

F00486

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SERVICE

## DESCRIPTIVE REPORT

*Type of Survey*      Field Examination

*Field No.*              NRT3-10-02-02

*Registry No.*         F00486

### LOCALITY

*State*                  Washington and Oregon

*General Locality*    Columbia River

*Sublocality*         Approaches to Astoria to Crims Island

**2002**

**CHIEF OF PARTY**  
**KATHRYN SIMMONS**

### LIBRARY & ARCHIVES

**DATE** \_\_\_\_\_

**HYDROGRAPHIC TITLE SHEET**

**F00486**

INSTRUCTIONS The hydrographic sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the office.

FIELD NO.

**NRT3-10-02-02**

State Washington and Oregon

General Locality Columbia River

Sublocality Approaches to Astoria to Crims Island

Scale 1:5,000

Date of Survey June 10 to Oct. 16, 2002

Instructions Date 4/18/02

Project No. OPR-N438-NRB

Vessel NOAA Launch 1212

Chief of Party Kathryn Simmons

Surveyed by K. Simmons, E. Wernicke, K Brown

Soundings taken by echo sounder, hand lead, pole Innerspace 448 echosounder, EG&G 272-T Towfish

Graphic record scaled by NRT3 personnel

Graphic record checked by NRT3 personnel

Evaluation by R. Davies

Automated plot by HP Designjet 1050C

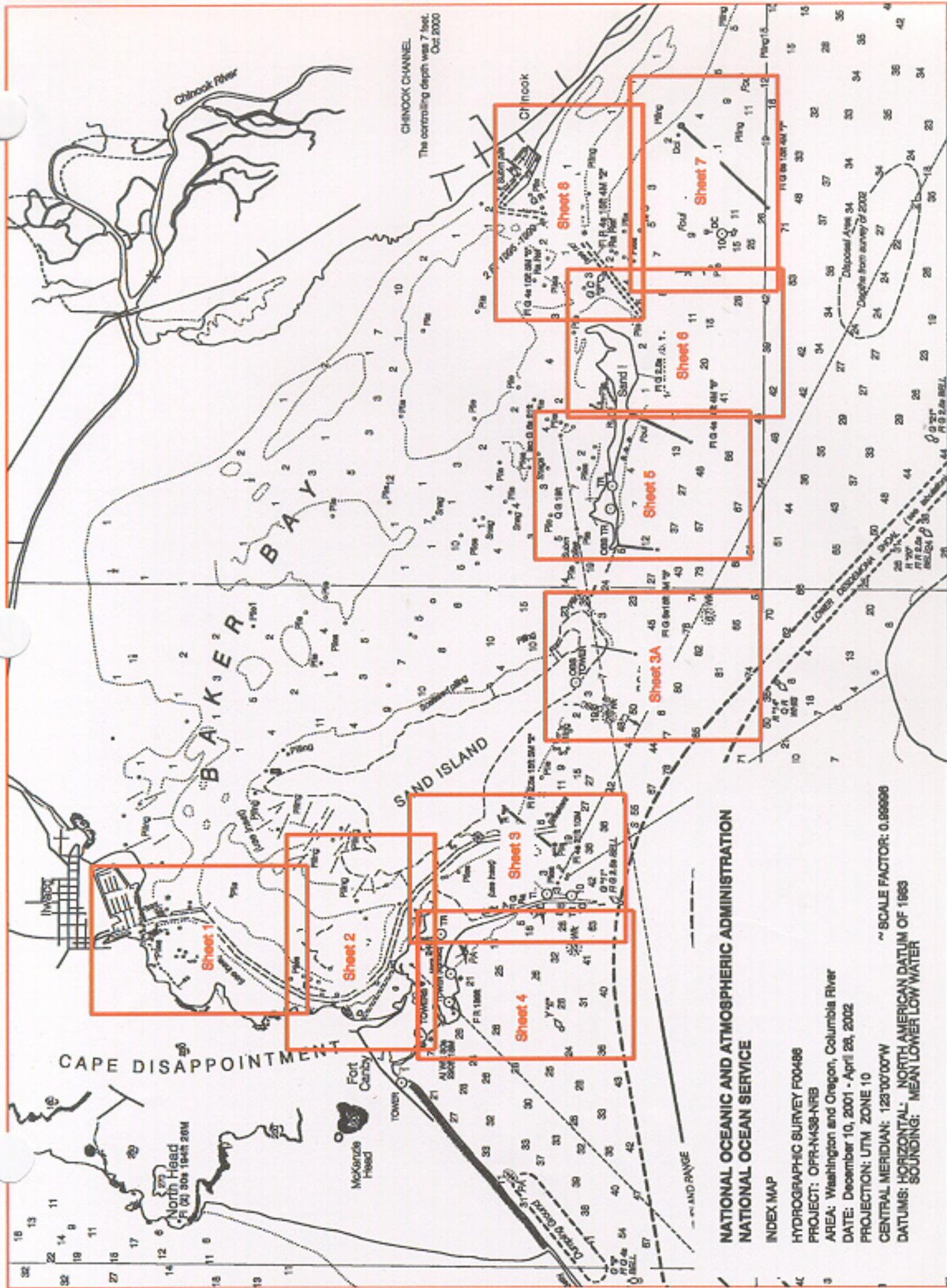
Verification by R. Davies

Soundings in Feet at MLLW

REMARKS: Time in UTC.

**Revisions and annotations appearing as footnotes were generated during office processing.**

**All depths listed in this report are referenced to mean lower low water unless otherwise noted.**

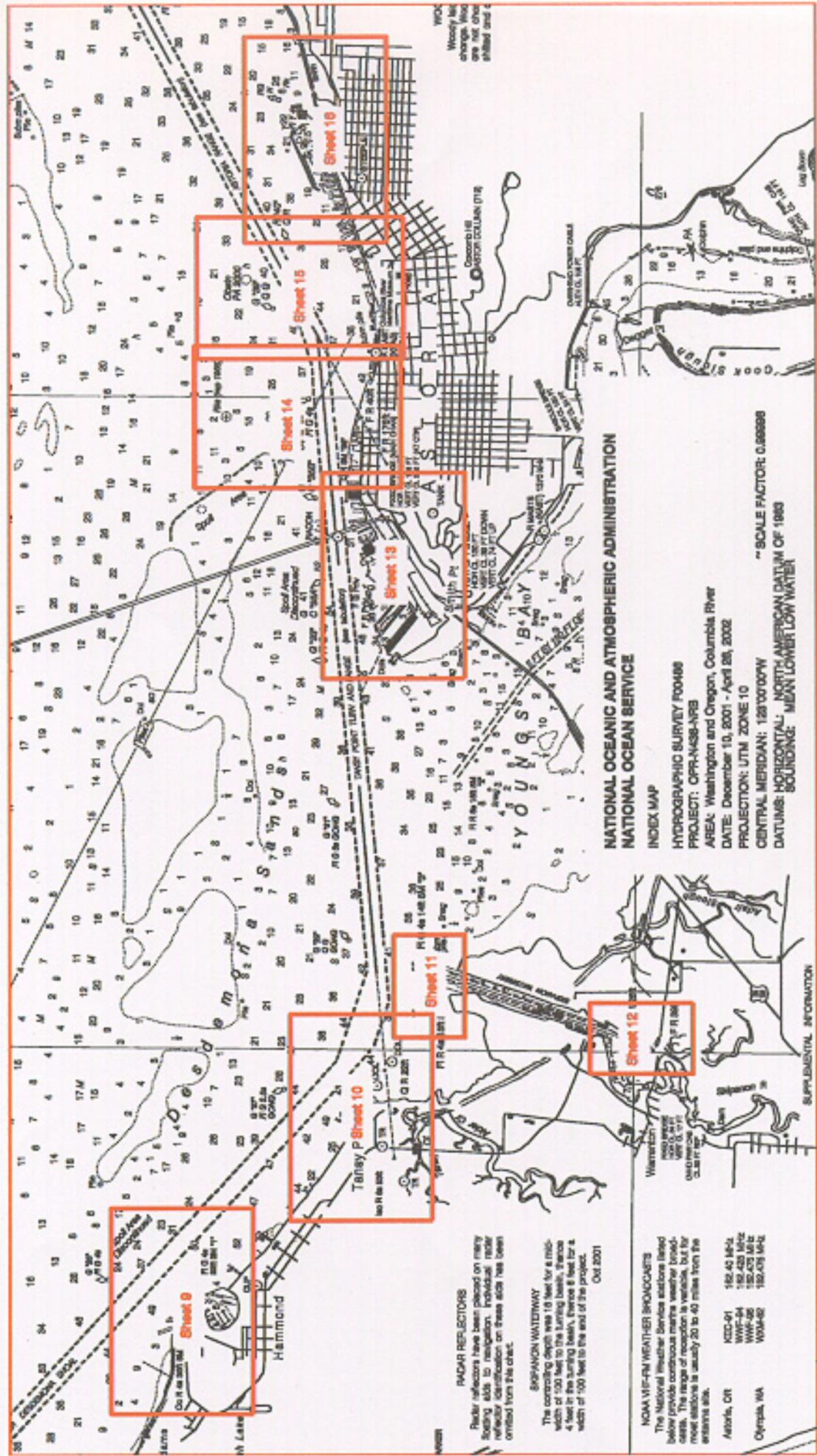


CHIRCOCK CHANNEL  
The controlling depth was 7 feet.  
Oct. 2000

**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SERVICE**

INDEX MAP  
HYDROGRAPHIC SURVEY F00486  
PROJECT: OPRN438-NRB  
AREA: Washington and Oregon, Columbia River  
DATE: December 10, 2001 - April 26, 2002  
PROJECTION: UTM ZONE 10  
CENTRAL MERIDIAN: 123°00'00"W  
DATUMS: HORIZONTAL: NORTH AMERICAN DATUM OF 1983  
SOUNDING: MEAN LOWER LOW WATER

~ SCALE FACTOR: 0.99996



**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SERVICE**

**INDEX MAP**

HYDROGRAPHIC SURVEY 700488  
 PROJECT: CPR-A438-NRS  
 AREA: Washington and Oregon, Columbia River  
 DATE: December 10, 2001 - April 25, 2002  
 PROJECTION: UTM ZONE 10  
 CENTRAL MERIDIAN: 128°00'00"W  
 DATUMS: HORIZONTAL: NORTH AMERICAN DATUM OF 1983  
 VERTICAL: MEAN LOWER LOW WATER

SCALE FACTOR: 0.888888

**SUPPLEMENTAL INFORMATION**

**NOAA VIF-FM WEATHER BROADCASTS**  
 The National Weather Service stations listed below provide continuous marine weather broadcasts. The range of reception is variable, but for most stations is usually 20 to 40 miles from the antenna site.

Atlanta, GA	KED-91	162.40 MHz
Columbia, SC	WVF-94	162.425 MHz
Charleston, SC	WVF-95	162.435 MHz
Charleston, SC	WVMA-92	162.439 MHz

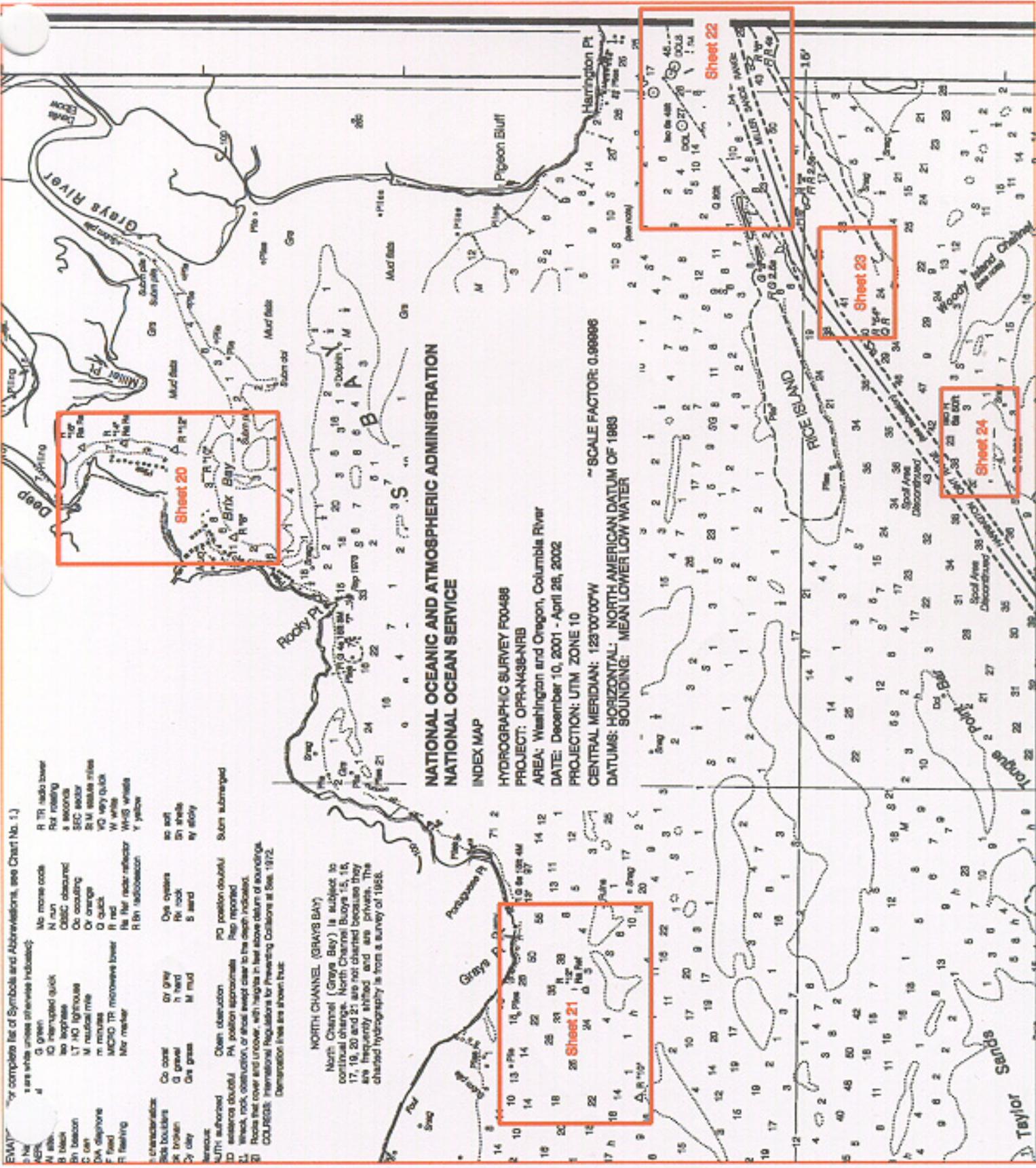
**RACAR REFLECTORS**  
 Radar reflectors have been placed on many buoys and aids to navigation. Reflectors are made of reflective material and are used to enhance radar identification on these aids. This information is derived from this chart.

**SOUNDING WATERWAY**  
 The sounding depth was 10 feet for a minimum of 200 feet to the turning basin. There is a 4-foot turning basin. Errors of feet for a width of 100 feet to the end of the project.

Oct 2001

EMAP for complete list of Symbols and Abbreviations, see Chart No. 1.)

- Mo moine cocks
- N run
- OBSC obscured
- Co occulting
- Or orange
- D quick
- R red
- Flt flt rear-reflector
- R (h) sub-bottom
- G green
- CD interrupted quick
- Is isophase
- LT HO light-house
- M mutual mile
- m minutes
- MICRO TR micro-wave laser
- Mic marker
- Co coral
- G green
- Gr grass
- Gr grey
- h hard
- M mud
- Clear observation
- PA position approximate
- PA position doubtful
- Help reported
- Check, rock, obstruction, or wreck swept clear to the depth indicated.
- Rocks not covered and unknown, with heights in feet above datum of sounding.
- COURSES: International Regulations for Preventing Collisions at Sea, 1972.
- Demonstration lines are shown in red.
- in soft
- Sh shells
- Sl silt
- Subm submerged



NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SERVICE

INDEX MAP  
HYDROGRAPHIC SURVEY F00498  
PROJECT: OPR-N438-NRB  
AREA: Washington and Oregon, Columbia River  
DATE: December 10, 2001 - April 28, 2002  
PROJECTION: UTM, ZONE 10  
CENTRAL MERIDIAN: 123°00'00"W  
DATUMS: HORIZONTAL: NORTH AMERICAN DATUM OF 1983  
SOUNDING: MEAN LOWER LOW WATER

**NORTH CHANNEL (GRAYS BAY)**  
North Channel (Grays Bay) is subject to continual change. North Channel Buoys 15, 16, 17, 18, 20 and 21 are not charted because they are frequently shifted and are private. The charted hydrography is from a survey of 1955.

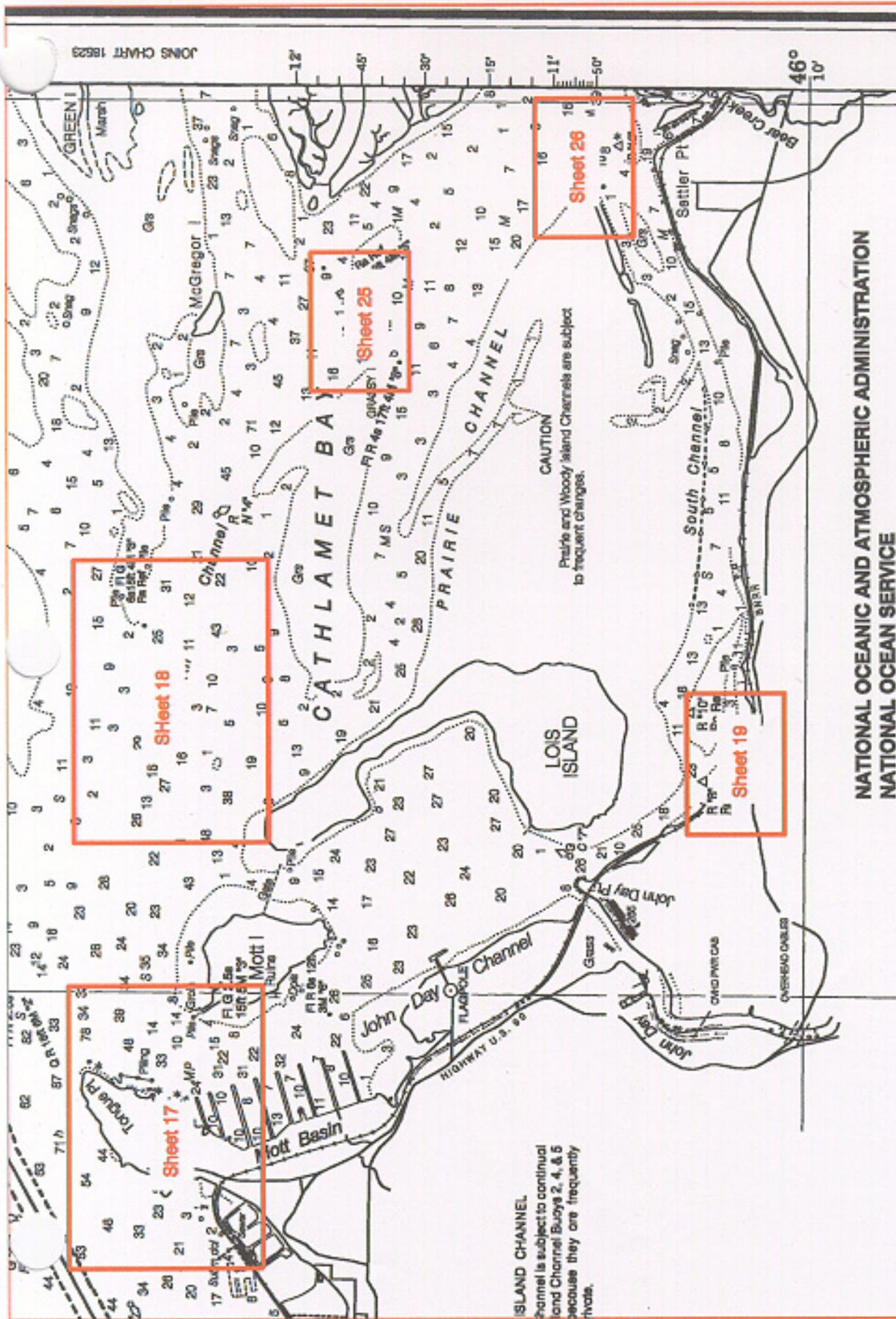
Sheet 20

Sheet 21

Sheet 22

Sheet 23

Sheet 24



**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SERVICE**

**INDEX MAP**

HYDROGRAPHIC SURVEY F00468  
 PROJECT: OPR-N438-NRB  
 AREA: Washington and Oregon, Columbia River  
 DATE: December 10, 2001 - April 26, 2002  
 PROJECTION: UTM ZONE 10  
 CENTRAL MERIDIAN: 123°00'00"W  
 DATUMS: HORIZONTAL: NORTH AMERICAN DATUM OF 1983  
 SOUNDING: MEAN LOWER LOW WATER  
 ~ SCALE FACTOR: 0.999988

**CAUTION**

Only marine radiobeacons have been calibrated for surface use. Limitations on the use of certain other radio signals as aids to marine navigation can be found in the U.S. Coast Guard Light List and National Imagery and Mapping Agency Publication 117.  
 Radio direction-finder bearings to commercial broadcasting stations are subject to error and should be used with caution.  
 Station positions are shown thus:  
 ( ) (Accurate location) o (Approximate location)

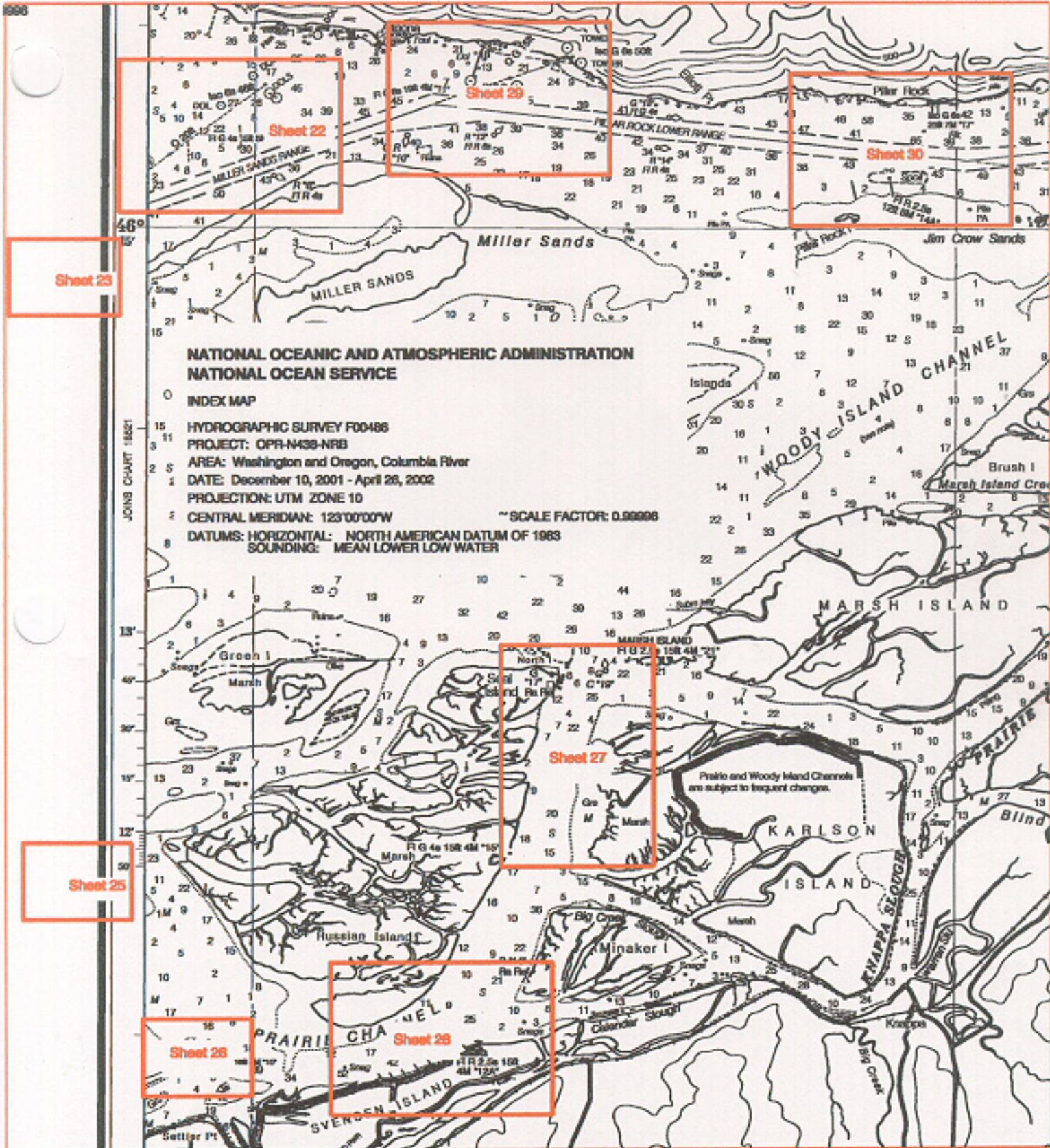
**ISLAND CHANNEL**

Channel is subject to continual sand Channel Buoys 2, 4, & 5 because they are frequently flooded.

**CAUTION**

Prairie and Woody Island Channels are subject to frequent changes.

JOHN CHART 18523



**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SERVICE**

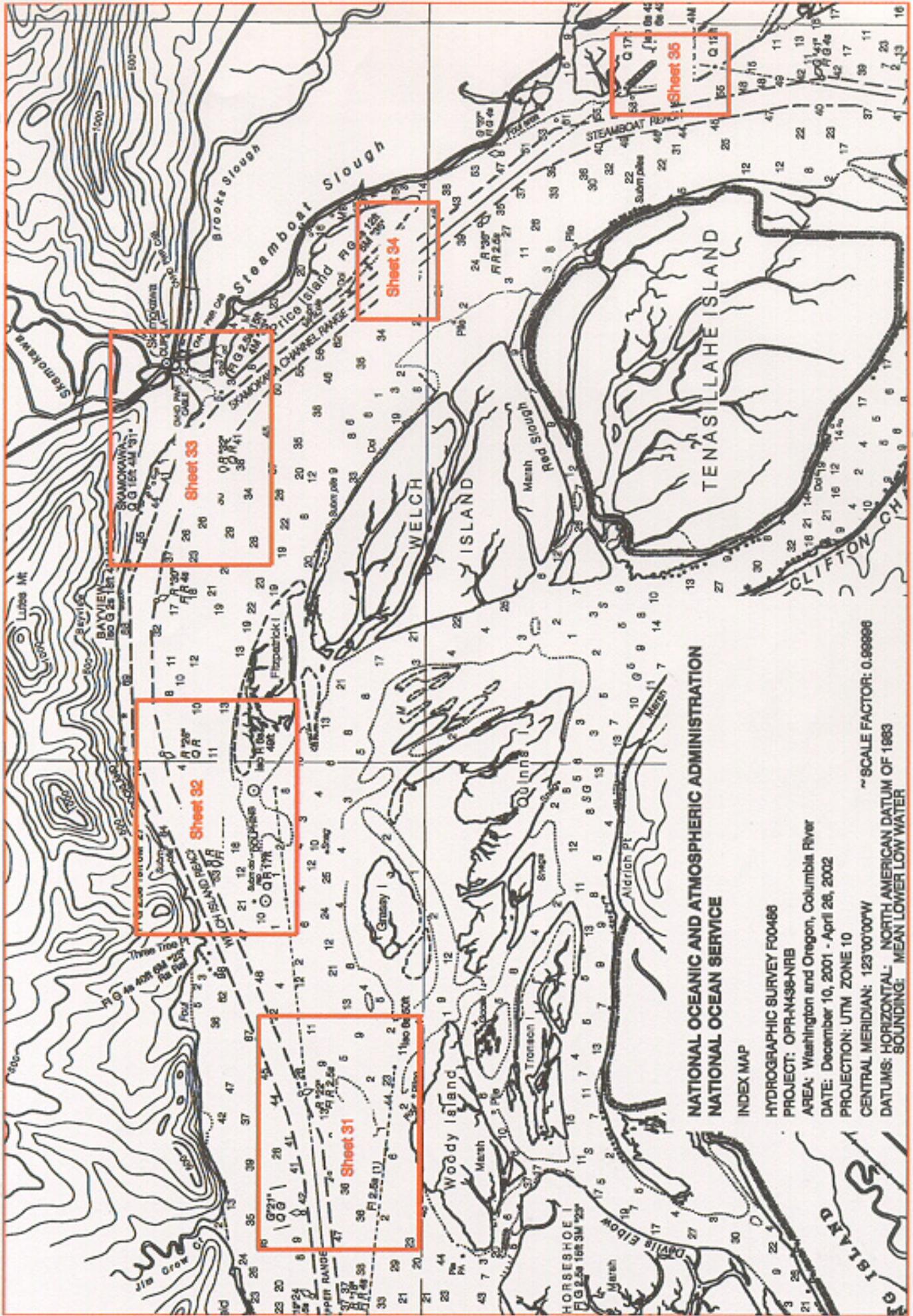
**INDEX MAP**

HYDROGRAPHIC SURVEY F00488  
 PROJECT: OPR-N438-NRB  
 AREA: Washington and Oregon, Columbia River  
 DATE: December 10, 2001 - April 26, 2002  
 PROJECTION: UTM ZONE 10  
 CENTRAL MERIDIAN: 123°00'00"W  
 DATUMS: HORIZONTAL: NORTH AMERICAN DATUM OF 1983  
 SOUNDING: MEAN LOWER LOW WATER

SCALE FACTOR: 0.999998

JOINS CHART 18621

Prairie and Woody Island Channels are subject to frequent changes.



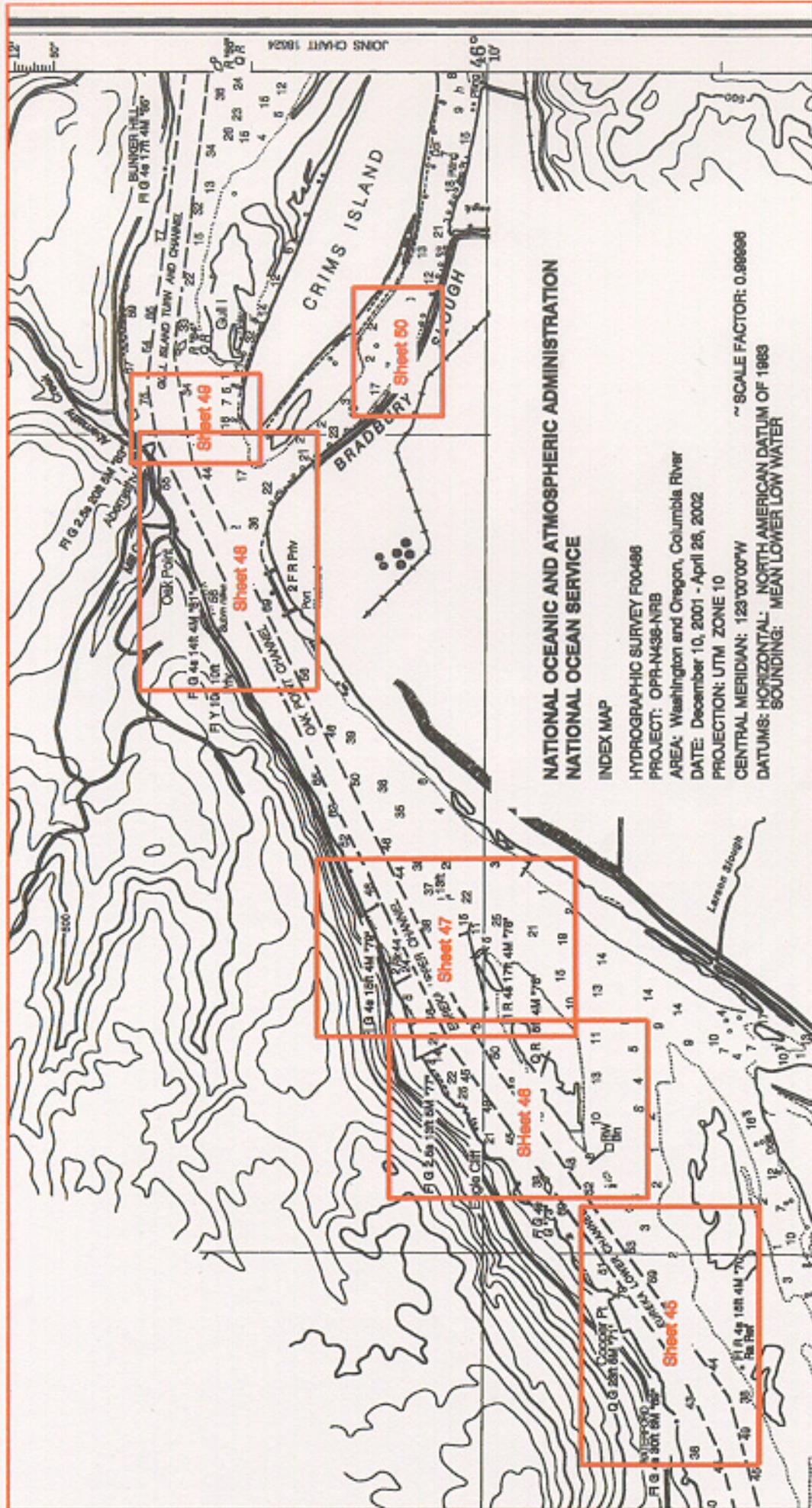
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
 NATIONAL OCEAN SERVICE

INDEX MAP

HYDROGRAPHIC SURVEY F00486  
 PROJECT: OPRN438-NRB  
 AREA: Washington and Oregon, Columbia River  
 DATE: December 10, 2001 - April 26, 2002  
 PROJECTION: UTM ZONE 10  
 CENTRAL MERIDIAN: 123°00'00"W  
 DATUMS: HORIZONTAL: NORTH AMERICAN DATUM OF 1983  
 SOUNDING: MEAN LOWER LOW WATER

~ SCALE FACTOR: 0.99996





**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEANIC SERVICE**

**INDEX MAP**

HYDROGRAPHIC SURVEY F00488  
 PROJECT: OPR-N438-NRB  
 AREA: Washington and Oregon, Columbia River  
 DATE: December 10, 2001 - April 26, 2002  
 PROJECTION: UTM ZONE 10  
 CENTRAL MERIDIAN: 123°00'00"W  
 DATUMS: HORIZONTAL: NORTH AMERICAN DATUM OF 1983  
 SOUNDING: MEAN LOWER LOW WATER  
 ~ SCALE FACTOR: 0.98696

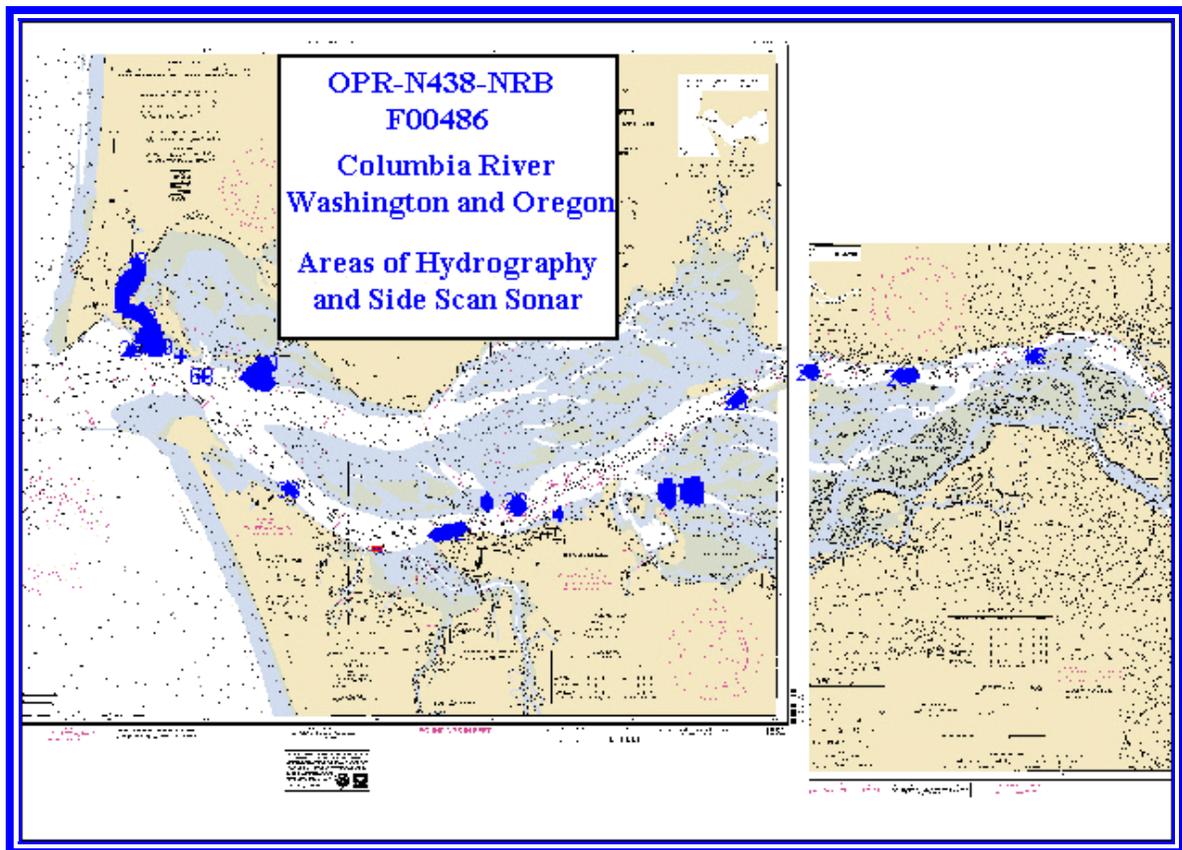
# Descriptive Report to Accompany F00486

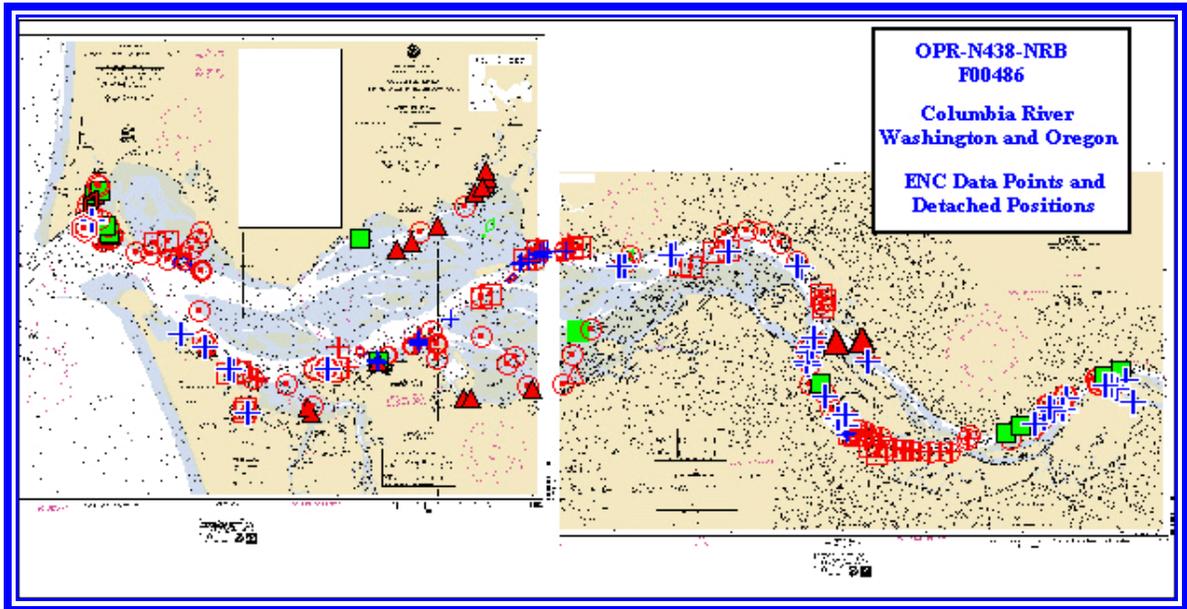
OPR-N438-NRB  
2002  
Navigation Response Team 3

## A. AREA SURVEYED

F00486, Approaches to Astoria to Crims Island, is one of three Field Examinations included in Port Instructions OPR-N438-NRB, Columbia River, Washington and Oregon. F00486 includes hydrographic data, vector data for S57 products; i.e., electronic navigation charts (ENC), and detached positions.

Areas of hydrography and side scan sonar coverage are shown below.<sup>1</sup>





Distribution of DGPS data points is shown below.

Data acquisition was conducted from June 10, 2002 (*DN 161*) through October 16, 2002 (*DN 288*).

## B. DATA ACQUISITION AND PROCESSING

### B1. Equipment and Vessels

NOAA Launch 1212, a 27-foot SeaArk, was used for collection of all hydrographic and side scan sonar data. The 4.5-ton launch is eight feet wide, has a static draft of 0.4 meters and is powered by two 150hp outboards. No changes to the standard vessel sounding configuration were necessary. The launch is equipped with a Dell Pentium II PC. Sounding data were collected using an Innerspace 448 echosounder, SN 263.

Side scan sonar (SSS) data were collected using EG&G 272-T Towfish, S/N 015598.

Differential GPS data were collected using the following equipment:

Equipment Location	Type Receiver/Antenna	Receiver Serial No.	Antenna Serial No.
VN 1212	Trimble DSM212L 27207	0220164491	0220166460
Backpack	Trimble TSC1	224011684	220187539

Corrections for speed of sound through the water column were computed with data obtained from Seacat conductivity, temperature and depth recorder, SN 1892. NOAA's VELOCWIN software was used to download and process the sound velocity data.

Coastal Oceanographic's Hypack software, version 5.0, was used for hydrographic data collection. Side Scan Sonar data was collected using Sonarwiz software. CARIS HIPS and SIPS version 5.2 and NOAA's Pydro software were used for processing hydrographic and sidescan sonar data.

Trimble TSC1 data logger and Asset Surveyor software version 5.00 were used for vector data collection. Pathfinder Office 2.51 and Mapinfo (version 6.5) were used for processing.<sup>2</sup>

## **B2. Quality Control**

Because all hydrographic areas were small, no crosslines were run; however, side scan lines were oriented orthogonally whenever possible as well as at angles to the mainscheme.

Agreement is good and no systematic error is apparent.<sup>3</sup>

Point data and line data were evaluated by examining horizontal precision and standard deviation calculated with Pathfinder software as well as by comparison to the chart, to IKONOS satellite imagery and to photographs. Where multipathing is known to occur; i.e., under bridges or other obstruction, points were examined with more rigorous attention. Positions significantly inconsistent with the above sources were deleted.<sup>4</sup>

## **B3. Corrections to Echo Soundings**

Occasional problems with misdigitization or bottom tracking were encountered during this survey. Where the digital data were ambiguous, the paper trace was consulted and the digital record was corrected to reflect the paper trace.<sup>5</sup>

### Leadline Comparisons

Periodic leadline comparisons, annotated on the echogram, confirm proper digitization of the echosounder depths.<sup>6</sup>

### Static Draft

Static draft for VN 1212 was determined on January 29, 2001 (DN 029). First, the depth of the transducer face from a reference mark on the hull was measured. Next, with the launch in the water, fuel tanks half full and two persons aboard, the depth from this reference mark to the waterline was measured. Combining the two measurements, a static draft of 0.4 meters was calculated.

### Dynamic Draft

Settlement and squat measurements were conducted for VN 1212 on January 30, 2001 (DN 030).

All measurements were performed in San Diego Bay. Field records are included in Appendix V.  
<sup>7</sup>

Transducer and antenna offsets, static draft, and settlement and squat correctors were entered into Vessel Config Files. Correctors were applied during processing in CARIS.

## C. VERTICAL AND HORIZONTAL CONTROL

### Tides and Water Levels

Port Instructions define sixty tide zones within the project area. Tide corrector values, referenced to the primary tide station at Astoria, OR (943-9040), are provided in the zoning file "N438NRT32002CORP" which is included with the project data.

Preliminary, six-minute real tides recorded at this station were downloaded from the NOAA, NOS, CO\_OPS web site <http://www.opsd.nos.noaa.gov/cgi-bin/prelimqry.pl>, imported into a text file on the local computer and appended to the CARIS tide file, 9439040.tid. Tides were applied to all hydrographic data in CARIS using the tide utility and the zoning file, N438NRT32002CORP.zdf.<sup>8</sup>

### Horizontal Datum

The horizontal control datum for this project is North American Datum of 1983 (NAD83).

### Position Control

The U.S. Coast Guard beacon at Fort Stevens, OR (287 kHz) provided differential GPS (DGPS) control for all data.<sup>9</sup>

### Velocity of Sound

Four velocity casts were conducted for the project as shown in the table below:

Day	Latitude/Longitude	Depth(m)	Location
163	46°11'37"N / 123°50'05"W	26.0	Columbia River
172	46°15'39"N / 124°01'38"W	16.5	Columbia River
189	46°15'37"N / 122°01'45"W	26.9	Columbia River
218	46°14'48"N / 123°57'32"W	18.2	Columbia River

Corrections for speed of sound through the water column were computed from data obtained with a Seacat conductivity, temperature and depth recorder. Sea-Bird Electronics Model SBE-19, S/N 1892, was used for all casts. NOAA VELOCWIN software was used to initialize the

recorder as well as to process all casts.

Appendix E contains the calibration report for Seacat instrument S/N 1892. <sup>10</sup>

## D. RESULTS AND RECOMMENDATIONS

### D1. Chart Comparison<sup>11</sup>

Comparison will be limited to the largest scale chart covering the survey area which is represented on the following charts:<sup>12</sup>

Chart No.	Date	Edition	Scale
18521	Oct. 1, 2003	70th	1:40,000
18523	Oct 1, 2003	54th	1:40,000

### DGPS Point Data and Detached Positions

Detached positions were used primarily to position buoys, private aids and features not deemed critical to navigation, or for points where the radio link required for a high accuracy vector position was blocked by overhead structures. They were also used for disprovals of various shoreline features. These are plotted on Mapinfo layer F00486DetachedPositions.TAB; see remarks label for purpose of the detached position. <sup>13</sup>

DGPS data were collected on items throughout the project area. Some items were new features; others were inaccurately depicted on the chart. Two categories were established for position data: 1) Fixed Aids and 2) Point Data. A third category, Line Data, was used for all line data. Positions on features (Fixed Aids and Point Data) were acquired by placing the antenna over the feature and recording DGPS positions for a period of time, typically one minute. For fixed aids the collection period was extended to three minutes. <sup>14</sup>

Line data were acquired on curved and/or complex structures where multiple points would have been confusing. DGPS positions were collected at one-second intervals while walking the outside edges of the feature. On bridges where walking was impractical, a line was obtained while driving a vehicle across the bridge (antenna positioned outside the passenger side window). An offset to the edge of the bridge was estimated and entered in the collection process to more accurately depict the structure. <sup>15</sup>

In some cases where shoreline changes were obvious, line data collected while walking along the waterline delineate the revised shoreline. The new shoreline is depicted with dashed red lines on the ShorelineUpdates layer.

All items were assigned position numbers based on the day number and order of collection in the

format DDD.###, where DDD is the day number and ### is incremented with each data point, e.g., 301.001, 301.002, etc.

The data were imported into Mapinfo tables created for each day and category; e.g., pointdata03jul.tab, fixedaids04feb.tab, etc. A single table for each category was created and the daily data were accumulated into its respective table; e.g., PointData.tab includes all point data collected in that category. The hydrographer's final representation of each feature as it should be charted was drawn in red onto a separate layer; the drawing is based on the data points and/or line data, supplemented by field drawings, IKONOS imagery and digital photos. This layer was saved as ShorelineUpdates.tab.<sup>16</sup>

The IndexedNotes table was created to clarify the ShorelineUpdates table where necessary. The table includes columns for Reference Number and Remarks and is displayed in Mapinfo with a yellow pushpin symbol. A text file of Indexed Notes is included in Appendix V.<sup>17</sup>

Field Notes were recorded in HYPACK during data collection and serve as additional clarification; these notes are included in FieldNotes.tab. Photographs were embedded into a separate Mapinfo Table: Photos.tab.

#### Chart 18521 - Columbia River, Pacific Ocean to Harrington Point.

A submerged rock PA charted at latitude 46°16'09.6"N, longitude 124°01'49.5"W, appeared to encroach on the entrance to the channel and, at the request of Mack Funk, Manager, Port of Ilwaco, two hundred percent side scan sonar coverage was obtained over the charted symbol. No evidence of the rock was found and the "subm rks PA" notation on the chart should be deleted.<sup>18</sup>

Hydrographers found significant changes in charted depths throughout the channel and acquired basic hydrography at 20-meter line spacing from the entrance to Baker Bay west channel to the entrance to the Ilwaco mooring basin in an effort to define the zero curve as well as the navigable channel. Development hydrography to five-meter line spacing was acquired where indicated.<sup>19</sup>

Charted depths outside the channel maintained by the US Army Corps of Engineers are not reliable. See Chart Discrepancies graphic in Appendix V.<sup>20</sup> Up-to-date basic hydrography should be acquired for the entire chart.<sup>21</sup>

The shoreline (natural and cultural) has also been subject to significant revision and will be much improved with planned photogrammetry.<sup>22</sup>

#### Chart 18523 - Columbia River, Harrington Pt. to Crims Island

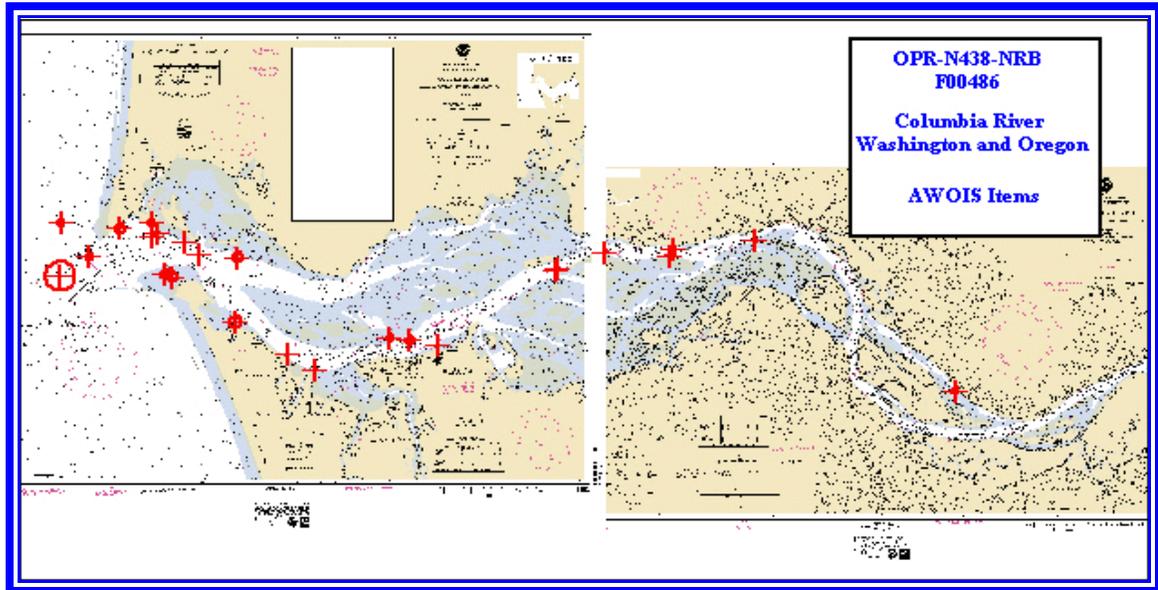
Cultural features are not so numerous on Chart 18523; however, new photogrammetry and new hydrography are both warranted.<sup>23</sup>

#### Dangers to Navigation

Four Danger to Navigation Reports were issued; see Appendix I.<sup>24</sup>

## AWOIS Items

Twenty-six assigned AWOIS items are located in the F00486 project area and are shown in the graphic below. Investigation results were recorded in the database N438awois.mdb which is included with the digital data. Hard copies of the reports along with supporting data also accompany this report. <sup>25</sup>



## **D2. Additional Results**

### Aids to Navigation

Fixed aids to navigation positioned with the Trimble DGPS receiver are shown in the Mapinfo FixedAids table. A listing of these aids has been forwarded to the US Coast Guard and to NOAA's Marine Charting Division. A copy is included in Appendix V. <sup>26</sup>

Selected buoys and private aids were positioned with detached positions and are plotted on F00486DetachedPositions.tab. A list of detached positions is included in Appendix V. <sup>27</sup>

### Bridges, Cables, Pipelines

The shape of the bridge spanning the Cathlamet Channel at latitude 46°11'43"N, longitude 124°23'04"W is charted incorrectly. Chart according to ShorelineUpdates table. <sup>28</sup>

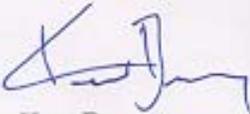
All other bridges, cables and pipelines were verified and are charted correctly. <sup>29</sup>

## E. APPROVAL SHEET

Standard field surveying and processing procedures were followed in producing this survey in accordance with the Navigation Response Branch Operations Manual, the Hydrographic Manual, Fourth Edition; the Hydrographic Survey Guidelines; and NOS Hydrographic Surveys Specifications and Deliverables. <sup>30</sup>

The data were reviewed daily during acquisition and processing.

The digital data and supporting records have been reviewed by me, are considered complete and adequate for charting purposes, and are approved. All records are forwarded for final review and processing to N/CS34, Pacific Hydrographic Branch. <sup>31</sup>

Submitted by,	Approved and forwarded,
	
Kurt Brown Physical Science Technician Navigation Response Team 3	Kathryn Simmons Team Leader Navigation Response Team 3

## **Revisions compiled during office processing and certification**

1. PHB Revision - Fifty-two page size plots (11"x16" and 8.5"x11") have been generated during office processing. Together they comprise the smooth sheet. See index sheets attached to the descriptive report behind the Title Sheet.
2. Survey data was processed in the office with Mapinfo version 7.0, Pydro and Microstation 95.
3. PHB Revision - Adjacent lines of hydrography were compared throughout the survey area and reflect good agreement. Crosslines were not run in accordance with Hydrographic specifications. The evaluator feels that the data is consistent for the depth and positional accuracy and adequate to supersede prior information in the common area.
4. Concur
5. Concur
6. Concur
7. PHB Revision - Filed with the hydrographic data.
8. PHB Revision - Approved tides were applied to the soundings and features in CARIS. Tide note, dated April 6, 2003 is attached to this report.
9. Concur
10. PHB Revision - Filed with the hydrographic data.
11. This survey was compared to the following charts, 18521, 71<sup>st</sup> Edition, dated Nov. 1, 2004 and 18523, 55<sup>th</sup> Edition, dated Sept. 1, 2004
12. It is recommended that this survey be used to supersede all charted information within the common area.
13. PHB Revision - All detached positions were evaluated and shown on the smooth sheets as warranted.
14. PHB Revision - All fixed and floating aids to navigation were described and drawn on the smooth sheets. Point data, i.e. dolphins, piles, wrecks, etc. were transferred to the smooth sheet. Detached positions marking disprovals were evaluated and the results are described in this report or noted on the Hdrawing with a blue note.
15. PHB Revision - It is recommended that the Cathlamit Bridge at latitude 46/11/43N, longitude 123/23/04W, be drawn as shown on the smooth sheet.

16. PHB Revision - There were numerous MHW revisions on this survey. These revisions have been depicted in red on the smooth sheet and are adequate to supersede prior photogrammetric shoreline maps. There were also additional MHW revisions on this survey drawn in dashed red originating from IKONOS satellite imagery. These revisions are based on current photography and should supersede prior photogrammetric shoreline.
17. PHB Revision - Filed with the hydrographic data.
18. Concur
19. PHB Revision - Chart area as shown on this survey.
20. PHB Revision - Attached to this report see letter dated August 5, 2002.
21. Concur
22. Concur, no new photogrammetry has been applied to this survey.
23. Concur, no new photogrammetry has been applied to this survey.
24. PHB Revision - Attached to this report.
25. PHB Revision - All AWOIS forms are attached to this report.
26. PHB Revision - All fixed aids to navigation are listed in this report and are shown on the smooth sheet with the exception of the following. These aids were not graphically portrayed as they are each single features which plot outside the fifty-two page size plots.

<u>Aid</u>	<u>Latitude(N)</u>	<u>Longitude(W)</u>
Desdemona Sands Light Youngs Bay Entrance Light 2 Cathlamet Bay South Channel Light 6 Portuguese Point Daybeacon 14A Rocky Point Light 7 Bayview Light 29 Hunts Mill Point light 44A	See attached list in Descriptive Report for positions	

27. PHB Revision - All aids are listed in this report and are shown on the smooth plots except as noted above.
28. PHB Revision - See smooth sheet for shape of the Cathlamet Bridge.
29. Concur

30. Concur

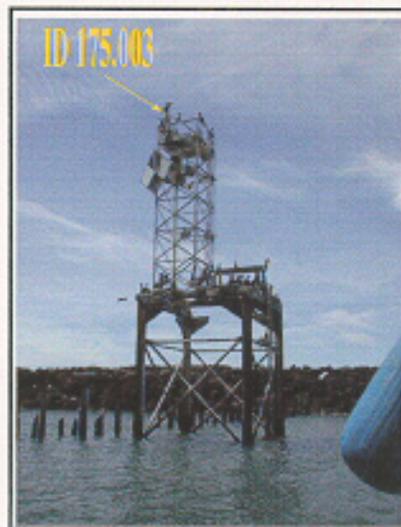
31. Concur

**DANGER TO NAVIGATION REPORT  
DGR-02-04-NRT3**

**FIELD EXAMINATION NUMBER:** F00486  
**STATE:** Washington and Oregon  
**GENERAL LOCALITY:** Columbia River  
**SUBLOCALITY:** Approaches to Astoria to Crims Island  
**PROJECT NUMBER:** OPR-N438-NRB  
**SURVEY DATES:** June 24, 2002

**Charts Affected:** 18521, 68<sup>th</sup> Edition, March 31, 2001, Scale: 1:40000  
18521 Inset, Scale 1:20000

The Desdemona Sands Leading Channel Light (LLN 9975) was positioned 105 meters WSW of charted location. The USCG was contacted and confirmed that the orientation bearing is 132°degrees. Revised position: latitude 46°16'41.177"N, longitude 124°02'14.979"W



The Baker Bay West Channel Entrance Jetty Light 1 (LLN 14415) was also found twenty meters from charted position.



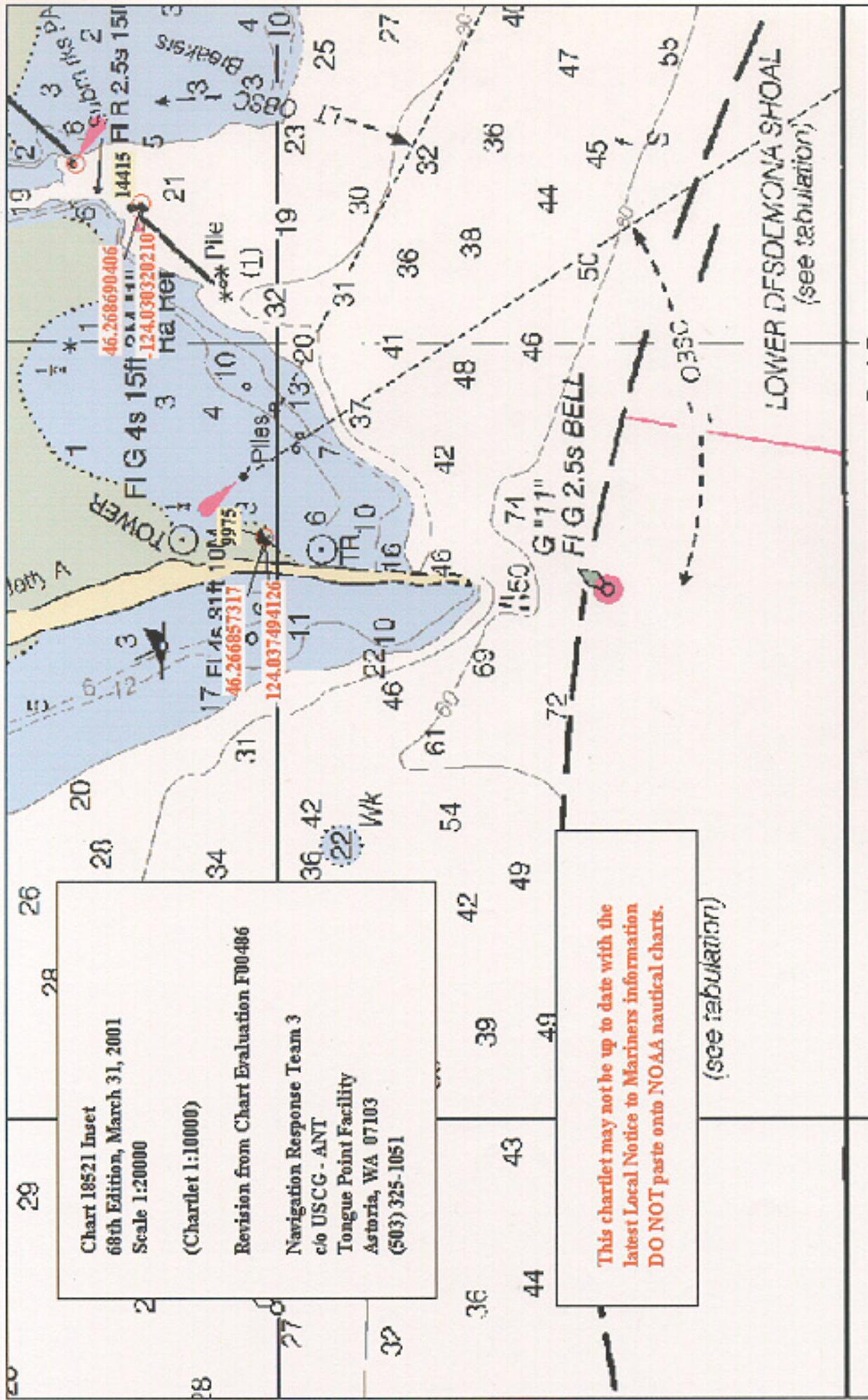


Chart 18521 Inset  
 68th Edition, March 31, 2001  
 Scale 1:20000  
 (Chartlet 1:10000)  
 Revision from Chart Evaluation F00486  
 Navigation Response Team 3  
 c/o USCG - ANT  
 Tongue Point Facility  
 Astoria, WA 07103  
 (503) 325-1051

This chartlet may not be up to date with the  
 latest Local Notice to Mariners information  
 DO NOT paste onto NOAA nautical charts.  
 (see tabulation)

(see tabulation)

**DANGER TO NAVIGATION REPORT  
DGR-02-05-NRT3**

**FIELD EXAMINATION NUMBER:** F00486  
**STATE:** Washington and Oregon  
**GENERAL LOCALITY:** Columbia River  
**SUBLOCALITY:** Approaches to Astoria to Crims Island  
**PROJECT NUMBER:** OPR-N438-NRB  
**SURVEY DATES:** June 1-July22, 2002

**Charts Affected:** 18521, 68<sup>th</sup> Edition, March 31, 2001, Scale: 1:40000  
18521 Inset, Scale 1:20000

Current hydrography reveals evidence of shoaling on the west side of the entrance from approximate latitude 46°16'10.6"N to approximate latitude 46°16'16.8"W. The shoaling area is depicted on the attached chartlet. The hydrographer recommends that the notice to mariners include the position of the seven-foot sounding which plots over the charted 19-foot depth. Surveyed position of this sounding is latitude 46°16'13.401"N, longitude 124°01'49.167"W



**DANGER TO NAVIGATION REPORT**  
**DGR-02-06-NRT3**

**FIELD EXAMINATION NUMBER:** F00486  
**STATE:** Washington and Oregon  
**GENERAL LOCALITY:** Columbia River  
**SUBLOCALITY:** Approaches to Astoria to Crims Island  
**PROJECT NUMBER:** OPR-N438-NRB  
**SURVEY DATES:** June 1-September 30, 2002  
**Charts Affected:** 18521, 69<sup>th</sup> Edition, June 2002,  
Scale: 1:40000

See AWOIS investigation report below:

RECRD	52965	VESLTERMS	UNKNOWN	CHART	18521	AREA	N
		CARTOCODE	0100	SDINGCODE		DEPTH	
LAT83	46 15 12	LONG83	123 58 09	NATVDATUM	31		
LATDEC:	46.253333333333	LONDEC:	123.96916666667	GPQUALITY	Low		
				GPSOURCE	Direct		
PROJECT	OPR-N438	ITEMSTATUS	Assigned	SEARCHTYPE	Full		
RADIUS	300	INIT	MCR	ASSIGNED	4/1/2002		
TECNIQ	S2,ES,D,SD						

Techniqnote

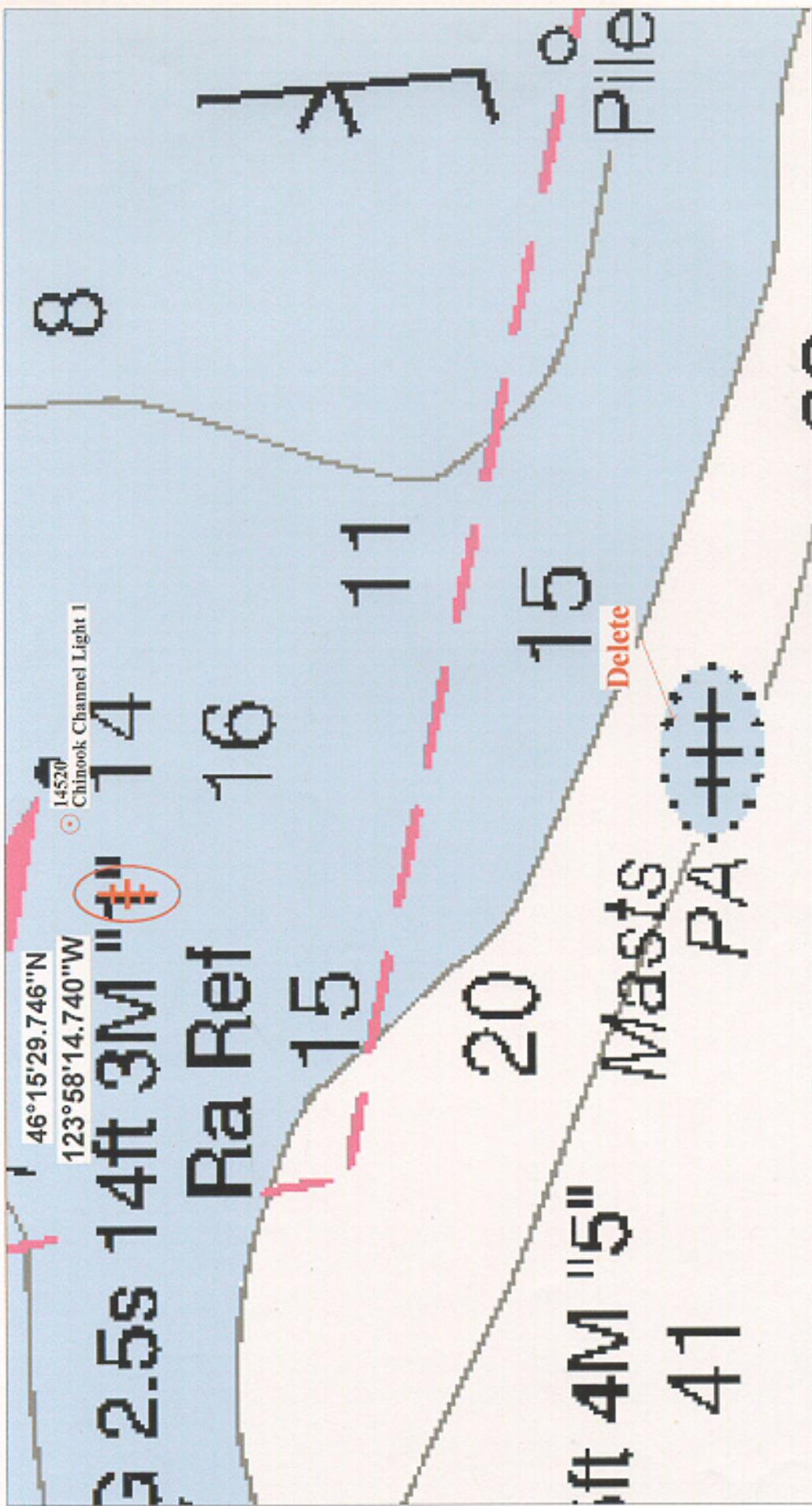
History LNM48/01--13TH CGD, 12/04/01; ADD DANGEROUS WRECK, WITH MAST IN POS. 46 15 12N, 123 58 09W. ENTERED 4/02  
MCR

Fieldnote The search radius at the AWOIS position was fully investigated with 200 percent side scan sonar. No evidence of a wreck was found. In response to reports that the vessel had been "spotted approximately 75 yards east of Chinook Channel Light 1," the search was expanded to that area. On DN 214 an obstruction was observed on the sonargram. The obstruction was developed with echosounder. The bathogram showed a two-meter hole scoured around the obstruction which rose approximately a meter above the hole. On DN 218 divers investigated the obstruction and located the vessel at latitude 46:15:29.748"N, longitude 123:58:14.740"W. The vessel is approximately 30 feet long and was found lying on its side with the bow pointed to the north. Least depth was calculated with the divers least depth gauge at 11.5 feet. Local sources identified the vessel as a small log-handling tugboat, the "Log Dog."

Proprietary

YEARSUNK  NIMANUM

Print Record



**Chartlet 1 of 1** DTONG206 - Revised Position Charted Wreck

This chartlet has been corrected through  
 Notice to Mariners dated  
 NOT FOR NAVIGATION.

	<p>NATIONAL OCEANIC AND          ATMOSPHERIC ADMINISTRATION          NATIONAL OCEAN SERVICE</p>	<p>Project: OPR-N438-NRB          Survey: F00486          State: Washington/Oregon          Locality: Columbia River          Sub-locality: Approaches to Astoria to Crms Island          Survey Scale: 1:5,000</p>	<p>Sounding Units: Feet          Sounding Datum: MLLW          Horizontal Datum: MAD 83          Projection: UTM 10          Central Meridian: 123° 00 00          Scale Factor: 0.9996</p>	<p>NOAA NRT-3          Commanding          June 1 to          September 30, 2002</p>
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NR 3

## Dive Plan/Investigation Form

Date: 8/6/02 DN: 218 Survey: F00486  
 Location: COLUMBIA RIVER, CHANOOK CHANNEL LT 1  
 Latitude: 46°15'14.7" N Longitude: 123°58'29.7" W Divemaster: \_\_\_\_\_  
 Diver in Charge: \_\_\_\_\_ Launch: 1212 Coxswain: SIMMONS  
 Tenders: SIMMONS Equipment Used: SCUBA

Dive Plan: ANCHOR BOAT ON TGT, DESCEND DOWN ANCHOR  
LINE, IDENTIFY, DEFINE DIMENSIONS, SIZE &  
LEAST DEPTH, ASCEND ANCHORLINE

Weather: Wind: 0-5 (Kts/dir)  
 Seas: < 1' (ft)  
 Swell: 0 (ft)

Diver	Surface Interval	Rep Group	P <sub>in</sub>	T <sub>in</sub> GMT	T <sub>out</sub>	P <sub>out</sub> GMT	Bottom Time	Max Depth	Group
BROWN			3000	1925	1937	2000	15	20	
WERHAGE			3000	1925	1937	2000	15	20	

Current: 0.5 KNOTS Visibility: 1' Bottom Type: Sand (mud)

Description & Dimensions: Tug lying on side, APPROX 30' IN  
LENGTH, BOW FACING APPROX N., APPROX  
3m FROM BOTTOM

## Diver Gauge Information

P<sub>in</sub>: 1485 P<sub>LD</sub>: 2270 P<sub>out</sub>: 1490

Time of Least Depth Measurement: 1930

**DANGER TO NAVIGATION REPORT**  
**DGR-02-07-NRT3**

**FIELD EXAMINATION NUMBER:** F00486  
**STATE:** Washington and Oregon  
**GENERAL LOCALITY:** Columbia River  
**SUBLOCALITY:** Approaches to Astoria to Crims Island  
**PROJECT NUMBER:** OPR-N438-NRB  
**SURVEY DATES:** June 1 - September 30, 2002

**Charts Affected:** 18521, 69<sup>th</sup> Edition, June 2002, Scale: 1:40000

See attached chartlet.

The charted pier and abandoned canning factory burned on January 26, 1993. The dock was rebuilt in its current configuration in June 1993. The support pilings were pulled out prior to construction of the existing pier except for those very close to shore.

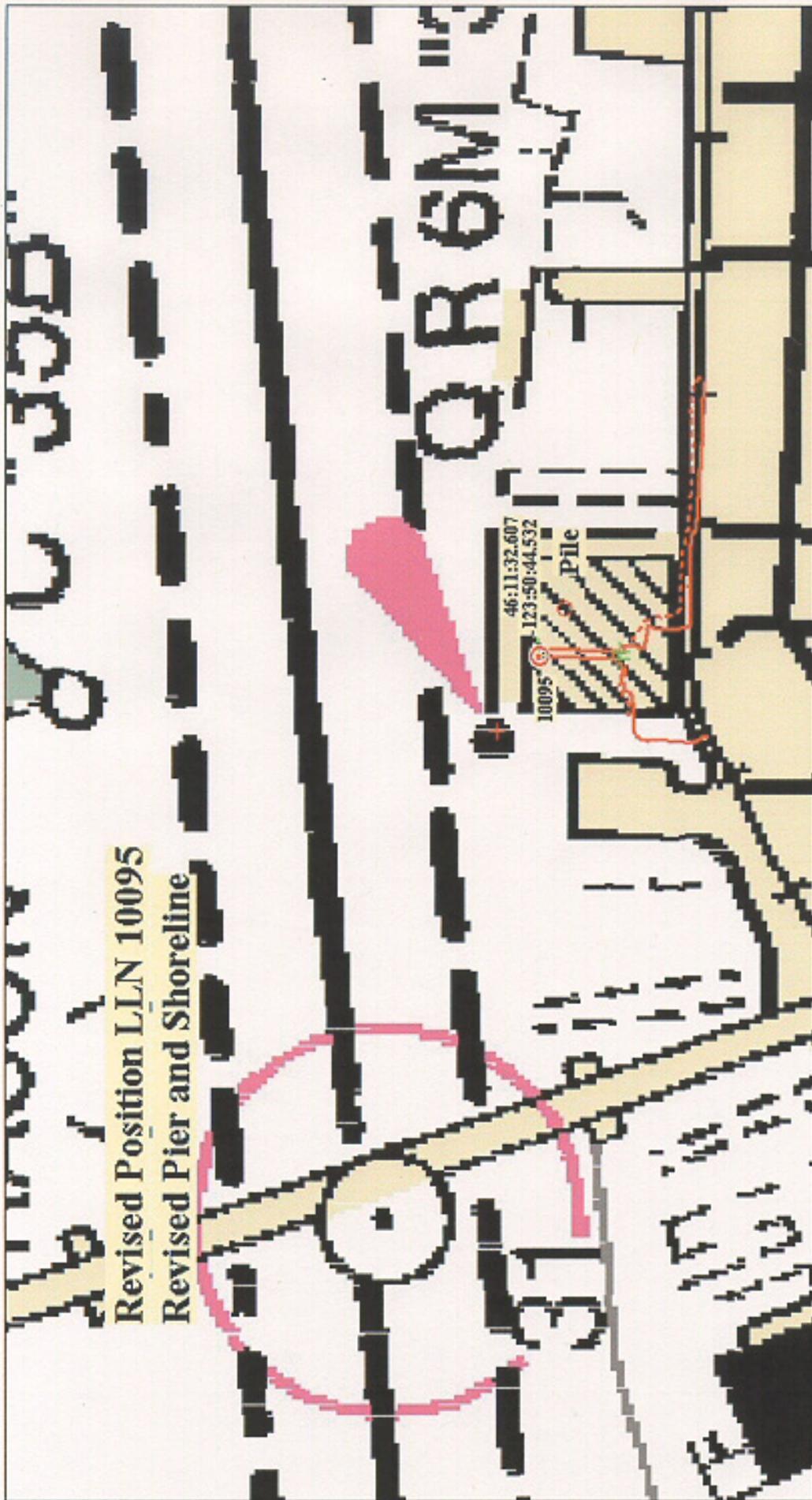
Source for this information is: Dan Supple  
General Manager  
Astoria Warehousing, Inc. (current owner of property)  
70 West Marine Drive  
Astoria, OR 97103  
Phone: (503-325-4021)  
FAX: (503-325-0552)  
e-mail: [fishhappens@theoregonshore.com](mailto:fishhappens@theoregonshore.com)

The new pier was positioned with DGPS data points and line data acquired with a Trimble backpack receiver. The pile depicted on the chartlet at latitude 46°11'32.290"N, longitude 123°50'42.765"W, was located with a detached position using HYPACK software

Delete the charted pier; chart the new pier as depicted; chart submerged ruins on the east side of the new pier shoreward of the near-shore end.

Astoria Light 36 (LLN 10095) is located on the end of the new pier at latitude  $46^{\circ}11'32.607''\text{N}$ , longitude  $123^{\circ}50'44.532''\text{W}$ .

Delete the light charted at latitude  $46^{\circ}11'33''\text{N}$ , longitude  $123^{\circ}50'47''\text{W}$



**Revised Position LLN 10095  
Revised Pier and Shoreline**

**Chartlet 1 of 1**

*DTOM0207 - Revised Position LLN 10095; Revised Pier*

**This chartlet has been corrected through  
Notice to Mariners dated  
NOT FOR NAVIGATION.**



**NATIONAL OCEANIC AND  
ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SERVICE**

Project: *OPR-A438-NRB*  
Survey: *F00486*  
State: *Washington/Oregon*  
Locality: *Columbia River*  
Sub-locality: *Approaches to Astoria to Crims Island*  
Survey Scale: *1:5,000*

Sounding Units: *Feet*  
Sounding Datum: *MLLW*  
Horizontal Datum: *NAD 83*  
Projection: *UTM 10*  
Scale Factor: *0.9996*

**NOAA NRT-3**  
**Commanding**  
June 1 to  
September 30, 2002

Subject: Anti DTON for F00484<sup>6</sup>  
Date: Fri, 05 Sep 2003 09:48:09 -0500  
From: Russ Davies <russ.davies@noaa.gov>  
Organization: phb

To: \_NOS OCS MCD Navigation Dangers <mcd.dton@noaa.gov>  
CC: John Lowell <John.Lowell@noaa.gov>, Jon Swallow <Jon.Swallow@noaa.gov>, Edward J Van Den Ameele <Edward.J.Vandenameele@noaa.gov>, Kathryn Simmons <Kathryn.Simmons@noaa.gov>

Reviewed and approved.

John E. Lowell  
Chief, Pacific Hydrographic Branch

---

 F00486antidton_1.wpd	<b>Name:</b> F00486antidton_1.wpd <b>Type:</b> Corel WordPerfect 8 Document (application/x-unknown-content-type-WP8Doc) <b>Encoding:</b> base64
--	--

Russ Davies <Russ.Davies@noaa.gov> Cartographer NOAA/NOA/PHB Cartographic Section
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# Danger to Navigation Report

Hydrographic Survey Registry Number: F00486

**ADVANCE  
INFORMATION**

Survey Title: State: Washington/Oregon  
Locality: Columbia River  
Sub-locality: Approaches to Astoria to Crims Island

Project Number: OPR-N438-NRB

Survey Dates: August - June 10 to October 16, 2002

Positions are based on the NAD83 horizontal datum.

## CHARTS AFFECTED:

<u>Chart</u>	<u>Scale</u>	<u>Edition</u>	<u>Date</u>
18521	1:40,000	69th	06/01/02

## DANGERS:

<u>Feature</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
Obstruction PA 2000	46/12/06	123/49/06

## COMMENTS:

Complete 200% SSS coverage, AWOIS 52972. No evidence was observed by the hydrographer at the charted location. Remove Obstruction and note PA 2000.

Questions concerning this report should be directed to the Chief, Pacific Hydrographic Branch at (206) 526-6835

RECRD  VESLTERMS  CHART  AREA   
CARTOCODE  SNDINGCODE  DEPTH

LAT83  LONG83  NATIVDATUM   
LATDEC:  LONDEC:  GPQUALITY   
GPSOURCE

PROJECT  ITEMSTATUS  SEARCHTYPE   
RADIUS  INIT  ASSIGNED   
TECNIQ   
Techniqnote

History   
DESCRIPTION  
24 NO.1063; POSITION ACCUR. WITHIN 1 MILE; REPORTED LOCATED BY US ENGINEERS  
PORTLAND, OREGON 6/41; POS.46-16-30N, 124-07-20W  
27 NO.113; LOCATED 6/41 BY COE, PORTLAND, OREGON.

Fieldnote

Proprietary   
YEARSUNK  NIMANUM

RECRD 
 VESLTERMS 
 CHART 
 AREA 
  
 CARTOCODE 
 SNDINGCODE 
 DEPTH

LAT83 
 LONG83 
 NATIVDATUM 
  
 LATDEC: 
 LONDEC: 
 GPQUALITY 
  
 GPSOURCE

PROJECT 
 ITEMSTATUS 
 SEARCHTYPE 
  
 RADIUS 
 INIT 
 ASSIGNED 
  
 TECNIQ 
  
 Techniqnote

History

Fieldnote

Proprietary 
 NIMANUM

RECRD 
 VESLTERMS 
 CHART 
 AREA 
  
 CARTOCODE 
 SNDINGCODE 
 DEPTH

LAT83 
 LONG83 
 NATIVDATUM 
  
 LATDEC: 
 LONDEC: 
 GPQUALITY 
  
 GPSOURCE

PROJECT 
 ITEMSTATUS 
 SEARCHTYPE 
  
 RADIUS 
 INIT 
 ASSIGNED 
  
 TECNIQ 
  
 Techniqnote

History

Fieldnote

Proprietary

YEARSUNK 
 NIMANUM

RECRD  VESLTERMS  CHART  AREA   
CARTOCODE  SNDINGCODE  DEPTH

LAT83  LONG83  NATIVDATUM   
LATDEC:  LONDEC:  GPQUALITY   
GPSOURCE

PROJECT  ITEMSTATUS  SEARCHTYPE   
RADIUS  INIT  ASSIGNED   
TECNIQ   
Techniqnote

History

Fieldnote

Proprietary

YEARSUNK  NIMANUM

RECRD  VESLTERMS  CHART  AREA   
CARTOCODE  SNDINGCODE  DEPTH

LAT83  LONG83  NATIVDATUM   
LATDEC:  LONDEC:  GPQUALITY   
GPSOURCE

PROJECT  ITEMSTATUS  SEARCHTYPE   
RADIUS  INIT  ASSIGNED   
TECNIQ

Techniqnote

History

Fieldnote

Proprietary

YEARSUNK  NIMANUM

**RECRD** 
**VESSLTERMS** 
**CHART** 
**AREA**

**CARTOCODE** 
**SNDCODE** 
**DEPTH**

**LAT83** 
**LONG83** 
**NATIVDATUM**

**LATDEC:** 
**LONDEC:** 
**GPQUALITY**

**GPSOURCE**

**PROJECT** 
**ITEMSTATUS** 
**SEARCHTYPE**

**RADIUS** 
**INIT** 
**ASSIGNED**

**TECNIQ**

Techniqnote

History

**HISTORY**  
 LNM2/91 (1/8/91)--13TH CGD; ADDS SUNKEN WRECK "PA" IN LAT. 46/14.24 N, LONG. 124/08.06 W (NAD83). THIS LNM REPORTED THE SUNKEN WRECK IN THE WRONG POSITION. THE POSITION WAS CORRECTED BY LNM10/91.  
 LNM10/91 (3/5/91)--13TH CGD; REPORTED A WRECK BOUY DEPLOYMENT IN LAT.46/15/12.4 N, LONG. 124/05/56.5 W (NAD83). THIS LNM IS THE ONLY ENTRY IN THE CHART HISTORY PERTAINING TO THE CHARTED SUNKEN WRECK. (ENTERED 10/96 BY MBH)  
 FE340/97--OPR-N219-PHP; ITEM NOT INVESTIGATED BY FIELD OPERATIONS BUT RESEARCH REVEALED THIS WRECK TO BE THE F/V SEA KING WHICH SANK 1/11/1991. A SALVAGE COMPANY DOVE ON THE WRECK AND REPORTED IT SANDED IN AND TOO DANGEROUS TO ENTER. RETAIN AS CURRENTLY CHARTED. (UPDATED 1/98 BY MBH)

Fieldnote

**INVESTIGATION SUMMARY:** Requested current hydrographic information from Corps of Engineers. See attached chartlet. The wreck is located in the southeast corner of a dump site for dredge material; the site is surveyed regularly and the most recent soundings over the charted wreck range from 62.3 to 71.1 feet. USCOE has not observed any evidence of a wreck at this location. Since the 1991 dive investigation found the wreck already silted in; since dredge materials have been deposited over the wreck; and since the surveyed depths are greater than 60 feet, the wreck - if it still exists - should not be charted as a hazard to navigation.

**CHARTING RECOMMENDATION (Hydrographer)** Delete the submerged wreck charted at the above location. Chart the latest soundings.

**EVALUATOR COMMENTS:** Do not concur, because of no conclusive evidence found to disprove the wreck, retain charted submerged wreck at its current position.

Proprietary

**YEARSUNK** 
**NIMANUM**

RECRD  VESLTERMS  CHART  AREA   
CARTOCODE  SNDINGCODE  DEPTH

LAT83  LONG83  NATIVDATUM   
LATDEC:  LONDEC:  GPQUALITY   
GPSOURCE

PROJECT  ITEMSTATUS  SEARCHTYPE   
RADIUS  INIT  ASSIGNED   
TECNIQ

Techniqnote

History   
CL1777/76--USCG AUX.; REPORTS A TUNA BOAT WRECK. ABOUT 30 FEET OF THE BOW AND FORWARD DECK ARE VISIBLE. THE VESSELS' MASTS STANDS ABOUT 30 FEET HIGH. THE VESSEL IS ABOUT 290 FEET LONG WITH ALL SUBMERGED EXCEPT THE PREVIOUSLY NOTED BOW SECTION. WRECK WAS CHARTED IN POS.46-16-29.3 N 124-02-40.9 W (SCALED NAD 83) FROM GRAPHIC.  
NOS ISSUED A NOTICE TO MARINERS WHICH WAS PUBLISHED IN LNM 52/76, 13TH CGD WHICH ADDED THIS VISIBLE WRECK "PA" TO THE CHART IN LAT. 46/16/26 N, LONG. 124/02/47 W. (ENTERED 10/96 BY MBH)  
FE340/97--OPR-N219-PHP; NO FIELD WORK CONDUCTED ON THIS ITEM. RESEARCH INFORMATION PROVIDED BY THE USCG INDICATED THAT THIS WRECK CURRENTLY IS VISIBLE WITH RUSTING SECTIONS IN RUINS AGAINST THE WEST SIDE OF JETTY "A" AS CHARTED. RETAIN AS CHARTED. (UPDATED 1/98 BY MBH)

Fieldnote

Proprietary

YEARSUNK  NIMANUM

RECRD  VESSLTERMS  CHART  AREA   
CARTOCODE  SNDINGCODE  DEPTH

LAT83  LONG83  NATIVDATUM   
LATDEC:  LONDEC:  GPQUALITY   
GPSOURCE

PROJECT  ITEMSTATUS  SEARCHTYPE   
RADIUS  INIT  ASSIGNED   
TECNIQ   
Techniqnote

History

Fieldnote

Proprietary  
YEARSUNK  NIMANUM

RECRD  VESSLTERMS  CHART  AREA   
CARTOCODE  SNDINGCODE  DEPTH

LAT83  LONG83  NATIVDATUM   
LATDEC:  LONDEC:  GPQUALITY   
GPSOURCE

PROJECT  ITEMSTATUS  SEARCHTYPE   
RADIUS  INIT  ASSIGNED   
TECNIQ   
Techniqnote

History

Fieldnote

Proprietary

YEARSUNK  NIMANUM

RECRD  VESLTERMS  CHART  AREA   
CARTOCODE  SNDINGCODE  DEPTH

LAT83  LONG83  NATIVDATUM   
LATDEC:  LONDEC:  GPQUALITY   
GPSOURCE

PROJECT  ITEMSTATUS  SEARCHTYPE   
RADIUS  INIT  ASSIGNED   
TECNIQ   
Techniqnote

History

Fieldnote

Proprietary

YEARSUNK  NIMANUM

RECRD  VESSLTERMS  CHART  AREA   
CARTOCODE  SNDINGCODE  DEPTH

LAT83  LONG83  NATIVDATUM   
LATDEC:  LONDEC:  GPQUALITY   
GPSOURCE

PROJECT  ITEMSTATUS  SEARCHTYPE   
RADIUS  INIT  ASSIGNED   
TECNIQ

Techniqnote

History

Fieldnote   
See DTON report  
  
CHARTING RECOMMENDATION (Hydrographer) Delete the submerged wreck charted at latitude 46:15:12N, longitude 123:58:09W. Chart a wreck submerged 11 feet at latitude 46:15:29.746"N, longitude 123:58:14.740"W.  
  
EVALUATOR COMMENTS: Concur

Proprietary

YEARSUNK  NIMANUM

RECRD  VESLTERMS  CHART  AREA   
CARTOCODE  SNDINGCODE  DEPTH

LAT83  LONG83  NATIVDATUM   
LATDEC:  LONDEC:  GPQUALITY   
GPSOURCE

PROJECT  ITEMSTATUS  SEARCHTYPE   
RADIUS  INIT  ASSIGNED

TECNIQ

Techniqnote

History

Fieldnote

Proprietary

YEARSUNK  NIMANUM

RECRD  VESLTERMS  CHART  AREA   
CARTOCODE  SNDINGCODE  DEPTH

LAT83  LONG83  NATIVDATUM   
LATDEC:  LONDEC:  GPQUALITY   
GPSOURCE

PROJECT  ITEMSTATUS  SEARCHTYPE   
RADIUS  INIT  ASSIGNED

TECNIQ

Techniqnote

History

Fieldnote

Proprietary

YEARSUNK  NIMANUM

RECRD  VESLTERMS  CHART  AREA   
CARTOCODE  SNDINGCODE  DEPTH

LAT83  LONG83  NATIVDATUM   
LATDEC:  LONDEC:  GPQUALITY   
GPSOURCE

PROJECT  ITEMSTATUS  SEARCHTYPE   
RADIUS  INIT  ASSIGNED   
TECNIQ

Techniqnote

History

Fieldnote

Proprietary

YEARSUNK  NIMANUM

RECRD  VESLTERMS  CHART  AREA   
CARTOCODE  SNDINGCODE  DEPTH

LAT83  LONG83  NATIVDATUM   
LATDEC:  LONDEC:  GPQUALITY   
GPSOURCE

PROJECT  ITEMSTATUS  SEARCHTYPE   
RADIUS  INIT  ASSIGNED   
TECNIQ

Techniqnote

History

Fieldnote

Proprietary

YEARSUNK  NIMANUM

RECRD  VESLTERMS  CHART  AREA   
CARTOCODE  SNDINGCODE  DEPTH

LAT83  LONG83  NATIVDATUM   
LATDEC:  LONDEC:  GPQUALITY   
GPSOURCE

PROJECT  ITEMSTATUS  SEARCHTYPE   
RADIUS  INIT  ASSIGNED   
TECNIQ

Techniqnote

History

Fieldnote   
CHARTING RECOMMENDATION (Hydrographer) Retain as charted.  
  
EVALUATOR COMMENTS: Concur"/>

Proprietary

YEARSUNK  NIMANUM

RECRD  VESSLTERMS  CHART  AREA   
CARTOCODE  SNDINGCODE  DEPTH

LAT83  LONG83  NATIVDATUM   
LATDEC:  LONDEC:  GPQUALITY   
GPSOURCE

PROJECT  ITEMSTATUS  SEARCHTYPE   
RADIUS  INIT  ASSIGNED   
TECNIQ   
Techniqnote

History

Fieldnote

Proprietary

YEARSUNK  NIMANUM

RECRD  VESLTERMS  CHART  AREA   
CARTOCODE  SNDINGCODE  DEPTH

LAT83  LONG83  NATIVDATUM   
LATDEC:  LONDEC:  GPQUALITY   
GPSOURCE

PROJECT  ITEMSTATUS  SEARCHTYPE   
RADIUS  INIT  ASSIGNED   
TECNIQ

Techniqnote

History

Fieldnote   
EVALUATOR COMMENTS: Concur"/>

Proprietary

YEARSUNK  NIMANUM

**RECRD** 
**VESSLTERMS** 
**CHART** 
**AREA**

**CARTOCODE** 
**SNDCODE** 
**DEPTH**

**LAT83** 
**LONG83** 
**NATVDATUM**

**LATDEC:** 
**LONDEC:** 
**GPQUALITY**

**GPSOURCE**

**PROJECT** 
**ITEMSTATUS** 
**SEARCHTYPE**

**RADIUS** 
**INIT** 
**ASSIGNED**

**TECNIQ**

**Techniqnote**

**History**

**Fieldnote**

**Proprietary**

**YEARSUNK** 
**NIMANUM**

RECRD  VESSLTERMS  CHART  AREA   
CARTOCODE  SNDINGCODE  DEPTH

LAT83  LONG83  NATIVDATUM   
LATDEC:  LONDEC:  GPQUALITY   
GPSOURCE

PROJECT  ITEMSTATUS  SEARCHTYPE   
RADIUS  INIT  ASSIGNED   
TECNIQ

Techniqnote

History

Fieldnote

Proprietary

YEARSUNK  NIMANUM

RECRD  VESLTERMS  CHART  AREA   
CARTOCODE  SNDINGCODE  DEPTH

LAT83  LONG83  NATIVDATUM   
LATDEC:  LONDEC:  GPQUALITY   
GPSOURCE

PROJECT  ITEMSTATUS  SEARCHTYPE   
RADIUS  INIT  ASSIGNED

TECNIQ

Techniqnote

History

Fieldnote

Proprietary

YEARSUNK

NIMANUM

RECRD  VESSLTERMS  CHART  AREA   
CARTOCODE  SNDINGCODE  DEPTH

LAT83  LONG83  NATIVDATUM   
LATDEC:  LONDEC:  GPQUALITY   
GPSOURCE

PROJECT  ITEMSTATUS  SEARCHTYPE   
RADIUS  INIT  ASSIGNED

TECNIQ

Techniqnote

History

Fieldnote

Proprietary

YEARSUNK  NIMANUM

RECRD  VESLTERMS  CHART  AREA   
CARTOCODE  SNDINGCODE  DEPTH

LAT83  LONG83  NATIVDATUM   
LATDEC:  LONDEC:  GPQUALITY   
GPSOURCE

PROJECT  ITEMSTATUS  SEARCHTYPE   
RADIUS  INIT  ASSIGNED

TECNIQ

Techniqnote

History

Fieldnote

Proprietary

YEARSUNK  NIMANUM

Kathryn Simmons

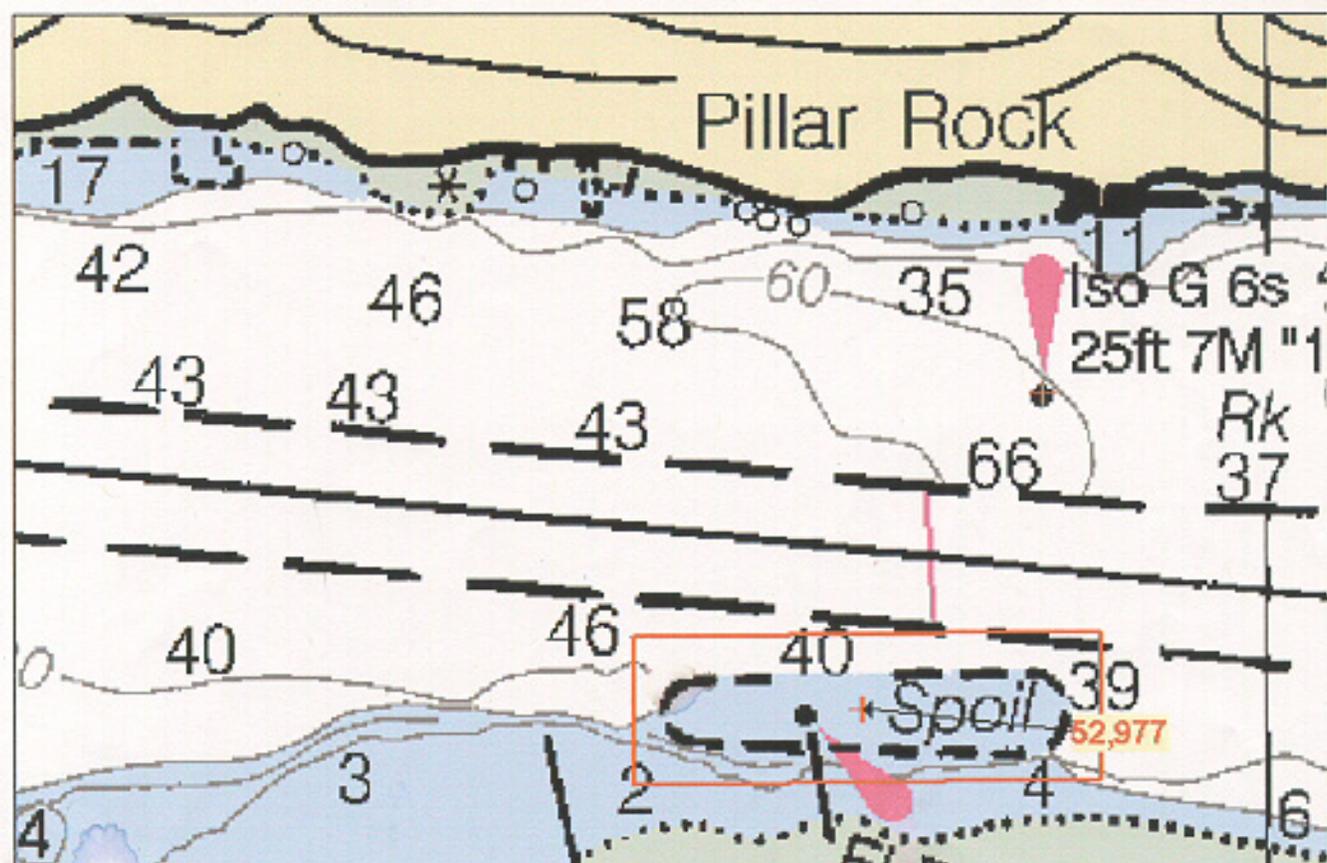
From: "Kathryn Simmons" <Kathryn.Simmons@noaa.gov>  
 To: "Carrubba, Sheryl A NWP" <Sheryl.A.Carrubba@nwp01.usace.army.mil>  
 Sent: Thursday, October 24, 2002 2:48 PM  
 Attach: SpoilArea.JPG  
 Subject: Spoil Area

Sheryl,

Attached is a graphic showing a spoil area just south of Pillar Rock. According to our records the area was designated a disposal area in 1958. My guess is it has not been used as a disposal site for some time. I'm not sure who I should ask but I wonder if you could refer me to someone at ACOE who can confirm that the site is or is not currently used.

Thanks for your help.

Kathryn Simmons  
 Team Leader  
 Navigation Response Team 3  
 NOAA, Office of Coast Survey  
 503-325-1051



10/28/2002

**Kathryn Simmons**

---

**From:** "Gornick, Jon M NWP" <Jon.M.Gornick@nwp01.usace.army.mil>  
**To:** <Kathryn.Simmons@noaa.gov>  
**Cc:** "Carrubba, Sheryl A NWP" <Sheryl.A.Carrubba@nwp01.usace.army.mil>  
**Sent:** Monday, October 28, 2002 8:03 AM  
**Subject:** Disposal site near Pillar Rock

Kathryn,

I looked at our records and old microfilms and nowhere do I see any reference to a "designated" disposal site in the location you show south of Pillar Rock. It appears that we disposed in that location many times over the years, but primarily using hopper dredges. And since the location is very near the Federal navigation channel, I would construe this to be what we call flowlane disposal (placement of dredged material within or adjacent to the navigation channel).

For your information, the only designated inwater disposal sites the Corps uses are Harrington Sump (adjacent to Rice Island at approx. RM 21) and Area D (near RM 6).

I hope this helps. If you need to discuss any of this, please call me at (503) 808-4341.

Jon Gornick

10/28/2002

**Return-Path:** <bruce.olmstead@noaa.gov>

**Received:** from noaa.gov ([161.55.6.7]) by mercury.nwn.noaa.gov (Netscape Messaging Server 4.15) with ESMTTP id IC2UVH00.62A for <Russ.Davies@noaa.gov>; Thu, 17 Feb 2005 14:38:05 -0800

**Message-ID:** <42151EF9.AFE0C06D@noaa.gov>

**Date:** Thu, 17 Feb 2005 14:47:21 -0800

**From:** "Bruce Olmstead" <Bruce.Olmstead@noaa.gov>

**Organization:** phb

**X-Mailer:** Mozilla 4.8 [en] (WinNT; U)

**X-Accept-Language:** en

**MIME-Version:** 1.0

**To:** Russ Davies <Russ.Davies@noaa.gov>

**Subject:** [Fwd: [Fwd: Spoil area]]

**Content-Type:** multipart/mixed; boundary="-----0797FEE17018322F6C00DE8C"

Russ,

FYI

----- Original Message -----

Subject: [Fwd: Spoil area]

Date: Thu, 17 Feb 2005 17:34:59 -0500

From: "David Poltilove" <David.Poltilove@noaa.gov>

Organization: Marine Chart Division

To: Bruce Olmstead <Bruce.Olmstead@noaa.gov>, Gerald Koehl

<Gerald.Koehl@noaa.gov>, Jenny Thacker <Jenny.Thacker@noaa.gov>, Robert

Heeley <Robert.Heeley@noaa.gov>

You should not remove the spoil area. Please see the explanation below. Jenny consulted with Quality Assurance Plans and Standards Branch.

----- Original Message -----

Subject: Spoil area

Date: Thu, 17 Feb 2005 15:04:41 -0500

From: "Jenny Thacker" <Jenny.Thacker@noaa.gov>

To: David Poltilove <David.Poltilove@noaa.gov>, Robert Heeley

<Robert.Heeley@noaa.gov>

CC: Gerald Koehl <Gerald.Koehl@noaa.gov>

Hi Rob and Dave,

This afternoon I recieved the e-mail at the bottom of this e-mail from Bruce Olmstead in PHB. He wanted to know about whether or not he could remove a Spoil Area from a chart as recommended by an NOS hydrographer who did a survey in the area in question. The relevant communications with the hydrographer and the USACE are attached. After consulting with Gerry Koehl, I came up with the following response, but I didn't want to send it without your ok.

So- shall I send it? Or do you prefer to respond to him directly?

Thanks,

Jenny

\*\*\*\*\*

Hi Russ,

I had to look this one up myself and confirm what I thought with Gerry Koehl in QA. He agreed with me that we cannot remove this Spoil Area, although sometimes Spoil Areas can be removed. Here's my logic on it:

The Nautical Chart Manual says that "Spoil areas are established for the disposal of dredged material removed from a bottom of channels and harbors during dredging operations. They are generally located near and parallel to the dredged channel and are potentially dangerous to navigation...When a spoil area is determined to be inactive, it shall be retained on the chart and labeled 'Discontinued Spoil Area' until a new survey is available for charting hydrography in the area." NCM Section 4.14.5.3.1 REVISED APRIL 1, 2004.

Following this logic, if we had a confirmation from the USACE that this spoil area had been totally discontinued and that no more dredged material was being deposited in the area we could remove it with your hydro survey data.

The thing is that the letter from the USACE doesn't say that. It says that they don't have a "designated disposal site" in this area, but that "(they) disposed in that location many times over the years...primarily using hopper dredges." And that "since the location is very near the Federal navigation channel (they) would construe this to be what (they) call flowlane disposal (placement of dredged material within or adjacent to the navigation channel)." In other words, it sounds to me like they still use this site for the disposal of dredged material removed from a bottom of channels and harbors during dredging operations - which is our definition of a Spoil Area. In any case they do NOT confirm that this Spoil Area is totally DISCONTINUED forever and all time. That's what we would need to remove the Spoil Area.

I think some of the confusion about this site came from the way the letter to the USACE was written - it questioned whether or not the area was still a "designated disposal area" - which it apparently is not. Our definition (and theirs) of disposal areas is different. They responded to that question correctly, but did not address the real question which would make it possible to remove the Spoil Area from the chart which is "is this area still used for deposition of spoil / dredged materials?" If you wanted to pursue this any further the thing to do would be to contact the USACE again and ask them that. Meanwhile, don't remove the Spoil Area yet.

I hope this helps,

Jenny  
301-713-2745 ext 158

PS. We cannot add soundings or depth curves in a Spoil Area (see NCM Section 4.14.5.3.1 REVISED APRIL 1, 2004), so unless the USACE confirms this site as permanently discontinued, do not use the data from the hydro survey inside the borders to this Spoil Area, and remove the one depth curve that is currently within the area.

\*\*\*\*\*

Russ Davies wrote:

Afternoon Jenny,

I am processing a survey in the Columbia River. I have a spoil area that the hydrographer recommends to be deleted. I have not dealt with many spoil areas, but I remember something about we cannot delete them

because they are federally maintained or something. Attached is all the information that the hydrographer submitted. Can I remove the area or not?

Thanks  
Russ

---

 <a href="#">awois3.pdf</a>	<b>X-Mozilla-IMAP-Part: 2</b> Content-Type: application/pdf; name="awois3.pdf" Content-Transfer-Encoding: base64 Content-Disposition: inline; filename="awois3.pdf"
--	--

 <a href="#">awois2.pdf</a>	<b>X-Mozilla-IMAP-Part: 3</b> Content-Type: application/pdf; name="awois2.pdf" Content-Transfer-Encoding: base64 Content-Disposition: inline; filename="awois2.pdf"
--	--

 <a href="#">awois.pdf</a>	<b>X-Mozilla-IMAP-Part: 4</b> Content-Type: application/pdf; name="awois.pdf" Content-Transfer-Encoding: base64 Content-Disposition: inline; filename="awois.pdf"
---	--

**RECRD** 
**VESSLTERMS** 
**CHART** 
**AREA** 
  
**CARTOCODE** 
**SNDCODE** 
**DEPTH**

**LAT83** 
**LONG83** 
**NATVDATUM** 
  
**LATDEC:** 
**LONDEC:** 
**GPQUALITY** 
  
**GPSOURCE**

**PROJECT** 
**ITEMSTATUS** 
**SEARCHTYPE** 
  
**RADIUS** 
**INIT** 
**ASSIGNED** 
  
**TECNIQ**

Techniqnote

**History**
  
H7817/50- 13 FT SOUNDING OBTAINED IN POS. 46 15 30N, 123 35 09.3W NAD 27, CONVERTS TO 46 15 29.4N, 123 35 13.8 NAD 83. THE FEATURE IS APPARENTLY PILLAR, ALTHOUGH NO GEOGRAPHIC NAME IS SHOWN.  
BP125013/1985--USACE SURVEY; PREVIOUSLY APPLIED SOUNDING UPDATED TO 11 FT.  
CL1251/2001--USCG BUOY TENDER BLUEBELL ADVISED TO DELETE 11 FT SOUNDING CHARTED EAST OF PILLAR ROCK LIGHT. REPEATED CROSSINGS OVER THE AREA HAVE REVEALED NO DEPTHS LESS THAN 40 FT IN THIS LOCATION  
\*\*\*\* NEARBY "RK" LABEL CHARTED WITHOUT FEATURE SYMBOL OR SOUNDING IN POS.46-15-28.4 N 123-35-00 W NAD 83. APPEARED ON 1971 EDITION OF CHART 6152 (18523). THE LABEL IS LIKELY THE LABEL FOR PILLAR ROCK WHICH IS MARKED BY PILLAR ROCK LIGHT 17.

**Fieldnote**
  
**INVESTIGATION SUMMARY:** Visual. Pillar Rock is a very large, distinctive rock approximately 30 feet in diameter which should be charted as an islet. Light 17 is on top of Pillar Rock. See photo. A green buoy has been placed at the channel edge just south of the islet at the request of the Columbia River Pilots
  
**CHARTING RECOMMENDATION (Hydrographer)** Chart the light on top of the small islet. Delete the "Rk" notation.
  
**EVALUATOR COMMENTS:** Concur, chart islet with a light at latitude 46/15/28.93N, longitude 123/35/13.72W

Proprietary

**YEARSUNK** 
**NIMANUM** 
**Print Record**

RECRD  VESLTERMS  CHART  AREA   
CARTOCODE  SNDINGCODE  DEPTH

LAT83  LONG83  NATIVDATUM   
LATDEC:  LONDEC:  GPQUALITY   
GPSOURCE

PROJECT  ITEMSTATUS  SEARCHTYPE   
RADIUS  INIT  ASSIGNED   
TECNIQ

Techniqnote

History

Fieldnote

Proprietary

YEARSUNK  NIMANUM

RECRD  VESSLTERMS  CHART  AREA   
CARTOCODE  SNDINGCODE  DEPTH

LAT83  LONG83  NATIVDATUM   
LATDEC:  LONDEC:  GPQUALITY   
GPSOURCE

PROJECT  ITEMSTATUS  SEARCHTYPE   
RADIUS  INIT  ASSIGNED   
TECNIQ   
Techniqnote

History

Fieldnote

Proprietary

YEARSUNK  NIMANUM



RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	K. Brown, NRT3
POSITIONS DETERMINED AND/OR VERIFIED	K. Simmons, NRT3
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	R. Davies, PHB, Seattle
	<input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
	FIELD ACTIVITY REPRESENTATIVE
	OFFICE ACTIVITY REPRESENTATIVE
	<input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER "METHOD AND DATE OF LOCATION"

(Consult Photogrammetric Instructions No. 64)

OFFICE	FIELD (Cont'd)
<p>1. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, Day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75</p> <p>FIELD</p> <p>I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection</p> <p>A. Field Positions* require entry of method of Location and date of field work. EXAMPLE: F-2-6-L 8-12-75</p> <p>* FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.</p>	<p>B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982</p> <p>II. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter "Triang. Rec." with date of recovery. EXAMPLE: Triang. Rec. 8-12-75</p> <p>III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' And date. EXAMPLE: V-Vis. 8-12-75</p> <p>** PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.</p>

NOAA FORM 76-16 (8-76)

SUPERSEDES NOAA FORM 76-16 (8-76) WHICH IS OBSOLETE, AND EXISTING STOCK SHOULD BE DESTROYED UPON RECEIPT OF REVISION

Puget Island uncharted transmission tower heights and positions.

Tower 2/2 - SW side of Puget Island

Height: 230 Ft.

Position: 46° 10' 57"N, 123° 25' 32"W

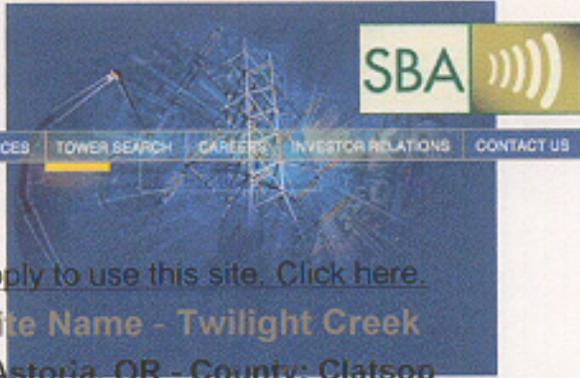
Tower 4/8 - N side Puget Island near bridge over Cathlamet channel.

Height: 310 Ft.

Position: 46° 11' 17"N, 123° 22' 41"W

Information obtained by phone conversation on Sept. 16, 2002.

Contact: Kurt Syverson, Line Maintenance Foreman  
Bonneville Power Administration - Transmission Business Line Division  
Olympia Region  
5240 Trosper St. S.W.  
Olympia, WA 98512-5623  
ph (360) 418-2590



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**Site Name - Twilight Creek**

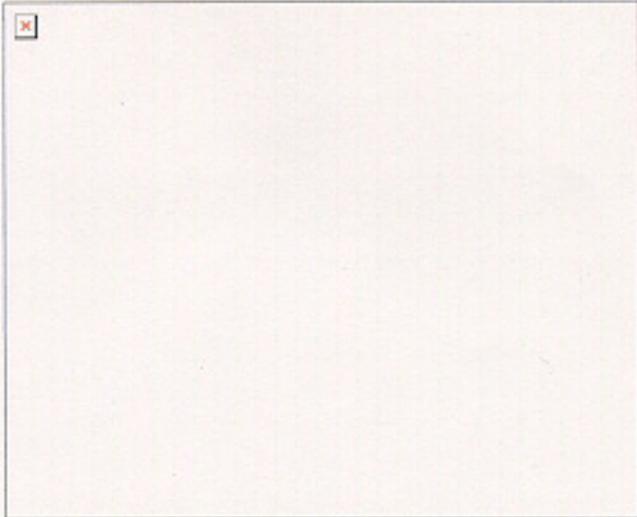
**Location Astoria, OR - County: Clatsop**  
**MTA: 30 BTA: 358**

**Coordinates Lat: 46° 10' 7" - Lon: 123° 43' 59"**

**Details Ground Elev: 141' - Height: 250'**

**Site type SBA Tower**

**Map**



Maps by  
 **Expedia.com**  
www.expediamaps.com

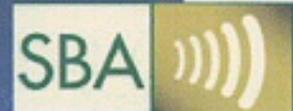
[Click here for a Navigable version of this map.](#)

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*10mcs - 112m*

*Knot 2nd row - River W. of tower*

*#510 - 50x*



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[Apply to use this site. Click here.](#)  
**Site Name - Warrenton 2, OR**

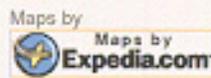
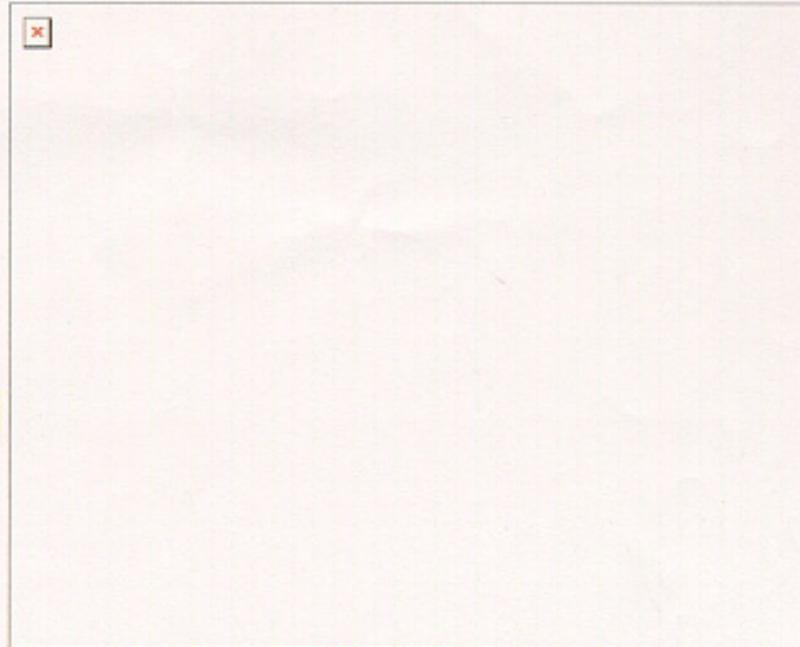
**Location** Warrenton, OR - County: Clatsop  
 MTA: 30 BTA: 358

**Coordinates** Lat: 46° 9' 56" - Lon: 123° 54' 48"

**Details** Ground Elev: 7' - Height: 145'

**Site type** SBA Tower

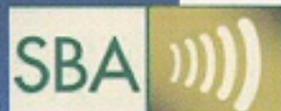
**Map**



[www.expediamaps.com](http://www.expediamaps.com)

[Click here for a Navigable version of this map.](#)

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Towers owned and/or managed by SBA are listed in Red

Results of search of all sites located in Warrenton, OR at least 0' in height

Site ID	Latitude	Longitude	Ground Elev. (ft)	Structure Hgt (ft)	Profile
OR04016-S	46° 9' 56"	123° 54' 48"	7	145	<a href="#">View Profile</a>

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# FAX

Date: November 21, 2002  
Number of pages including cover sheet: \_\_\_\_\_

To: Don Oathes - USACE

Phone: 503-791-3148  
Fax phone: 503-325-1448  
CC:

From: Kathryn Simmons  
Navigation Response Team  
N/CS53x3

Phone: 503-460-0006  
Fax phone: 503-460-0008

REMARKS:  Urgent  For your review  Reply ASAP  Please comment

Don, attached is a chartlet showing the dredging ranges around Harrington Point. Bergerson has confirmed pulling four of these. I've circled the three he did not account for. Do you have any info?



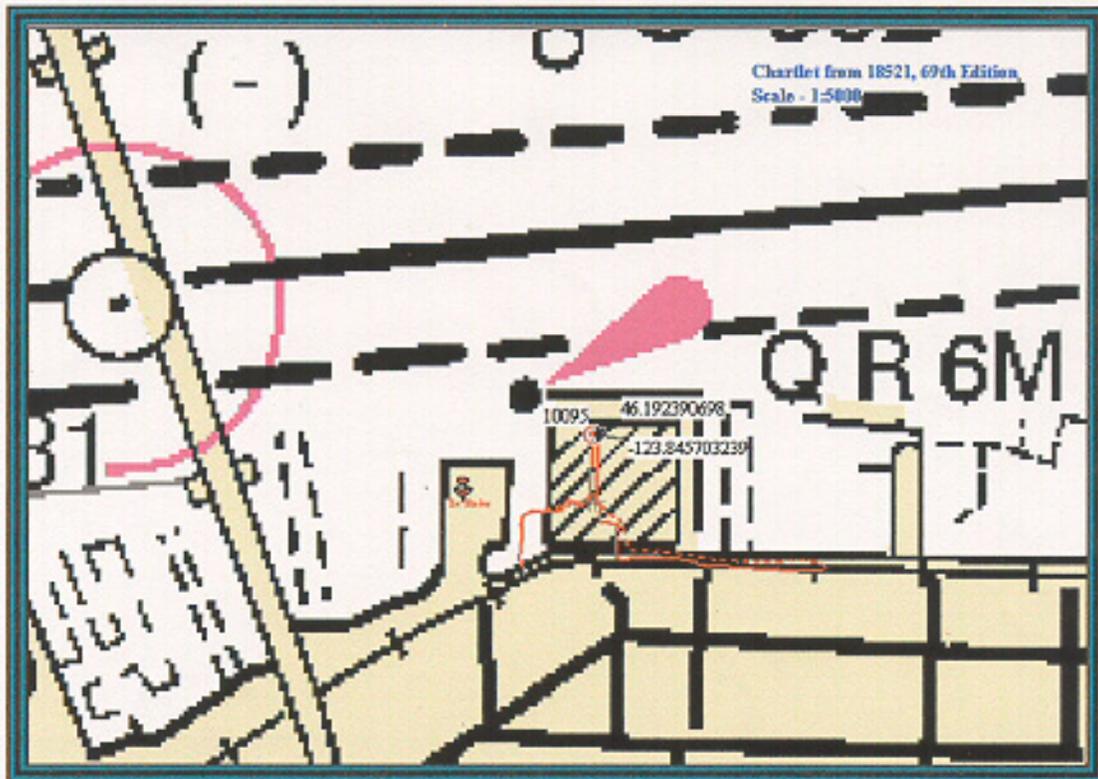
National  
Oceanic and  
Atmospheric  
Administration



August 05, 2002

MEMO TO: Marine Chart Division, Office of Coast Survey  
FROM: Kathryn Simmons, Navigation Response Team 3  
SUBJECT: Chart Correction

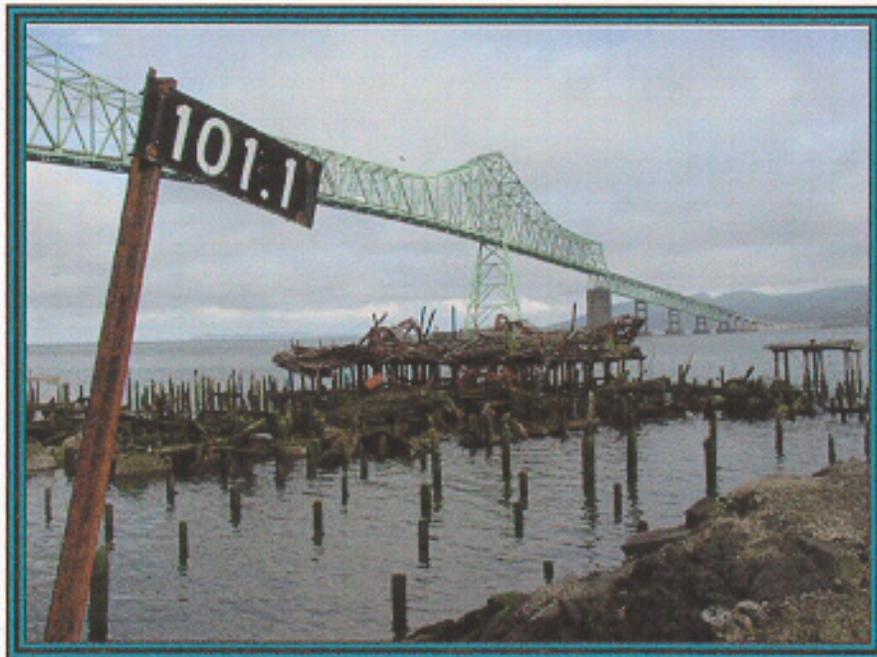
The pier and building depicted on the chartlet below burned in 1996. The new pier as depicted in red was built in 1997. The dotted line represents approximate MHW; data were collected while walking along the visible high water line. The solid line represents the top edge of the feature

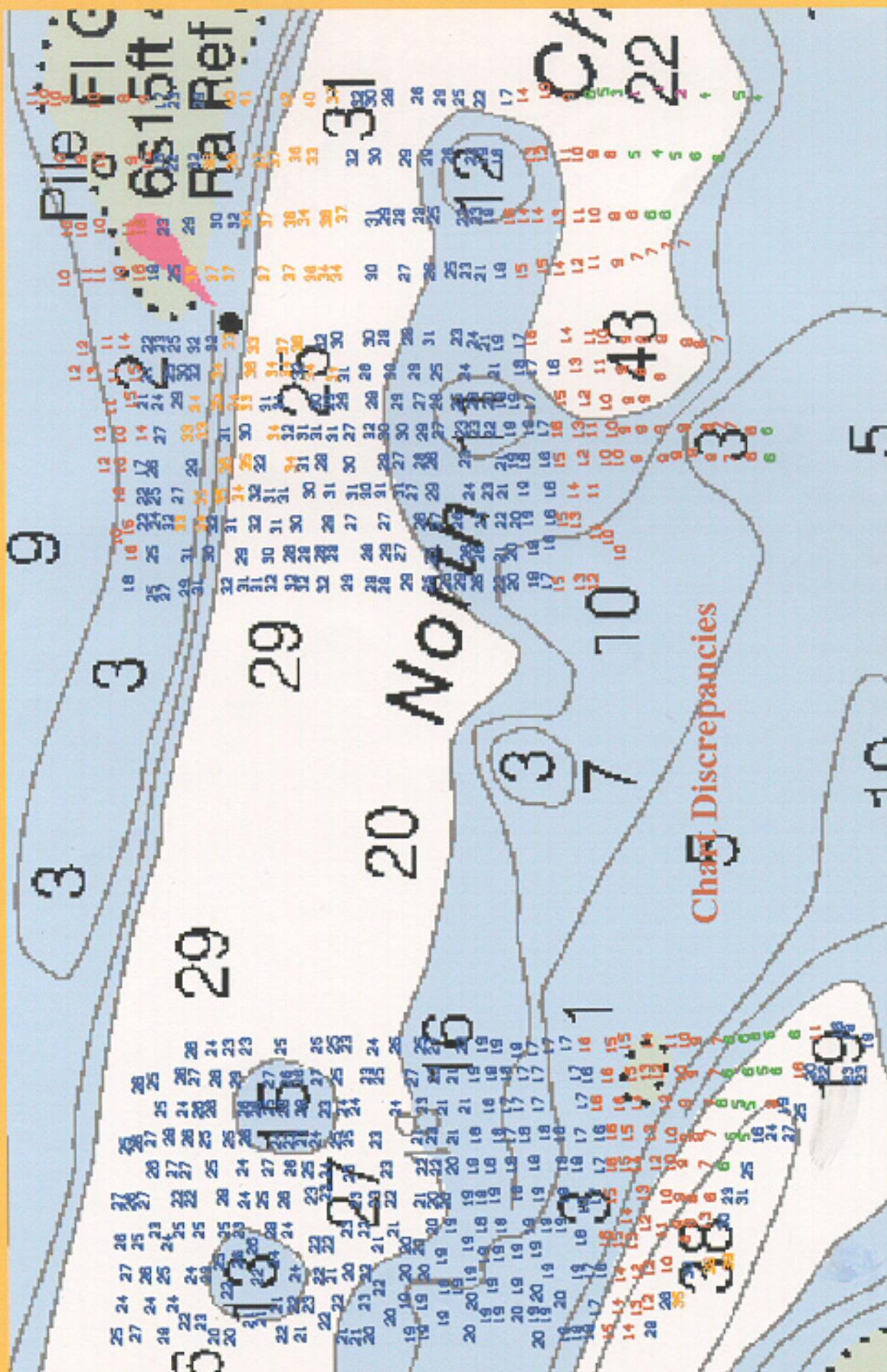


The light charted at latitude  $46^{\circ}11'33.662''\text{N}$ , longitude  $123^{\circ}50'47.389''\text{W}$ , has been moved to the new pier and is now located at latitude  $46^{\circ}11'32.606''\text{N}$ , longitude  $123^{\circ}50'44.532''\text{W}$ .



The pier charted to the west is in ruins, see photo below:





File FIG  
6s15ft  
Ra Ref.

Chart Discrepancies

North

3 9 3 29 20 70 3 7 3 19 3 22 3 23 3 25 3 26 3 27 3 28 3 29 3 30 3 31 3 32 3 33 3 34 3 35 3 36 3 37 3 38 3 39 3 40 3 41 3 42 3 43 3 44 3 45 3 46 3 47 3 48 3 49 3 50 3 51 3 52 3 53 3 54 3 55 3 56 3 57 3 58 3 59 3 60 3 61 3 62 3 63 3 64 3 65 3 66 3 67 3 68 3 69 3 70 3 71 3 72 3 73 3 74 3 75 3 76 3 77 3 78 3 79 3 80 3 81 3 82 3 83 3 84 3 85 3 86 3 87 3 88 3 89 3 90 3 91 3 92 3 93 3 94 3 95 3 96 3 97 3 98 3 99 3 100



**Kathryn Simmons**

---

**From:** "Cameron, Douglas H." <DCameron@PACNORWEST.USCG.mil>  
**To:** "Kathryn Simmons" <Kathryn.Simmons@noaa.gov>  
**Sent:** Wednesday, November 20, 2002 3:40 PM  
**Subject:** RE: USCG Pier Structure

Old north pier completely removed mid 80's believe that all piling have been removed I've seen ships go through the area there and not hit anything.

Doug

-----Original Message-----

**From:** Kathryn Simmons [mailto:Kathryn.Simmons@noaa.gov]  
**Sent:** Wednesday, November 20, 2002 13:13  
**To:** Cameron Douglas H.  
**Subject:** USCG Pier Structure

Hi Doug,

Attached is a chartlet of the USCG pier area at Tongue Point. As you can see, the chart shows a structure that looks like it might have been a floating pier. Do you know anything about what it was or what happened to it? We know it's not there, but if you could confirm that whatever it was has been completely pulled out or cut off at the mud line, we can get it removed from the chart.

Thanks for your help.

Kathryn

**Kathryn Simmons**

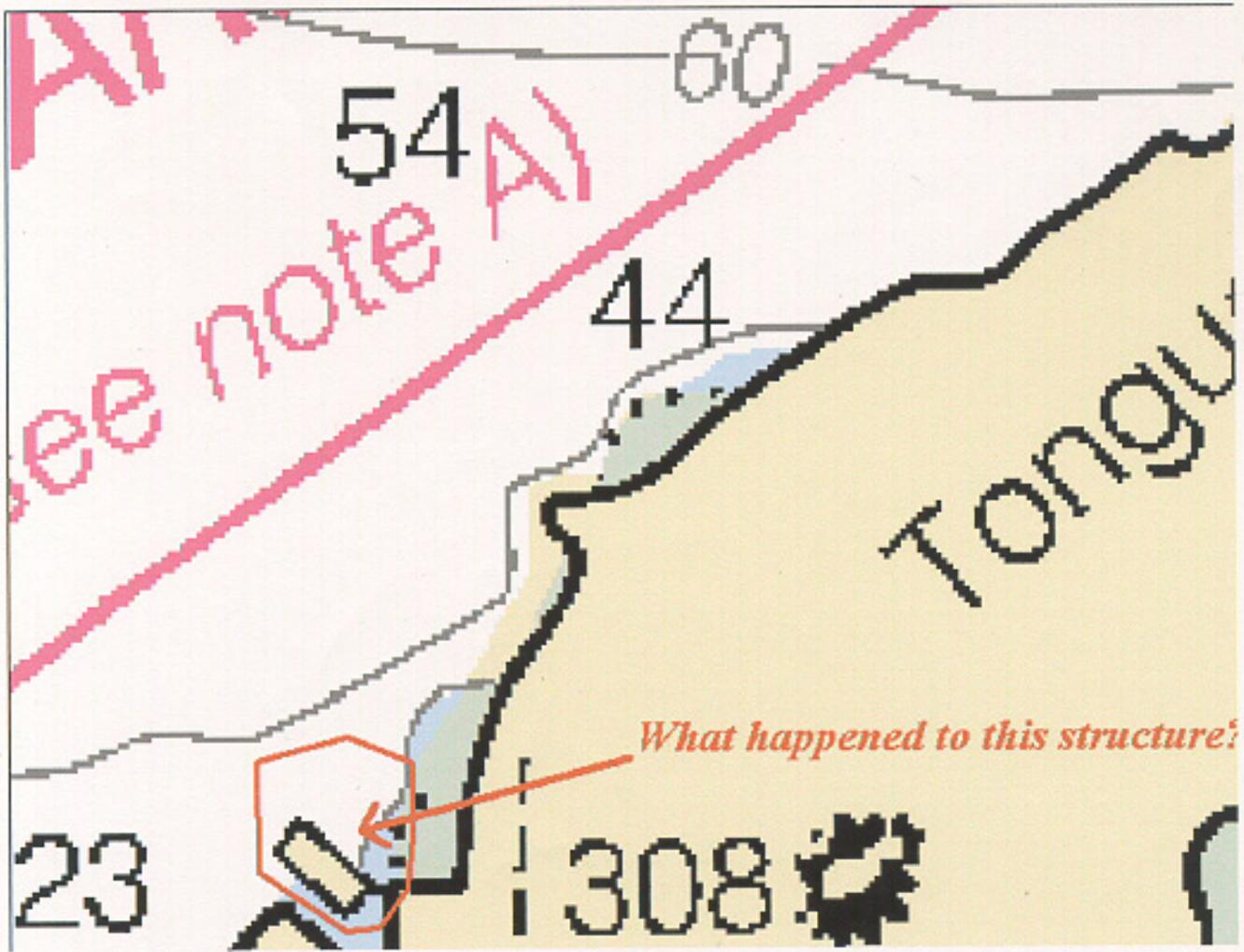
**From:** "Kathryn Simmons" <Kathryn.Simmons@noaa.gov>  
**To:** "Cameron, Douglas H." <DCameron@PACNORWEST.USCG.mil>  
**Sent:** Wednesday, November 20, 2002 1:12 PM  
**Attach:** uscg\_pier.JPG  
**Subject:** USCG Pier Structure

Hi Doug,

Attached is a chartlet of the USCG pier area at Tongue Point. As you can see, the chart shows a structure that looks like it might have been a floating pier. Do you know anything about what it was or what happened to it? We know it's not there, but if you could confirm that whatever it was has been completely pulled out or cut off at the mud line, we can get it removed from the chart.

Thanks for your help.

Kathryn



From

**Dave Culver**

To ~~From~~ **From:** "Kathryn Simmons" <Kathryn.Simmons@noaa.gov>  
**To:** "Dave Culver" <dgculver@charter.net>  
**Sent:** Thursday, September 12, 2002 4:16 PM  
**Attach:** DredgingDols.jpg  
**Subject:** Dredging Ranges

Dave,

Per our conversation. Attached is a chartlet with the dredging ranges circled. These are gone and I'm hoping you can tell me that you pulled them out.

Thanks for your help.

**Kathryn Simmons**  
 Navigation Response Team 3  
 NOAA  
 503-325-1051

fax 503 325-1391

9-13-02

KATHRYN -

WE HAD A C.O.E. CONTRACT TO REMOVE 5 DREDGE RANGES.

THEY ARE DETAILED ON PAGE 2 OF THIS FAX. IF YOU HAVE

FURTHER QUESTIONS, PLEASE CALL (503) 325-7130.

REGARDS,

DAVE CULVER

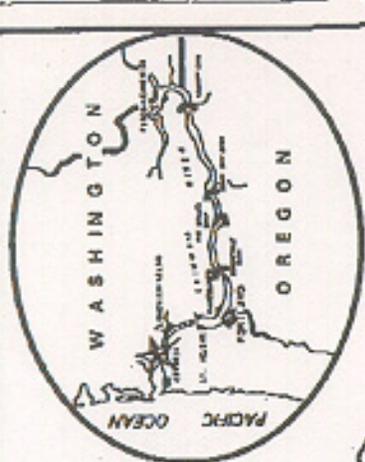
Note: 9/13/2002 - Mike Pucket, who worked on removal project says piles were pulled out - not cut off

9/13/2002

U.S. ARMY

CORPS OF ENGINEERS

W A S H I N G T O N



ALTOONA

#2

X:1201446.64  
Y:983397.64  
Harrington North Cut  
Rear

X:1201755.33  
Y:981832.97  
Pillar Rock Lower  
North Cut Front

#3

X:1198786.95  
Y:962257.12  
Pillar Rock Lower  
North Cut Rear

X:1198388.15  
Y:961331.86  
Harrington North Cut  
Front

X:1198668.94  
Y:960802.09  
Harrington South Cut  
Front

#5

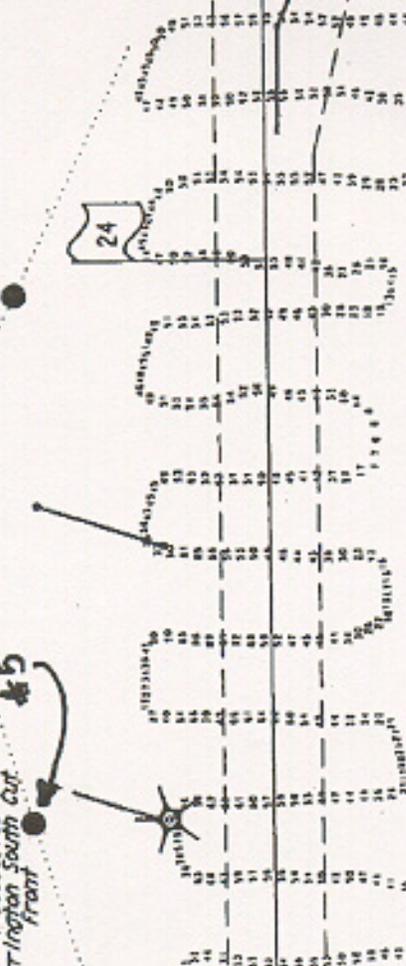
#1

X:1205837.81  
Y:961785.14  
Miller Sands Range North Cut Front

X:1207247.33  
Y:961593.92  
Miller Sands Range South Cut Front

24

25



M I L L E R S A N D S

MLN  
MILLER SANDS  
RANGE STRUCTURE REMOVAL  
SCALE IN FEET  
500 0 1000 2000

To: Kathryn

From: ED

Date: August 2, 2002

Re: New pier at Astoria Light 36

Spoke with Dan Supple, General Manager of Astoria Warehousing Inc., current owners of the property where pier is located. He states that he has first hand knowledge of all pilings, except those very close to shore (visible), being "pulled" by Johnson Marine Inc. in 1997 prior to construction of the existing pier. This was subsequent to a fire that destroyed the abandoned canning factory and old pier in 1996/7.

I have a call in to Johnson Marine, left a message for Ben Johnson for more confirmation. However, Dan Supple thinks he might no longer be there.

Dan Supple, General Manager  
Astoria Warehousing Inc.  
70 W. Marine Drive  
Astoria, Or 97103

Phone: (503) 325-4021, Fax: 0552  
E-mail: [fishhappens@theoregonshore.com](mailto:fishhappens@theoregonshore.com)

Update: August 5, 2002

Spoke with Ben Johnson this morning. He states that pilings were pulled in 90/91. Will speak with Dan Supple A.M. to clear up actual date.

Update: August 6, 2002

See attached e-mail from Dan Supple.

"Fire: 1-26-93"

"Dock rebuild completed"

"Pilings pulled after the fire"

Ed

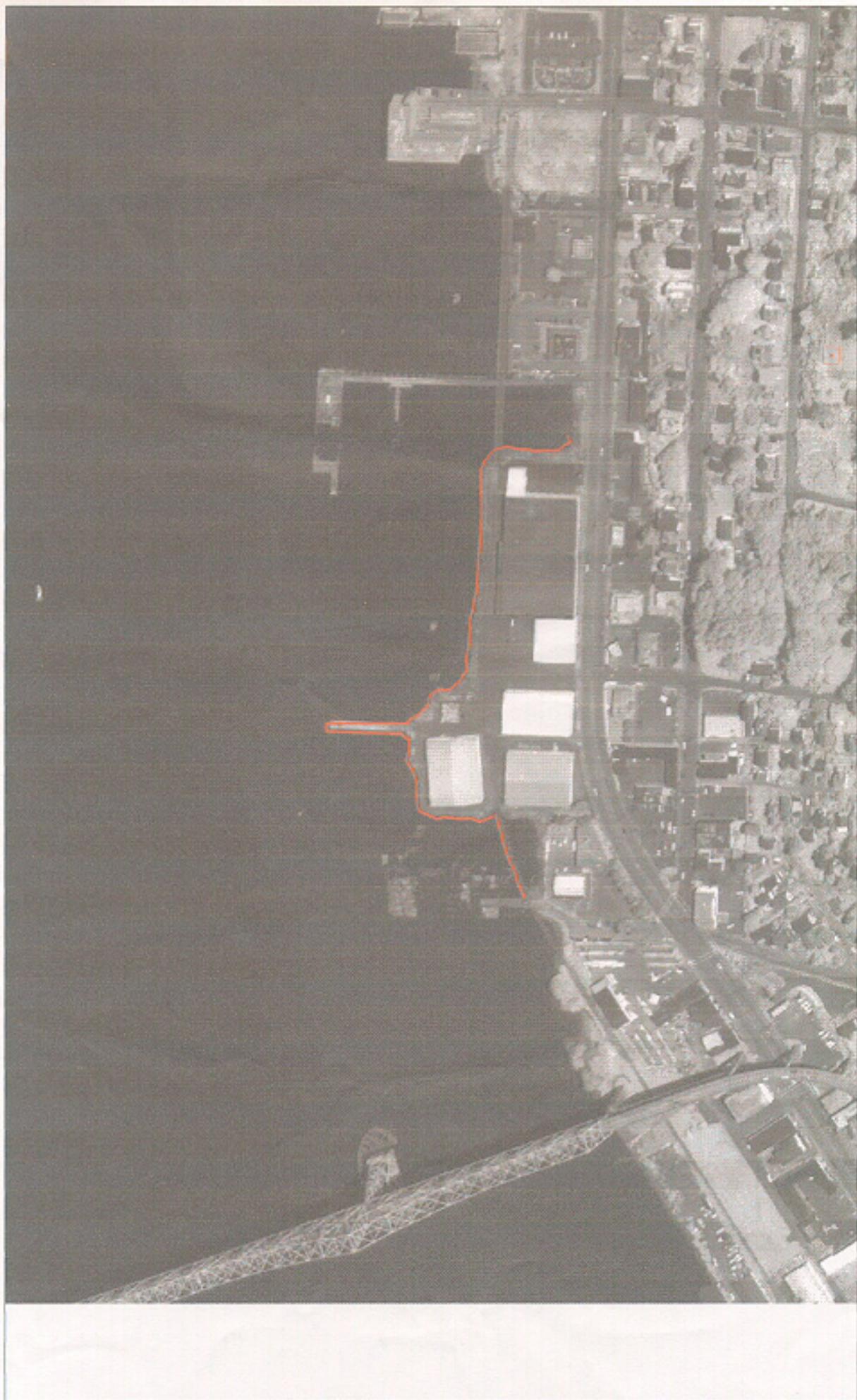
From "Astoria Warehousing" ▶  
Date Tuesday, August 6, 2002 6:51 am  
To "Edmund Wernicke"  
Subject Re: New pier

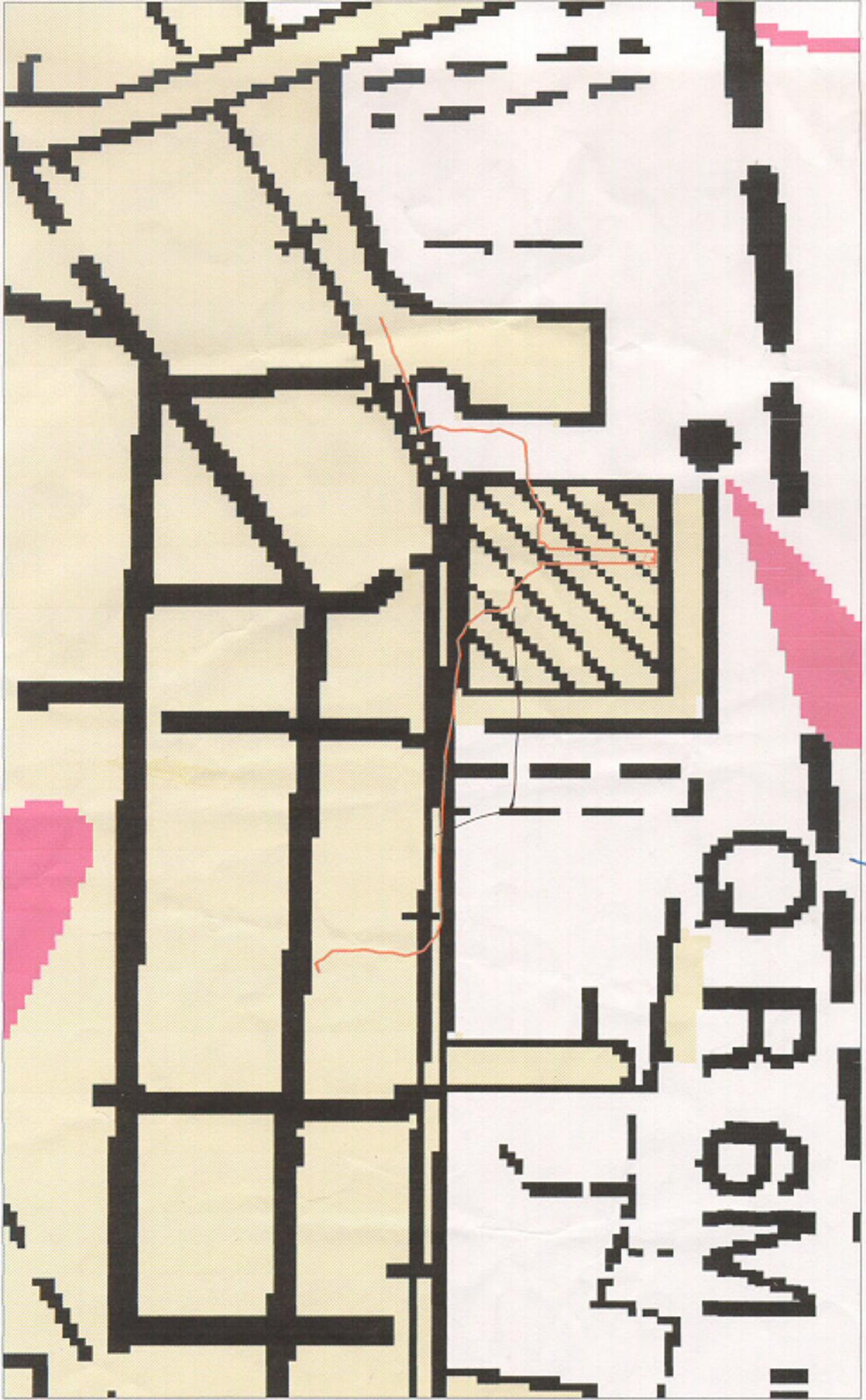
Ed,  
Fire: 1-26-93  
Dock rebuild completed: 6-1-93  
Pilings pulled after the fire.  
Regards, Dan

----- Original Message -----

From: "Edmund Wernicke"  
To:  
Sent: Monday, August 05, 2002 3:39 PM  
Subject: New pier

> Dan,  
> First, thanks for your help. We did the GPS data collection this  
> morning. I closed the gate as you requested but found both locks locked.  
> I called your office and the gentleman I spoke with said he would take  
> care of it.  
>  
> I recieved a call back from Ben Johnson and he was pretty sure that he  
> "pulled" the old pilings in 1990/91. Now I'm confused. Did he pull the  
> pilings before the fire? Wasn't the fire during the winter of 96/97?  
>  
> Perhaps you could give me an approximate time line.  
>  
> When Was the fire?  
>  
> When were the pilings pulled by Johnson?  
>  
> When was the new pier built?  
>  
> I'll give you a call in the morning.  
>  
> Thanks again,  
>  
> Ed  
>  
>





DAN SUPPLE / ASTORIA WAREHOUSING / SEN MGR  
\* ALL PILINGS WERE PULLED BY: APPROX 97/98  
BEN JOHNSON MARINE - 503 458-6973  
~~BEN JOHNSON MARINE~~ - 325-7130

503-458-6973  
IN 9d92

**FIXED AIDS Charts 18521 and 18523**

LLN	Light	Location	Dayboard	Range	Remarks	LatitudeDMS	LongitudeDMS
9890	white	Lighthouse			Cape Disappointment Light	46:16:32.8298	-124:3:7.76789
9895	red	on skeleton	KRB	front	Columbia River Entrance Range Front Light	46:16:33.2256	-124:3:5.3244
9900	green	on tower	KWB	Rear	Columbia River Entrance Range Rear Light	46:16:46.316	-124:2:46.3639
9945	green	on tower	KRW	front	Sand Island Range Front Light	46:15:57.0329	-123:59:34.2396
9950	green	on tower	KRW	rear	Sand Island Range Rear Light	46:16:2.26405	-123:58:51.857
9975	White	on tower	NB		Desdemona Sands Channel Leading Light	46:16:0.686341	-124:2:14.9789
9995	white	on dol			Desdemona Sands Light	46:13:32.4849	-123:57:18.4887
10005	red	on dol	TR		Fort Stevens Wharf Light 26	46:12:26.6856	-123:57:4.73332
10025	red	on tower	KRB	front	Tansy Point Range Front light	46:11:19.7002	-123:55:9.59969
10035	red	on tower	KRB	rear	Tansy Point Range Rear Light	46:11:16.8471	-123:55:50.9552
10075	red Fl	on breakwater			Astoria West Basin North Light	46:11:26.6558	-123:51:21.7354
10080	green Fl	on breakwater			Astoria West Basin South Light	46:11:26.0106	-123:51:20.8911
10095	red	on pier	TR		Astoria Light 36	46:11:32.6065	-123:50:44.5317
10105	red	on building roof	KRB	front	Astoria Lower Range Front Light	46:11:28.8324	-123:50:9.57486
10110	red	on platform	KRB	rear	Astoria Lower Range Rear Light	46:11:20.5935	-123:50:31.4186
10175	white	on tower	KRB	front	Harrington Point Range Front Light	46:15:21.2827	-123:40:37.1314
10180	white	on tower	KRB	rear	Harrington Point Range Rear Light	46:15:42.2478	-123:39:56.3884
10185	red	on dol	TR		Harrington Point Channel Light 52	46:14:3.06556	-123:42:51.252
10186	red	on tower	KRB	front	Tongue Point Channel Range Front Light	46:13:58.5646	-123:42:48.724
10187	red	on tower	KRB	rear	Tongue Point Channel Range Rear Light	46:14:6.51592	-123:42:21.0305
10195	green	on tower	KRB	front	Miller Sands Range Front Light	46:15:44.7346	-123:38:11.7038
10200	green	on tower	KRB	rear	Miller Sands Range Rear Light	46:15:51.3577	-123:37:44.8508
10215	green	on dol	SG		Miller Sands Dike Light 5	46:15:23.5699	-123:40:6.5655
10230	green	on dol	SG		Miller Sands Dike Light 11	46:15:40.1087	-123:38:30.9917
10235	white	on tower	KRB	front	Pillar Rock Lower Range Front Light	46:15:9.94182	-123:32:36.6346
10240	white	on tower	KRB	rear	Pillar Rock Lower Range Rear Light	46:15:7.57767	-123:32:3.49973
10260	red	on dol	TR		Pillar Rock Dike Light 14A	46:15:15.239	-123:35:29.4488
10270	green	on tower	SG		Pillar Rock Light 17	46:15:28.9283	-123:35:13.727
10275	red	on tower	KRB	front	Pillar Rock Upper Range Front Light	46:15:38.5791	-123:30:56.3052
10280	red	on tower	KRB	rear	Pillar Rock Upper Range Rear Light	46:15:42.146	-123:30:10.4637
10320	green		SG		Rockland Light 27	46:16:18.3445	-123:30:20.8038
10330	green	on dol	SG		Bayview Light 29	46:16:26.7178	-123:29:15.4318
10340	green	on dol	SG		Skamokawa Light 31	46:16:20.3644	-123:28:19.2241
10350	green	on dol	SG		Skamokawa Creek Light 33	46:15:57.6285	-123:27:29.9125
10355	white	on tower	KRB	front	Skamokawa Range Front Light	46:14:4.89195	-123:25:26.4412
10365	green	on dol	SG		Price Island Light 35	46:15:16.1356	-123:26:40.0472
10380	green	on dol	SG		Hunting Island Light 39	46:13:46.9435	-123:25:23.0443

10385	white	on tower	KRB	front	Puget Island Range Front Light	46:13:39.7297	-123:25:18.1724
10390	white	on tower	KRB	rear	Puget Island Range Rear Light	46:13:54.8661	-123:25:14.6555
10400	red	on dol	TR		Clifton Dike Light 42	46:12:20.8158	-123:25:52.3987
10401	green		SG		Puget Island Light 43 (at end of wing dam)	46:12:18.8297	-123:25:30.1405
10405	red	on dol	TR		Clifton Dike Light 44	46:12:7.45457	-123:26:8.07018
10410	red		TR		Hunts Mill Point Light 44A	46:11:36.1385	-123:26:1.88269
10415	red	on dol	TR		Bugby Hole Light 46	46:10:54.1362	-123:25:56.7159
10420	green	on tower	SG		Puget Island Light 47	46:10:55.3274	-123:25:32.421
10425	green	on dol	SG		Puget Island Light 49	46:10:32.7796	-123:25:1.1491
10428	orange	on dol			Wauna Mill Water Outfall Light	46:10:2.2984	-123:24:56.3933
10430	white	on tower	KRB	front	Wauna Range Front Light	46:8:37.7404	-123:22:54.7556
10435	white	on tower	KRB	rear	Wauna Range Rear Light	46:8:22.9564	-123:22:35.6822
10440	red	on dol	none		Wauna Mill Water Intake Light (Priv)	46:9:9.14563	-123:23:49.994
10445	red	on overhead crane on			Wauna Upper Crane Light(Priv)	46:9:42.6408	-123:24:31.326
10455	red	on pier center end			Wauna Middle Light (priv)	46:9:21.1224	-123:24:2.02225
10460	green	on dol	SG		Wauna Dike Light 57	46:9:8.4113	-123:23:7.78728
10465	red	on platform	KRB	front	Driscoll Range Front Light	46:9:2.82137	-123:23:41.3583
10470	red	on tower	KRB	rear	Driscoll Range Rear Light	46:9:5.90539	-123:23:58.2804
10475	red	on dol	TR		Westport Dike Light 58 (on end of wingdam)	46:8:47.7975	-123:22:47.5708
10480	green	on dol	SG		Pancake Point Dike Light 59	46:8:58.0791	-123:22:24.834
10485	red	on pile end of wing	TR		Westport Dike Light 60 (on end of wingdam)	46:8:39.6456	-123:22:2.40492
10490	white	on platform	KRB	front	Westport Range Front Light	46:8:30.9982	-123:21:14.3859
10495	white	on tower	KRB	rear	Westport Range Rear Light	46:8:30.8944	-123:21:36.1442
10500	red	on dol	TR		Westport Dike Light 62	46:8:28.4432	-123:20:49.3788
10505	red	on platform	TR		Westport Dike Light 64	46:8:26.329	-123:19:50.223
10510	red	on dol	TR		Westport Dike Light 66(end of wing dam)	46:8:26.5198	-123:18:48.383
10520	green	on dol	SG		Cathlamet Dike Light 67 (end of wing dam)	46:8:53.2014	-123:17:52.2022
10530	red	on pile	TR		Cathlamet Channel Daybeacon 2	46:12:23.8455	-123:24:41.3843
10540	none	steel pile	TR		Elochoman Daybeacon 2	46:12:29.4635	-123:23:18.8121
10555	red	on dol	TR		Cathlamet Channel Light 8 (end of wing dam)	46:9:0.87169	-123:17:50.8803
10560	green		SG		Waterford Light 69	46:9:10.2017	-123:16:1.35025
10565	red	on dol	TR		Eureka Channel Light 70	46:8:54.0406	-123:15:41.3302
10570	green		SG		Cooper Point Light 71	46:9:26.168	-123:15:15.3461
10580	red	on dol	TR		Eureka Dike Light 76	46:9:47.164	-123:13:59.81
10585	green	on dol	SG		Eureka Dike Light 77	46:10:10.3374	-123:13:44.4518
10590	red	on dol	TR		Eureka Dike Light 78	46:9:59.1432	-123:13:30.3316
10595	red	on dol	TR		Eureka Dike light 80	46:10:7.17826	-123:13:4.01484
10600	green	on dol	SG		Eureka Dike light 79	46:10:28.0477	-123:12:53.3827
10605	none	on dol	RW/bn		Eureka Bar Dike Daybeacon	46:9:27.8885	-123:14:21.4164
10625	red	on pier			Beaver Pier West End Light	46:10:51.2083	-123:11:6.42564

10630	red	on pier				Beaver Pier East End Light	46:10:55.9027	-123:10:51.2355
10633	yellow	on metal dol	none			Columbia River Geodetic Survey Light	46:11:5.50234	-123:11:14.964
10635	green	on land	SG			Oak Point Light 81	46:11:11.9663	-123:10:55.3458
10640	green	on land	SG			Abernathy Point Light 83	46:11:25.0454	-123:10:3.92645
14415	Green	on dol	SG			Baker Bay West Channel Entrance Jetty Light 1	46:16:7.28546	-124:1:49.1528
14420	Red	on dol	TR			Baker Bay West Channel Entrance Jetty Light 2	46:16:10.8406	-124:1:46.1108
14430		on pile	TR			Baker Bay West Channel Daybeacon 6	46:16:18.4342	-124:1:48.3577
14435		on pile	SG			Baker Bay West Channel Daybeacon 7	46:16:22.9362	-124:1:55.2243
14440	red	on dol	TR			Baker Bay West Channel Light 8	46:16:32.5473	-124:1:55.1167
14445		on pile	SG			Baker Bay West Channel Daybeacon 9	46:16:37.9766	-124:2:7.05252
14450	red	on dol	TR			Baker Bay West Channel Light 10	46:16:46.7038	-124:2:13.2513
14455	green	on dol	SG			Baker Bay West Channel Light 11	46:16:48.2702	-124:2:26.4764
14460	red	on dol	TR			Baker Bay West Channel Light 12	46:16:55.8399	-124:2:45.6367
14465		on dol	TR			Baker Bay West Channel Daybeacon 14	46:16:59.9491	-124:2:52.4388
14470	green	on breakwater	SG			Baker Bay West Channel Light 15	46:17:6.49298	-124:3:3.62192
14475		on pile	TR			Baker Bay West Channel Daybeacon 16	46:17:12.1747	-124:3:0.836946
14480	green	on dol	SG			Baker Bay West Channel Light 17	46:17:20.9111	-124:3:1.86947
14490	red	on pile	TR			Baker Bay West Channel Light 20	46:17:36.6958	-124:2:42.4456
14495		on dol	SG			Baker Bay West Channel Daybeacon 21	46:17:42.7923	-124:2:39.6652
14500	red	on dol	TR			Baker Bay West Channel Light 22	46:17:48.528	-124:2:25.1738
14505		on pile	SG			Baker Bay West Channel Daybeacon 23	46:17:53.8007	-124:2:27.6844
14510	red	on dol	TR			Iiwaco Mooring Basin Light 2	46:18:0.276948	-124:2:25.3151
14515	green	on breakwater	SG			Iiwaco Mooring Basin Light 3	46:18:4.54166	-124:2:29.9541
14520	green	on pile	SG			Chinook Channel Light 1	46:15:31.4584	-123:58:11.8589
14525	red	on dol	TR			Chinook Channel Light 2	46:15:46.8949	-123:57:38.9297
14530	green	on dol	SG			Chinook Channel Light 5	46:16:2.75759	-123:57:21.9054
14535	red	on dol	TR			Chinook Channel Light 8	46:16:19.9605	-123:57:11.3911
14540		on breakwater	TR			Hammond Boat Basin West Breakwater Daybeacon 2	46:12:17.3912	-123:56:56.875
14545	green	on breakwater	SG			Hammond Boat Basin East Breakwater Light 1	46:12:17.3594	-123:56:54.0391
14550	red	on dol	TR			Skipanaon Waterway West Light 4	46:11:3.78912	-123:54:29.3922
14560	red	on tower	KRB	front		Skipanaon Waterway Front Range Light	46:10:0.546784	-123:54:55.7908
14565	red	on tower	KRB	rear		Skipanaon Waterway Range Rear Light	46:9:54.0203	-123:54:59.0965
14570	red	on dol	TR			Youngs Bay Entrance Light 2	46:10:52.062	-123:52:46.6225
14580	red	on pile	TR			Youngs Bay Channel Light 6	46:10:3.26234	-123:51:27.5543
14585		on pile	TR			Lewis and Clark River Daybeacon 2	46:10:3.99147	-123:51:45.6806
14590		on pile	TR			Lewis and Clark River Daybeacon 4	46:9:54.9675	-123:51:32.6857
14610	green	on dol	SG			North Channel Sand Island Lower Dike Light 1	46:15:38.512	-124:0:28.912
14615	green	on dol	KRW			Sand Island Middle Dike Light 3	46:15:32.2747	-123:59:43.4768
14620	green	on dol	SG			Sand Island Upper Dike Light 5	46:15:22.3262	-123:58:55.7341
14625	green	on dol	SG			Chinook Dike Light 7	46:14:58.8665	-123:57:11.7000

14630	on pile	SG	North Channel Daybeacon 9	46:16:11.0546	-123:49:8.90239
14635	on dol	TR	North Channel Daybeacon 10	46:15:46.4539	-123:47:14.471
14640	on pile	TR	North Channel Daybeacon 12	46:16:3.22271	-123:46:27.9684
14645	on pile	SG	GRAYS POINT LIGHT 13	46:16:23.3185	-123:46:0.500369
14650	on dol	TR	Portuguese Point Daybeacon 14A	46:16:35.2126	-123:45:4.64678
14690	on pile	SG	ROCKY POINT LIGHT 7	46:17:17.1584	-123:43:39.7422
14695	on dol	TR	Deep River Channel Daybeacon 8	46:17:48.7843	-123:43:14.9226
14700	on dol	TR	Deep River Channel Daybeacon 10	46:17:59.0616	-123:42:49.3326
14705	on dol	TR	Deep River Channel Daybeacon 12	46:18:6.55161	-123:42:37.7705
14710	on pile	TR	Deep River Channel Daybeacon 14	46:18:21.3452	-123:42:32.9723
14715	on pile	TR	Deep River Channel Daybeacon 16	46:18:34.5964	-123:42:36.3168
14720	on pile	TR	Cathlamet Bay South Channel Light 2	46:12:45.8097	-123:45:23.2286
14725	Skeleton tower on en	SG	Cathlamet Bay South Channel Light 3	46:12:21.5408	-123:45:7.59046
14729	on multi pile struct	TR	Cathlamet Bay South Channel Light 6	46:11:49.9149	-123:45:6.39485
14735	on pile structure (D	TR	Cathlamet Bay South Channel Daybeacon 8	46:10:23.2692	-123:43:48.4013
14740	on pile structure	TR	Cathlamet Bay South Channel Daybeacon 10	46:10:26.7762	-123:43:25.3124
14745	on pile structure	SG	Cathlamet Bay North Channel LIGHT 3	46:12:37.3033	-123:42:51.3398
14755	on dol	SG	Cathlamet Bay North Channel LIGHT 5	46:11:52.9835	-123:41:9.62855
14760	on pile	TR	GRASSY ISLAND LIGHT 8	46:11:35.5384	-123:41:28.3327
14765	on pile (on Dol USCG	TR	Cathlamet Bay Prairie Channel LIGHT 10	46:10:48.0713	-123:40:28.4558
14770	on pile	TR	Cathlamet Bay Prairie Channel Daybeacon 12	46:10:43.999	-123:40:13.9431
14775	on dol	TR	SVENSEN ISLAND LIGHT 12A	46:10:52.3215	-123:38:40.4816
14780	on pile structure	TR	Cathlamet Bay Prairie Channel Daybeacon 14	46:11:16.2371	-123:38:3.32388
14785	on dol	SG	RUSSIAN ISLAND LIGHT 15	46:11:54.4329	-123:38:10.2559
14790	on dol	SG	Cathlamet Bay Prairie Channel Daybeacon 17	46:12:45.6204	-123:37:54.1135
14800	on dol	SG	MARSH ISLAND LIGHT 21	46:12:50.775	-123:37:12.2003
Priv.	on pile	SG	Channel to Launch Ramp Daymarker 1	46:11:45.5468	-123:48:7.6686
Priv.	on pile	TR	Channel to Launch Ramp Daymarker 2	46:11:44.6762	-123:48:8.46149
Priv.	on pile	SG	Channel to Launch Ramp Daymarker 3	46:11:43.7454	-123:48:7.86744
Priv.	on pile	TR	Channel to Launch Ramp Daymarker 4	46:11:42.9266	-123:48:8.63708



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SERVICE  
Silver Spring, Maryland 20910

**TIDE NOTE FOR HYDROGRAPHIC SURVEY**

**DATE:** April 6, 2003

**HYDROGRAPHIC BRANCH:** Pacific  
**HYDROGRAPHIC PROJECT:** OPR-N438-NRT3-2002  
**HYDROGRAPHIC SHEET:** F00486

**LOCALITY:** Columbia River, WA/OR  
**TIME PERIOD:** June 10-September 10, 2002

**TIDE STATION USED:** 943-9040 Astoria, OR  
Lat. 46° 12.5'N Lon. 123° 46.1'W  
**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 0.000 meters  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 2.418 meters

**TIDE STATION USED:** 943-9099 Wauna, OR  
Lat. 46° 09.7'N Lon. 123° 24.4'W  
**PLANE OF REFERENCE (COLUMBIA RIVER LOW WATER DATUM):** 0.000 meters  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 2.246 meters

**TIDE STATION USED:** 944-0422 Longview, WA  
Lat. 46° 06.5'N Lon. 122° 57.4'W  
**PLANE OF REFERENCE (COLUMBIA RIVER LOW WATER DATUM):** 0.000 meters  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 2.001 meters

**TIDE STATION USED:** 944-0569 Skamokawa, WA  
Lat. 46° 16.0'N Lon. 123° 27.1'W  
**PLANE OF REFERENCE (COLUMBIA RIVER LOW WATER DATUM):** 0.000 meters  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 2.226 meters

**REMARKS:** RECOMMENDED ZONING

Use zone(s) identified as: CR1, CR2, CR3, CR4, CR5, CR6, CR7, CR8, CR9, CR10, CR11, CR12, CR13, CR14, CR15, CR16, CR17, CR18, CR19, CR20, CR21, CR22, CR23, CR24, CR25, CR26, CR27, CR28, CR29, CR30, CR31, CR32, CR33, CR34, CR35, CR36, CR37, CR38, CR39, PAC211 & PAC211A.

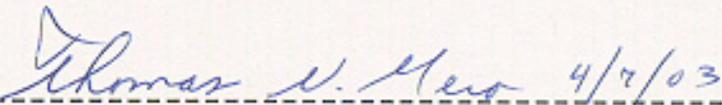
Refer to attachments for zoning information.



TIDE NOTE FOR HYDROGRAPHIC SURVEY OPR-N438-NRT3-2002 cont.

**Note 1:** For project OPR N438-NRT3-2002, the provided time series data at Astoria, OR(943-9040) are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time on the new 1983-2001 National Tidal Datum Epoch (NTDE). If verified six minute water level data for Astoria are retrieved from the CO-OPS Home Page at <http://www.co-ops.nos.noaa.gov/> before April 21, a corrector of 0.032 meters must be added to all verified water level time series data to place the water level values on the proper 1983-2001 NTDE plane. Water level time series data retrieved from the CO-OPS Home Page after April 21, 2003 will automatically be adjusted to the 1983-2001 Epoch. This change will be clearly noted on the CO-OPS Home Page and all time series data retrieved after the Epoch change will require NO vertical adjustment.

**Note 2:** The provided time series data at Wauna, OR(943-9099), Longview, WA(944-0422) and Skamokawa, WA(944-0569) are tabulated in metric units (meters), relative to Columbia River Low Water Datum (LWD) and on Greenwich Mean Time on the new 1983-2001(NTDE). Retrieve verified water level data using the Station Datum option to retrieve water level data on Columbia River LWD.

  
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CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION

**Final tide zone node point locations for OPR-N438-NRT3-2002, Sheet F00486.**

Format: Tide Station (in recommended order of use)  
 Average Time Correction (in minutes)  
 Range Correction  
 Longitude in decimal degrees (negative value denotes Longitude West),  
 Latitude in decimal degrees

	Tide Station Order	AVG Time Correction	Range Correction
Zone CR1	943-9040	-60	0.99
-124.081238 46.26768			
-124.067161 46.278145			
-124.059288 46.282127			
-124.044657 46.277042			
-124.040503 46.272927			
-124.021198 46.273088			
-124.015844 46.269375			
-124.019838 46.254483			
-124.031434 46.230943			
-124.04169 46.233172			
-124.048408 46.232934			
-124.068179 46.233638			
-124.088603 46.26342			
-124.081238 46.26768			
Zone CR2	943-9040	-42	0.96
-124.040503 46.272927			
-124.044657 46.277042			
-124.059288 46.282127			
-124.055964 46.298187			
-124.039998 46.309846			
-124.01945 46.316824			
-123.974376 46.309573			
-123.958075 46.292719			
-123.945301 46.270595			
-123.962284 46.25989			
-123.97131 46.261571			
-124.010384 46.265074			
-124.015906 46.269171			
-124.021198 46.273088			
-124.040503 46.272927			
Zone CR3	943-9040	-48	0.99

-124.015906 46.269171  
-124.010384 46.265074  
-123.97131 46.261571  
-123.962284 46.25989  
-123.971144 46.252504  
-123.988643 46.225047  
-124.004129 46.236989  
-124.009381 46.225966  
-124.031434 46.230943  
-124.019838 46.254483  
-124.015906 46.269171

Zone CR4

943-9040

-36

0.99

-123.945301 46.270595  
-123.962284 46.25989  
-123.971144 46.252504  
-123.988643 46.225047  
-124.004129 46.236989  
-124.009381 46.225966  
-123.988604 46.202357  
-123.925001 46.190874  
-123.91306 46.222106  
-123.900562 46.247116  
-123.945301 46.270595

Zone CR5

943-9040

-24

0.99

-123.900562 46.247116  
-123.870872 46.245235  
-123.866449 46.220424  
-123.865394 46.187816  
-123.880376 46.184056  
-123.90558 46.181997  
-123.909945 46.182769  
-123.914866 46.175323  
-123.928405 46.182712  
-123.925001 46.190874  
-123.91306 46.222106  
-123.900562 46.247116

Zone CR6

943-9040

-18

0.98

-123.909945 46.182769  
-123.914866 46.175323  
-123.928309 46.166892  
-123.927727 46.149196  
-123.910266 46.157084

-123.906919 46.166184  
-123.90558 46.181997  
-123.909945 46.182769

Zone CR7

943-9040

-18

1.00

-123.90558 46.181997  
-123.906919 46.166184  
-123.894559 46.164573  
-123.870687 46.174373  
-123.861229 46.182611  
-123.858173 46.183875  
-123.865394 46.187816  
-123.880376 46.184056  
-123.90558 46.181997

Zone CR8

943-9040

-18

1.02

-123.894559 46.164573  
-123.866103 46.157741  
-123.855045 46.167448  
-123.849588 46.176142  
-123.858173 46.183875  
-123.861229 46.182611  
-123.870687 46.174373  
-123.894559 46.164573

Zone CR9

943-9040

-18

1.05

-123.866103 46.157741  
-123.854266 46.156509  
-123.84595 46.15759  
-123.843258 46.170936  
-123.84304 46.173665  
-123.849588 46.176142  
-123.855045 46.167448  
-123.866103 46.157741

Zone CR10

943-9040

-18

1.06

-123.84595 46.15759  
-123.837875 46.159207  
-123.837729 46.173008  
-123.84304 46.173665  
-123.843258 46.170936  
-123.84595 46.15759

Zone CR11

943-9040

-12

0.99

-123.870872 46.245235

-123.863132 46.264154  
-123.84065 46.266711  
-123.834465 46.229675  
-123.835808 46.191061  
-123.858173 46.183875  
-123.865394 46.187816  
-123.866449 46.220424  
-123.870872 46.245235

Zone CR12 943-9040 -6 1.00

-123.84065 46.266711  
-123.837333 46.275656  
-123.818168 46.273101  
-123.790895 46.193811  
-123.81522 46.181268  
-123.835808 46.191061  
-123.834465 46.229675  
-123.84065 46.266711

Zone CR13 943-9040 0 1.00

-123.790895 46.193811  
-123.775113 46.196087  
-123.75736 46.21289  
-123.755211 46.246082  
-123.76065 46.282022  
-123.80748 46.293799  
-123.818168 46.273101  
-123.790895 46.193811

Zone CR14 943-9040 +12 0.97

-123.76065 46.282022  
-123.755211 46.246082  
-123.75736 46.21289  
-123.775113 46.196087  
-123.757495 46.165911  
-123.742915 46.161267  
-123.733193 46.171042  
-123.725005 46.192655  
-123.719201 46.248138  
-123.7252 46.295412  
-123.746865 46.304835  
-123.76065 46.282022

Zone CR15 943-9040 +18 0.96

-123.7252 46.295412

-123.73172 46.306878  
-123.689343 46.310493  
-123.687996 46.299945  
-123.687634 46.253822  
-123.693907 46.16414  
-123.742915 46.161267  
-123.733193 46.171042  
-123.725005 46.192655  
-123.719201 46.248138  
-123.7252 46.295412

Zone CR16

943-9040

+24

0.94

-123.660927 46.302517  
-123.656531 46.266935  
-123.662371 46.242857  
-123.661191 46.217957  
-123.660005 46.177604  
-123.693907 46.16414  
-123.687634 46.253822  
-123.687996 46.299945  
-123.660927 46.302517

Zone CR17

943-0569

-30

1.11

-123.656531 46.266935  
-123.639822 46.268739  
-123.599554 46.263133  
-123.599192 46.259995  
-123.602555 46.236895  
-123.605493 46.207932  
-123.607175 46.199445  
-123.60422 46.186858  
-123.647813 46.170979  
-123.660005 46.177604  
-123.661191 46.217957  
-123.662371 46.242857  
-123.656531 46.266935

Zone CR18

943-0569

-24

1.08

-123.599554 46.263133  
-123.572244 46.265643  
-123.564236 46.238696  
-123.560038 46.215172  
-123.5704 46.204142  
-123.577829 46.189728  
-123.59952 46.178155

-123.60422 46.186858  
-123.607175 46.199445  
-123.605493 46.207932  
-123.602555 46.236895  
-123.599192 46.259995  
-123.599554 46.263133

Zone CR19 943-0569 -12 1.07

-123.572244 46.265643  
-123.550912 46.270323  
-123.538341 46.233675  
-123.536138 46.224817  
-123.560038 46.215172  
-123.564236 46.238696  
-123.572244 46.265643

Zone CR20 943-0569 -6 1.05

-123.536138 46.224817  
-123.538341 46.233675  
-123.550912 46.270323  
-123.52538 46.27523  
-123.519526 46.252612  
-123.523489 46.231826  
-123.536138 46.224817

Zone CR21 943-9040 -6 1.03

-123.52538 46.27523  
-123.481698 46.278858  
-123.49456 46.259305  
-123.511304 46.231033  
-123.523489 46.231826  
-123.519526 46.252612  
-123.52538 46.27523

Zone CR22 944-0569 0 1.01

-123.511304 46.231033  
-123.504067 46.227862  
-123.477041 46.251645  
-123.45638 46.271357  
-123.481698 46.278858  
-123.49456 46.259305  
-123.511304 46.231033

Zone CR23 944-0569 0 1.00

-123.45638 46.271357

-123.440391 46.267983  
-123.419158 46.252552  
-123.451947 46.229486  
-123.474262 46.212417  
-123.504067 46.227862  
-123.477041 46.251645  
-123.45638 46.271357

Zone CR24

944-0569

+18

0.98

-123.419158 46.252552  
-123.409722 46.224746  
-123.436473 46.209632  
-123.446427 46.196674  
-123.474036 46.21239  
-123.451947 46.229486  
-123.419158 46.252552

Zone CR25

943-9099

-6

1.03

-123.421492 46.203152  
-123.436473 46.209632  
-123.409722 46.224746  
-123.375439 46.205145  
-123.390204 46.188989  
-123.397133 46.182304  
-123.413237 46.195659  
-123.421492 46.203152

Zone CR26

943-9099

-6

1.02

-123.446427 46.196674  
-123.436473 46.209632  
-123.421492 46.203152  
-123.413237 46.195659  
-123.397133 46.182304  
-123.403121 46.176528  
-123.418141 46.163793  
-123.435799 46.179426  
-123.446427 46.196674

Zone CR27

9439-099

0

1.00

-123.390204 46.188989  
-123.375439 46.205145  
-123.35 46.189762  
-123.360436 46.178284  
-123.372396 46.16513  
-123.397133 46.182304

-123.390204 46.188989

Zone CR28

943-9099

0

1.00

-123.403121 46.176528

-123.397133 46.182304

-123.372396 46.16513

-123.381198 46.159867

-123.399146 46.149135

-123.418141 46.163793

-123.403121 46.176528

Zone CR29

943-9099

+6

0.97

-123.360436 46.178284

-123.35 46.189762

-123.325738 46.167723

-123.344285 46.152355

-123.372396 46.16513

-123.360436 46.178284

Zone CR30

943-9099

+6

0.97

-123.381198 46.159867

-123.372396 46.16513

-123.344285 46.152355

-123.358087 46.140919

-123.379901 46.142198

-123.387906 46.144599

-123.399146 46.149135

-123.381198 46.159867

Zone CR31

943-9099

+12

0.94

-123.344285 46.152355

-123.325738 46.167723

-123.31143 46.163833

-123.328226 46.137891

-123.358087 46.140919

-123.344285 46.152355

Zone CR32

943-9099

+18

0.90

-123.31143 46.163833

-123.298688 46.160637

-123.30272 46.137026

-123.317684 46.135937

-123.328226 46.137891

-123.31143 46.163833

Zone CR33	943-9099	+18	0.89
-123.30272 46.137026			
-123.282812 46.131837			
-123.283435 46.160375			
-123.298688 46.160637			
-123.30272 46.137026			
Zone CR34	943-9099	+24	0.87
-123.283435 46.160375			
-123.266016 46.159943			
-123.251707 46.132702			
-123.279044 46.131296			
-123.282812 46.131837			
-123.283435 46.160375			
Zone CR35	943-9099	+30	0.84
-123.266016 46.159943			
-123.238021 46.17291			
-123.213759 46.14827			
-123.224209 46.135615			
-123.251707 46.132702			
-123.266016 46.159943			
Zone CR36	943-9099	+36	0.82
-123.238021 46.17291			
-123.218736 46.182417			
-123.198206 46.159509			
-123.213759 46.14827			
-123.238021 46.17291			
Zone CR37	943-9099	+42	0.86
-123.218736 46.182417			
-123.17761 46.195905			
-123.165234 46.19581			
-123.166479 46.175502			
-123.172766 46.178866			
-123.198206 46.159509			
-123.218736 46.182417			
Zone CR38	944-0422	-36	1.36
-123.165234 46.19581			
-123.126663 46.188465			
-123.14346 46.165131			
-123.1609 46.16994			
-123.166479 46.175502			

-123.165234 46.19581

Zone CR39

944-0422

-36

1.30

-123.126663 46.188465

-123.08899 46.183008

-123.108117 46.157697

-123.120053 46.16274

-123.14346 46.165131

-123.126663 46.188465

Zone PAC211

943-9040

-72

0.95

-124.255573 45.652018

-126.319977 46.238552

-125.775685 46.988294

-124.248844 46.672995

-124.187468 46.336266

-124.10113 46.132765

-123.985789 45.945468

-124.255573 45.652018

Zone PAC211A

943-9040

-66

0.95

-124.058753 46.633639

-124.248844 46.672995

-124.187468 46.336266

-124.10113 46.132765

-123.985789 45.945468

-123.905061 45.984514

-123.930396 46.109124

-124.009381 46.225966

-124.031434 46.230943

-124.04169 46.233172

-124.048408 46.232934

-124.068179 46.233638

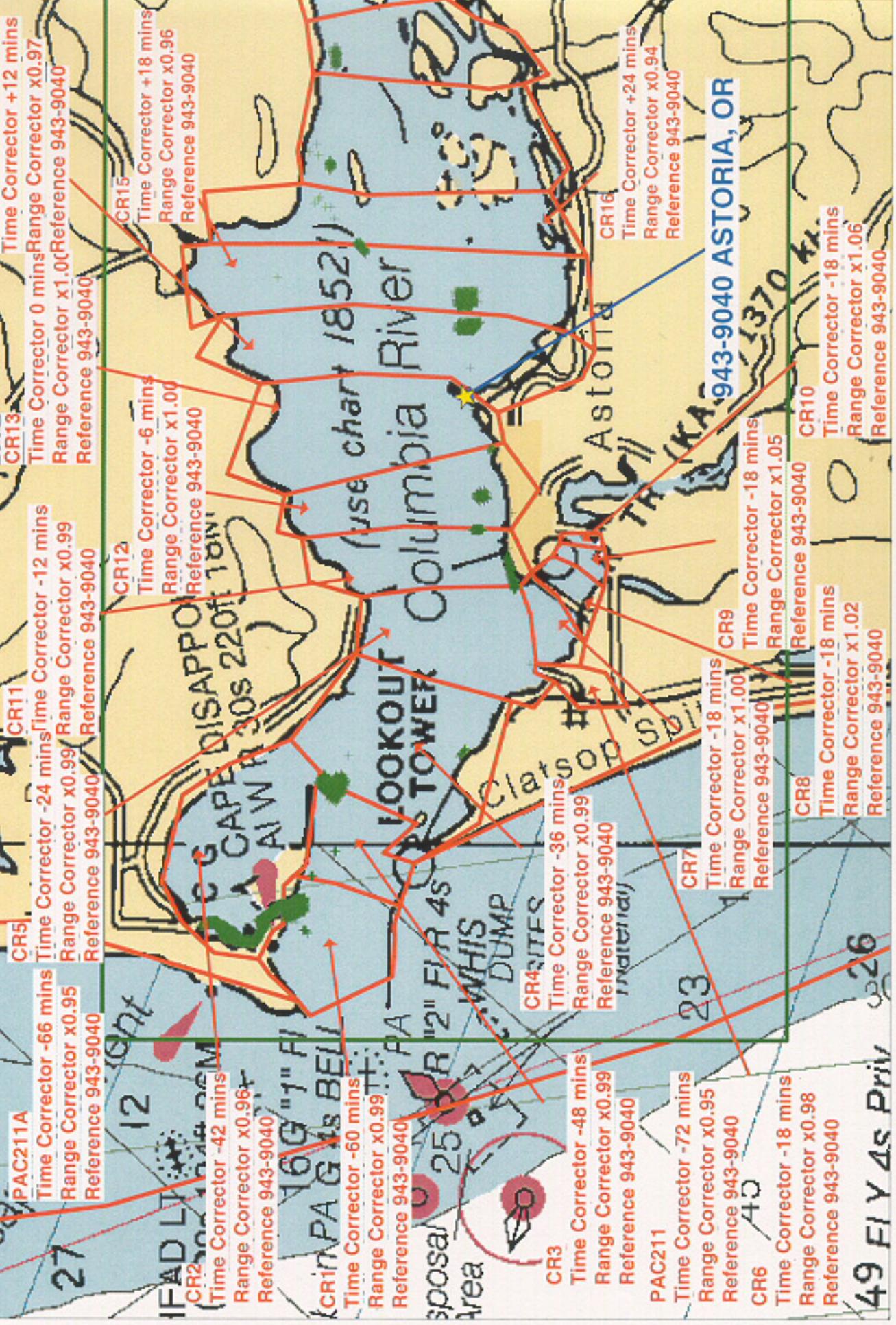
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-124.081238 46.26768

-124.039843 46.364165

-124.058753 46.633639

# Final Tidal Zoning for OPR-N438-NRT3-2002 Columbia River, WA/OR Sheet F00486



943-9040 ASTORIA, OR

# Final Tidal Zoning for PR-N438-NRT3-2002 Columbia River, WA/OR- Sheet F00486

944-0569 SKAMOKAWA, WA

943-9099 WAUNA, OR

944-0422 LONGVIEW, WA

Rainier

CR20  
Time Corrector -6 mins  
Range Corrector x1.05  
Reference 943-0569

CR19  
Time Corrector -12 mins  
Range Corrector x1.07  
Reference 943-0569

CR17  
Time Corrector -30 mins  
Range Corrector x1.11  
Reference 943-0569

CR22  
Time Corrector 0 mins  
Range Corrector x1.01  
Reference 944-0569

CR23  
Time Corrector 0 mins  
Range Corrector x1.00  
Reference 944-0569

CR24  
Time Corrector +18 mins  
Range Corrector x0.98  
Reference 944-0569

CR25  
Time Corrector -6 mins  
Range Corrector x1.03  
Reference 943-9099

CR27  
Time Corrector 0 mins  
Range Corrector x1.00  
Reference 943-9099

CR29  
Time Corrector +6 mins  
Range Corrector x0.97  
Reference 943-9099

CR37  
Time Corrector +42 mins  
Range Corrector x0.86  
Reference 943-9099

CR38  
Time Corrector -36 mins  
Range Corrector x1.36  
Reference 944-0422

CR39  
Time Corrector -36 mins  
Range Corrector x1.30  
Reference 944-0422 EW

CR36  
Time Corrector +36 mins  
Range Corrector x0.82  
Reference 943-9099

CR35  
Time Corrector +30 mins  
Range Corrector x0.84  
Reference 943-9099

CR34  
Time Corrector +24 mins  
Range Corrector x0.87  
Reference 943-9099

CR33  
Time Corrector +18 mins  
Range Corrector x0.89  
Reference 943-9099

CR32  
Time Corrector +18 mins  
Range Corrector x0.90  
Reference 943-9099

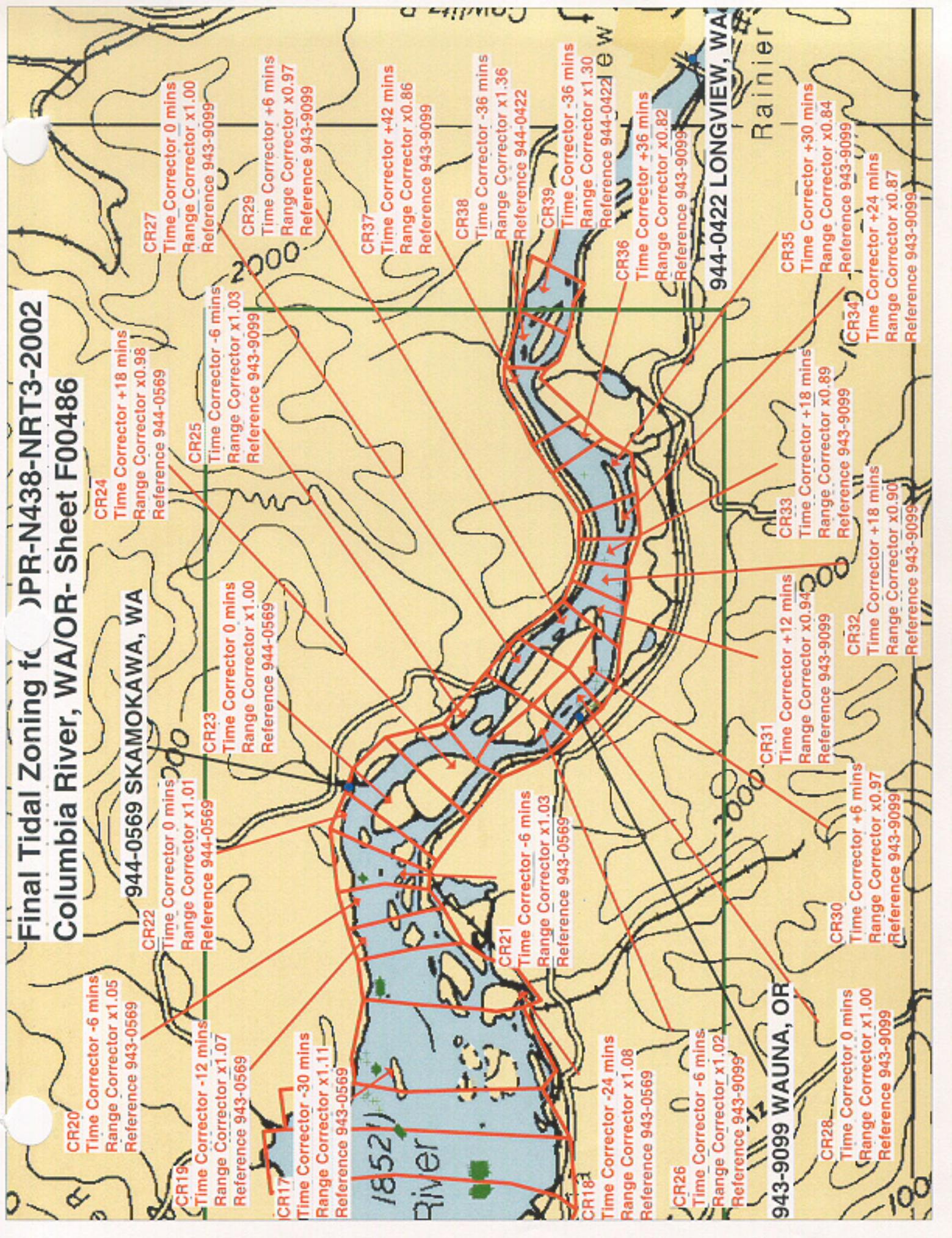
CR31  
Time Corrector +12 mins  
Range Corrector x0.94  
Reference 943-9099

CR30  
Time Corrector +6 mins  
Range Corrector x0.97  
Reference 943-9099

CR21  
Time Corrector -6 mins  
Range Corrector x1.03  
Reference 943-0569

CR26  
Time Corrector -6 mins  
Range Corrector x1.02  
Reference 943-9099

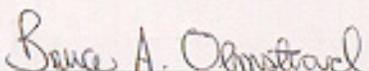
CR28  
Time Corrector 0 mins  
Range Corrector x1.00  
Reference 943-9099



APPROVAL SHEET  
F00486

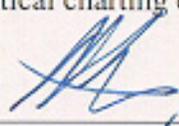
Initial Approvals:

The survey and associated records have been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, cartographic symbolization, and verification or disproval of charted data. The survey records and digital data comply with NOS requirements except where noted in the Descriptive Report and are adequate to supersede prior surveys and nautical charts in the common area.

  
Bruce Olmstead  
Cartographic Team  
Pacific Hydrographic Branch

Date: 1/21/2005

I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Descriptive Report.

  
Donald W. Haines  
LCDR, NOAA  
Chief, Pacific Hydrographic Branch

Date: 18 FEB 2005

