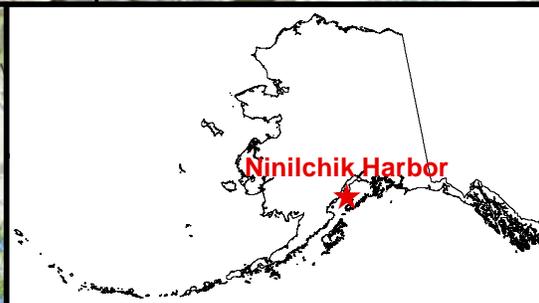
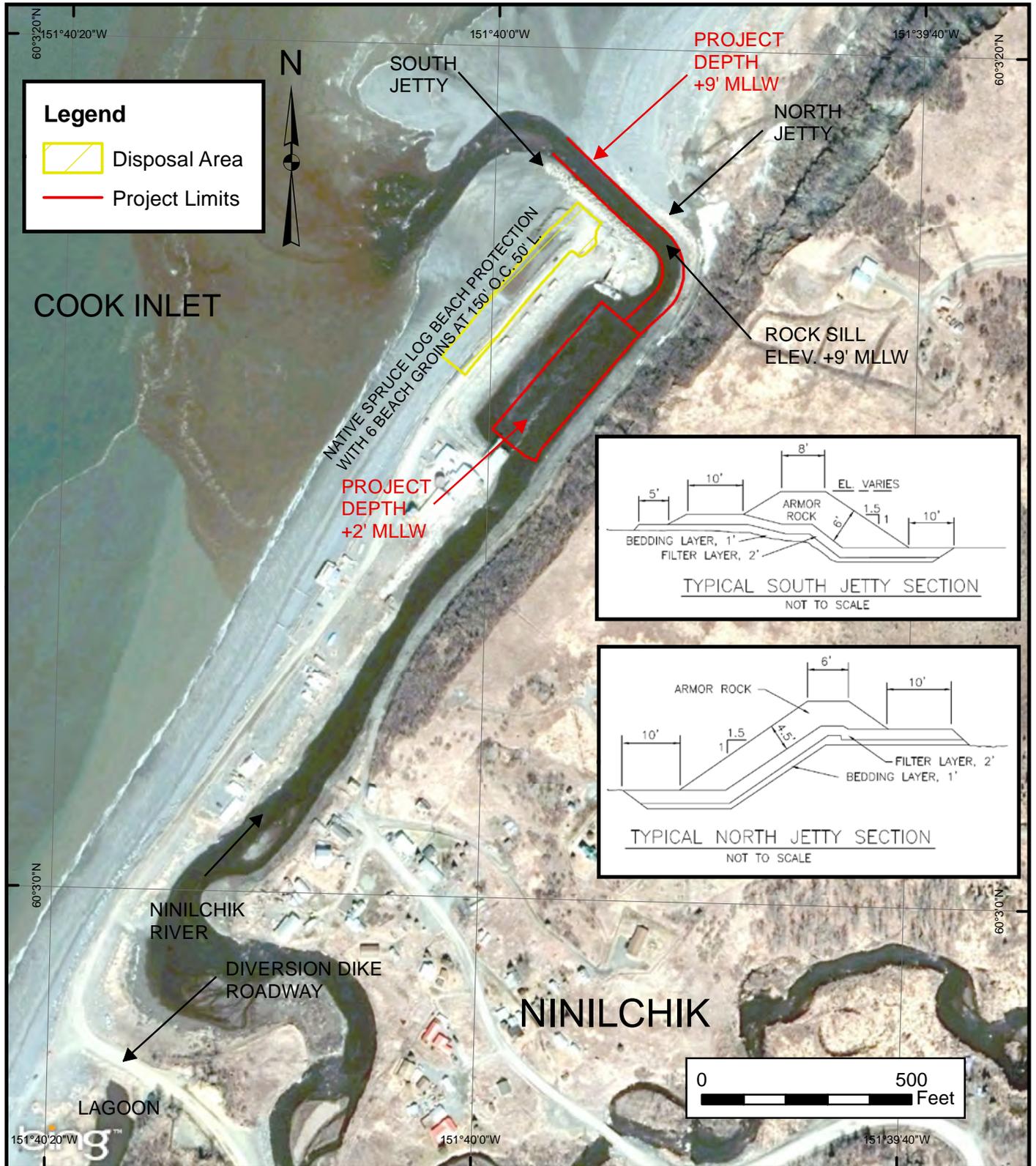


# Ninilchik Harbor



**NINILCHIK HARBOR ALASKA**

**09 JANUARY 2014**

**NOTES:**  
1. THIS LOCALITY IS SHOWN ON NOAA CHART NOS. 16661, 16640, AND 500.

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Condition of Improvements  
 30 December 2014  
**Ninilchik Harbor, Alaska**  
 (CWIS No. 012640, 087345)

**Authorization** Rivers and Harbors Act, 3 July 1958 (P.L. 85-500 House Doc. 34, 85<sup>th</sup> Congress, 1<sup>st</sup> Session) as adopted, provides for a small boat basin 320 feet long by 150 feet wide to a depth of 2 feet above MLLW, an approach channel 400 feet in length and 50 feet wide to a depth of 9 feet above MLLW, and protected by a pile jetty 410 feet long.

**Table 1**

<b>Existing Project</b>	<b>Length (max)</b>	<b>Width (max)</b>	<b>Depth ft.</b>
Entrance Channel	575	50	+9
Basin	400	120	+2
North Jetty	240		
South Jetty	240		

**Project Usage** The small boat basin provides protected moorage with half-tide access for 32 vessels. The basin and channel also provide access for fishing boats to unload their catch and take on supplies. The basin is an important harbor of refuge for lower Cook Inlet.

**Progress of Work**

1960	A hydrographic survey and subsurface investigation are carried out in November.
1961	During the design stage the pile jetty is deleted and the harbor dimensions are revised to 125'x 400'. Dredging and the placement of slope protection are completed in November.
1963	The upstream sill is repaired, the entrance channel is realigned, and 20,780 cubic yards are removed from the basin and entrance channel by October.
1966	Emergency work in June consists of the construction of a timber groin on the south side of the channel and realignment of the entrance channel.
1967	A rehabilitation contract is initiated in May and completed in September to include: dredging to project depth, placement of slope protection, construction of two jetties, river diversion, and timber crib beach protection.
1968	Maintenance dredging of the entrance channel is accomplished in May and June.

## Progress of Work

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- 1969 Emergency work is initiated in April to prevent erosion of the adjacent bluff. The entrance channel is dredged to project depth in May with the removal of 16,000 cubic yards of material. The basin is dredged in October to 0 feet MLLW by removing 11,000 cubic yards of material. A river diversion contract is carried out upstream in October and November. Sedimentation studies continue.
- 1970 Emergency dredging in the southeast corner of the basin is carried out in June. Beach erosion protection is completed in August. Sedimentation studies continue.
- 1971 Emergency dredging is again conducted in June. (Maintenance dredging becomes an annual event.) Repair of beach protection begins in October.
- 1972 Annual maintenance dredging in May and June removes 12,000 cubic yards. Rehabilitation of beach protection is completed in June.
- 1974 A beach groin contract is completed in June in addition to the annual maintenance dredging.
- 1978 The log groin beach protection is removed and replaced with several types of experimental beach protection. Annual maintenance dredging is accomplished with the Corps owned pipeline suction dredge "WARREN GEORGE" beginning this year through 1988.
- 1992 Sampling and testing of bottom sediments is conducted.
- 1994 Littoral drift along the beach necessitates additional dredging of the entrance channel in June.
- 2003 Severe flooding in November 2002 necessitates a winter hydrographic survey in December. Maintenance dredging is performed by contract with 11,432 cubic yards removed in May.
- 2004 The normal annual maintenance dredging removes 9,856 cubic yards in May. Shoaling in the outer entrance channel necessitates minor emergency dredging later in the summer.
- 2005 The contractor removes 5,303 cubic yards in the annual maintenance dredging effort. No dredging is required in the entrance channel.
- 2006 Annual maintenance dredging removes 7,652 cubic yards from the federal project.
- 2007 The dredging contractor removes 9,000 cubic yards from the entrance and mooring basin.
- 2008 A pre-dredge survey was conducted in early May. Dredging removes 3,114 cubic yards from the inner harbor, 918 cubic from the outer entrance channel, and 134 cubic yards from the inner entrance channel. Thus, a total of 4,166 cubic yards was removed from Ninilchik. A post-dredge survey was conducted in late May.

## Progress of Work

2009	No annual maintenance dredging was performed in the inner harbor due to the absence of a pipeline dredge in the area. Approximately 2,000 cubic yards were removed from the entrance channel with a small dozer and stockpiled on the beach south of the harbor entrance for ADOT&PF for road maintenance.
2010	Maintenance dredging removed 13,996 cubic yards of material from the harbor basin and entrance channel. The harbor basin was hydraulically dredged and material in the entrance channel was removed with a dozer. A post-dredge survey revealed that project depth was not achieved in several areas. In late June, an extended dredging effort removed about 2,000 cubic yards in the entrance channel from the rock sill seaward.
2011	Hydraulic and mechanical dredging removed a total of 12,296 cubic yards from the harbor basin and entrance channel. A tidal datum update was conducted and submitted to NOAA for approval under the Comprehensive Evaluation of Project Datums (CEPD) compliance program.
2012	Hydraulic and mechanical dredging by Alaska Marine Excavating removed 7,510 cubic yards from the harbor basin and entrance channel. Disposal of material was on the beach site for beneficial uses.
2013	Annual maintenance dredging removed 13,163 cubic yards from the entrance channel and harbor basin.
2014	USACE Comprehensive Evaluation of Project Datums (CEPD) Compliance report completed and recorded in August. Annual maintenance dredging occurred in April removing 6,865 cubic yards and again in late June removing 2,250 cubic yards following reports of excessive entrance channel shoaling. The beach disposal site was expanded toward the southeast to assist with the harbor entrance road stabilization.

**Table 2 Cost to Date**

Project	Description	Cost \$
012640	O&M Appropriation	9,410,950
	O&M Costs	9,262,035
087345	CG Appropriation	838,245
	CG Costs	838,245

**Table 3 Range of Tides in feet**

Tide Station	Mean Range	Diurnal Range	Extreme Range
945 5653 Ninilchik AK	16.5	19.16	-

**Controlling Depth** As of April 2014, a depth of +12.7 feet MLLW controls in the entrance channel and +6.6 feet MLLW controls in the southeast corner of the harbor.

**Table 4 Dredged Quantities and Contract Costs**

<b>Year</b>	<b>Quantity (cubic yards)</b>	<b>Cost \$</b>
2008	5,600	161,900
2009	2,000	72,720
2010	13,996	77,206
2011	8,842	205,538
2012	7,510	171,070
2013	13,163	216,263
2014	9,113	357,739

## **Maintenance Dredging Supplement**

### **A. General**

1. Ninilchik small boat harbor is an annual dredging project; Homer harbor is awarded under the same contract.
2. Shoaling is most prevalent in the boat basin and outer entrance channel, which is subject to littoral drift and major change from storm events.
3. The dredging window runs from 1 December to 15 May, usually commencing with ice out and ending as soon as possible to avoid conflicts with the in-coming salmon run.
4. The basin area is dredged from a floating plant with a hydraulic cutterhead, and the effluent conveyed by suction pipeline to an upland or low intertidal site. The outer entrance channel seaward of the rock sill, is maintained by bulldozing the material out and into the disposal site.

### **B. Sampling & Testing**

1. Four sites were sampled, two within the Federal project, in April 1992. The entrance channel site sample and the upland disposal composite sample were both classed as poorly graded sand with gravel (SP). The small boat harbor sample was classified as silt (ML).
2. Chemical analysis was conducted using (6) test methods as outlined with results below

**Table 5 Chemical Testing**

<b>Method</b>	<b>Chemical analysis</b>	<b>Results</b>
160.3 mod.	Total Solids	45.1 - 96.9 %
415.1 mod.	Total Organic Carbon	0.36 - 2.63 %
Series 6000-7000's	(8) RCRA Metals*	Arsenic 3 - 16 ppm; Barium 26 - 152 ppm; Chromium 16 - 39 ppm
3540/8080	Pesticides and PCB's	(5) traces < 0.04 ppm detected from harbor sample, all below threshold
8240	Volatile Organics	all below minimum thresholds or ND
8270	Semi-volatile Organics	TIC's 1.3 - 66.3 ppm, unknown hydrocarbons predominate

*\*(3) of (8) detected with ranges shown; all below minimum management levels.*

**C. Disposal**

1. Sediments are conveyed via suction pipeline from the basin to enrich the beach north of the project or may be contained for use on local roadways. Material bulldozed from the entrance channel is placed in the disposal site.
2. The traditional disposal site is located a minimum of 350 feet north of the project and below the +10 foot MLLW tide level (60°03'24"N lat. & 151°39'40"W long.). Material dredged during the 1995 through 2002 seasons was contained on the upper beach seaward of the project (center, 60°03'16.38"N & 151°39'51.23"W) and removed for use on road construction.
3. Arrangements were made with ADOT for their continued use of the dredged material temporarily stock-piled at the upper beach site.

**D. Environmental Permits and Reports**

1. A Final Environmental Impact Statement (FEIS) for operation and maintenance was circulated in December 1973. Environmental Assessments for maintenance dredging were completed in April 1976, January 1978, and most recently in March 1996 by the Corps of Engineers. Findings of No Significant Impact (FONSI's) for maintenance dredging were signed in April 1980, February 1987, and most recently in April 1996. The Corps of Engineers also prepared a Disposal Management/Monitoring Plan (DMMP) and Beneficial Uses of Dredged Materials report at the time of the 1996 EA/FONSI.
2. The following permits or authorizations have been issued for current dredging operations:

**Table 6 Environmental Permits**

<b>Agency Name</b>	<b>Date of Issue</b>	<b>Date of Expiration</b>
AK Department of Environmental Conservation	January 9, 2013	January 9, 2018
AK Department of Transportation and Public Facilities	April 21, 1997	n/a
Kenai River Center	December 20, 2012	December 20, 2013
AK Department of Fish and Game	December 13, 2012	December 31, 2016

3. The Ninilchik project is located within the State of Alaska Clam Gulch Critical Habitat Area; therefore, agency project review and project monitoring are essential and continually necessary.
4. Water Quality: Five physical parameters were measured through the water column at the boat basin site, April 1992; temperature, pH, oxidation-reduction potential, conductivity, and salinity were recorded in the field at three depths. No chemical analysis was conducted.

# Ninilchik Harbor, Ninilchik, Alaska



Entrance to Ninilchik Harbor, 2013.



Dredging operation in Ninilchik Harbor, 8 May 2013.