

Ketchikan Thomas Basin

Condition of Improvements
31 December 2022
Thomas Basin
Ketchikan, Alaska
(CWIS No. 000631)

Authorization (1) Rivers and Harbors Act, 3 July 1930 (House Doc. 113, 70th Congress, 1st Session) as adopted, provides for construction of a stone breakwater with concrete cap, 940 feet in length, to protect the harbor in the vicinity of Ketchikan Creek and dredging the protected area (11.35 acres) to a depth of -10 feet MLLW.

Table 1

| Existing Project | Length ft. | Width ft. | Depth ft. |
|------------------|-------------|-----------|-----------|
| Basin | 11.35 acres | | -10 |
| Breakwater | 940 | | |

Project Usage Thomas Basin is used as a base of operations for commercial fishing and is capable of accommodating 200 vessels. Combined with Bar Point Harbor, the projects are used by more than 100 transient fishing boats as a seasonal base of operations.

Progress of Work

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| 1931 | Construction of the breakwater and dredging were begun by contract with the placing of 7,178 cubic yards of stone and 56,588 cubic yards removed. |
| 1932 | Stone placement for the breakwater and dredging of the basin are completed. |
| 1933 | A total of 855 linear feet of concrete cap was placed on the breakwater to complete the construction of Thomas Basin. |
| 1937 | A survey in May showed a controlling depth of -9 feet MLLW except in an area at the mouth of Ketchikan Creek where depths varied from -4 to -9 feet MLLW. |
| 1938 | Breakwater repairs and dredging of 2,271 cubic yards from the basin are completed in November and December. |
| 1947 | In May shoaling had reduced the controlling depth in the basin, except along the edges, to -7.7 feet MLLW. No work other than the survey of depth was done. |
| 1949 | Plans and specs were developed for a maintenance dredging contract. In November the controlling depth, except along the edges, was -5.8 feet MLLW. |

Progress of Work

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| 1950 | Maintenance dredging begins in June and is finished in FY 1951. The contractor encountered loose rock at -10 feet MLLW and solid rock at -11.5 feet MLLW. No appreciable amount of material was removed. Contractor moving in additional equipment needed to remove rock. |
| 1951 | Dredging to restore project depths was completed. |
| 1960 | Thomas Basin is dredged by contract over the summer removing approximately 4,305 cubic yards. |
| 1964 | Maintenance dredging begins in July and is completed in August with the removal of 24,316 cubic yards. A controlling depth of -14 feet MLLW is reported. All necessary pilings and floats had been removed to allow for basin dredging. |
| 1972 | A condition survey was completed. |
| 1973 | A contract for maintenance dredging is awarded in June and completed in October with 4,250 cubic yards of material removed. |
| 1976 | Repair of the rock breakwater at Thomas Basin begins in October and is completed in November. |
| 1994 | A condition survey of the harbor is performed in January and February. Sampling and testing is carried out for Thomas Basin. |
| 1996 | Maintenance dredging is completed in February with the removal of 8,678 cubic yards. |
| 2001 | A condition survey of the harbor is conducted with multi-beam techniques in April. |
| 2004 | A condition survey of the harbor is conducted in July. |
| 2005 | Aerial photography is taken of the harbor in April. |
| 2007 | A condition survey of the harbor is conducted in May. |
| 2012 | A condition survey of the harbor is conducted in July. |
| 2013 | “Comprehensive Evaluation of Project Datums” Compliance report completed and recorded in February. |
| 2015 | Sampling and testing of shoaled material in the basin is completed. A condition survey of the harbor is also completed. |
| 2016 | Additional sampling and testing of shoaled material is conducted in September to support environmental planning efforts for maintenance dredging. |
| 2017 | A condition survey is conducted in February to update the estimated quantities for a maintenance dredging contract, which was awarded in August to Western Marine Construction. Another condition survey was completed in November due to above average rainfall during the summer to determine if there was a significant change in the estimated quantity of material to be dredged. A letter permit is issued in October for a Section 408 request to repair the Spruce Mill Sheet Pile Wall which will ultimately modify the Federal dredge limits once the work is complete. |

Progress of Work

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|------|--|
| 2018 | Maintenance dredging is conducted in February removing 4,905 cubic yards of material from the northern portion of the basin near the mouth of Ketchikan Creek. Due to contamination, all dredged material was barged to the lower 48 and disposed at a landfill located in Oregon. |
| 2020 | A condition survey of the harbor is conducted in May. |

Table 2 Cost to Date

| Project | Description | Cost \$ |
|---------|-------------------|-----------|
| 000631 | CG Appropriation | 640,967 |
| | CG Costs | 640,967 |
| | O&M Appropriation | 4,319,251 |
| | O&M Costs | 4,307,366 |

Table 3 Range of Tides in feet

| Tide Station | Mean Range | Diurnal Range | Extreme Range |
|-----------------------|------------|---------------|---------------|
| 945 0460 Ketchikan AK | 12.97 | 15.45 | 26.58 |

NOAA Publication Date: 09/27/2011

Controlling Depth A depth of +4.6 feet MLLW controls near the boat grid in the southeast corner of the basin. A depth of -1.6 feet MLLW controls on the back side of float 6 near the mouth of Ketchikan Creek. These depths were determined from the May 2020 survey.

Maintenance Dredging Supplement

A. General

1. On average, the basin requires maintenance dredging every 12 years.
2. Shoaling occurs primarily in the northern half of the basin near the mouth of Ketchikan Creek.
3. Based on informal coordination, the preferred window for dredging activity runs from 1 November through 28 February in order to minimize impacts to anadromous fish and aquatic animals that may enter the harbor to feed on the fish.
4. Dredging is typically accomplished with mechanical equipment.

B. Sampling & Testing

1. Three locations in the harbor basin were sampled in May 2015 to characterize the shoaled material. Potential upland placement locations in Ketchikan were also sampled.
2. Chemical analysis in 2015 was performed using eleven methods. Arsenic, chromium, diesel range organics (DRO), and benzo(a)pyrene were detected in sediments at a concentration exceeding ADEC upland disposal criteria. However, arsenic and chromium were determined to be within background concentrations and are assumed to be naturally occurring. At the time, all sediments tested were suitable for open water disposal according to the Dredged Material Management Program (DMMP) screening levels.
3. Three locations in the harbor basin were sampled in September 2016 to further characterize the dredge prism. A potential in-water placement location in Ward Cove was also sampled.
4. Chemical analysis in 2016 was performed using twelve methods. Multiple chemicals were detected at concentrations exceeding DMMP screening criteria in the composited prism sample. The calculated dioxin toxicity equivalent (TEQ) for this sample also exceeded the DMMP criteria for unrestricted in-water disposal.
5. Sample material from the dredge prism near the mouth of Ketchikan Creek was noted to be very high in organic content.

C. Disposal

1. Based on the sampling and analysis results from 2015 and 2016, the sediments to be dredged are not suitable for open water disposal without further testing. If offshore disposal is the preferred alternative, then DMMP Tier III testing is required.
2. Currently, the preferred alternative is upland disposal at an approved facility.

D. Environmental Permits and Reports

1. An Environmental Assessment (EA) for breakwater repairs was completed in June 1975. A public notice, EA, and Finding of No Significant Impact (FONSI) were circulated for review in August 1995. Another public notice was issued in September 1995 modifying the preferred disposal site for dredged material as described in the August EA/FONSI. The most recent EA by the Corps of Engineers was prepared for maintenance dredging in March 2017. The FONSI was signed in April 2017 following public review of the EA.
2. The following permits or authorizations have been issued for current dredging operations:

Table 4 Environmental Permits

| Agency Name | Purpose | Date of Issue | Date of Expiration |
|---|---|----------------------|---------------------------|
| AK Department of Environmental Conservation | Section 401 Certificate of Reasonable Assurance ER-17-02 | 2-May-17 | 2-May-22 |
| AK State Historic Preservation Officer | Section 106 Consultation - National Historic Preservation Act | 30-Mar-17 | n/a |
| NOAA - National Marine Fisheries Service | Section 7 Consultation - Endangered Species Act | 22-Mar-17 | n/a |

Thomas Basin, Ketchikan, Alaska



Mouth of Ketchikan Creek below the Stedman Street bridge, February 2018



Maintenance dredging near the mouth of Ketchikan Creek, February 2018

Thomas Basin, Ketchikan, Alaska



Moving dredged material for transfer to haul barges, February 2018



Transferring dredged material from scow to haul barges, February 2018