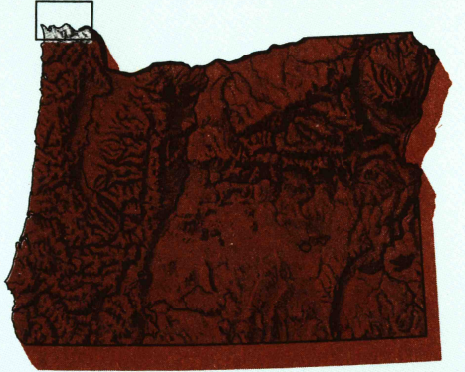




Astoria

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

Compiled from USGS 1:250 000 and 1:50 000-scale topographic maps dated 1980-1978. Bathymetry derived from aerial photographs taken 1976-79 and other source data. Revised information not field checked. Map dated 1981.

Bathymetry compiled by the National Ocean Service from tide-coordinated hydrographic surveys. This information is not intended for navigational purposes.

Mean low low water (dotted line) and mean high water (heavy solid line) compiled by NOS from tide-coordinated aerial photographs. Apparent shoreline (outer edge of vegetation) shown by light solid line.

Projection and 10 000-meter grid, zone 10, National Transverse Mercator 25 000-foot grid ticks based on Washington coordinate system, south zone and Oregon coordinate system, north zone.

1927 North American Datum.

To place on the projected North American Datum 1983 move the projection lines 24 meters north and 95 meters east.

Bathymetry added 1980.

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 1929

ELEVATIONS SHOWN TO THE NEAREST METER

BATHYMETRIC CONTOUR INTERVAL 2 METERS WITH SUPPLEMENTARY 2 METER CONTOURS-DATUM IS MEAN LOWER LOW WATER

THE RELATIONSHIP BETWEEN THE TWO DATUMS IS VARIABLE

BATHYMETRIC SURVEY DATA COMPILES WITH INTERNATIONAL HYDROGRAPHIC ORGANIZATION (IHO) SPECIAL PUBLICATION 44 ACCURACY STANDARDS, ANYWAY STANDARDS USED AS OF THE DATE OF THE SURVEYS

CONVERSION TABLE		DECLINATION DIAGRAM	ADJOINING MAPS																			
Meters	Feet		1	2	3																	
1	3.2808		1	2	3																	
2	6.5617		4	5																		
3	9.8425		6	7	8																	
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		UTM grid convergence (GN) and 1983 magnetic declination (MN) at center of map. Diagram is approximate.	<table><tr><td>1</td><td>Westport</td></tr><tr><td>2</td><td>Chabala River</td></tr><tr><td>3</td><td>Centralia</td></tr><tr><td>4</td><td>Ilwaco</td></tr><tr><td>5</td><td>St. Helens</td></tr><tr><td>6</td><td>Nahalem River</td></tr><tr><td>7</td><td>Longview</td></tr><tr><td>8</td><td>Vancouver</td></tr></table>				1	Westport	2	Chabala River	3	Centralia	4	Ilwaco	5	St. Helens	6	Nahalem River	7	Longview	8	Vancouver
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7	Longview																					
8	Vancouver																					
To convert feet to meters multiply by 0.3048																						

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	
Route marker, interstate, U.S., State	
Railroad: standard gauge, narrow gauge	
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: protected	
Power transmission line: pipeline	
Dam; dam with lock	
Cemetery, building	
Wells: water well; spring	
Mine shaft; adit or cave mine; quarry; gravel pit	
Campground; picnic area; U.S. location monument	
Run; cliff dwelling	
Distorted surface: strip mine, levee, sand	
Contour: index, intermediate, supplementary	
Bathymetric contours: index, intermediate	
Stream, lake: perennial; intermittent	
Rapids, large and small; falls, large and small	
Area to be submerged; marsh, swamp	
Land subject to controlled inundation; woodland	
Scrub; mangrove	
Orchard; vineyard	

A pamphlet describing topographic maps is available on request

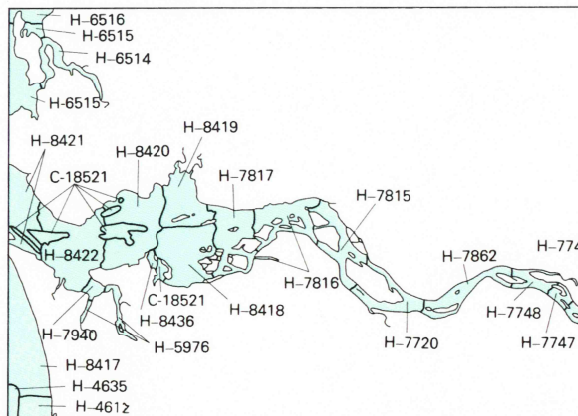
SCALE 1:100 000
1 CENTIMETER ON THE MAP REPRESENTS 1 KILOMETER ON THE GROUND
CONTOUR INTERVAL 50 METERS

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-4812	1926	1:20 000	05-25	H-7816	1950	1:10 000	01-08
H-4815	1926	1:20 000	02-26	H-7817	1950	1:10 000	02-15
H-5876	1935	1:10 000	01-09	H-7862	1950	1:10 000	01-06
H-5874	1935	1:10 000	01-05	H-7863	1950	1:10 000	02-08
H-5816	1928	1:10 000	01-04	H-8418	1958	1:10 000	02-12
H-7750	1949	1:5 000	01-06	H-8419	1958	1:10 000	01-11
H-7749	1949	1:5 000	01-03	H-8420	1958	1:10 000	01-12
H-7742	1949	1:5 000	01-06	H-8421	1958	1:10 000	01-17
H-7815	1950	1:10 000	01-08	H-8436	1958	1:5 000	01-05

NOS CHART 18521 1982 1:40 000

HYDROGRAPHIC SURVEY INDEX



Photographic copies of the above and prior surveys may be obtained, at the cost of reproduction, by addressing The Director, MCG245, National Ocean Service, National Oceanic and Atmospheric Administration, Rockville, Maryland 20852.