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Department of Commerce and Labor  
COAST AND GEODETIC SURVEY

*C. H. Tittmann*  
Superintendent.

State: *Alaska*

DESCRIPTIVE REPORT.

*Top.* Sheet No. *3469*

LOCALITY:

*Nagai S. Bay and  
Sanborn Harbor*

1914

CHIEF OF PARTY:

*J. B. Miller*

11-4645

3469

DEPARTMENT OF COMMERCE

Coast and Geodetic Survey,

O. H. Tittmann, Supt.,

ALASKA PENINSULA, SHUMAGIN ISLANDS,  
SANBORN AND EAGLE HARBORS, NAGAI ISLAND, .

DESCRIPTIVE REPORT TO ACCOMPANY TOPOGRAPHIC SHEET F.

Surveyed by the Steamer PATTERSON, June & July, 1914.

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1. REPORT: LIMITS, SCALE, METHODS, OBSERVER.

I have the honor to report as follows, upon topographic sheet F, which shows the topography of Sanborn and Eagle Harbors, and the west side and head of Porpoise Harbor, on the north side of Nagai Island, Shumagin Islands, Southwest Alaska. On the northeast the sheet connects with sheet E and on the southwest terminates at  $\Delta$  Nip on Wooly Head. The scale used was 1:20,000 and the plane-table used exclusively in the work. The work was done by a party, at first in charge of Melvin E. Lutz, Deck Officer, C. & G. Survey, and later in charge of Leroy P. Raynor, Aid, C. & G. Survey.

2. CONTROL: TRAVERSES, CONTOURS, HEIGHTS.

The triangulation controlling the projection on this sheet and all other topographic sheets used in the Alaska work done by the PATTERSON this season is referred to the Unalaska datum. The traverses on this sheet were all closed upon points located by triangulation with one exception and a proportional adjustment made for errors in the traverses. From  $\Delta$  Bun the traverse into Porpoise Harbor was not checked by any station located by triangulation after  $\Delta$  Fat was passed. As the work was close to the edge of the sheet considerable care had to be taken in getting the table properly oriented. It was necessary to keep the orientation used at  $\Delta$  Bun when  $\Delta$  Fat was reached as from  $\Delta$  Fat no other station could be seen by which orientation could be made. The greatest error of closure was 30 meters, in the traverse from  $\circ$  Fish to  $\Delta$  Bun. No others were greater than 15 meters. In plotting distances in the field no allowance was found necessary for expansion or contraction of the sheet. Especial care was taken to secure accurate contouring.

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A number of inland stations were occupied to help in sketching the contours. All heights and elevation are above mean high water level. The greatest discrepancy between independent values of the same mountain was less than twenty-five feet and in most cases the discrepancy was seven or eight feet. The contour interval is one hundred feet.

3. GENERAL REMARKS: FORM OF LAND; MOUNTAINS; GENERAL CHARACTER OF SHORE LINE; VEGETATION; ANIMAL LIFE.

The island of Nagai is a long narrow island extending northeast and southwest, and is very irregular being deeply indented by several long bays. The area included on this sheet is very mountainous with many valleys most of which are very steep on all sides. In most cases the mountains rise steeply from the water's edge. The highest peak has an elevation of 1836 feet. The shore line of the points between harbors is rocky with numerous outlying rocks and rocks awash, while in the harbors are many shingle beaches. There are no sand beaches included within the limits of this sheet. Grass grows thickly in all places except on the extreme summits of the mountains. Alders are scattered all over this island, being especially thick along the streams and stream beds. Many varieties of flowers are found. There are numerous small birds living on the island. Ducks of various kinds are found along the shores, while there are large numbers of gulls and puffins. Of game birds ashore, the oyster-catcher and ptarmagin were the only ones found. At Unga it was learned that there had been many ptarmagin on Nagai, but very few were seen this season. Tracks of fox and land otter were found, and a few sea lions were seen in the bays. Red ground squirrels are very abundant and proved very destructive to a garden which was started by the hydrographic party. These squirrels are quite palatable when cooked in a stew. There are many sparrow hawks and magpies, while eagles are numerous.

4. DETAILED DESCRIPTION OF SHORE: PROMINENT POINTS.

Eagle Harbor the most westerly of the three harbors shown on this sheet, is long and narrow and extends in a southeasterly direction. Nearly the whole shore line is pebble beach. There is an abundance of fresh water to be found. Driftwood for fuel is also easily secured from the beach. The harbor is subject to strong "williwakas" which come at times with great speed and force down the valleys on the south side of the bay. At the head of the harbor are several sharp high, rocky peaks of grey color. They are very noticeable because they are rocky for a long distance below their tops. Wooly Head is the name given to the headland between Eagle Harbor and Fal-mouth Harbor. It is steep and rocky with high cliffs back of the northeast shore line. Off the most westerly point are

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numerous rocks varying from 5 feet to <sup>a</sup> high pinnacle of 49 feet and out to a distance of 500 meters offshore. From this point to where the shore line turns into Eagle Harbor is very foul with many outlying rocks and rocks awash at low water. Much kelp is found all round here giving some warning of rocks below the surface. Thick kelp extends along the shore to several hundred meters beyond the large lake shown on the chart near the southwest entrance to the harbor, and at a distance of 100 meters from shore. The shore here is composed of large rocks rounded by the action of the water. The lake shown is brackish at the lower end and fresh at the upper. Back of it is a broad valley. A deserted fishing station consisting of a salting<sup>shed</sup> and four other houses is found about a half mile southeast of the lake. The beach between the lake and houses is coarse shingle, and is backed by a low level meadow, behind which the mountains rise very steeply to thirteen hundred feet. For two miles beyond the station there are stretches of pebble beach alternating with stretches of sharp large angular rocks. There are several valleys here rising quite steeply to the ridge behind from thirteen to fifteen hundred feet high. A narrow grass covered pebble spit extends for about a mile to the southeast forming a good sized lagoon between it and the shore. The entrance to this lagoon is so narrow that only a small whaleboat or dory can get in. At low tide it is nearly all bare. Back of the northeast end of this lagoon there is a low divide about two hundred feet high, from which the land slopes gradually to Falmouth Harbor on the south. For 600 meters beyond the end of the spit the shore line is rocky with steep cliffs fifty to sixty feet high. 320 meters east of the end of this spit and 60 meters off shore are two rocks awash at low water. Beyond here to the head of the bay there is a short stretch of pebble beach followed by one of small angular rocks. The head of the bay has a good beach with a few low rocky points, off which there are a few rocks awash at low water 20 to 30 meters from shore. There are three divides here six to seven hundred feet high, one of which leads to Sanborn Harbor. The mountains back of the head of the bay are very steep and rocky near their summits. The north shore from the head of the harbor to the gravel spit on the north side is shingle. The country rises regularly but steeply to the ridge behind. Another divide about seven hundred feet high leading to Sanborn Harbor is situated near the middle of this stretch. The gravel spit which is about six hundred meters long forms a small well sheltered bay for small boats. Beyond the spit the shore line runs in a northwesterly direction for about a mile and then turns north for several hundred meters. The beach is either of large pebbles or angular

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rocks chipped from the cliffs. A few meters beyond where the beach turns again to the west is a deserted fishing station consisting of one large house on shore and a smaller one on the end of a boat pier extending about fifty feet into the water. Back of this station is a low meadow in which is a small fresh water lake. A little beyond the fishing station the shore turns to the northwest and then north and is very foul. There <sup>are</sup> is numerous outlying rocks from 5 to 20 feet high and rocks awash at low water 200 meters from shore. The dark grey cliffs here are from one to four hundred feet high and rise almost vertically from the shore.  $\Delta$  Ye is a good sized double waterfall here, about sixty feet high which shows plainly from offshore. S. 50°E and 353 meters from  $\Delta$  Ye is a large rock awash at low water; between which and shore are several smaller rocks awash at low water. There is much kelp here. From  $\Delta$  Ye to the entrance of Sanborn Harbor the shore is foul, having rocks awash at low water a hundred meters from shore, and many outlying rocks above water of varying heights. Thick kelp matted together extends along here three hundred meters or more from shore. The cliffs are very steep, grey in some places and black in others, and from one to five hundred feet high. Sanborn Harbor is the largest and best harbor of the three included upon this sheet and is a safe anchorage from all winds. EastHead, the headland at the east entrance of the outer harbor has dark grey vertical cliffs over 200 feet high. Back of the cliffs the land rises gently to the summit ridge about 500 feet higher. This ridge rises gradually in a southeasterly direction until well into the bay where the peaks are 1400 to 1700 feet high and are of various forms and shapes. The peaks are all grey in color. The headland on the west side has cliffs from 300 to 450 feet high and mountains which are more broad on top and therefore less conspicuous than those on the east side. There are several small bays on the east side of the outer harbor which can be used for an anchorage with winds from certain directions while the large nearly land locked bay forming the inner harbor or Sanborn Harbor proper is a good anchorage at all times. From the point at the west entrance to the outer harbor to the small lake two and a half miles southeast, as shown on the sheet, the shore line is foul with rocks awash at low water ten to twenty meters from shore, with the exception of a small beach about three quarters of a mile from the point. This beach is at the head of two valleys; in the northern of which a small waterfall can be seen. Back of this beach is a gradual rise to a large nearly level plateau at an elevation of 500 feet. There is much kelp all along this stretch of shore line even in front of this pebble beach. The lake mentioned is back of a steep pebble beach at the head of a large valley, and has an elevation of 12 feet. A fresh water

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supply could easily be taken from this lake. From here to Shoal Bay the shore line is fould and rocky and not favorable for landing. Shoal Bay is a small indentation at the south-west part of the outer harbor. On the west side is a small pebble spit and in the entrance dividing it into three parts are two large pebble bars. The shore line is either of pebbles or large angular rocks. A large valley at the head of the bay rises gently to the south to a divide about seven hundred feet high, beyond which is Eagle Harbor. From Shoal Bay to a  $\odot$  Rat which is at the west entrance to Sanborn Harbor proper the shore line is rocky with grey cliffs about a hundred feet high. From  $\odot$  Rat to the head of the south bight of the harbor is good pebble beach, back of which there is a gradual rise to the ridge behind, about thirteen hundred feet high and running parallel to the shore line. At the head of the bay the shore line of which is shingle, is a very low broad valley sloping gently to the south. From the head of this bay to  $\odot$  Pon the shore line is rocky and foul.  $\odot$  Roñ is a rock about three feet high 50 meters from shore.  $\odot$  Pon is at the foot of a small lake back of which a divide about thirty feet high separating this bay from a bay on the other side of the island. A long narrow bay now extends to the northeast, on both sides is a beach of either shingle or sharp small pebbles, except for a few small rocky points off which in most cases are a few rocks awash at low water 10 to 20 meters from shore. Near the head of the harbor is  $\odot$  Bek is located on a rock awash at low water about 90 meters from shore. At the head of the bight a large waterfall can be seen draining into a lake on the other side of the island. This lake is separated from the arm of Sanborn Harbor by a low divide less than a hundred feet high. From the bight to Mack's Head, the cliffs from ten to twenty feet high rise vertically from the water's edge, and then the country rises gradually to the ridge behind. Mack's Head is the name given to the point on the east entrance to the inner Sanborn Harbor. It is a low rocky point with grey cliffs rising vertically from the water's edge to a height of 60 feet. There are several rocks awash at low water along here ten to fifteen meters from shore. Mack's Head Island is a large nearly circular rock about 57 feet high with a diameter of 140 meters. Southeast of the island and 90 meters from the center is a large rock awash at low water at the end of a reef of rocks. From Mack's Head to the small pebble beach where  $\odot$  Wet is located the shore line is foul with rocks awash fifteen meters from shore. Back of this beach is a small low meadow and nearby are two streams of good water. The shore line now turns to the northeast for about a mile until a steep rocky point about forty feet high is reached when it turns to the northwest into Caton's Cove. Along here are sharp angular rocks on the beach back of which the cliffs rise steeply fifty to two hundred feet. Caton's Cove is the name given to a small height on the east side of the outer harbor. The south shore line is rather foul, there being at the

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west end several rocks awash at low water ten to fifteen <sup>meters</sup> feet from shore and around them much kelp. At several places the shore is impassible even at low water. At the head of the cove is a small bay formed by a grass covered pebble bar extending from the north nearly to the south shore. This bay is known as the Kitchen and forms an excellent anchorage for small sized vessels. It is subject to "Williwags" from all sides however. A large, broad valley extends eastward, the last to the sharp jagged ridge of peaks from 1500 to 1700 feet high which surrounds it. Several streams of good fresh water empty into "The Kitchen". From the north shore of Caton's Cove there is a steep even slope up to the jagged ridge running parallel to the shore and from 1200 to 1600 feet high. From Caton's Cove the shore line turns northeast for about three quarters of a mile to a low point extending west. The shore line except for a small pebble beach at the north end of this stretch is rocky and foul ~~out to~~ <sup>with</sup> rocks awash at low water 20 meters from shore. There is some kelp along here 50 meters from shore. Back of the shore, the cliffs rise nearly vertical up to heights of from one to four hundred feet. The point on which  $\odot$  Fish is located is 212 feet high at the highest point and flat topped. The shore line of the point is rocky with vertical grey cliffs from 50 to 70 feet high. S 77° W of  $\odot$  Fish 260 meters distant and 120 meters from shore are two rocks, awash at low water. The presence of kelp over them gives an indication of their location. On the end of the beach, at the head of the bay, beyond this point is an occupied cod fish station. Back of the beach a large valley extends back to the high ledge behind. From the bay out to the point on which is located  $\odot$  Rap, the shore is foul with many rocks awash 50 meters from shore, and thick heavy kelp 100 meters from shore. 120 meters southwest of  $\odot$  Rap is a rock awash at low water, between which and shore are numerous other rocks awash at low tide. The dark grey cliffs along here are from 50 to 300 feet high. From this point out to  $\Delta$  Bun the shore is foul and rocky. Steep cliffs from 50 to 200 feet high rise from the water's edge. There is a pebble beach in front of a long valley near  $\odot$  ~~Wk2~~ Much thick kelp is found all along here 200 meters from shore. East Head is the name given to the headland at the east entrance to Sanborn Harbor. It rises steeply from the shore to a height of 100 to 200 feet and then slopes gently back to a ridge running southeast.  $\Delta$  Bun is a large sharp pinnacle 103 feet high and a very conspicuous landmark. It lies 180 meters off East Head. The shore line runs in a general easterly direction to the rocky point on which  $\odot$  Xdna is located. It is indented by several small bays having pebble beaches. There are numerous outlying rocks along here and rocks awash at low water some distance from shore.  $\odot$  Dora is located on a grass topped rock 43 feet high near which are two other lower rocks. There is much thick kelp along here. The cliffs here are from 25 to 200 feet high.

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Back of the cliffs the land rises gently to the summits behind. The west entrance to Porpoise Harbor may be said to begin at  $\circ$  Edna. Porpoise Harbor, the west side and head of which are shown on this sheet is the open bay just east of Sanborn Harbor. It is so deep even at the head that it is not a good anchorage. On the west side there is a gradual rise to the ridge running in a general southeast and northwest direction. At the head of the harbor is a semicircular ridge of sharp jagged peaks varying from 1300 to 1700 feet high. The east side of the harbor is shown partly on this sheet and partly on sheet E. Between  $\circ$  Edna and  $\circ$  Fat is a rocky shore line back of which are dark grey cliffs from 50 to 70 feet high. There are numerous rocks awash here at low water and much thick kelp. Beyond here a pebble beach runs east for three quarters of a mile. From this beach several ledges of rock project 100 meters from the shore line. Beyond this beach to  $\circ$  Mad the shore line is irregular, being indented by several small bays. In most of the bays there is a pebble beach behind which are valleys, while the points are rocky and have rocks awash off them 10 to 20 meters from shore. Between bays there are cliffs 50 to 60 feet high.  $\circ$  Los is an outlying rock, awash at high water, about three feet high. 160 meters inshore is a group of rocks about five feet high. There is kelp between this group and  $\circ$  Los and indications that there are rocks awash at low water there also. Just beyond  $\circ$  Mad is a small pebble beach back of which is a valley extending to the southwest and widening toward the top. The shore line past this beach runs in a direction a little east of south to the head of the Harbor. The beach is shingle. Back of the shore there is a gradual rise to the ridge to the southwest. At the head of the harbor is a good pebble beach, except at the point where  $\circ$  Pit is located. Here it is rocky for about a hundred meters east of  $\circ$  Pet. There are two large valleys at the head of the bay separated at the lower end by a low ridge. The eastern valley has several distinct peaks back of it; the most northern one being especially noticeable as it is sharp and rounded. A small lake is situated at the head of this valley. The east shore line shown on this sheet is rocky except for the small bay about a half mile from the head of the bay. Here there is a small pebble beach back of which is a small steep valley. Beyond this valley is a rocky shore as far as the beach shown at the end of the sheet. There is a small lake shown just at the limits of the sheet. The valley back of this lake rises steeply to an elevation of about 400 feet when there appears to be a plateau, back of which there is a gentle rise to about 800 feet at the ridge behind.

5. SETTLEMENTS: WHITE, NATIVE, RESOURCES: MINING, FISHING: FRRMING: COMMERCE.

There is a small fishing station, which is now occupied, in the small bay just north of Caton's Cove in outer Sanborn Harbor.

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In Eagle Harbor are two fishing stations at present deserted. One has four houses and a salting shed much in need of repairs, while the other has one house and a good boat pier. The fishermen are all white men. There are no native settlement within the sheet limits. The cod fishermen say that fish are becoming scarce due probably to the lack of protection for the cod. There is no mining done here. Farming does not seem to have been tried. It would seem that cattle raising could be carried on in some of the large valleys. All the commerce carried on is the shipping of the fish caught at the fish station. The fish are carried out by the vessels belonging to the company owning the fish station. The presence of bones of several large whales at the head of Sanborn Harbor indicates that this was often used as a rendezvous for whaling vessels.

6. GEOGRAPHIC NAMES: AUTHORITIES: LIST

Below is the list all the geographic names which could be secured from the old charts and by inquiry from inhabitants:

|                |                   |                 |
|----------------|-------------------|-----------------|
| Wooly Head.    | Catons Cove.      | East Head.      |
| Eagle Harbor   | The Kitchen       | Porpoise Harbor |
| Sanborn Harbor | Macks Head        | Nagai Strait    |
| Outer Harbor   | Macks Head Island |                 |

7. MAGNETIC DECLINATION

The magnetic declination was determined with the plane-tablee carefully oriented at A Nagai and found to be N 19° 27' E.

Respectfully submitted,

*Leroy P Raynor*

APPROVED:

Aid, C. & G. Survey.

*James B. Miller,*  
Assistant, C. & G. Survey,  
Commanding.

Kodiak, Alaska,

October 26, 1914.

## SHEET F.

## PLANETABLE POSITIONS

| Stations   | Elev.<br>ft. | Latitude<br>° ' " | D.M.   |        | Long.<br>° ' " | D.P.  |       | Adjusted<br>M. |
|--|--------------|-------------------|--------|--------|----------------|-------|-------|----------------|
|  |              |                   | M.     | M.     |                | M.    | M.    |                |
| Bun  | 105          | 55° 12'           | 3668   | 366.8  | 160° 03'       | 774.9 | 774.9 |                |
| located by triangulation<br>pinnacle east head Nagai |              |                   | 1488.8 | 1488.8 |                | 286.4 | 286.4 |                |
| Wel  | 10           | 55 11             | 1558   | 1562   | 160 03         | 190   | 190   |                |
| W.W.rock   |              |                   | 292    | 293    |                | 870   | 872   |                |
| Vix  | 20           | 55 11             | 1345   | 1343   | 160 02         | 1022  | 1024  |                |
| w.w.rock   |              |                   | 513    | 512    |                | 37    | 38    |                |
| Ulk 2  | 5            | 55 11             | 1100   | 1099   | 160 02         | 834   | 833   |                |
| w.w.outlying rock                                    |              |                   | 757    | 756    |                | 230   | 229   |                |
| Til  | 15           | 55 11             | 796    | 795    | 160 02         | 997   | 993   |                |
| w.w.on pinnacle                                      |              |                   | 1062   | 1060   |                | 70    | 69    |                |
| Sol  | 3            | 55 11             | 673    | 670    | 160 02         | 1061  | 1058  |                |
| w.w.on outlying rock                                 |              |                   | 1188   | 1185   |                | 05    | 04    |                |
| Rap  | 15           | 55 11             | 421    | 421    | 160 03         | 75    | 76    |                |
| w.w.on point   |              |                   | 1435   | 1434   |                | 980   | 986   |                |
| Qui  |              | 55 10             | 892    | 892    | 160 02         | 308   | 308   |                |
| w.w.pinnacle on point                                |              |                   | 964    | 963    |                | 753   | 754   |                |
| Pil  |              | 55 10             | 809    | 807    | 160 01         | 963   | 967   |                |
| w.w.rock on shore                                    |              |                   | 1051   | 1048   |                | 94    | 95    |                |
| Or   | 13           | 55 10             | 597    | 595    | 160 01         | 780   | 782   |                |
| w.flag head of bay                                   |              |                   | 1263   | 1260   |                | 279   | 280   |                |
| Nas  |              | 55 10             | 506    | 505    | 160 01         | 874   | 875   |                |
| n.w.corner of pier                                   |              |                   | 1351   | 1350   |                | 187   | 187   |                |
| Men  | 12           | 55 10             | 461    | 460    | 160 01         | 1024  | 1028  |                |
| w.w.   |              |                   | 1397   | 1395   |                | 33    | 34    |                |
| Fish   | 202          | 55 10             | 314    | 314    | 160 02         | 152   | 152   |                |
| pole and cairn                                       |              |                   | 1541   | 1541   |                | 908   | 910   |                |
| Lot  | 7            | 55 10             | 382    | 381    | 160 02         | 333   | 333   |                |
| w.w.on point   |              |                   | 1476   | 1476   |                | 730   | 729   |                |
| Ike  | 8            | 55 10             | 66     | 66     | 160 01         | 600   | 599   |                |
| w.w.south of pebble beach                            |              |                   | 1794   | 1790   |                | 463   | 463   |                |
| Has  | 7            | 55 09             | 971    | 973    | 160 01         | 116   | 117   |                |
| w.w.   |              |                   | 880    | 882    |                | 939   | 946   |                |
| Get  | 4            | 55 09             | 810    | 810    | 160 00         | 481   | 487   |                |
| w.w.stone on beach                                   |              |                   | 1045   | 1045   |                | 571   | 576   |                |
| Fir  | 7            | 55 09             | 820    | 820    | 160 00         | 383   | 387   |                |
| w.w.stone on beach                                   |              |                   | 1036   | 1035   |                | 670   | 676   |                |
| Elk  | 4            | 55 09             | 863    | 863    | 160 00         | 143   | 144   |                |
| w.w.   |              |                   | 993    | 992    |                | 913   | 919   |                |
| Den  | 4            | 55 09             | 874    | 873    | 159 59         | 1045  | 1048  |                |
| w.w.   |              |                   | 983    | 982    |                | 15    | 15    |                |
| Can  | 4            | 55 09             | 873    | 870    | 159 59         | 842   | 847   |                |
| w.w.   |              |                   | 989    | 985    |                | 214   | 216   |                |
| Bis  | 5            | 55 09             | 830    | 829    | 159 59         | 691   | 694   |                |
| w.w.   |              |                   | 1028   | 1026   |                | 368   | 369   |                |
| Al   | 6            | 55 09             | 759    | 757    | 159 59         | 560   | 563   |                |
| w.w.   |              |                   | 1100   | 1098   |                | 498   | 500   |                |
| Camp   | 6            | 55 09             | 681    | 681    | 159 59         | 551   | 553   |                |
| w.w.   |              |                   | 1175   | 1174   |                | 508   | 510   |                |

| Stations                        | Elev.<br>ft. | Latitude<br>° ' " | D.M.<br>M. | Adjust<br>M. | Long.<br>° ' " | D.P.<br>M. | Adjusted<br>M. |
|---------------------------------|--------------|-------------------|------------|--------------|----------------|------------|----------------|
| Tide                            | 8            | 55 09             | 575        | 575          | 159 59         | 828        | 830            |
| tide gauge end of spit          |              |                   | 1281       | 1280         |                | 232        | 233            |
| Ent                             | 5            | 55 09             | 476        | 476          | 159 59         | 1007       | 1010           |
| w.w.pole                        |              |                   | 1380       | 1379         |                | 58         | 53             |
| Bal                             | 4            | 55 09             | 360        | 361          | 160 00         | 280        | 281            |
| w.w.                            |              |                   | 1492       | 1494         |                | 778        | 782            |
| Car                             | 3            | 55 09             | 220        | 220          | 160 00         | 442        | 444            |
| w.w.                            |              |                   | 1636       | 1635         |                | 616        | 619            |
| Dos                             | 4            | 55 09             | 102        | 102          | 160 00         | 564        | 568            |
| w.w.                            |              |                   | 1754       | 1753         |                | 490        | 495            |
| Holy                            | 42           | 55 08             | 1373       | 1374         | 160 01         | 194        | 195            |
| w.w.pole on point               |              |                   | 480        | 481          |                | 864        | 868            |
| Ruf                             | 3            | 55 08             | 680        | 682          | 160 00         | 581        | 583            |
| w.w.rock                        |              |                   | 1171       | 1173         |                | 478        | 480            |
| Bot                             | 3            | 55 08             | 476        | 478          | 160 00         | 188        | 189            |
| whale bone on rock              |              |                   | 1375       | 1377         |                | 867        | 874            |
| San                             | 24           | 55 08             | 41         | 41           | 160 00         | 73         | 73             |
| flag on bluff                   |              |                   | 1810       | 1814         |                | 984        | 990            |
| Her                             | 4            | 55 07             | 1557       | 1557         | 160 00         | 224        | 224            |
| w.w.                            |              |                   | 298        | 298          |                | 840        | 840            |
| Nol                             | 93           | 55 07             | 1178       | 1177         | 160 00         | 555        | 556            |
| pole and flag                   |              |                   | 678        | 678          |                | 508        | 508            |
| Lut                             | 57           | 55 07             | 983        | 981          | 160 01         | 66         | 66             |
| pole on Mack Island             |              |                   | 874        | 874          |                | 997        | 998            |
| Bal                             | 67           | 55 07             | 652        | 652          | 160 00         | 630        | 631            |
| pole with flag                  |              |                   | 1204       | 1203         |                | 433        | 433            |
| Col                             | 10           | 55 07             | 721        | 723          | 160 00         | 28         | 28             |
| w.w.pole and cairn              |              |                   | 1130       | 1132         |                | 1033       | 1036           |
| Sen                             | 12           | 55 07             | 406        | 406          | 159 59         | 674        | 677            |
| cairn and pole                  |              |                   | 1450       | 1449         |                | 385        | 387            |
| Beh                             | 7            | 55 07             | 551        | 551          | 159 59         | 154        | 155            |
| w.w.                            |              |                   | 1304       | 1304         |                | 905        | 909            |
| Wha                             | 10           | 55 07             | 913        | 912          | 159 58         | 506        | 507            |
| pole & cairn                    |              |                   | 944        | 943          |                | 556        | 557            |
| Bek                             |              | 55 07             | 849        | 850          | 159 58         | 436        | 435            |
| pole on rock awash at low water |              |                   | 1005       | 1005         |                | 630        | 629            |
| Try                             | 5            | 55 07             | 962        | 961          | 159 58         | 92         | 92             |
| cairn & pole                    |              |                   | 894        | 894          |                | 970        | 972            |
| Se                              | 3            | 55 07             | 638        | 638          | 159 58         | 274        | 274            |
| w.w.rock on shore               |              |                   | 1218       | 1217         |                | 791        | 790            |
| Nag                             | 20           | 55 06             | 1760       | 1762         | 159 59         | 211        | 212            |
| tripod and flag                 |              |                   | 93         | 93           |                | 850        | 852            |
| Pon                             | 10           | 55 06             | 1292       | 1296         | 159 59         | 466        | 469            |
| w.w.pole and cairn              |              |                   | 557        | 559          |                | 592        | 595            |
| Tip                             |              | 55 06             | 1107       | 1110         | 160 00         | 136        | 136            |
| w.w.projecting rock             |              |                   | 743        | 745          |                | 925        | 928            |
| Roc                             | 3            | 55 06             | 755        | 754          | 160 00         | 370        | 371            |
| w.w.outlying rock               |              |                   | 1103       | 1101         |                | 691        | 693            |
| Wal                             |              | 55 06             | 363        | 366          | 160 00         | 1031       | 1035           |
| whalebone & cairn               |              |                   | 1484       | 1489         |                | 29         | 29             |

| Stations   | Elev.<br>ft | Latitude<br>° ' " | D.M.<br>M. | Adjusted<br>M. | Long.<br>° ' " | D.P.<br>M. | Adjusted<br>M. |
|--|-------------|-------------------|------------|----------------|----------------|------------|----------------|
| Riv  |             | 55 06             | 879        | 883            | 160 01'        | 85         | 85             |
| tripod & flag on bluff                           |             |                   | 968        | 972            |                | 975        | 979            |
| Su   | 5           | 55 06             | 1431       | 1438           | 160 01         | 153        | 153            |
| w.w.   |             |                   | 415        | 417            |                | 911        | 911            |
| Rat  | 12          | 55 07             | 134        | 134            | 160 01         | 468        | 467            |
| w.w.   |             |                   | 1718       | 1721           |                | 597        | 597            |
| Qu   |             | 55 07             | 209        | 209            | 160 02         | 46         | 46             |
| w.w. rock  |             |                   | 1648       | 1646           |                | 1017       | 1018           |
| Pim  |             | 55 06             | 1644       | 1649           | 160 02         | 824        | 823            |
| w.w.   |             |                   | 205        | 206            |                | 241        | 241            |
| Ot   |             | 55 06             | 1554       | 1560           | 160 03         | 406        | 406            |
| w.w.   |             |                   | 294        | 295            |                | 658        | 658            |
| Nod  |             | 55 06             | 1830       | 1838           | 160 03         | 396        | 396            |
| w.w.   |             |                   | 17         | 17             |                | 667        | 668            |
| Mat  |             | 55 07             | 352        | 351            | 160 03         | 200        | 200            |
| cairn & pole on point                            |             |                   | 1506       | 1504           |                | 862        | 864            |
| Lik  |             | 55 07             | 948        | 949            | 160 03         | 217        | 217            |
| w.w.   |             |                   | 906        | 906            |                | 845        | 847            |
| Kip  |             | 55 07             | 1275       | 1275           | 160 03         | 347        | 347            |
| w.w.   |             |                   | 580        | 580            |                | 715        | 717            |
| Jay  |             | 55 08             | 48         | 49             | 160 03         | 430        | 431            |
| w.w.   |             |                   | 1800       | 1806           |                | 630        | 632            |
| Ham  |             | 55 08             | 250        | 251            | 160 03         | 438        | 438            |
| w.w.   |             |                   | 1600       | 1604           |                | 625        | 625            |
| Guy  |             | 55 08             | 384        | 385            | 160 03         | 910        | 909            |
| tripod & logs                                    |             |                   | 1466       | 1470           |                | 154        | 154            |
| Fan  |             | 55 08             | 832        | 834            | 160 03         | 931        | 929            |
| w.w.   |             |                   | 1017       | 1021           |                | 135        | 134            |
| Es   |             | 55 08             | 1144       | 1146           | 160 04         | 267        | 267            |
| w.w.   |             |                   | 708        | 709            |                | 794        | 796            |
| Do   |             | 55 08             | 1484       | 1490           | 160 04         | 467        | 467            |
| w.w.   |             |                   | 364        | 365            |                | 596        | 596            |
| Cot  |             | 55 09             | 156        | 156            | 160 05         | 165        | 166            |
| w.w.   |             |                   | 1697       | 1699           |                | 894        | 897            |
| Art  | 19          | 55 09             | 232        | 232            | 160 05         | 492        | 493            |
| w.w. cairn & pole                                |             |                   | 1620       | 1623           |                | 568        | 570            |
| Bon  |             | 55 09             | 750        | 750            | 160 05         | 1027       | 1032           |
| w.w.   |             |                   | 1105       | 1105           |                | 30         | 31             |
| Cap  | 13          | 55 09             | 1374       | 1378           | 160 06         | 395        | 396            |
| w.w. rock on point                               |             |                   | 475        | 477            |                | 663        | 667            |
| Dol  | 22          | 55 09             | 1232       | 1234           | 160 06         | 796        | 800            |
| pinnacle   |             |                   | 621        | 621            |                | 261        | 263            |
| Elf  | 17          | 55 09             | 741        | 742            | 160 06         | 1007       | 1010           |
| w.w.   |             |                   | 1111       | 1113           |                | 53         | 53             |
| Tin  | 7           | 55 09             | 526        | 527            | 160 06         | 1022       | 1027           |
| w.w.   |             |                   | 1325       | 1328           |                | 36         | 36             |
| Far  |             | 55 09             | 260        | 259            | 160 07         | 324        | 322            |
| w.w.   |             |                   | 1600       | 1596           |                | 744        | 741            |
| Gut  |             | 55 09             | 51         | 51             | 160 07         | 375        | 375            |
| w.w.   |             |                   | 1806       | 1804           |                | 690        | 688            |
| Ye   | 20          | 55 08             | 1661.3     | 1661.3         | 160 07         | 626.5      | 626.5          |
| double fall at forks<br>located by triangulation |             |                   | 194.2      | 194.2          |                | 436.6      | 436.6          |

| Stations  | Elev.<br>ft. | Latitude<br>° ' " | D.M.<br>M. | Adjust<br>M. | Long.<br>° ' " | D.P.<br>M. | Adjusted<br>M. |
|---|--------------|-------------------|------------|--------------|----------------|------------|----------------|
| Wit   |              | 55° 08            | 1637.5     | 1637.5       | 160 07         | 672.1      | 672.1          |
| w.w.by stream<br>located by triangulation               |              |                   | 218        | 218          |                | 390.5      | 390.5          |
| Ja  | 40           | 55 08             | 850        | 851          | 160 07         | 536        | 537            |
| w.w. to top rock  |              |                   | 1002       | 1004         |                | 525        | 526            |
| Kul   |              | 55 08             | 263        | 264          | 160 07         | 320        | 319            |
| w.w.rock on rock slide                                  |              |                   | 1587       | 1591         |                | 746        | 744            |
| La  |              | 55 07             | 1235       | 1233         | 160 06         | 805        | 808            |
| w.w.  |              |                   | 622        | 622          |                | 255        | 256            |
| Mal   |              | 55 07             | 611        | 611          | 160 06         | 162        | 162            |
| house on pier   |              |                   | 1245       | 1244         |                | 900        | 902            |
| Nut   |              | 55 06             | 1500       | 1501         | 160 05         | 780        | 782            |
| w.w.  |              |                   | 354        | 354          |                | 281        | 282            |
| Old   | 6            | 55 06             | 1230       | 1228         | 160 05         | 566        | 567            |
| w.w.rock  |              |                   | 628        | 627          |                | 495        | 497            |
| Pas   | 10           | 55 06             | 1028       | 1024         | 160 05         | 443        | 443            |
| w.w. rock   |              |                   | 833        | 831          |                | 622        | 621            |
| Qua   | 6            | 55 06             | 330        | 328          | 160 05         | 69         | 69             |
| w.flag  |              |                   | 1533       | 1527         |                | 994        | 995            |
| Rot   | 5            | 55 06             | 127        | 127          | 160 04         | 889        | 888            |
| wt. red flags   |              |                   | 1732       | 1728         |                | 176        | 176            |
| Wer   |              | 55 06             | 102        | 102          | 160 04         | 280        | 280            |
| w.stone on beach  |              |                   | 1760       | 1753         |                | 786        | 784            |
| Sit   | 15           | 55 05             | 1359       | 1356         | 160 03         | 109        | 510            |
| w.w. rock   |              |                   | 500        | 499          |                | 553        | 554            |
| Us  | 5            | 55 05             | 564        | 564          | 160 03         | 550        | 548            |
| w.w. rock   |              |                   | 1293       | 1291         |                | 517        | 516            |
| Vil   | 7            | 55 05             | 440        | 440          | 160 03         | 834        | 833            |
| w.w. rock   |              |                   | 1416       | 1415         |                | 231        | 231            |
| Ox  | 5            | 55 05             | 987        | 986          | 160 04         | 407        | 407            |
| log pile & flag   |              |                   | 870        | 869          |                | 658        | 657            |
| Xel   | 4            | 55 05             | 1690       | 1686         | 160 05         | 514        | 514            |
| logs  |              |                   | 169        | 169          |                | 550        | 550            |
| Yam   | 4            | 55 06             | 53         | 53           | 160 05         | 826        | 828            |
| w.w. cairn  |              |                   | 1809       | 1802         |                | 235        | 236            |
| Zol   | 4            | 55 06             | 193        | 192          | 160 06         | 417        | 417            |
| w.w. logs   |              |                   | 1667       | 1663         |                | 648        | 647            |
| At  | 4            | 55 06             | 494        | 493          | 160 06         | 686        | 684            |
| w.w.cairn & red flag                                    |              |                   | 1366       | 1362         |                | 380        | 380            |
| Bet   | 4            | 55 06             | 685        | 684          | 160 06         | 979        | 974            |
| w.w.cairn & W.flag                                      |              |                   | 1174       | 1171         |                | 90         | 90             |
| Con   |              | 55 06             | 843        | 841          | 160 07         | 150        | 150            |
| waterfall 3'above ground                                |              |                   | 1018       | 1014         |                | 918        | 914            |
| Roc   |              | 55 07             | 832        | 830          | 160 10         | 785        | 788            |
| small outlying rock                                     |              |                   | 1027       | 1025         |                | 274        | 276            |
| Spot  |              | 55 07             | 695        | 693          | 160 10         | 900        | 903            |
| w.spot on rocks   |              |                   | 1166       | 1162         |                | 160        | 161            |
| Green   |              | 55 06             | ---        | 1637         | 160 11         | 314        | 316            |
| green on rocks  |              |                   | 218        | 218          |                | 743        | 748            |
| Ax  | 89           | 55 07             | 333.6      | 333.6        | 160 11         | 378.6      | 378.6          |
| big pinnacle off Wooly Head<br>located by triangulation |              |                   | 1521.9     | 1521.9       |                | 684.9      | 684.9          |

| Stations  | Elev.<br>ft. | Latitude<br>° ' " | D.M.<br>M. | Adjusted<br>M. | Long.<br>° ' " | D.P.<br>M. | Adjusted<br>M. |
|---|--------------|-------------------|------------|----------------|----------------|------------|----------------|
| Nip   | 49           | 55 06             | 1272.6     | 1272.6         | 160 11         | 822.9      | 822.9          |
| pinnacle rock off Woolly Head<br>located by triangulation         |              |                   | 582.9      | 582.9          |                | 240.7      | 240.7          |
| Wet   | 7            | 55 08             | 292        | 292            | 159 59         | 950        | 956            |
| cairn & pole head bay   |              |                   | 1562       | 1563           |                | 107        | 108            |
| Wat   | 6            | 55 05             | 1251       | 1251           | 160 04         | 733        | 730            |
| w.w. rock   |              |                   | 604        | 604            |                | 336        | 334            |
| Alt   | 16           | 55 12             | 629        | 629            | 160 03         | 318        | 318            |
| w.w.outlying rock   |              |                   | ---        | 1226           |                | 742        | 743            |
| Bay   | 12           | 55 12             | 383        | 383            | 160 02         | 833        | 831            |
| w.w.  |              |                   | ---        | 1472           |                | 231        | 230            |
| Col   | 33           | 55 12             | 500        | 500            | 160 02         | 570        | 567            |
| w.w.outlying rock   |              |                   | ---        | 1355           |                | 497        | 494            |
| Dora  | 45           | 55 12             | 762        | 762            | 160 02         | 262        | 261            |
| Flag on outlying rock   |              |                   | ---        | 1093           |                | 802        | 800            |
| Edna  | 21           | 55 12             | 640        | 640            | 160 01         | 688        | 686            |
| pinnacle on point   |              |                   | ---        | 1215           |                | 377        | 375            |
| Fat   |              | 55 12             |            | 4.0            | 160 01         |            | 109.8          |
| w.w.cut in by triangulation                                       |              |                   |            | 1851.5         |                |            | 951.5          |
| Hol   |              | 55 11             | 1668       | 1669           | 160 00         | 315        | 318            |
| w.w.  |              |                   | 186        | 186            |                | 738        | 744            |
| Ilk   |              | 55 11             | 1364       | 1363           | 160 00         | 64         | 65             |
| w.w.  |              |                   | 492        | 492            |                | 991        | 997            |
| Kat   |              | 55 11             | 917        | 917            | 159 59         | 900        | 906            |
| w.w.  |              |                   | ---        | 938            |                | 154        | 156            |
| Los   | 3            | 55 11             | 420        | 420            | 159 59         | 32         | 33             |
| w.w.outlying rock   |              |                   | ---        | 1435           |                | 1020       | 1029           |
| Mad   | 36           | 55 10             | 1602       | 1604           | 159 58         | 522        | 527            |
| w.w.pinnacle  |              |                   | 251        | 251            |                | 530        | 535            |
| Nak   |              | 55 10             | 354        | 355            | 159 58         | 104        | 105            |
| w.w.  |              |                   | 1497       | 1500           |                | 953        | 956            |
| Ole   |              | 55 09             | 1666       | 1666           | 159 58         | 16         | 16             |
| w.w.  |              |                   | 189        | 189            |                | 1040       | 1047           |
| Pit   |              | 55 09             | 1459       | 1460           | 159 57         | 725        | 723            |
| w.w.  |              |                   | 395        | 395            |                | 340        | 343            |
| Qua   |              | 55 09             | 1746       | 1745           | 159 57         | 90         | 90             |
| w.w.  |              |                   | 110        | 110            |                | 972        | 973            |
| Res   |              | 55 10             | 261        | 262            | 159 57         | 33         | 33             |
| w.w.  |              |                   | 1590       | 1593           |                | 1028       | 1029           |
| Tot   |              | 55 10             | 834        | 836            | 159 56         | 967        | 970            |
| w.w.  |              |                   | 1016       | 1019           |                | 92         | 92             |
| Ulk 1   |              | 55 10             | 1353       | 1355           | 159 57         | 170        | 171            |
| w.w.  |              |                   | 500        | 500            |                | 887        | 891            |
| Wag   | 21           |                   | 97.4       | 97.4           |                | 58.8       | 58.8           |
| w.w.cairn loc.by triangulation                                    |              | 55 07             | 1758.1     | 1758.1         | 160 06         | 1004.7     | 1004.7         |
| Rug   |              | 55 07             | 6.5        | 6.5            | 160 08         | 667.6      | 667.6          |
| Small red house Eagle Harbor                                      |              |                   | 1849       | 1849           |                | 395.9      | 395.9          |
| *Lun  |              | 55 06             | 1828       | 1828           | 160 08         | 706.1      | 706.1          |
| white gable near long shed Eagle Hbr.<br>located by triangulation |              |                   | 27.5       | 27.5           |                | 357.9      | 357.9          |
| located by triangulation  |              |                   |            |                |                |            |                |