6724a&b 6727a&b
6725a&b 6728a
6726a&b

Form 504
Rev. April 1935
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Topographic } Sheet No. T-6724a & b; T-6725a & b;
~~Hydrographic~~ } T-6726a & b; T-6727a & b; T6728a

U. S. COAST & GEODETIC SURVEY
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Accs. No.

State WASHINGTON

LOCALITY

WILLAPA BAY

1939

CHIEF OF PARTY

W. M. Scaife, H. & G. Engr.

U. S. GOVERNMENT PRINTING OFFICE

6724 6725 6726 6727 6728

Applied to new compilation of chart no. 6185
May 27, 1941 J.H.S.

DESCRIPTIVE REPORT TO ACCOMPANY TOPOGRAPHIC SHEETS NUMBERED

T-6724 a&b; T-6725 a&b; T-6726 a&b; T-6727 a&b; and T-6728 a

WILLAPA BAY IN SOUTHWESTERN WASHINGTON

1939

Scale 1/10,000

Instructions: March 11, 1939, Project HT 232

GENERAL DESCRIPTION:

The area covered by these sheets is Willapa Bay in southwestern Washington. The bay is bounded on the west by a low, wooded sand spit about 1 mile wide and 15 miles long, on the east by low, well rounded, wooded hills varying in height from 500 to 1200 feet in elevation, and on the south by low hills surrounded by heavily wooded, marshy ground. Near the east shore of the bay is a long narrow low island called Long Island. The shore of this island and the west shore of the mainland is marked by poorly cemented sandstone and shale cliffs ranging from 10 to 30 feet in height. Due to their softness these cliffs are rapidly eroded where subject to wave action.

The district is drained by several rivers, Bear, Naselle and Nemah. These rivers have formed extensive tide flats at their mouths, and are the source of the sediments in the shoal areas, which are continually shifting. In many places an older sand-gravel gently sloping beach, now partly covered by the mud flats, indicates a previous period in which the bay was open to the ocean currents. The mud flats are largely covered with oyster beds which is one of the majore industries of the district.

The area is served by two paved and one gravel highway. U. S. Highway 101 is located on the east shore of the bay, running from Raymond to Ilwaco. U. S. Highway 830 starts from U. S. Hwy 101 at a point 2 miles from the Naselle Bridge, follows the Naselle River and thence to Kelso Wash. A gravel county highway runs north from Ilwaco along the west side of Willapa Bay.

Form 537a
Ed. Nov. 1929

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

TOPOGRAPHIC TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. A

REGISTER NO. T-6724a T-6724a

State Washington

General locality Willapa Bay

Locality South end of Willapa Bay

Scale 1:10,000 Date of survey May - July, 1939

Vessel Washington - Oregon Shore Party

Chief of party W. M. Scaife

Surveyed by Raymond A. Wheeler

Inked by R.A.W. - I.T.S. - WAC

Heights in feet above M.H.W. to ground ~~to tops of trees~~

Contour, Approximate contour, Form line interval _____ feet

Instructions dated March 11, 1939., 19____

Remarks: _____

GPO

SHEET T-6724 a

DETAILED DESCRIPTION:

The area covered by this sheet, at the south end of Willapa bay is covered by extensive mud tide flats which extend 1½ to 2 miles from an indefinite grassy shore line. This tide flat is cut by two main channels, the one on the west is very shallow and leads to Barker's slough, the one on the east is considerably deeper and forms the mouth of Bear River. The west shore is low and woody with occasional clearings for small farms. The south shore is low with a low, heavily wooded hill between Baker's slough and Bear River. The East shore is a series of low hills with higher hills (1000 ft.) in the immediate background. A small round, wooded island, Round Island, lies about ½ mile west of the east shore. The flats between this island and the shore are bare at low tide.

There are extensive marsh lands in this area, large areas of marsh (Giles and Barkers Sloughs) have been reclaimed by the dikes as shown. The north side of the small tidal island north of Barkers Slough is very indefinite and the whole island is probably covered at extreme high tide. The shore line to the east of this point is the grass line, which is often very indefinite. This area is largely covered at higher high water, to the tree line. The marshy areas on either side of the Bear River is traversed by a large number of small sloughs and are largely covered at high water. Highway 101 forms a dike to the east of Bear River which with the dike extending south from the Bear River Bridge reclaims a large area of marshy ground for pasture.

It is very difficult to land a boat in this area except at high water due to deep mud flats. Good landings are available at the dock at Giles Slough*, a small wharf ¼ mile south of small trestle bridge near station Shoalwater, and a float north of the Bear River Bridge**. The bridge on highway 101 across the Bear River is of steel span type, supported by concrete piers. The horizontal clearance is approximately 25 ft., vertical clearance above HW is approximately 20 ft. This bridge is at the limit of hydrography in Bear River. Controling depth just below the bridge is 2 ft @ MLLW.

* φ 46°-23.5' λ 124°-01'

φ 46°-22' λ 123°-57'

** φ 46°-21' λ 123°-57.3' (Float not shown on survey.)

CONTROL:

The control of this survey is provided by triangulation stations, Hutton$_2$, Stout$_2$, Tangent, Shoalwater and Round as determined by this party in 1938 and 1939 and referred to N.A. 1927 Datum. (field computations)

SHEET T-6724 a

SURVEY METHODS:

Ordinary survey methods were used. Graphic triangulation and the three point problem were used to locate most of the signals. A traverse run from Shoalwater to Tangent was used to locate the detail on the banks of the Bear River.

CLOSING ERRORS:

The closing error of the 1¾ mile traverse from Shoalwater to Tangent was 6 meters. It was adjusted proportionally.

COMPARISON WITH PREVIOUS SURVEYS:

Sheet 1341B-1873

Marked changes have occurred in the shore line of this area due to deposition from natural causes and the building of dikes. The swampy ground near Giles Slough has been reclaimed for farming.

The extensive swamps at Barker's Slough, have been converted into farming land by a system of dikes. This control of the dikes into this area has caused the slackening of the currents and resulted in the advance of the shoreline as much as a half mile in someplaces.

Sheet 1342a-1873

The course of the Bear River shows few changes considering it has heavy floods. Deposition at its mouth, near station old Shack, has advanced the shoreline 300 or 400 meters to the north. The road from Tangent to Shoalwater serves as a dike. This dike and dikes along the river south of 101 Highway bridge controls the flood tides and reclaims small areas for farming.

From Shoalwater to the northern limit of the sheet, the shoreline has been advanced up to 40 meters largely due to road bed constructions.

Chart 6185 dated July 1939

The small dock at Giles Slough has been largely removed. The remaining piles which might endanger navigation have been located.* A new dock immediately north of old position has been built as shown.

*No piles shown on survey at location of charted pier.

(Sheet T-6724 a)

A small dock* has been built on the east shore of the Bear River, 400 meters south of station Shoalwater (USE). US Highway 101 has been constructed along the east bank of the Bear River.

* φ46°-22.1' λ123°-57'

GEOGRAPHIC NAMES:

The point between the mouth of the Bear River and the mouth of Barkers Slough is locally known as PORTER POINT and this name is recommended for this feature.

LIST OF PLANETABLE POSITIONS:

See attached sheet.

STATISTICS:

18.8 statute miles of shoreline.
3.5 statute miles of roads.

Respectfully submitted,

J. M. Smook, H.& G. Engr.,
Officer in Charge,
Seattle Processing Office.

For: Raymond A. Wheeler,
Jr. Geodetic Engineer.

T-6124 A 5

LIST OF RECOVERABLE PLANE TABLE POSITIONS

Name	Marked With	Photo Con. Pt.	Description
Pen	No Mark	A	Whitewash on NE corner of shed
Cow*	" "	"	NE gable red barn
Calf	" "	"	SW gable red barn
Ho	" "	"	E gable brown house
Lit	" "	"	Peak of pyramid roof os small shed
Wed	" "	"	Whitewash on SE cor. boat shed
Whit	" "	"	Whitewash on W end of concrete spillway
Dorm	" "	"	N dormer of golf clubhouse
524 Fit	B.M.		U.S.C. & G.S. B.M. #3, banner
524 Turn	B.M.		U.S.C. & G.S. B.M. #2 at sharp bend of dike, WW tripod
524 BM#1	B.M.		U.S.C. & G.S. B.M. #1
Rid	No Mark	A	WW on center of roof of wrecked shack 10 m. S of Dike
Hit	" "	"	Whitewash on SE cor. of shack
Old	" "	"	Center of wrecked shack
Bar	" "	"	N gable barn in trees
Out	" "	"	Whitewash on small square outhouse
Cor	" "	"	SW gable shed
Grin	" "	"	N gable green roof
Cab	" "	"	N. gable shack
Sun	" "	"	W end of N railing of Bridge
Mon	" "	"	E end of N railing of bridge
De	" "	"	E gable old house
At	" "		Flag on NW cor. of dock
Par	" "	A	N end of W railing of bridge

* Same as North Gable Large Red Barn (Giles) 1938

Note:

B.S. = Biological Survey
B.M. = C & G.S. B.M. – or Bronze Hydro. disk.
B.T. = Sq. brass tag 2x2 inches
A = Photo Control Pt.

	Remarks.	Decisions
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M 234

GEOGRAPHIC NAMES

Survey No. T6724 a

Name on Survey	On Chart No. A,	On previous survey No. B,	On U. S. quadrangle Maps C,	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
Tarlatt										1
~~Barkers~~ Slough			Decision		5-M-41					
Bear River										2
Giles										
~~Gill~~ Slough										3
Porter Point										4
Willapa Bay										5
Round I.										6
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Names underlined in red approved by L. Heck on 4/8/41

M 234

Form 537a
Ed. Nov. 1929

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

TOPOGRAPHIC TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. AA

REGISTER NO. T-6724b

State Washington

General locality Willapa Bay

Locality West shore Willapa Bay--W. shore Long Island

Scale 1:10,000 Date of survey May - July, 1939

Vessel Washington - Oregon Shore Party

Chief of party W. M. Scaife

Surveyed by Raymond A. Wheeler

Inked by R.A.W. - I.T.S. - WAC

Heights in feet above M.H.W. to ground

Contour, Approximate contour, Form line interval ____ feet

Instructions dated March 11, 1939.

Remarks:

GPO

SHEET T-6724 b

DETAILED DESCRIPTION:

The area covered by this sheet is the west shore of Long Island from the SW extremity to and including a prominent sand spit a little north of the center of the island and the opposite West shore of Willapa Bay. The bay in this area is very shallow and large areas are bare at low tide while the remaining part is too shallow for medium sized boats except a main channel running north and south near the center of the bay. The west shore is of low relief and wooded except for areas cleared for farming. The east shore of the area is a low (30 to 40 ft.) sandstone cliff with occasional low marshy areas. In many places the trees overhang and cover the cliff and give it the appearance of a large number of individual bluffs. None of these bluffs are distinctive from the others and therefore none have been noted for landmarks.

There are no extensive marshes on this sheet.

LANDMARKS:

Three objects are recommended for landmarks; namely HOP,* the NW corner of a sand and gravel elevator near station $HORN_2$, Add,** the chimney of a cannery on piles in midstream opposite station SNAKE and STACK,*** a steel smokestack at Willapa Oyster Company near station LIME. A number of piles near the main channel, although very useful in navigating the channel, being of semi-permanent character are not included as landmarks.

* ϕ-46°-27.5' λ-124°-00'

** ϕ-46°-26.3' λ-124°-00.5'

*** ϕ 46°-24.6' λ-124°-01'

CONTROL:

The survey was controlled by triangulation stations $SNAKE_2$, LIME, ROUND, $HIGH_2$, PINNACLE, BIGHT, BLADE and $HORN_2$ as determined by this party in 1938 and 1939 and referred to N.A. 1927 Datum. (field computations)

SURVEY METHODS:

Ordinary survey methods were used. ~~Hydrographic~~ Topographic signals were located by cuts from triangulation stations on the opposite shore. A traverse was run from station LIME to a point on the dock at Giles Slough on sheet T-6724 a, which was located by the three point method.

CLOSING ERRORS:

The traverse from station LIME south to dock at Giles Slough closed with an error of 2 meters and was adjusted.

SHEET T-6724 b

COMPARISONS WITH PREVIOUS SURVEYS:

Sheet 1341B-1873

The west shore of Willapa Bay on this sheets shows a general advance of the shore line of from 10 to 20 meters. The present shoreline follows the old grass line. This may be due to old dikes, indications of which are often seen or from natural causes. In a few places near stations BAN, TRI and $SNAKE_2$ a recession of 20 meters occurred. in marshy H.W.L.

Sheet 1342A-1873

No material changes.

Sheet 1294-1872

The shoreline between stations BIGHT and BLADE shows a general recession of 10 to 30 meters. The tip of the sand spit* at station $HORN_2$ has advanced westward about 100 meters and Northward 200 meters. The shoreline on the east shore of the bight east of the spit has advanced about 30 meters. The shoreline of the spit from station $HORN_2$ to station BIGHT shows advances of 30 meters to recessions of 20 meters.

*This is on T-1293 (1872)

Sheet 1293-1872

A comparison between stations FLAG and ROOF shows a general shoreline advance of 20 meters, except south of station SAM there is a recession of 40 meters.

Chart 6185 of July 1939

Small docks have been built near stations $HORN_2$ BET, $SNAKE_2$ and LIME. The road across Long Island near station BIGHT has been abandoned and is overgrown with brush.

GEOGRAPHICAL NAMES AS SHOWN ON CHART 6185

The spit on the west shore of Long Island is a prominent feature and is locally referred to as Jensen Point or Gravel Spit. The name Gravel Spit is applied due to gravel operations, which are of a temporary nature. The name Jensen Pt. is the older and is recommended.

The bight at station BIGHT is locally known as Smoky Hollow. Although this feature is of doubtful importance, the name Smoky Hollow is recommended.

This would seem to be the name of a land feature - possibly of the low lands bordering on the bight. H7A

Locally Pinnacle Rock is called Coon Rock; [illegible] Pt., Ross Pt.; Round Island, and Baby Island.

SHEET T-6724 b

LIST OF PLANE TABLE POSITIONS:

See attached sheet.

STATISTICS:

Shoreline--12.0 statute miles.

Respectfully submitted,

J. M. Smook, H.& G. Engr.,
Officer in Charge,
Seattle Processing Office.

For: Raymond A. Wheeler,
Jr. Geodetic Engineer.

T-6724 6 9

LIST OF RECOVERABLE PLANE TABLE POSITIONS

AA

Name	Marked With	Photo Con. Pt.	Description
Bet	No Mark	A	Center of E wall of shed on dock Whitewash between windows
MC $\frac{10s}{15s}$	B.S.		Biological Survey Disc 10" above ground
Gab	No Mark	A	East gable of house
Add *	" "	"	Brick chimney center of roof of Cannery
MC $\frac{s15}{s22}$	B.S.		on piles $\frac{1}{8}$ mile east of shore Biological Survey disc, 10" above ground
Tom	No Mark	A	E end of Barn
Coo	" "	"	E gable barn
Shed	" "	"	Whitewash on center E side of shed
Tab	" "	"	Chimney of Red house
MC $\frac{22}{27}$	B.S.		Biological Disc 10" above ground at corner of fence
Big	No Mark		Whitewash on corner of shed
Stak *	" "	A	Smoke stack of cannery
MC $\frac{27}{54}$	B.S.		Biological disc 8" above ground
Kim	No Mark		Whitewashed rock
Mit	No Mark		White spot on overhanging tree (5 feet above base
Tip	" "		Whitewash on shed
Hop	" "	A	NW cor. of Sand Elevator

* These points were located later by triangulation.

Note:

B.S. = Biological Survey
B.M. = C. & G.S. B.M. or Hydro. disk.
B.T. = Sq. brass tag
A = Photo Control Pt.

	Remarks.	Decisions
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M 234

GEOGRAPHIC NAMES

Survey No. T6724b

	Name on Survey	On Chart No. A,	On previous survey No. B,	On U. S. quadrangle Maps C,	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
1	Jensen Point										1
2	Smoky Hollow										2
3	Willapa Bay										3
4	Long I.										4
5	High Pt.										5
6	Pinnacle										6
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Names underlined in red approved by L. Heck on 2/18/41

M 234

DIVISION OF CHARTS

SURVEYS SECTION

REVIEW OF TOPOGRAPHIC SURVEY NO. 6724a and b (1939) FIELD NO. A and AA

Washington - Willapa Bay, Southern Part,
Porter Point to Jenson Point
Surveyed in May - July 1939, Scale 1:10,000
Instructions dated March 11, 1939 (W. M. Scaife)

Plane Table Survey — Aluminum Mounted

Chief of Party - W. M. Scaife
Surveyed by - R. A. Wheeler
Inked by - R.A.W., I.T.S., W.A.C.
Reviewed by - H. F. Stegman, April 1, 1941
Inspected by - H. R. Edmonston

1. Junctions with Contemporary Topographic Surveys

   a. The junctions of T-6724a (1939) with T-6724b (1939) on the northwest and T-6725a (1939) on the northeast are satisfactory.

   b. The junctions of T-6724b (1939) on the south with T-6724a (1939) and T-6725a (1939) and on the north with T-6727a (1939) are satisfactory.

2. Comparison with Prior Surveys

   a. H-334 (1852) and H-498 (1855); scales 1:221,360 and 1:18,818

      H-334 is a reconnaissance survey on a very small scale, showing the shoreline outline of Willapa Bay. H-498 contains topography covering the entire area of the present survey. Minor changes have occurred in the low lying shoreline on the west side of Willapa Bay. At the southern end of the bay in Lat. 46° 22.7', Long. 123° 59' the shoreline has advanced about 150 meters, and the mouths of Barker's Slough and Bear River have advanced 400 to 800 meters. The present survey supersedes these early surveys.

   b. T-1293 (1872), T-1294 (1872), T-1341b (1873) and T-1342a (1873); scale 1:10,000

      These surveys taken together cover the entire area of the present survey. Minor changes have occurred in the east and west shorelines of Willapa Bay. At the head of the bay in Lat. 46° 22.5' a marked

advance in the shoreline has taken place. This advance is a maximum of about 800 meters at the mouth of Barker's Slough, principally due to the construction of dikes, and about 400 meters at the mouth of Bear River. Other changes are noted in detail in the Descriptive Report.

3. Comparison with Chart 6185 (Latest Print dated 5-9-40)

a. Topography

Topography shown on the chart originates principally with surveys discussed in preceding paragraphs. The pier charted in Lat. 46° 23.5', Long. 124° 01' is from H-2103 (1891). The Descriptive Report, page 3, states that this pier no longer exists.

b. Aids to Navigation

No aids to navigation are shown on T-6724a and b (1939). Charted buoys within the area of this survey were considered in the review of H-6515 (1939).

c. Magnetic Meridians

The magnetic meridians were determined at two points. A tabulation of the values with the instrumental corrections which were applied, is given in the Descriptive Report, page 37.

4. Condition of Survey

a. The inking of topographic details is satisfactory.

b. The Descriptive Report is clear and comprehensive and satisfactorily covers all matters of importance.

5. Compliance with Instructions for the Project

The plan, character and extent of the survey satisfy the instructions for the project.

6. Additional Field Work Recommended

This survey is satisfactory, and no additional field work is required.

7. Superseded Surveys

H- 334	(1852)	In part, topography only
H- 498	(1855)	" " " "
T-1293	(1872)	" "
T-1294	(1872)	" "
T-1341b	(1873)	" "
T-1342a	(1873)	" "

Examined and approved:

Thos. B. Reed,
Chief, Surveys Section

Chief, Division of Charts

Chief, Section of Hydrography

Chief, Division of Coastal Surveys

applied to new compilation of chart 6185. May 27, 1941
G.H.S.

Form 537a
Ed. Nov. 1929

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

TOPOGRAPHIC TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. B

REGISTER NO. T-6725a T-6725a

State Washington

General locality Willapa Bay

Locality Round Id. to Sunshine Point

Scale 1:10,000 Date of survey May - July, 1939

Vessel Washington - Oregon Shore Party

Chief of party W. M. Scaife

Surveyed by Raymond A. Wheeler

Inked by R.A.W. - I.T.S. - PMF

Heights in feet above M.H.W. to ground ~~to tops of trees~~

Contour, Approximate contour, Form line interval ____ feet

Instructions dated March 11, 1939

Remarks:

GPO

SHEET T-6725 a

DETAILED DESCRIPTION:

The area covered by this sheet extends from Round Island on the south to Sunshine Pt. on the north and to the 101 Highway Bridge over the Naselle River on the east. This area is bare at low water except a split channel through Long Island Slough, and the Naselle river channel. The tide flats are composed of deep mud. A heavily wooded Pennisula varying from $\frac{1}{4}$ to $\frac{1}{2}$ mile in width and extending 2 miles due north separates the mouth of the Naselle River from Long Island Slough. The south shore of Long Island is marked by two distinct bare cliffs, one at the south ~~east~~ west extremity of the island, and another about a $\frac{1}{2}$ mile to the east, the intermediate ground is open fields. The east shore of Long Island has two distinct cliffs at triangulation stations, Dock* and Cliff.** The shore between stations Dock and Cliff is mainly cliffs but since they are heavily overgrown with brush and trees they are not outstanding. South of the cliff at station Dock and north of cliff at station Cliff are large areas of marsh. Except for a small marsh just east of the small rocky ledge at station Rocket, the remainder of the east shore of Long Island on this sheet is a heavily wooded steep bank. The east shore of the mainland from a point east of Round Island to the south end of the pennisula is composed of fairly steep ridges, except for a small marsh near station Ship. Road-cuts of highway 101 through these ridges give the appearance of a series of cliffs. The east and west shore of the pennisula is fairly steep with occasional bare cliffs showing through the trees. At the north tip of the pennisula there is a large area of marsh. There is a small area of marsh at the south end of the east shore of the penninsula. Thence to the Naselle River Bridge the shore is marked by road cuts at the toe of a 1000 foot ridge running north and south. The shore on the east side of Naselle River from Sunshine Pt. to a slough (clear water creek) at station West, about $\frac{1}{2}$ way to the Naselle River Bridge is steep and is the toe of a 600 foot ridge running east and west. The remaining shore to the Naselle River Bridge is an extensive marsh with an indefinite grass line.

* φ 46-25.4 λ 123-56'
** φ 46-26.4 λ 123-56.6
φ 46-27.1 λ 123-56.9
φ 46-24.1 λ 123-56.4
Top.

Extensive deep mud flats make it almost impossible to land from even a small row boat over most of this area, except at high tide. There are three docks for small boats in this area. A small dock* and float (dry at extreme low water) on the mainland due east of the SE end of Long Island; a small dock on the south side of the river ~~shore~~ $\frac{1}{2}$ mile west of the Naselle Bridge and a dock and three large floats just west of the Naselle Bridge. Landings can be made at low tide on hard sand on the south side of the extreme SE corner of Long Island.

* φ 46° 25' λ 123° 56'

SHEET T-6725 a

A landing can be made at the cliffs at stations Dock and Cliff at about half tide. Landings can be made at almost low tide near station Ged on Long Island at the north end of the sheet. Landings can be made at any tide at Sunshine Point. Landings can be made at half tide at many places along the east shore of the peninsula, especially near signal Scot where a landing may be made at low tide.

φ 46°-27'
λ 123°-55.3

A long dike has been built on the marsh north of station Cliff and has reclaimed for pasture a considerable area of marsh although a break in the dike near station Hide has reduced its effectiveness and allows a large part to be flooded at extreme high water.

LANDMARKS:

The following are suggested for land marks Chim, Cor, Bear, Bait*, West and Draw. Although Bait* is clearly seen from the west, a group of trees impares its visability as seen from the south. Although many piles are useful for locating the channels they have not been listed as landmarks due to their semi-permanence.

signal No. Bait on T6725a. This must be signal Bait φ 46°27.7 λ 123°-55.4

BRIDGES:

The Naselle River Bridge on U. S. Highway 101, is a steel truss swinging span bridge, 7.5 meters wide, 112 meters long, with a horizontal clearance of 50 meters and vertical clearance of 19.5 feet above M.L.W. (closed) A pile trestle 150 meters long on the south and a pile trestle 400 meters long to the north connects the main part of the bridge to the shore.

USE bridge list gives Hor. Clearance of 115 ft and vert clearance of 19 ft MLLW

CONTROL:

The survey of this sheet was controlled by triangulation stations Round, High$_2$, Claim$_2$, Penn, Dock, Cliff, Rocket, Bend, Cove, Spar, Land, Flat and Brid located by this party in 1938 and 39. And referred to NA 1927 Datum.

SURVEY METHODS:

Ordinary survey methods were used. Graphic triangulation and the three point problem were used extensively.

CLOSING ERRORS:

No traverses were necessary.

SHEET T-6725 a

COMPARISON WITH PREVIOUS SURVEYS:

Sheet 1342A-1873

The southeast shoreline has been slightly changed due, in large part, by the grading for the roadbed of U.S. Highway 101. The area east of the spit 300 meters north of station Woe* is gradually filling and the numerous additional grassy islets to the north show a strong tendency to fill the bight from station Woe to station Oar.

Extensive deposition on the west shore of Long Island Slough north of station Claim$_2$ has extended the shoreline 100 to 400 meters to the eastward.

Sheet 1294-1872

The swampy areas south of station Rocket at the tips of the peninsula has been diked and drained and are now firm land partly covered at higher high tides. The cliffs south of station Cliff have sloughed, advancing the shoreline from zero to 20 meters. There are no other material changes.

There are no previous surveys for the Naselle River.

Chart 6185 of July 1939

The dock shown 600 meters east High Pt. no longer exists. Old piles of the dock have been completely removed.

There are additional docks near stations New, Abe, Ark and Brid.

A swinging draw bridge has been built over the Naselle River near station Brid.

U. S. Highway 101 has been built along the northwest shore of the mainland.

GEOGRAPHIC NAMES AS SHOWN ON CHART 6185

The point 1000 meters north east of Round Island is a prominent feature and is locally known as Omera Pt. This name is recommended.

The slough near station Rocket is locally known as Baldwin Slough and this name is recommended.

SHEET T-6725 a

The point opposite Sunshine is locally called Paradise Pt. and this name is recommended.

The old sawmill settlement of Sunshine has been abandoned and destroyed. The point is locally known as Sunshine Point. It is recommended that Sunshine be changed to Sunshine Point.

The peninsula between Long Island Slough and the mouth of the Naselle River is a prominent feature. The north tip of the peninsula is locally known as Stanley Point and it is recommended that the peninsula be named Stanley Peninsula.

4, Page 6 See Descriptive Report for Hydrographic Sheet H-6515 for recommendation for CHETLO HARBOR. Name accepted.

LIST OF PLANE TABLE POSITIONS:

See attached sheet.

STATISTICS:

26.4 statute miles of shoreline.
4.1 miles of roads.

Respectfully submitted,

J. M. Smook, H.& G. Engr.,
Officer in Charge,
Seattle Processing Office.

For: Raymond A. Wheeler,
Jr. Geodetic Engineer.

LIST OF RECOVERABLE PLANE TABLE POSITIONS

Name	Marked With	Photo Con. Pt.	
Ged	B.M.		Hydro disc, Whitewashed slats
Neek	No Mark	A	Whitewashed dolphin
Bush	" "	A	Center of N end of shed, White door
Tree	B.T.		Blazed spruce tree with stamped Brass tag
War	B.M.		Whitewashed small rocky bluff, Hydro disc
~~Chan~~ Tun	No Mark	A	Chimney in center square house
Hunt	" "	"	SE gable barn
W	B.M.		Hydro disc in concret wall, Whitewashed "W
Cor	No Mark	A	NE cor. white gas station
New	" "	A	W gable shed on dock
Bear	" "	A	SW gable cannery
Lior	~~No~~ B.S.		Biological disc
Dol	No Mark	A	Dolphin
Box	B.M.		Hydro disc in pipe, Whitewashed box
Up	B.M.		Hydro disc in pipe, Whitewashed slats
Mule	No Mark	A	Whitewashed NE cor. shed
Runt	" "	A	East Gable of shed
Roy	B.M.		Hydro disc in pipe, SC on poles
Dab	No Mark	A	West End N railing Bridge
Wan	No Mark	A	East end N railing Bridge
MP#86	" "	A	Milepost
Ark	" "	A	NE corn. shed on dock
Draw	" "	A	Red light on center of Draw Bridge
Last	" "	A	N end E railing Naselle River Bridge
West	" "	A	Door at center W end house
Wu	" "	A	Flag on Dolphin
Bart	" "	A	N gable large bunk house *Signal Bart on Survey T-6725a*
Pt	B.M.		Whitewashed foundation pier, Hydro disc stamped Pt 1939

Note:

B.S. = Biological Survey
B.M. = C. & G.S. B.M. - or Hydro. disk
B.T. = Sq. brass tag - 2X2 inches sq.
A = Photo Control

	Remarks	Decisions
1		464239
2	See also T6726a.	464239
3		"
4		464239
5		"
6		"
7	USGB (6th Report) = Nasel: do not int pending possible revision by Board of its earlier decision.	"
8		"
9		"
10		
11		463239
12		464239
13		"
14		464239
15		"
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M 234

GEOGRAPHIC NAMES

Survey No. T-8725 a

Name on Survey	On Chart No. A,	On previous survey No. B,	On U. S. quadrangle Maps C,	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
Baldwin Slough										1
Chetlo Harbor										2
Clearwater Creek										3
High Point										4
Long Island										5
Long Island Slough										6
Naselle River			Decision 5-14-41							7
Omeara Point										8
Paradise Point										9
Pebble Island										10
Round Island										11
Stanley Peninsula										12
Stanley Point										13
Sunshine Point										14
Teal Creek										15
										16
		L Heck	m 2/18/41							17
										18
										19
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										24
										25
										26
										27

M 234

Form 537a
Ed. Nov. 1929

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

TOPOGRAPHIC TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. BB

REGISTER NO. T-6725b T-6725b

State Washington

General locality Willapa Bay

Locality Naselle River

Scale 1:10,000 Date of survey May - July, 1939

Vessel Washington - Oregon Shore Party

Chief of party W. M. Scaife

Surveyed by Raymond A. Wheeler

Inked by R.A.W. - I.T.S. - PMF

Heights in feet above M.H.W. to ground to tops of trees

Contour, Approximate contour, Form line interval ____ feet

Instructions dated March 11, 1939, 19__

Remarks:

GPO

SHEET T-6725 b

DETAILED DESCRIPTION:

The area covered by this sheet is the Naselle River from U. S. Highway 101 bridge to the county bridge near the Naselle P. O. The river flows between heavily wooded hills varying from 100 feet to a 1000 feet in elevation. Although the toe of the hills approach the shoreline near the main Naselle Bridge, in general, there are extensive swampy grounds on banks. Two small low (100 ft.) hills near station Amid, φ-46°-25' λ-123°-51.6 on the left bank of the River are prominent topographic features. At a point about 5 miles southeast of the main bridge the river winds in sharp curves through a heavily wooded swampy area. Two good highways U. S. 101 and 830 are on the right bank. On the left shore a good county dirt highway runs from the main bridge to a point near triangulation station Omar?* Another fair county dirt road runs from the Naselle Post Office, to a point about 2½ miles NW of the post office. * φ-46°-24.6 λ-123°-51.2 φ-46°-22' λ-123°-48.6

On the right bank of the river there are two extensive grassy marshes, one south of station Q62 and the other at station Dike. The latter has been largely reclaimed for pasture by a dike. On the left shore there are extensive flats from station Flag to station Don at souteast corner of the main sheet. A large part of this marsh has been reclaimed for farming by the use of dikes.

There are wide tideflats on the left shore near the main bridge and on the right shore from station Geam to Earn. From station Earn south the river channel becomes very narrow at low tide. There are hundreds of old rotten piles in this area. These piles are the remains of old logging operations. As seen from a distance these piles appear to be in hopeless disorder, however on closer approach it will be noted they are almost entirely on the left tide flat and the outer ones form a slightly curving line which approximately follows the left side of the channel. At the lower end of the piles- opposite station The the channel cuts sharply through the piling.

LANDMARKS:

Flag, Tran, Boat and Big are recommended for land marks. Flag is the center or highest point in a sharply arched trestle bridge ~~and therefore~~ but is not a sharp point and consequently an observation from the water might be in error by 5 or 6 meters. However since this bridge can be identified for long distances and is fairly definite it is recommended for a landmark.

SHEET T-6725 b

CONTROL:

The control for this sheet is provided by triangulation stations Brid, Fork, Q62 (U.S.E.), Road, Dyke and Oman as located and referred to NA 1927 Datum by this party, and R-62, S62 (U.S.E.) and T62 (U.S.E.) located by traverse by U. S. Engineers in 1936 and referred to their coordinates. In order to adjust their coordinates to our coordinates the following tabulation was made.

Sta.	Latitude USC & GS	USE	Diff.	Longitude USC & GS	USE	Diff.
K62	46 33 01.609	01.729	+0.120	123 53 37.676	37.587	-0.089
L62	46 31 14.136	14.246	+0.110	123 53 12.185	12.067	-0.118
Q62	46 25 53.028	53.154	+0.126	123 51 54.641	54.535	-0.106

see attached sheet for final tabulation of above.

This tabulation shows U.S.E. coordinates to be greater by 0.110 to 0.126 second in latitude and less by 0.089 to 0.118 seconds in longitude. The variation in difference of latitude equals 0.016 seconds or 0.48 meters and for longitude 0.039 seconds or 0.83 meters. The USC&GS coordinates of S62 and S72 were obtained by adjusting the U. S. E. coordinates by the differences as found at Q62, which is the nearest common station.

Final values for R-62 S-62 T-62 given on page 20 of this report.

SURVEY METHODS:

Ordinary survey methods were used. Graphic triangulation was used extensively. A traverse was run from Station Big, which was located by cuts from Stations Rest and Don, to Stations S62 (U. S. E.), thence along Highway U. S. 830 to Station T62 (U. S. E.). Another traverse was run from Station Don, up the Naselle River to the county bridge near Naselle PostOffice, thence along a country road to Station Pow, a point on the first traverse 400 meters west of Station T62(U. S. E.).

CLOSING ERRORS:

The traverse from Big to T62 (U. S. E.) closed on S62 (U. S. E.) with no measureable error and on T62 (U.S.E.) with an error of 8 meters in a distance of two miles. Points along the traverse, including Pow, were adjusted proportionally. The traverse from Don to Pow, 3½ miles, closed on the

SHEET T - 6725 b

DETAILED DESCRIPTION

adjusted position of station Pow with an error of 8 meters. Since Big was located from Don and since traverse Big to S62 needed no adjustment, the position of Don was assumed to be correct. The traverse Don to Pow was adjusted in the usual manner.

GEOGRAPHIC NAMES

Geographic names as shown on Chart 6185 dated July 1939.

According to the post-mistress at the Naselle post-office, a petition was sent to Washington D.C., about 2 years ago, requesting that the name "Nasel" be changed to "Naselle". This petition was approved. The post office, the State fish hatchery, road signs, and road maps used spell the name "Naselle". It is recommended that the name on the chart be changed to "Naselle" River.

COMPARISON WITH PREVIOUS SURVEYS

No previous survey sheets for a comparison were available.

The source of the portion of Chart 6185 covered by this sheet is not known. A comparison with the chart was not made.

List of Plane Table positiohs, see attached sheet.

STATISTICS - 8.8 statute miles of roads
20.4 " " of shoreline.

Respectfully submitted,

J. M. Smook, H.& G. Engr.,
Officer in Charge,
Seattle Processing Office.

For: Raymond A. Wheeler,
Jr. Geodetic Engineer.

T-6725 b
18

LIST OF RECOVERABLE PLANE TABLE POSITIONS

BB

Name	Marked With	Photo Con. Pt.	Description
Last	No Mark	A	N end of E railing of Bridge
MP85.19	" "	A	milepost
Big	" "		door of shack
Tack	" "	A	Center gravel bin
Axe	" "	A	S Gab. shed
Tall	" "	A	Center of Road sign at Fork of roads 101 & 830
For	" "	A	W end of S rail of bridge
Sor	" "	A	E end of S rail of bridge
~~Pow~~ GRE	" "	A	Center of transformer station
Tow	" "		Center of power line tower
Gean	B.T.	A	Leaning pile with brass tag
May	B.T.		SC. on pile, brass tag
The	No Mark	A	Flag on West gable house.
Big	B.T.	A	Spar tree at small landing marked with B.T.
Don	B.M.		SC. in tree, hydro disc in pipe
Boat	No Mark	A	NE gable red barn
New	" "	A	N dormer of house with red roof
Old	" "	A	NE gable house
Bed	" "	A	W end of N railing of Bridge
Golf	" "	"	N gable house
Club	" "	A	SC. on E. end of shed
Amid	B.M.		Whitewashed slats, hydro disc in pipe
Spit	" "	A	Whitewash on shed
Ned	" "	A	W end N rail of bridge
Tran	B.T.	A	Center of power line tower in midstream
Peg	No Mark	A	East end N railing of bridge
Flag	~~No Mark~~ B.T.		Flag at center of N railing, B.T.
Leg	" "	A	W end N railing of bridge
Nit	" "	A	E end of N railing of bridge
Wit	" "	A	West end of N railing of bridge
Black	" "	A	Dolphin at east end of row from center of bridge

Note:

B.S. = Biological Survey
B.M. = C. & G.S. B.M. or Bronze Hydro. Station Mark
B.T. = Sq. brass tag-2" x 2"
A = Photo control

NF A

T-6723D 19

INSERT BB

LIST OF RECOVERABLE PLANE TABLE POSITIONS

Name	Marked With	Photo Con. Pt.	Description
Pig	No Mark	A	S gable white house
Ran	" "	A	S gable barn
Doe	" "	A	S gable barn
Jon	" "	A	W dormer white house
Yel	B.M.		Whitewashed slats & Hydro disc in pipe
Tel	B.T.	A	1st power pole on E bank, marked with B.T.
Dirt	No Mark	A	W gable red barn
Chap	" "	A	W gable white house
Dog	" "	A	N end of W rail of bridge
Bob	" "	A	W dormer of White house
Make	" "	A	Whitewashed center of steel truss on W side of upper Naselle River bridge
Wod	" "	A	S end of W rail of upper Nasell River bridge
Po	" "	A	SE gable of Naselle Post Office
Two	B.T.		Whitewashed piles with brass tag
~~Pet~~ HELL	B.T.	A	Prominent spar tree marked with B.T.
Bat	No Mark	A	E gable of barn
Sue	" "	A	N gable white house
Ham	" "	A	W gable red house
Fir	" "	A	N gable yellow house
Spur	" "	A	NW gable red house
Blue	" "	A	N gable white house
Pet	" "	A	S gable shingle house
Shin	" "	A	NE gable house
Kay	B.M.		Flag, Hydro disc in pipe
Gas	No Mark	A	Gas pump on S side of highway
MP62	" "	A	Milepost
Beg	" "	A	W end of S railing of bridge
Sin	" "	A	Sign at fork of road
Hatch	" "	A	Arch over road
T62	B.M.		U.S.C. & G.S. B.M.
S62	B.M.		U.S.C. & G.S. B.M.
MP63	No Mark	A	Milepost

Note:

B.S. = Biological Survey
B.M. = C. & G.S. B.M. or Hydro. Mark
B.T. = Sq. brass tag-2x2 inches sq.
A = Photo control

14B

T-6725b

The following stations of the 29th Engineer Traverse were used for Topo. control on the Naselle River and were adjusted to the datum of the 1939 field computations by the differences as obtained at station BM Q 62. These stations are shown on sheet T-6725b by blue triangles.

Station	Latitude Longitude	from USE photostats dm dp	correction (meters)	As plotted on T-6725b. dm dp
M C S No. 6	46 24	1421.0	-4.5	1416.5
BM R 62	123 50	626.0	2.1	628.1
M C S No. 5	46 23	567.0	-4.5	562.5
BM S 62	123 49	524.8	2.1	526.9
M C S No. 4	46 22	1115.0	-4.5	1110.5
BM T 62	123 47	927.7	2.1	929.8

THE FOLLOWING STATIONS OF THE 29th TOPOGRAPHICAL BATTALION'S TRAVERSE WERE TIED IN BY THE 1939 TRIANGULATION ON WILLAPA BAY, WASHINGTON AND THE DIFFERENCES IN POSITION ARE AS SHOWN BELOW, BASED ON THE 1939 FIELD COMPUTATIONS:

Station	latitude longitude	from USE photostats dm dp	1939 triang. dm dp	difference (meters)
M C S No. 1	46 40	1849.5	1848.2	-1.3
WI-1 (USE)	123 45	176.0	178.0	2.0
Bruce 2 1922	46 40	1333.4	1330.4	-3.0
	123 54	1101.5	1103.7	2.2
M C S No. 16	46 39	1836.0	1833.0	-3.0
SB 2	123 55	83.5	85.3	1.8
M C S No. 11	46 31	440.0	436.5	-3.5
BM L 62	123 53	257.2	259.5	2.3
M C S No. 12	46 33	53.1	49.7	-3.4
BM K 62	123 53	800.7	802.4	1.7
M C S No. 7	46 25	1641.2	1636.7	-4.5
BM Q 62	123 51	1164.3	1166.4	2.1

For the stations used to control the Topographic Survey east of Raymond, Washington, the corrections for station WI-1 (USE) were applied to the stations on the traverse, and for the stations used to control the Topographic Survey on the Naselle River, the corrections for station BM Q 62 were applied to the stations on the traverse.

Positions of WI-1 (USE) and Bruce 2 are shown as computed originally in field. Re-computation at end of field season changed the positions used on topographic sheets by small amounts. C.J.W.

	Remarks	Decisions
1		464238
2	See T672SA: Do not ink Pending Board Revision.	4664239
3		O.K.
4		44238
5		464238
6	Do not ink pending Board revision	463258 USGB
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M 234

GEOGRAPHIC NAMES

Survey No. T6725b

Name on Survey	On Chart No. A,	On previous survey No. B,	On U. S. quadrangle Maps C,	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
Ellsworth Slough Creek										1
Naselle River			Decision			5/14/41				2
Pacific County										3
Roaring Creek Slough										4
Smith Creek										5
Naselle (village			Decision			5/14/41				6
										7
										8
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										27

Names underlined in red approved by L. Heck on 2/18/41

M 234

DIVISION OF CHARTS

SURVEYS SECTION

REVIEW OF TOPOGRAPHIC SURVEY NO. 6725a and b (1939) FIELD NO. B and BB

Washington - Willapa Bay, Round Island
to Sunshine Point, and Naselle River
Surveyed in May - July 1939, Scale 1:10,000
Instructions dated March 11, 1939 (W.M.Scaife)

Plane Table Survey — Aluminum Mounted

Chief of Party - W. M. Scaife
Surveyed by - Raymond A. Wheeler
Inked by - R.A.W., I.T.S., P.M.F.
Reviewed by - H. F. Stegman, March 26, 1941
Inspected by - H. R. Edmonston

1. Junctions with Contemporary Topographic Surveys

   a. The junctions of T-6725a with T-6724a and b (1939) on the south and T-6726a (1939) on the north are satisfactory.

   b. The junction of T-6725b (1939) with T-6725a (1939) on the north is satisfactory.

2. Comparison with Prior Surveys

   a. H-334 (1852) and H-498 (1855); scales 1:221,360 and 1:18,818

      H-334 is a small scale reconnaissance survey showing the shoreline of Willapa Bay in the area of the present survey. H-498 contains topography covering the area of the present survey west of Longitude 123° 55.5'. Extensive changes have taken place in the low marshy areas along both sides of Long Island Slough. The present survey supersedes these early surveys.

   b. T-1294 (1872) and T-1342a (1873); scale 1:10,000

      These two surveys taken together cover the area of the present survey except for the upper portion of the Naselle River south and east of Lat. 46° 27', Long. 123° 55'.

      The present survey shows an advance in the shoreline of the low marshy areas of Long Island Slough

due to a gradual building up of the tidal flats. At the southeastern end of Long Island, in Lat. 46° 25', Long. 123° 56' the shoreline has advanced a maximum of 400 meters. Other changes are noted in the Descriptive Report, page 12.

c. H-2103 (1891); scale 1:20,000

This hydrographic survey contains shoreline covering the area of T-6725a and b (1939) in the Naselle River from Lat. 46° 27', Long. 123° 55' to Lat. 46° 25', Long. 123° 52'. The shoreline on H-2103 is largely sketched but is in good agreement with the present survey except at the mouths of creeks and sloughs. The present survey supersedes this survey.

3. Comparison with Chart 6185 (Latest Print dated 5-9-40)

a. Topography

Topography shown on the chart originates principally with surveys discussed in the preceding paragraphs except for the shoreline of the Naselle River and its tributaries east of Long. 123° 54'. There are no prior surveys by the U. S. Coast and Geodetic Survey in this area, and the source of the charted shoreline could not be readily ascertained.

b. Aids to Navigation

There are no charted aids to navigation within the area of T-6725a and b (1939). A light (not charted) was located on the Naselle River bridge in Lat. 46° 25.8', Long. 123° 54.2'.

c. Magnetic Meridians

The magnetic meridians were determined at three stations. The values obtained, together with the instrumental corrections which were applied, are given in the Descriptive Report, page 37.

4. Condition of Survey

a. The inking of topographic details is satisfactory.

b. The Descriptive Report is clear and comprehensive and satisfactorily covers all matters of importance.

5. Compliance with Instructions for the Project

The plan, character and extent of the survey satisfy the instructions for the project. However, it would have been advantageous to have noted the clearance of the power line crossing the Naselle River in Lat. 46° 25.5', Long. 123° 52.5'.

6. Additional Field Work Recommended

This survey is satisfactory and no additional field work is required.

7. Superseded Surveys

H- 334	(1852)	In part, topography only
H- 498	(1855)	" " , " "
T-1294	(1872)	" "
T-1342a	(1873)	" "
H-2103	(1891)	" " , topography only

Examined and approved:

Thos. B. Reed,
Chief, Surveys Section

Chief, Division of Charts

Chief, Section of Hydrography

Chief, Division of Coastal Surveys

Applied to new compilation of chart 6185 May 27, 1941 g.K.S.

Form 537a
Ed. Nov. 1929

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

TOPOGRAPHIC TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. C

REGISTER NO. T-6726a T-6726a

State Washington

General locality Willapa Bay

Locality Needle Pt. to Sunshine Pt.,

Scale 1:10,000 Date of survey May - July, 1939

Vessel Washington - Oregon Shore Party

Chief of party W. M. Scaife

Surveyed by Raymond A. Wheeler

Inked by R.A.W. - I.T.S. - W.A.C.

Heights in feet above M.H.W. to ground ~~xxxxxxxxxxxxxx~~

Contour, Approximate contour, Form line interval _____ feet

Instructions dated March 11, 1939, 19____

Remarks: _____

0 F 0

SHEET T-6726 a

DETAILED DESCRIPTION

The area covered by this sheet extends from Needle point along the East shore of Stanley Channel of Willapa Bay, south to a point 300 meters north of Sunshine Pt. and from Diamond Point on the North end of long Island along the northeast shore to station BEND nearly opposite Sunshine Point. The shore in general, has low relief with small heavily wooded hills varying from 100 to 200 feet in elevation, except in the southeastern portion, which has a steep ridge about 600 feet in elevation. There are bare cliffs 40 ft. high on the east shore extending from Needle Point 400 meters south and at station "B". At high water there is 3 to 4 foot of water at the base of these cliffs. Immediately south of the cliff at station "B" is an extensive marsh area. The west shore is mainly marshy ground except for tree covered bluffs near signal BLUFF and BEND. Large rocks are strewn along the shore between stations ROCK and TOP and on opposite shore at station BEND.

The water area is largely bare at low tide. The channel roughly parallels the west shore. The beach on the east shore is quite sandy and provides good walking. The west shore however, except at BEND and BLUFF is deep mud and walking along the shore is very difficult and it is almost impossible to land from a boat at any, except, high tide.

LANDMARKS

No landmarks are recommended for this area.

CONTROL

This survey is controlled by triangulation stations LONG 2, BLUFF, BEND, TRAP, ROCK and NEEDLE 2 as located by this party in 1939 and referred to N.A. 1927 Datum. (field computations)

SURVEY METHODS

Ordinary Survey methods were used, graphic triangulation and the 3 point problem were used extensively.

CLOSING ERRORS

No traverses were run.

COMPARISON WITH PREVIOUS SURVEYS.

Sheet 1294 - 1872

The cliffs at stations NEEDLE 2 and "B" have receded 10 meters. Between these cliffs the shoreline has advanced an average of 20 meters. The mouth of the creek south of the

cliffs at station "B" has built up advancing the high water line 50 meters. The remainder of the east shore shows no material change.

There are no material changes between stations LONG 2 and BIS. The changes between stations BIS and BEND are due, primarily, to showing the limits of vegetation by a light line as per instructions in Field Memorandum No. 1 (1938). Since the heads of these sloughs were not navigable they were not surveyed.

GEOGRAPHIC NAMES

The point at station NEEDLE 2 is locally called Needle Point and this name is recommended.

The creek 1 mile south of station NEEDLE 2 is locally called Clearwater Creek and this name is recommended.

The two sloughs south of the north end of Long Island are locally known as Lewis Slough and Kaffee Slough and these names are recommended.

STATISTICS

9.5 statute miles of shoreline.

LIST OF PLANE TABLE POSITIONS

See attached sheet.

Respectfully submitted,

J. M. Smook, H.& G. Engr.,
Officer in Charge,
Seattle Processing Office.

For: Raymond A. Wheeler,
Jr. Geodetic Engineer.

T-6726a

24

C

LIST OF RECOVERABLE PLANE TABLE STATIONS

Name	Marked With	Photo Con. Pt.	Description
Stump	No Mark	A	Large humped stump on tide flat 1 mile east N end of Long Id.
Gage	" "	"	3 pile dolphin
"W"	" "		White wash "W" on rock

Note:

B.S. = Biological Survey
B.M. = C. & G.S. B.M. or Hydro Mark
B.T. = Sq. Brass tag-2x2 inches sq
A = Photo Control

	Remarks.	Decisions
1	See also T6725a	464239
2		"
3		"
4		"
5		464239
6		465 239
7		
8		U.S.G.B
9	Used in title: see T6725a	465239
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GEOGRAPHIC NAMES

Survey No. T8726a

Name on Survey	On Chart No. A	On previous survey No. B	On U. S. quadrangle Maps C	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
Clearwater Creek										1
Diamond Point										2
Kaffee Slough										3
Lewis Slough										4
Long Island										5
Needle Point										6
Stanley Channel										7
Willapa Bay										8
Sunshine Pt										9
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Names underlined in red approved by L. Heck on 2/18/41

M 234

Form 537a
Ed. Nov. 1929

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

TOPOGRAPHIC TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. CC

REGISTER NO. T-6726b T6726b

State Washington

General locality Willapa Bay

Locality East shore of Willapa Bay

Scale 1:10,000 Date of survey May - July, 1939

Vessel Washington - Oregon Shore Party

Chief of party W. M. Scaife

Surveyed by Raymond A. Wheeler

Inked by R.A.W. - I.T.S. - WAC

Heights in feet above M.H.W. to ground

Contour, Approximate contour, Form line interval ____ feet

Instructions dated March 11, 1939, 19

Remarks:

GPO

Sheet T-6726 b

DETAILED DESCRIPTION:

The area covered by this sheet is the east shore of Willapa Bay near the mouth of the Nemah River. The shore is composed of low, heavily wooded, hills, formilg 30 to 40 foot cliffs (sandstone) at the shoreline, except at the mouth of the Nemah River, where there are extensive areas of swampy ground.

The water area is mainly bare at low tide. The tide flats extend from two to three miles offshore. The tide flats near the mouth of the river are mainly mud but gradually become more sandy to the north. From station Dol north, φ 46°-34.5 λ the flats are mostly sand. A series of day beacons mark the channel of the Nemah River through the upper end of the flats. At day beacon (sig. Fish) marked 22 on one side and 18 on east side, the main channel splits, one part leading to North Nemah River and the other leading to the North Nemah River. These two channels are not marked.

A low dike near the New Washington Oyster Cannery reclaims a large area of swamp land for farming. A new county road is being constructed as indicated in pencil, west of the New Washington Oyster Co. φ 46°-30' λ 123°-54'

US Highway 101 crosses the flat near the mouth of the North Nemah River on a fill, and construction of the new section of this highway here is in progress. From observation by C. J. Wagner in travelling this highway, and as the new highway parallels the old, the new section is indicated in pencil,* and the old is not inked on the sheet. In case the new location is not received from the State Highway Dept. in time for a new edition of the chart, the pencilled part on the sheet is believed sufficiently accurate for charting purposes.

* New location inked with dashed line.

LANDMARKS:

Submitted separately on form 567.

CONTROL:

Triangulation stations from the 1939 scheme of triangulation executed by this party furnished the control for the survey, ~~supplemented~~ and the stations are on the N.A. 1927 datum, through the 1939 field comp.

SURVEY METHODS:

Standard survey methods were used.

CLOSING ERRORS

A traverse was run from the New Washington Oyster Co. west along the south fork of the Nemah River to the county bridge, thence east ½ mile along the road to branch road leading back to the New Washington Oyster Company. This error of closure was 2 meters and the traverse was adjusted proportionally.

COMPARISON WITH PREVIOUS SURVEYS

Sheet 1292 - 1872

The cliffs along the shore between stations COUGAR 2 and ~~CRAB~~ can show marked recession especially near station COUGAR 2 where the cliffs have receded ~~as~~ as much as 50 meters. These cliffs are composed of poorly cemented sandstone, and the process of erosion is clearly in evidence at the present time. Huge masses have broken from and are now crumbling at the base of these cliffs.

Sheet 1294 - 1872

The cliffs between stations CAN and CAPE show a small recession of zero to 20 meters. The swamp at the mouth of the North Fork of the Nemah River has been reclaimed for pasture by dikes and drainage. The shoreline has receded 10 meters between stations WAT and ARE and advanced 20 meters at station ~~KOW~~ Law. The tide flat at the mouth of the main river has built up slightly and now shows a definite highwater grass line. The south Fork of the Nemah River has changed its course due to natural causes and a dike built along the right bank of the river. The swampy area behind the dike is now farming area.

The shoreline between stations NEEDLE 2 and BIRD has receded zero to 20meters.

GEOGRAPHIC NAMES

The point 800 meters east of station NEEDLE 2 is locally called Lynn Point and this name is recommended

The sharp point at station COUGAR 2 is locally known as Ramsey Point and this name is recommended.

STATISTICS

13.0 statute miles of shore line
4.6 " " " road

LIST OF PLANE TABLE POSITIONS

See attached sheet.

Respectfully submitted,

J. M. Smook, H.& G. Engineer,
in charge Seattle Proc. Office.
For Raymond A. Wheeler, Jr.Geod.Eng.

T-6726b

27

LIST OF RECOVERABLE PLANE TABLE STATIONS

CC

Name	Marked With	Photo Con. Pt.	
Mud	B.M.		Double flag, Hydro disc in pipe
~~Shak~~ Gab	No Mark	A	W gable of barn
~~El~~ El	" "	A	NE cor. of elevator
~~Law~~ Law	B.M.		Whitewashed slats, Hydro disc in pipe
Cup	No Mark	A	Cupola of school
~~Wat~~ Wat	" "	A	Watertower
Shake	" "		Whitewashed SE cor. shack
~~Sho~~ Low	" "	A	SW cor. shed on piles
~~Hot~~ Hot	" "	A	West gable house
Gra	" "		Gravel elevator
Ned	" "		Whitewash on islet
Sid	" "	A	NW cor. shack
~~Pot~~ Pot	" "	A	W end N rail of bridge of S Nemah
Nog	" "	A	North gable of house
Sat	" "	A	W end of S rail of bridge over middle Nemah
~~Sot~~ Sot	" "	A	E " " " " " " " middle Nemah

Note:

B.S. = Biological Survey
B.M. = C. & G.S. B.M. or Hydro. Mark
B.T. = Sq. brass tag-2x2 inches sq.
A = Photo Control

	Remarks.	Decisions
1		465229
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3		U.S.G.B.
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M 234

GEOGRAPHIC NAMES

Survey No. T6726b

Name on Survey	On Chart No. A	On previous survey No. B	On U. S. quadrangle Maps C	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
Lynn Point										1
Ramsey Point										2
Willapa Bay										3
North Nemah River										4
South Nemah River										5
										6
										7
		L. L. Heck on 2/18/41								8
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M 234

DIVISION OF CHARTS

SURVEYS SECTION

REVIEW OF TOPOGRAPHIC SURVEY NO. T-6726a&b (1939) FIELD NO. C and CC

Washington - Willapa Bay, Sunshine Point to Ramsay Point
Surveyed in May - July 1939, Scale 1:10,000
Instructions dated March 11, 1939 (W. M. Scaife)

Plane Table Survey — Aluminum Mounted

Chief of Party - W. M. Scaife
Surveyed by - Raymond A. Wheeler
Inked by - R.A.W., I.T.S., W.A.C.
Reviewed by H. F. Stegman, March 21, 1941
Inspected by - H. R. Edmonston

1. Junctions with Contemporary Topographic Surveys

   a. The junctions of T-6726a (1939) with T-6725a (1939) on the south, T-6726b (1939) on the northeast and T-6727a (1939) on the northwest are satisfactory.

   b. The junction of T-6726b (1939) with T-6729 (1939) on the north is satisfactory.

2. Comparison with Previous Surveys

   a. H-334 (1852) and H-498 (1855); scales 1:221,360 and 1:18,818

      These early hydrographic surveys each contain topography covering the entire area of the present survey. H-334 is a small scale reconnaissance survey which shows only the high waterline within most of the area of the present survey. The topographic features as shown on H-498 are in good agreement with those shown on T-6726 except in the area between the North and South Nemah Rivers where the shoreline is radically different. It is probable that this area was largely sketched in on the early survey. The present survey, T-6726 (1939), supersedes these surveys.

   b. T-1292 (1872) and T-1294 (1874); scale 1:10,000

      These two surveys taken together cover the entire area of the present survey. The general features are in very good agreement, but the shoreline has

receded slightly at most points. This change is a maximum of about 50 meters at Ramsey Point, Lat. 46° 34', Long. 123° 55' and at Lat. 46° 33.2', Long. 123° 54.4' where the detached islet shown on the present survey is shown as a promontory on the shoreline on T-1292. Other changes are noted in the Descriptive Report, pages 22, 23, and 26. The present survey supersedes these surveys.

3. Comparison with Chart 6185 (latest print dated 5-9-40)

a. Topography

Topography shown on the chart originates principally with surveys discussed in the preceding paragraphs. Charted roads are from Bp. No. 21,164 and No. 21,165, August 15, 1928. The charted portion of U. S. Highway 101 is not in agreement with the sections shown on the present survey, and it is believed that this highway has been relocated. The present survey agrees at most points with the location of U. S. Highway 101 shown on the South Bend quadrangle of the U. S. Army Corps of Engineers (1940).

b. Aids to Navigation

The aids to navigation on T-6726a and b (1939) were considered in the review of H-6516 (1939) and H-6517 (1939).

c. Magnetic Meridians

The magnetic meridians were determined at two stations. A tabulation of the values with the instrumental corrections which were applied is given in the Descriptive Report, page 37.

4. Condition of Survey

a. The inking of the topographic details is satisfactory.

b. The Descriptive Report is clear and comprehensive and satisfactorily covers all matters of importance.

5. Compliance with Instructions for the Project

The plan, character and extent of the survey satisfy the instructions for the project.

6. Additional Field Work Recommended

This survey is satisfactory. No additional field work is required.

7. Superseded Surveys

H- 334	(1852)	In part, topography only
H- 498	(1855)	" " " "
T-1292	(1872)	" "
T-1294	(1872)	" "

Examined and approved:

Thos. B. Reed,
Chief, Surveys Section

Chief, Division of Charts

Chief, Section of Hydrography

Chief, Division of Coastal Surveys

applied to new compilation of chart 6185. May 27, 1941. J.H.S.

Form 537a
Ed. Nov. 1929

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

TOPOGRAPHIC TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. D

REGISTER NO. T-6727a T6727a

State Washington

General locality Willapa Bay

Locality ~~W. Shore of Long Island, W. shore Willapa Bay.~~ Vicinity of Nahcotta

Scale 1:10,000 Date of survey May - July, 1939

Vessel Washington - Oregon Shore Party

Chief of party W. M. Scaife

Surveyed by Raymond A. Wheeler

Inked by R.A.W. - I.T.S. - A.J.O.

Heights in feet above M.H.W. to ground ~~to tops of trees~~

Contour, Approximate contour, Form line interval ____ feet

Instructions dated March 11, 1939

Remarks:

GPO

Applied to new compilation of sheet no. 6185
May 27, 1941 G.H.S.

SHEET T-6727 a

DETAILED DESCRIPTION:

The area covered by this survey is the west shore of the north end of Long Island from Diamond Point to the gravel spit and the opposite west shore of Willapa Bay. The shore on Long Island is a series of low heavily wooded hills forming an almost continuous cliff (about 40 ft. in elevation at the shoreline). This line of cliffs is largely covered with vegetation but occassional bare spots give the appearance of individual cliffs. The west shore of the bay is a long wooded sand spit and has a flat relief, except at a point about $\frac{1}{8}$ mile north of Nahcotta Dock, the shoreline cuts a low hill forming a prominent bare cliff about 30 feet high. There are numerous clearings for farming along the shore.

The water area is very shallow showing extensive wide tide flats at low tide. These tide flats are more sandy and firmer than those at the south end of the bay.

A series of piles marked by Game Reserve signs extends easterly across the bay from station PRO and defines the northern limit of a Washington State Game Reserve.

LAND MARKS:

The following are recommended for landmarks, RAT*, HOT, TALL, SHEL, ASK and OFF.

No ⊙ Rat on T-6727a. ⊙ Rat on T-6728 is a pile.

CONTROL:

The survey of this sheet is controlled by triangulation stations, POINT$_2$, COTTA, DOANE$_2$, NORT, HORN$_2$, STEEP$_2$, APRON$_2$, referred to N.A. 1927 Datum. (field computations)

SURVEY METHODS:

Ordinary Survey methods were used. Graphic triangulation was used extensively. A traverse was run from station DOANE$_2$ to NORT.

CLOSING ERRORS:

The error of closure of traverse DOANE$_2$ to NORT was not measureable.

COMPARISON WITH PREVIOUS SURVEYS:

Sheet 1293 - 1872

The cliffs along west shore of Long Island receded slightly. Erosion of the cliffs has advanced the shoreline, and the growth of vegetation on the eroded material has largely hidden the cliffs as seen from offshore.

SHEET T-6727 a

COMPARISON WITH PREVIOUS SURVEYS. (cont.)

On the west shore of the bay the shoreline has ~~advanced~~ receded in general 10 to 100 meters over the flat swampy area. The cliffs south of station DOANE 2 have receded from zero to ~~100~~ 75 meters.

The shoreline has receded 10 to 100 meters

The settlement of Diamond City has been abandoned, the buildings destroyed and the site overgrown with underbrush.

Shown as abandoned on H-2103 (1891)

The dock at Nahcotta is about 20 meters south of position shown, and the outer end of the wrecked dock, 300 meters south, has been removed. A new dock* has been built on the west shore of Long Island 200 meters south of station HORN 2.

* On survey T-6724b (1939)

GEOGRAPHIC NAMES

The name Sealand, immediately north of Nahcotta is not commonly used in the locality and for this reason its removal from the chart is recommended.

The north end of Long Island is a prominent feature and it is recommended that it be named Diamond Pt. This name is locally used in association with the abandoned settlement of Diamond City.

STATISTICS

7.9 statute miles of shoreline.

LIST OF PLANE TABLE POSITIONS

See attached sheet.

Respectfully submitted,

J. M. Smook, H.& G. Engr.,
Officer in Charge,
Seattle Processing Office.

For: Raymond A. Wheeler,
Jr. Geodetic Engineer.

T-6727a
30

D

LIST OF RECOVERABLE PLANE TABLE STATIONS

Name	Marked With	Photo Control Pt.	
Pro	B.S.		Biological disc and pipe marked MC $\frac{s15}{s22}$ R 11 W, T 12 N at bases, game res. post
Off	No Mark	A	East gable barn
Nag	No Mark	A	N gable house
Tall	" "	A	Tall stack at Nahcotta
Shell	" "	A	short stack at Nahcotta
Ask	" "	A	stack of building on dock at Nahcotta
Doc	" "	A	SE cor. of Nahcotta dock
Chim	" "	A	Chimney center of pyramid roof of yellow house
Whit	" "	A	NE cor. white house
MC $\frac{27s}{34s}$	B.S.		Biological disc in pipe
Hot	No Mark	A	NE cor. of Moby Dick Hotel
MC $\frac{s34}{s3}$	B.S.		Biological monument
MC $\frac{s3}{s10}$	B.S.		Biological monument
Wat	No Mark	A	Center W end of dock on T 6724 b (1939)
Hop	" "	A	NW corner of sand elevator on T-6724 b (1939)
Foo	B.M.		Hydro disc in pipe, Whitewashed tripod

Shown as stump on Survey T-6727a (1939) No recoverable station card for this station.

Note:

B.S. = Biological survey
B.M. = C. & G.S. B.M. or Hydro Mark
B.T. = Sq. brass tag - 2x2 inches sq.
A = Photo Control

	Remarks	Decisions
1		464239
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3		464240
4		U.S.G.B
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GEOGRAPHIC NAMES

Survey No. T6727a

Name on Survey	On Chart No. A	On previous survey No. B	On U. S. quadrangle Maps C	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
Diamond Point										1
Long Island										2
Nahcotta										3
Willapa Bay										4
										5
		Name [illegible]								6
		by L Heck on 2/18/41								7
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M 234

Form 537a
Ed. Nov. 1929

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

TOPOGRAPHIC TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. DD

REGISTER NO. T-6727b T-6727b

State Washington

General locality Willapa Bay

Locality West shore of Willapa Bay

Scale 1:10,000 Date of survey May - July, 1939

Vessel Washington - Oregon Shore Party

Chief of party W. M. Scaife

Surveyed by Raymond A. Wheeler

Inked by R.A.W. - I.T.S. - MJO

Heights in feet above M.H.W. to ground ~~to tops of trees~~

Contour, Approximate contour, Form line interval ____ feet

Instructions dated March 11, 1939, 19____

Remarks:

GPO

applied to new compilation of chart 6185.
May 27, 1941 g.K.S.

SHEET T-6727 b

DETAILED DESCRIPTION:

The area covered by this sheet is the west shore of Willapa Bay in the vicinity of Oysterville. The north limit of the sheet is 3 miles south of Leadbetter Pt. The shore is heavily timbered and has a low flat relief. There are numerous clearings for farming. Although the shore is often swampy for 200 or 300 meters from high water there are no extensive areas of marshes.

The water area is shallow but the tide flats are not as extensive as the areas further south. Extensive tidal flats in Lat 46°-34' shown on H-6517 (1939)

LANDMARKS:

The following are recommended for landmarks NORT, TOW, STACK, and BARN.

CONTROL:

The survey of this sheet is controlled by triangulation stations, RID, NAH, MESS, GOULTER$_2$, STACK and NORT.

SURVEY METHODS:

Ordinary survey methods were used. Traverses were run between stations NORT and GOULTER$_2$, GOULTER$_2$ and MESS, and MESS and SHELL on sheet T-6728 a.

CLOSING ERRORS:

NORT - GOULTER	- distance	2	miles,	error	too small to meas.
GOULTER - MESS	- "	2	" ,	"	2 meters.
MESS - SHELL	- "	2	" ,	"	5 meters.

The traverses were adjusted proportionally.

COMPARISON WITH PREVIOUS SURVEYS:

Sheet 1261 - 1871

The shoreline has receded from 100 meters, near station NORT to nothing at station GOULTER$_2$. The old swampy area has changed to farming land, with a few irregular deep sloughs draining the area.

Sheet 1293 - 1872

The swampy areas have changed to firm land and the shoreline has advanced* on an average of 20 meters, although recessions occured near stations GOULTER$_2$, HECK and CRAB. * Shoreline in general has receded slightly H.T.P.

SHEET T-6727 b

GEOGRAPHIC NAMES:

Geographic names for this sheet are as shown on Chart 6185. No changes or additions were discovered.

STATISTICS:

4.9 statute miles of shore line.

LIST OF PLANE TABLE POSITIONS:

See attached sheet.

Respectfully submitted,

J. M. Smook, H. & G. Engr.,
Officer in Charge,
Seattle Processing Office.

For: Raymond A. Wheeler,
Jr. Geodetic Engineer.

T-6727 6

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DD

LIST OF RECOVERABLE PLANE TABLE POSITIONS

Name	Marked With	Photo Control Pt.	
Pig	No Mark	A	N gable barn
Hog	No Mark	A	S gable barn
Barn	" "	A	N gable barn
Tow	" "	A	Water Tower
Tip	" "	A	Top of pyramid roof of yellow house
Gab	" "	A	W gable house
MC $\frac{s10}{s5}$ -	Rock		+15 on a 1 foot sq. rock imbedded in sand, 3 m. east of closely spaced line of small posts, about 250 m. north of Eagle Rock Cannery, 2 m. east of grass line, 40.5 east of 18" blazed spruce.
Lob	No Mark	A	W gable house
Nort	No Mark	A	N gable red barn

Note:

B.S. = Biological Survey
B.M. = C. & G.S. B.M. or Hydro Mark
B.T. = Sq. brass tag - 2 x 2 inches sq.
A = Photo Control

	Remarks	Decisions
1		465-240
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M 234

GEOGRAPHIC NAMES

Survey No. T6727b

Name on Survey	A On Chart No.	B On previous survey No.	C On U. S. quadrangle Maps	D From local information	E On local Maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	K	
Oysterville										1
Willapa Bay										2
										3
		[illegible]								4
		by L. Heck	on 2/18/41							5
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M 234-8

DIVISION OF CHARTS

SURVEYS SECTION

REVIEW OF TOPOGRAPHIC SURVEY NO. T-6727a&b (1939) FIELD NO. D and DD

Washington - Willapa Bay, West Shore of
Willapa Bay and North Shore of Long Island
Surveyed in May - July 1939, Scale 1:10,000
Instructions dated March 11, 1939 (W. M. Scaife)

Plane Table Survey — Aluminum Mounted

Chief of Party - W. M. Scaife
Surveyed by - Raymond A. Wheeler
Inked by - R. A. Wheeler, I. T. Sanders, H. J. Oliver
Reviewed by - Harold F. Stegman, March 20, 1941
Inspected by - H. R. Edmonston

1. Junctions with Contemporary Topographic Surveys

   a. The junctions of T-6727a (1939) with T-6724b (1939) on the south and T-6726a (1939) on the north are satisfactory.

   b. The junctions of T-6727b (1939) with T-6727a (1939) on the south and T-6728a (1939) on the north are satisfactory.

2. Comparison with Previous Surveys

   a. H-334 (1852), H-335 (1852), and H-498 (1855); scales 1:221,360; 1:20,000; and 1:18,818

      These early hydrographic surveys taken together contain topography which covers the entire area of the present survey. The shoreline is in fair to good agreement with the shoreline of T-6727a and b. The present survey supersedes the topography shown on these early surveys.

   b. T-1261 (1871) and T-1293 (1872); scale 1:10,000

      These two surveys taken together cover the entire area of T-6727a and b (1939). The low-lying portions of the shoreline have receded at most points, and the character of the land just inshore has changed from marsh to grass land and timbered areas. A maximum recession of about 100 meters has occurred at Lat. 46° 31.5'. Additional changes have been noted in the Descriptive Report.

3. Comparison with Chart 6185 (Latest Print dated 5-9-40)

a. Topography

Topography shown on the chart originates principally with surveys discussed in paragraph 2b. Roads and piers in the vicinity of Nahcotta are charted from Bps. Nos. 21,161 and 21,162 (1928) and chart letter 497 (1933). The Descriptive Report, page 29, paragraph 3, mentions changes in these piers.

b. Aids to Navigation

The aids to navigation on T-6727a and b (1939) were considered in the review of H-6516 (1939) and H-6517 (1939).

c. Magnetic Meridians

The magnetic meridians were determined at two stations. A tabulation of the values, including the instrumental corrections which were applied, is given in the Descriptive Report, page 37.

4. Condition of Survey

a. The inking of topographic details is satisfactory.

b. The Descriptive Report is clear and comprehensive.

5. Compliance with Instructions for the Project

The character and extent of the survey satisfy the instructions for the project.

6. Additional Field Work Recommended

None.

7. Superseded Surveys

H- 334	(1852)	In part, topography only
H- 335	(1852)	" " " "
H- 498	(1855)	" " " "
T-1261	(1871)	" "
T-1293	(1872)	" "

Examined and approved:

Thos. B. Reed,
Chief, Surveys Section

Chief, Division of Charts

Chief, Section of Hydrography

Chief, Division of Coastal Surveys

Form 537a
Ed. Nov. 1929

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

TOPOGRAPHIC TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. E

REGISTER NO. T-6728a T6728a

State Washington

General locality Willapa Bay

Locality W. Shore Willapa Bay--E. shore Pacific Ocean South of Leadbetter Pt.

Scale 1:10,000 Date of survey May - July, 1939

Vessel Washington - Oregon Shore Party

Chief of party W. M. Scaife

Surveyed by Raymond A. Wheeler

Inked by R.A.W. - I.T.S. - HJO

Heights in feet above M.H.W. to ground ~~to tops of trees~~

Contour, Approximate contour, Form line interval ____ feet

Instructions dated March 11, 1939, 19____

Remarks:

GPO

4 CRAB HUNTERS DROWN; 2 SAVED

ILWACO, Tuesday, Sept. 3.—(AP)—Shores of the Long Beach peninsula were watched today for the bodies of four persons who drowned while crab-hunting yesterday off Leadbetter Point.

The victims lost their lives when they attempted to wade 250 feet to shore after a rising tide trapped them on a sand spit. Two others remained on the spit and were rescued by boatmen. Four more, companions of the victims, left the sand bar a short time before the tide turned.

3 Victims From Portland

The dead: John Dufur, Portland, Or.; Mrs. Alice Dufur, his wife; Stathis Argereous, Portland, and Angelo Angelus, Long Beach.

Jim Alts, Astoria, and Ann George, Portland, were rescued from the spit after the water had reached their waists by Carl V. Andrews, Oysterville, and Park Nelson, Ocean Park. Andrews and Nelson were sent to the scene by Joe Dixon, Ocean Park, who witnessed the tragedy.

Fail to Note Tide

The party became so engrossed in crabbing and clam digging it failed to note the rising tide. Upon discovering their plight, the four vicitms began wading toward the mainland, about 250 feet away. They were scarcely in deep water when the swift tide took them off their feet and all disappeared.

The Cape Disappointment Coast Guard station sent a boat but it was unable to land because of the tide.

SEATTLE TIMES

Evidence of dangers connected with sand bars off Leadbetter Point.

SHEET T-6728 a

DETAILED DESCRIPTION:

The area covered by this sheet extends south from the tip of Leadbetter Point for 4½ miles along the west shore of Willapa bay and 3 miles along the east shore of the Pacific Ocean. North of station SHELL the peninsula is composed of barren sand dunes. The two islands east of Leadbetter Pt. are composed of sanddunes and are connected at low tide, and also connected to the mainland at low low tides. The northern island is bare but the southern island has a few scattered patches of trees. The area south of SHELL is wooded and has low, flat relief.

The water area is shallow showing large areas of sandy tide flats south of the islands.

LANDMARKS:

Signal BETTER is recommended as a landmark.

Chart letter 367 (1940) Form 567. The landmark recommended is the tree line in the vicinity of station Better as rodded in on T-6728a (1939)

CONTROL:

The survey of this sheet is controlled by triangulation stations MESS, SHELL, BETTER, LEAD 2 and GRASSY as located by this party in 1939 and referred to N.A. 1927 Datum. (field computations)

SURVEY METHODS:

Ordinary Survey methods were used. Graphic triangulation was used extensively. A traverse was run between stations MESS and SHELL.

CLOSING ERRORS:

Closing error of traverse between stations MESS and SHELL was 5 meters in 2 miles.

Additional adjustments to Signals on this survey are discussed on pages 39-41 of this report. HJA

COMPARISON WITH PREVIOUS SURVEYS:

Sheet No. 1261 - 1871

The shoreline at the tip of the sand spit at Leadbetter Pt. has receded 200 to 500 meters. On the ocean side it has receded 200 to 400 meters. On the Willapa Bay side it varies from a recession of 100 meters to an advance of 200 meters. The wooded shoreline south of station SHELL shows a average recession of 30 meters. Log Island* as shown on the survey of 1871 has decreased to about one-third of its former size. A sandy island 1200 meters long and 300 meters wide has developed just north of the old island. Altho the area of Crescent Island was not visited by the Plane-table party no island could be seen from the shore at high tide, although there are extensive areas of tide flats in this area at low tide.

*Called Grassy Island on T-3921 (1922) and on T-6728a (1939)

SHEET T-6728 a

GEOGRAPHIC NAMES:

Geographic names are as shown on Chart 6185 and no changes or additions were discovered.

Grassy Island is in the list of geographic names but is not shown on Chart 6185. Latest print dated 5/9/40. H74

STATISTICS:

11.9 miles of shore line.

LIST OF PLANE TABLE POSITIONS:

See attached sheet.

Respectfully submitted,

J. M. Smook, H.& G. Engr.,
Officer in Charge,
Seattle Processing Office.

For: Raymond A. Wheeler,
Jr. Geodetic Engineer.

T-6728 a

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E

LIST OF RECOVERABLE PLANE TABLE POSITIONS

Name	Marked With	Photo Control Pt.	
Pit	B.M.	A	Hydro disc in pipe @ Whitewashed NW cor. shed
San	B.M.		Hydro disc in pipe on top of prominent lone sand dune
North	No Mark	A	Center of N end of bridge
South	" "	A	Center of S end of bridge
∅			
Tin	" "	A	West center of corrugated roof on shed
Gro	B.M.		Hydro disc in pipe

Note:

B.S. = Biological Survey
B.M. = C & G.S. B.M. or Hydro Station Mark
B.T. = Sq. brass tag-2X2 inches sq.
A =-Photo Control

	Remarks.	Decisions
1		466240
2		
3		U.S.G.B
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27		

M 234

GEOGRAPHIC NAMES

Survey No. T6728a

Name on Survey	A On Chart No.	B On previous survey No.	C On U. S. quadrangle Maps	D From local information	E On local Maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	K	
Grassy Island										1
Leadbetter Point										2
Willapa Bay										3
										4
	[illegible]			[illegible]						5
	ty L. Heck ct 2/18/41									6
										7
										8
										9
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										26
										27

M 234

MAGNETIC MERIDIANS ON TOPOGRAPHIC SHEETS
T-6724a&b; T-6725a&b; T-6726a&b; T-6727a&b; T-6728a

Declinitoire with Alidade No. 223.(Corrn -5')

Station	Date 1939	time	Variation		Variation corrtd. for above error.		Final Var. after corrtg. for Index.Co.
			°	'	°	'	
Sheet T-6724a							
Lime 1938	Apr. 13	2:30 pm	22	46	22	41	
Sheet T-6724b							
Lime 1938	Apr. 11	10:00am	22	46	22	41	
Bight 1938	May 18		22	42	22	37	
Sheet T-6725 a							
260 meters ~~W~~ west of Shep(Topo)	June 19		23	05	23	00	
30 meters E of Cove 1939	June 27		22	54	22	49	
Sheet T-6725 b							
Q-62	June 1	9:00 am	24	46	24	41	
Sheet T-6726 a							
70 meters ~~NW~~ of Needle 2 1938	July 7	11:10 am	23	20	23	15	
Sheet T-6726 b							
K-62	July 17	10:30 am	23	38	23	33	
Sheet T-6727 a							
MC S27/S34 (Topo)	Aug. 14	1:30 pm	22	50	22	45	
Sheet T-6727 b							
Goulter 2 1938			23	31	23	26	
Goulter 2 1938	Sept.29	2:02 pm	23	12	23	07	
T-6728 a							
Shell (USE)	Aug. 9	10:00 am	23	12	23	07	

- - - - - - - - - - - - - - -

The declinitoire of Alidade No. 223 was compared with Compass Declinometer No. 21 on November 21, 1939, about 4:00 pm, at station POTTER 1939, and found to have a correction of minus 05 minutes. In above tables the index error of the Compass Declinometer has not been applied.

ADDITIONAL NOTES BY SEATTLE PROCESSING OFFICE

The following topographic sheets of Willapa Bay have been chiefly inked by the Seattle Processing Office:

T-6724a & b, T-6725a & b, T-6726a & b, T-6727a & b, T-6728a.

The shore line was inked by the topographer, who also encircled the signal points and inked some of the bluffs and some of the marsh areas. The shore lines are broken to show the rodded points for air photo control (per Field Memorandum No. 1 of Feb. 12, 1935.)

All other symbols and lettering were inked by the Processing Office. Low water lines have been inked as found on the sheets. These low water lines seem to have been sketched as seen by the topographer at the stage of the tide occurring when he passed near. They are sometimes of value in indicating the higher parts of the flats that are exposed first and in indicating drainage lines in the flats. Where they conflict with hydrographic sheets, the hydrography should control.

T-6724a (1939) T-6725a+b (1939)

We note the indications of rock in many of the bluffs. Mr. Wagner and other members of the field party informed us that these bluffs are soft material, usually sand and gravel, and that the only rock ledges on shore around Willapa Bay are on the south and southwest part of Long Island. The harder materials mentioned in this report seem to be soft shales and decomposed sandstone and hardpan; materials that you can dig into with pick or shovel. The symbol for bluffs of soft material seem more appropriate and we have added the notation "gravel bluffs" at certain bluffs on Sheet T-6724a & b.

Fish traps: Field men report that these are small piles in old traps, many rotten and broken leaving stumps of piles projecting above the mud. There are many such stumps of piles not located. They are usually shown by a dashed line between circles representing the end piles.

The descriptive reports accompanying these sheets indicate small closing errors for the traverses. However, some questions arose regarding location of the signals during the course of the hydrographic work and the hydrographic party took numerous cuts to verify positions of the signals. These cuts did not intersect very well, but in themselves did not prove whether the topographic locations were correct or not. Plane table cuts on the sheet often missed the signals and computed locations from triangulation cuts did not agree very well with topographic locations.

After these changes, the hydrography affected was re-plotted and all indications are that the positions were improved, some moving as much as 45 meters.

These adjustments were made under the supervision and with the approval of Lt. C. J. Wagner, who was familiar with the details of the field work. Lt. H. J. Oliver also spent considerable time investigating these sheets. The survey was made by a temporary employe who had had some experience as a field officer in the Coast and Geodetic Survey. The topographer was continuously being pressed to keep ahead of the hydrography.

The adjustments described above affected only a small number of the stations used in hydrographic work. What effect these changes would have on the intermediate stations or the rodded points along the shore, it is impossible to determine.

The following list gives the relation of triangulation stations to topographic locations:

Sheet	Station	Moved
T-6728a	BETTER 1911	6 m. NW
T-6724a	N. Gable Red Barn (Giles) (Cow)	12 m. S
T-6727b	N. Gable Bardheim Dairy Barn, Oysterville	7 m. N.
T-6727a	TALL 1939	4 m. S.
T-6727a	E. Gable Eagle Oyster Co. Cannery	4 m. N.
T-6724b	Chimney, Peterson Oyster House on piles (Add)	3 m. N.
T-6724b	Stack, black, Willapa Bay Oyster Cannery (Stak)	4 m. NE

On Sheet T-6728a (Leadbetter Point) the topographic locations of several signals did not agree with plane table cuts. Where the sextant cuts agreed with these plane table cuts, the intersection of these cuts was accepted in lieu of the position determined from traverse. Only the following changes were made:

Name of Station	Distance moved
Spoo	11 meters N
Son	4 " N
No	4 " W
Yes	5 " SW

The indications are that these sheets will give trouble if used for control of air photographs.

A. M. Sobieralski

A. M. Sobieralski,
Officer in Charge,
Seattle Processing Office.

ADDITIONAL NOTES BY SEATTLE PROCESSING OFFICE

Sheet T-6724b:

Near triangulation station PINNACLE (Lat. 46° 24.9', Long. 123° 58.2'), a sunken rock is shown. The nearest soundings (H-6515) are very shoal. We also have a report that water extends to station PINNACLE at low tide. If so, the rock cannot be sunk more than one or two feet.

This rock changed to rock awash since it falls inside the low waterline on H-6515 (1939) HTL

A. M. Sobieralski

A. M. Sobieralski,
Officer in Charge,
Seattle Processing Office.

ADDITIONAL NOTES BY SEATTLE PROCESSING OFFICE

Sheet T-6727b:

On the shore line near Lat. 46° 32.9' are two encircled points marked:

Later)
) Meander Corner 3/10
Old)

This is taken to indicate a point formerly considered the meander corner and the point now recognized. The Processing Office is not able to clarify this definitely.

A. M. Sobieralski,
Officer in Charge,
Seattle Processing Office.

T-6725a

COMMENTS BY OFFICER IN CHARGE, SEATTLE PROCESSING OFFICE

Topographic sheet as received from the field showed the notation "Section Corner - no figures" at the point 50 meters East of triangulation station FLAT 1939 (Lat. 45° 26.65', Long. 123° 54.3'). Reference to the Willapa Bay Oyster Lands Map indicates that this may be either the Meander Corner or the Witness Corner to the Meander Corner between sections 10 and 15, Township 11 North, Range 10 West, W.M. Lack of a common datum between ~~the~~ this map and our survey makes an accurate comparison impossible.

The limits of Teal Creek (0.5 mile west of U.S. Highway 101 bridge over Naselle River) left in pencil are sketched very roughly from the Willapa Bay Oyster Lands Map. No accurate comparison was possible between this map and our survey, but a rough enlargement of Mr. Gibbs' traverse to 1:10,000 scale failed to agree with the outline shown by the topographer. However, the outline and the form lines now shown on Chart 6185 appear to be considerably in error. A member of our field party reports that this slough extends considerably beyond the limits shown on the chart.

A. M. Sobieralski

A. M. Sobieralski,
Officer in Charge,
Seattle Processing Office.

FORM M-238

MEMORANDUM

IMMEDIATE ATTENTION

SURVEY
DESCRIPTIVE REPORT
PHOTOSTAT OF

~~No. xx~~
No. T

T6724a & b
T6725a & b
T6726a & b
T6727a & b
T6728a

received Sept. 25, 1940
registered Sept. 26, 1940
verified
reviewed
approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

ROUTE		Initial	Attention called to
20			
22			
24	✓		
25		HBC	
26			
30			
40			
62			
63			
82			
83			
88			
90			

RETURN TO

82	T. B. Reed

✓ HBC

DIVISION OF CHARTS

SURVEYS SECTION

REVIEW OF TOPOGRAPHIC SURVEY NO. T-6728a (1939) FIELD NO. E

Washington - Willapa Bay, Leadbetter Point
Surveyed in May - July 1939, Scale 1:10,000
Instructions dated March 11, 1939 (W. M. Scaife)

Plane Table Survey — Aluminum Mounted

Chief of Party - W. M. Scaife
Surveyed by - Raymond A. Wheeler
Inked by - R. A. Wheeler, I. T. Sanders, H. J. Oliver
Reviewed by - Harold F. Stegman, March 17, 1941
Inspected by - H. R. Edmonston

1. Junctions with Surveys

   a. The junction of T-6728a (1939) with T-6727b (1939) is satisfactory.

   b. T-6728a joins T-4252 (1926) along the Pacific Ocean south of Leadbetter Point in Lat. 46° 36.2', Long. 124° 03.8'. For charting purposes, a break in the shoreline is necessary because the present survey shoreline is about 225 meters further inshore.

2. Comparison with Prior Surveys

   a. H-334 (1852), H-335 (1852) and H-498 (1855); scales 1:221,360; 1:20,000 and 1:18,818

      These early hydrographic surveys each contain topography covering the entire area of the present survey. H-334 is a small scale reconnaissance survey. Comparison with H-335 and H-498 indicates that major changes have taken place in the shoreline around Leadbetter Point and in the small sand islands just offshore to the eastward. The present survey supersedes these early surveys.

   b. T-1261 (1871); scale 1:10,000

      This survey covers the entire area of the present survey. The shoreline has receded about 350 meters in a southwesterly direction at Leadbetter Point and from 200 to 450 meters along the western shore of the peninsula. Other changes are noted in the Descriptive Report. The present survey supersedes this survey.

c. T-3224 (1911), T-3921 (1922), and T-4252 (1926) scales 1:20,000

(1) T-3224 covers the entire area of the present survey. Changes in shoreline are similar to those noted in the comparison with T-1261. The low sandy island north of Grassy Island on the present survey is shown on T-3224 as a sand spit making out from Leadbetter Point.

(2) T-3921 covers the present survey north of Lat. 46° 37'. The end of Leadbetter Point is shown about 350 meters north of its location on the present survey.

(3) T-4252 covers practically the entire area of the present survey. Leadbetter Point is shown as extending about 250 meters north of its limit on T-6728a and the small island north of Grassy Island is shown on T-4252 as a sand spit extending in a southeasterly direction from Leadbetter Point.

The present survey supersedes these surveys.

3. Comparison with Chart 6185 (Latest Print dated 5-9-40)

a. Topography

Topography shown on the chart originates principally with surveys discussed in the preceding paragraphs, except the shoreline and offshore islands in the vicinity of Leadbetter Point which were revised from the Army Engineers' survey of 1938, Bp. 31905. The present survey supersedes this information.

b. Aids to Navigation

(1) There are no aids to navigation within the area of this survey.

c. Magnetic Meridians

The magnetic meridian was determined at station Shell U.S.E. A tabulation of the value, with the corrections which were applied, is given in the Descriptive Report, page 37.

4. Condition of Survey

a. The inking of the topographic details is satisfactory.

b. The Descriptive Report is clear and comprehensive and satisfactorily covers all matters of importance.

5. Compliance with Instructions for the Project

The character and extent of the survey satisfy the instructions for the project.

6. Additional Field Work Recommended

(a) This survey is satisfactory and no additional field work is recommended. A discrepancy of about 225 meters in the shoreline exists at the junction of T-6728a with T-4252 (1926). This difference is due to the recession of the shoreline at this point subsequent to the 1926 survey.

(b) As noted in the Descriptive Report, pages 39-41, adjustments were made in this survey after completion of the field work. For this reason caution should be exercised in the use of T-6728a (1939) as control for air photographs.

7. Cable Areas

The cable area shown on Chart 6185 is in agreement with the submarine telephone lines shown on Cape Shoalwater Quadrangle, Corps of Engineers Tactical Map published in 1938, except that this map shows an uncharted submarine telephone line extending from Lat. 46° 35.8', Long. 124° 02.1' to Lat. 46° 37.9', Long. 124° 01.6' where it joins the charted cable area. It is recommended that this addition to the cable area be charted as shown on the tactical map.

8. Superseded Surveys

H- 334	(1852)	In part, topography only
H- 335	(1852)	" " " "
H- 498	(1855)	" " " "
T-1261	(1871)	" "
T-3224	(1911)	" "
T-3921	(1922)	" "
T-4252	(1926)	" "

Examined and approved:

Thos. B. Reed,
Chief, Surveys Section

Chief, Division of Charts

Chief, Section of Hydrography

Chief, Division of Coastal Surveys