

10136

Diagram No. 311

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey .. Hydrographic

Field No. HFP-10-1-84

Registry No. H-10136

LOCALITY

State Maine

General Locality .. Penobscot River

Sublocality Bangor to Snub Point

19 84

CHIEF OF PARTY
LCDR R.W. Jones

LIBRARY & ARCHIVES

DATE November 5, 1985

☆U.S. GOV. PRINTING OFFICE: 1985-566-054

ACPG
Chts

13309- TO SIGN OFF SEE

"RECORD OF APPLICATION TO CHARTS"

HYDROGRAPHIC TITLE SHEET

H-10136

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.

HFP 10-1-84

State Maine

General locality Penobscot River

Locality Bangor to Snub Point

Scale 1:10,000 Date of survey 7 June 1984 - 17 Aug. 1984

Instructions dated 20 Mar. 1984; change 1 dated May 14, 1984 Project No. OPR-A166-MI/HFP-84

Vessel Hydrographic Field Party Three - Launch 517

Chief of party LCDR. Ronald W. Jones

Surveyed by LtJG Frederick W. Rossman

Soundings taken by echo sounder, hand lead, pole (all)

Graphic record scaled by Field Party Personnel

Graphic record checked by Field Party Personnel

Verification PM

~~Produced~~ by Rick Shipley Automated plot by Xynetics Plotter

Evaluation PM

~~Verification~~ by Gordon E. Kay

Soundings in ~~fathoms~~ feet at MLW ~~MLW~~

REMARKS: Marginal notes in black were made during evaluation of H-10136 at the
Pacific Marine Center, Seattle, Washington. Separates are filed in the back of the
accordion folder.

STANDARDS CK'D 11-6-85C. KayACCORDS & SURF ✓ 10/3/86 SJVSP 4-16-97

"A"
RANGOR
 H-10136 Tide Station
 HFP-10-1-84 841-4612

"B"
 Tide Station
 841-4781
 H-10146
 HFP-10-2-84

"C"
 H-10157 Bucksport
 HFP-10-4-84 Tide Station
 841-4684

OPR-A166-MI/HFP-84

E HFP-3

NOTE C

TRAFFIC SEPARATION SCHEMES

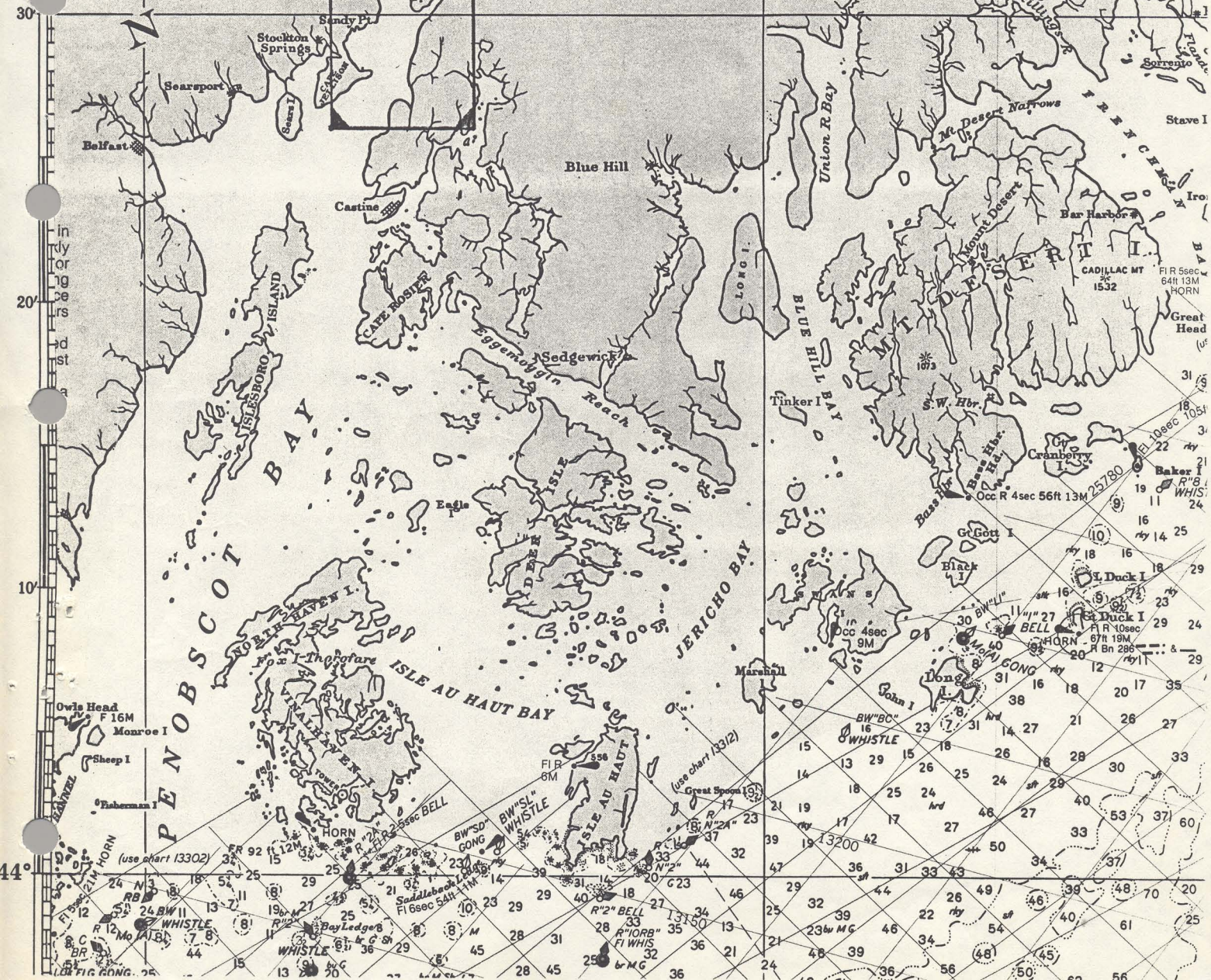
One-way traffic lanes overprinted on this chart are RECOMMENDED between the points involved. They have been designed to aid in the prevention of collisions in the approaches to Portland Harbor and the approach to Boston Harbor and for routing traffic not intended in any way to supersede or alter the applicable Rules of the Road to separate inbound and outbound traffic and to be free of ship traffic. See except for crossing purposes. When crossing traffic lanes and separation zones are used, the recommended route in the Bay of Fundy has been established by the International Maritime Organization. See large scale Canadian charts.

NOTE B

PRECAUTIONARY AREAS

Traffic within the Precautionary Areas may consist of vessels operating between the points involved. They have been designed to aid in the prevention of collisions in the approaches to Portland Harbor, and one of the established Traffic lanes. Mariners are advised to exercise caution within these areas.

TS
 substances to the
 1-8802 (toll free), or
 by telephone com-
 3).



DESCRIPTIVE REPORT
TO ACCOMPANY
HYDROGRAPHIC SURVEY H-10136
HFP-10-1-84

Scale: 1:10,000

Chief of Party: LCDR Ronald W. Jones

Office-in-Charge: LT(JG) Frederick W. Rossmann

Hydrographic Surveys Branch, Hydrographic Field Party #3

Launch 517

A. PROJECT

This survey was accomplished under Project Instructions
OPR-A166-MI/HFP-84, dated 20 March 1984. *Change #1, dated May 14, 1984*

B. AREA SURVEYED

The area surveyed was the Penobscot River, Maine. The survey began at Snub Point and proceeded north to Bangor, Maine. It included the Soudabscook Stream to the dam at Route 1A. No attempt was made to survey the Kenduskeag Stream at Bangor, Maine. The entrance to the Kenduskeag Stream is blocked by a fixed railroad bridge at the junction of the Kenduskeag Stream and the Penobscot River. The survey area is bounded by the following points:

Lat. $44^{\circ}48'20''$ N, Long. $68^{\circ}45'00''$ W
Lat. $44^{\circ}42'00''$ N, Long. $68^{\circ}49'30''$ W *50'15"*
Lat. $44^{\circ}42'00''$ N, Long. $68^{\circ}52'00''$ W *50'30"*
Lat. $44^{\circ}49'00''$ N, Long. $68^{\circ}45'30''$ W *48'30"*

This survey was conducted from 7 June 1984 to 17 August 1984 (J.D. 159 to 230) inclusive.

C. SOUNDING VESSEL

All soundings obtained on this survey were obtained from NOAA Launch 517. All survey records are annotated with vessel number 517.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

The following Raytheon DE719C Fathometers were used during the survey:

J.D.	SERIAL NUMBER
159-184	5881
184-208	7727
219-230	5881

On J.D. 184, recorder #5881 failed. All work on J.D. 184 after 160700 UTC was done with fathometer #7727. Fathometer #5881 was returned to the Atlantic Marine Center for repair. The unit was repaired by the Marine Center and returned to the field party. The paper take-up on #7727 was out of alignment and under constant adjustment during the sounding operations. When #5881 was returned, fathometer #7727 was returned to the Atlantic Marine Center for repair. Both fathometers were monitored continuously while sounding and were under constant adjustment to insure no initial corrections were necessary. ✓

Settlement and squat checks for this survey were conducted on the Penobscot River, Maine, near Winterport, Maine, at Latitude 44°38.0N, Longitude 68°50.5W. Two settlement and squat tests were conducted due to the failure of the 140 horsepower outboard. Settlement and squat conducted on 5 June 1984 was done with the 140 horsepower outboard. The test run on 10 July 1984 was done using the replacement 150 horsepower outboard. The data from these tests are included in the appendix of this report. Settlement and squat corrections will be applied via the TC/TI tape during the plotting of the smooth sheet by the Marine Center. Settlement and squat correctors were not applied to the field sheets. *Settlement and squat correctors were applied during office processing*

Velocity and instrument corrections were determined by bar checks taken during the course of the survey. The lengths of the bar check chains were checked on 31 May 1984. The chain was accurately marked at the time of the inspection. Five velocity tables were tabulated from the bar check data: ✓

Table 1 for J.D. 159 (one day only) due to the amount of freshwater in the river from rainfall runoff.

Table 2 for J.D. 173 and 174. ✓

Table 3 for J.D. 184 until fathometer #5881 failed.

Table 4 for J.D. 184 through 208 while fathometer #7727 was used.

Table 5 for J.D. 219 through 230 while fathometer #5881 was used.

Velocity corrections were not applied during the field processing of the survey data. Velocity corrector tapes are provided with the survey data for application during smooth plotting of the survey data by the Marine Center. Abstracts and velocity curves are included in the appendix of this report. ✓

Predicted tides were unreliable; so, daily high and low water levels from the ADR tide gauge installed by the field party at Bangor, Maine, (Tide Station #841-4612) were used to generate tide correctors for the field sheet. These values were entered into Computer program AM 500 to provide tidal correctors. AM 500 provides a harmonic cosine curve between the high and low data points; this does not always fit the actual tide curve of the Penobscot River. Some slight differences were noted during the field processing of the survey between soundings taken on various days. These differences are due to the actual tide which differs from the computer generated tides. These differences should be resolved with the application of smooth tides. A copy of the field tide note and letter requesting smooth tides are included in the appendix of this report. Where a major differences between various days was noted, new tide tapes were generated using hourly heights from the Bangor gauge. ✓

and programs AM 501 and AM 504. This data was replotted on overlays to insure agreement between the various days. This was done for the work done on J.D. 159, 173 and 230. The use of hourly height data reduced the difference between the soundings of various days to general good agreement. ✓

E. SURVEY SHEETS

The field sheets were prepared in the field using a PDP8/e computer and a DP-3 complot plotter. Worksheets, semi-smooth sheets, smooth field sheets and overlay sheets are included with this survey. Main scheme hydrography and some splits are plotted on the smooth field sheet while additional developments, bottom samples, prior survey soundings, presurvey review items and aids to navigations are shown on various overlay sheets. Project parameter tape listing for the field sheets is included in the appendix of this report. The final smooth sheet and verification of this survey will be accomplished at the Marine Center. ✓

F. CONTROL STATIONS

Control stations used during this survey were Aero-Triangulation stations, established in 1982 and supplementary stations established by N/MOA2x1 from the Aero-Triangulation network in 1984. All stations are referred to the North American 1927 Datum. A list of all control stations used during this survey is included in the appendix of this report. It should be noted that the following stations are covered at high tide: ✓

Station 101 BREW 1982
Station 103 BANG 1982
Station 105 CRIB 2 1984
Station 106 CROSBY 1982

G. HYDROGRAPHIC POSITION CONTROL

The method used to control this survey was range-azimuth using Del Norte distance measuring system and a twenty second theodolite. Due to the positions of the control stations, several positions during range-azimuth hydrography had to be dead reckoned. These dead reckoning positions are marked SFS in the remarks column of the sounding volumes. Soudabscook Stream was done by dead reckoning and formatted into a range-azimuth master tape by the field party. ✓

A list of all positioning equipment used during this survey is contained in the appendix of this report.

The Del Norte system has two failures during the survey:

- 1) DMU 190 was replaced with DMU 429 on J.D. 184. ✓
- 2) Master 273-A was replaced with Master 1068 on J.D. 229.

These failures appear to be due to the age of the equipment and vibration from the boat causing cards in the Del Norte system to shake

loose from their electronic connections. These failures did not effect the hydrography but left some work without a closing baseline calibration. ✓

Static daily calibrations were taken between fixed points. Daily calibrations were excellent, normally with ± 3 meters of the inverse distance between control stations. Two calibration baselines were established during this survey using a HP3808A, serial number 1723A00712. The distances were taken from Station 116, DOCK 1982, to stakes set on the eastern shore of the Penobscot River. The first baseline, taken 5 June 1984, was destroyed during a high tide when the stake was swept away. The baseline distance was 1858 meters. A second baseline was established higher on the bank of the river with a distance of 1865 meters. Baseline data is contained in the fanfolder with the survey data. ✓

H. SHORELINE

Shoreline detail for this survey was obtained from 1:10,000 scale Class III Maps, TP-01105 and TP-01106, with a final review date of April 1984. ✓

Only one shoreline change was found during the survey. A public boat ramp has been cut at $44^{\circ}45'54.64''N$, $68^{\circ}47'49.61''W$ (Position 543, J.D. 192). This change is shown on the field sheet as a dashed red shoreline. *Shown on the small sheet in red as a change to MHW*

The shoreline run on J.D. 185, positions 447 to 448, appears to have soundings inshore of the high water shoreline. Detached positions, positions 1186-1191 on J.D. 219, were taken to check for a shoreline change. The detached positions showed no change in the shoreline. The work done on J.D. 185, Latitude $44^{\circ}45'25.1''N$, Longitude $68^{\circ}47'55.3''W$ between positions 447 to 448 appears to have crossed a minor jog in the shoreline. This is due to RK-216, Range-Azimuth Non Real Time Plot, plotting a straight line between positions 447 and 448 encroaching on the shoreline. Detached positions 1186-1191 indicate the shoreline from the T-Sheet is accurately mapped in this area and should not be changed. ✓

The tidal flats along the shoreline are littered with rocks, ranging from pebbles to boulders. The rocks displayed on the T-Sheets are a good representation of what is present along the shoreline. However, they are not the only rocks present. The hydrographer located various rock outcrops and denoted areas that were fouled with rock that could be considered a danger to navigation. These areas bare at low tide making these dangers clearly visible to the mariner. The hydrographer feels a note should be printed on the new chart stating: ✓

"Numerous rocks and boulders exist along the shoreline of the Penobscot River. Extreme caution should be used while navigating in areas close to shore."

This note has been added to the Small Sheet, right above the title block

I. CROSSLINES

Crosslines constitute 63% of the main scheme hydrography. A total of 82 soundings were compared with the following results:

Exact agreement	24%
±1 Foot	61%
±2 Feet	80%
±3 Feet	91%
±4 Feet	100%

Nine percent of the soundings compared disagree by ±4 feet or more. The reasons for the disagreement of soundings at crossings are due to two factors:

1) The bottom of the river is scattered with rocks. The peaks on the fathograms, from these rocks, were inserted on the master tape and plotted on the field sheets. The rocks are of such a size that they were observed on the main scheme or the crossline but not on both. This caused disagreement between some soundings.

2) Some disagreement is due to the difference between real and predicted tides. This problem should be resolved when smooth tides are provided for the smooth plotting of the survey data.

J. JUNCTIONS

This survey junctions with contemporary survey H-10146 on the south. The agreement at this juncture is excellent and depth curves can be drawn continuously.

K. COMPARISON WITH PRIOR SURVEYS

The area covered by this survey was previously surveyed by the following:

- 1) H-1473 (1880), 1:10,000 scale
- 2) H-934 (1867), 1:10,000 scale

H-1473: This prior survey contains approximately 0.7 nautical miles of common area on the extreme southern end of the current survey. No adjustments were made on the prior survey to shift the latitude/longitude grid to the North American Datum of 1927. The two sheets were compared by matching the shoreline. In general, the soundings from the current survey are shoaler; the differences range from 3 to 14 feet. The area of the thirty foot contour on the current survey is reduced from that of the prior. No dangers to navigation were noted on the prior survey. The hydrographer recommends that the soundings from the current survey be used in common areas.

H-934: This prior survey encompasses all but the southern extreme of the current survey. The prior survey was not adjusted to the North American Datum of 1927. There is no general agreement between these two surveys. It has been 117 years since the prior survey. The bottom

contours have changes throughout the common area of the two surveys. The hydrographer recommends that the current survey be used to chart common areas. ✓

L. COMPARISON WITH CHART

This survey was compared with Chart #13309, 23rd Edition dated 24 March 1984. Chart #13309 is a 1:40,000 scale chart; for comparison the chart was photographically enlarged to 1:10,000 scale. The current soundings are generally in good agreement with the exception of the following changes: ✓

1) The six foot shoal at 44°43'40.3"N, 68°49'55.0"W was disproven. The shoal now has a ~~12~~ foot least depth. ✓

2) The eighteen foot contour at 44°45'35"N, 68°48'20"W has shifted 50 to 80 meters further offshore than presently charted.

3) No evidence of the charted 14 foot sounding at 44°45'44"N, 68°48'00"W was observed during the current survey. Least depth ~~appears to be 21~~ feet in this area ~~from the current survey.~~ ✓

4) Soundings north of 44°46'15"N generally are deeper than those charted. It was not ascertained if this area has been dredged to allow for the oil tanker traffic in the river. ✓

Soundings were obtained north of 44°47'55"N. This area is only navigable at high tide. The hydrographer strongly recommends that the sounding lines from position 667 to 695 and 732 to 740 not be used for charting. This area is fouled with rock outcrops and boulders. The area is not safe for navigation at all stages of the tide. No additional development was run in this area due to the numerous hazards. Detached positions were taken in this area to locate the hazards, positions 835 to 841 on J.D. 201. No depths are currently charted in this area and the chart should continue to be printed with no soundings transferred from the current survey. *See up to the description of the Chart Compiler*

The railroad bridge at the mouth of the Kenduskeag Stream blocks the stream for navigation. The bridge is on the T-Sheet but not charted. This feature should be charted. ✓

Three diver investigations were conducted in the Penobscot River during the survey. During the course of these dives, numerous submerged logs and timbers were found scattered on the bottom with diameters from 6 to 18 inches and various lengths. Small rocks were also encountered during the dives, some of which rose from the bottom by as much as 18 inches. Both the submerged logs and rocks were encountered during chain sweep operations with Launch 517. The rocks would snag the chain momentarily then tumble over releasing the chain. This action greatly reduced the effectiveness of our chain drag operation. The same was true with the logs and timbers. During the chain drag operation, the angle between the tow lines was monitored to insure an adequate spread of the chain. When this angle decreased without stopping, the forward motion of the boat operations were halted and the chain was unwrapped ✓

from a submerged log or timber. When the party was unable to effectively conduct a chain drag operation for specific PSR items, a fathometer search with 10 meter line spacing was conducted instead.

The following PSR items were investigated during the survey:

1) PSR #03021 is a 16 foot sounding from H934, CL692/64 and BP65847-52/64. The sounding is located at 44°45'15.00"N, 68°48'52.00"W. This sounding is not an isolated shoal, it is within the 18 foot curve *see Evaluation* that slopes from the east bank of the river. A chain drag was done on *Report Section* J.D. 207, positions 1032 through 1055. Nothing was hung during the chain drag. This eliminates any rocks, boulder or submerged obstruction in the area. The 16 foot sounding should remain charted at the given location. *Chart* *14 foot sounding at Latitude 44°45'13.13"N, Longitude 68°48'51.67"W* *7*

2) PSR #03020 is a 15 foot sounding from H1473/1880-1902, CL692/64 and BP65847-52/64. The sounding was reported at 44°43'39.00"N, 68°50'01.00"W. A chain drag was conducted on J.D. 208, positions 1123 through 1179. Nothing was hung during the chain drag disproving any obstruction in this area. No unusual peaks were noted on the fathogram. A review of H1473 showed that this prior survey does not encompass the location of the sounding. A review of H934, which encompasses the location of the sounding, does not have the 15 foot sounding. The hydrographer recommends that this charted sounding be replaced with soundings from the present survey. *Concur*

3) PSR #03022 is a 13 foot sounding from H934/1867, CL692/64, BP65847-52/64. The sounding was reported at 44°47'29.00"N, 68°46'22.00"W. A fathometer search using a ten meter line spacing was conducted on J.D. 201, positions 864 through 879. No shoaling was noted in the area. Several small spikes were noted on the fathogram. None of the spikes appear to be a danger to navigation. A chain drag was attempted but the chain fouled on sunken logs. The hydrographer recommends that this sounding be replaced with depths from the present survey. *see Evaluation* *Report Section* *7*

4) PSR #03016 is a reported obstruction (Ledge) from CL 83/80 by Captain William Abbot, President Penobscot River and Bay Pilots Association. The ledge was reported at 44°46'53.00"N, 68°46'37.00"W. A chain drag was unsuccessful because it fouled on sunken logs. An obstruction was noted between positions 922 and 923 and after 967. Due *see Evaluation* to the current and being unable to hang the obstruction with the chain, *Report Section* no detached position or leadline least depth were obtained. A position scaled from the smooth field sheet places the obstruction at 44°46'50.7"N, 68°46'42.5"W. The least depth scaled from the fathogram and corrected for tide and draft is *15.7 feet* *MLW*. The hydrographer recommends that this obstruction be added to the chart. A "Notice to Mariners" was sent to the First Coast Guard District. *7*

5) PSR #03422 is a reported obstruction (Piling) from LNM 4/84. The piling was reported to bare 12 feet above MLW at 44°46'40.00"N, 68°46'55.00"W. This item was investigated on J.D 206, position 975 through 1004. A chain drag was unsuccessful as it snagged on sunken logs. A fathometer search was later conducted at a 10 meter line *✓*

spacing. No evidence was observed on the fathogram or during the visual inspection of the area of the reported piling. During the fathometer search, an unknown obstruction was observed between positions 991 and 992. Several additional lines were run in the area of the obstruction. Due to the current and being unable to hang the obstruction with the chain, no detached position or least depth were obtained. The position was later scaled from the smooth field sheet as 44°46'39.0"N, 68°46'53.0"W. The hydrographer recommends that this position be used to chart the unknown obstruction with a least depth of 18 feet at Mean Low Water. A "Notice to Mariners" was sent to the First Coast Guard District. *A 14 foot HLW depth was obtained at Pos #991 1/2 at Latitude 44°46'38.56"N*

see Evaluation Report Section 7

6) PSR #02951 is an obstruction, partly submerged crib in ruins, from CL414/17 Coast Pilot Field revision. The position of the item was 44°45'20.70"N, 68°48'37.80"W. The item was located on J.D. 174, position 270. No crib was observed. A detached position was taken on the offshore end of a rock groin at 44°45'19.68"N, 68°48'39.27"W during a visual search of the area. The contour in the area is accurately charted but a rock symbol should be added to the offshore end of the groin at 44°45'19.68"N, 68°48'39.27"W. *Rock and symbol added to smooth sheet x(4)*

see Evaluation Report Section 7

7) PSR #02952 is an obstruction, partly submerged crib in ruins, from CL414/17-Coast Pilot Field Revision. The position of the item was 44°45'17.40"N, 68°48'42.00"W. The item was located during a visual search of the area on J.D. 174, position 269. No crib was observed. A detached position was taken on the offshore end of a rock groin at 44°45'16.40"N, 68°48'43.29"W. The contour in this area is accurately charted but a rock symbol should be added to the offshore end of the groin at 44°45'16.40"N, 68°48'43.29"W. *Rock and symbol added to smooth sheet x(4)*

A see Evaluation Report Section 7

8) PSR #02953 is an obstruction, partly submerged crib in ruins, from CL414/17-Coast Pilot Revision. The position of the item was 44°45'14.10"N, 68°48'45.60"W. The item was located during a visual search of the area on J.D. 174, position 268. No crib was observed. A detached position was taken on the offshore end of a rock groin at 44°45'13.21"N, 68°48'45.92"W. The contour in this area is accurately charted but a rock symbol should be added to the offshore end of the groin at 44°45'13.21"N, 68°48'45.92"W. *Rock and symbol added to smooth sheet x(4)*

A see Evaluation Report Section 7

9) PSR #02949 was reported to be a submerged object at 44°47'11"N, 68°46'27"W. It was reported in LNM 39/74. A chain drag for this item was conducted on J.D. 201, positions 880 through 903. Nothing was hung during the chain drag. Several small spikes were noted on the fathogram, but these did not hang the drag. It is recommended that this item be removed from the chart. *A 8 foot HLW depth is located at Latitude 44°47'12.19"N*

concur

Longitude 68°46'25.31"W

10) PSR #02950 was reported as the seaward end of ruins in approximate position 44°45'59"N, 68°47'28"W. The source of this item is unknown. A chain drag was conducted on J.D. 207, positions 1011 through 1031. No ruins were hung or observed during the drag. It is recommended that this item be removed from the chart. During the drag, a submerged rock, position 1031, with a least depth of 8.4 feet was hung. This rock should be charted at 44°45'58.92"N, 68°47'31.07"W. No

x(4) HLW

"Notice to Mariners" was issued because the rock is immediately offshore of the shoreline.

The party was informed of a large submerged rock in the river by local inhabitants. The rock was searched for and found on J.D. 202, position 917. The rock was investigated by divers. The divers found a submerged boulder 13 feet in diameter with the offshore edge of the boulder rising 4 feet above the bottom. The least depth (reduced to MLW) is ~~8~~^{14.0} feet at position 44°46'59.28"N, 68°46'31.56"W. The rock should be charted as a submerged rock with a least depth of ~~8~~^{14.0} feet. A *Concur* "Notice to Mariners" was sent to the First Coast Guard District. *TRK*

A spike was observed on the fathogram on J.D. 195 between position 764 and 765. The spike was investigated by divers on J.D. 219. The chain drag was used to hang the unknown obstruction and divers descended the tow line of the drag. The chain had hung a rock 6 foot by 3 foot ^{14.0} that rose 3 feet above the bottom. Least depth (reduced to MLW) is ~~15.5~~^{14.0} feet at position 44°47'08.38"N, 68°46'33.57"W. The rock should be charted as a danger to navigation with a least depth of ~~15.5~~^{14.0} feet. A *Concur* "Notice to Mariners" was sent to the First Coast Guard District. ✓

Copies of the "Notice to Mariners" sent to the First Coast Guard District are included in the appendix of this report.

M. ADEQUACY OF SURVEY

This survey is complete and adequate to supersede prior surveys for charting in the common areas. ✓

N. AIDS TO NAVIGATION

There are no fixed aids to navigation on this survey.

Three red nun Buoys, "20", "22", and "24", mark the natural channel of the river. No positional information is contained in Volume 1 of the 1984 Light List. The positions obtained during the survey are: ✓

			<i>Position #</i>
Buoy "20"	44°44'05.27 ³ "N	68°49'52.78 ² "W	97
Buoy "22"	44°45'05.14"N	68°48'58.14"W	264
Buoy "24"	44°45'18.82"N	68°48'48.73"W	271

These positions are not absolute; the buoys have a large scope of anchor chain and swing with the change of the tide. *Concur*

Detached positions, positions 613 and 802, were submerged cable crossing signs. This cable crossing is not charted. The detached positions, taken along the shoreline by Launch 517, gives approximate location of where the cable crosses the river. It is not known if this is still an active cable. The cable crosses the river between 44°46'43.18¹"N, 68°46'41.28¹"W and 44°46'48.12"N, 68°46'54.12¹"W. *Concur*

Detached positions, positions 1121 and 1122, are the shoreward ends of a charted pipeline crossing. The pipeline crosses the river at ✓

approximately 44°44'26.06"N, 68°49'56.60"W and 44°44'23.58"N, 68°49'50.52"W and is marked by signs on both sides of the river. ✓

A new bridge is being constructed across the Penobscot River south of Bangor, Maine. The bridge will span the river at approximate position 44°47'02"N, 68°46'28"W. The bridge is under construction and is scheduled for completed in 1986. The proposed clearance in the navigational section of the river is 70 feet vertical and 270 feet horizontal. A letter and rough plans for the bridge sent from the State of Maine, Department of Transportation, to the First Coast Guard District are included with this report. ✓

The charted clearance information on the bridges at Bangor, Maine, is accurate. No information should be printed on the charted bridges north of 44°47'55"N. The first bridge north of 44°47'55"N should be considered the head of safe navigation. ✓

The following charted landmarks were visually verified during the survey and should remain charted:

Bangor, Unitarian Church Spire, 1864	44°47'55.48"N	68°46'25.70"W	✓
Bangor, St. Marys Catholic Church			
Spire, 1958	44°48'14.19"N	68°45'42.11"W	
Spire	44°48'08.93"N	68°46'06.35"W	
Stack	44°46'20.97"N	68°47'01.46"W	✓

The stack at 44°47'07.1"N, 68°47'39.6"W has been destroyed by the new bridge construction. The standpipe at 44°45'51.0"N, 68°48'53.0"W is an excellent landmark but has no practical value for navigation on the Penobscot River. This standpipe should be removed from the chart, since it is not visible from the river. ✓

O. STATISTICS

Number of positions.....	1304
Nautical miles of sounding line.....	35.6
Nautical miles of crossline.....	15.5
Nautical miles of development.....	9.8
Total miles of hydrography.....	60.9
Number of bottom samples.....	23
Number of barchecks.....	33
Number of TDC casts.....	-0-

 ✓

P. MISCELLANEOUS

Captain William Abbot, President of the Penobscot Bay and River Pilot's Association, and Captain/Pilot Gilbert E. Hall visited the party during the course of the survey. Captain Abbot was pleased that the river was being surveyed and reported the principal commercial traffic on the river has a draft of 15 to 19 feet. A discussion on chart format was conducted; the pilots felt that the old method of toning, cross hatching of various density to represent the difference in contour was preferable to the current color shading. He also had several U.S. Army Corps of Engineers' surveys that had been completed since the last prior ✓

survey. It appears that these surveys have been used to update the nautical chart. (No Corps of Engineers' surveys were provided to the field party for comparison.) Captain Abbot reported that he and the Pilot Association were pleased with our product and hoped we continue providing an excellent product. ✓

A comparison of the times of high and low water was made between real and predicted tides during the survey. The predicted tide times were compared to actual records from the ADR tide gauge in Bangor, Maine. It appears that the actual highs and lows occur earlier than those predicted in the Tide Table. The Penobscot Pilot Association informed the party that they base the high water time on the previous day's tide reported in the Tide Table for Boston, Massachusetts. This observation of the previous day from Boston appears to be accurate within 30 minutes for the low water. However, the high water predictions based on Portland, Maine, are more accurate than those from Boston. ✓

No actual current observations were taken during the survey. The party feels that the data in the Tidal Current Tables appear to be lower than the actual currents in the river. The party feels that a maximum current of 2 to 3 knots sometimes flows in the river. Rainfall runoff also affects the currents and tidal cycle in the river. ✓

An attempt to use the latest version of RK216, dated 2/24/84, was made by the party. The program will not plot by limits. After the initial set of limits are plotted, the computer requests limits again on TTY-1. The computer will not accept the next set of limits typed from TTY-1. The computer responds to the second set of limits by requesting LIMITS again; the only solution to this problem is to restart the program using the secondary start address. This procedure is overly time consuming. The party has returned to using RK216, dated 2/05/76 to plot the smooth field sheets. ✓

Additional information on the bridge under construction at Bangor can be obtained from:

Mr. William Naulty
U. S. Coast Guard - Bridges
First Coast Guard District
150 Causeway Street
Boston, MA 02114
Phone (617) 223-0645 ✓

Positions 842-853 should not be smooth plotted. This is a fathometer search. Several deeps are noted between these positions. These deeps are part of the new bridge construction and the depths in this area will change as the bridge supports are constructed. ✓

Q. RECOMMENDATIONS

See sections H, K, L, M, and N for specific recommendations.

R. AUTOMATED DATA PROCESSING

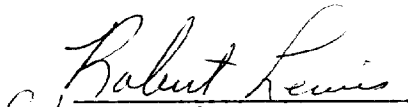
Programs used during field data acquisition and field processing of this survey are as follows: ✓

<u>Program</u>	<u>Description</u>	<u>Version Date</u>
RK201	Grid, Signal, and Lattice Plot	4/18/75
RK212	Visual Station Table Load	4/01/74
RK216	Range/Azimuth Non-Real Time Plot	2/05/76
RK300	Utility Computations	2/05/76
RK330	Reformat and Data Check	5/04/76 ✓
RK407	Geodetic Inverse/Direct Computation	9/25/78
AM500	Predicted Tide Generator	11/10/72
AM501	Smooth Tide Generator	
AM504	Tide Converter	8/01/71
AM602	Elinore-Line oriented editor	5/20/75
AM607	Self Starting Binary Loader	8/10/80

S. REFERENCE TO REPORTS

Control Report CM-8101

Respectfully submitted,


Frederick W. Rossman
LT(JG), NOAA, OIC, HFP-3



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Hydrographic Field Party Three
439 W. York Street
Norfolk, Va. 23510
15 August 1984

Commander
United States Coast Guard
First Coast Guard District
150 Causeway Street
Boston, Ma. 02114

Sir:

Hydrograph Field Party Three is currently conducting a basic hydrographic survey of the Penobscot River, Maine. During the course of the survey several uncharted dangers to navigation have been located that should be included in "Notice To Mariners". All the dangers are on chart 13309. The dangers are:

- Obstruction (Submerged Rock) 44/46/59.28N, 68/46/31.56W with a least depth of 5 feet at MLW.
- Obstruction (Submerged Rock) 44/47/08.30N, 68/46/33.52W with a least depth of 15 feet at MLW.
- Obstruction (Unknown) 44/46/50.7N, 68/46/42.5W with a least depth of 15 feet at MLW
- Obstruction (Unknown) 44/46/39.0N, 68/46/53.0W with a least depth of 15 feet at MLW

This information is preliminary field data and subject to farther verification.

Respectfully,

Frederick W. Rossmann

Frederick W. Rossmann
LTJG NOAA
Officer In Charge




APPROVAL SHEET
Survey H-10136 (HFP-10-1-84)

The hydrographic records transmitted with this report are complete and adequate.

No direct supervision was given by me during field work.

This survey is complete and adequate with no additional field work recommended.



Ronald W. Jones
Lt. Cdr., NOAA
Chief, Hydrographic Field Parties Section

Replaces C&GS Form 567.

NONEDUCATING AND OR LANDMARKS FOR CHARTS

[illegible]

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	Fred Rossman, LTJG., NOAA
POSITIONS DETERMINED AND/OR VERIFIED	Fred Rossman, LTJG., NOAA
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW	<input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
ACTIVITIES	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 I. 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	FIELD (Cont'd) 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
FIELD 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 5 - Field identified 6 - Theodolite 7 - Planetable 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75	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 III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75
*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods. **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.	

Field Tide Note (H10136)

Field tide reduction of soundings was based on daily high and low water levels from the ADR tide gauge at Bangor, Maine (Station No. 841-4612). The values were reduced to mean low water using the bench mark elevations for the Bangor tide station. All times for the gauge installed by the field party are UTC.

The operating tide stations at Rockland, Maine (841-5490) and Bar Harbor, Maine (841-3320), will serve as control for datum determination at all subordinate tide stations. The Rockland gauge was leveled by the NOAA Ship Mt. Mitchell at the beginning of OPR-A166 in 1984 and will be leveled out by HFP-3 in October 1984.

Standard Fischer/Porter ADR tide gauge with tide staff was installed, operated and observed by HFP-3 for the period indicated:

<u>SITE</u>	<u>LOCATION</u>	<u>PERIOD</u>
Bangor, Maine	Lat. 44°47.7'N	IN 30 May 84
Station 841-4612	Lon. 68°46.3'W	OUT Projected Oct 84

Levels were run at the installation of the tide staff and again when the location of the staff was changed on 27 June 1984. The staff was moved because the water level of the Penobscot River dropped below the staff's zero. A bubbler tide gauge was installed at the Bangor tide station site to backup the ADR gauge when the river level dropped below the intake of the float well. The station is scheduled to be leveled and removed by HFP-3 in October upon completion of the field work for OPR-A166 for 1984.

The bubbler tide gauge was installed at Bangor, Maine (Tide Station No. 841-4612) on 27 June 1984.

ZONING

There are no recommendations for zoning by the field party. Zoning should be provided by the Tides and Water Levels Branch (N/OMS12).



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Atlantic Marine Center
Hydrographic Field Parties Section

October 1, 1984

N/MOA233/RL

TO: N/OMS123 - Tidal Datum Section

FROM: N/MOA233 - Ronald W. Jones

Robert Lewis

SUBJECT: Request for smooth tide data

Please provide smooth tide correctors and zoning information to the Atlantic Marine Center, Hydrographic Surveys Branch for the Bangor, Maine Tide Station (841-4612) for survey H-10136 - OPR-A166 Penobscot River, Maine.

The following times include four hours before and after actual times of hydrography.

<u>Julian Day</u>	<u>Begin (UTC)</u>	<u>End (UTC)</u>
1984		
159	0900	2300
173	0900	2200
174	0900	2300
184	1000	2300
185	0900	2300
192	1000	2400
193	1000	2300
194	1000	2300
195	1000	2400
201	1000	2300
202	1000	2200
205	1200	2300
206	1200	2200
207	1000	2300
208	1000	2400
219	0900	2000
229	1000	1900
230	0900	2200



DATE: 01/15/85

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Marine Center: Pacific

OPR: A166

Hydrographic Sheet: H-10136

Locality: Penobscot River, Maine

Time Period: June 7 - August 17, 1984

Tide Station Used: 841-4612 Bangor, ME

Plane of Reference (Mean ~~Lower~~ Low Water): -1.57 ft.

*FROM PHONE CONV. W/JOE MULLEN 2/25/85.
Marked out*

Height of Mean High Water Above Plane of Reference: 13.2 ft.

Remarks: Recommended Zoning:

- 1) North of latitude $44^{\circ}46.4'$ Zone Direct
- 2) South of latitude $44^{\circ}46.4'$ to $44^{\circ}45.0'$ apply x0.98 range ratio
- 3) South of latitude $44^{\circ}45.0'$ to $44^{\circ}43.6'$ apply x0.96 range ratio
- 4) south of latitude $44^{\circ}43.6'$ to $44^{\circ}41.5'$ apply x0.94 range ratio to all heights


Chief, Tidal Datums Section

GEOGRAPHIC NAMES

H-10136

Name on Survey	13309										
	A	B	C	D	E	F	G	H	K		
	ON CHART NO.	ON PREVIOUS SURVEY	ON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP	GRAND McNALLY ATLAS	U.S. LIGHT LIST			
Bangor	X									1	
Brewer	X									2	
Crosby Narrows Stream	X									3	
Maine	X									4	
Penobscot River	X									5	
Sedgeundunk Stream	X									6	
Snub Point	X									7	
Soudabscook Stream	X									8	
										9	
										10	
										11	
										12	
										13	
										14	
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										24	
										25	

NOAA FORM 77-27(H) (9-83)		U.S. DEPARTMENT OF COMMERCE		REGISTRY NUMBER H-10136		
HYDROGRAPHIC SURVEY STATISTICS						
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						
ENVELOPES						
VOLUMES						
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						1304
POSITIONS REVISED						3098
SOUNDINGS REVISED						233
CONTROL STATIONS REVISED						0
				TIME-HOURS		
				VERIFICATION	EVALUATION	TOTALS
PRE PROCESSING EXAMINATION						
VERIFICATION OF CONTROL						
VERIFICATION OF POSITIONS				87		87
VERIFICATION OF SOUNDINGS				166.5		166.5
VERIFICATION OF JUNCTIONS						
APPLICATION OF PHOTOBATHYMETRY						
SHORELINE APPLICATION/VERIFICATION						
COMPILATION OF SMOOTH SHEET				86.5		86.5
COMPARISON WITH PRIOR SURVEYS AND CHARTS					23	23
EVALUATION OF SIDE SCAN SONAR RECORDS						
EVALUATION OF WIRE DRAGS AND SWEEPS						
EVALUATION REPORT					29	29
GEOGRAPHIC NAMES						
OTHER* digitization						16
*USE OTHER SIDE OF FORM FOR REMARKS				TOTALS	340	52
Pre-processing Examination by J. L. Stringham				Beginning Date 2/28/85	Ending Date 2/28/85	
Verification of Field Data by R. Shipley				Time (Hours) 340	Ending Date 8/27/85	
Verification Check by J. Stringham, B. Olmstead, J. Green, T. Jones				Time (Hours) 113	Ending Date 9/20/85	
Evaluation and Analysis by G.E. Kay				Time (Hours) 52	Ending Date 9/20/85	
Inspection by D. J. Hill				Time (Hours) 5	Ending Date 9/25/85	

PACIFIC MARINE CENTER
EVALUATION REPORT
H-10136

1. INTRODUCTION

H-10136 was accomplished by Hydrographic Field Party #3, Launch 517, in accordance with the following project instructions:

OPR-A166-MI/HFP-84, dated March 20, 1984
Change Number 1 dated, May 14, 1984

This is a basic survey of the Penobscot River from Snub Point northward to Bangor, Maine. Depths in the river channel vary from a deep of 54 feet near the south end of this survey to 10 feet above Bangor. Numerous shoals extend out from the shoreline constricting the upper channel at one point to a width of as little as 50 meters. The shoreline is typically rocky with isolated rocks and boulders. The river bottom is rocky with some areas of sand and pebbles.

Predicted tides are based on an ADR gage at Bangor, Maine. Time and range adjustments were utilized during shipboard processing (for a complete discussion see Descriptive Report Section D). Tide correctors used for the reduction of final soundings are computed from approved hourly heights from Bangor, Maine (841-4612).

The field sheet parameters have been revised to center the hydrography on the smooth sheet and to change the projection to polyconic.

The TC/TI and velocity headers were revised during office processing to reflect depths in feet instead of fathoms.

The revised data is listed in the smooth position/sounding printout.

2. CONTROL AND SHORELINE

Hydrographic control and positioning are adequately discussed in Descriptive Report (paragraphs F and G).

Horizontal control stations used during hydrography are published positions on the North American 1927 datum.

Applicable reviewed (April 1984) Class III shoreline manuscripts (scale 1:10,000) and dates are as follows:

	<u>TP-01105</u>	<u>TP-01106</u>
Date of Photography	September 1982	September 1982
Date of Field Edit	None	None
Class	III	III

Most shoreline and some geographic names are not shown on the smooth sheet in an effort to expedite office processing.

Some cribs have been transferred to the smooth sheet from the shoreline manuscripts and have been portrayed as being visible at mean high water. Those features determined to be within ± 0.5 feet of the mean high water level of 13.2 feet above mean low water are noted as "awash at MHW".

The following high water features have been added to the smooth sheet from the field sheet or from comments in the raw records without supporting positional information.

<u>Feature</u>	<u>Latitude North</u>	<u>Longitude West</u>
1. Floating Dock (Bangor Municipal floating dock)	44°47'46.34"	68°46'12.28"
2. Boat Ramp	44°47'36.07"	68°46'10.37"
3. Marine Railway	44°46'46.46"	68°46'55.83"
4. Ramp (Public Boat Ramp)	44°45'54.64"	68°47'49.61"
5. Sign	44°44'23.57"	68°49'45.52"
3. <u>HYDROGRAPHY</u>		

Soundings at line crossings are in good agreement.

Delineation of the bottom configuration, development of shoal soundings, determination of least depths, and delineation of standard depth curves are adequate.

4. CONDITION OF SURVEY

The hydrographic records and reports are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change 3, except as noted in the Preprocessing Examination Report, dated February 28, 1985.

5. JUNCTIONS

H-10136 junctions with the following survey:

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Note</u>	<u>Color</u>	<u>Junctions</u>
H-10146	1984	1:10,000	Joins	Red	South

Soundings were transferred from H-10146 to effect an adequate junction, and to supplement sounding data in the junction area.

6. COMPARISON WITH PRIOR SURVEYS

H-934(1867) 1:10,000

H-1473(1880) 1:10,000

Present survey data does not compare well with these prior surveys. For additional information, see Descriptive Report Section K. H-10136 contains more information of better quality due to improvements in survey technology, and should supersede H-934 and H-1473 within areas of common coverage.

7. COMPARISON WITH CHART

Chart 13309, 23rd Edition, dated March 24, 1984; scale 1:40,000

a. Hydrography - Most charted information originates with the prior surveys discussed in Section 6 of this report. Other soundings and charted features originate with miscellaneous sources not readily ascertainable. For more detail see paragraph L of the hydrographer's report. Charted information does not compare well with H-10136; differences are attributed to age of priors, changes in data acquisition techniques and changes in bottom characteristics associated with river/tidal movements.

The following charted features were not investigated during the course of this survey and should continue to be charted from their source.

<u>Feature</u>	<u>Latitude North</u>	<u>Longitude West</u>
Crib	44°47'24.5"	68°46'21"
Crib	44°47'21.0"	68°46'22.5"
Obstruction	44°46'46"	68°46'40.5"
Obstruction	44°46'44"	68°46'44.5"
Obstruction	44°46'40"	68°46'49.5"
Crib	44°46'20"	68°47'19"
Obstruction	44°44'39"	68°49'35"
Crib	44°43'51"	68°50'03.5"

AWOIS items are adequately discussed in Section L of the hydrographer's report, supplemented as follows:

AWOIS #02951, 02952, 02953 - Obstruction - These charted obstructions are listed in the AWOIS file as partly submerged cribs. The hydrographer visually searched the area but did not locate the cribs. Instead he commented that the area contains three rock groins extending from the shoreline and acquired a position at the seaward end of each, but failed to orientate the rock groins relative to the shoreline. The smooth sheet portrays a rock symbol with an elevation at the end of each rock groin, but the direction of the rock groin extending to the shoreline is left to the discretion of the chart compiler.

AWOIS #03016 - Reported 11-foot depth on a ledge at latitude 44°46'53"N, longitude 68°46'37"W. The hydrographer's investigation of this features resulted in several similarly shoal depths in the vicinity of the reported depth. The reported depth of 11 feet is considered verified and the area should be charted at the discretion of the compiler from information portrayed on the smooth sheet.

While conducting this investigation the hydrographer states that a submerged obstruction was found at latitude 44°46'50.7"N, longitude 68°46'42.5"W, and was covered 14 feet at MLW. The location of this depth is in the vicinity of several 12-foot depths which form a shoal extending into the river channel. Since the obstruction depth is greater and the echogram profile reveals a similar bottom type the smooth sheet has been annotated to indicate an obstruction at latitude 44°46'51.58"N, longitude 68°46'38.02"W, with a depth of 12 feet. There is no certainty that an obstruction exists in this area due to the lack of adequate supporting documentation from the hydrographer. Accordingly, the area should be charted at the discretion of the compiler.

AWOIS #03021 - Sounding - A 16-foot depth charted at latitude 44°45'15"N, longitude 68°48'52"W was confirmed during the course of this survey, but a shoaler 14-foot depth is located 40 meters from the charted position at latitude 44°45'13.73"N, longitude 68°48'51.67"W. The 14-foot depth should be charted.

AWOIS #03022 - Sounding - A 13-foot depth charted at latitude 44°47'29"N, longitude 68°46'22"W was confirmed during the course of this survey, by a 13-foot depth 45 meters from the charted position at latitude 44°47'29.46"N, longitude 68°46'20.07"W. The 13-foot depth should be charted.

AWOIS #03422 - Obstruction - The hydrographer's investigation of a reported pile was inadequate for disproval because the required bottom drag was unsuccessful. The submerged obstruction found by the hydrographer at latitude 44°46'38.9"N, longitude 68°46'53.3"W can not be identified as the pile searched for; accordingly, both features should be charted.

Geographic names appearing on the smooth sheet originate with Chart 13309, 23rd Edition.

H-10136 is adequate to supersede charted hydrography within the common area.

A Danger to Navigation Report (copy appended) has been submitted to the First Coast Guard District by the Hydrographic Field Party Three on August 15, 1984. No additional dangers were identified during office processing.

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

c. Aids to Navigation - There are no fixed and three floating aids within the limits of this survey.

The floating aids have been located as follows:

<u>Light List Number</u>	<u>Buoy Number</u>	<u>Latitude North</u>	<u>Longitude West</u>
249.50	20	44°44'05.23"	68°49'52.72"
249.50	22	44°45'05.13"	68°48'58.14"
249.50	24	44°45'18.82"	68°48'48.73"

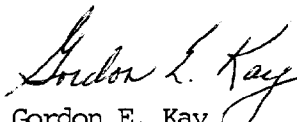
These aids adequately serve their intended purpose.

8. COMPLIANCE WITH INSTRUCTIONS

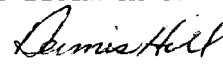
H-10136 adequately complies with the project instructions as amended and noted in section 1 of this report.

9. ADDITIONAL FIELD WORK

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



Gordon E. Kay
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-10136

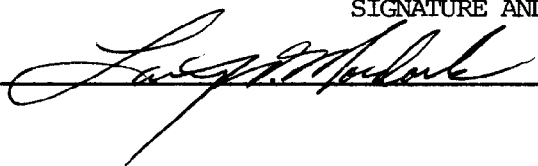
I have reviewed the smooth sheet, accompanying data, and reports of this hydrographic survey. Except as noted in the Evaluation Report, the hydrographic survey meets or exceeds Charting and Geodetic Services (C&GS) standards, complies with instructions, and is accurately and completely represented by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


Chief, Nautical Chart Branch (Date)

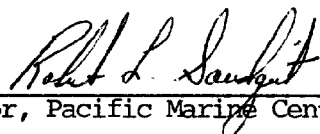
CLEARANCE:

N/MOP2:LWMordock

SIGNATURE AND DATE:



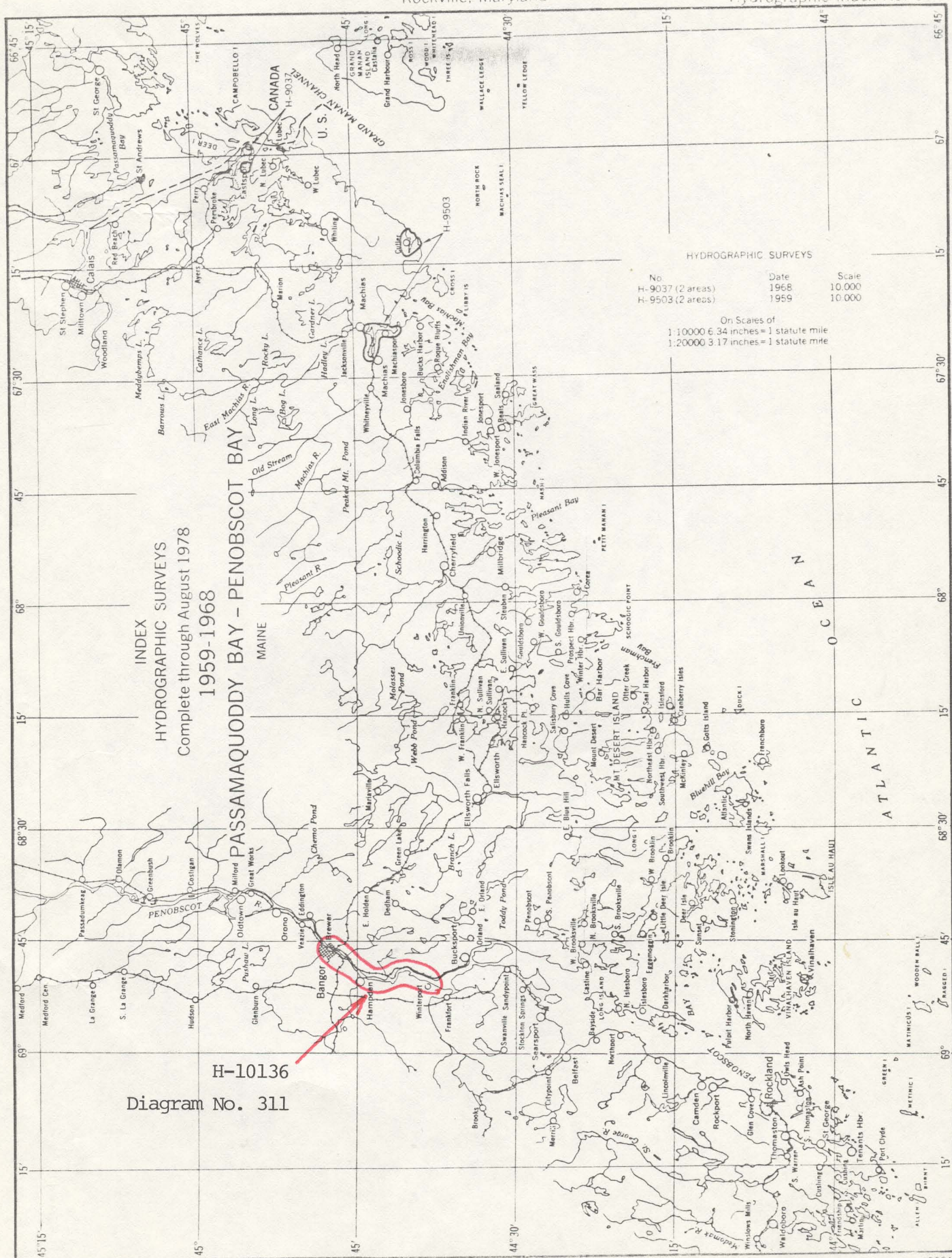
After review of the smooth sheet and accompanying reports, I hereby certify this survey is accurate, complete, and meets appropriate standards with only the exceptions as noted above. The above recommendations are forwarded with my concurrence.

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

Rockville, Maryland

INDEX HYDROGRAPHIC SURVEYS Complete through August 1978 1959-1968

H-10136
Diagram No. 311



FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10136

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.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED