

10134

Diagram No. 311

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. MI-10-2-84

Office No. H-10134

LOCALITY

State Maine

General Locality Penobscot River

Locality Orland River to Fort

..... Point Cove

.....
1984

.....
CHIEF OF PARTY

.....
CAPT J.W. Dropp

LIBRARY & ARCHIVES

DATE October 15, 1985

10134

Ac 08
0870

2000 - 10/15/85

HYDROGRAPHIC TITLE SHEET

H-10134

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.

MI 10-2-84

State Maine

General locality Penobscot River

Locality Orland River to Fort Point Cove

Scale 1:10,000 Date of survey May 20 to June 21, 1984

Instructions dated 20 March 1984 Project No. OPR-A166-MI-84

Vessel VESNO: 2221, 2223, 2224, 2225, 2226

Chief of party Captain J. W. Dropp

Surveyed by LT D. Rice, LTJG G. Yates, ENS J. Miller, ENS W. Sites,
ENS J. Paeth, ENS K. Peter, ENS D. Sorensen

Soundings taken by echo sounder, ~~hand lead, pole~~ XXXXXXXXXX Raytheon DSF 6000N, Raytheon DE719C

Graphic record scaled by Officers and Survey Department personnel

Graphic record checked by Officers and Survey Department personnel

Verification XXXXXXXX by P. Niland Automated plot by PMC Xynetics Plotter

Evaluation XXXXXXXX by A. Luceno

Soundings in ~~fathoms~~ XXXXXXXX feet at MLW XXXX

REMARKS: Marginal notes in black by Evaluator. Separates are filed with the

Hydrographic data.

*STANDARDS CK'D 10-17-85
C. Wj*

SP 4-16-97

AWOISand SURF 3/89 JRB

68° 45' 0"

OPR. A166-MI 84
PENOBSCOT BAY, ME.
PROGRAM'S SKETCH
HYDROGRAPHIC OPERATIONS
NOAA SHIP MT. MITCHELL, S-222
JOSEPH W. DROPP, CAPT., NOAA
COMMANDING OFFICER

LEGEND
(See Sheet ONE of THREE)

APRIL	MAY	JUNE
		1M LAUNCH HYDRO
		SM LAUNCH HYDRO
		MISC. MILES
		TO & FM MILES
		TOTAL MILES
		BOTTOM SAMPLES
		NANSEN CASTS
		TDC CASTS
		SEA DAYS

44°
30'

H-10134
MI-10-2-84

JOINS NO. 1:10K

VERONA

ISLAND

JUNE

MAY 1984

JOINS MI-10-1-84 H-10130

PENOBSCOT RIVER

SANDY POINT

WEST

CHANNEL

EAST

CHANNEL

JUNE

GROSS

ORLAND RIVER

SHEET TWO OF THREE
SCALE OF CHART 13509

68° 45'

44°
30'

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DESCRIPTIVE REPORT TO ACCOMPANY SURVEY
H-10134 (Field No. MI-10-2-84)
Penobscot River, Maine

A. PROJECT

This project was a basic hydrographic survey of Penobscot River, Maine, from the Orland River to Fort Point ^{Cove}. This survey updated prior survey H-1258 of 1872, and H-1257A of 1872. This survey was conducted in accordance with project instructions OPR-A166-MI/HFP-84, Penobscot Bay and River, Maine, issued 20 March 1984, and ^{amended} by Change No. 1 dated May 14, 1984 and ^{amended} Change No. 2 dated December 7, 1984.

B. AREA SURVEYED

The area surveyed includes the Penobscot River from latitude 44° 29' 12" N to latitude 44° 32' 48" N, the Eastern Channel of the Penobscot River north to latitude 44° 32' 48" N and the entirety of the Orland River.

C. SOUNDING VESSELS

Soundings for the survey were obtained by the following vessels:

<u>VESNO</u>	<u>HULL NO.</u>
2221	MONARK
2223	1008
2224	1002
2225	1012
2226	1004

No unusual sounding vessel configurations or problems were encountered during this survey.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

The following sounding equipment was utilized during this survey:

<u>VESNO</u>	<u>ECHO SOUNDER</u>	<u>SERIAL NO.</u>
2221	Raytheon DE 719 C	9947
2223	Raytheon DSF 6000 N	B 041 N
2224	Raytheon DSF 6000 N	A 106 N
2225	Raytheon DSF 6000 N	A 110 N
2226	Raytheon DSF 6000 N	A 108 N

Soundings from launch 2221 were taken with a ^{DE 719C} portable transducer mounted on the starboard quarter of the vessel. Soundings from all other launches were taken with a hull-mounted transducer. Leadline soundings were taken when necessary. The antenna distance was 0.0 meters for all vessels.

All survey records were scanned by officers or survey department personnel and checked by a different officer or experienced survey technician. Peaks and deeps considered significant, and occurring between soundings, were inserted on the electronic corrector tape for Range/Range hydrography, and on the edited master tape for Range/Azimuth hydrography. Digitized errors were corrected to agree with the graphic record via the electronic corrector tape.

While surveying with the Raytheon DSF 6000 N, both wide and narrow beam signals were transmitted but only the narrow beam sounding was digitized. A daily echo simulator test was conducted using a depth sounder test set, model 3A, manufactured by Electronic Device, Inc.

Bar check data was erratic at times due to strong winds and currents which caused the bar to lead off at an angle rather than going straight down. Bar checks were obtained prior to and following the collection of data each day when possible. After rejecting data from several questionable bar checks, the bar check and Nansen cast data compared favorably. ✓

A special bar check was designed to test the portable transducer and fathometer used on the MONARK. A piece of 1/2 inch Aluminum was cut in a 3 foot diameter, with approximately 10 four (4) inch diameter drain holes cut so as to prevent the bar check being swept away by the current. This was supported by a line, marked every fathom, which was lowered over the side of the MONARK and held under the transducer to assist in taking a bar check.

Refer to Appendix D for a complete Velocity Corrections Report.

Filed with hydrographic data

A ^{draft} TRA of ^{1.8} ~~2.1~~ feet was applied to all soundings taken by vessels 2223, 2224, 2225, and 2226. Daily changes in draft for these launches were insignificant. The TRA of the MONARK (VESNO 2221) varied from 0.9 to 1.0 feet and was measured each day hydrography was run. *Revised in accordance with attached letter dated November 7, 1984.*

Settlement and squat correctors were determined for all launches, except the MONARK, in Rockland Harbor, Maine during the present field season. The MONARK was always run at slow speeds because of the risk of damaging the transducer and mounting. Settlement and squat data for the MONARK was obtained during the 1983 field season.

A copy of the Settlement and Squat Report*, including the correctors versus launch RPM's, is included in Appendix D. These correctors are incorporated in the TC/TI tapes.

**Filed with hydrographic data*

The gain adjustments were very sensitive in shallow water (less than 40 ft), resulting in erroneous high frequency gain traces. Many of these erroneous soundings were disproved by wire drags (see section ~~M~~ ^P for Wire Drag Report).

This survey was conducted using tidal predictions at Sandy Point (Station Number 841-4692). The primary controlling station for this survey was the tide gage at Rockland Harbor (Station No. 841-5490).

Smooth tides were requested from the Chief, Tides and Water Levels Branch (N/OMS2) in a Letter dated 2 July 1984. A copy of that letter is included in Appendix D.

Smooth tides and settlement and squat correctors will be applied on the final sheet prepared by the Processing Division, ~~Atlantic~~ ^{Pacific} Marine Center.

E. HYDROGRAPHIC SHEETS

This survey was plotted on six (6) mylar field sheets by the computer system onboard the NOAA Ship MT. MITCHELL as follows:

<u>SHEET</u>	<u>DATA</u>	<u>SKEW</u>
North	Mainscheme, Developments	0, 21, 54
North (overlay)	Crosslines, DP's, Bottom Samples, Shoreline, Developments	0, 21, 54
South	Mainscheme, Developments	0, 21, 54
South (overlay)	Crosslines, DP's, Bottom Samples, Shoreline, Developments	0, 21, 54
Inset	All	0, 21, 6
Wire Drag	All	0, 21, 54

All soundings are corrected for predicted tides, velocity, *settlement and squat*, instrument error, and ~~T.R.A.~~ ^{draft}.

All field records and the following tapes will be forwarded to Atlantic Marine Center for verification and smooth plotting:

- Master Data Tapes (Raw and Edited)
- Corrector Tapes
- Signal Tapes
- Velocity Tapes
- TC/TI Tapes

Attached to this report is a 1:5,000 scale blow-up of the Odom Ledge area. *All significant information is portrayed on the smooth sheet.*

F. CONTROL STATIONS

All control stations (with one exception) were established by at least Third Order, Class I methods, North American 1927 Datum. The control stations were recovered during 1983, by Operations Division, Atlantic Marine Center, and by NOAA Ship MT. MITCHELL personnel during April - June 1984. Electronic control stations were erected by MT. MITCHELL personnel. *Refer to sect. 2 of Eval. Report*

A list of all Signal Names and Geographic Position is included in Appendix F of this report. A Horizontal Control Report documenting the establishment of additional control stations by MT. MITCHELL personnel is included with the survey support data. All Control Stations were monumented.

Station Mud was established for use as an initialization station for Range/Azimuth work done from Station Jerry. Due to the lack of control in the Verona Island area an open traverse was done from Station Bray to establish Station Mud. A distance check was obtained from Jerry to Mud. Although Station Mud is less than a Third Order Station, it was used for an initial when performing Range/Azimuth control, and any resulting positional error will be less than 1 meter due to the station being less than Third Order.

G. HYDROGRAPHIC POSITION CONTROL

Soundings were positioned using Del Norte trisponders in the Range/Range mode or in the Range/Azimuth mode in combination with a T-2. The following electronic positioning equipment was used in the launches:

<u>VESNO</u>	<u>EQUIPMENT</u>	<u>SERIAL NO.</u>	<u>JULIAN DATES</u>
2221	DMU	162	159 - 165
	MASTER	1070	159 - 165
2223	DMU	432	145 - 158
	MASTER	1067	145 - 158
	DMU	162	153 - 155
	MASTER	1070	153 - 155
	DMU	122	159
	MASTER	278	159
2224	DMU	162	141 - 145
	MASTER	1070	141 - 145
	DMU	182	150 - 159
	MASTER	159	150 - 159
2225	DMU	122	156 - 165
	MASTER	278	156 - 165
2226	DMU	122	164
	MASTER	278	164

Each Del Norte DMU-MASTER pair was calibrated with the remote units over a measured baseline at two week intervals in accordance with AMC Operations Order No. 79.

The measured baseline was established between the U. S. C. G. Station, Rockland, Maine, and a point near the base of Rockland Harbor Breakwater using a Hewlett Packard 3810B Electronic Distance Measuring Unit. The baseline was located over a water path to reduce interference.

Daily calibrations were made before and after data acquisition by one of the following two methods.

I. Static Calibration: Two static calibration points were established within the limits of the project and utilized for daily electronic positioning calibrations. The northern end of the pier at Fort Point (Station Fort) and a piling at the Sandy Point pier ruins *Sta. 200 (pile) on smooth sheet* constituted the static calibration points. Slope distances from the horizontal control stations to the calibration points were measured with the HP 3810B. Static calibrations were achieved by maneuvering the sounding vessel alongside the calibration sites and averaging ten (10) Del

Norte Rates. In cases where it was not possible to place the vessel directly alongside due to either weather or low tide, the vessel was brought within a few meters and an appropriate correction applied.

II. H. P. 3810B Calibration: The Hewlett Packard Distance Measuring Unit was used to determine the range or range and azimuth to a prism board located beneath the Del Norte antenna. The distances to the respective electronic control stations were determined using the HP 3810 program (ver 30 July 1983). The difference between the observed and calculated distances yielded the correctors.

Daily calibration and baseline calibration data are included with the survey support data.

H. SHORELINE

Shoreline details were obtained from Class III Shoreline Maps, Job CM-8101, and represented on manuscripts TP-01111 and TP-01110 at a scale of 1:20,000, and TP-01109 at a scale of 1:10,000.

Extensive shoreline verification was done on three different days, observing the shoreline at all stages of the tide. The shoreline conformed well with the present NOAA Chart 13309 and TP-Sheets 01111 and 01109 except in the following areas. These areas of change have been depicted on the final field sheet in red ink. Photos mentioned in this section have been submitted with the survey support data. *There is no change in the HWL. Changes occurred only in features adjacent to the HWL.*

The chart depicts the area from Cape Junction to Sandy Point accurately, yet TP-01111 does not show the rocky ledges which extend from the points as shown on the chart, therefore, the chart should be followed. *concur*

Several symbols representing ^{ed by ledges, and rocks awash} the rocks which bare at high water are shown on the chart in this area. It is recommended that these symbols remain, and in addition the rocks awash as symbolized on TP-01111 to represent the boulder strewn coves and large rocks awash found in this area be added. No DP's were taken due to the danger involved since this area is both shoal and rocky. *concur*

The following is a quote from notes to Hydrographer's final review dated June 1983, TP-01111:

"....A brief post compilation field evaluation revealed that much of the currently charted "ledge" is actually rocky foreshore which consists of dense rocks and boulders. Areas of this nature were symbolized by the term "RKY" and were represented by the more prominent rocks." *"Rky" revised to "rocks on the smooth sheet."*

It was found that the above was the case quite often in this survey area. A ledge shown on the chart is really an area with many rocks and boulders. This is the case for the shoreline along the eastern shore of the Penobscot River from latitude 44° 30' 00" N south to the survey limit. The TP-Sheet of this area shows a boulder strewn beach with a few rocky areas. The shore line is actually very rocky with many boulders and few ledges. Therefore it should be depicted as rocky, not as shown on chart 13309 as a ledge.

A rock awash was found at latitude $44^{\circ} 31' 18''$ N and longitude $068^{\circ} 48' 21''$ W, ^{23.41} ~~South~~ ^{North} of Sandy Ruins, represented by Position Number ~~5535~~. ^{15.32} ⁵¹⁹⁸ This rock awash was not charted on 13309 or represented on TP-01109 and should be added. ~~This rock awash has been represented on the final field sheet in red ink.~~ Shown on smooth sheet as * (8) CONCUR

The Northern most part of Sandy Ruins is represented by Position 1145, the Southern most extension of the ruins is depicted by Position 1146, and the Eastern most extension is depicted by Position 1148. ^{Point Pier} CONCUR

Just north of ~~here~~ ^{Sandy Point Pier Ruins} exists a small groin at latitude $44^{\circ} 30' 25''$ N, and longitude $068^{\circ} 48' 25''$ W. This is properly depicted on TP-Sheet 01109, ~~but has been charted incorrectly on chart 13309 as submerged pilings.~~ Picture #1 shows this area. It is recommended that the ~~submerged pilings~~ be replaced by the "Groin" shown on TP-01109. CONCUR

At latitude $44^{\circ} 30' 14''$ N, and longitude $068^{\circ} 48' 12''$ W there exist a small group of boulders. Due to the danger of the shoal area a position could not be obtained. This boulder group is presently charted as a ledge. It is recommended that this feature be changed on the chart from a ledge to "Rocky" as depicted on TP-01109. ^{charted symbol} CONCUR

Mill Cove is correctly depicted on Chart 13309, although on the gravel beach in this area there are a few small scattered boulders; therefore the TP-Sheet of this area is also correct. It is recommended that the rocks awash as shown on the TP-Sheet be added. CONCUR

The ledge is depicted correctly on Chart 13309 along the western shore of the Western Channel of Penobscot River from latitude $44^{\circ} 30' 48''$ N to latitude $44^{\circ} 31' 10''$ N. The TP-Sheet shows rocks awash in this area, when actually large boulders exist on the ledge. Therefore, this area should remain as charted. ^(Mill cove) CONCUR

The ~~cove at~~ ^{vicinity of} latitude $44^{\circ} 31' 12''$ N and longitude $068^{\circ} 48' 12''$ W is depicted correctly on the TP-Sheet as a boulder strewn beach. Rock awash symbols should be added to the chart to depict this. CONCUR

^{Low water & features in} Gondola Cove located at latitude $44^{\circ} 31' 27''$ N, and longitude $068^{\circ} 48' 18''$ W is depicted correctly on the TP-Sheet and not on the chart. ³⁰ The ~~shore~~ ^{low water} line of this cove is not a rocky ledge, but a boulder strewn sand beach and should be charted as such. The changes have been drawn on the final field sheet in red ink. "boulder and sand beach" notes added to smooth sheet. CONCUR

Between latitude $44^{\circ} 31' 27''$ N and latitude $44^{\circ} 32' 21''$ N the TP-Sheet depicts the shore line along the western shore of the Western Channel of Penobscot River properly. Presently Chart 13309 shows a ledge in this area. It is recommended that the TP-Sheet be followed by showing the area rocky and boulder strewn. "foul with rocks and boulders" notes added to smooth sheet. ^{Isolated ledges transferred from boat sheet.} CONCUR

At latitude $44^{\circ} 32' 21''$ N, and longitude $068^{\circ} 48' 27''$ W there is a small ~~cove~~ ^{recess} depicted properly on the TP-Sheet as a gravel beach with rock ledges on the points both to the north and south of the ~~cove~~ ^{recess}. The chart should be changed since it is presently showing a rocky ledge throughout. This change has been depicted on the final field sheet in red ink. CONCUR

"gravel beach" note shown on the smooth sheet.

Along the western shore of the Western Channel of Penobscot Bay, between latitude $44^{\circ} 32' 23''$ N to the northern survey limit, Chart 13309 presently shows a rock ledge. This area is actually rocky and boulder strewn as shown on the TP-Sheet. *"boulder beach" notes added to smooth sheet.* ✓

The rocks awash as shown on the TP-Sheet have been visually verified. The TP-Sheet should be followed in this area. The changes have been made on the final field sheet in red ink. *rock wash symbols transferred to smooth sheet from the TP sheet.* ✓

At latitude $44^{\circ} 32' 41''$ N and longitude $068^{\circ} 48' 26''$ W there exists a wood and rock man-made breakwater (see photo No. II). This has been verified by position 5181. This feature, shown also on TP-Sheet, 01109 should remain on chart 13309. *be charted* ✓ *concur*

Chart 13309 incorrectly shows a rock ledge from latitude $44^{\circ} 30' 40''$ N to latitude $44^{\circ} 32' 26''$ N along the western shore of Verona Island. This area is actually rocky and boulder strewn as shown on TP-01109. The rocks awash in this area as shown on the TP-Sheet have been visually verified. The TP-Sheet should be followed as shown by the changes made on the final field sheet in red ink. *rocks and ledges with changes by the hydrographer and "rocky ledge" and "rocks and boulders" notes are shown on the smooth sheet.* ✓ *concur*

Two small ledges do exist along the western shore of Verona Island at latitude $44^{\circ} 31' 35''$ N and at latitude $44^{\circ} 31' 24''$ N. *These two ledges are depicted properly on the TP-Sheet, and should also be charted according to survey.* ✓ *concur*

The *indentation* ~~cove~~ located at latitude $44^{\circ} 30' 20''$ N and longitude $068^{\circ} 46' 21''$ W is depicted correctly on the TP-Sheet, and incorrectly on chart 13309. This *recess* ~~cove~~ is actually mud with a few scattered boulders as shown on TP-01109, not a rock ledge shoreline as shown on chart 13309. This change has been shown on the final field sheet in red ink, and on the smooth sheet. *"boulder and mud beach" and "mud" notes are also shown on the smooth sheet.* ✓

The pier ruins charted at latitude $44^{\circ} 31' 08''$ N, and longitude $068^{\circ} 45' 45''$ W were visually verified with picture #3 and should remain as charted. *"Pier ruins" note added on smooth sheet.* ✓ *concur*

At latitude $44^{\circ} 32' 45''$ N, and longitude $068^{\circ} 46' 11''$ W, there exist a rocky ledge and rocks awash on the TP-Sheet. These features need to be added to the chart, which presently does not show anything. These changes have been made on the final field sheet in red ink. *This ledge symbol is shown on the smooth sheet.* ✓ *concur*

Near Gross Point at latitude $44^{\circ} 32' 13''$ N, and longitude $068^{\circ} 45' 25''$ W there is a small *recess* ~~cove~~. On chart 13309 a rock awash is charted, no position was taken since this area is actually a mud cove with several boulders as depicted on the TP-Sheet. *This area should remain as charted. Chart according to smooth sheet information.* ✓

Along the west shore of the Orland River, from latitude $44^{\circ} 32' 37''$ N, north to the survey limit, the chart correctly depicts this area as mud flats. The TP-Sheet shows rocks awash symbolizing the area as boulder strewn. This is a characteristic of this area and it is recommended that the rocks awash be charted as shown on the *smooth sheet* final field sheet in red ink. ✓ *concur*

"Mud flats" & "boulder and mud beach" notes added to smooth sheet.

At latitude $44^{\circ} 33' 12''$ N, and longitude $068^{\circ} 44' 51''$ W, the chart depicts a ledge which does not exist (see photo #6). It is recommended that the TP-Sheet be followed. CONCUR

A shoreline change is noted on the TP-Sheet at latitude $44^{\circ} 33' 32''$ N, and longitude $068^{\circ} 44' 48''$ W. This area was observed visually at high water and it was found to be submerged (see photo A), while at low water it is a grassy piece of land. Therefore, this shoreline should be changed as shown on the final field sheet in red ink. CONCUR
smooth sheet
"grass mounds" notes added to smooth sheet

The ^{indentation} cove just south of ^{the above} this area at latitude $44^{\circ} 33' 30''$ N, and longitude $068^{\circ} 44' 49''$ W is shown as exposed mud at low water. The TP-Sheet portrays this area well. It has several rocks awash in this area as well as a "grass mound" which is exposed at high water. The TP-Sheet should be followed as shown on the final field sheet in red ink. CONCUR
smooth sheet

Just north of ^{the above area} here at latitude $44^{\circ} 33' 44''$ N and longitude $068^{\circ} 44' 51''$ W exists a ^{recess} cove similar to the one just described. Photo number 9 shows this area with its exposed grass mounds. The TP-Sheet should be followed in this area and the changes have been shown on the TP-Sheet in red ink. CONCUR
"grass mounds" notes added to smooth sheet.
field

The ^{indentation} cove north of ^{the above area} here at latitude $44^{\circ} 34' 05''$ N, and longitude $068^{\circ} 44' 46''$ W also has several grass mounds which are visible at high water. The changes as shown on the final ^{smooth} field sheet should be made on chart 13309. CONCUR
"grass mounds" notes added to smooth sheet.

Between latitude $44^{\circ} 34' 00''$ N and latitude $44^{\circ} 33' 30''$ N the chart is correct showing mud flats. This area is also boulder strewn as depicted on the TP-Sheet. ✓

The rocks awash ^{in the area mentioned above} as shown on the TP-Sheet have been visually verified and ^{was} should be added to the ^{chart} as shown on the final field sheet in red ink. CONCUR
smooth sheet

As shown in Photo #7 the area at latitude $44^{\circ} 33' 18''$ N, and longitude $068^{\circ} 44' 36''$ W is correctly depicted on the chart. This area is a rock ledge as shown on chart 13309, ~~not pier ruins as shown on the TP-Sheet. The chart should be followed in this case.~~ ✓

The cove located at latitude $44^{\circ} 33' 08''$ N, and longitude $068^{\circ} 44' 38''$ W was observed at low water. No rocks exist in this cove as shown on the TP-Sheet. Instead of rocks, there are two grass mounds visible at low water. Therefore, it is suggested that they be charted as shown on the final ^{smooth} field sheet in red ink. CONCUR
"mud flats and grass mounds" added to smooth sheet.

The area at latitude $44^{\circ} 33' 01''$ N, and longitude $068^{\circ} 44' 45''$ W is shown incorrectly on the chart. The TP-Sheet should be followed in this area. Chart 13309 does not show a rocky area. Since it is very rocky with many large boulders (see photo #10), it is recommended that this area CONCUR

be labeled as rocky and two rock awash symbols be added as shown on the TP-Sheet. These changes have been made on the final field sheet in red ink. *"rocks" note added to smooth sheet.*

At latitude $44^{\circ} 32' 52''$ N, and longitude $068^{\circ} 44' 45''$ W there exists a pier ruin (see photo #11) consisting of rocks, dirt, wood pilings, and gravel covered by grass which is shown correctly on the chart. Another similar pier ruin exist at latitude $44^{\circ} 32' 48''$ N, and $068^{\circ} 44' 44''$ W, but it has not been charted on 13309. This pier ruin is shown on the TP-Sheet but needs to be added to chart 13309. These ^{Piers} changes have been ^{added} noted on the ~~final field~~ ^{smooth,} sheet. *field sheet concur*

Pier ruins ^{is} are presently charted at latitude $44^{\circ} 32' 35''$ N, and longitude $068^{\circ} 44' 53''$ W. It is recommended that this be changed. No ruins are visible, there is a ledge which is a rectangular shape which may appear to be ruins, but is not. Note picture #5. The changes have been depicted on the final field sheet in red ink. *Remove pier ruins from chart.* *concur*

At latitude $44^{\circ} 32' 47''$ N, and longitude $068^{\circ} 44' 45''$ two rocks which are exposed at high water are ~~charted~~. It is recommended that these symbols ~~remain~~ ^{be} charted. ~~In addition,~~ The TP-Sheet shows a rock awash, ~~which should be added~~. No position was obtained due to the shoal muddy area. *Transferred this rock awash to the smooth sheet from the T-P sheet.* *concur*

South of ^{above area} ~~here~~ at latitude $44^{\circ} 32' 41''$ N, and longitude $068^{\circ} 44' 45''$ W are charted three rocks which bare at high water. This area is actually rocky as shown on the TP-Sheet and it is recommended that the changes as shown on the final field sheet in red ink be followed. *chart from smooth sheet & TP-sheet* *concur*

At both latitude $44^{\circ} 32' 27''$ N, and longitude $068^{\circ} 44' 48''$ W, and latitude $44^{\circ} 32' 20''$ N, and longitude $068^{\circ} 44' 52''$ W there are two rocks shown on TP-Sheet 01109 which are exposed at high water. Both rocks were visually verified and should be added to chart 13309 as noted on the final field sheet. *chart from smooth sheet.* *concur*

Two rocks awash which are not charted need to be added as shown on the TP-Sheet at latitude $44^{\circ} 31' 51''$ N, and longitude $068^{\circ} 44' 59''$ W. These rocks awash were visually verified since a boat was unable to obtain a position. The changes have been shown on the final field sheet. *chart from smooth sheet* *concur*

At latitude $44^{\circ} 31' 44''$ N, and longitude $068^{\circ} 45' 05''$ W there exists a large rock ledge visible at low water as shown on the TP-Sheet. This feature should be added to the chart as depicted with red ink on the final field sheet. *chart from smooth sheet.* *concur*

A rock ledge is shown on Chart 13309 from latitude $44^{\circ} 32' 00''$ N to latitude $44^{\circ} 32' 30''$ N. This area is actually boulder strewn as shown on the TP-Sheet. The TP-Sheet should be followed in this area as shown on the final field sheet in red ink. *"boulder beach" notes added to smooth sheet.* *concur*

At latitude $44^{\circ} 31' 27''$ N, and longitude $068^{\circ} 45' 08''$ W a small rock ledge needs to be added to chart 13309 as depicted on TP-01109. This small ledge has been added on the final field sheet. *chart from smooth sheet* ✓

From latitude 44° 30' 38" N south to latitude 44° 30' 00" N, along the eastern shore of the Eastern Channel of Penobscot River, rock ledges are shown on Chart 13309. This is incorrect since the area is actually rocky and boulder strewn. The TP-Sheet depicts this area accurately and should be followed. *"rocks" "sand" notes added to smooth sheet.* CONCUR

At latitude 44° 30' 27" N, and longitude 068° 45' 41" W as shown with picture #2 there exists two small man-made rock breakwaters. Only one is charted, therefore, the TP-Sheet should be followed showing two breakwaters. These changes have been made on the final field sheet in red ink. Position 8176 depicts the seaward extension of the northerly jetty. *chart from smooth sheet.* CONCUR

Southwest of Odom Ledge at approximately latitude 44° 30' ^{52.77}" N, and longitude 068° 48' ^{07.65}" W there is a large rock awash which should be added to the chart. This rock awash is 9 feet above MLW and it is recommended that it be added to this ledge as shown on the ~~final~~ ^{smooth} sheet located by position 5534, and on the TP-Sheet. Included with the survey data is a series of photographs of the Odom Ledge area. See pos. 5534
CONCUR

I. CROSSLINES

This survey contains 10.7% crosslines run per mile of hydrography. The agreement between crossline and mainscheme overlap was 99% based on criterion for comparison cited in Section 1-1-2, Part B.11.1 of the Hydrographic Manual. ✓

J. JUNCTIONS

This survey was junctioned by one survey, H-10130, at a scale of 1:10,000. This survey was conducted concurrently with the present survey.

Excellent agreement was found in comparing junction soundings and depth contours. Survey H-10130 has 100% agreement with the present survey along the junction line at latitude 44° 29' 13.0", representing the southern most mainscheme line of this survey and the northern line of H-10130. *Refer to
sect. 5 of
Eval. Report 2*

K. COMPARISON WITH PRIOR SURVEYS

This survey was compared with two prior surveys containing work in the present operational area. It is as follows:

<u>NUMBER</u>	<u>DATE</u>	<u>SCALE</u>
1258	1872	1:20,000
1257A	1874	1:10,000

A comparison of soundings from latitude 44° 29' 10", latitude 44° 31' 00" showed a 99% agreement between the present survey and prior survey 1258, within acceptable standards of the Hydrographic Manual, Section 1-1.2, Part B.11.1. The following discrepancies deviating from the general range as stated in the Hydrographic Manual are listed below: ✓

<u>PRIOR SURVEY DEPTH (FT)</u>	<u>PRESENT SURVEY DEPTH (FT)</u>	<u>POS. NO.</u>	<u>LATITUDE (N)</u>	<u>LONGITUDE (W)</u>
8 1/2	11	1038 ⁺²	44° 29' 31" ^{21.97}	068° 48' 58" ^{58.28}
18	14 ³	1031 ⁺⁵	44° 29' 20" ^{18.51}	068° 48' 47" ^{46.97}
28	38 ⁷	1017	44° 29' 16" ^{15.88}	068° 48' 18" ^{19.17}
49	23 ⁴⁵	1196 ⁺²	44° 29' 32" ^{32.13}	068° 48' 22" ^{57.64}
22	49 ⁵⁰	1527	44° 30' 33" ^{31.44}	068° 47' 20" ^{19.52}

Due to a shift in datum, and the methods used to acquire data on the prior survey, the present survey is more accurate and should be charted. *concur*

Comparisons made with Prior Survey 1257A compared well south of latitude 44° 30' 15" N. From latitude 44° 30' 15" N north to 44° 32' 00" N in the East Channel of Penobscot River depths were observed to be 10 to 15 feet shoaler on the present survey H-10134. From latitude 44° 32' 00" N north to the survey limits in both the eastern channel of Penobscot River and the Orland River depths were observed to be 3 - 5 feet shoaler on the present H-10134 survey.

Three Pre-Survey Review Items were assigned to this survey; items 02960, 02961, and 03017.

PSR ITEM NO. 02960: Shoaling Reported to 34 feet. Charted Position: Latitude 44° 30' 43" N, and longitude 068° 48' 17" W.

This item was found north of the approximate position at latitude 44° 30' 47.5"^{32.0} N, and longitude 068° 48' 15.5"^{19.20} W. Position 1710 depicts the 31.5^{32.0} least depth found by this survey. ⁺⁰⁶

This item was searched for by a launch using 10 M spacing and a diving investigation, confirming the least depth found using a Raytheon DSF 6000 N Echo Sounder.

It is recommended that the 34 foot sounding be removed and the 31.5^{32.0} least depth be charted instead. Attached is the Danger to Navigation letter sent to the Director of Charting and Geodetic Services for immediate chart correction. *concur*

PSR ITEM NO. 02961: Sandy Point Pier Ruins. Charted position latitude 44° 30' 20" N, and longitude 068° 48' 17" W.

Sandy Point Pier Ruins consists of a wharf. The outer face is constructed of heavy dolphins which are visible at Mean High Water. In addition, two sets of submerged pilings do exist to the north of the Wharf's outer face. *Refer to sect. 7 of Eval. Report*

A wire drag was made of the area. A group of submerged pilings were hung with an effective depth of 21 feet. A launch investigated this area with 5 meter spacing, in addition, a dive investigation was made of this area. A circle search resulted in two Detached Positions with the following least depths:

ATTACHMENT 2

1:2,500
Scale

44°30'

AWOIS Item
No. 03017

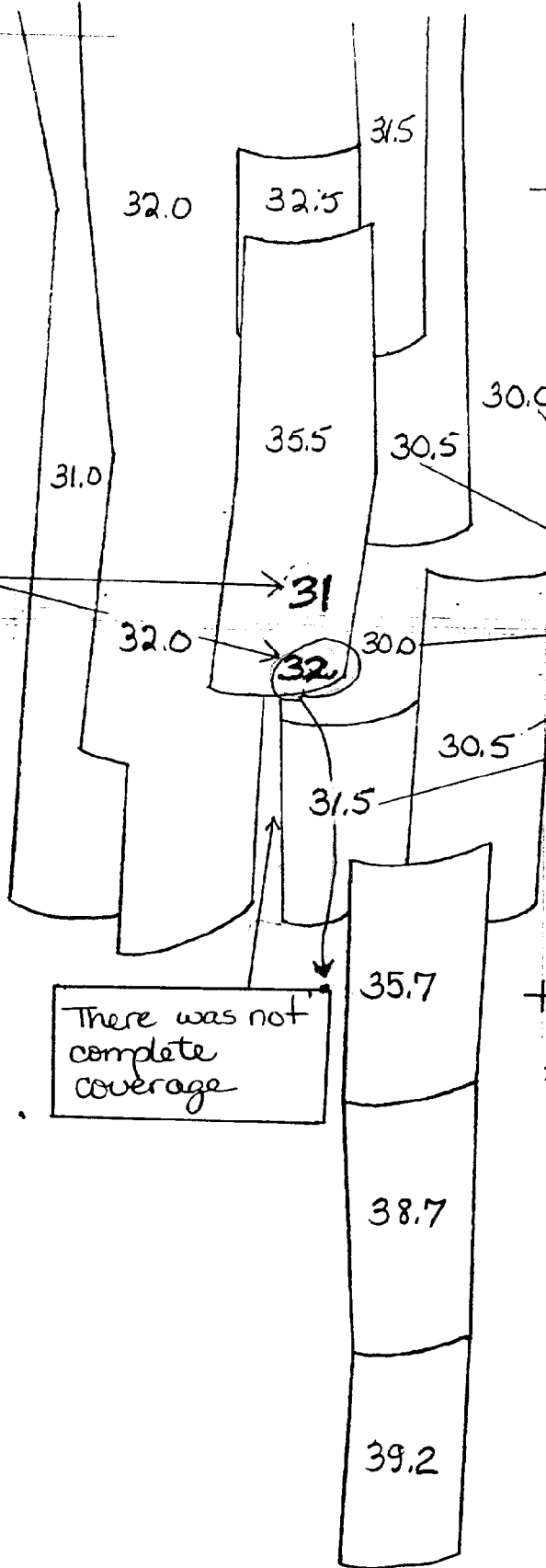
Approximate positions

Effective depth
is not deep
enough to find
depths of
31 and 32 feet

There was not
complete
coverage

44°29'50"
68°48'

68°47'50"



ODOM LEDGE

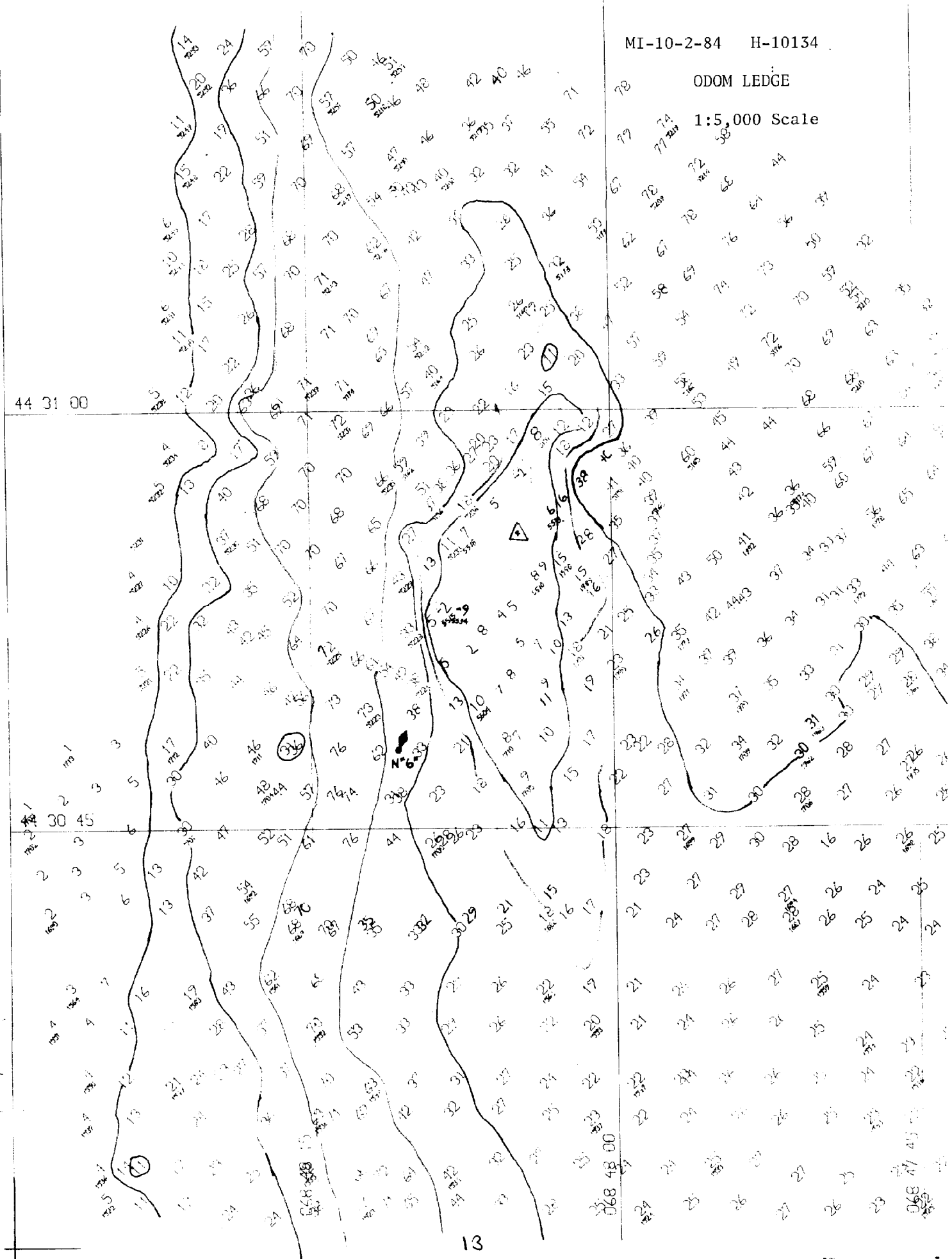
1:5,000 Scale

44 31 00

30 45

068 48 00

068 41 45



<u>LATITUDE (N)</u>	<u>LONGITUDE (W)</u>	<u>LEAST DEPTH (FT)</u>
44° 30' 21.9"	068° 48' 16.5"	2.6
44° 30' 22.6"	068° 48' 16.6"	12.5

PSR ITEM NO. 03017: 31 foot sounding reported at approximately latitude 44° 29' 55" N, and longitude 068° 47' 54" W.

This item was investigated by launch using 25 meter spaced lines as well as by a wire drag. The wire drag cleared this area with an effective depth of 34 feet. This, therefore, disproved the 31 foot reported depth in this area.

*Refer to
sect. 7 of
Eval. Report*

It is recommended that the previously charted 31 foot depth be removed, and the above two submerged pilings be added as shown on the final field sheet in red ink.

L. COMPARISON WITH THE CHART

Presently, one published chart covers the area of this survey. It is:

<u>CHART NO.</u>	<u>EDITION</u>	<u>DATE</u>	<u>SCALE</u>
13309	23rd	March 24, 1984	1:40,000

Comparison with chart 13309 showed a 96% agreement of soundings compared under standards of the Hydrographic Manual. The following is a list of discrepancies that are of significance. The differences are most likely due to the fact that silting has occurred. This has resulted in shoaler depths. The charted soundings are also from a survey which had less accurate position control than the present survey.

*Refer to
sect. 7 of
Eval. Report*

The silting is especially apparent in the Orland River, and Penobscot River Eastern channel. The depths found during the present survey should supersede all previous charted soundings.

concur

<u>CHART 13309 DEPTH (FT)</u>	<u>PRESENT SURVEY DEPTH (FT)</u>	<u>POS. NO.</u>	<u>LATITUDE (N)</u>	<u>LONGITUDE (W)</u>
53	33	8050 ⁺⁴	44° 30' 20" ^{20.35}	068° 45' 58.23"
46	30 29	8066	44° 30' 27" ^{27.05}	068° 45' 51" ^{51.56}
69	63	2312 ⁺³	44° 32' 30" ^{29.30}	068° 48' 10" ^{10.34}
73	66	2385 ⁺³	44° 32' 38" ^{37.45}	068° 48' 11" ^{11.07}
30	26 ⁵	5416 ⁺³	44° 32' 20" ^{19.58}	068° 45' 51" ^{51.06}
9	4	9036 ⁺³	44° 32' 53" ^{52.58}	068° 44' 47" ^{48.04}
12	3	9064 ⁺³	44° 32' 12" ^{12.38}	068° 45' 16" ^{17.35}
29	22 20	8252 8248 ⁺¹	44° 31' 25" ^{26.10}	068° 45' 26" ^{27.33}
40	29	8274	44° 31' 01" ^{00.91}	068° 45' 36" ^{38.29}

in shore line and adjacent features
 All changes to chart 13309 have been described under Section H.

M. ADEQUACY OF SURVEY

This survey is considered complete and adequate to supersede prior surveys for charting. CONCUR

No soundings were taken near Sandy Point ^{Pier} Ruins, at approximately latitude 44° 31' 20" N and longitude 068° 48' 18" W, due to the non-navigability of the area near the pier ruins. No additional data needs to be collected as this area is considered complete and adequate. CONCUR

South of this area at latitude 44° 30' 05" N to latitude 44° 30' 15" N is what appears to be a gap in the soundings. A shoreline was run in this area (positions 8341 to 8344). The mainscheme lines in this area were run into the shore to depths of 2 to 3 feet. Therefore no additional soundings needed to be acquired in this area. CONCUR

In the area of Mill Cove, latitude 44° 30' 45" N and longitude 068° 48' 33" W, is another apparent gap in sounding data. Mainscheme lines were run to depths of 1 to 2 feet which was sufficient to cover this area. CONCUR

South of Odom Ledge, from position 1688 to position 1689, the mainscheme line was steered off-line. This is not significant, therefore a split was not needed in this area. CONCUR

North of latitude 44° 32' 00" N north to the survey limit in both the Eastern Channel of the Penobscot River and especially the Orland River the shoreline is quite wide with mud flat areas. This is the reason for the apparent lack of sounding data along the shore in the above area.

N. AIDS TO NAVIGATION

There were four (4) floating aids to navigation within the survey limits. These buoys agreed with the Light List (1984) and with chart 13309 (23rd Ed., March 24, 1984) in color, type and location and serve their intended purpose. They are:

<u>BUOY</u>	<u>POSITION</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>
Black Can #3	1142	44° 29' ^{34.97} 35.08 " N	068° 48' 05.00 ² " W
Red Nun #4	1144	44° 29' 49.16" N	068° 47' 34.94" W
Black Can #5	1143	44° 30' 05.83" N	068° 48' 04.34" W
Red Nun #6	1149	44° 30' 47.96" N	068° 48' 10.76" W

There was one (1) fixed aid to navigation. The Odom Ledge day beacon, latitude 44° 30' ^{55.51}~~54~~" N, and longitude 068° 48' ^{04.21}~~06~~" W, agreed in color and location with the Light List (1984) and Chart 13309 (23rd, Ed.).

O. STATISTICS

	VESNO <u>2221</u>	VESNO <u>2223</u>	VESNO <u>2224</u>	VESNO <u>2225</u>	VESNO <u>2226</u>	TOTAL
Hydro. Position	150	347 ⁵¹²	1150 ¹³⁶⁸	397 ³⁷⁸	53 ²	2097 ²⁴⁶⁰
Mainscheme Miles	11.7	40.6	121.5	20.7	0	194.5
Crossline Miles	0	3.4	14.6	3.0	0	21.0
Development Miles	0	3.4	9.0	7.0	5.1	24.5
Vessel Hydro Miles	11.7	47.4	145.1	30.7	5.1	240.0
Wiredrag Positions	0	33	312	255	0	600
Wiredrag Miles	0	0.4	7.4	8.7	0	16.5
Square Miles Hydro	1.7					
Bottom Samples	46					
Nansen Casts	8					
Wiredrag Area	0.3 sq nm					

P. MISCELLANEOUS

During the month of June 1984 heavy rains and storms flooded the Penobscot River and nearby areas causing a rise in water level of approximately two (2) feet. The peak of this flood occurred around June 4th and 5th, 1984. This time period was plotted with predicated tides without significant junction problems.

As mentioned under Section L., Comparison with the Chart, considerable silting has occurred since the last survey in the areas of Orland River and the East Channel of Penobscot River. Consequently the soundings acquired in these areas are significantly shoaler. ✓

Currents in the Penobscot River area are quite strong. The surface water flowing from the north to the south. During the flood tide this current is approximately 1 knot, yet during ebb tide can be as strong as 5 knots.

Forty-six bottom samples were collected during this survey in accordance with the Hydrographic Manual. These samples were forwarded to the Division of Paleobiology, Smithsonian Institute.

Loran - C comparisons were made and forwarded to the United States Coast Guard through the Atlantic Marine Center.

As previously mentioned under Section D, Sounding Equipment and Corrections to Echo Soundings, problems were encountered with the high gain adjustment on the Raytheon DSF 6000 N. The following "Wire Drag Operations" report explains the process used to investigate the suspicious soundings recorded on the fathogram.

WIRE DRAG OPERATIONS

Wire drag operations were conducted on "D" South from 14 - 16 June (J. D. 166-168) for the purpose of verifying or disproving one PSR Item (#3017) and fifteen shoal soundings which appeared on the analog trace during routine mainscheme sounding operations. These shoal soundings came ✓

under suspicion after a careful review of the analog record failed to resolve whether the soundings were real, were caused by fish or debris, or were caused by a gain sensitivity problem in the Raytheon DSF 6000 N Fathometer. Conventional echosounder circle search methods failed to find the shoal soundings and therefore a constant tension wire drag system was deployed over the areas in question.

The following soundings were swept out to a radius of 100m with 100% overlap and no indication of shoaling:

<u>SOURCE POS.</u>	<u>SOUNDING</u>	<u>LATITUDE (N)</u>	<u>LONGITUDE (W)</u>	<u>SWEEP DEPTH</u>
1305-1306	20'	44 ⁰ 30' 01"	068 ⁰ 47' 55"	31'
1410-1411	18'	44 ⁰ 30' 08"	068 ⁰ 47' 46"	25'
1436-1437	19'	44 ⁰ 30' 13"	068 ⁰ 47' 48"	26'
1428-1429	16'	44 ⁰ 30' 12"	068 ⁰ 47' 41"	19'
1401-1402	16'	44 ⁰ 30' 07"	068 ⁰ 47' 41"	18'
1392-1393	11'	44 ⁰ 30' 05"	068 ⁰ 47' 39"	19'
1392-1393	13'	44 ⁰ 30' 06"	068 ⁰ 47' 36"	18"
1391-1392	17'	44 ⁰ 30' 05"	068 ⁰ 47' 49"	25'
PSR #3017	31'	44 ⁰ 29' 55"	068 ⁰ 47' 54"	34'
1445-1446	12'	44 ⁰ 30' 15"	068 ⁰ 47' 33"	14'

Following an extensive wire drag sweep of the above mentioned soundings, it was decided that such an extensive sweep 100% overlap on the remaining soundings in question was neither justified or time effective. Precise positions were obtained on the following questionable soundings by reviewing the mainscheme record and a 50 meter wide wire sweep was made over that position for the purpose of verifying or disproving the item. No indication of shoaling was found in the following areas:

<u>SOURCE POS.</u>	<u>SOUNDING</u>	<u>LATITUDE (N)</u>	<u>LONGITUDE (W)</u>	<u>SWEEP DEPTH</u>
1332	21'	44 ⁰ 29' 56"	068 ⁰ 47' 42"	26'
1526-1527	12'	44 ⁰ 30' 32"	068 ⁰ 47' 32"	15'
1557-1558	16'	44 ⁰ 30' 40"	068 ⁰ 47' 33"	18'
1698-1699	16'	44 ⁰ 30' 44"	068 ⁰ 47' 49"	21'
1546-1547	14'	44 ⁰ 30' 36"	068 ⁰ 47' 57"	19'
1518-1519	21'	44 ⁰ 30' 29"	068 ⁰ 47' 54"	26'

With few exceptions, NOAA Ship MT. MITCHELL conducted a wire drag survey in accordance with the Wire Drag Manual and the Constant Tension Wire Drag System developed by the NOAA Ships RUDE and HECK for launches of 20 to 30 feet.

Wire drag lines were run into the current on heading 000⁰ at 625 to 700 RPM's with a sea drogue deployed astern to assist in decreasing the speed of the 29 foot survey launches. The Hydroplot System was used aboard each vessel to aid in keeping them on line, 50 meters apart, and to generate a master data tape which was used to process the wire drag data.

When processing the data with RK 211 the position plot only option was used. In between soundings were obtained but not plotted. In general a position, which consisted of two rates, a time, and a test of the

effective sweep line depth, was obtained every two minutes or less. On average lifts were less than 1 foot and sags were less than 2 feet. On occasion a test would result in a miss. These positions were plotted but the effective depth for the section remained as was determined by the previous test (see positions 206 and 606 for an example of this). On successful tests, the position was plotted and a approximate catenary curve was drawn to the corresponding position of the other vessel representing the sweep line. The effective depth for a section was determined by correcting the upright depth for predicted tides and lift. When successive tests resulted in different effective depths the shoaler was used as the effective depth of the section.

For positions 100/500 to 177/577 and 284/684 to 286/686 one hundred percent overlap to a radius of 100 meters was accomplished by running adjacent sweep lines 25 meters apart. From positions 178/578 to 233/633 the soundings in question were swept out to a radius of 100 meters. The remaining positions correspond to 50 meter wide sweeps over accurately positioned questionable soundings.

Daily calibrations were obtained before and after data acquisition to determine pattern correctors. The HP 3810 B Range/Azimuth method was the method used to determine correctors which were applied during off line processing (see Section G., Hydrographic Position Control, for a description of this method). Bar checks were not obtained as processing the wiredrag data consisted of position plot only.

Q. RECOMMENDATIONS

It is recommended that this survey supersede all prior surveys of the area. No additional field work is required.

R. AUTOMATED DATA PROCESSING

The following programs were used for data acquisition and processing:

<u>PROGRAM</u>	<u>PROGRAM NAME</u>	<u>VERSION DATE</u>
RK 112	Range/Range Real Time Hydroplot	10/12/83
RK 116	Range/Azimuth Real Time Hydroplot	10/12/83
RK 201	Grid, Signal and Lattice Plot	4/18/75
RK 211	Range/Range Non-real Time Plot	2/13/84
RK 212	Visual Station Table Load and Plot	4/01/74
RK 216	Range/Azimuth Position and Sounding Plot	2/24/84
RK 300	Utility Computations	10/21/80
RK 330	Data Reformat and Check	5/04/76
RK 360	Electronic Corrector Abstract	2/02/76
RK 409	Geodetic Utility Package	9/20/78
AM 500	Predicted Tide Generator	11/10/72
RK 530	Velocity Corrections Computations	5/10/76
RK 561	H/R Geodetic Calibration	12/01/82
AM 602	Extended Line Orientated Editor	12/08/82

S. REFERENCE TO REPORTS

Horizontal Control Report
Loran-C Verification Report
Danger to Navigation Letter
Coast Pilot Report
Velocity Corrections Report

Respectfully submitted for approval,

Janet L. Paeth

Janet L. Paeth
Ensign, NOAA



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
 NATIONAL OCEAN SURVEY

NOAA Ship MT. MITCHELL S-222
 439 West York Street
 Norfolk, VA 23510

TO : Director
 Charting and Geodetic Services (N/CG 22)

THRU : Director
 Atlantic Marine Center (MOA)

FROM : *Joseph W. Dray*
 Commanding Officer
 NOAA Ship MT. MITCHELL S-222

SUBJECT: Danger to Navigation

During routine hydrographic operations on OPR-A166-MI/HFP-84, Penobscot Bay, Maine, a shoal with a least depth of 31 feet (MLW) was discovered in the Penobscot River, .13 nautical miles southwest of Odom Ledge.

While running mainscheme hydrography at 100 meter spacing on 24 May 1984, the shoal was observed while sounding with a DSF-6000N Fathometer and obtaining positional information with Del Norte Trisponders operating in the range/range mode.

Subsequently, ten (10) meter splits were run to fully develop this feature. Several dive investigations were conducted but due to extreme current conditions in the river a more precise leadline depth could not be obtained. The following are the results of the shoal development:

<u>Least Depth (MLW)</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>	<u>Charts Affected</u>
31 feet	44/30/48.0	68/48/15.6	13309 and 13302

This shoal corresponds with PSR # 2960 which reports a 34 foot sounding at approximately Lat. 44/30/43 N, Long. 68/48/17 W, in the Odom Ledge area. The presently charted "34' Rep" should be removed from the chart.

The above mentioned information should be included in the next Notice to Mariners. The local pilots association, Penobscot Bay Pilots, as well as local



barge traffic have have been notified by radio.

Enclosed is a chartlet showing the location of the shoal, a copy of the fathogram record and a copy of the Notice to Mariners TTY message.

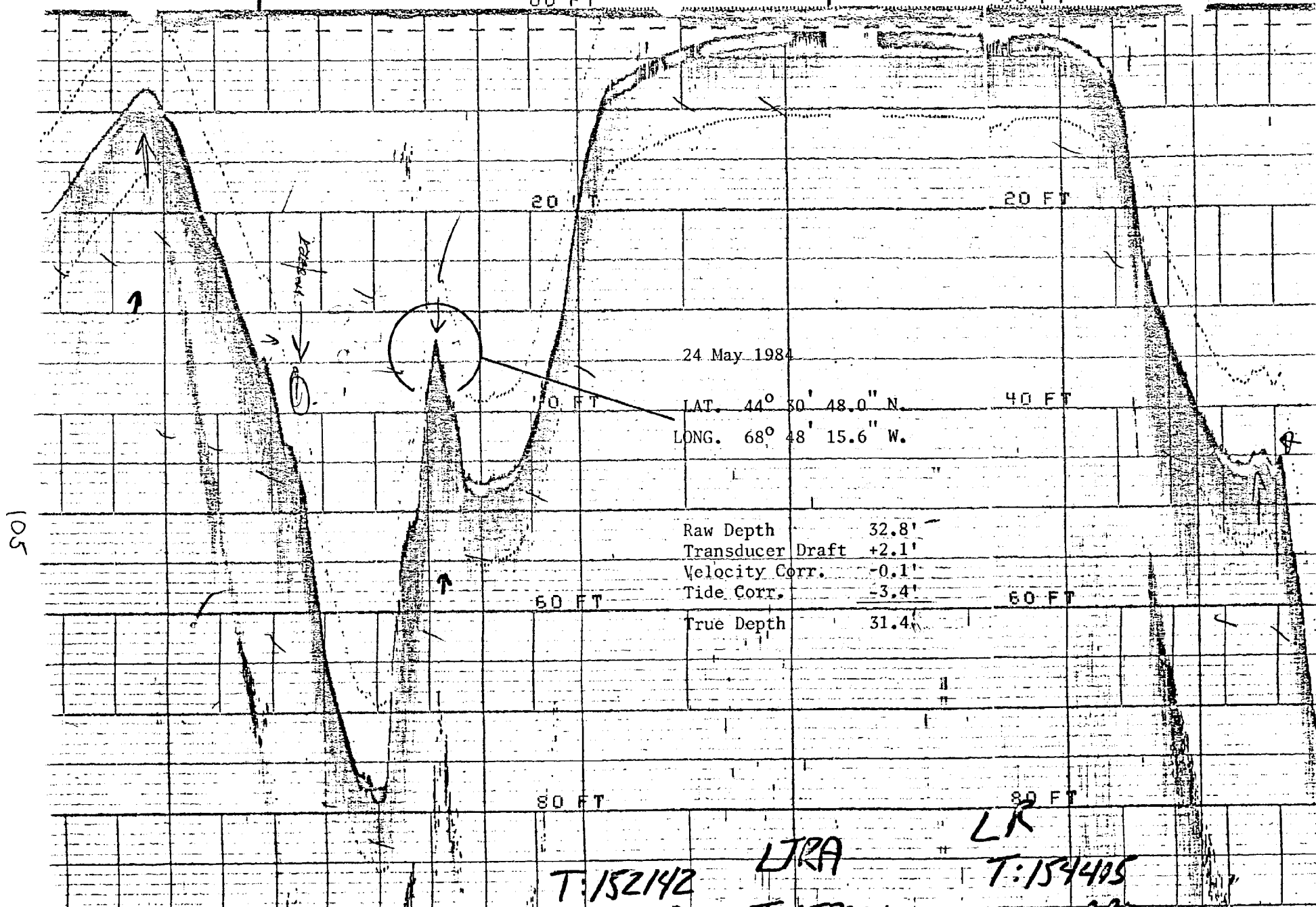
enclosures

F1710

F1711 F1712
00 FT

F1713

F1714
00 FT



24 May 1984

LAT. 44° 30' 48.0" N
LONG. 68° 48' 15.6" W

Raw Depth	32.8'
Transducer Draft	+2.1'
Velocity Corr.	-0.1'
Tide Corr.	-3.4'
True Depth	31.4'

105

T:152142

LJRA

LR

T:154405

T:152015

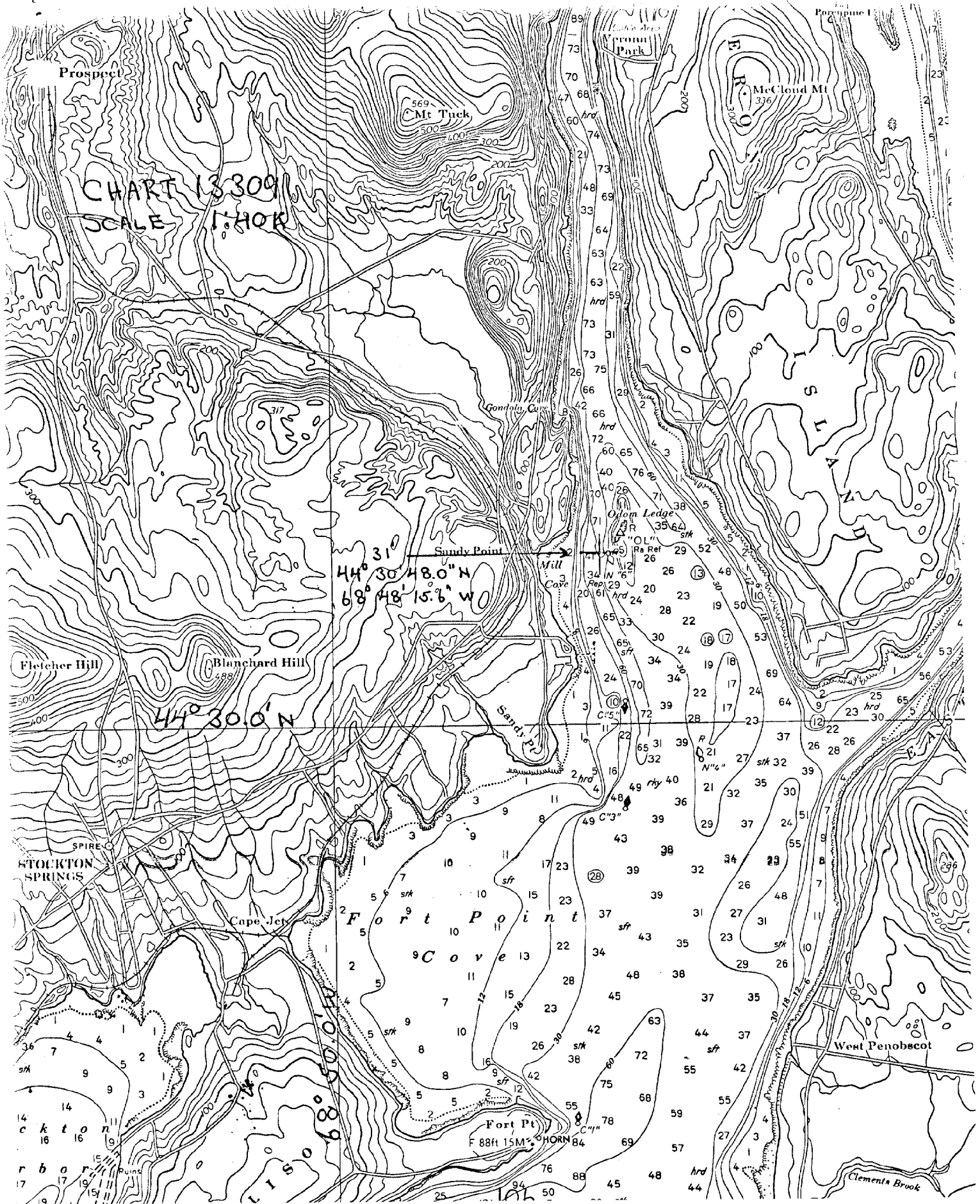
T:152121 900 RPT

T:152116

2000 RPM

SI-11/5

7



ATTACHMENT H

page 1 of 2



**U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration**

National Ocean Service
Pacific Marine Center
1801 Fairview Avenue East
Seattle, Washington 98102-3767

October 12, 1984 N/MOP21/DWY

Commander (OAN)
First Coast Guard District
150 Causeway Street
Boston, Massachusetts 02114

Dear Sir:

During preliminary office review of hydrographic survey H-10134, Orland River to Fort Point, Penobscot River, Maine, an uncharted shoal was noted and is considered a danger to navigation. Questions concerning the survey may be directed to Lt. Cdr. David W. Yeager, Chief, Nautical Chart Branch, telephone (206) 526-6835.

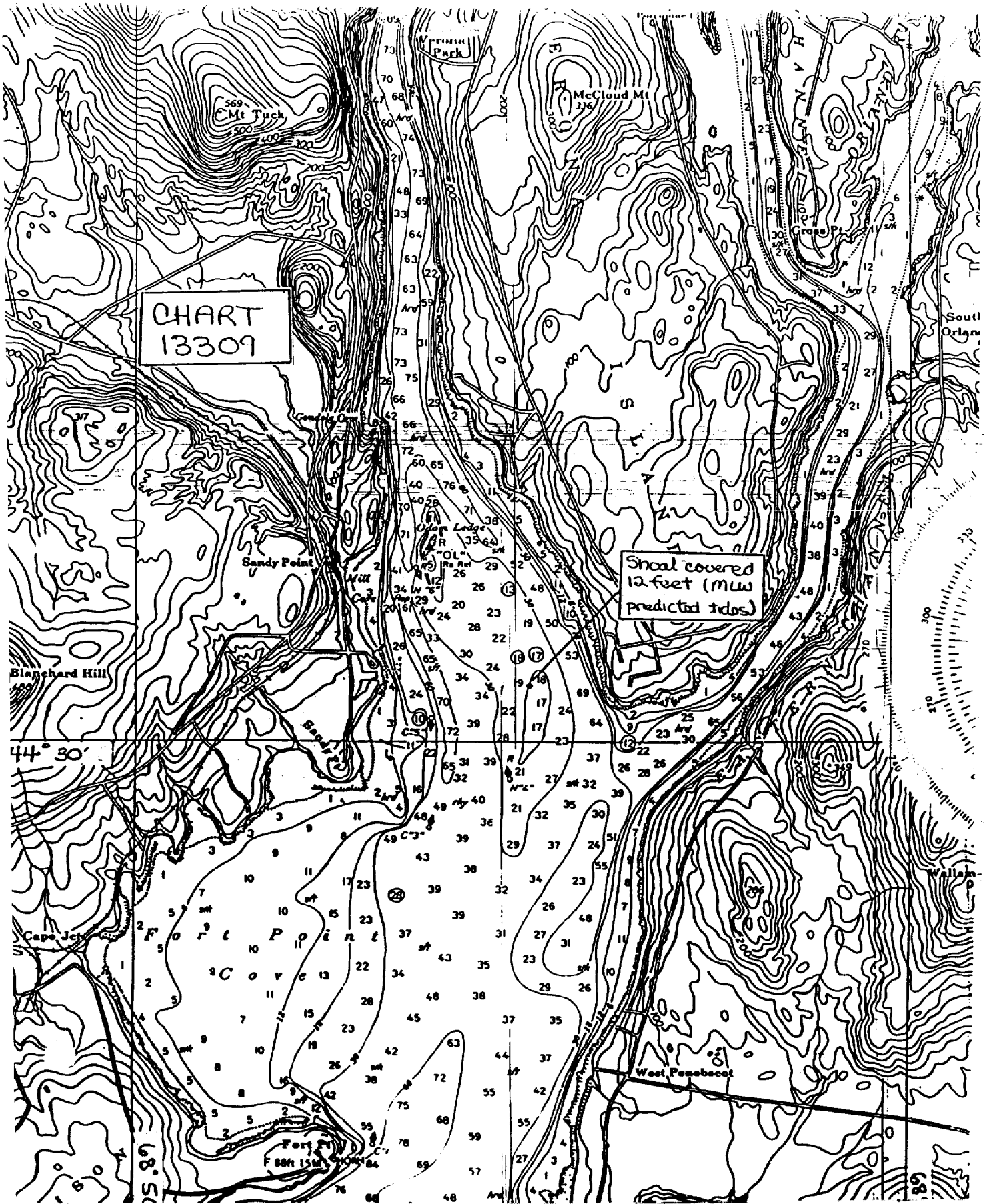
The following statement is recommended for inclusion in the Local Notice to Mariners:

"An uncharted shoal covered by 12 feet (MLW based on predicted tides) is at latitude 44°30'15.5"N, longitude 68°47'27"W, bearing 145 degrees true, 0.8 nautical miles from Odom Ledge Daybeacon "OL" (Chart 13309)."

Sincerely,

Robert L. Sandquist
Rear Admiral, NOAA
Director, Pacific Marine Center







U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

Date : 7 November 1984

To : LCDR David MacFarland
Chief, Hydrographic Survey Branch

From : *John R. Bass* Lcdr, NOAA
Commanding Officer
NOAA Ship Mt. Mitchell S-222

Subject : Survey Launch TRA Measurements

Following a remeasurement of the transducer drafts on VESNO's 2223, 2224, 2225 and 2226, a TRA of 1.8 feet (0.3 fathoms) was found to exist on all launches.


Previous work showing a TRA of 2.1 feet is incorrect and should be updated to reflect the 1.8 feet value.

cc:
MOA2x1
MOP2x1



APPROVAL SHEET

The field work on this Hydrographic Survey was under my daily supervision. The field sheets and records have been reviewed and approved by me. This survey is complete and adequate.


Commanding Officer
NOAA Ship Mt Mitchell

APPENDIX F

LIST OF STATIONS

Station #, Name

010	Land 1982
015	Rod 1982
020	Out 1982
025	East 1982
030	Health Health 1982
136	Forts 1982
140	Sandy 1982
150	Ruins 1982
151	Sandy Point East Church Cong. Spire
153	Odens Odom Ledge Beacon 1863
154	Odens Odom Ledge 1863 ^{Beacon Ecc}
155	Verona 1982
156	Waldo-Hancock Bridge, ^W West Tower 1934
157	Jerry 1982
160	Bray 1982
161	Mud
165	Grass 1982

APPENDIX F

LIST OF STATIONS

010	4	44	34	02805	068	44	39981	243	0000	000000
015	4	44	32	58625	068	44	45322	139	0002	000000
020	4	44	31	14585	068	45	18923	139	0001	000000
025	4	44	29	46062	068	46	32715	139	0002	000000
030	4	44	28	13328	068	47	06908	139	0006	000000
136	4	44	28	15576	068	48	49090	139	0003	000000
140	4	44	29	50047	068	48	35667	250	0015	000000
150	4	44	30	21571	068	48	25029	250	0002	000000
151	4	44	30	43016	068	48	53146	139	0000	000000
153	4	44	30	55569	068	48	04651	139	0004	000000
154	4	44	30	55599	068	48	04686	139	0006	000000
155	4	44	33	03326	068	48	13212	139	0002	000000
156	4	44	33	39020	068	48	12360	139	0000	000000
157	4	44	33	06519	068	45	55668	243	0000	000000
160	4	44	32	09628	068	45	29895	139 ²⁵⁴	0002	000000
161	4	44	32	02521	068	45	47544	250 ²⁵²	0000	000000
165	4	44	32	22885	068	45	16846	139	0001	000000
200		44	30	18110	068	48	16250	253	0000	000000

APPENDIX I

LANDMARKS FOR CHARTING

All landmarks were observed from seaward and no additions, deletions, or revisions are recommended.

DATE: 09/21/84

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Marine Center: Atlantic

OPR: A166

Hydrographic Sheet: H-10134

Locality: Penobscot River, Maine

Time Period: May 20 - June 17, 1984

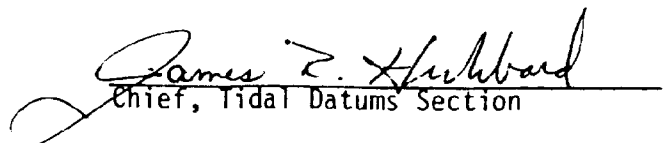
Tide Station Used: 841-4692 Sandy Point, Maine

Plane of Reference (Mean ~~Lower~~ Low Water): 7.64 ft.

Height of Mean High Water Above Plane of Reference: 10.5 ft.

Remarks: Recommended Zoning:

Zone Direct


Chief, Tidal Datums Section

FIELD TIDE NOTE

Field tide reduction of soundings were based on Predicted Tides from Portland, Maine, and were corrected to OPR-A166-MI/HFP-84 zoning, utilizing a PDP8/E Computer and Program RK500. All times of both Predicted and Recorded Tides are Universal Coordinated Time (GMT).

The number and type of Tide Gages installed, their geographic locations, dates of installation/removal, Leveling, Plane of Reference and period of operation are appended to this note, along with a copy of a letter to OA/C23 requesting verified hourly heights of tides from gages listed in this report.

The respective gages reportedly operated properly/improperly during this Project, with any exceptions noted under "REMARKS" on the appended Tide Gage Sheets.

FIELD TIDE NOTE
TIDE GAGE REPORT

NOS TIDE TABLE NUMBER: 773 TIME MERIDIAN 75 ° W
GEOGRAPHIC LOCALE: Coast Guard Base Rockland, Maine
NAME: Rockland, Maine STATION NUMBER: 841-5490
LATITUDE: 44°06.2' N, LONGITUDE: 069°06.1' W
TYPE OF GAGE: ADR, BUBBLER, OTHER (_____)
PLANE OF REFERENCE: MLW, MLLW, GCLWD, OTHER, CORRESPONDS
TO _____ FEET ON THE TIDE STAFF FOR THE PERIOD _____ TO _____
DATED INSTALLED: Feb. or Mar. 83 BY: AMC Tides Party
DATE REMOVED: _____ BY: _____
DATE LEVELED: 11 April 84 BY: NOAA Ship MT. MITCHELL
22 June 84 BY: NOAA Ship MT. MITCHELL
REMARKS: Rockland was the primary tide station for all survey work.

FIELD TIDE NOTE

TIDE GAGE REPORT

NOS TIDE TABLE NUMBER: 769 TIME MERIDIAN 75 ° W

GEOGRAPHIC LOCALE: Belfast, Maine

NAME: Belfast STATION NUMBER: 841-5191

LATITUDE: 44°25'45" N, LONGITUDE: 69°00'16" W

TYPE OF GAGE: ADR, BUBBLER, OTHER ()

PLANE OF REFERENCE: MLW, MLLW, GCLWD, OTHER, CORRESPONDS
TO FEET ON THE TIDE STAFF FOR THE PERIOD TO

DATED INSTALLED, 12 April 84 BY: NOAA Ship MT. MITCHELL

DATE REMOVED: 30 June 84 BY: NOAA Ship MT. MITCHELL

DATE LEVELED: 12,13,17 April 84 BY: NOAA Ship MT. MITCHELL
27 June 84 NOAA Ship MT. MITCHELL

REMARKS:	DATE	EVENT
	17 April 84	releveled to BM 5191A after staff readjusted
	20 April 84	kink taken out of wire
	11 May 84	near broken wire repaired
	12 May 84	gage knocked into water during storm
	14 May 84	new gage installed
	15 May 84	punch block jammed up - repaired
	4 June 84	" "
	12 June 84	negator spring knocked off - repaired

FIELD TIDE NOTE

TIDE GAGE REPORT

NOS TIDE TABLE NUMBER: 877 TIME MERIDIAN 75 ° W

GEOGRAPHIC LOCALE: Sandy Point, Penobscot River, Maine

NAME: Sandy Point STATION NUMBER: 841-4692

LATITUDE: 44°30'20" N, LONGITUDE: 68°48'16" W

TYPE OF GAGE: ADR, BUBBLER, OTHER ()

PLANE OF REFERENCE: MLW, MLLW, GCLWD, OTHER, CORRESPONDS

TO FEET ON THE TIDE STAFF FOR THE PERIOD TO

DATED INSTALLED: 7 May 84 // BY: NOAA Ship MT. MITCHELL

DATE REMOVED: 26 June 84 BY: NOAA Ship MT. MITCHELL

DATE LEVELED: 7 May 84 BY: NOAA Ship MT. MITCHELL

22 June 84 NOAA Ship MT. MITCHELL

REMARKS:

DATE	EVENT
15 May 84	punch block jammed up- repaired
19 May 84	punch block loose - repaired
30 May 84	punch block jammed up repaired

15 May 84 punch block jammed up- repaired

19 May 84 punch block loose - repaired

30 May 84 punch block jammed up ~~repaired~~

NOTE : A letter was sent to Chief, N/OMS12 on 30 May, 1984

concerning the tide gage to staff comparison. The

gage was observed to read higher than the staff by

as much as 0.25 feet during times from slack before

ebb up to approximately one hour before max ebb.



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
 NATIONAL OCEAN SURVEY
 NOAA SHIP MT. MITCHELL S-222
 439 WEST YORK STREET
 NORFOLK, VIRGINIA 23510

Date : 2 JUL 1984
 To : Chief, Tides and Water Levels Branch, N/OMS12
 From : *Joseph W. Dwyer*
 Commanding Officer
 NOAA Ship Mt. Mitchell S-222
 Subj. : Tidal Data for Hydrographic Survey H-10134
 OPR-A166-MI-84, Penobscot Bay, Maine

It is requested that verified hourly heights of Tides, using Coordinated Universal Time, from the Operating Gages listed below, be forwarded to the Processing Division (MOA23), Atlantic Marine Center, Norfolk, VA. 23510

<u>GAGE NAME</u>	<u>NUMBER</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>
PORTLAND, ME. (Reference)	877 (Tide- Tables)	43° 40.0'N	070° 15.0'W
ROCKLAND, ME. (Control)	841-5490	44° 06.2'N	069° 06.1'W
SANDY POINT, ME. (Zone)	841-4692	44° 30.2'N	068° 48.3'W

It is requested that the Time and Height Correctors for each Gage be Zoned as per Project Instructions for the area described within the following points:

LATITUDE 44° 28'21"N, 44° 33'14"N, 44° 33'14"N, 44° 28'21"N
 LONGITUDE 68° 53'30"W, 68° 53'30"W, 68° 43'15"W, 68° 53'15"W

This information is requested for the following Dates and Times:

5/20/84 JD 141 0000UCT thru 2359UCT 5/24/84 JD 145
 5/29/84 JD 150 0000UCT thru 2359UCT 6/01/84 JD 153
 6/03/84 JD 155 0000UCT thru 2359UCT 6/08/84 JD 160
 6/12/84 JD 164 0000UCT thru 2359UCT 6/17/84 JD 169



GEOGRAPHIC NAMES (FIELD)

Name on Survey	A ON CHART NO.	B ON PREVIOUS SURVEY NO. TP-0111 & 0112	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F	G P.O. GUIDE OR MAP	H GRAND McNALLY ATLAS	K U.S. LIGHT LIST
BLANCHARD HILL	13309								1
BICKMORE POINT	13310			(outside sheet limits)					
CAPE JCT ✓		x							2
DEVEREAUX COVE		x							
EASTERN CHANNEL ✓									3
EUSTIS MT ✓									4
FLETCHER HILL				(outside sheet limits)					5
FORT KNOX ✓									
FORT POINT COVE ✓									6
GONDOLA COVE ✓									7
GROSS PT ✓									8
MC CLOUD MT ✓									9
MILL COVE ✓									10
MT TUCK ✓									11
ODOM LEDGE ✓									12
ORLAND RIVER ✓									13
PORCUPINE I ✓									14
PROSPECT FERRY ✓									15
SANDY POINT ✓									16
SANDY PT ✓									17
SOUTH ORLAND ✓									18
STOCKTON SPRINGS				(outside sheet limits)					19
VERONA ✓									20
VERONA ISLAND ✓									21
VERONA PARK ✓									22
WALLAMATOGUS MT ✓	13309 13310								23
									24
BANGOR AND ARCOOSTOOK		x							25

NOAA FORM 77-27(H) (9-83)		U.S. DEPARTMENT OF COMMERCE		REGISTRY NUMBER		
HYDROGRAPHIC SURVEY STATISTICS				H-10134		
RECORDS ACCOMPANYING SURVEY: To be completed when survey is processed.						
RECORD DESCRIPTION		AMOUNT		RECORD DESCRIPTION		
SMOOTH SHEET		1		SMOOTH OVERLAYS: POS., ARC, EXCESS		
DESCRIPTIVE REPORT		1		FIELD SHEETS AND OTHER OVERLAYS		
DESCRIP- TION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR- GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
ACCORDION FILES		2				
ENVELOPES						
VOLUMES		8				
CAHIERS						
BOXES						
SHORELINE DATA						
SHORELINE MAPS (List):						
PHOTOBATHYMETRIC MAPS (List):						
NOTES TO THE HYDROGRAPHER (List):						
SPECIAL REPORTS (List):						
NAUTICAL CHARTS (List):						
OFFICE PROCESSING ACTIVITIES <i>The following statistics will be submitted with the cartographer's report on the survey</i>						
PROCESSING ACTIVITY				AMOUNTS		
				VERIFICATION	EVALUATION	TOTALS
POSITIONS ON SHEET Processed						2946
POSITIONS REVISED						70
SOUNDINGS REVISED						56
CONTROL STATIONS REVISED						
				TIME-HOURS		
				VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION						
VERIFICATION OF CONTROL						
VERIFICATION OF POSITIONS				22		22
VERIFICATION OF SOUNDINGS				157.5		157.5
VERIFICATION OF JUNCTIONS						
APPLICATION OF PHOTOBATHYMETRY						
SHORELINE APPLICATION/VERIFICATION						
COMPILATION OF SMOOTH SHEET				102.5		102.5
COMPARISON WITH PRIOR SURVEYS AND CHARTS					30.0	30.0
EVALUATION OF SIDE SCAN SONAR RECORDS						
EVALUATION OF WIRE DRAGS AND SWEEPS						
EVALUATION REPORTS				4.0	75.0	79.0
GEOGRAPHIC NAMES						
OTHER: Digitizing				13.0		13.0
*USE OTHER SIDE OF FORM FOR REMARKS						
TOTALS				299.0	105.0	404.0
Pre-processing Examination by				Beginning Date	Ending Date	
					10/12/84	
Verification of Field Data by P. Niland				Time (Hours)	Ending Date	
				286.0	7/25/85	
Verification Check by T. Jones, J. Stringham, B. Olmstead, J. Green				Time (Hours)	Ending Date	
				144	9/04/85	
Evaluation and Analysis by A. Luceno				Time (Hours)	Ending Date	
				105	9/04/85	
Inspection by D. Hill				Time (Hours)	Ending Date	
				2	9/06/85	

PACIFIC MARINE CENTER
EVALUATION REPORT
H-10134

1. INTRODUCTION

H-10134 is a 1:10,000 basic hydrographic survey conducted by NOAA Ship MT. MITCHELL in compliance with the following project instructions:

OPR-A166-MI/HFP-84, dated March 20, 1984
Change No. 1, dated May 14, 1984
Change No. 2, dated December 7, 1984

The area surveyed is located in Maine and covers the principal channel of Penobscot River downstream to Fort Point Cove, the eastern channel of Penobscot River, and the entire stretch of Orland River. Field work commenced on May 20 and ended on June 21, 1984.

The projection parameters were revised to change the modified transverse mercator projection to polyconic projection and to center the hydrography on the smooth sheet.

The TRA correctors for vessels 2223, 2224, 2225, and 2226 have been revised during office processing to apply a correction for vessel draft that was provided by the MT. MITCHELL in a subsequent letter, dated November 7, 1984. The TRA correctors for vessel 2221 have also been revised during office processing with results derived from the bar check observations.

Predicted tides for the reduction of soundings on the field sheet are based on the Portland, Maine reference station. Final tide correctors for the reduction of soundings on the smooth sheet were derived from a field operated ADR tide gage at Sandy Point.

The Raytheon DSF-6000N echo sounder was used most of the time to obtain soundings for this survey. Numerous indications of suspicious shoals or peaks were recorded on the analog trace. Fish and small debris at or near the bottom and gain adjustment sensitivity resulted in the recording of doubtful data and indistinguishable strays on the echogram. Additional sounding lines spaced at 5 to 25 meters and wire drag investigation on 16 of the suspected shoals disproved the existence of all 16 suspected shoals.

Other related problems and difficulties encountered in the use of this instrument can be found in a report from the Ship FAIRWEATHER to the Director, Pacific Marine Center, copy attached to this report.

2. CONTROL AND SHORELINE

The horizontal and positional control for this survey are discussed in sections F and G of the Descriptive Report and in the Horizontal Control Report for OPR-A166-MI/HFP-84. The smooth sheet is plotted using published NGS, field and astrotriangulated positions from a listing of horizontal control stations provided by N/MOA 2222.

Station BRAY (160) was set on a very unstable large piece of flat rock. To occupy the station, the theodolite's tripod had to be set and the observer had to stand on the rock which moved when stepped on. Station BRAY was used for the location of an electronic position control site, as a calibration signal, and as a theodolite set up site. Although this station does not meet 3rd order requirements, the data acquired using this station is consistent with adjoining data and was accepted.

It should be mentioned that Station MUD (161) was located by open traverse from Station BRAY and a check distance to Station JERRY (157) resulted only in 1 part in 6200 accuracy. Station MUD was used as an initial station solely for the azimuth control of the survey vessel.

The following reviewed photogrammetric manuscripts apply to this survey:

<u>T-Sheet</u>	<u>Scale</u>	<u>Date of Photography</u>	<u>Class</u>
TP-01109	1:10,000	September 5, 1982	III
TP-01110	1:20,000	June, July, August 1982	III
TP-01111	1:20,000	June, July, August 1982	III

Shoreline and some geographic names are not shown on the smooth sheet in accordance with N/CG memorandum "Reduction of Marine Center Hydrographic Processing Backlog", dated February 16, 1984. Only geographic names of principal topographic and hydrographic features, geographic features referenced by the hydrographer and geographic names used in the title are shown on the smooth sheet.

3. HYDROGRAPHY

Soundings are adequate to delineate the bottom configuration, determine least depths, and draw depth curves completely, except as noted in Section 6 of this report.

Soundings at line crossing are generally in agreement in smooth bottom areas, and occasionally differ by 1 to 2 feet in irregular bottom areas.

The low water line and ledge limits shown on the smooth sheet originates either from the hydrographer or the T-sheets. In areas where these features differ, hydrographic information supersedes the T-sheet data.

4. CONDITION OF SURVEY

The hydrographic records and reports conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change 3, except as noted in the Preprocessing Examination Report, dated October 12, 1984 and the following:

- a. Some survey records of launch hydro and diving investigations were not transmitted to the office.

b. Proper stamps were lacking in the wire drag records. Effective-depth diagrams were not shown in the record books and smooth plots of drag strips with their effective depths were not shown in proper colors. (Refer to Wire Drag Manual)

c. Station BRAY was set on an unstable rock, therefore it did not meet 3rd order requirements for an electronic control station as required by paragraph 1.3.1 of the Hydrographic Manual. Indeterminable possible errors exist when Station BRAY is used to control the survey. See section 2 of this report for additional discussion.

d. The hydrographer made commendable efforts to disprove what appear as shoals, strays, and misses on the DSF-6000N echogram, either by wire drag investigation, closer hydro line spacing, or by diving investigation.

e. Section H of the Descriptive Report contains inconsistencies and vague statements. Examples:

Paragraph 1 page 6 - The description of the rock awash referred to is not consistent with the position provided.

Paragraph 2 page 7 - The hydrographer mentions rocks awash on the TP sheet without specifying the area where these rocks are located on the TP sheet.

Paragraph 2 page 9 - The statement that the pier in ruins is shown on the TP sheet is not correct; no pier or ruins is shown on the TP sheet.

5. JUNCTIONS

H-10134 junctions with the following surveys:

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Location</u>	<u>Note</u>
H-10130	1984	1:10,000	South	Joins
H-10157	1984-85	1:10,000	North	Adjoins

A junction was satisfactorily effected with H-10130. Soundings are in agreement and continuity of depth curves exists between the sheets.

Field work on H-10157 has reportedly been started at the time of this report. Junction of this sheet with the present sheet will be made and discussed in the evaluation of H-10157.

6. COMPARISON WITH PRIOR SURVEYS

H-1257A 1:10,000 (1874)

H-1258 1:20,000 (1872)

These prior surveys agree very well with H-10134, generally within two feet. Exceptions are:

a. Shoaling of up to 15 feet has occurred in Orland River and the eastern channel of Penobscot River south of Gross Point to the southern tip of Verona Island.

b. The 17 1/2-foot shoal in the vicinity of latitude 44°30'15"N longitude 68°47'24"W now shows a minimum depth of 13 feet at latitude 44°30'13.89"N longitude 68°47'18.34"W.

c. The tables shown below list shallower depths from prior surveys compared with depths obtained in the present survey. These depths from the present survey were not adequately investigated, therefore the shallower depths from the prior surveys were carried forward to the present survey.

From H-1257A

<u>H-1257A</u>			<u>H-10134</u>
<u>Depth</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>	<u>Depth (ft)</u>
20	44°30'41"	68°47'55"	27
13½	44°30'44"	68°47'37"	20
11½	44°30'36"	68°47'14"	25
15½	44°30'34"	68°47'14"	24

From H-1258

<u>H-1258</u>			<u>H-10134</u>
<u>Depth</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>	<u>Depth (ft)</u>
24	44°29'32"	68°47'01"	26
23	44°29'21"	68°47'07"	27

With the transferring of the soundings listed above, H-10134 is adequate to supersede the prior surveys, within their common areas.

7. COMPARISON WITH CHART

Chart 13309, 23rd Edition, dated February 18, 1978.

a. Hydrography - Most charted soundings originate from H-1257A and H-1258 except depths around Odom Ledge which originate from unknown sources.

AWOIS Item No. 02961 - A reported obstruction at latitude 44°30'20"N, longitude 68°48'17"W required a bottom drag within a 100-meter radius from the reported position. Section K of the Descriptive Report discusses a wire drag investigation as well as launch hydro with 5-meter spaced sounding lines. Two submerged piles shown in red on the field sheet were transferred directly to the smooth sheet without supporting positional information. These piles should be charted at latitude 44°30'21.9" N, longitude 68°41'16.5"W and latitude 44°30'22.6"N, longitude 68°48'16.6"W.

AWOIS Item No. 03017 --A 31-foot reported sounding at latitude $44^{\circ}29'58''^4$ N, longitude $68^{\circ}47'54''$ W and a 32-foot ~~reported submerged obstruction~~ at latitude $44^{\circ}29'54''$ N longitude $68^{\circ}47'54''$. A depth of 35 feet in surrounding depths of 37 to 39 feet at latitude $44^{\circ}29'53.57''$ N, longitude $68^{\circ}47'51.80''$ W near the position of the 31-foot charted depth was obtained in this survey. A depth of 35 feet was obtained in surrounding depths of 38 to 48 feet about 50 meters northwest of the 32-foot charted depth at latitude $44^{\circ}29'51.17''$ N, longitude $68^{\circ}47'54.90''$ W. Another depth of 36 feet in surrounding depths of 41 to 44 feet about 120 meters southeast of the 32-foot charted depth at latitude $44^{\circ}29'45.58''$ N, longitude $68^{\circ}47'52.46''$ W was also obtained in this survey. A sounding of 30 feet in general depths of 33 to 37 feet about 180 meters east by north of the 31-foot charted depth at latitude $44^{\circ}29'55.61''$ N, longitude $68^{\circ}47'43.98''$ W was found in the present survey.

A wire drag was performed in the immediate vicinity of the position given for AWOIS item 03017. This survey disproves the existence of the 31-and 32-foot soundings at the positions indicated. However, wire drag clearance of sufficient depth was not obtained in the areas immediately surrounding the charted location. Accordingly, it is impossible to definitely state that the 31-and 32-foot soundings do not exist in the vicinity, especially since a 30-foot sounding is displayed approximately 180 meters NE of the AWOIS position. Therefore, it is recommended that the positional accuracy for AWOIS item 03017 be evaluated. If uncertainty of the magnitude cited (approximately 100 meters) exists then the 31-and 32-foot soundings should be retained as presently charted in order to preserve the most conservative information. If, however, high confidence exists in the charted position then the 31-and 32-foot soundings may be removed and the area charted according to the present survey.

Retain 31 and 32 ft. sdgs. as charted, not disproved SRB

H-10134 is adequate to supersede charted hydrography within the common area.

Geographic names appearing on the smooth sheet originate with the chart.

Dangers to Navigation Reports have been submitted to the First Coast Guard District, Boston, Massachusetts by NOAA Ship MT. MITCHELL and PMC (copies appended).

b. Controlling Depths - There are no controlling depths within the limits of this survey.


c. Aids to Navigation - There are four (4) floating aids and one (1) fixed aid to navigation located in this survey within the limits of the sheet. These aids to navigation serve their intended purpose.

8. COMPLIANCE WITH INSTRUCTIONS

H-10134 adequately complies with the project instructions and changes to the instructions mentioned in Section 1 of this report.

9. ADDITIONAL FIELD WORK

This is a good basic survey. No additional field work is recommended.


Arsenio A. Luceno
Cartographer

This survey has been verified and evaluated. I have examined the survey and it meets Charting and Geodetic Services survey standards and requirements for use in nautical charting. The survey is recommended for approval.


Dennis Hill
Chief, Hydrographic Section

ATTACHMENT TO DESCRIPTIVE REPORT FOR H-10134

I have reviewed the smooth sheet, accompanying data, and reports of this hydrographic survey. Except as noted in the Evaluation Report, the hydrographic survey meets or exceeds Charting and Geodetic Services (C&GS) standards, complies with instructions, and is accurately and completely represented by the smooth sheet and digital data file for use in nautical charting.


Chief, Nautical Chart Branch (Date)

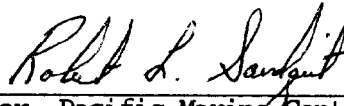
CLEARANCE:

N/MOP2:LWMordock

SIGNATURE AND DATE:

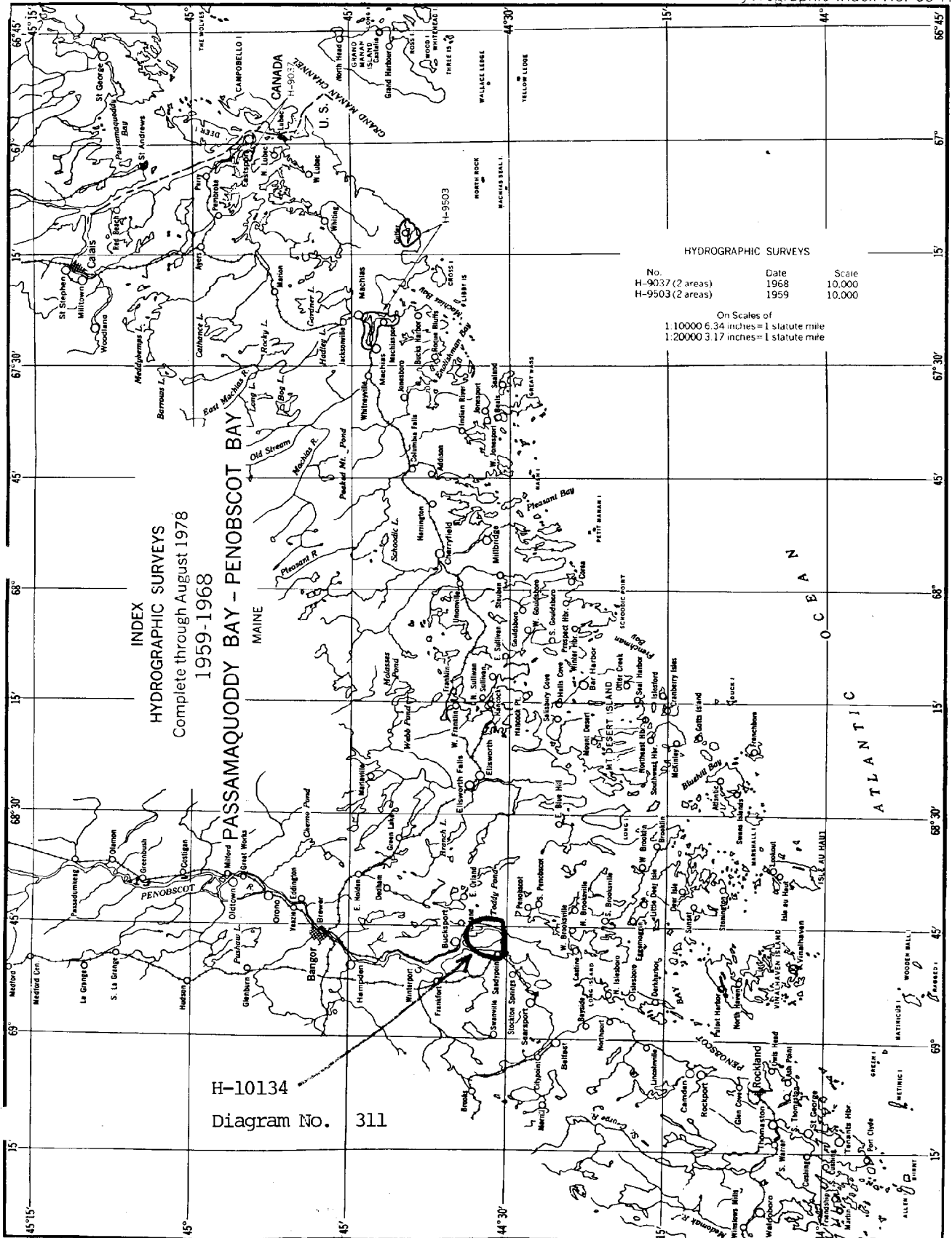


After review of the smooth sheet and accompanying reports, I hereby certify this survey is accurate, complete, and meets appropriate standards with only the exceptions as noted above. The above recommendations are forwarded with my concurrence.

 9/27/85
Director, Pacific Marine Center (Date)

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Rockville, Maryland

Hydrographic Index No. 60 H



HYDROGRAPHIC SURVEYS

No.	Date	Scale
H-9037 (2 areas)	1968	10,000
H-9503 (2 areas)	1959	10,000

On Scales of
1:10000 6.34 inches = 1 statute mile
1:20000 3.17 inches = 1 statute mile

H-10134
Diagram No. 311

MARINE CHART BRANCH
RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10134

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
13309	6/26/89	ALMACEN	Full Part Before After Marine Center Approval Signed Via <i>full application</i>
			Drawing No. <i>of soundings from SS.</i>
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
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