a 58-year span). Bedrock was encountered in the northeast corner of the harbor and in the southeast corner of the dredge limits near the boat houses.
2. Maintenance dredging was performed in the north half of the harbor where the project depth is -12 feet MLLW. There was no maintenance dredging in the southern half of the harbor due to minimal volume available to the project depth of -14 feet MLLW.

B. Sampling and Testing

1. In September 2016, samples were collected at seven (7) locations within Aurora Harbor; material was classified as silty sand (SM) in five (5) locations and silt with sand (ML) in two (2) locations.
2. Chemical analysis was conducted on five samples; four samples in the northern half of Aurora Harbor and one in the southern half (“boat prism”) where the City and Borough of Juneau considered dredging deeper than project depth for a tug. The “boat prism”

sample exceeded several ADEC and DMMP screening criteria and therefore will not be considered for dredging below project depth. The other four samples were evaluated using the test methods as outlined in Table 4 below.

3. In April 2018, two (2) sample locations within Aurora Harbor were sampled for mercury and methylmercury in sediment and porewater. In August 2018, two (2) sample locations previously sampled in 2016 were re-sampled for phthalates which were previously detected, and the wood of the wave barrier was sampled to determine if disposal has hazardous waste would be required. The sample test methods and results of the 2018 sampling is shown in Table 5.

Table 4 Chemical Testing (2016)

Method	Chemical Analysis	Results
AK101	Gasoline Range Organics	ND (none detected)
AK102/103	Diesel Range Organics/ Residual Range Organics	All below project screening limits
6000-7000's	(10) RCRA Metals	(10) of (10) detected; Arsenic and chromium above ADEC screening levels, all others below minimum levels
9060	Total Organic Carbon	11,000-35,000 ppm
8260B	Volatile Organic Compounds	ND
8081A	Pesticides	ND
8082	Polychlorinated Biphenyls	ND
8270D	Semi-volatile Organics	Exceeded DMMP screening level for bis-(2-ethylhexyl) phthalate and diethyl phthalate. Did not exceed ADEC screening levels Otherwise ND or below minimum levels
EPA 160.4	Total Volatile Solids	1.2-2.8%
EPA 350.1	Ammonia	ND
Krone et. Al.	Tributyltin	ND

Screening levels are defined by ADEC 18 AAC 75 Method 2 Table B1 and B2 Cleanup Level and USACE Seattle District Dredged Material Management Program (DMMP) User's Manual, August 2016.

Table 5 Chemical Testing (2018)

Method	Chemical Analysis	Results
7471B	Metals (Mercury) in Sediment	Below DMMP screening level
1630M	Metals (Methylmercury) in Sediment	Detected below reporting limit
1613E	Porewater Metals (Mercury)	Detected below reporting limit
1630M	Porewater Metals (Methylmercury)	Below Douglas Threshold of 0.295 ng/L
8270D	Semi-volatile Organic Compounds - specifically bis(2-ethylhexyl) phthalate and diethyl phthalate	Below DMMP screening level for bis-(2-ethylhexyl) phthalate. ND for diethyl phthalate.
8270D with TCLP Extraction (Wave Barrier)	TCLP Semi-volatile Organic Compounds	ND
6020 with TCLP Extraction (Wave Barrier)	TCLP RCRA Metals	(2) of (8) detected. Chromium and Lead detected but in concentrations below TCLP screening criteria; all others not detected.

Screening levels are defined by USACE Seattle District Dredged Material Management Program (DMMP) User's Manual, August 2016.

C. Disposal

1. Dredge material from the 2021 maintenance dredging was placed in a deep-water site in Gastineau Channel with the geographic coordinates shown in the table below.
2. The disposal site is located 1500 feet south of the capped Douglas Harbor disposal site. Dredged material placement was controlled to prevent the Aurora Harbor material from drifting into the Douglas Harbor site.

Table 6 Disposal Area

Corner	Latitude (N)	Longitude (W)
A (NE)	58°16'28.39"	134°21'55.60"
B (SE)	58°16'21.34"	134°21'40.98"
C (SW)	58°16'14.69"	134°21'52.52"
D (NW)	58°16'21.74"	134°22'07.15"

D. Environmental Permits and Reports

Table 7 Environmental Permits

Agency Name	Date of Issue	Date of Expiration
AK Department of Governmental Coordination.	30-Jun-87	n/a
AK Department of Environmental Conservation	02-Jul-87	n/a
Environmental Protection Agency	1986	n/a
DA	1-Aug-92	n/a
Environmental Assessment	1-Aug-19	n/a
Finding of No Significant Impact	29-Aug-19	n/a
ADEC Water Quality Certification	29-Aug-19	29-Aug-24

Aurora Harbor, Juneau, Alaska



Oblique of Aurora Harbor, June 2017



Aurora Harbor, March 2019

Aurora Harbor, Juneau, Alaska



New Wave Barrier at Aurora Harbor, June 2020



New Wave Barrier at Aurora Harbor, June 2020