

4314

Diag. Cht. No. 8860-1 & 8802-2

4314

Form 504 DEPARTMENT OF COMMERCE U. S. COAST AND GEODETIC SURVEY
State: <u>S.W. Alaska</u>
11-5613
DESCRIPTIVE REPORT.
Hydrog. <u>Sheet No.</u> <u>4314</u>
LOCALITY:
<u>Alaska Pen.</u>
<u>Southern Part of Cold Bay</u>
<u>1923 - 24</u>
CHIEF OF PARTY:
<u>R.R. Lukens</u>

4314

DESCRIPTIVE REPORT  
to accompany

Hydrographic Sheet "C"; tracing "D"

COLD BAY

S.W. Alaska

1923.

Str PIONEER.

R.R. Lukens,  
Comdg.

LIMITS Sheet "C" covers the ship hydrography at the entrance to the bay, and the launch hydrography in Leonard's Harbor. Tracing "D" shows some reconnaissance lines run in the upper part of the bay, and the approximate shore line sketched in from triangulation stations located graphically. These two sheets embrace the entire of Cold Bay. The sheets could not be completed due to the bad weather of fall and winter setting in, but it is thought that they contain information that will be of value if any of the charts are to be reissued during the coming spring.

COAST LINE The western shore of the bay from Thin Point to the North is low and flat, with bluffs 30' high in places. The eastern shore is mountainous from the entrance to well up towards the head of the bay, where it breaks away into the rolling tundra ~~part~~ plains of Bering Sea. Leonard's Harbor and the valley receding therefrom forms the only break in this ridge of mountains.

LEONARD'S HARBOR This is the only anchorage in Cold Bay that is protected from all winds and seas. The holding ground is good, and there seems to be considerable protection from the wind. The willi-waws do not seem to be as strong as for instance in King Cove or False Pass. The only danger is an extensive reef about awash at ordinary high water, located about 1/4 mile off the southern shore of the harbor. On both the north and southern shores the mountains rise rather abruptly, but on the northern shore room could be found for a fair sized repair plant and warehouses. There is an excellent site for dock construction along this northerly shore. A flat valley with meandering streams recedes from the mud flats at the head of the bay.

APPROACH TO LEONARD'S HARBOR Due to the incompleteness of the survey, it is impossible to say how much water can be taken into Leonard's Harbor. There is a shoal area off the low flat point between signals Low and Aid which will probably limit the usefulness of Leonard's Harbor. The one line of soundings which was run over it, shows a reduced depth of 4 fathoms. The kelp patch off this point is of small area and at times is not in evidence. Information from local men seemed to indicate that shoal water extended completely across the bay at this point. Very heavy tide rips were observed here on Sept. 28, with a NW gale and a flood tide. It would have been dangerous for an ordinary launch.

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SURVEY METHODS The hydrography in Leonards Harbor was done with launch 117 Lieut. Reading in charge. Hand lead was used on the inshore end of lines, while vertical measures with a sounding machine were made in the deep water. Due to constant bad weather, and several breakdowns of the launch only a small amount of work could be accomplished. The ship work was done with the new style lead line - machine gear. The leadsman stands on a platform aft, and the lead is hauled back to the boom with the sounding machine. In places where the depth is over 30 fathoms, the Fisher tubes were used.

TIDE OBSERVATIONS Tidal observations were made from a staff erected in Leonards Harbor, and connected with the King Cove gauge by simultaneous observations. During the last two days work, the local gauge was not read and reducers are taken from the King Cove automatic Gauge.

CONTROL. With the exception of some topographic stations in Leonards Harbor, all signals were located by triangulation. Three stations NALD LOR & TAY were occupied with a 4" theodolite and computed by the three point problem.

DANGERS With the exception of the shoal area near the entrance to Leonards Harbor, there seems to be no off lying dangers. The presence of boulders along the shoreline, and one or two rocky islets near the shore on the eastern side indicate possible danger.

WEATHER Cold Bay is a favorite place for bad weather. The wind draws through it with great violence. During northerly weather squalls constantly sweep down from the head of the bay, while clear weather exists off shore in the Pacific. SE winds cause heavy seas in the upper end of the bay and preclude the movements of small boats. Survey work here is carried on with the utmost difficulty.

Respectfully submitted,

*P. P. Lockens*  
P. P. Lockens.



LENARD HARBOR TOPOGRAPHIC SIGNALS

<u>SIGNAL</u>	<u>LAT.</u>	<u>D.P.</u>	<u>LONG.</u>	<u>D.M.</u>	<u>TYPE</u>
Sen	55 07	1213 m.	162 25	111 m.	Tripod.
Con	"	123	" 23	191	"
Tip	"	97	" 22	110	Whitewash.
See	"	93	" 21	1002	"
Com	"	79	" "	932	"
Sup	55 05	1804	" 23	844	"
Mac	55 07	1034	" 27	681	"

April 7, 1924

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in  
4 volumes of sounding records for

HYDROGRAPHIC SHEET 4314

Locality: Cold Bay - Lenard Harbor, S. W. Alaska.

Chief of Party: R. R. Lukens in 1923  
Plane of reference is mean lower low water reading  
2.9ft. on tide staff at Lenard Harbor  
5.2 " " automatic gauge at King Cove.

For reduction of soundings, condition of records satisfactory  
except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of each day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks



Chief, Division of Tides and Currents.

DESCRIPTIVE REPORT.

Hydrographic Sheet No. 4314.

COLD BAY S.W. ALASKA.

Str. PIONEER R.R. Lukens, Comdg.

1924

LIMITS This sheet embraces the lower part of Cold Bay, and includes Lenard Harbor. It is on the scale of 1:20,000. A small amount of hydrography was done in 1923, and the smooth sheet was returned to the ship early in 1924 with the instructions that the hydrography of 1924 be plotted on it.

CONTROL All triangulation was done in 1923 and is on the Unalaska datum. All topography (except Lenard Harbor) was executed this year.

METHODS The hydrography was done from the ship and the two motor launches, the ship taking the deeper areas, leaving the inshore and shoal work for the motor sailers in charge of Lieut. Reading. In depths of over 20 fathoms, the Rude-Fischer pressure tubes were used, while in less depths the hand lead and launch sounding machine were used. The copper core leadline stuff was used, and no trouble was had in keeping the leadlines correct.

TIDAL DATA During the survey, a portable tide gauge was installed in Lenard Harbor and connected with the bench marks of 1923. For the soundings on the lower part of the sheet, the King Cove gauge was used, while for the upper part of the sheet, the Lenard Harbor gauge was used.

GENERAL DESCRIPTION The entrance to Cold Bay is broad and clear, with the water gradually shoaling to abreast of Low Point where a rocky ridge extends nearly across the bay, except for the channel between that point and the kelp patch. North of Lenard Harbor entrance, the ~~water~~ water again deepens to as much as 69 fathoms. It then shoals gradually to the long sloping flats at the head of the bay (shown on sheet B). The west side of the bay is low, with flat and rolling country behind it, while the east side is mountainous and rough. The shores are strewn with rocks and boulders, and much care is required when landing with a small boat in rough weather. No indication of rocks or obstructions were found in the deeper part of the bay.

LENARD HARBOR This arm of Cold Bay was surveyed in 1923 and described in the descriptive report of that year. It is a fine harbor and is protected from all directions. The protected area however is small, and the depths are 19 to 22 fathoms, sticky mud. It is fine holding ground. On heaving in this summer we had to use two lines of hose to keep the chain clean as it came in. As in all harbors in this section, strong willi-waws are often met with.

The reef awash which is shown in Lenard Harbor is usually visible, it being covered only by the higher waters.

ENTRANCE TO LENARD HARBOR A remarkable natural channel forms a splendid entrance to Lenard Harbor. If this channel were buoyed, Lenard Harbor would be available to ships of any tonnage. The kelp patch shown just west of Kelp Point, is very thick and is always visible. It forms a good mark in entering this channel. Due to cross currents near Kelp Pt., heavy tide rips occur here at times, but they are only dangerous for small craft. During the big tides there is a current of about 4 knots in this channel off the two points, but the usual current seldom exceeds two knots.

WEATHER Cold Bay is an area of bad weather conditions. The wind sweeps in and out of the bay with great force and regularity. A smooth and calm day is rarely encountered. During June of this year, there was a period of three weeks when survey work was almost completely held up by bad weather.

DANGERS The area between the Lenard Harbor channel and the Western shore is shoal and foul, and largely covered with a scattering kelp growth. This area should be avoided, and the Lenard Harbor channel used when ascending the bay. Bear Rock shown on the sheet as triangulation station "Bear" is a detached black rock about 25 ft. in height, and shows up prominently when entering the bay from the Eastward. There is a shoal spot about  $1\frac{1}{2}$  miles S.E. from  $\Delta$  Cross. A least depth of 16 feet was found here and  $2\frac{1}{2}$  fms. the area is covered with kelp. red. sndg. to

DOUBTFUL SOUNDING In 1923 a sounding of 16 fathoms was had about  $2\frac{1}{2}$  miles N.E. from Thin Point. This year a sounding of 27 fathoms was made here, and the general depths seem to be about 24 to 28 fathoms. As there is probably some uneven bottom in this vicinity it was thought best to do the development work on the sheet which includes the area between this spot and Deer Island. This sheet was not started during the past season.

NEW NAMES KELP Pt. and LOW POINT are names given to the two points at the entrance to Lenard Harbor. BEAR ROCK is the name given to the rocky islet shown on the sheet as  $\Delta$  Bear. COLD CAPE is suggested as the name of the cape forming the eastern entrance to Cold Bay.

Respectfully submitted,

*R. P. Lukens*  
R. P. Lukens



Statistics Sheet 4314.

Date, 1924	Letter	Volume	Positions	Soundings	Miles Statute	Vessels	Color
May 21	A	1	81	205	31.3	Ship	RED
22	B	1	20	39	6.2	Ship	RED
June 2	C	1	16	31	3.6	Ship	RED
4	D	1	17	51	3.8	Ship	RED
10	E	2	63	154	24.7	Ship	RED
May 21	a	1	98	279	14.8	M.S#2	green
22	b	1	146	345	20.5	M.S#2	green
23	c	2	160	626	26.0	M.S#2	green
June 2	d	2	116	375	18.6	M.S#2	green
May 15	a	1	79	270	11.4	M.S#1	blue
June 10	b	2	65	248	14.0	M.S#1	blue
10	b	1	5	25	0.9	M.S#1	blue
12	c	1	88	339	15.0	M.S#1	blue
13	d	1	116	249	11.9	M.S#1	blue
17	e	1	27	62	2.3	M.S#1	blue
18	f	1	84	258	14.0	M.S#1	blue
18	f	2	93	415	16.6	M.S#1	blue
26	g	2	127	375	20.1	M.S#1	blue
July 1	h	2	52	70	4.5	M.S#1	blue
2	j	2	30	77	5.3	M.S#1	blue
2	j	3	65	169	5.0	M.S#1	blue
Totals			1548	4660	270.7		

\* The work for "a" day and part of "b" day for Motorsailor #1 is recorded in the volumes containing the work for Motorsailor #2.

Str. Pioneer

January 23, 1925.

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in  
11 volumes of sounding records for

HYDROGRAPHIC SHEET 4314

Locality: Cold Bay, S. W. Alaska

Chief of Party: R. R. Lukens in 1923, 1924  
Plane of reference is mean lower low water  
4.8 ft. on tide staff at Lenard Harbor, Cold Bay, Alaska  
5.6 " " " " " King's Cove, Alaska

For reduction of soundings, condition of records satisfactory.  
except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of each day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks: Reducers are not entered in strict accordance with Sec. 311 of

General Instructions for Field Work in that they are entered in integral feet instead of feet and tenths but they are here approved in consultation with Lt. Comdr. Hardy, Chief of Section 2, Field Work, as open area soundings so classed by the field party in charge.

  
Chief, Division of Tides and Currents.



## Report on Inking and Verifying H 4314

The records and notes were well kept and complete. The protracting and plotting of soundings were accurately done. The sheet was kept clean and the field drafting completed to the extent required by the General Instructions and in accordance therewith except that in a part of the work each position was not numbered and also too hard a pencil was used in drawing the curves which were difficult to erase where changes were necessary. The 4, 15, 30, 40 and 60 fathom curves should not have been drawn.

✓ The 16 fathom sounding on 7A (1923) ~~was~~ <sup>at</sup> the southern limit of the sheet is listed for further development in the 1924 Descriptive Report of Captain Luskens. Until this development is done it is probably best to retain this sounding.

The 4½ fathom sounding of 55d (1924) at the south shore of Leonard Harbor is questionable. As the soundings here are crowded and one had to be omitted, it was thought best to omit this doubtful one.

✓ Where tubes were used for sounding, the results appear very good.

✓ The number of bottom characteristics is insufficient.

Feb. 26, 1925

F. M. Albert, Draftsman,  
Section of Field Records.

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

WASHINGTON March 13, 1925.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4314

Cold Bay, Alaska Peninsula

Surveyed in 1923 & 1924

Instructions dated February 6, 1924.

Chief of Party, R. R. Lukens.

Surveyed by R. R. Lukens, O. S. Reading, C. J. Itter and H. B. Campbell.

Protracted by R. R. Lukens, C. L. Nyman and A. J. Hoskinson.

Soundings plotted by C. L. Nyman and A. J. Hoskinson.

Verified and inked by F. M. Albert.

1. The records conform to the requirements of the General Instructions except that more bottom characteristics should have been given.
- ✓ 2. The plan and character of development conform to the requirements of the General Instructions.
- ✓ 3. The plan and extent of development satisfy the specific instructions.
4. The sounding line crossings are adequate except for the 26 fathom sounding 1 1/3 miles north-northwest of  $\Delta$  Dub, the 20 fathom sounding 1 mile northwest of Dub, and the 16 fathom sounding 2 1/2 miles northeast of Thin Pt. The first two soundings contain no indications of dangers and the last one will be investigated during this season.
- ✓ 5. The information is sufficient for drawing the usual depth curves.
6. The field plotting was completed by the field party. It was well done, but is subject to the criticism that the 4, 15, 30, 40 and 60 fathom curves should have been omitted. (See paragraph 321 of the General Instructions.) The pencil used in drawing the curves was so heavy that the sheet is disfigured by the indentations.
- ✓ 7. The area covered by this sheet is well developed and no further lead-line surveying is required. The character of the coast indicates the possibility of rocks that can only be revealed by the wire drag.
8. The character and scope of the surveying is ~~excellent~~ <sup>very good</sup> and the field drafting is good.
9. Reviewed by E. P. Ellis, March, 1925.

Approved -

*[Signature]*

*[Signature]*

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

The finished Hydrographic Sheet is to be accompanied by the following title sheet, filled in as completely as possible, when the sheet is forwarded to the Office.

U. S. Coast and Geodetic Survey.

Register No. 4314 (See other Title Sheet also)

State ~~South Western Alaska~~ <sup>Southwest</sup> Alaska

General locality ~~Gold Bay~~ Alaska Peninsula

Locality ~~Entrance to Gold Bay~~ Southern Part of Gold Bay

Chief of party R. R. Lukens

Surveyed by R.R. Lukens, O.S. Reading

Date of survey June - July 1924.

Scale 1 : 20,000

Soundings in Fathoms

Plane of reference Mean Lower Low Water

Protracted by C.L. Nyman, Soundings in pencil by C.L. Nyman

Inked by . . . . . Verified by . . . . .

Records accompanying sheet (check those forwarded):

Des. report, 1 Tide books, 0 Marigrams, 0 Boat sheets, ?

3 Sounding books, 1 Wire-drag books, — Photographs.

Data from other sources affecting sheet . . . . .

3 Graphs for correcting tube soundings.

Remarks: This sheet contains some hydrography executed in season of 1923.

Tide gauges at King Cove & Lenard Hbr.

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

The finished Hydrographic Sheet is to be accompanied by the following title sheet, filled in as completely as possible, when the sheet is forwarded to the Office.

U. S. Coast and Geodetic Survey.

Register No. C 4314 (~~W. S. ... 1925~~)

State . . . Alaska . . . . .

General locality . . . Alaska Peninsula . . . . .

Locality . Cold Bay . . . . .

Chief of party . . . R.R. Lukens . . . . .

Surveyed by . . . . . " . . . . . & Q.S. Reading, C. J. Iifer, H. B. Campbell

Date of survey . Sept. 1923 <sup>19-26</sup> May 15, July 2, 1924 . . . . .

Scale . . 1 : 20,000 . . . . .

Soundings in . Fathoms . . . . .

Plane of reference . . . MLLW . . . . .

Protracted by A.J. Hoskinson <sup>CL Nyman</sup> Soundings in pencil by A.J. Hoskinson <sup>C.L. Nyman</sup>  
R.R. Lukens

Inked by . . . . . Verified by . . . . .

Records accompanying sheet (check those forwarded):

Des. report, 2 Tide books, \_\_\_\_\_ Marigrams, 2 Boat sheets,

3 Sounding books, \_\_\_\_\_ Wire-drag books, \_\_\_\_\_ Photographs.

Data from other sources affecting sheet . . . . .

Remarks: