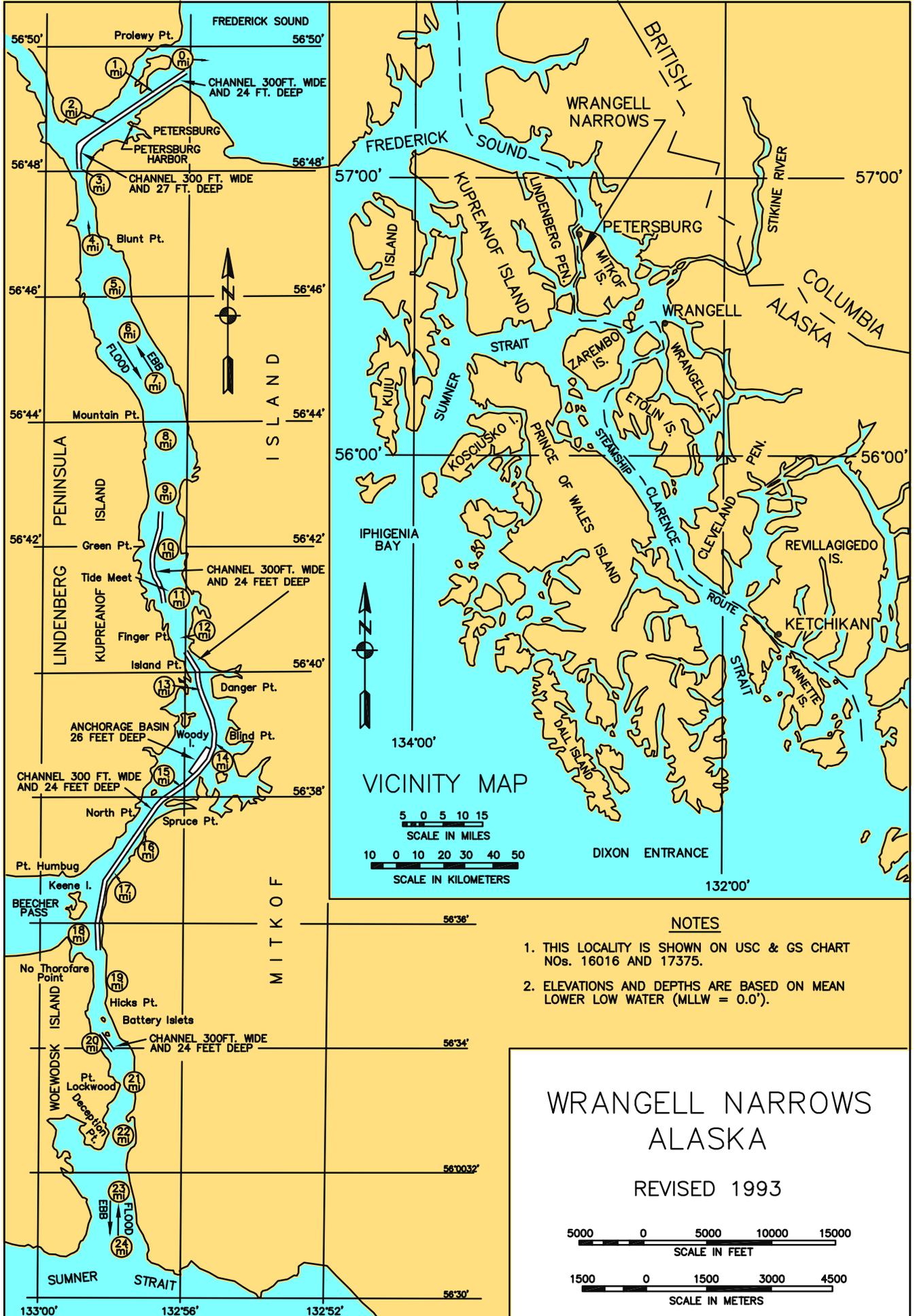


**WRANGELL  
NARROWS**



**WRANGELL NARROWS, ALASKA**  
(CWIS NOS. 72852, 87687, & 65015)

Condition of Improvement 30 September 2011

**AUTHORIZATION:** (1) Rivers and Harbors Act, 3 March 1925 (House Doc. 179, 67th Congress, 2nd Session) as adopted, provides for a channel 200 feet wide at 21 feet below MLLW with increased depth in rock at shoal 1 (in the vicinity of Mile 0.0) and 27 feet below MLLW at shoal 2 (in the vicinity of Mile 2.5, Turn Point). (2) Rivers and Harbors Act, 30 August 1935 (House Doc. 647, 71st Congress, 3rd Session) as adopted, provides for enlargement of the channel at shoal 1 to 300 feet wide by 24 feet deep, for the easing of alignment curves, and for the removal of rock pinnacles. (3) Rivers and Harbors Act, 2 March 1945 (House Doc. 260, 76th Congress, 1st Session) as adopted, provides for a channel 300 feet wide at 24 feet below MLLW, with improvement of the existing alignment, and an anchorage basin 200 yards wide by 500 yards long at a depth of 26 feet below MLLW in the vicinity of mile 14.

<b>EXISTING PROJECT:</b>	<u>LENGTH</u>	<u>DEPTH</u>	<u>WIDTH</u>
• Channel (total section) . . . . .	24 miles	-24 ft	300 ft
• Turn Point channel section . . . . .	4850 ft	-27 ft	Varies
• Anchorage Basin . . . . .	3020 ft (max)	-26 ft	600 ft (max)

**PROJECT USAGE:** The major portion of all commerce through Southeast Alaska passes through this channel which provides a safe alternative to 90 miles of hazardous seas. The anchorage basin in the vicinity of Anchor Point (Mile 14) is used as a holding area when waiting for fog to clear.

**PROGRESS OF WORK:**

- 1934 - The original project is completed to the dimensions specified.
- 1951 - Work to increase the channel to 300 feet wide by 24 feet deep with improved alignment is completed in June.
- 1963 - Construction begins on the anchorage basin in the vicinity of mile 14 in April and is completed in May.
- 1971 - Maintenance dredging is conducted throughout the channel in September and October with 56,890 cubic yards removed by contract.
- 1979 - The Turn Point vicinity near Petersburg is dredged in May and June with 36,900 cubic yards reportedly removed. A hydro-survey of the entire channel in July indicates that project depth is available throughout.
- 1988 - Two large boulders are removed from the channel in the vicinity of Green Rock (mile 12.5-13).
- 1989 - The Corps' owned dredge YAQUINA conducts dredging operations throughout the narrows' shoals.
- 1990 - A condition survey is conducted near Burnt Island (mile 17) after a tanker ran aground; project depth is available within the Federal limits.
- 1991 - The most recent survey of the channel from miles 9 to 11 (Green Pt. to Finger Pt.) is performed in August.
- 1992 - The channel is surveyed in the vicinity of the Battery Islets (mile 20) in February.

Continues on page 1-53a

- 1993 - A survey of the channel from Frederick Sound through Turn Point (mile 0.0-4.7) is conducted in May.
- 1994 - A condition survey is conducted from mile 12.2 to 18.4 in April. Sampling and testing is completed for the entire project.
- 1995 - Dredging is conducted under contract for two areas from Frederick Sound through Turn Point with a payable quantity of 41,000 cubic yards removed from the project.
- 1997 - Three stretches of the narrows are surveyed with multi-beam equipment in the vicinity of miles 13, 15, and 20.
- 1998 - A multi-beam survey is conducted in the vicinity of mile 9.5 and from mile 12.2 to 18.4 (buoy 42 to buoy 8) to provide full swath coverage of the bottom.
- 1999 - A single beam survey is performed from mile 0.0 at Frederick Sound through Turn Point to mile 3.0.
- 2000 - Maintenance dredging begins at selected locations from Mile 12.2 to 18.4 and at the Battery Islets near Mile 20.
- 2001 - Maintenance dredging is completed in March. The total payable quantity removed is 33,939 cubic yards.
- 2003 - Mile 0.0 at Frederick Sound through Mile 3.0 at Turn Point, and Mile 20 are surveyed in March. Thirty day tide stations are set up near Miles 12, 15, 18, and 20 to establish new tidal bench marks for this portion of the narrows.
- 2008 - A project condition survey was conducted in April-May.
- 2011 - A project condition survey was conducted in August and September of the 24 mile length.

**COST TO DATE:**

CG Appropriations 87687	\$3,570,343
CG Costs 87687	\$3,570,343
O&M Appropriations 72852	\$6,815,579
O&M Costs 72852	\$6,815,579
O&M Appropriations 65015	\$2,522,928
O&M Costs 65015	\$2,522,928

**RANGE OF TIDE:**

	<u>Mean Range</u>	<u>Diurnal Range</u>	<u>Extreme Range</u>
Petersburg	13.8'	15.7'	25.0'
Finger Pt.	14.2'	16.7'	25.0'
Pt. Lockwood	13.1'	15.7'	24.0'

**CONTROLLING DEPTH:** In the Turn Point Channel Section, a depth of -17.8 feet MLLW controls. For miles 0-3 within the -24 feet project depth, -14.0 feet MLLW controls near obstruction 11. A controlling depth of -21.2' MLLW is reported near Mile 1.5 (from Frederick Sound) in March 2003, and -23.5' MLLW was found near Mile 9.5 in November 1997; a depth of -23.5' controls from buoy 42 to buoy 8 along the centerline at Buoy 36 near Mile 13.0, April 2001. A controlling depth of -21.7' was found at Mile 20 (Battery Islets) in March 2003. About mile 0.75 controlling depth is -15.3 and around mile 16 the controlling depth is -20.8 recorded in the 2008 survey.

**MAINTENANCE DREDGING SUPPLEMENT:****A. General**

1. Maintenance dredging of shoals through the entire channel was conducted in 1971 and 1989. The Turn Point vicinity required additional dredging in 1979 and 1995. Hydro-survey of some portion of the channel is conducted almost annually as per the schedule or because of vessel groundings. Isolated boulders have been known to obstruct the channel.
2. The Turn Point vicinity near Petersburg has historically experienced the greatest shoaling. Other narrow portions of the channel (see map) are also subject to shoaling along the limits.
3. The dredging window runs from 1 July through 31 March; blasting has been permitted from 16 September through 31 March.
4. The YAQUINA, a large trailing arm suction hopper dredge, was used to dredge the entire project in 1989. More localized dredging is usually carried out with a clamshell and barge.

**B. Sampling & Testing**

1. Sixteen (16) sites were sampled over the length of the narrows, March 1994. Sediment classifications (as per ASTM D-2487) ranged from silty sand (SM) to poorly graded gravel (GP) with various combinations of silt, sand, and gravel in between.
2. Chemical analysis was performed using (6) test methods as outlined with results below:

Method 8260	Volatile Organic Compounds	ND or below management levels
Method 8270	Semivolatile Organics	ND or below management levels
Method 8080	Pesticides and PCB's	none detected (ND)
Series 6000-7000's	(8) RCRA Metals	(4) of (8) detected, all well below management levels
Method 415.1	Total Organic Carbon	0.25 - 2.31 %
Method 160.3	Percent Solids	52.1 - 91.3 %

**C. Disposal**

1. Material is transported by barge or hopper to a deep water site in Frederick Sound or Sumner Strait for disposal.
2. The Frederick Sound disposal site is described by the following geographic corner coordinates: (1) 56°49'42.50"N 132°55'24.87"W, (2) 56°49'51.51"N 132°54'45.02"W, (3) 56°49'39.31"N 132°54'35.84"W, and (4) 56°49'30.30"E 132°55'15.69"W. The site encompasses a rectangular area 1,339 by 2,398 feet. A site needs to be selected for Sumner Strait when dredging again becomes necessary at this end of the narrows.
3. Deep water disposal, outside the confines of the narrows, has been the option of choice for dredge spoils.

**D. Environmental Permits and Reports**

1. Environmental Assessments were completed by the Corps for the Turn Point vicinity in October 1978 and March 1995. A Final Chemical Data Report was prepared by the Corps in June 1994 for the entire project.

2. The following permits or authorizations are listed by agency below:

<u>Agency Name</u>	<u>Date of Issue</u>	<u>Date of Expiration</u>
ADGC	31 May 95	N/A
ADF&G	31 May 95	N/A
ADEC	8 May 95	N/A
USFWS	3 Apr 95	N/A

Future dredging endeavors will require full agency participation.

3. Water Quality: Six physical parameters were measured at four sites through the water column, March 1994; temperature, pH, dissolved oxygen, conductivity, salinity, and turbidity. Additionally, field measurements were taken at two other sites but without recording salinity and turbidity. No chemical analysis was conducted.

## Wrangell Narrows, Alaska



Frederick Sound, Petersburg, & Turn Point at the north end of the Narrows, 2005.



Northerly view, looking at the mid-section of the Narrows, 2005.

## Wrangell Narrows, Alaska



Aerial view from mile 9 looking to the north.



Fixed channel marker in the Narrows.

## Wrangell Narrows, Alaska



Wrangell Narrows, view from south end looking north, 29 April 2005.