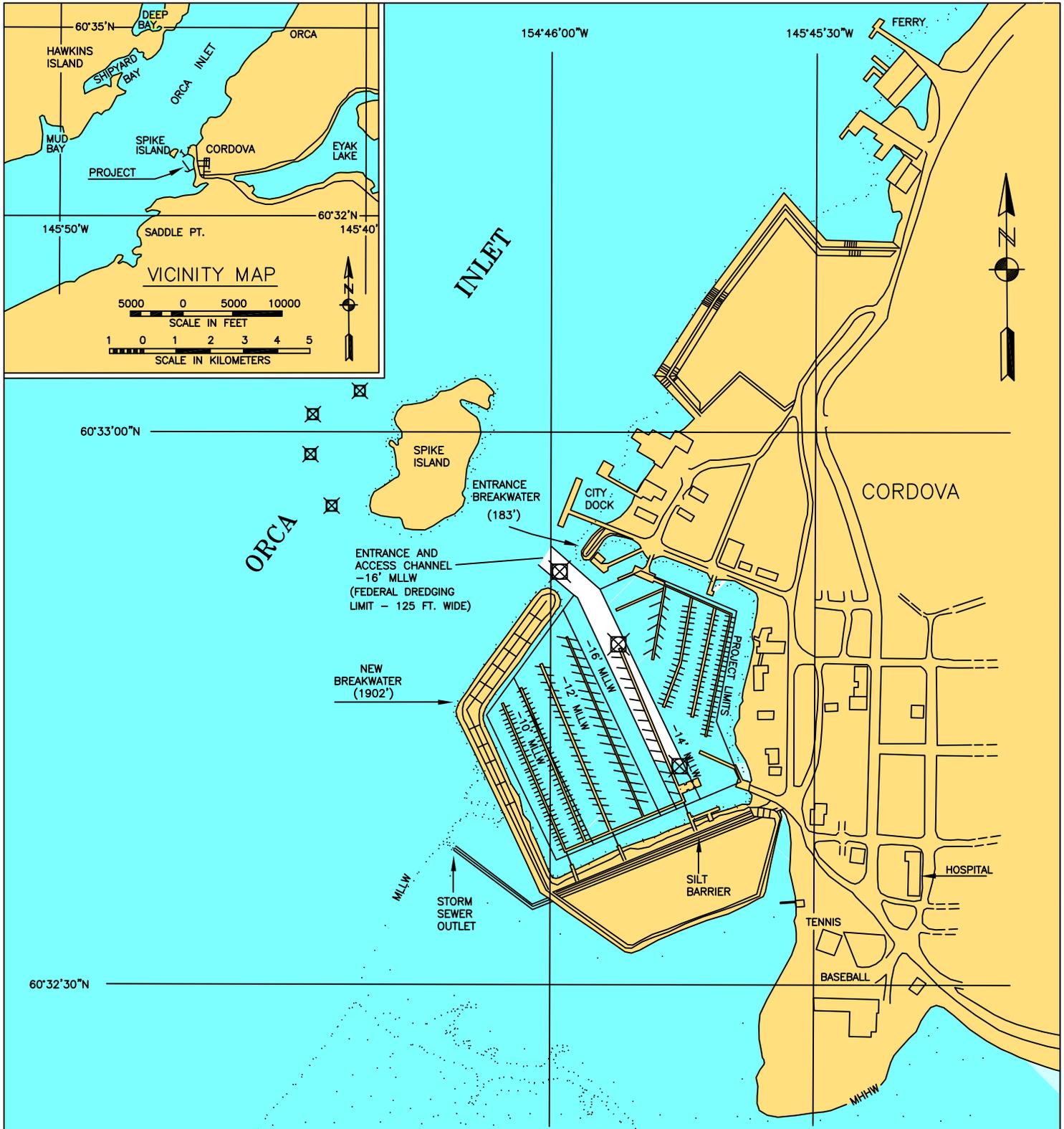


Cordova Harbor



NOTES:

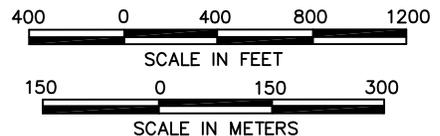
1. THIS LOCALITY IS SHOWN ON USC & GS CHARTS Nos. 16710, 16709, 16700 & 16013.
2. ELEVATIONS AND DEPTHS ARE IN FEET AND REFER TO MEAN LOWER LOW WATER (M.L.L.W.=0.0').

LEGEND

- BOTTOM SAMPLE LOCATION
- COMPOSITE SAMPLE LOCATION (4 SHOWN)

CORDOVA HARBOR
ALASKA

REVISED 2011



Condition of Improvements
 30 December 2014
Cordova Harbor, Alaska
 (CWIS No. 087136, 087186, 087711)

Authorization Rivers and Harbors Act, 30 August 1935 (R & H Committee Doc. 33, 73rd Congress, 2nd Session) as adopted, provides for a sheltered small boat harbor of 8.26 acres with a depth of -10 feet MLLW protected by north and south breakwaters of 1,100 feet and 1,400 feet respectively, with provision for a future expansion of 10.4 acres to -14 feet MLLW.

Table 1

Existing Project	Length (max)	Width (max)	Depth ft.
Entrance & Access Channel	1750 ft	125 ft	-16
Entrance Breakwater	183 ft		
Western Breakwater	1902 ft		
Silt Barrier (contained)	1450ft	650 ft	
Mooring Basin (maintained by others)	19.55 acres	19.55 acres	Varies

Project Usage Cordova is a community on Prince William Sound in the Gulf of Alaska. The project is used as a base of operations for commercial fishing and provides moorage for 727 vessels, making it one of Alaska’s largest single-basin harbors. Seaplane moorage is also available. The Cordova canning season is one of the longest and most diversified in the state. In 2011, nearly 400 residents held commercial fishing permits and nearly half of all households had someone working in the industry.

Progress of Work

1938	The original basin and breakwaters are completed in October of this year.
1951	Maintenance dredging is accomplished to a depth of -12 feet MLLW.
1962	Dredging to -12 feet from September October removes 41,347 cubic yards of material from the harbor.
1964	The area is uplifted 6.2 feet by the 27 March 1964 earthquake causing major damage to the project. Restoration work begins in June. Basin expansion is approved on 19 August 1964 and begins in November.
1965	Restoration and expansion phases are completed in June.

Progress of Work

1966	Contract for construction of the 183 foot entrance breakwater is awarded in September and completed in October.
1968	13,170 cubic yards of material are dredged in February.
1970	A shoal at the entrance channel is dredged to -15 feet MLLW.
1972	The entrance channel and basin are dredged from September to October with 13,646 cubic yards removed.
1977	Maintenance dredging removes 11,313 cubic yards from September to October.
1981	Under the River and Harbor Act of 14 July 1960, Section 107, P.L. 86-645, authorized by the Chief of Engineers, 29 June 1978, harbor expansion is approved to 20 acres by the removal of the 1,400 foot breakwater, the construction of a 2,000 foot breakwater, and an increased depth for the entrance and access channel to -16 feet MLLW.
1983	Harbor expansion contract is successfully completed.
1985	A condition survey is conducted in April and May.
1988	The entrance channel and portion of the basin are surveyed in September.
1991	Sampling and testing is carried out followed by maintenance dredging in December 1991 with 3,900 cubic yards removed from the Federal project.
1994	A project condition survey of the entrance channel is conducted in June.
1997	The entrance channel, basins, and breakwaters are surveyed in June.
2000	A condition survey of the harbor is completed in June.
2002	Vertical aerial photography is obtained of the harbor in June.
2003	A condition survey of the harbor is conducted in June.
2006	A condition survey is completed in May. E&D begins for a new maintenance dredging contract to be awarded in 2008. Contaminated sediments found in both the entrance channel and maneuvering area require upland disposal.
2008	A Department of the Army permit authorizing the construction of a breakwater extension and to raise the height of the north breakwater is issued.
2009	Maintenance dredging of the small boat basin from September to November removed 33,206 cubic yards of material. Contaminated material was disposed at the city landfill and non-contaminated material was disposed using the in-water site.
2010	A Project Condition Survey was conducted in June.
2014	A Project Condition Survey was conducted in May.

Table 2 Cost to Date

Project	Description	Cost \$
87136	O&M Appropriation	2,516,670
	O&M Costs	2,513,716
	O&M ARRA Appropriation	1,221,613
	O&M ARRA Costs	1,221,613

Project	Description	Cost \$
87186	CG Appropriation	10,341,656
	CG Costs	10,341,656
	CG Contributed Appropriation	4,811,891
	CG Contributed Costs	4,811,891
	Rehab Appropriation	675,000
	Rehab Costs	675,000

Table 3 Range of Tides in feet

Tide Station	Mean Range	Diurnal Range	Extreme Range
945 4050 Cordova AK	10.17	12.59	22.36

Controlling Depth A depth of -15.7 feet MLLW controls along the centerline at the mouth of the entrance channel; a depth of -9.0 feet MLLW controls along the northern toe of fill/rock placed near the channel. Depths along the transient float are adequate with some soundings directly beneath the float above project depth. Nearly all the north basin (local) is above project depth and approximately half of the south basin (local) is above project depth. Conditions are based on the 2014 survey. Approximately 1-2 feet of shoaling has occurred throughout the entrance channel since the 2010 survey.

Maintenance Dredging Supplement

A. General

1. The Federal access and entrance channel requires dredging activity approximately every 12 years, as indicated by our records.
2. The harbor entrance is subject to shoaling activity, is within the Federal project, and thus requires periodic survey and ultimately dredging.
3. Sediments are typically removed with a clamshell and barge during the open dredging window from 8 September to 1 April.

B. Sampling & Testing

Seven samples (including a duplicate) were collected from six locations within the Federal project area in July 2006. A summary of the sampling activities is provided in the following table.

Table 5 Chemical Testing

Method	Chemical analysis	Results
SW846 8270C	Semi-Volatile Organic Compounds (SVOCs) – Low Level	0.97 to 19,000 ppb (35 analytes detected)
SW846 8260B	Volatile Organic Compounds (VOCs)	2.1 to 120 ppb (10 analytes detected)
AK-101	Gasoline Range Organics (GRO)	0.61 to 0.76 ppm
AK-102	Diesel Range Organics (DRO)	9.9 to 75 ppm
AK-103	Residual Range Organics (RRO)	20 to 68 ppm
SW846 8082	Polychlorinated Biphenyls (PCBs)	Non-Detected
SW846 8081A	Pesticides (PEST)	0.20 to 25 ppb
SW846 6010, 6020 or 7471	CLP Target Analyte Metals	23 Metals detected
EPA 160.4	Total Volatile Solids (TVS) [sediment only]	2.3 to 2.8 %
SW846 9060	Total Organic Carbon (TOC)	1.8 to 7.5 g/kg
EPA 350.3	Ammonia N	62 to 120 ppm
EPA 376.2	Sulfides	210 to 560 ppm
ASTM D422	Grain Size Distribution (Sediment Only)	7.1 to 11.8 % Sand 88.2to 92.9 % Silt/Clay

**See Cordova Harbor Report 2007 (06-059) for complete analytical data*

C. Disposal

1. Dredged material is transported by barge and tug to a deep water site, dumped, and dispersed by tidal activity.
2. A rectangular site is located approximately 500 yards west of Spike Island. Corners have the following geographic coordinates:

Table 6 Disposal Area

Corner	Latitude (N)	Longitude (W)
24	60°33'04.7"	145°46'37.5"
25	60°33'03.0"	145°46'30.3"
26	60°32'55.9"	145°46'46.2"
27	60°32'54.1"	145°46'39.0"

3. The previous disposal site has met the approval of various agencies; other options may be available for future operations.

D. Environmental Permits and Reports

1. The most recent Environmental Assessment (EA) was completed by the Corps in February 2008 for maintenance dredging that was conducted the following year. An EA was also completed by the Corps in July 1991. A Final Environmental Impact Statement (FEIS) was previously circulated in 1979 for harbor expansion. A Finding of No Significant Impact (FONSI) was signed in May 2008 and September 1991 for the most recent maintenance dredging events.
2. The following permits or authorizations are listed by agency below:

Table 7 Environmental Permits

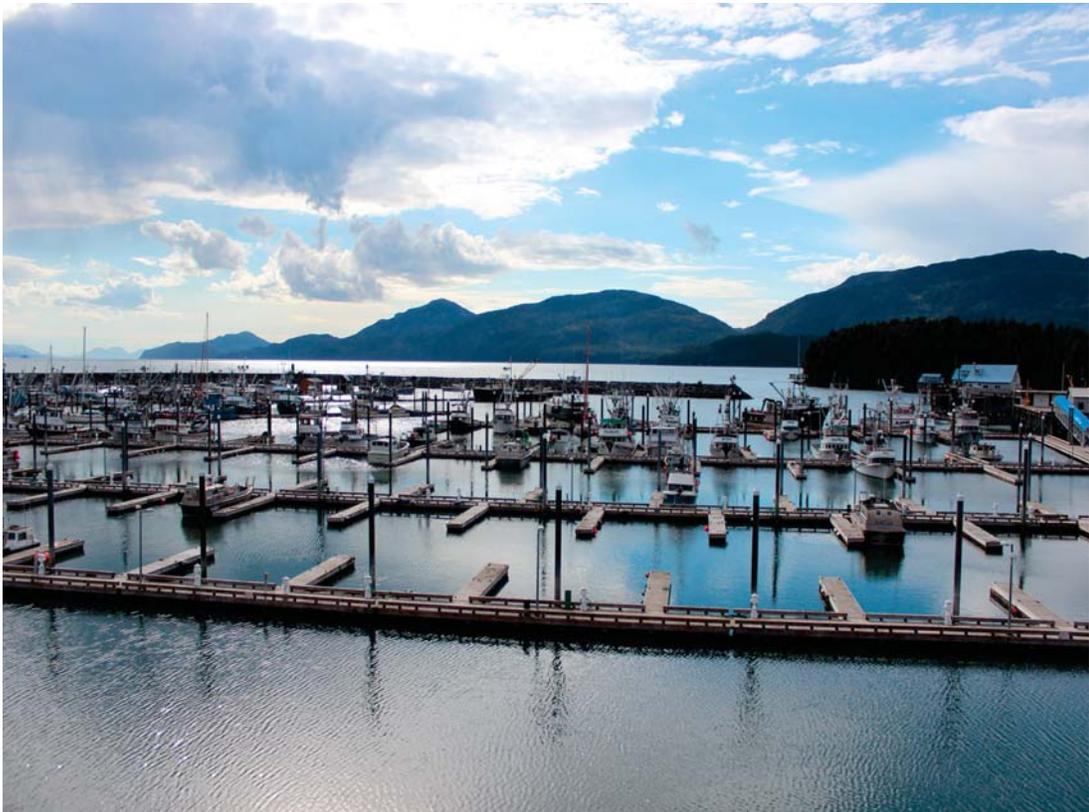
Agency Name	Date of Issue	Date of Expiration
US Fish and Wildlife Service	January 25, 2008	n/a
AK Department of Natural Resources (ACMP)	April 25, 2008	n/a
AK Department of Environmental Conservation	May 12, 2008	May 12, 2013
AK State Historic Preservation Office	February 14, 2008	n/a

3. Water Quality: Four physical parameters were measured through the water column at three locations in the federal project and one location at the disposal site, May 1991; temperature, pH, oxidation reduction potential (ORP), and conductivity were measured in the field. No chemical analysis was conducted.

Cordova Small Boat Harbor, Cordova, Alaska



Aerial of the Cordova Small Boat Harbor, April 2014.



Cordova Small Boat Harbor, 20 May 2014.

Cordova Small Boat Harbor, Cordova, Alaska



View of the entrance breakwater extension in May, 2014.



Condition of the western breakwater during May, 2014.