

1 2000000 FT. S. ZONE Wash.
 1 2000000 FT. S. ZONE Wash.
 1 2400000 FT. S. ZONE Wash.
 1 2000000 FT. S. ZONE Wash.
 1 2000000 FT. S. ZONE Wash.
 1 2400000 FT. S. ZONE Wash.
 1 2000000 FT. S. ZONE Wash.
 1 2000000 FT. S. ZONE Wash.
 1 2400000 FT. S. ZONE Wash.
 1 2000000 FT. S. ZONE Wash.

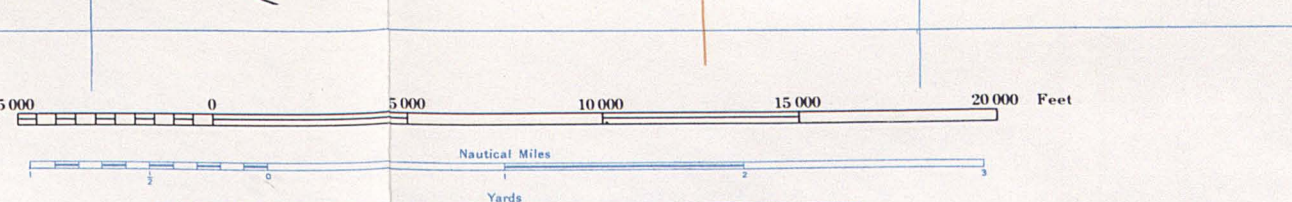
1 MIDWAY (USE)
 2 MIDWAY TREE (USE)
 3 BURNER TREE LIGHT (1936)
 4 SAND (USE)
 5 LOCODA SCHOOL FLAGPOLE
 6 OPEN (USE)
 7 PEPPERHAY STILL, STACK
 8 POINT (USE)
 9 ABERNATHY PT LIGHT (1936)
 10 H & S FISH HOUSE, FLAGPOLE
 11 EAGLE CLIFF
 12 COWITZ WARKAMUM COUNTRIES BOY POST (1936)
 13 COWITZ HARKAMUM COUNTRIES BOY POST (1936)
 14 EUREKA DIKE UPPER LIGHT (1936)
 15 EUREKA BAR DIKE UPPER LIGHT (1936)
 16 HOTCHKISS DIKE LIGHT (1950)
 17 HODGKINS FISH HOUSE, N. GABLE
 18 WALLACE ISLAND LIGHT (1950)
 19 WALLACE ISLAND LIGHT (1950)
 20 MIKE (USE)
 21 HAFODDS HOUSE, CHIMNEY
 22 G HAMES HOUSE, CHIMNEY
 23 EUREKA LIGHT (1950)
 24 EUREKA BAR LOWER DIKE LIGHT (1936)
 25 EUREKA LOWER DIKE LIGHT (1950)
 26 EUREKA BAR DIKE LOWER LIGHT (1936)
 27 EUREKA DIKE LOWER LIGHT (1950)
 28 DIKE 42.5, DOLPHIN, E. END (1936)
 29 DIKE 62.5, DOLPHIN, S. END (1936)
 30 COOPER PT LIGHT (1936)
 31 COOPER (USE)
 32 WATERFORD LIGHT (1936)
 33 J (USE)
 34 FEAT TREE (USE)
 35 CATHLAMET CHANNEL DIKE N. END LIGHT (1936)
 36 DIKE 66.4, DOLPHIN, S. END (1936)
 37 DIKE 66.4, DOLPHIN, N. END (1936)
 38 CATHLAMET CHANNEL DIKE S. END LIGHT (1936)
 39 DIKE 67.2, DOLPHIN, N. END (1936)
 40 DIKE 67.2, DOLPHIN, N. END (1936)
 41 WESTPORT BAR DIKE 2 LIGHT (1936)
 42 CATHLAMET CHANNEL S. LIGHT (1936)
 43 WESTPORT LUMBER CO., STACK (1936)
 44 WESTPORT LUMBER CO., TANK (1936)
 45 WESTPORT BAR FRONT RANGE LIGHT (1936)
 46 WESTPORT BAR REAR RANGE LIGHT (1936)
 47 WAUNA BAR REAR RANGE LIGHT (1936)
 48 MOUTH
 49 WAUNA LIGHT (1936)
 50 PANCAKE BAR DIKE, WEST END LIGHT (1936)
 51 SUNNY SANDS
 52 SLIDE ON SIDE OF MOUNTAIN
 53 DIKE 70.8, DOLPHIN, EAST END (1936)
 54 WAUNA CHANNEL UPPER DIKE LIGHT (1936)
 55 WAUNA CHANNEL LOWER DIKE LIGHT (1936)
 56 WAUNA CHANNEL LOWER DIKE LIGHT (1936)

57 WAUNA, YELLOW TANK
 58 DEAD TREE ON TOP OF CLIFF
 59 DEAD TREE ON SIDE OF MOUNTAIN
 60 DEAD TREE
 61 WAUNA CHANNEL LIGHT (1936)
 62 BUGBY HOLE ECC
 63 CABLE (USE)
 64 TACK
 65 CAT
 66 POINT BASALT
 67 BIRNIES HOUSE, NW GABLE
 68 CATHLAMET, ST. CATERINES CHURCH, CROSS
 69 CATHLAMET LIGHT (1936)
 70 CROWN-WILAMETTE WOOD MILL, STACK
 71 CROWN-WILAMETTE WOOD MILL, TANK
 72 HUNTING ISLAND, W. LIGHT TOWER (1936)
 73 BRADLEY WOODWARD LUMBER CO., N. STACK
 74 DIKE 71.2, DOLPHIN, EAST END (1936)
 75 WAUNA CHANNEL LOWER DIKE LIGHT (1936)
 76 CLIFTON DIKE, NORTH END LIGHT (1936)
 77 DIKE 75.0, DOLPHIN, WEST END (1936)
 78 PUGET
 79 CATHNEY HOUSE, S. END OF TENASILLHEE ISLAND
 80 HINSH (USE)
 81 FISH HOUSE, STACK
 82 WELCH ISLAND, OLD FISH HOUSE, RIVER GABLE
 83 WELCH ISLAND, NEW FISH HOUSE, RIVER GABLE
 84 RASPBERRY (USE)
 85 THREE TREE PT LIGHT
 86 SPAR TREE
 87 MORE WESTLY OF TWO TREES
 88 THREE TREE POINT LIGHT (1935)
 89 PILLAR HILL TREE
 90 ROCK CRUISER, RIVER GABLE
 91 BUCKSHED CANNERY
 92 PILLAR HILL TREE
 93 THREE TREE BAR BEACON (1935)
 94 WOODLY ISLAND FISHHOUSE, RIVER GABLE
 95 JIM CROW (USE)
 96 OLD JIM CROW (USE)
 97 JIM CROW PT LIGHT (1935)
 98 WOODLY ISLAND, SNAO TREE
 99 CHANNEL
 100 FISH HOUSE, STACK
 101 HORSBOW ISLAND, RED BARN, NE GABLE
 102 WHITE WATER TANK
 103 PILLAR ROCK CHANNEL RANGE REAR LIGHT (1913)
 104 WELCH ISLAND, OLD FISH HOUSE, RIVER GABLE
 105 PILLAR ROCK CHANNEL RANGE FRONT LIGHT (1913)
 106 PILLAR ROCK
 107 PILLAR ROCK LIGHT (1935)
 108 PILLAR ROCK CHANNEL LIGHT II (1935)
 109 ELIOTT CANNERY, FLAGPOLE (PILLAR ROCK CANNERY)
 110 ELIOTT SCHOOL FLAGPOLE
 111 ROCKY PT
 112 ELIOTT LIGHT
 113 ELIOTT PT LIGHT (1913)
 114 PILLAR ROCK, DOLPHIN (1935)
 115 PILLAR ROCK CHANNEL LIGHT 2 (1935)
 116 FISHHOUSE, W. BARREL
 117 LEARNING STACK ON FISHHOUSE
 118 SNAO ISLAND, FISH STATION NW GABLE
 119 SNAO ISLAND, FISH STATION NE GABLE
 120 CHANNEL
 121 MARSH ISLAND LIGHT (1950)
 122 NORTH ISLAND DOLPHIN (1950)
 123 RUST
 124 SETTLERS PT
 125 GREEN
 126 MILLER SANDS CHANNEL LIGHT (1947)
 127 MILLER SANDS CHANNEL LIGHT 8 (1950)
 128 PILLAR ROCK CHANNEL FRONT RANGE LIGHT (1913)
 129 MILLER SANDS FISH BARN, RIVER GABLE
 130 MILLER SANDS FISHHOUSE, FLAGPOLE
 131 ALTOONA CANNERY LIGHT ON END OF JETTY (1935)
 132 HARRINGTON POINT UPPER DIKE LIGHT (1950)
 133 MILLER SANDS UPPER RANGE FRONT LIGHT (1950)
 134 MILLER SANDS UPPER RANGE LIGHT (1950)
 135 MILLER SANDS UPPER RANGE PASSING LIGHT (1950)
 136 KLEENHAUSEN STORE, FLAGPOLE
 137 HARRINGTON PT REAR RANGE LIGHT (1935)
 138 HARRINGTON PT REAR RANGE LIGHT (1935)
 139 HARRINGTON PT RANGE REAR LIGHT (1935)
 140 MILLER SANDS UPPER RANGE REAR LIGHT (1950)
 141 HARRINGTON PT FRONT RANGE LIGHT (1935)
 142 PILLAR ROCK LOWER RANGE REAR LIGHT (1950)
 143 YELLOW BLUFF 2
 144 YELLOW BLUFF
 145 SNAO ISLAND BEACON
 146 HUNTING ISLAND REAR RANGE LIGHT (1935)

UNITED STATES - WEST COAST
 OREGON - WASHINGTON

COLUMBIA RIVER
 HARRINGTON POINT TO CRIMS ISLAND

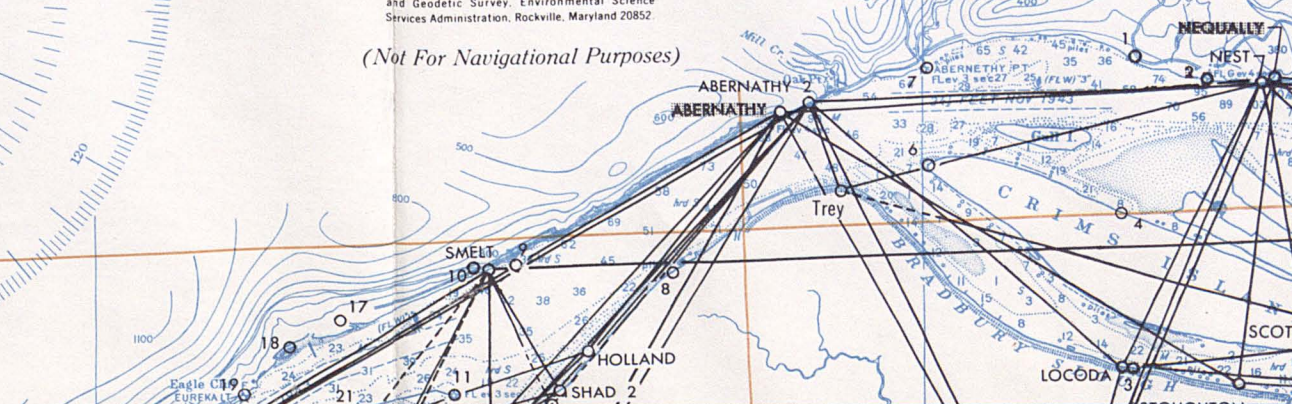
SOOUNDINGS IN FEET
 AT COLUMBIA RIVER MOUTH
 (NEAR LOWER LOW WATER SPRING LOWEST RIVER STAGE)



U.S. DEPARTMENT OF COMMERCE
 ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
 COAST AND GEODETIC SURVEY
 WASHINGTON, D. C.

TRIANGULATION DIAGRAM
 April 1970
 HORIZONTAL CONTROL

33 Monumented Point or Located Object
 See separate index for names of numbered stations
 Station reported not recovered
 Measured Base - Electronic or Taped
 Line of triangulation observed
 High sea and low
 Measured Length - Electronic
 Information may be obtained from the Coast and Geodetic Survey, Environmental Science Services Administration, Bethesda, Maryland 20802
 (Not For Navigational Purposes)



LOCAL MAGNETIC ATTRACTION
 Differences from the normal variation of 2° north or 2° south have been observed along the section of the Columbia River shown on this chart.

VAR 2230 E MAG
 ANNUAL DECREASE 2'

TIDES (relative to Columbia River Datum) Three Time Pt. settlement
 Mean diurnal range 6.8 ft. -2.0 ft. -1.5 ft. -1.5 ft.
 Lowest tide to be expected

ABBREVIATIONS
 Light: F, fixed; FL, flashing; Q, quick; L, occulting; S, occulting; V, occulting; C, occulting; G, occulting; W, occulting; B, occulting; R, occulting; H, occulting; M, occulting; N, occulting; O, occulting; P, occulting; Q, occulting; R, occulting; S, occulting; T, occulting; U, occulting; V, occulting; W, occulting; X, occulting; Y, occulting; Z, occulting.
 Buoy: C, can; M, can; S, spar; REF, reflector; Daymark: A, (circle, lamp and lantern on white pillar with red radiation); B, (circle, lamp and lantern on white pillar with red radiation); C, (circle, lamp and lantern on white pillar with red radiation); D, (circle, lamp and lantern on white pillar with red radiation); E, (circle, lamp and lantern on white pillar with red radiation); F, (circle, lamp and lantern on white pillar with red radiation); G, (circle, lamp and lantern on white pillar with red radiation); H, (circle, lamp and lantern on white pillar with red radiation); I, (circle, lamp and lantern on white pillar with red radiation); J, (circle, lamp and lantern on white pillar with red radiation); K, (circle, lamp and lantern on white pillar with red radiation); L, (circle, lamp and lantern on white pillar with red radiation); M, (circle, lamp and lantern on white pillar with red radiation); N, (circle, lamp and lantern on white pillar with red radiation); O, (circle, lamp and lantern on white pillar with red radiation); P, (circle, lamp and lantern on white pillar with red radiation); Q, (circle, lamp and lantern on white pillar with red radiation); R, (circle, lamp and lantern on white pillar with red radiation); S, (circle, lamp and lantern on white pillar with red radiation); T, (circle, lamp and lantern on white pillar with red radiation); U, (circle, lamp and lantern on white pillar with red radiation); V, (circle, lamp and lantern on white pillar with red radiation); W, (circle, lamp and lantern on white pillar with red radiation); X, (circle, lamp and lantern on white pillar with red radiation); Y, (circle, lamp and lantern on white pillar with red radiation); Z, (circle, lamp and lantern on white pillar with red radiation).

RIGHTS in feet above mean high water.
 AUTHORITY
 Survey to 1937
 Survey by U.S. Engineers in 1944.