

TP-01442

TP-01442

NOAA FORM 76-35 (6-80)	
U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY	
DESCRIPTIVE REPORT	
Map No. TP-01442	Edition No. 1st
Job No. CM 8603	
Map Classification III	
Type of Survey SHORELINE	
LOCALITY	
State MICHIGAN	
General Locality LAKE HURON	
Locality ST. MARTIN BAY	
19 87 TO 19	
REGISTERED IN ARCHIVES	
DATE	

NOAA FORM 76-36A (3-72) U. S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMIN.		TYPE OF SURVEY ☒ ORIGINAL ☐ RESURVEY ☐ REVISED		SURVEY TP. <u>01442</u> MAP EDITION NO. <u>41</u> MAP CLASS <u>III</u> JOB <u>HH. CM 8603</u>	
DESCRIPTIVE REPORT - DATA RECORD					
PHOTOGRAMMETRIC OFFICE Photogrammetry Branch Rockville, Md.		LAST PRECEDING MAP EDITION			
OFFICER-IN-CHARGE Capt. A.Y. Bryson		TYPE OF SURVEY ☐ ORIGINAL ☐ RESURVEY ☐ REVISED		JOB PH. _____ MAP CLASS _____ SURVEY DATES: 19__ TO 19__	
I. INSTRUCTIONS DATED					
1. OFFICE			2. FIELD		
Aerotriangulation No instructions furnished OFFICE July 26, 1988			Field May 6, 1987		
II. DATUMS					
1. HORIZONTAL: ☐ 1927 NORTH AMERICAN			OTHER (Specify) NAD 1983		
2. VERTICAL: ☐ MEAN HIGH-WATER ☐ MEAN LOW-WATER ☐ MEAN LOWER LOW-WATER ☐ MEAN SEA LEVEL			OTHER (Specify) International Great Lakes Datum (1955)		
3. MAP PROJECTION Lambert Conformal Conic			4. GRID(S) STATE Michigan ZONE Central		
5. SCALE 1:20,000			STATE _____ ZONE _____		
III. HISTORY OF OFFICE OPERATIONS					
OPERATIONS		NAME		DATE	
1. AEROTRIANGULATION METHOD: <u>Analytical</u> LANDMARKS AND AIDS BY		BY L. Harrod Jr. N/A		June 1988	
2. CONTROL AND BRIDGE POINTS METHOD: <u>Kongsberg Flatbed Plotter</u> PLOTTED BY		BY L. Harrod, Jr. N/A		June 1988	
3. STEREOSCOPIC INSTRUMENT COMPILATION INSTRUMENT: <u>Wild B-8</u> PLANIMETRY BY		BY S. Goodell & T. Doyle T. Doyle & J. Schad		Oct. 1988 Oct. 1988	
SCALE: <u>1:20,000</u> CHECKED BY		N/A N/A		N/A	
4. MANUSCRIPT DELINEATION METHOD: <u>Smooth</u> PLANIMETRY BY		BY S. Goodell J. Schad		Oct. 1988 Oct. 1988	
SCALE: <u>1:20,000</u> CHECKED BY		N/A N/A		N/A	
5. OFFICE INSPECTION PRIOR TO FIELD EDIT BY		N/A		N/A	
6. APPLICATION OF FIELD EDIT DATA BY		N/A		N/A	
7. COMPILATION SECTION REVIEW BY		J. Schad		Oct. 1988	
8. FINAL REVIEW BY		J. Schad		Dec. 1988	
9. DATA FORWARDED TO PHOTOGRAMMETRIC BRANCH BY		J. Schad		NOV. 89	
10. DATA EXAMINED IN PHOTOGRAMMETRIC BRANCH BY		J. Damprey		NOV. 89	
11. MAP REGISTERED - COASTAL SURVEY SECTION BY		J. Rikon		NOV. 89	

NOAA FORM 76-36B (3-72)		U. S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY TP-01442			
COMPILATION SOURCES					
1. COMPILATION PHOTOGRAPHY					
CAMERA(S) Wild RC-8(E) F/L 152.71		TYPES OF PHOTOGRAPHY LEGEND (C) COLOR (P) PANCHROMATIC (I) INFRARED		TIME REFERENCE	
TIDE STAGE REFERENCE ☐ PREDICTED TIDES ☒ REFERENCE STATION RECORDS ☐ TIDE CONTROLLED PHOTOGRAPHY				ZONE Eastern	☒ STANDARD
				MERIDIAN 75th	☐ DAYLIGHT
NUMBER AND TYPE	DATE	TIME	SCALE	STAGE OF TIDE	
87 EC 1096-1099	5/24/87	14:39	1:50,000	The average water level at the time of photography was 580.2 ft. based on gage at Mackinaw City Michigan. (Sta.#5080).	
87 EC 1546-1549	6/4/87	14:38	1:50,000		
REMARKS Plane of reference (Low Water Datum) for Lake Huron is 576.8 ft. The shoreline datum is lake level at time of photography.					
2. SOURCE OF MEAN HIGH-WATER LINE SHORELINE: The photographs listed above.					
3. SOURCE OF MEAN LOW-WATER OR MEAN LOWER LOW-WATER LINE: N/A					
4. CONTEMPORARY HYDROGRAPHIC SURVEYS (List only those surveys that are sources for photogrammetric survey information.)					
SURVEY NUMBER	DATE(S)	SURVEY COPY USED	SURVEY NUMBER	DATE(S)	SURVEY COPY USED
5. FINAL JUNCTIONS					
NORTH	EAST	SOUTH	WEST		
N/A	TP-01443	N/A	TP-01441, TP-01445		
REMARKS					

NOAA FORM 76-36C
(3-72)U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

TP-01442

HISTORY OF FIELD OPERATIONS

I. ☒ FIELD ~~INSPECTION~~ OPERATION☐ FIELD EDIT OPERATION

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	J.E. Dunford	May-June 1987
2. HORIZONTAL CONTROL	RECOVERED BY J.E. Dunford	May 1987
	ESTABLISHED BY J.E. Dunford	May 1987
	PRE-MARKED OR IDENTIFIED BY J.E. Dunford	May 1987
3. VERTICAL CONTROL	RECOVERED BY N/A	
	ESTABLISHED BY N/A	
	PRE-MARKED OR IDENTIFIED BY N/A	
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED (Triangulation Stations) BY N/A	
	LOCATED (Field Methods) BY N/A	
	IDENTIFIED BY	
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION ☐ COMPLETE BY ☐ SPECIFIC NAMES ONLY ☒ NO INVESTIGATION	
6. PHOTO INSPECTION	CLARIFICATION OF DETAILS BY N/A	
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY N/A	

II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED

2. VERTICAL CONTROL IDENTIFIED

N/A

PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION
87 EC 1099	Jamieson USLS, 1919		

3. PHOTO NUMBERS (Clarification of details)

N/A

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED

N/A

PHOTO NUMBER	OBJECT NAME	PHOTO NUMBER	OBJECT NAME

5. GEOGRAPHIC NAMES: ☐ REPORT ☒ NONE6. BOUNDARY AND LIMITS: ☐ REPORT ☒ NONE

7. SUPPLEMENTAL MAPS AND PLANS

N/A

8. OTHER FIELD RECORDS (Sketch books, etc. DO NOT list data submitted to the Geodesy Division)

One Field Work Brown Binder

RECORD OF SURVEY USE

TP-01442

I. MANUSCRIPT COPIES

COMPILATION STAGES			DATE MANUSCRIPT FORWARDED	
DATA COMPILED	DATE	REMARKS	MARINE CHARTS	HYDRO SUPPORT
Final Reviewed Class III Map	Dec 1988	Chart Maintenance Print		
Final Reviewed Class III Map	Dec. 1988	Notes to Hydrographer Print	Dec. 1989	Dec. 1989

II. LANDMARKS AND AIDS TO NAVIGATION

1. REPORTS TO MARINE CHART DIVISION, NAUTICAL DATA BRANCH

NUMBER	CHART LETTER NUMBER ASSIGNED	DATE FORWARDED	REMARKS

2. ☐ REPORT TO MARINE CHART DIVISION, COAST PILOT BRANCH. DATE FORWARDED: _____3. ☐ REPORT TO AERONAUTICAL CHART DIVISION, AERONAUTICAL DATA SECTION. DATE FORWARDED: _____

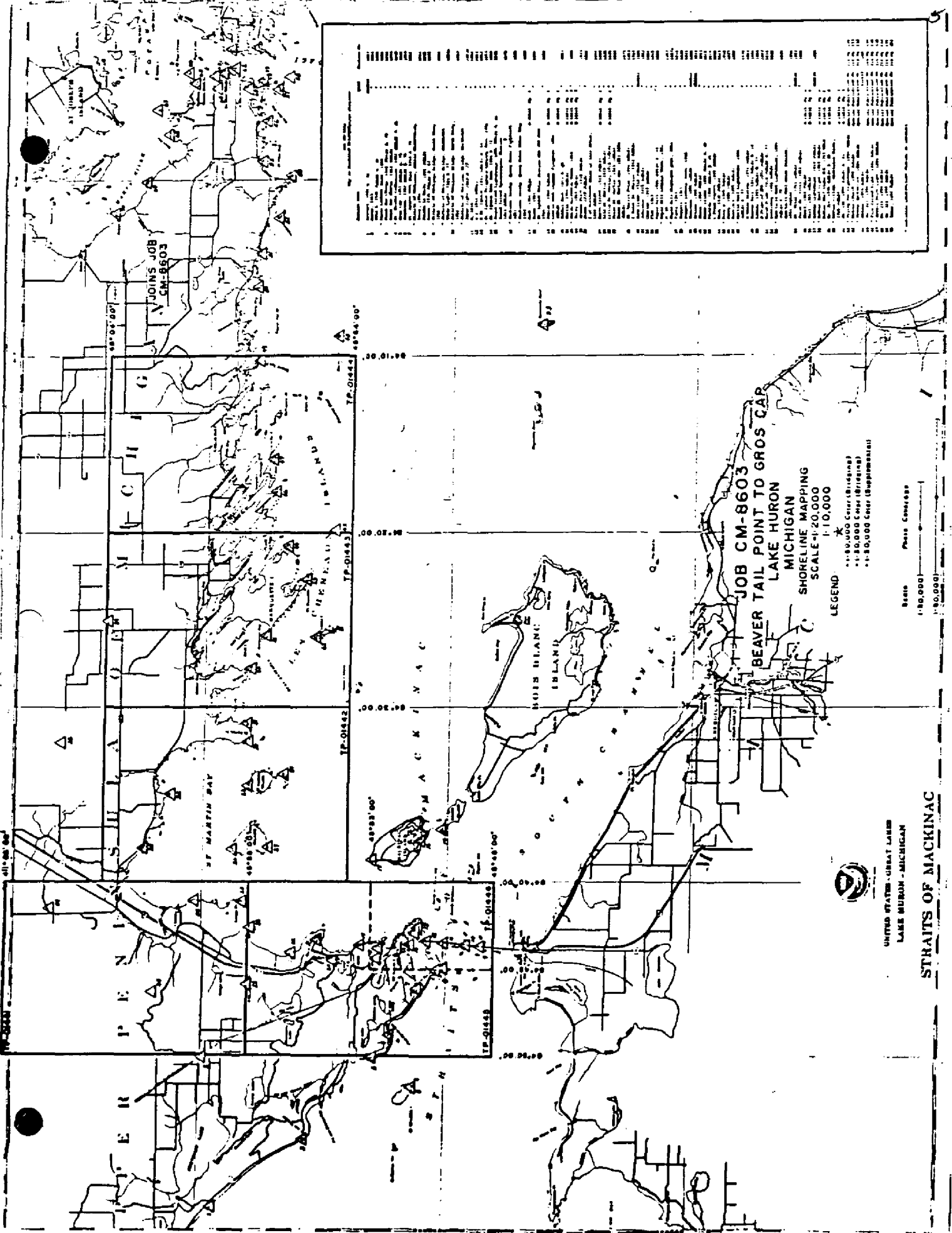
III. FEDERAL RECORDS CENTER DATA

1. ☒ BRIDGING PHOTOGRAPHS; ☒ DUPLICATE BRIDGING REPORT; ☐ COMPUTER READOUTS.
2. ☒ CONTROL STATION IDENTIFICATION CARDS; ☐ FORM NOS 567 SUBMITTED BY FIELD PARTIES.
3. ☒ SOURCE DATA (except for Geographic Names Report) AS LISTED IN SECTION II, NOAA FORM 76-36C.
ACCOUNT FOR EXCEPTIONS:

4. ☐ DATA TO FEDERAL RECORDS CENTER. DATE FORWARDED: _____

IV. SURVEY EDITIONS (This section shall be completed each time a new map edition is registered)

SECOND EDITION	SURVEY NUMBER TP - _____ (2)	JOB NUMBER PH - _____	TYPE OF SURVEY ☐ REVISED ☐ RESURVEY MAP CLASS ☐ II. ☐ III. ☐ IV. ☐ V. ☐ FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	
THIRD EDITION	SURVEY NUMBER TP - _____ (3)	JOB NUMBER PH - _____	TYPE OF SURVEY ☐ REVISED ☐ RESURVEY MAP CLASS ☐ II. ☐ III. ☐ IV. ☐ V. ☐ FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	
FOURTH EDITION	SURVEY NUMBER TP - _____ (4)	JOB NUMBER PH - _____	TYPE OF SURVEY ☐ REVISED ☐ RESURVEY MAP CLASS ☐ II. ☐ III. ☐ IV. ☐ V. ☐ FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	



SUMMARY TO ACCOMPANY
DESCRIPTIVE REPORT
TP-01442

Project CM-8603 consisted of the production of Class III shoreline maps. Five 1:20,000-scale and one 1:10,000-scale maps were compiled. The area compiled extends from Beaver Tail Point to Gros Cap, Lake Huron, Michigan.

The purpose of this map, TP-01442, 1:20,000 scale, is to provide contemporary shoreline data for maintenance of the nautical charting program.

Field operations consisted of aerial photography and the recovery, establishment, and identification (premarking) of horizontal control necessary for aerotriangulation. Eight horizontal control stations were paneled for use in aerotriangulation. Field operations for project CM-8603 commenced in May 1987 and concluded in June 1987.

Natural color photographs 1:50,000 scale and 1:30,000 scale were taken in May and June 1987 with the Wild RC-8(E) camera.

Four strips of 1:50,000-scale color photographs and one strip of 1:30,000-scale color photographs were bridged and adjusted to the ground using the General Integrated Analytical Triangulation Program (GIANT).

Horizontal control stations used in the adjustment were premarked panels. Elevations from U.S.G.S. quadrangles were used as vertical control. The amount of aerotriangulated control proved adequate and meets National Standards of Map Accuracy.

Compilation was performed by the Special Project Unit, Rockville Office. This map delineation was based on office interpretation of the natural color photographs using the Wild B-8 stereoplotter and the ratio color photographs. All line work was smooth drafted.

Final review was performed by the Special Project Unit, Rockville office. This map complies with the project instructions and meets the requirement for the National Standard of Map Accuracy.

The Descriptive Report contains all the information pertinent to the completion of this map.

FIELD INSPECTION
TP-01442

There was no field inspection prior to compilation. Field work accomplished consisted of aerial photography and the recovery, establishment and identification (premarking) of horizontal control necessary for aerotriangulation.

AEROTRIANGULATION REPORT
CM-8603
BEAVER TAIL POINT TO GROS CAP
LAKE HURON
MICHIGAN
JUNE, 1988

AREA COVERED

This report covers the shoreline and adjacent waterways from Beaver Tail Point to Gros Cap. The project consists of five 1:20,000 scale sheets; TP-01441 through TP-01445 and one 1:10,000 scale sheet; TP-01446, in the vicinity of St. Ignace.

METHOD

Four strips of 1:50,000 scale and one strip of 1:30,000 scale color photographs were bridged by analytical aerotriangulation methods and adjusted to ground using the General Integrated Analytical Triangulation Program (GIANT). The strips were measured using the WILD STK comparator. Horizontal control consists of pre-marked stations and office identified stations. Common points were transferred between strips to ensure adequate junctioning.

Ratio values were determined for the bridging photographs. A copy of these values and a sketch of the photo coverage are attached to this report.

Worksheets and final manuscripts were plotted on the Kongsberg Plotter. The sheets were plotted in the Michigan State Plane Coordinate System, Central Zone. This is a Lambert conformal conic projection. All positions are based on NAD 1983. In addition, 10 mm ticks depicting NAD 1927 projection intersections were plotted at twice the interval of the NAD 1983 projection intersections.

ADEQUACY OF CONTROL

The control meets the National Ocean Service requirements for manuscripts. A listing of closures to control is attached.

The control station, MORAN MICROWAVE TOWER, 1965, and its sub-point would not fit with the other control in the project. The aerotriangulation position is 83 feet west and 78 feet north of the published position. The 1964 USGS quad of the area shows the tower south of a building. The 1987 photos show the tower west of a building. The published position plots on the tower symbol on the quad. The tower has probably been moved.

SUPPLEMENTAL DATA

USGS topographic quadrangles were used to obtain vertical control for bridging. NOS Nautical Charts were used to locate aids and landmarks.

PHOTOGRAPHY

The coverage, overlap, and quality of the color photographs were adequate of the job.

Submitted by,



Lloyd W. Harrod Jr.

Approved and Forwarded



Don O. Norman
Chief, Aerotriangulation Unit

/o

RATIO VALUES -
CM-8603

1:50,000 Bridging Photographs

Ratio Value

87 E (C) 1089 - 1101
87 E (C) 1546 - 1552
87 E (C) 1559 - 1564
87 E (C) 1571 - 1576

2.53
2.56
2.56
2.56

1:30,000 Bridging Photographs

87 E (C) 1218 - 1220

3.03

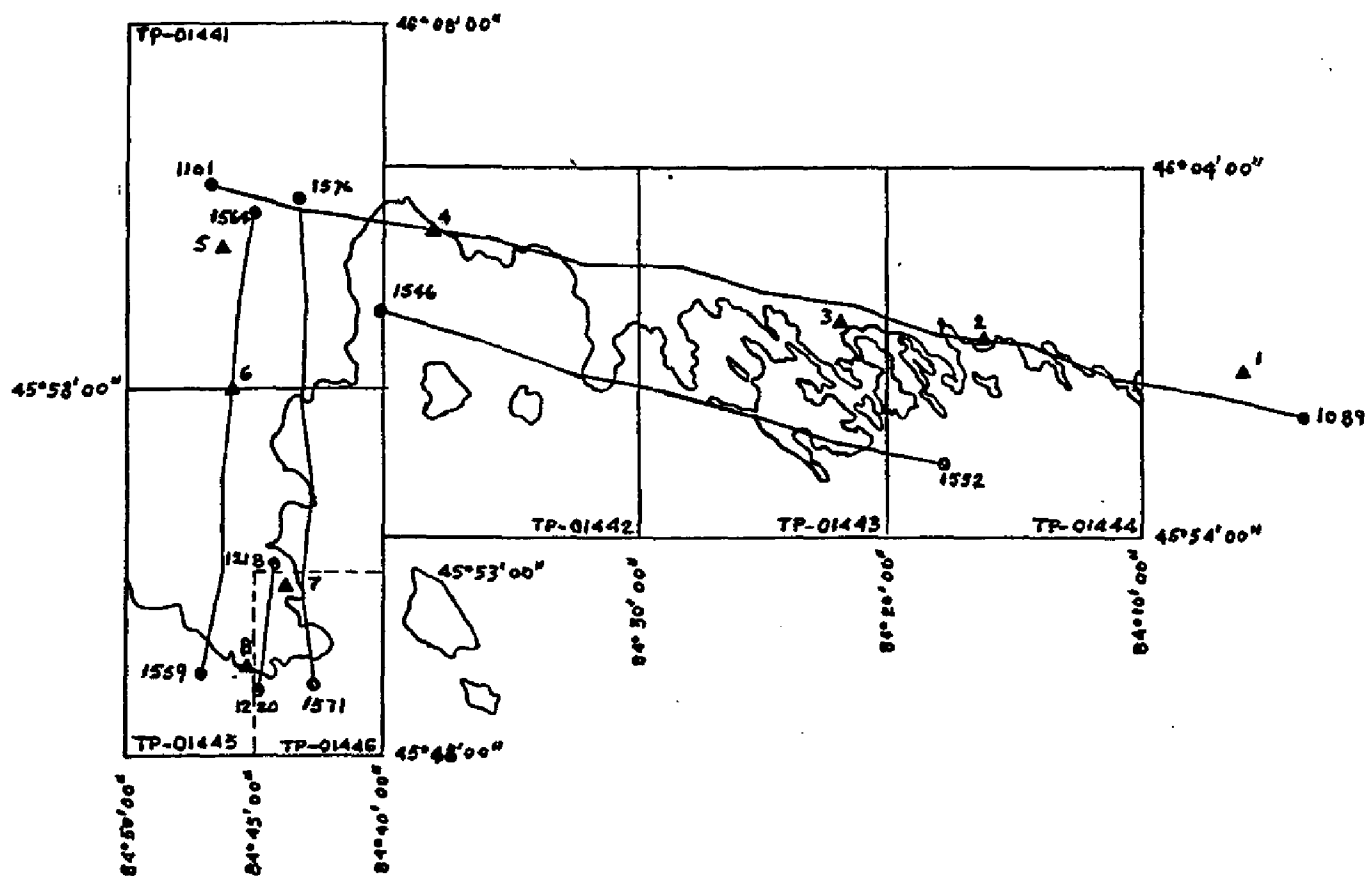
FIT TO CONTROL

<u>STATION NAMES</u>	<u>POINT NO.</u>	<u>VALUES IN FEET</u>	
		<u>X</u>	<u>Y</u>
▲ 1. ALBANY BAY Panel #1 Direct	(089100)	1.1	-0.9
▲ 2. MCKAY Panel #2 Direct	(093100)	-1.3	1.5
▲ 3. CEDAR Panel #3 Direct	(094100)	-0.2	-0.2
▲ 4. JAMIESON Sub pt. Panel #4	(099101)	0.2	-0.6
▲ 5. FLAT Sub pt. Panel #5	(101101)	0.4	-0.0
6. MORAN MICROWAVE TOWER Sub pt. Panel #6	(562101)	-86.6	77.0
▲ 7. HISER Sub Pt. Panel #7	(572101)	-0.4	1.2
▲ 8. GREEN Sub Pt. Panel #8	(571101)	0.3	-1.0
9. MORAN MICROWAVE TOWER	(562100)	-83.0	78.5

▲ Points held in the adjustment

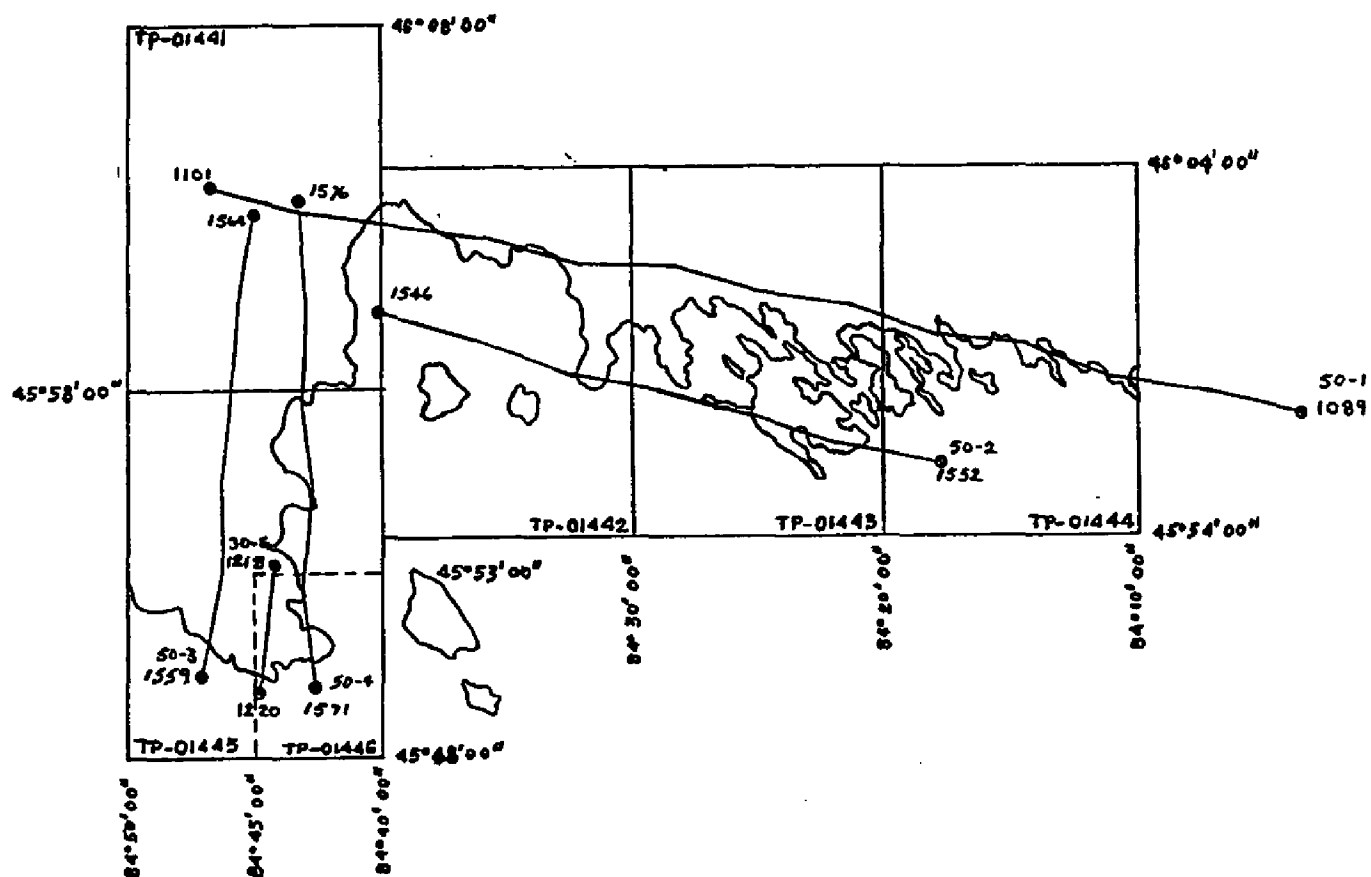
Station numbers keyed to horizontal control sketch

HORIZONTAL CONTROL



JOB CM-8603
 BEAVER TAIL POINT TO GROS CAP
 LAKE HURON
 MICHIGAN
 SHORELINE MAPPING
 SCALE 1:20,000
 119,000

BRIDGING PHOTOGRAPHS



JOB CM-8603
 BEAVER TAIL POINT TO GROS CAP
 LAKE HURON
 MICHIGAN
 SHORELINE MAPPING
 SCALE 1:20,000
 1:10,000

DESCRIPTIVE REPORT CONTROL RECORD

MAP NO.	STATION NAME	JOB NO. CM 8063	SOURCE OF INFORMATION (Index)	AEROTRI- ANGULATION POINT NUMBER	GEODETTIC DATUM NAD 1983		COORDINATES IN FEET		GEOGRAPHIC POSITION		REMARKS
					STATE	ZONE	N/A	N/A	ϕ LATITUDE	λ LONGITUDE	
	Jamieson USLS, 1919		Quad 460843	33				X= N/A		ϕ 46-02-26.254	
			Sta. 1002					Y= N/A		λ 84-38-02.415	
								X=		ϕ	
								Y=		λ	
								X=		ϕ	
								Y=		λ	
								X=		ϕ	
								Y=		λ	
								X=		ϕ	
								Y=		λ	
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								Y=		λ	
								X=		ϕ	
								Y=		λ	
								X=		ϕ	
								Y=		λ	
COMPUTED BY								COMPUTATION CHECKED BY			DATE
LISTED BY	Stephen Goodell							LISTING CHECKED BY James Schad			DATE 10/18/88
HAND PLOTTING BY								HAND PLOTTING CHECKED BY			DATE

SUPERSEDES NOAA FORM 76-41, 2-71 EDITION WHICH IS OBSOLETE.

COMPILATION REPORT
TP-01442

31. DELINEATION

Delineation of detail was accomplished using a Wild B-8 stereoplotter.

32. CONTROL

Horizontal control furnished by the Aerotriangulation Unit was adequate for controlling the stereomodels. Refer to the Aerotriangulation Report bound with this Descriptive Report for additional information.

Vertical Control was achieved by using a combination of elevations provided by the Aerotriangulation Unit, USGS quadrangles, and the land/water interface.

33. SUPPLEMENTAL DATA

None

34. CONTOURS AND DRAINAGE

The compilation of contours was not a requirement of this project. Drainage was compiled based on office interpretation of the bridging/compilation photographs.

35. SHORELINE AND ALONGSHORE DETAILS

The visible line of contact between land features and the water was compiled as the shoreline. Alongshore detail consists of rocks and areas of awash. Shoreline and alongshore delineation was compiled as described in item 31 of this report.

36. OFFSHORE DETAIL

Offshore detail consists of rocks, areas of foul with rocks, and areas of awash. Offshore detail was compiled by instrument methods as described in item 31 of this report.

37. LANDMARKS AND AIDS

None

38. CONTROL FOR FUTURE SURVEYS

None

39. JUNCTIONS

Refer to item 5 of NOAA Form 76-36B, bound with this Descriptive Report for more information on map junctions.

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40. HORIZONTAL AND VERTICAL ACCURACY

This map meets the National Standards of Map Accuracy. For additional information, refer to the Aerotriangulation Report bound with this Descriptive Report.

41. through 45. - Not applicable.

46. COMPARISON WITH EXISTING MAPS

Comparisons were made with the following 1:24,000 scale U.S. Geological Survey quadrangles:

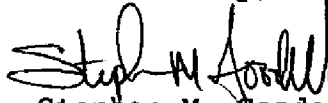
Charles, Michigan 1964
Evergreen Shores, Michigan 1964
Pontchartrain Shores, Michigan 1964
St. Martin Island, Michigan 1964

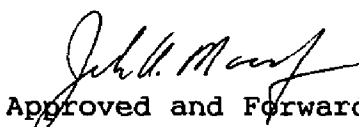
47. COMPARISON WITH NAUTICAL CHARTS

A comparison was made with the following National Ocean Service nautical chart:

14881, 25th Edition (December 28, 1985), scale 1:80,000.

Submitted by,


Stephen M. Goodell
Cartographer


Approved and Forwarded:

John A. Mooney
Chief, Special Projects Unit

GEOGRAPHIC NAMES

Final Name Sheet

CM-8603 (Beaver Tail Point to Gros Cap, MI)

TP01442

Big Saint Martin Island

Huron, Lake

Little Saint Martin Island

McCloud Creek

Nunns Creek

Paquin Lake

Pine River

Pontchartrain Point

Pontchartrain Shores

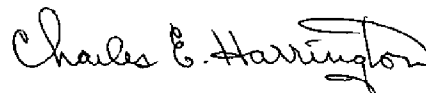
Saint Martin Bay

Saint Martin Island

Saint Martin Point

Search Bay

Approved:



Charles E. Harrington
Chief Geographer
Nautical Charting Division
Charting and Geodetic Services

FINAL REVIEW REPORT
TP-01442

61. GENERAL STATEMENT

Refer to the Summary bound with this Descriptive Report.

62. COMPARISON WITH REGISTERED TOPOGRAPHIC SURVEYS - None

63. COMPARISON WITH MAPS OF OTHER AGENCIES

A comparison was made with the following 1:24,000 scale U.S. Geological Survey quadrangles:

Charles, Michigan 1964
Evergreen Shores, Michigan 1964
Pontchartrain Shores, Michigan 1964
St. Martin Island, Michigan 1964

64. COMPARISON WITH CONTEMPORARY HYDROGRAPHIC SURVEYS - None

65. COMPARISON WITH NAUTICAL CHARTS

14881, Scale 1:80,000, 25th Edition, dated December 28, 1985.

66. ADEQUACY OF RESULTS AND FUTURE SURVEYS

This map meets the National Standards of Map Accuracy and requirements specified in the Project Instructions.

Submitted by,

James E Schad

James E. Schad
Unit Reviewer

Approved for forwarding:

John M. ...
Chief, Special Projects Unit

Approved:

N/A
Chief, Photogrammetric Production Section

MC Burtal
Chief, Photogrammetry Branch

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO.

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.

[illegible]