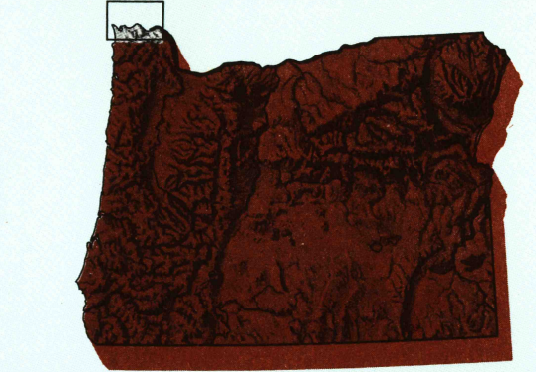


ASTORIA, OREGON—WASHINGTON

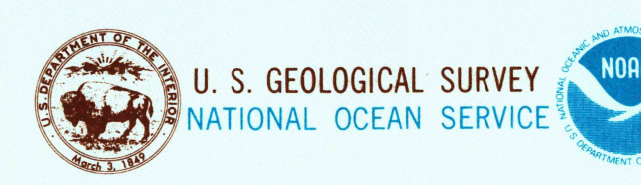
30X60 MINUTE SERIES (TOPOGRAPHIC—BATHYMETRIC)

Astoria OREGON—WASHINGTON

1:100 000-scale metric topographic—bathymetric map



- 30 X 60 MINUTE QUADRANGLE SHOWING
- Contours and elevations in meters
 - Highways, roads and other manmade structures
 - Water features
 - Woodland areas
 - Geographic names
 - Bathymetric contours in meters



1981

Produced by the United States Geological Survey and the National Ocean Service. Bathymetry compiled by the National Ocean Service from tide-coordinated hydrographic surveys. Mean lower low water (mllw) and mean high water (mhw) lines compiled by NOS from tide-coordinated aerial photographs. Reported shorelines (outer edge of vegetation) shown by light solid line. Projection and 10 000-meter grid, zone 18, Central Transverse Mercator 25 000-foot grid ticks based on Washington coordinate system, south zone and Oregon coordinate system, north zone.

To align on the geodetic North American Datum 1983 move the projection lines 28 meters north and 96 meters east. Bathymetry added 1989.

There may be private buildings within the boundaries of National or State reservations shown on this map.

CONTOUR INTERVAL 50 METERS
NATIONAL GEODETIC VERTICAL DATUM OF 1999
ELEVATIONS SHOWN TO THE NEAREST METER
BATHYMETRIC CONTOUR INTERVAL 10 METERS WITH SUPPLEMENTARY 2 METER CONTOURS. DATUM IS MEAN LOWER LOW WATER. THE RELATIONSHIP BETWEEN THE TWO DATUMS IS VARIABLE.

BATHYMETRIC SURVEY DATA COMPLES WITH INTERNATIONAL HYDROGRAPHIC ORGANIZATION (IHO) SPECIAL PUBLICATION 44 ACCURACY STANDARDS AND STANDARDS USED AS OF THE DATE OF THE SURVEY.

Meters	Feet
1	3.2808
2	6.5617
3	9.8425
4	13.1234
5	16.4042
6	19.6850
7	22.9659
8	26.2467
9	29.5275
10	32.8084

To convert meters to feet multiply by 3.2808
To convert feet to meters multiply by 0.3048

UTM grid convergence (GM) and 100' magnetic declination (MD) at center of map. Diagram is approximate.

ADJOINING MAPS	1	2	3
1	Westport		
2	Chehalis River		
3	Cowlitz		
4	Ilwaco		
5	Mc. St. Helens		
6			
7	Nahalem River		
8	Vancouver		

FOR SALE BY U.S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225, OR RESTON, VIRGINIA 20192
AND NATIONAL OCEAN SERVICE, ROCKVILLE, MARYLAND 20852

Topographic Map Symbols

- Primary highway, hard surface
- Secondary highway, hard surface
- Light duty road, principal street, hard or improved surface
- Other road or street, trail
- Road marker: interstate, U.S., State
- Railroad: standard gage; narrow gage
- Bridge: overpass; underpass
- Tunnel: road; railroad
- Built up area; locality; elevation
- Airport: landing field; landing strip
- National boundary
- State boundary
- County boundary
- National or State reservation boundary
- Land grant boundary
- U.S. public lands survey: range, township, section
- Range, township, section line: protracted
- Power transmission line: pipeline
- Dam: dam with lock
- Cemetery: building
- Well: water well; spring
- Mine shaft; adit or cave mine; quarry; gravel pit
- Campground; picnic area; U.S. national monument
- Ruin; cliff dwelling
- Distorted surface: strip mine; levee; sand
- Contour: index; intermediate; supplementary
- Bathymetric contours: index; intermediate
- Stream, lake: perennial; intermittent
- Repsis, large and small; falls, large and small
- Area to be submerged; marsh; swamp
- Land subject to controlled invasion; woodland
- Scrub; mangrove
- Orchard; vineyard

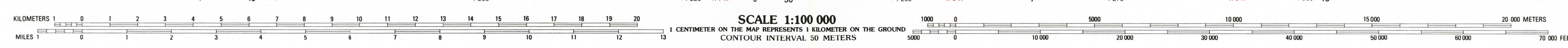
A person describing topographic maps is available on request

ASTORIA, OREGON—WASHINGTON

46123-A1-TB-10

1981

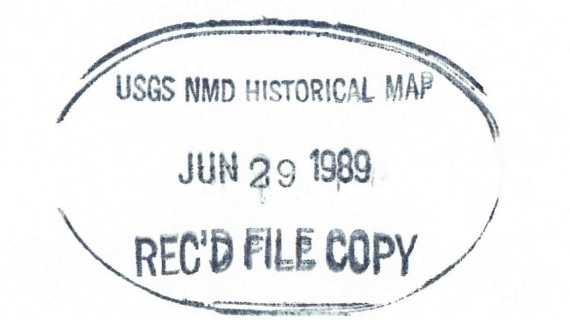
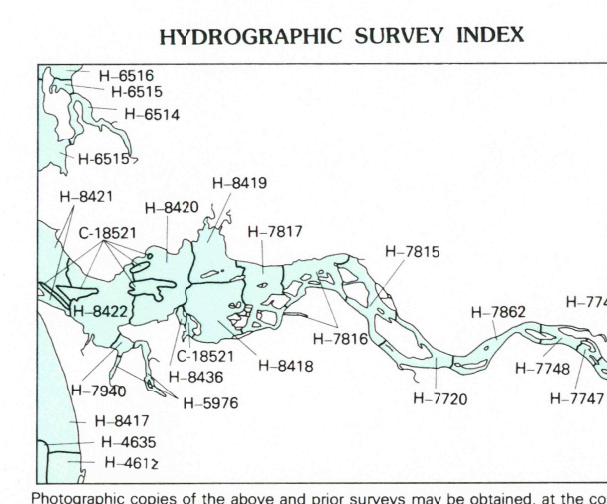
BATHYMETRY ADDED 1989



HYDROGRAPHIC SURVEY INFORMATION

SURVEY NUMBER	SURVEY DATE	SURVEY SCALE	SURVEY LINE SPACING (NAUT. MILES)	SURVEY NUMBER	SURVEY DATE	SURVEY SCALE	SURVEY LINE SPACING (NAUT. MILES)
H-4412	1926	1:200,000	05-20	H-7819	1950	1:10,000	01-08
H-4425	1926	1:400,000	01-20	H-7821	1950	1:10,000	01-15
H-5376	1935	1:100,000	01-05	H-7860	1950	1:10,000	01-06
H-6834	1939	1:100,000	01-05	H-7900	1951	1:10,000	02-08
H-6916	1939	1:100,000	01-05	H-8418	1958	1:10,000	02-12
H-7251	1949	1:100,000	01-04	H-8419	1958	1:10,000	02-12
H-7249	1949	1:100,000	01-02	H-8420	1958	1:10,000	01-12
H-7462	1949	1:100,000	01-06	H-8421	1958	1:10,000	01-12
H-7915	1952	1:100,000	01-08	H-8436	1958	1:10,000	01-06

NOS CHART 1821 1982 1:400,000



Photographic copies of the above and prior surveys may be obtained, at the cost of reproduction, by addressing the Director, NCGS, National Ocean Service, National Oceanic and Atmospheric Administration, Rockville, Maryland 20852.