

c

1914

Grampus

GRAMFUS (DAGUE)

| Station No. | Date | Other Data |
|-------------|---------------|---|
| 10071 | 1913 July 20, | Lat. $38^{\circ}-53'$, Long. $72^{\circ}-39'$, Cape May. |
| 10072 | 1913 July 21, | Lat. $38^{\circ}-50'$, Long. $73^{\circ}-51'$. |
| 10073 | 1913 July 21, | Lat. $38^{\circ}-55'$, Long. $74^{\circ}-30'$. |
| 10074 | 1913 July 22, | Lat. $37^{\circ}-41'$, Long. $74^{\circ}-27'$. |
| 10075 | 1913 July 23, | Lat. $37^{\circ}-23'$, Long. $75^{\circ}-21'$. |
| 10077 | 1913 July 24, | Lat. $37^{\circ}-3'$, Long. $74^{\circ}-56'$. |
| 10078 | 1913 July 29, | Lat. $37^{\circ}-6'$, Long. $75^{\circ}-38'$. |
| 10079 | 1913 July 30, | Lat. $37^{\circ}-0'$, Long. $74^{\circ}-53'$. |
| 10080 | 1913 July 31, | Lat. $39^{\circ}-7'$, Long. $74^{\circ}-24'$. |
| 10081 | 1913 July 31, | Lat. $39^{\circ}-45'$, Long. $73^{\circ}-58'$. |
| 10082 | 1913 Aug. 1, | Lat. $40^{\circ}-9'$, Long. $73^{\circ}-21'$. |
| 10083 | 1913 Aug. 1, | Lat. $40^{\circ}-43'$, Long. $72^{\circ}-17'$. |
| 10085 | 1913 Aug. 4, | Lat. $41^{\circ}-39'$, Long. $69^{\circ}-42'$. |
| 10086 | 1913 Aug. 5, | Lat. $42^{\circ}-6'$, Long. $70^{\circ}-0'$. |
| 10087 | 1913 Aug. 9, | Lat. $42^{\circ}-31'$, Long. $70^{\circ}-21'$. |
| 10088 | 1913 Aug. 9, | Lat. $42^{\circ}-33'$, Long. $69^{\circ}-33'$. |
| 10089 | 1913 Aug. 10, | Lat. $43^{\circ}-02'$, Long. $69^{\circ}-19'$. |
| 10090 | 1913 July 9, | Nantucket Shoal, Lat. $40^{\circ}-40'$, Long. $69^{\circ}-32'$. |
| 10099 | 1913 July 19, | Lat. $39^{\circ}-35'$, Long. $73^{\circ}-47'$. |
| 10092 | 1913 Aug. 11, | Lat. $43^{\circ}-27'$, Long. $67^{\circ}-55'$. |
| 10093 | 1913 Aug. 12, | Lat. $43^{\circ}-24'$, Long. $67^{\circ}-12'$. |
| 10095 | 1913 Aug. 12, | Lat. $43^{\circ}-20'$, Long. $65^{\circ}-27'$. |
| 10097 | 1913 Aug. 13, | Lat. $44^{\circ}-13'$, Long. $67^{\circ}-21'$. |
| 10099 | 1913 Aug. 13, | Lat. $44^{\circ}-8'$, Long. $68^{\circ}-10'$. |
| 10100 | 1913 Aug. 13, | Lat. $43^{\circ}-53'$, Long. $67^{\circ}-58'$. |
| 10102 | 1913 Aug. 14, | Lat. $43^{\circ}-34'$, Long. $69^{\circ}-13'$. |

GRANFUS (BACHE)

| Station No. | Date | Other Data |
|--------------------|---------------|---|
| 10104 | 1913 Aug. 15, | Lat. $43^{\circ}-8'$, Long. $70^{\circ}-6'$. |
| 10103 | 1913 Aug. 14, | Lat. $43^{\circ}-33'$, Long. $69^{\circ}-55'$. |
| 10090 | 1913 Aug. 10, | Lat. $42^{\circ}-51'$, Long. $68^{\circ}-25'$. |
| 10118 | 1913 Aug. 25, | Lat. $40^{\circ}-51'$, Long. $71^{\circ}-53'$. |
| 10140 | 1913 Aug. 29, | Lat. $39^{\circ}-48'$, Long. $73^{\circ}-42'$. |
| 10141 | 1913 Aug. 29, | Lat. $39^{\circ}-50'$, Long. $73^{\circ}-53'$. |
| 10157 | 1914 Jan. 30, | Lat. $36^{\circ}-44'$, Long. $75^{\circ}-37'$. |
| 10158 | 1914 Jan. 21, | Lat. $36^{\circ}-10'$, Long. $74^{\circ}-25'$, Norfolk. |
| 10160 | 1914 Jan. 26, | |
| 10161 | 1914 Jan. 26, | |
| 10162 | 1914 Jan. 26, | |
| 10162 ₁ | 1914 Jan. 29, | |
| 10162 ₂ | 1914 Jan. 29, | |
| 10166 | 1914 Jan. 30, | |
| 10169 A | 1914 Feb. 1, | |
| 10169 B | 1914 Feb. 1, | |
| 10169 C | 1914 Feb. 1, | |
| 10171 | 1914 Feb. 2, | |
| 10172 | 1914 Feb. 3, | |
| 10173 | 1914 Feb. 4, | |
| 10174 | 1914 Feb. 4, | |
| 10176 | 1914 Feb. 5, | Bermuda. |
| 10178 | 1914 Feb. 17, | Off St. Georges, St. Davids Head. <i>Bermuda</i> |
| 10180 | 1914 Feb. 18, | trying to locate Argus Banks. |
| 10181 | 1914 Feb. 19, | |
| 10182 | 1914 Feb. 19, | |

GRANFUS (BACHE)

| Station No. | Date | Other Data |
|-------------|-----------------|--|
| 10184 | 1914 Feb. 20, | |
| 10186 | 1914 Feb. 22, | |
| 10187 | 1914 Feb. 23, | |
| 10188 | 1914 Feb. 24, | |
| 10192 | 1914 Feb. 25, | |
| 10194 | 1914 Feb. 26, | |
| 10195 | 1914 Feb. 28, | Massach Harbor. |
| 10197 | 1914 March 13, | Off Key West. |
| 10198 | 1914 March 13, | Off Matanzas coast. |
| 10190 | 1914 Feb. 25, | |
| 10200 | 1914 March, 18, | Cuba. |
| 10202 | 1914 March 19, | |
| 10203 | 1914 March 20, | |
| 10205 | 1914 March 20, | Off Jupiter Light |
| 10206 | 1914 March 21, | |
| 10207 | 1914 March 21, | |
| 10208 | 1914 March 21, | |
| 10209 | 1914 March 22, | |
| 10211 | 1914 March 22, | |
| 10212 | 1914 March 23, | Key West, via, Providence Channel. |
| 10218 | 1914 July 21, | Lat. $40^{\circ}-5'$, Long. $68^{\circ}-6'$. |
| 10219 | 1914 July 21, | Lat. $40^{\circ}-38'$, Long. $67^{\circ}-38'$. |
| 10234 | 1914 July 23, | Lat. $42^{\circ}-03'$, Long. $66^{\circ}-57'$. |
| 10246 | 1914 Aug. 12, | Lat. $44^{\circ}-15'$, Long. $67^{\circ}-23'$. |
| 10249 | 1914 Aug. 13, | Lat. $43^{\circ}-17'$, Long. $67^{\circ}-40'$. |

*Sta. Nos. 10157-10213
missing in "Bach's
Diary"*

Granfus (Bach) Sta.

| | | |
|-------|------|---|
| 10253 | 1914 | Aug. 25, Lat. 41°-03', Long. 70°-51'. |
| 10259 | 1914 | Aug. 25, Lat. 40°-34', Long. 70°-46'. |
| 10260 | 1914 | Aug. 26, Lat. 40°-03', Long. 70°-41'. |
| 10116 | 1914 | Aug. 22, Lat. 40°-37', Long. 72°-00'. |
| 10279 | 1915 | May 26, Lat. 42°-17', Long. 70°-07', Cape Cod. |
| 10256 | 1915 | Aug. 23, Lat. 41°-55', Long. 69°-25'. |
| 10278 | 1915 | May 14, Lat. 43°-00', Long. 70°-12'. |
| 10280 | 1915 | May 31, Lat. 43°-45', Long. 69°-32', Boothbay Harbor. |
| 10281 | 1915 | June 4, Lat. 44°-43', Long. 65°-55'. |
| 10271 | 1915 | May 7, Lat. 43°-26', Long. 66°-28', German Bank. |
| 10293 | 1915 | June 10, Lat. 44°-15', Long. 67°-23', Petit Manan. |
| 10286 | 1915 | June 14, Lat. 43°-59', Long. 69°-15'. |
| 10291 | 1915 | June 23, Lat. 43°-29', Long. 65°-08'. |
| 10296 | 1915 | June 24, Lat. 42°-28', Long. 65°-37', Browns Bank. |
| 10290 | 1915 | June 19, Lat. 43°-24', Long. 66°-22', German Bank |
| 10295 | 1915 | June 24, Lat. 42°-02', Long. 64°-16'. |
| 10294 | 1915 | June 23, Lat. 42°-36', Long. 64°-07'. |
| 10300 | 1915 | July 7, Race Point, Cape Cod. |
| 10303 | 1915 | Aug. 4, Off Manhegan gas buoy. |
| 10306 | 1915 | Aug. 31, Lat. 42°-31', Long. 70°-19'. |
| 10307 | 1915 | Aug. 31, Lat. 42°-40', Long. 69°-34'. |
| 10309 | 1915 | Sept. 1, Lat. 43°-08', Long. 67°-53'. |
| 10310 | 1915 | Sept. 2, Lat. 43°-15', Long. 67°-03'. |
| 10311 | 1915 | Sept. 2, Lat. 43°-22', Long. 65°-17', German Bank. |
| 10319 | 1915 | Sept. 20, |

| | | |
|-------|------|--|
| 10330 | 1915 | Sept. 29, Lat. $42^{\circ}-25'$, Long. $70^{\circ}-33'$. |
| 10331 | 1915 | Sept. 29, Lat. $42^{\circ}-10'$, Long. $70^{\circ}-22'$. |
| 10332 | 1915 | Oct. 1, Lat. $43^{\circ}-17'$, Long. $70^{\circ}-07'$. |
| 10333 | 1915 | Oct. 9, Off Duck Island. |
| 10334 | 1915 | Oct. 9, Matinicus Pt., bearing N. by E. |
| 10335 | 1915 | Oct. 22, Lat. $40^{\circ}-51'$, Long. $70^{\circ}-55'$. |
| 10336 | 1915 | Oct. 23, Lat. $40^{\circ}-23'$, Long. $70^{\circ}-56'$. |
| 10337 | 1915 | Oct. 25, Nantucket Island. |
| 10338 | 1915 | Oct. 23, Lat. $43^{\circ}-19'$, Long. $70^{\circ}-30'$. |
| 10395 | 1915 | |
| 10396 | 1915 | |
| 10337 | 1915 | |
| 10330 | 1916 | |
| 10236 | 1916 | Aug. 2, Lat. $44^{\circ}-17'$, Long. $63^{\circ}-53'$. |
| 10240 | 1916 | Aug. 7. |
| 10330 | 1916 | |
| 10341 | 1916 | July 19, Lat. $42^{\circ}-43'$, Long. $70^{\circ}-29'$. |
| 10342 | 1916 | July 19, Race Point. |
| 10343 | 1916 | July 30, Provincetown Harbor. |
| 10344 | 1916 | July 22, Highland Light. |
| 10345 | 1916 | July 22, Lat. $41^{\circ}-52'$, Long. $69^{\circ}-40'$. |
| 10362 | 1916 | Aug. 1, Lat. $40^{\circ}-23'$, Long. $73^{\circ}-38'$. |
| 10363 | 1916 | Aug. 1, Lat. $40^{\circ}-13'$, Long. $73^{\circ}-21'$. |
| 10368 | 1916 | Aug. 2, Lat. $39^{\circ}-33'$, Long. $71^{\circ}-53'$. |
| 10370 | 1916 | Aug. 3, Lat. $38^{\circ}-55'$, Long. $72^{\circ}-54'$. |
| 10375 | 1916 | Aug. 4, Lat. $38^{\circ}-59'$, Long. $74^{\circ}-03'$. |

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|-------|------|--|
| 10379 | 1916 | Aug. 11, Cape May. |
| 10380 | 1916 | Aug. 12, Lat. 38° - $27'$, Long. 74° - $25'$. |
| 10398 | 1916 | Aug. 29, Provincetown Monument. |
| 10399 | 1916 | Oct. 31, Off Cape Ann. |
| 10402 | 1916 | Nov. 2, Lat. 43° - $37'$, Long. 69° - $15'$. |
| 10403 | 1916 | Nov. 8, Off Provincetown |
| 10404 | 1916 | Nov. 8, Off Cape Cod. |
| 10400 | 1916 | Nov. 1, Inside Jeffrey's Sedge |
| 10394 | 1916 | Aug. 26, Lat. 40° - $16'$, Long. 73° - $08'$. |
| 10391 | 1916 | Aug. 22, Lat. 36° - $48'$, Long. 74° - $55'$. |
| 10411 | 1916 | Nov. 11, Off Delaware Capes. |
| 10412 | 1916 | Nov. 16, Lat. 38° - $14'$, Long. 74° - $39'$. <i>Off Del. Bay.</i> |
| 10396 | 1916 | Aug. 26, Lat. 40° - $50'$, Long. 72° - $07'$. |
| 10416 | 1916 | July 3, Nov. 17 |
| 10445 | 1916 | |
| 10402 | 1917 | |
| 10401 | 1917 | |
| 10391 | 1917 | |
| 10438 | 1917 | Jan. 17, Loggerhead Key, N W 15 miles. |
| 10439 | 1917 | Jan. 30, Key West. |
| 10440 | 1917 | Jan. 21, Sanibel Light, NNE about 20 miles. |
| 10441 | 1917 | Jan. 24, 5 mi. N from Tampa, Lat. 27° - $38'$, Long. 82° - $59'$. |
| 10442 | 1917 | Jan. 25, Lat. 27° - $39'$, Long. 83° - $36'$. |
| 10443 | 1917 | Jan. 25, Lat. 27° - $41'$, Long. 84° - $12'$. |
| 10444 | 1917 | Jan. 25, Lat. 27° - $44'$, Long. 84° - $50'$. |
| 10445 | 1917 | Jan. 25, Lat. 27° - $46'$, Long. 85° - $36'$. |

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|-------|------|---|
| 10446 | 1917 | Jan 27, Cape San Blas. |
| 10447 | 1917 | Jan. 30, Lat. $29^{\circ}-38'$, Long. $87^{\circ}-00'$. |
| 10448 | 1917 | Jan. 30, Lat. $29^{\circ}-53'$, Long. $87^{\circ}-07'$. |
| 10449 | 1917 | Jan. 30, Lat. $30^{\circ}-06'$, Long. $87^{\circ}-12'$. |
| 10450 | 1917 | Jan. 30, Pensacola Light. |
| 10453 | 1917 | Feb. 9, $30^{\circ}-11'N$, Long. $89^{\circ}-00'W$. |
| 10457 | 1917 | Feb. 10, Lat. $30^{\circ}-13'N$, Long. $88^{\circ}-41'W$. |
| 10459 | 1917 | Feb. 12, Lat. $29^{\circ}-25'N$, Long. $88^{\circ}-47'W$. |
| 10460 | 1917 | Feb. 13, Lat. $28^{\circ}-56'N$, Long. $89^{\circ}-00'W$. |
| 10461 | 1917 | Feb. 13, Lat. $28^{\circ}-48'N$, Long. $89^{\circ}-32'W$. |
| 10462 | 1917 | Feb. 13, Lat. $29^{\circ}-10'N$, Long. $89^{\circ}-43'W$. |
| 10463 | 1917 | Feb. 14, Lat. $28^{\circ}-50'N$, Long. $91^{\circ}-42'W$. |
| 10464 | 1917 | Feb. 14, Lat. $29^{\circ}-03'N$, Long. $92^{\circ}-25'W$. |
| 10465 | 1917 | Feb. 15, Lat. $29^{\circ}-42'$, Long. $93^{\circ}-13'$. |
| 10469 | 1917 | Feb. 26, about Galveston entrance. |
| 10472 | 1917 | March 2, Lat. $28^{\circ}-02'$, Long. $94^{\circ}-40'$. |
| 10473 | 1917 | March 2, Lat. $27^{\circ}-50'$, Long. $94^{\circ}-57'$. |
| 10474 | 1917 | March 2, Lat. $27^{\circ}-26'$, Long. $95^{\circ}-00'$. |
| 10471 | 1917 | March 1, Lat. $28^{\circ}-30'$, Long. $94^{\circ}-29'$. |
| 10475 | 1917 | March 3, Lat. $27^{\circ}-00'$, Long. $96^{\circ}-10'$. |
| 10476 | 1917 | March 5, Lat. $27^{\circ}-46'$, Long. $97^{\circ}-00'$. |
| 10477 | 1917 | March 6, Lat. $29^{\circ}-13'$, Long. $94^{\circ}-39'$. |
| 10482 | 1917 | March 23, Lat. $26^{\circ}-53'$, Long. $86^{\circ}-36'$. |
| 10481 | 1917 | March 23, Lat. $26^{\circ}-51'$, Long. $86^{\circ}-03'$. |
| 10483 | 1917 | March 26, Lat. $30^{\circ}-16'$, Long. $87^{\circ}-15'$. |

| Station No. | Date | Other Data |
|-------------|------|--|
| 10484 | 1917 | March 29, Lat. $29^{\circ}-00'$, Long. $85^{\circ}-31'$. |
| 10485 | 1917 | March 30, Lat. $28^{\circ}-05'$, Long. $83^{\circ}-53'$. |
| 10489 | 1917 | April, Gulf of Mexico, Key West? |
| 10076 | | |
| 10407 | | |

| Station No. | Date | Other Data |
|-------------|------|--|
| Al 7090 | 1890 | |
| 5127 | 1892 | |
| 456 | 1894 | |
| 463 | 1894 | |
| 10111 | 1911 | Aug. 22, Lat. $40^{\circ}-23'$, Long. $70^{\circ}-38'$. |
| 7 | 1912 | July 15, 36 mi. E. $\frac{1}{2}$ S. from Thatcher's Id. |
| 12 | 1912 | " 27 1 mi. S.E. of E. pt. Whistling Buoy |
| 31 | 1912 | Aug. 15, 20 mi. W. $\frac{1}{2}$ N. from Sucker Shoal Light Ship. |
| 30 | 1912 | July 31. S. of "Junk Rock" 2 mi.; tamed toward Race I. |
| 44 | 1912 | Aug. 31 7 mi. N.W. by N. from Race Pt. (Provincetown) |
| 57 | 1912 | 1913, July 8, 6 mi. E. N.E. from Highland Light. |
| 58 | 1912 | 1913 " 8. $41^{\circ}47'N$. $69^{\circ}10'W$. |
| 68 | 1912 | 1913 " 17 $42^{\circ}22'N$. $73^{\circ}58'W$. |
| 69 | 1912 | 1913 " 19. $39^{\circ}35'N$. $73^{\circ}47'W$. |
| 70 | 1912 | " " 19 $39^{\circ}9'N$. $72^{\circ}58'W$. |
| 71 | 1912 | " " 20 $38^{\circ}58'N$. $72^{\circ}39'W$. |
| 72 | 1912 | " " 21 $38^{\circ}58'N$. $73^{\circ}51'50''W$. |
| 74 | 1912 | " " 22 $37^{\circ}41'N$. $74^{\circ}27'30''W$. |
| 76 | 1912 | " " 24 $37^{\circ}3'N$. $74^{\circ}53'W$. |
| 79 | 1912 | " " 30 $38^{\circ}02'N$. $74^{\circ}53'W$. |
| 80 | 1912 | " " 31 $39^{\circ}7'N$. $74^{\circ}24'W$. |
| 81 | 1912 | Sta 10081, July 31, 1913 $39^{\circ}45'N$. $73^{\circ}58'W$ off New Jersey |
| 82 | 1912 | 1913 Aug. 1 $40^{\circ}9'N$. $73^{\circ}21'W$. |
| 85 | 1912 | " 4 $41^{\circ}39'N$. $69^{\circ}42'W$. |
| 86 | 1912 | " 5 $42^{\circ}6'30''N$. $70'W$. |

GRAPUS (BACHE)

| Station No. | Date | Other Data |
|-------------|-----------|---|
| 10070 | 1912 1913 | July 19, 39° 9' N, 72° 58' W |
| 13 | 1913 1912 | " 24. Cape Porpoise St. N. ½ W, 6 mi. |
| 21 | 1913 1912 | Aug. 2. 7 mi. S. ½ from Manlygan St. |
| 24 | 1913 | " " 7 or 8. 43° 2' N, 69° 19' W. |
| 32 | 1913 | " 16. 9 mi. SE. by E. from Mt. Desert Rock. |
| 37 | 1913 | " " 31. 3 mi. S ¾ E. from Egg Rock. |
| 48 | 1913 | " Dec. 4 9 mi. S ½ W from Eastern Pt. |
| 53 | 1913 | Feb. 13. Thatchers Muelle Buoy etc. |
| 59 | 1913 | July 9 41° 06' N, 71° 42' W. |
| 63 | 1913 | " 11 41° 45' N, 71° 16' W. |
| 64 | 1913 | " 11 39° 55' N, 71° 12' W. |
| 68 | 1913 | " 17 42° 22' N, 73° 58' W. |
| 70 | 1913 | " 14 39° 9' N, 72° 58' W. |
| 73 | 1913 | " 21 38° 26' N, 74° 30' W. |
| 83 | 1913 | Aug. 1 40° 48' N, 72° 17' W. |
| 86 | 1913 | " 9 42° 6' 30" N, 70° W. |
| 87 | 1913 | " 9 42° 31' N, 70° 21' W. |
| 97 | 1913 | " 13 44° 13' N, 67° 21' W. |
| 102 | 1913 | " 14 43° 34' N, 69° 13' 30" W. |
| 103 | 1913 | " 14 43° 32' N, 69° 55' W. |
| 279 | 1913 | May 26, 42° 17' N, 70° 07' W. |
| 10054 | 1913 | Mar. 4. Thatchers I. N. N. W. |
| 10057 | 1913 | July 8, Off Cape Cod. |
| 10063 | 1913 | July 11, Newport, R. I. 41° 45' N, 71° 16' W. |
| 10068 | 1913 | July 17, Sandy Hook, Lat. 42°-23', Long. 73°-50'. |
| 10070 | 1913 | July 19, Lat. 39°-9', Long. 72°-58', Sandy Hook. |

Grouper

1

Jan. 16th Left Navy Yard for Hampton Roads to swing ship and adjust compasses.

10.15 Am. While anchored at Hampton Roads middle ground, made tidal tow with small #5 net.

Surface temp 3.6° C.

Small copepods abundant. A few schizopod, small ctenophores, 2 saggites, & 1 anchovy about 1 inch long.

Returned in P.M. & anchored off Hospital Point.

Jan. 20 Left Norfolk & proceeded to try out tows and make inshore stations

Water temp (Surface) Norfolk 3.8; C. Bay 4.5; outside C. Henry 5.25°

7.20 P.M. Made Sta 10157 at 10 fath curve.

Sta 10157. Jan. 20, 1914 7.20 P.M.
 Position: Lat. Long.
 Depth 10 fath = 18 m.
 Bottom sand. no sample.
 Wind SW. light Sea smooth. Partly cloudy.

| Temperature | Depth. | Therm. No. | °C. | at °C. | Correction | Corrected temp. | Water sample | Bottom used |
|-------------|----------------------|------------|---------|--------|------------|----------------------------|--------------|-------------|
| | Air | | | | | | | |
| | Surface | Cup. | 6.2 | | | 6.20 | ✓ | |
| | 18 m. | 532 | 6.8 | 7 | -0.5 | 6.75 | ✓ | Bigelow. |
| Notes | Description | Wire out | Depth | Time | Speed. | | | |
| | 20 net | | Surface | 1/2 hr | 1 1/2 mph | Diatoms abundant | | |
| | #5 Bigelow | | " | " | " | small saggites & amphipods | | |
| | meter net (streamer) | 18 m. | 16-0 m | " | " | about 1 liter of | | |

a few larval chirozooids, 1 semi-larval col., many schizopods etc. many saggites & a few copepods.

Jan. 21st

Sta. 10158 9 AM to 4.30 PM.
9 AM, sounded 1052 fath, but lost bottom sampler by fouling ship on return.

Too rough for instruments. Put out 2 small nets on surface, + towed 1 hour. Many small pods, 2 mackerel + a few small sagittae.

10 AM Wind + sea moderating, sent meter net to 600 m, + 4 ft net to 100 m. (latter slipped to end of cable). Towed 1/2 hour. Results - 1 fine example Nemichthys, 2 scophelids, a few pteropods. Schizopods abundant. A few copepods. Many sagittae etc etc.

2 P.M. Moderated enough to use instruments. Sent down five bottles on the big wire. All worked perfectly. Surface + 20 m. taken by hand. (later got bottom sample on another sounding)

4.30 P.M. Station finished, + started for Norfolk. N.W. wind + sea increasing, had uncomfortable night, + made little headway. Passed in Capes about noon and proceeded to Norfolk.

Saw school of about 6 blackfish + 1 finback at Sta 10158

Jan. 25 Sunday. Rec'd. German wine aboard, + dropped down to Old Point Comfort.

" 26 7 AM. Proceeded to sea

Sta 10158 Jan. 21, 1914 9 AM - 4.30 PM.

Position Lat. Long.

Depth 1052 fath = 1924 metres.

Bottom Gray mud. Sample obtained (Sigsbee)

Wind SW to N.W. Stiff to moderate. sea rough to mod. Mostly cloudy.

| Temperature | Depth. | Therm. No. | °C | at °C. | Correction | Corrected temp. | Water sample | Bottle used. |
|-------------|--------|------------|-------|--------|------------|-----------------|--------------|--------------|
| | Air | | | | | | | |
| | Surf. | 409 | 12.3 | 13 | 0 | 12.30 | ✓ | |
| | 20 m. | 298 | 11.4 | 11.3 | +0.5 | 11.45 | ✓ | Bigelow |
| | 100 m. | 533 | 11.15 | 12 | 0 | 11.15 | ✓ | Eckman |
| | 300 " | 406 | 11.4 | 11.3 | 0 | 11.40 | ✓ | " |
| | 700 " | 298 | 4.9 | 12.3 | -1.2 | 4.78 | ✓ | Bigelow |
| | 1100 " | 408 | 4.3 | 11.5 | -1.0 | 4.20 | ✓ | " |
| | 1800 " | 532 | 3.7 | 11.5 | -1.5 | 3.55 | ✓ | " |

| nets | Description | win out | depth | time | speed. |
|------|---------------------|---------|---------|--------|--------|
| | 5 small stramin " | | Surface | 1 hour | 1 mile |
| | meter net (stramin) | 600 m | 600-0 | 3/4 " | " |
| | 4 ft " | 100 " | 600-0 | 1/2 " | " |

slipped down to end of wire

Station 10159 - Jan. 26-1914 - 2:30 - 4:30 P.M.
 Position: Lat. 36° 35' Long. 75° 20' - D. R.
 Depth. 20 fathoms = 36 meters.
 Bottom: Hard gray sand. No sample.
 Wind - light S.E. - Sea smooth - Day clear.

| Temperature | Depth. | Therm. No. | ° Cent. | at ° cent. | Correction | Corrected Temp. | Water Sample | Bottle used. |
|-------------|-----------|------------|---------|------------|------------|-----------------|--------------|--------------|
| | Air | | 47.5 | | | | | |
| | Surface | 409 | 7.00 | 7.2 | 0 | 7.00 | 7m. | |
| | 20 meters | 408 | 6.85 | 7.6 | 0 | 6.85 | " | Bigelow |
| | 36 " | 532 | 6.80 | 7.1 | -.05 | 6.75 | " | Bigelow. |

| Depth. | Description. | Time net | Depth | Time | Speed | Remarks. |
|--------|--------------------|----------|---------|----------|-----------|-------------------------------|
| #20 | Silk. 1 ft ring | | Surface | 3/4 hour | 1 1/2 mi. | Diatoms abundant. |
| #5 | " Bigelow | | " | " | " | A few amphipods. |
| | Strawm. small | | " | " | " | Practically nothing. |
| | Motor net, strawm. | 35 m. | 35 m. | " | " | Agiltes & amphipods abundant. |

Station 10160 - Jan. 26-27, 1914 - 11⁰⁰ P.M. to 1⁰⁰ A.M.

Position: Lat. 36° 20' N Long. 74° 45' W.

Depth. 340 to about 60 fms. = 622 to 110 meters.

Bottom: Green mud (gritty). small sample.

Wind: S.E. 20 mi. hr. Sea: Fairly smooth Sky: Clear

| Temperature | Depth | Therm. No. | ° Cent. | at ° Cent. | Correction | Corrected Temp. | Water Sample | Bottle used. |
|-------------|-------|------------|------------|------------|------------|--------------------|-----------------|--------------|
| Air | | | 52.7 at 5. | | | | | |
| Surface | | 409 | 9.15 | 9.20 | 0 | 9.15 | Yes | |
| 20 meters | | 298 | 9.35 | 9.80 | +0.05 | 9.40 | " | Bigelow |
| 100 " | | 408 | 11.95 | 9.80 | +0.05 | 12.00 | " | Do |
| 200 " | | 532 | 9.45 | 9.90 | 0 | 9.45 | " | Do |

| Nets. | Description. | Win out | Depth | Time | Speed |
|----------------------|--------------|------------|------------|----------|---------|
| #20 Silk, 1 ft. ring | | | Surface | 3/4 hour | 1/2 mi. |
| Bigelow | | | " | " | " |
| #5 Silk, small | | 100 meters | 100 meters | " | " |
| 4 ft. Strainer | | 100 meters | 100 meters | " | " |

Station 10160 1/2 - Jan. 27-1914 - 8⁰⁰ A.M.

Position: Lat. Long.

Wind: N.N.E. 25 mi. hr. Sea:

Sky: Cloudy.

| Temperature | Depth | Therm. No. | ° Cent. | at ° Cent. | Correction | Corrected Temp. | Water Sample | Bottle used. |
|-------------|-------|------------|---------|------------|------------|--------------------|-----------------|--------------|
| Air | | | | | | 60.5 F. | | |
| Surface | | 543 | 22.2 | 22.2 | 0 | 22.2 | Yes | |

Station 10161 - Jan. 28-1914 - 12¹⁵ to 9³⁰ A.M.
 Position: Lat 35° 23' N. Long. 73° 12' W. - S.R.
 Depth: Not known.
 Bottom: " " , no sample.
 Wind: Very light. Sea: Calm. Sky - clear.

| Temperature | Depth. | Therm. No. | ° Cent. | at ° Cent. | Correction | Corrected Temp. | Water Sample | Bottle used. |
|-------------|--------|------------|---------|------------|------------|-----------------|----------------------|--------------|
| Air. | | | | | | | | |
| Surface | | 543 | 21.50 | 21. | 0 | 21.50 | Yes | |
| 20 meters | | 542 | 21.50 | 20. | 0 | 21.50 | " | Bigelow |
| 100 " | | 541 | 21.35 | 21. | 0 | 21.35 | " | Ekman |
| 200 " | | 544 | 19.60 | 21.50 | 0 | 19.60 | " | " |
| 600 " | | 546 | 15.30 | 21.50 | -.10 | 15.20 | " | " |
| 1000 " | | 408 | 10.60 | 21.80 | -.20 | 10.40 | " | " |
| 1800 " | | 298 | 4.05 | 23.50 | -.35 | 3.70 | Bottle did not close | Bigelow |

| Items. | Description. | Wine out | Depth | Time | Speed | |
|------------------|--------------|--------------|---------|-------------|-------------|-------------------------|
| *20 silk net, | | | Surface | 1 1/2 hours | 1 1/2 miles | } Cost small but small. |
| Bigelow | | | " | " | " | |
| *5 silk, small. | | | " | " | " | |
| 4 ft. Strainers, | 100 meters | 90 meters | 2 hours | " | " | |
| Meter | 1100 " | 1000 " | 3 " | " | " | |
| Line - 3.45 | | A.M. to 6.45 | | A.M. | | |

Station 10162 - Jan. 28 10.2 to 12.2 P.M.

Position. Lat. Long.

Depth: 2990 fathoms = 5468 m.

Bottom - Gray mud. Small sample taken.

Wind. Sea smooth. Sky - clear

| Temperature | Depth | Therm. No. | °C. | at °C. | Correction | Corrected Temp | Water Sample | Bottle used |
|------------------------------|-------|------------|-------|--------|------------|----------------|--------------|-------------|
| Air | | | | | | | | |
| Surface | | #543 | 19.30 | 20.0 | 0 | 19.30 | Yes | |
| No other temperatures taken. | | | | | | | | |

| Mts. | Description | Trin out | Depth | Time | Speed | |
|----------------|-------------|----------|---------|----------|---------|-------------------------------|
| #20 Silt | | | Surface | 1 hr | 1/2 mi. | |
| Rigflor | | | " | " | " | |
| #5 Silt | | | " | " | " | |
| 4 ft. Strainer | | 50 m. | 150 m. | 1 1/2 hr | " | } Slipped down to end of wire |
| Meter " | | 100 m. | 150 m. | 1 3/4 hr | " | |
| Hallogolant | | 200 m. | 150 m. | 2 hr | " | |

Station 10162 1/2 - Jan. 29 - 1914 - 6.0 P.M.

Position. Lat. Long.

Depth. 2660 fathoms = 4865 meters

Bottom. Gray mud. Sample taken.

Wind. Sea. Sky

| Temperature | Depth | Therm. No. | °Cent. | at °Cent | Correction | Corrected Temp | Water Sample | Bottle used |
|-------------|-------|------------|--------|----------|------------|----------------|--------------|------------------|
| Air | | | | | | | | |
| Surface | | #543 | 18.8 | 18.8 | 0 | 18.8 | Yes | |
| 1206 m. | | N. 35 Z. | | | | 6.0 | | On sounding wire |
| 2852 m. | | " " | | | | 3.8 | | " |

Station 10163 1/2 - Jan. 29 - 1914 - 6³² P.M. - 12⁰⁰ midnight.

Position, Lat. Long.

Depth:

Bottom:

Wind: fresh - Sea: moderate - Sky: cloudy.

| Temperature | Depth. | Therm. No. | ° Cent. | at. Cent. | Corrected | Corrected | Water | Dist. used. |
|-------------|-----------|------------|-------------------------|-----------|-----------|-----------|-------|-------------|
| | Air. | (80 P.M.) | | | | | | |
| | Surface | 543 | 19.9 | 19.8 | 0 | 19.9 | 700. | |
| | 1465 fms. | N.Y. 2. | 19.9 42.0 | | | | | |
| | 1965 " | " | 38.6 | | | | | |
| | 2465 " | " | 37.5 | | | | | |

| Net. | Description. | Time out. | Depth | Time | Speed | Remarks. |
|-------------------|--------------|-----------|---------|---------|-----------|--|
| #20 Silk | | | Surface | 2 hrs. | 1 1/2 mi. | |
| Buoyline | | | " | " | " | |
| #5 Silk, small. | | | " | " | " | |
| Hologram | | 500 m. | 500 m. | 3 hrs. | " | |
| Meter - strain in | | | 100 m. | 2 " | " | } Small lead of two thousand clipped down ready to lead by wire. |
| 4 ft. | | | 50 m. | 1 3/4 " | " | |

On coming alongside together meter and 4 ft.
nets fished with scales.

Station 10166 - Jan. 30-1914 - 7.³⁰ - 10.³⁰ P.M.
 Position. Lat. Long.
 Depth. 3014 fathoms = 5514 meters.
 Bottom - Gray mud - Sample obtained
 Wind - light. Sea - smooth. Sky - clear.

| Temperature | Depth | Therm. No. | ° Cent. | at ° Cent. | Correction | Corrected Temp. | Water Sample | Dist. used. |
|-------------|-------|------------|---------|------------|------------|-----------------|--------------|--------------------------------|
| Air | | | | | | | | |
| Surface | | 543 | 19.15 | 19.0 | 0 | 19.15 | Yes. | |
| 20 meters | | 542 | 19.20 | 19.0 | 0 | 19.20 | " | Bigelow |
| 100 " | | 541 | 18.80 | 19.0 | 0 | 18.80 | " | Ekman |
| 200 " | | 544 | 18.30 | 19.0 | 0 | 18.30 | " | " |
| 600 " | | 409 | 15.90 | 19.0 | -1.0 | 15.80 | " | " |
| 1000 " | | 408 | 10.20 | 19.0 | -2.0 | 10.00 | " | " |
| 1800 " | | 298 | 4.30 | 19.0 | -2.5 | 4.05 | No | Bigelow. Bottle did not close. |

| Net | Description. | Wires out. | Depth. | Tow | Speed | Remarks. |
|-----------------|--------------|------------|---------|--------|--------|----------|
| #20 silk | | | Surface | 1/4 hr | 1/2 mi | |
| Bigelow | | | " | " | " | |
| #5 Small. | | | " | " | " | |
| 4 ft. Strainer, | | | 75 m. | 2 hrs | " | |
| Heliogland | | 1100 m | 1000 " | 3/4 " | " | |

Station 10167 - Jan. 31-1944 - 9.⁰⁰ AM.

Position: Lat.

Long

Depth.

. Lost 2000 fms. wire & sampler.

Bottom.

Wind. fresh E.

Sea - choppy.

Sky - clear.

| Temperature | Depth. | Therm. No. | ° Cent. | at ° Cent. | Correction | Corrected Temp. | Water Sample | Inst. used |
|-------------|--------|------------|---------|------------|------------|-----------------|--------------|------------|
| Air | | | | | | | | |
| Surface | | 543 | 19.30 | 19.5 | 0 | 19.30 | Yes | |

Station 10168 - Jan. 31-1944 - 3.⁰⁰ PM.

Position: Lat.

Long.

Depth.

Bottom.

Wind.

Sea.

Sky.

| Temperature | Depth. | Therm. No. | ° Cent. | at ° Cent. | Correction | Corrected Temp. | Water Sample | Inst. used |
|-------------|--------|------------|---------|------------|------------|-----------------|--------------|------------|
| Air | | | | | | | | |
| Surface | | 543 | 19.10 | 19.40 | 0 | 19.10 | Yes | |

Station 10169 - ^{Feb. 1 - 1914.} Jan. 31 - 1914 - 11.15 to 3⁰⁰ A.M.
 Position. Lat. Long.
 Depth: 2980 fathoms = 5450 meters.
 Bottom. Gray mud. Sample taken.
 Wind - slight S. Sea - high. Sky - clear.

| Temperature | Depth. | Therm. No. | ° Cent. | at ° Cent. | Correction | Corrected Temp. | Water Sample | Inst. used |
|-------------|-----------|------------|---------------------|------------|------------|-----------------|--------------|------------|
| | Air. | | | | | | | |
| | Surface | 543 | 18.95 | 19.0 | 0 | 18.95 | Yes. | Bigelow |
| | 20 meters | 542 | 19.00 | 19.5 | 0 | 19.00 | " | Eckman |
| | 100 " | 541 | 18.85 | 19.5 | 0 | 18.85 | " | " |
| | 200 " | 544 | 18.83 | 19.3 | 0 | 18.83 | " | " |
| | 600 " | 409 | 18.70 | 19.3 | -.10 | 18.60 | " | " |
| | 1000 " | 408 | 10.70 | 19.5 | -.20 | 10.50 | " | Bigelow |
| | 1800 " | 532 | Failed to register. | | | | ✓ | |

| Net | Description. | Wires out. | Depth. | Time | Speed | Remarks. |
|-----|---|------------|---------|---------|----------|------------------------------|
| A. | 4 foot Strainer | 75 m | 50 m | 1/4 hr. | 1 1/2 mi | Too rough to continue towing |
| B. | Feb. 1 st : After this station ship was lost to and remained so until 3 ⁰⁰ A.M. Weather moderating the following tows made at 3 ⁰⁰ P.M.: | | | | | |
| | Bigelow | | Surface | 1/4 hr | 1 1/2 mi | |
| | 4 ft. Strainer. | 150 m | 100 m | 2 " | " | |
| | Stirling Land. | 200 " | 250 " | 2 1/2 " | " | |
| C. | At 9 ⁰⁰ P.M. sea moderated & the following nets were put over: | | | | | |
| | 4 ft. Strainer | 75 m | 50 m | 2 hr | 2 mi | |
| | 2 Small #5 | | Surface | " | " | |

Station 10170 - Feb. 2 - 1944 - 7:30 AM.

Position. Lat.

Long.

Depth

Bottom.

Wind. Brisk - N.E. Sea - choppy. Sky -

| Information. | Depth. | Therm. No. | ° Cent. | at ° Cent. | Correction | Corrected Temp. | Water Sample | Dist. used. |
|--------------|--------|------------|---------|------------|------------|-----------------|--------------|-------------|
| Air. | | | | | | | | |
| Surface | | 543 | 18.90 | 18.8 | 0 | 18.90 | Yes | |

Station 10171 - Feb. 2 - 1914 - 2:12^{AM.} - 12:00^{PM.} W.

Position, Lat. Long.

Depth.

Bottom. Brownish gray mud - Sample taken.

Wind, fresh E. Sea - moderate to choppy - Sky - clear to partly cloudy.

| Temperature | Depth. | Therm. No. | Cent. | St. Cent. | Correction | Corrected Temp. | Water Sample | Just used. |
|-------------|--------|------------|-------|-----------|------------|-----------------|--------------|-------------|
| Air, | | | | | | | | |
| Surface | | 543 | 18.95 | 19.0 | 0 | 18.95 | 79. | Surface |
| 20 meters | | 542 | 18.93 | 17.5 | +1.0 | 19.03 | " | Bigelow |
| 100 " | | 541 | 18.84 | 18.0 | 0 | 18.84 | " | Eschscholtz |
| 200 " | | 544 | 18.65 | 18.0 | 0 | 18.65 | " | " |
| 600 " | | 409 546 | 16.10 | 17.6 | 0 | 16.10 | " | " |
| 1000 " | | 408 | 6.90 | 18.0 | -.20 | 6.70 | " | " |
| 1800 " | | 298 | 4.20 | 17.5 | -.20 | 4.00 | " | Bigelow |

| Nets. | Description | Min out | Depth. | Time | Speed. | Remarks. |
|-------------------|-------------|---------|---------|-------|---------|-----------------|
| 2 #5 Silk - Small | | | Surface | 1 hr. | 1/2 mi. | Choked with mud |
| 1 #20 " " | | | " | " | " | " |
| 4 ft. Stramin | | 80 m | 30 m. | 1/2 " | " | Lost bucket. |
| Net | | 100 " | 75 " | 1/4 " | " | |

Station 10172 - Feb. 3-1944 - 11.2 Am to 2.2 P.M.
 Position. Lat. Long.
 Depth.
 Bottom.
 Wind-fresh E. Sea-rough. Sky-cloudy - rain.

| Temperature. | Depth. | Stem No. | *Cent. | at*Cent. | Correction | Corrected Temp. | Water Depth | Inst. used. |
|--------------|--------|----------|--------|----------|------------|-----------------|-------------|-------------|
| Air, | | | | | | | | |
| Surface | | 543 | 18.9 | 18.9 | 0 | 18.9 | 7 1/2 | Meuserger. |

| No. | Description. | Time out. | Depth. | Line | Speed | Remarks. |
|-----|--------------|-----------|--------|----------|----------|----------|
| | Heliogoland | 1900 am | 1900 m | 2 1/2 L. | 1/2 mile | |
| | Meter silk, | | 1400 m | 2 " | " | |

Station 10173 - Feb. 4-1914 - 12. $\frac{3}{4}$ to 4.0 AM.
 Position. Lat. Long.
 Depth.
 Bottom.
 Wind, stiff S. Sea, light sky - clear.

| Temperature | Depth | Therm. No. | ° Cent | at ° Cent | Corrected | Corrected depth | Corrected temp | Dist. used |
|-------------|-----------|------------|--------------|-----------|-----------|-----------------|----------------|-----------------|
| | Surf | 543 | 18.85 | 19.0 | 0 | 19 | 18.85 | |
| | 20 meters | 542 | 18.90 | 18.9 | 0 | 18.9 | 18.90 | Stigler |
| | 100 " | 545 | 18.70 | 18.6 | 0 | 18.6 | 18.70 | Curran not used |
| | 200 " | 544 | 18.10 | 18.7 | 0 | 18.7 | 18.10 | " |
| | 600 " | 409 | 16.50 | 18.4 | 8 | 18.4 | 16.50 | " |
| | 800 " | 408 | 13.20 | 18.7 | -10 | 18.7 | 13.10 | " |
| | 1000 " | 406 | 11.75 | 18.7 | -15 | 18.7 | 11.60 | " |
| | 1400 " | 533 | 5.90 | 18.7 | -35 | 18.7 | 5.55 | " |
| | 1800 " | 298 | 4.10 | 18.8 | -20 | 18.8 | 3.90 | Bigelow |
| | 2740 " | N.V.Z. | FAHR 38.9 | | | | 10 | |
| | 3650 " | " | 37.3 | | | | 2.0 | Stigler |
| | 4570 " | " | 36.8 | | | | | " |

| No. | Description | Size | Depth | Time | Speed | Remarks |
|-----|----------------|-------|-------|---------|--------|---------|
| | Halibut | 200 m | 175 m | 3 L | 1/2 m. | |
| | White sturgeon | 100 " | 75 " | 2 1/2 " | " | |
| | 4 ft " | 50 " | 25 " | 2 1/4 " | " | |
| | 2-45 siler | | Surf | 1/2 " | " | |
| | 1-20 " | | " | " | " | |

Station 10174 - Feb. 4 - 1944 - 4:30 P.M.

Position. Lat. Long.

Depth.

Bottom.

Wind, S.E. 5 kts. Sea, choppy. Sky cloudy.

| Temperature | Depth | Spec. No. | ° Cent | at ° Cent | Correction | Corrected St. 0 | Wgt. Depth | Dist. used |
|-------------|-------|-----------|--------|-----------|------------|--------------------|---------------|------------|
| Air. | | | | | | | | |
| Surface | | 543 | 18.9 | 19.0 | 0 | 18.9 | 7 | Manometer |

Station 10175 - Feb. 5 - 1914 - 10. $\frac{1}{2}$ Am. 4.45 P.M.
 Position: Lat. Long.
 Depth.
 Bottom. Gray mud and sand. Sample obtained.
 Tides, N.W. Staff. Sea rough. Sky cloudy.

| Temperature | Depth | Therm. No. | ° Cent. | at ° Cent. | Correction | Corrected Temp. | Water Sample | Inst. used. |
|---------------|-------|------------|----------------|--------------|--------------|-----------------|--------------|------------------------------|
| Air | | | | | | | | |
| Surface | | 543 | 18.90 | 18.9 | 0 | 18.90 | Yes | |
| 20 meters | | 542 | 18.90 | 19.5 | 0 | 18.90 | " | Bigelow |
| 100 " | | 541 | 18.90 | 19.3 | 0 | 18.90 | " | Ekman |
| 200 " | | 544 | 18.90 | 18.9 | 0 | 18.90 | " | " |
| 600 " | | 409 546 | 16.35 16.35 | 18.5 19.0 | -0.2 -0.5 | 16.30 | " | " |
| 1000 " | | 408 | | | | | " | " |
| 1800 " | | 298 | 4.45 | 18.5 | -25 | 4.20 | No. | Bigelow bottle out of order. |
| No nets used. | | | | | | | | |
| Sta | 10176 | | Feb 5 | 2.30 P.M. | | | | |
| Surface | | | 19.2 | | | 19.2 | yes | |

~~No nets used. Sea light and very rough.~~
 2 #5 nets } Surface 1 1/2 hr. 1 1/4 miles
 20 net }
 4ft stramin 40-0 m. 2 hr. "
 meter " 750-0 " 3 1/2 hr. "
 meter silk 1500-0 4 hr. "
 Helgoland 1800-0 4 3/4 hr. "

Station 10177 - Feb. 6-1914 - 7.30 Am.

Position, Lat. 32° 30' N. Long. 65° 00' W.

Depth.

Bottom

Wind, S.E. breeze. Sea - light swell. Sky - some clouds.

| Temperature | Depth | Therm. No. | ° Cent. | at ° Cent. | Correction | Corrected Temp | Water Sample | Inst. used. |
|-------------|-----------|------------|----------|------------|------------|----------------|--------------|---|
| | Surf. | | | | | | | |
| ✓ | Surface | 543 | 19.10 | 19.9 | 0 | 19.10 | Yes | Messenger |
| ✓ | 20 meters | 542 | 18.95 | 19.0 | 0 | 18.95 | " | Bigelow |
| ✓ | 100 " | 541 | 18.95 | 19.4 | 0 | 18.95 | " | Exum an |
| ✓ | 200 " | 544 | 18.97 | 19.0 | 0 | 18.97 | " | " |
| ✓ | 400 " | 546 | 17.40 | 18.5 | 0 | 17.40 | " | " |
| ✓ | 600 " | 408 | 15.50 | 18.7 | 0 | 15.50 | " | " |
| ✓ | 1000 " | 546 | 17.70(2) | 18.0(2) | -0.3 | | " | " |
| ✓ | 1200 " | 409 | 11.70 | 19.0 | -15 | 11.55 | " | Therm. had not broken when received. Broken down. |
| ✓ | 1500 " | 533 | 4.70 | 18.9 | -35 | 4.35 | " | Exum an |
| ✓ | 1800 " | 298 | 4.05 | 18.8 | -45 | 3.60 | " | Bigelow |

3400

2600

Station 10178 - Feb. 17-18-1914 - 8.30 P.M. to
Position:

Depth.

Bottom.

Wind. light W. Sea smooth. Sky. clear.

| Instrument | Depth | Stem No. | ° Cent. | at ° Cent | Location | Corrected Temp. | Water Sample | Dist. used. |
|------------|-------|----------|---------|-----------|----------|-----------------|--------------|-------------|
| Air | | | | | | | | |
| Surface | | 543 | 18.8 | 18.8 | 0 | 18.8 | Y. | Memorized |

| Nets | Description | Time used | Depth | Line | Speed | Remarks |
|------|---|--------------|---------|---------|---------|-------------------------|
| | with blue light. 4 ft. net used at surface | | Surface | 3/4 hr. | None to | Mostly worms. |
| | Motor Silt | | " | 1 " | 1/2 mi | 2.0 to 3.0 sec. 2/10/14 |
| | 4 ft. Strainer | 50 sec | 50 m. | 1 " | " | " " " " |

Station 10180 - Feb. 18-19, 1914 - 11³⁰ AM - 12 AM.

Position: Lat. Long.

Depth.

Bottom.

Wind. Lt. warm breeze. Sea, moderate. Sky, clear.

| Temperature | Depth | Stem No. | ° Cent. | at ° Cent. | Correction | Corrected Temp. | Water Sample | Dist. used |
|-------------|-------|----------|----------|------------|------------|-----------------|--------------|---|
| Air | | | 60.7abr. | | | 15.5 | | |
| Surface | | | 18.10 | | 0 | 18.10 | So. | See temperature on both taken from the page next. |

| Net. | Description. | Time out | Depth | Time | Speed | Remarks. |
|------|----------------|----------|---------|-----------|-----------|-----------------------|
| | Nete pile. | | Surface | 1 1/2 hr. | 1 1/2 mi. | Sound from boat boom. |
| | 4 ft. Stramine | 75 m. | 75 m. | " | " | |

Station 10181 - M. 19-19.4 - 12 to 4³⁰ P.M.
 Position. Lat. Long.
 Depth.
 Bottom
 Wind, Lt S breeze. Sea smooth sky clear

| Temperature | Depth | Therm. No. | ° Cent | at ° Cent | Correction | Corrected Temp | Water Sample | Dist. used. |
|-------------|-----------|------------|----------------------------|-----------|------------|----------------|--------------|-------------|
| | Air | | 23.40 | | 0 | 23.40 | | |
| | Surface | 543 | 19.37 | 19.5 | 0 | 19.37 | Yes | Aluminum |
| | 20 meters | 543 | 19.28 | 19.3 | 0 | 19.28 | No | " |
| | 100 " | 542 | 18.78 | 19.5 | 0 | 18.78 | Yes | Byelor |
| | 200 " | 541 | 18.89 | 19.6 | 0 | 18.89 | " | German |
| | 400 " | 544 | 17.20 | 19.4 | -.07 | 17.13 | " | " |
| | 600 " | 409 | 15.30 | 19.3 | -.10 | 15.20 | " | " |
| | 800 " | 408 | Therm. stem did not break. | | | | " | " |
| | 1000 " | 406 | 7.63 | 19.5 | -.25 | 7.38 | " | " |
| | 1400 " | 533 | 5.23 | 19.6 | -.35 | 4.88 | " | " |
| | 1800 " | 298 | 4.24 | 20.5 | -.25 | 3.99 | " | Byelor |

Station 10183 - Feb. 20-1914 - 12³⁰ - 3³⁰ P.M.

Position. Lat.

Long.

Depth.

Bottom.

Wind, Lt. breeze S. by W. Sea moderate. Sky - clear.

| Temperature | Depth | Therm. No. | ° Cent. | at ° Cent. | Correction | Corrected Temp. | Water Sample | Dist used. |
|-------------|----------|------------|---------|------------|------------|-----------------|--------------|----------------|
| | Surf | | | | | | | |
| ✓ | Surf | 543 | 21.0 | 21.2 | 0 | 21.0 | Yes | Messager |
| | 20 m. | 543 | 20.0 | 21.1 | -.03 | 19.97 | No. | 50 |
| ✓ | 100 " | 542 | 20.91 | 21.6 | -.07 | 20.84 | Yes | Bigelow 1 |
| ✓ | 200 " | 541 | 19.3 | 22.3 | -.08 | 19.22 | " | Ecman 1/2 |
| | 400 " | 544 | 17.48 | 21.3 | -.07 | 17.41 | No. | Failed to work |
| ✓ | 600 " | 409 | 16.43 | 21.5 | -.12 | 16.31 | Yes | Ecman 3 |
| ✓ | 800 " | 545 | 13.78 | 21.4 | -.10 | 13.68 | " | 50 |
| ✓ | ✓ 1000 " | 406 | 7.9 | 21.6 | -.23 | 7.67 | " | 50 |
| | 1400 " | 533 | 5.95 | 21.7 | -.43 | 5.52 | No. | Failed to work |
| ✓ | 1800 " | 298 | 4.68 | 22.4 | -.29 | 4.39 | Yes | Bigelow 2 |

✓ 1500

✓ 5400

Station 10184 - Feb. 20 - 1914 - 7⁵⁰ P.M. - 12⁰⁰ A.M.

Position Lat.

Long.

Depth.

Bottom.

Wind Fresh S. Sea - fairly rough. Sky - cloudy.

| Information | Depth | Stem No. | ° Cent. | at ° Cent. | Correction | Corrected Temp. | Water Sample | Dist. used. |
|-------------|-------|----------|---------|------------|------------|-----------------|--------------|-------------|
| Air | | | | | | | | |
| Surface | | 543 | 20.07 | 20.0 | 0 | 20.07 | Yes | None used |

| No. | Description | Time out | Depth | Time | Speed | Remarks |
|-----|---------------|----------|---------|---------|--------|----------------------------------|
| | Heliograph | 600 m | 600 m | 4 hrs. | 1/2 mi | |
| | Bizelou | | 500 " | 3 1/4 " | " | |
| | Met. Strainer | | 100 " | 3/4 " | " | |
| | 4 ft. " | | 50 " | 3 " | " | |
| | Met. Silk | | Surface | 3 " | " | |
| | # 20 | | 00 | 3 " | " | 2 tubs of mud 2 tubs of water |

Station 10185 - Feb 21-1914 - 12.0 N. to 3.0 P.M.

Position Lat.

Long.

Depth

Bottom

Wind - fresh.

Sea - rough.

Sky - cloudy, rain.

| Temperature | Depth | Therm. No. | ° Cent. | at ° Cent | Correction | Corrected Temp. | Water Sample | Inst. used |
|-------------|-------|------------|-----------------------|-----------|------------|-----------------|--------------|------------|
| Air | | | | | | | | |
| Surface | | 543 | 19.80 | 20.0 | 0 | 19.80 | Yes | Messinger |
| 20 meters | | 543 | 19.89 | 19.80 | 0 | 19.89 | No | " |
| 100 " | | 542 | 19.55 | 19.30 | 0 | 19.55 | Yes | Rigdon |
| 300 " | | 541 | 17.38 | 19.50 | -.08 | 17.30 | " | Exman |
| 600 " | | 544 | 14.50 | 19.60 | -.10 | 14.40 | " | " |
| 800 " | | 409 | 9.90 | 19.30 | -.23 | 9.67 | " | " |
| 1000 " | | Messing | column did not break. | | | | " | " |
| 1200 " | | " | " | " | " | " | " | " |
| 1400 " | | 533 | 4.87 | 19.40 | -.43 | 4.44 | " | " |
| 1800 " | | 298 | 4.00 | 19.02 | -.23 | 3.77 | " | Rigdon |

Note: Weather rough and barometer falling rapidly.
No chance to congelate Fries.

Station 10186 - Fr. 21^V22-19.4 - 12.¹² Am. to 2.40 AM

Position. Lat.

Long.

Depth.

Bottom.

Wind - High. Sea - very rough. Sky - cloudy.

| Temperature | Depth | Therm. No. | ° Cent. | at ° Cent | Correction | Corrected Temp. | Water Sample | Inst. used. |
|-------------|-------|------------|---------|-----------|------------|-----------------|--------------|-------------|
| Air. | | | | | | | | |
| Surface. | | 543 | 19.40 | 19.50 | 0 | 19.40 | yes. | Messinger |

| Nets. | Description. | Wire out. | Depth | Time | Speed | Remarks |
|-------|-------------------|-----------|-------------|------------|---------|--|
| | 4 ft. Strainer. | 85 m. | 85 m. | 2 1/2 hrs. | 1/2 mi. | 12 ¹⁵ to 2 ⁴⁵ A.M. 2/22/14 |
| | Netter Silk. | | 25 m. | 2 " | " | 12 ³⁰ to 2 ³⁰ " " " |
| { Sta | 4 ft. Strainer. | 500 m. | | " " | " | 8 ³⁰ to 10 ³⁰ " 2/23/14 |
| { 187 | Young fish trawl. | Bird | parted with | loss | of | net & boards. |

Station 10187 - Ft. 23-19.4 - 3.³⁰ to 5.⁰⁰ P.M.
 Position. Lat. Long.
 Depth.
 Bottom.
 Wind, Lt breeze. Sea moderate. Sky clear.

| Temperature | Depth | Therm. No. | ° Cent. | at ° Cent. | Correction | Corrected Temp. | Water Sample | Inst. used. |
|-------------|-------|------------|---|------------|------------|-----------------|--------------|-------------|
| Air | | | | | | | | |
| Surface | | 543 | 19.30 | 19.00 | 0 | 19.30 | Yes | Messenger |
| 20 meters | | 543 | 19.23 | 19.20 | 0 | 19.23 | No | " |
| 100 " | | 544 | 19.26 | 19.00 | 0 | 19.26 | Yes | Bigelow |
| 300 " | | 541 | Thermometer failed. Mercury down down from the bulb. | | | | " | Eckman |
| 600 " | | 544 | 16.44 | 18.6 | 0 | 16.44 | " | " |
| 800 " | | 409 | 13.19 | 18.5 | -.14 | 13.05 | " | " |
| 1000 " | | 532 | 9.29 | 18.5 | -.24 | 9.05 | " | " |
| 1200 " | | 406 408 | Thermometer failed to register. | | | | " | " |
| 1400 " | | 533 | 5.46 | 18.8 | -.38 | 5.08 | " | " |
| 1800 " | | 298 | 4.24 | 18.5 | -.23 | 4.01 | " | Bigelow |

See previous page.

Station 10188 - Feb. 24 - 1914 - 3.⁰⁰ to 6.³⁰ A.M.
 Position, Lat. Long.
 Depth.
 Bottom.
 Wind. Sea. Sky.

| Temperature | Depth | Therm. No. | ° Cent. | at ° Cent. | Correction | Corrected Temp. | Water Sample | Inst. used |
|-------------|---------|------------|---------|------------|------------|-----------------|--------------|------------|
| Air | Surface | 543 | 19.47 | 19.50 | 0 | 19.47 | Yes | Messinger |

| Tows | Description | Wire out | Depth | Time | Speed | Remarks |
|------|---------------------|---------------------------------------|--------|---------|--------|---------|
| | Riggelow | 500 m. | 500 m. | 3 hrs. | 2 mts. | |
| | 4 ft. Strawm | | 100 " | 2 1/4 " | " | |
| | Netter silk | | 50 " | 2 1/2 " | " | |
| | 1 ft. silk bag-fine | Dropped this on surface on land line. | | | | |

Station 10190 - Feb. 25-1914 - 2 3/4 Ave.

Position. Lat. Long.

Depth

Bottom

Wind - light. Sea - very rough. Sky - cloudy.

| Temperature | Depth | Therm. No. | ° Cent. | at ° Cent. | Correction | Corrected Temp. | Water Sample | Dist. used |
|-------------|-------|------------|---------|------------|------------|-----------------|--------------|------------|
| Air | | | | | | | | |
| Surface | | 543 | 20.10 | 19.70 | 0 | 20.10 | Yes | Messing |

Blowing very hard, with a high rough sea. Too rough to handle nets without great danger to tackle.

Station 10191 - Feb. 25-1914 - 12³⁰ to 4³⁰ P.M.

Position, Lat.

Long.

Depth.

Bottom.

Tide

Sea - moderating.

Sky - clear.

| Thermometers | Depth | Therm. No. | ° Cent. | at ° Cent. | Correction | Corrected Temp. | Water Sample | Net used |
|--------------|-----------|------------|--------------------|------------|------------|---------------------------|--------------|-----------|
| | Surf | | | | | | | |
| | Surface | 543 | 21.42 | 21.30 | 0 | 21.42 | Yes | Messenger |
| | 20 meters | 543 | 21.39 | 21.30 | 0 | 21.39 | No | " |
| | 100 " | 542 | 18.2 (2) | 19.5 (2) | 0 | 18.20 21.37 | Yes | Rigdon |
| | 300 " | 541 | 17.75 | 20.5 | -.05 | 17.70 | " | Ecman |
| | 600 " | 544 | 15.21 | 20.9 | -.10 | 15.11 | " | " |
| | 800 " | 545 546 | Failed to register | | | 11.11 | " | " |
| | 1000 " | 532 408 | " | " | " | " | " | " |
| | 1200 " | 409 | 5.88 | 20.3 | -.35 | 5.53 | " | " |
| | 1400 " | 533 | 5.10 | 20.8 | -.40 | 4.70 | " | " |
| | 1800 " | 298 | 4.04 | 20.7 | -.25 | 3.79 | " | Rigdon |

The thermometers failing to register at the depths indicated above, a second shot was made, using other instruments, with the following results:

| | | | | | | | |
|------------|---|----------------|--------------|------|-------|--|--------|
| 100 meters | 541 544 | 21.40 21.40 | 20.0 20.0 | +0.2 | 21.57 | | Ecman |
| 800 " | 409 | 11.28 | 19.6 | -.17 | 11.11 | | " |
| 1000 " | Thermometer frame did not move - stuck. | | | | | | Rigdon |

Station 10192 - Feb. 26-1914 - 2.³⁰ to 7.³⁰ A.M.

Position Lat.

Long.

Depth

Bottom

Wind, high-S. Sea rough. Sky - partly cloudy.

| Nets. | Description | Winn out | Depth | Time | Speed | Remarks. |
|-------|-------------------|-------------|---------|------------|-------|---------------|
| | Herringland | 1000 m | 950 m. | 4 3/4 hrs. | 2 mi. | |
| | Net in silk | | 400 " | 4 " | " | |
| | " stramine | | 80 " | 3 1/2 " | " | |
| | 4 ft. " | | 40 " | 2 3/4 " | " | |
| | 1 " silk bag net. | | Surface | 2 " | " | On land line. |

Note: Sea rough for surface nets. Blowing
very hard on port beam.

| Temperature | Depth | Therm. No. | ° Cent | at ° Cent | Correction | Corrected Temp. | Water Sample | Dust used. |
|-------------|-------|------------|--------|-----------|------------|--------------------|-----------------|------------|
| Air | | | | | | | | |
| Surface | | 543 | 21.58 | 21.75 | | 21.58 | Yes | Messenger. |

Station 10193 - Feb. 27-1914 - 1.¹⁵ to 4.³⁰ P.M.
 Position Lat. _____ Long. _____
 Depth _____
 Bottom _____
 Wind. Lt. breeze Sea - big swell. Sky - clear

| Temperature | Depth | Therm No. | ° Cent. | at ° Cent | Correction | Corrected Temp. | Water Sample | Net used |
|-------------|-------|------------|---------|-----------|------------|-----------------|--------------|-----------|
| Air | | | | | | | | |
| Surface | | 543 | 21.75 | 22.0 | 0 | 21.75 | Yes | Messenger |
| 20 meters | | 543 | 21.73 | 21.0 | 0 | 21.73 | No | " |
| 100 " | | 542 | 19.88 | 20.9 | 0 | 19.88 | Yes | Bygones |
| 300 " | | 541 | 18.06 | 21.2 | -05 | 18.01 | " | Eerman |
| 600 " | | 544 | 14.80 | 21.6 | -13 | 14.67 | " | " |
| 800 " | | 546 542 | | | | | " | " |
| 1000 " | | 532 | 10.36 | 21.8 | -31 | 10.05 | " | " |
| 1200 " | | 409 | 5.70 | 21.5 | -35 | 5.35 | " | " |
| 1400 " | | 533 | 4.97 | 21.5 | -43 | 4.54 | " | " |
| 1800 " | | 298 | 4.02 | 21.4 | -28 | 3.74 | " | Bygones |

Station 10194 - Feb. 28-1944 - 1:30 to 5:30 AM.

Position. Lat.

Long.

Depth.

Bottom.

Wind. Lt. breeze. Sea. smooth. Sky. partly cloudy.

| Observations | Depth | Therm. No. | ° Cent. | at ° Cent. | Correction | Corrected Temp. | Water Sample | Dred. Used |
|--------------|-------|------------|---------|------------|------------|-----------------|--------------|------------|
| Air | | | | | | | | |
| Surface | | 543 | 21.55 | 21.0 | | 21.55 | Yes | Aluminum |

| Net | Description | Lower Cast | Depth | Time | Speed | Remarks |
|-----|--------------|---------------|---------|------------|-----------|-----------------------|
| | Halcyonidae | 600 m | 500 m | 3 1/2 hrs. | 1 1/2 mi. | |
| | Water Straw | | 80 " | 3 " | " | |
| | 4 ft. | | 50 " | 2 1/2 " | " | |
| | Water Lilies | | Surface | 1 " | " | Lower from boat lower |
| | # 20 | | " | 1 " | " | |

Sta 10195. Feb. 28. 1914 3⁰⁰ P.M. to 6.25 P.M.

Position

Depth

Bottom

Wind, stiff breeze. Sea moderate Sky pt. cloudy.

| Temperature | Depth | Therm no. | °C | @ °C | Correction | Corrected Temp | Water sample | Last used. |
|-------------|-------|-----------|-------|------|------------|----------------|--------------|------------|
| air | | | | | | | | |
| Surface | | 543 | 21.7 | 21.7 | 0 | 21.7 | yes | Messenger |
| 20 | | 543 | 21.7 | 21.7 | 0 | 21.7 | no | " |
| 100 | | 542 | 21.38 | 21.5 | 0 | 21.38 | yes. | Big #1 |
| 300 | | 541 | 17.97 | 21 | -07 | 17.90 | " | Big #1 |
| 600 | | 544 | 14.22 | 21 | -15 | 14.07 | " | " #2 |
| 800 | | 409 | 10.10 | 21 | -23 | 9.87 | " | " #5 |
| 1000 | | 408 | | | | | " | " #4 |
| 1200 | | 406 | 12.92 | 20.4 | -14 | 12.78 | " | " #3 |
| 1400 | | 533 | 4.8 | 20.9 | -43 | 4.37 | " | # 6 |
| 1800 | | 298 | 3.99 | 20.2 | -25 | 3.74 | " | Big #3 |

21

| nets | Description | Winow depth | time | speed | Remarks. |
|------|-------------|-------------|-------|----------|-----------------------------------|
| | 4 ft net | 120 | 100-0 | 3 1/2 hr | 1 1/2 m. Too rough for more nets. |

Sta 10196 Tuck 3. 1914 7.30 Pm - 10 Pm.

Position

Depth 3530 meters

Bottom gray sand. Sample taken

Wind lt. breeze Sea smooth Sky clear.

| Temperature | Depth | Therm. No. | °C. | @ °C. | Correction | Corrected Temp. | Water sample | Dist. used. |
|-------------|-------|------------|-------|-------|------------|-----------------|--------------|-------------|
| Air | | | | | | | | |
| Surface | | 543 | 22.8 | 21.8 | +03 | 22.83 | yes | Temperature |
| 20 m. | | 543 | 22.81 | 22.2 | +03 | 22.84 | no | " |
| 100. m. | | 542 | 22.76 | 21 | +06 | 22.82 | yes | Big #1 |
| 500 " | | 409 | 13.10 | 20.7 | -17 | 12.93 | yes | Big #5 |
| 1000 " | | 533 | 5.61 | 20.8 | -41 | 5.20 | yes | " #6 |
| 3400 " | | 298 | 3.06 | 18 | -20 | 2.86 | yes. | Big #3 |

| Nets | Description | Wine out | depth | time | used | Remarks. |
|------|---|----------|-------|------|------|----------|
| | 4 ft net outside with elec. lt. during station. | | | | | |

Sta 10197 Mch 13th 1914 3 P.M. to 5:50 P.M.
 Position
 Depth 225 meters
 Bottom Hard (sand)
 Wind: light northerly breeze

| Temperatures | Depth | Therm no. | °C | @ °C | Correction | Corrected temp | Water sample | Instruments |
|--------------|-------|-----------|-------|------|------------|----------------|--------------|-------------|
| Air. | | | | | | | | |
| Surface | | 543 | 20.78 | 20.8 | 0 | 20.78 | yes | Messinger |
| 20 m | | 543 | 20.86 | 20.3 | +0.3 | 20.89 | " | " |
| 60 " | | 542 | 20.59 | 20.6 | 0 | 20.59 | " | Big #1 |
| 100 " | | 544 | 15.66 | 20.2 | -10 | 15.56 | " | 2ch #2 |
| 150 " | | 541 | 13.50 | 19.2 | -11 | 13.39 | " | " #5 |
| 200 " | | 533 | 11.26 | 19.6 | -23 | 11.03 | " | " #6 |

| nets | Description | win at | depth | time | speed |
|------|---------------|--------|---------|---------------------|---------|
| | 4ft stramin | | Surface | 1 hr | 1 1/2 m |
| | #20 silk | | " | " | " |
| | meter stramin | | 100-0m | 1 ¹⁰ hr. | " |
| | meter silk | | 200-0 | 1 3/4 hr. | " |

Sta 10198 Mch 13, 1914 10 P.M. to 2 A.M.

Position

Depth 990 meters

Bottom

Wind

Current very strong, had stray to wire.

| Temperature | Depth | Therm. no. | °C | @ °C | Correction | Corrected temp | Water sample | Bottle used |
|-------------|---------|------------|-------|-------|------------|----------------|--------------|-------------|
| | Air | | | | | | | |
| | Surface | 543 | 23.32 | 22 | +03 | 23.35 | yes | Messenger |
| | 20 m. | 542 | 23 | 21 | +06 | 23.06 | " | Big #1 |
| | 60 " | | | | | | no | Eck #3 |
| | 100 " | 544 | 20.38 | 21.5 | -04 | 20.32 | no | " #2 |
| | 200 " | 541 | 14.10 | 20 | -12 | 13.98 | no | Eck #5 |
| | 400 " | 533 | 10.6 | 20 | -24 | 10.36 | no | " #6 |
| | 600 " | | | | | | no | " #4 |
| | 900 " | 298 | 7.22 | 20.50 | -22 | 7.00 | yes | Big #3. |

| Nets etc. | Description | Wire out | depth | time | speed |
|-----------|---------------|----------|---------|---------|---------|
| | 4 ft stramin | | Surface | 1 hr | 1 1/2 m |
| | 20 silk | | " | " | " |
| | meter stramin | 75- | 75-0 | " | " |
| | meter silk | 175- | 175-0 | 1 1/2 " | " |

Current vibration too strong for Ekman bottles.

Gampus - Welsh records.

| Station number | Date | Position | | Depth in fath. | Bottom | Apparatus | Scallops | | | | | | Estimated catch of trawl, fishing 40 ft wide per 1/2 mile haul. (commercial size) | |
|----------------|-------|----------|---------|----------------|--------|------------------------------------|----------|--------|-------|-------|--------|-------|---|--------|
| | | Lat. | Long. | | | | Large | Medium | Small | Large | Medium | Small | | |
| 1 | 10107 | Aug. 21 | 40° 36' | 69° 38' | 30 | sand | D. | 1 | 0 | 0 | .05 | 0 | 0 | 50 |
| 2 | 8 | " " | 40° 21' | 69° 39' | 37 | brown mud + sand. | D | 50 | 0 | 0 | 3.3 | 0 | 0 | 330 |
| 3 | 9 | " " | 40° 07' | 69° 46' | 57 | green ooze | D | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | 10 | " " | 40° 16' | 70° 07' | 50 | " " | D | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | 11 | " 22 | 40° 23' | 70° 38' | 54 | green mud + ooze | D | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | 12 | " " | 40° 17' | 70° 57' | 67 | gritty green mud. | D | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | 13 | " " | 40° 22' | 71° 15' | 43 | gr. mud + sand. | D | 0 | 10 | 4 | 0 | 1. | .4 | 100 |
| 8 | 14 | " " | 40° 26' | 71° 30' | 42 | " | D | 0 | 0 | 10 | 0 | 0 | 1. | 0 |
| 9 | 15 | " " | 40° 31' | 71° 45' | 36 | " | D | 8 | 0 | 0 | .8 | 0 | 0 | 80 |
| 10 | 16 | " " | 40° 37' | 72° 00' | 29 | sand | D | 9 | 0 | 0 | .9 | 0 | 0 | 90 |
| 11 | 17 | " 25 | 41° 01' | 71° 43' | 21 | coarse sand | D | 4 | 2 | 0 | .4 | .2 | 0 | 80 |
| 12 | 18 | " " | 40° 51' | 71° 58' | 20 1/2 | " | D | 18 | 2 | 2 | 1.8 | .2 | .2 | 200 |
| 13 | 19 | " " | 40° 22' | 71° 55' | 36 | green mud + sand. | D | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 | 20 | " " | 40° 10' | 71° 50' | 41 | " | D | 0 | 1 | 0 | 0 | .1 | 0 | 10 |
| 15 | 21 | " 26 | 40° 04' | 71° 54' | 42 | " | D | 10 | 43 | 0 | 1. | 4.3 | 0 | 530 |
| 16 | 22 | " " | 39° 58' | 71° 52' | 60 | " | D | 0 | 0 | 32 | 0 | 0 | 3.2 | 0 |
| 17 | 23 | " " | 40° 08' | 72° 03' | 40 | Brown sand green mud | D | 4 | 0 | 0 | .4 | 0 | 0 | 40 |
| 18 | " | " " | " " | " " | " | " | T | 20 | 0 | 3 | .4 | 0 | .06 | 40 |
| 19 | 24 | " " | 40° 03' | 72° 03' | 44 | green mud + sand. | D | 0 | 5 | 7 | 0 | .5 | .7 | 50 |
| 20 | 25 | " " | 40° 03' | 72° 22' | 40 | " | D | 30 | 7 | 0 | 1.5 | .5 | 0 | 200 |
| 21 | 26 | " " | 40° 09' | 72° 37' | 31 | sand + little mud. | D | 25 | 6 | 17 | 2.5 | .6 | 1.7 | 310 |
| 22 | 27 | " " | 40° 16' | 72° 50' | 27 | hard sand | D | 27 | 25 | 22 | 2.7 | 2.5 | 2.2 | 520 |
| 23 | 28 | " 27 | 40° 27' | 73° 38' | 11 | sand + pebbles | D | 0 | 1 | 4 | 0 | .1 | .5 | 10 |
| 24 | 29 | " " | 40° 22' | 73° 29' | 15.5 | hard sand | D | 9 | 0 | 1 | .9 | 0 | .1 | 90 |
| 25 | 30 | " 28 | 40° 17' | 73° 34' | 14.5 | " | D | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26 | 31 | " " | 40° 10' | 73° 21' | 22 | coarse sand | D | 13 | 28 | 43 | 1.3 | 2.8 | 4.3 | 410 |
| 27 | 32 | " " | 40° 05' | 73° 11' | 23 | " | D | 11 | 31 | 14 | 1.1 | 3.1 | 1.4 | 420 |
| 28 | 33 | " " | 40° 00' | 73° 27' | 24 | " | D | 41 | 89 | 108 | 4.1 | 8.9 | 10.8 | 1300 X |
| 29 | 34 | " 29 | 39° 53' | 73° 17' | 27.5 | grass + small rocks sand + pebbles | D | 101 | 13 | 5 | 10.1 | 1.3 | .5 | 1140 X |
| 30 | 35 | " " | 39° 47' | 73° 09' | 28 | " | D | 130 | 44 | 27 | 13. | 4.4 | 2.7 | 1740 X |
| 31 | 36 | " " | 39° 39' | 73° 00' | 31 | " | D | 61 | 61 | 76 | 6.1 | 6.1 | 7.6 | 1220 X |
| 32 | 37 | " " | 39° 39' | 73° 10' | 22 | sand | D | 13 | 7 | 13 | 1.3 | .7 | 1.3 | 200 |
| 33 | 38 | " " | 39° 41' | 73° 19' | 22 | " | D | 14 | 6 | 55 | 1.4 | .6 | 5.5 | 200 |
| 34 | 39 | " " | 39° 46' | 73° 30' | 18 | " | D | 17 | 18 | 20 | 1.7 | 1.8 | 2. | 350 |
| 35 | 40 | " " | 39° 48' | 73° 42' | 15 | " | D | 6 | 5 | 12 | .6 | .5 | 1.2 | 110 |
| 36 | 41 | " " | 39° 50' | 73° 53' | 14 | grass + pebbles. | D | 17 | 11 | 22 | 1.7 | 1.1 | 2.2 | 280 |
| 37 | 42 | " 30 | 39° 39' | 73° 49' | 11 | sand | D | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 38 | 43 | " " | 39° 43' | 74° 00' | 11 | sand + pebbles | D | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 39 | 44 | " " | 39° 34' | 73° 53' | 14 | sand | D | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40 | 45 | " " | 39° 29' | 73° 44' | 17 | " | D | 2 | 0 | 0 | .2 | 0 | 0 | 20 |

The Basin Cruise will be pre 1900.

Grampus

Salinity + Temperatures. Basin cruise 1914

| Date 1914 | Temp. Room | Station | Depth meters | Salinity | Temperature | Date 1914 | Temp. Room | Station | Depth meters | Salinity | Temperature |
|-----------|------------|-----------|--------------|-----------|-------------|-----------|------------|---------|--------------|-----------|-------------|
| Jan 20 | | 10157 | Surface | 30.01 | 6.20 | Feb 5 | | 10176 | Surface | 36.44 | 19.2 |
| | | " | 18 m. | 33.57 | 6.75 | 6 | | 10177 | Surface | 36.42 | 19.10 |
| 21 | | 10158 | Surface | 34.94 | 12.30 | | | | 20 | 36.40 | 18.95 |
| | | | 20 m | 34.67 | 11.45 | | | | 100 | 36.44 | 18.95 |
| | | | 100 | 34.76 | 11.15 | | | | 200 | 36.42 | 18.97 |
| | | | 300 | 35.19 | 11.40 | | | | 400 | 36.35 | 17.40 |
| | | | 700 | 35.01 | 4.78 | | | | 600 | 36.00 | 15.50 |
| | | | 1100 | 35.01 | 4.20 | | | | 1000 | 36.35 (?) | |
| 26 | | 10159 | Surface | 33.04 | 7.00 | | | | 1200 | 35.05 (?) | 11.55 |
| | | | 20 | 32.95 | 6.85 | | | | 1500 | 36.38 (?) | 4.35 |
| | | | 36 | 33.22 | 6.75 | | | | 1800 | 34.99 | 3.60 |
| 26-27 | | 10160 | Surface | 34.29 | 9.15 | | | | 2600 Sig | 35.01 | |
| | | | 20 | 34.29 | 9.40 | 17-18 | | 10178 | Surface | 36.42 | 18.8 |
| | | | 100 | 35.28 | 12.00 | 18 | | 10179 | Surface | 36.40 | 18.64 |
| | | | 200 | 35.37 | 9.45 | | | | 20 | 36.44 | 18.40 |
| 27 | | 10160 1/2 | Surface | 36.08 | 22.2 | | | | 100 | 36.44 | 18.50 |
| 28 | | 10161 | Surface | 36.38 | 21.50 | | | | 200 | 36.42 | 18.52 |
| | | | 20 | 36.35 | 21.50 | | | | 400 | 36.31 | 17.15 |
| | | | 100 | 36.44 | 21.35 | | | | 600 | 35.90 | 14.52 |
| | | | 200 | 36.44 | 19.60 | | | | 800 | 35.77 | 13.74 |
| | | | 600 | 35.99 | 15.20 | | | | 1000 | 35.37 | 9.65 |
| | | | 1000 | 35.25 | 10.40 | | | | 1800 | 35.01 | |
| | | 10162 | Surface | 36.44 | 3.20 | | | | 1800 | 34.99 | 4.40 |
| | | 10162 1/2 | Surface | 36.49 | 19.30 | | | | 2600 Sig | 35.50 (?) | |
| 29 | | 10163 | Surface | 36.49 | 18.8 | 18-19 | | 10180 | Surface | | 18.10 |
| | | | 20 | 36.53 | 18.90 | 19 | | 10181 | Surface | 36.42 | 19.38 |
| | | | 100 | 36.44 | 18.85 | | | | 20 | 36.42 | 19.28 |
| | | | 200 | 36.49 | 18.90 | | | | 100 | 36.44 | 18.78 |
| | | | 600 | 36.08 | 15.70 | | | | 200 | 36.44 | 18.89 |
| | | | 1000 | 35.41 | 10.05 | | | | 400 | 36.33 | 17.13 |
| | | | 1800 | 34.97 | 3.80 | | | | 600 | 35.93 | 15.20 |
| 30 | | 10163 1/2 | Surface | 36.44 | 19.9 | | | | 800 | 35.37 | |
| | | 10164 | Surface | 36.56 | 20.7 | | | | 1000 | 35.07 | 7.38 |
| | | 10165 | Surface | 36.53 | 20.4 | | | | 1200 | 35.03 | |
| | | | 20 | 36.47 | 19.20 | | | | 1400 | 35.32 | 4.58 |
| | | | 100 | 36.45 | 18.80 | | | | 1500 | 35.46 | |
| | | | 200 | 36.42 | 18.30 | | | | 1800 | 35.01 | 3.74 |
| | | | 600 | 36.08 | 15.80 | 19-20 | | 10182 | Surface | 36.56 | 20.12 |
| | | | 1000 | 36.36 | 10.00 | 20 | | 10183 | Surface | 36.62 | 21.0 |
| | | | 1200 | 36.36 | 4.05 | | | | 20 | 36.62 | 19.87 |
| 31 | | 10167 | Surface | 36.49 | 19.30 | | | | 100 | 36.62 | 20.87 |
| | | 10168 | Surface | 36.53 | 19.10 | | | | 200 | 36.53 | 19.22 |
| Feb 1 | | 10169 | Surface | 36.44 | 18.95 | | | | 600 | 36.17 | 17.41 |
| | | | 20 | 36.38 | 19.00 | | | | 800 | 35.73 | 16.31 |
| | | | 100 | 36.44 | 18.85 | | | | 1000 | 36.26 | 13.68 |
| | | | 200 | 36.42 | 18.83 | | | | 1400 | 34.90 | 7.67 |
| | | | 600 | 36.26 | 15.60 | | | | 1500 | 36.35 | 5.52 |
| | | | 1000 | 36.72 | 10.50 | | | | 1800 | 36.64 (?) | 4.39 |
| | | | 1800 | 35.01 | 6.70 | | | | 2000 Sig | 36.17 (?) | |
| 2 | | 10170 | Surface | 36.40 | 18.90 | | | 10184 | Surface | 36.56 | 20.07 |
| | | 10171 | Surface | 36.45 | 18.95 | 21 | | 10185 | Surface | 36.42 | 19.80 |
| | | | 20 | 36.44 | 19.03 | | | | 20 | 36.49 | 19.89 |
| | | | 100 | 36.45 | 18.84 | | | | 300 | 36.35 | 19.55 |
| | | | 200 | 36.44 | 18.65 | | | | 600 | 35.79 | 17.30 |
| | | | 600 | 36.08 | 16.10 | | | | 800 | 35.21 | 14.40 |
| | | | 1000 | 35.71 | 6.70 | | | | 1000 | 35.10 | 9.67 |
| | | | 1800 | 34.99 | 4.00 | | | | 1200 | 36.31 (?) | |
| 3 | | 10172 | Surface | 36.45 | 18.9 | | | | 1400 | 36.42 (?) | 4.44 |
| 4 | | 10173 | Surface | 36.44 | 18.85 | 21-22 | | 10186 | Surface | 36.47 | 3.77 |
| | | | 20 | 36.44 | 18.90 | 23 | | 10187 | Surface | 36.51 | 19.40 |
| | | | 100 | 36.42 | 18.70 | | | | 20 | 36.49 | 19.30 |
| | | | 200 | 36.44 | 18.10 | | | | 100 | 36.49 | 19.23 |
| | | | 600 | 36.17 | 16.50 | | | | 300 | 36.47 | 19.26 |
| | | | 800 | 35.64 | 13.10 | | | | 600 | 36.47 | 16.44 |
| | | | 1000 | 36.35 (?) | 11.60 | | | | 800 | 35.70 | 13.05 |
| | | | 1400 | 35.46 | 5.55 | | | | 1000 | 35.19 | 9.05 |
| | | | 1800 | 34.96 | 3.90 | | | | 1200 | 35.05 | |
| | | | 3650 Sig | 35.99 (?) | | | | | 1400 | 34.99 | 5.08 |
| | | | 4570 Sig | 34.87 (?) | | | | | 1800 | 34.99 | 4.01 |
| | | 10174 | Surface | 36.44 | 18.9 | 24 | | 10188 | Surface | 36.47 | 19.47 |
| 5 | | 10175 | Surface | 36.38 | 18.90 | | | 10189 | Surface | 36.47 | 19.66 |
| | | | 20 | 36.38 | 18.90 | | | | 20 | 36.45 | 19.63 |
| | | | 100 | 36.36 | 18.90 | | | | 300 | 36.45 | 20.3883 |
| | | | 200 | 36.45 | 18.90 | | | | 600 | 36.13 | 17.95 |
| | | | 600 | 36.17 | 16.30 | | | | 800 | 35.55 | 16.18 |
| | | | 1000 | 36.19 | | | | | 1000 | 35.08 | 8.37 |
| | | | 3650 Sig | 36.26 | | | | | 1200 | 34.99 | |
| | | | 4570 Sig | 35.21 | | | | | 1400 | 34.99 | 5.00 |
| | | | 1800 | | 4.20 | | | | 1800 | 34.97 | 4.10 |

| Date | Temp Room | Station | Depth meters | Salinity | Temperature | Date | Temp Room | Station | Depth meters | Salinity | Temperature |
|----------|-----------|---------|--------------|-----------|-------------|--------|-----------|---------|--------------|----------|-------------|
| Feb 25 | | 10190 | Surface | 36.56 | 20.10 | Mar 20 | | 10204 | Surface | 36.17 | 21.75 |
| | | 10191 | Surface | 36.56 | 21.42 | | | | 20 | 36.20 | 21.83 |
| | | | 100 | 36.60 | 21.37 | | | | 100 | 36.17 | 21.07 |
| | | | 300 | 36.33 | 17.70 | | | | 150 | 35.30 | 10.72 |
| | | | 600 | 35.95 | 15.11 | | | 10205 | Surface | 36.02 | 23.6 |
| | | | 900 | 35.35 | 11.11 | | | | 20 | 36.08 | 22.84 |
| | | | 1000 | 35.03 | | | | | 60 | 36.22 | 22.48 |
| | | | 1200 | 35.07 | 5.53 | | | | 100 | 36.04 | 19.17 |
| | | | 1400 | 35.64 | 4.70 | | | | 175 | 35.43 | 12.25 |
| | | | 1800 | 34.96 | 3.79 | | | | 210 | 34.85 | 6.90 |
| | | | | | | | | | | | |
| 26 | | 10192 | Surface | 36.62 | 21.58 | 21 | | 10206 | Surface | 36.09 | 23.75 |
| | | | 4725 | 35.03 | | | | | 20 | 36.11 | 23.4 |
| | | | 4732 | 35.03 | | | | | 100 | 36.26 | 23.4 |
| 27 | | 10193 | Surface | 36.53 | 21.75 | | | | 200 | 36.55 | 20.13 |
| | | | 100 | 36.53 | 19.55 | | | | 300 | 35.82 | 14.71 |
| | | | 300 | 36.53 | 18.01 | | | | 400 | 35.10 | 9.66 |
| | | | 600 | 35.93 | 14.67 | | | | 500 | 36.35 | 8.03 |
| | | | 900 | 35.19 | | | | 10207 | Surface | 36.17 | 23.7 |
| | | | 1000 | 35.03 | 10.05 | | | | 20 | 36.17 | 23.6 |
| | | | 1200 | 35.05 | 5.35 | | | | 100 | 36.20 | 23.3 |
| | | | 1400 | 36.58 (?) | 4.54 | | | | 200 | 36.56 | 19.93 |
| | | | 1800 | 35.01 | 3.74 | | | | 300 | 36.38 | 17.61 |
| | | | | | | | | | 400 | 36.08 | 15.78 |
| 28 | | 10194 | Surface | 36.53 | 21.55 | | | | 500 | 35.79 | 13.90 |
| | | 10195 | Surface | 36.49 | 21.7 | | | 10208 | Surface | 36.42 | 22.8 |
| | | | 100 | 36.51 | 21.38 | | | | 20 | 36.42 | 22.42 |
| | | | 300 | 36.47 | 17.90 | | | | 100 | 36.51 | |
| | | | 600 | 35.82 | 14.07 | | | | 200 | 36.53 | 19.91 |
| | | | 900 | 35.21 | 9.87(?) | | | | 300 | 36.42 | 18.78 |
| | | | 1000 | 35.03 | | | | | 500 | 36.18 | 16.39 |
| | | | 2000 | 35.01 | 12.78(?) | | | | 700 | 35.37 | 10.86 |
| | | | 1400 | 34.97 | 4.37 | | | | 1000 (1000?) | 35.03 | 8.26 |
| | | | 1800 | 34.99 | 3.74 | | | 10209 | Surface | 36.44 | 22.23 |
| Maldives | | 10196 | Surface | 36.53 | 20.63 | 22 | | | 20 | 36.45 | 21.52 |
| | | | 100 | 36.56 | 20.34 | | | | 100 | 36.48 | 21.6 |
| | | | 500 | 35.60 | 10.73 | | | | 200 | 36.47 | 18.1 |
| | | | 3000 | 35.03 | 2.82 | | | | 400 | 36.11 | 16.11 |
| | | | 3000 | 34.92 | 2.96 | | | | 500 | 35.99 | |
| 13 | | 10197 | Surface | 36.06 | 20.75 | | | | 700 | 35.26 | 10.05 |
| | | | 20 | 36.06 | 20.49 | | | | 900 | 35.01 | 5.98 |
| | | | 60 | 36.08 | 20.07 | | | | | | |
| | | | 100 | 36.00 | 15.54 | | | | | | |
| | | | 150 | 35.66 | 13.39 | | | | | | |
| | | | 900 | 35.30 | 11.03 | | | | | | |
| | | 10198 | Surface | 36.11 | 23.75 | | | | | | |
| | | | 20 | 36.11 | 23.61 | | | | | | |
| | | | 900 | 34.80 | 7.00 | | | | | | |
| 14 | | 10199 | Surface | 35.97 | 24.34 | | | | | | |
| | | | 20 | 36.00 | 24.6 | | | | | | |
| | | | 100 | 36.06 | | | | | | | |
| | | | 300 | 36.52 | 23.31 | | | | | | |
| | | | 600 | 36.17 | 15.93 | | | | | | |
| | | | 900 | 35.58 | 11.24 | | | | | | |
| | | | 1300 | 34.92 | 5.03 | | | | | | |
| 15 | | 10200 | Surface | 35.93 | 24.78 | | | | | | |
| | | | 20 | 35.93 | 24.72 | | | | | | |
| | | | 100 | 36.26 | 24.45 | | | | | | |
| | | | 200 | 36.58 | 22.34 | | | | | | |
| | | | 400 | 36.66 | 13.51 | | | | | | |
| | | | 600 | 35.03 | 9.10 | | | | | | |
| | | | 1000 | 34.87 | 8.31 | | | | | | |
| | | | 1000 | 34.90 | 9.36 | | | | | | |
| 16 | | 10201 | Surface | 36.08 | 23.67 | | | | | | |
| | | | 20 | 34.90 | 9.82 | | | | | | |
| | | 10202 | Surface | 36.17 | 23.61 | | | | | | |
| | | | 20 | 36.58 | 23.61 | | | | | | |
| | | | 500 | 36.67 | 21.88 | | | | | | |
| | | | 3000 | | | | | | | | |
| | | | 500 | 36.00 | 18.97 | | | | | | |
| | | | 800 | 36.36 | 16.83 | | | | | | |
| | | | 500 | 35.87 | 14.75 | | | | | | |
| | | | 700 | 35.83 | 10.19 | | | | | | |
| 18 | | 10203 | Surface | 36.08 | 23.03 | | | | | | |
| | | | 100 | 36.26 | 23.03 | | | | | | |
| | | | 300 | 36.53 | 24.19 | | | | | | |
| | | | 500 | 35.99 | 15.95 | | | | | | |
| | | | 800 | 35.80 | 14.48 | | | | | | |
| | | | 800 | 34.85 | 8.16 | | | | | | |

| | | | | | |
|-------------------|----|---------|-------------------------|----|---------|
| 2 F.W. | 19 | Whistle | Fig. W. | 19 | Siren |
| 2 F.W. | 16 | Siren | Fig. W. Sec. | 19 | Siren |
| Fig. W. | 15 | Bell | North Carolina | | |
| 2 F.W. | 16 | Trumpet | Fig. W. R. Fl. | 19 | |
| Fig. W. v. W. Fl. | 12 | Whistle | Fig. W. | 18 | |
| Fig. W. | 16 | Trumpet | Fig. W. | 14 | |
| Fig. W. | 16 | Trumpet | Fig. W. | 18 | |
| Fig. W. v. W. Fl. | 12 | Whistle | Fig. W. with Lighthouse | 13 | Whistle |
| Fig. W. v. W. Fl. | 19 | Whistle | | | |
| Fig. W. with E. | 11 | Whistle | | | |
| Fig. W. & R. | 19 | Whistle | | | |
| 2 F.R. | 11 | Whistle | | | |
| 2 F.R. | 11 | Whistle | | | |
| 2 F.W. | 11 | Whistle | | | |
| 2 F.R. | 11 | Whistle | | | |
| Fig. W. | 15 | Trumpet | | | |

westerly current having a velocity of 1 knot.
 At the entrance to the Bay of Fundy the current turns from flood to ebb 1 hour after low water at St. John.
 The ordinary maximum flood or ebb velocity ranging from 11 to 3 knots or more according to location.
 Flood is shown thus ebb thus figures for drift refer to knots per hour.
 Tide rips occur on Georges Bank and between it and Cape Sable.

- Cape Elizabeth signals 7-9
 - Boston signals 5-4
 - Pollock Rip Shoal signals 7-3
 - Nantucket Shoals signals 6-6
 - Fire Island signals 6-8
 - Andrews Channel signals 2-2
 - Five Fathom Bank signals 4-2
 - Fowling Id. Shoal signals 3
 - Water Quarter Shoal signals 4-5
 - Cape Charles signals 4-9
 - Diamond Shoal signals 5
 - Great Bay Shoal signals 2
 - N.E. End Five Fathom Bank signals 4-5
- * Ring in answer to Signals

Sch. Grampus.
 Aug. 20th - September 1st 1913.
 (Add 10,000 to all station numbers)



Coast - Hawaii I.

Grampus Stas.

Oct 20 - Sept 1, 1913

10164 Surface 36.56
 10165 Surface 36.53
 10166 Surface 36.56
 10167 Surface 36.53
 10168 Surface 36.56
 10169 Surface 36.53
 10170 Surface 36.56
 10171 Surface 36.53
 10172 Surface 36.56
 10173 Surface 36.53
 10174 Surface 36.56
 10175 Surface 36.53
 10176 Surface 36.56
 10177 Surface 36.53
 10178 Surface 36.56
 10179 Surface 36.53
 10180 Surface 36.56
 10181 Surface 36.53
 10182 Surface 36.56
 10183 Surface 36.53
 10184 Surface 36.56
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 10190 Surface 36.56
 10191 Surface 36.53
 10192 Surface 36.56
 10193 Surface 36.53
 10194 Surface 36.56
 10195 Surface 36.53
 10196 Surface 36.56
 10197 Surface 36.53
 10198 Surface 36.56
 10199 Surface 36.53
 10200 Surface 36.56

Leptocephalus conger
 Department of Commerce and Labor

Sta 10074 20-0 fath
 (larvae shrunken, were prot. 1/4 longer.
 @ 200 eggs, mostly in advanced stages.

31 *Leptocephali*, as follows

| length | teeth | | |
|--------|-----------|------|---------------|
| 18 mm. | 5 1/2 - 6 | 12.0 | 5 - 5 |
| 15.5 | 5 - 5 | 12 | 5 - 5 |
| 15.5 | 5 - 5 | 12 | 5 - 5 |
| 14.9 | 5 - 5 | 12 | 4 1/2 - 5 |
| 14 | 5 - 5 | 11.7 | 5 - 4 |
| 14 | 5 - 6 | 11.5 | 5 - 5 |
| 14 | broken | 11 | 4 1/2 - 5 |
| 14 | 5 1/2 - 5 | 10 | 4 1/2 - 4 1/2 |
| 13.8 | 5 - 5 | 10 | 5 - 5 |
| 13.5 | 5 1/2 - 5 | 10 | 4 1/2 - 5 |
| 13.5 | 5 - 5 | 9 | 4 1/2 - 4 1/2 |
| 12.8 | 5 - 5 | 9 | 4 1/2 - 4 |
| 12.5 | 5 - 5 | 8.5 | 4 - 4 |
| 12.5 | 5 - 5 | 8.5 | 4 - 4 |
| 12.5 | 5 - 5 | 8 | 4 - 4 |
| | | 7 | 3 1/2 - 3 1/2 |
| | | 6 | broken |

Sta 10071

Department of Commerce and Labor

Head in total 14
Depth " " 8.8
Head in depth 1.7

Conger,

Department of Commerce and Labor

Sta 10076 20-05

2 ♀

| | Hots | Teeth |
|----------------------|------|-------|
| 11.5 mm. | 9 | 4½-5- |
| much shrunken 7.5 .. | 9 | 4-4 |

13 eggs in advanced stages.

~~Sta 10073 15-0~~

~~17.5 mm. 9 5-5~~

~~19 mm. 9 5½-5½~~

Sta 10073

10073 15-0

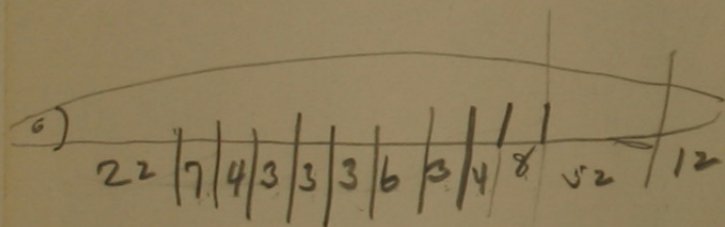
17.5 9 5-5

19 9 5½ 5½

Leptocephalus Sta 10071

Department of Commerce and Labor

below 26th myomere



$$\begin{array}{r} 63 \\ 52 \\ \hline 127 \end{array}$$

41

Department of Commerce and Labor

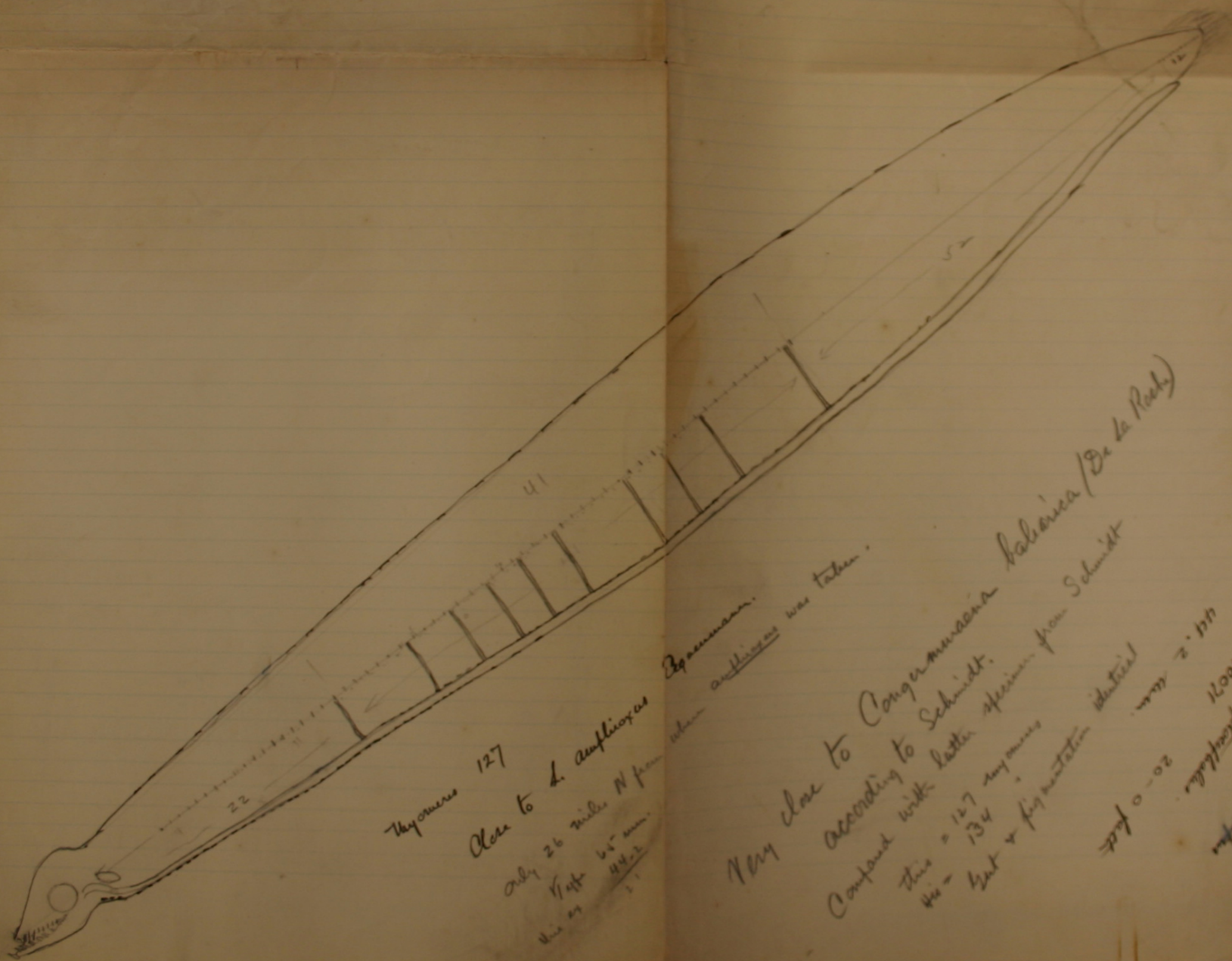
68 cm.

180 miles = ~~26.8~~ 26.8 cm

$$\begin{array}{r} 26.8 \overline{) 180.0} \quad (6.7 \\ \underline{160.8} \\ 192.0 \\ \underline{187.6} \\ 34 \end{array}$$

$$\begin{array}{r} 68 \\ 6.7 \\ \hline 476 \\ 408 \\ \hline 455.6 \end{array}$$

450 miles
SE



Tryonius 127
 close to *L. amplioxus*
 only 26 miles N from
 1/4 65 mm
 1/4 44.2

Bygonium
 when *amplioxus* was taken.

Very close to *Congruentia balonica* (De la Rooy)
 according to Schmidt.
 Confound with latter specimen from Schmidt.
 this = 127 *Tryonius*
 this = 134
 but + figuration identical

777 0-02
 111 2. 174
 Sta 10071
 12001 28
 1/4 1/4 1/4
 1/4 1/4 1/4

OCT 22 1913

Leptocephalids, Grampus, 1913.

Sta. 10071, July 20, 20 - 0 fath. One Leptocephalus 44.2 mm.

in length. This example is very close to Eigenmann's L. amphiæxus, differing slightly in pigmentation. The type of amphiæxus was 65 mm. in length, and was taken only 26 miles south of this station. The pigmentation is identical with that of L. eckmani Stromman.

From the data at hand it appears to me that L. eckmani, immaculatus and amphiæxus can probably all be referred to the same species, L. eckmani. This probability is heightened when it is remembered that all were taken in the same general region, in water showing similar physical conditions.

L. schæelei Stromman, from the Malayan archipelago and central Atlantic ocean, is a closely allied form, as is L. affinis Facciola.

The adult forms of these leptocephali are at present unrecognized.

Sta. 10073, July 21, 15 - 0 fathoms.

Leptocephalus conger, 2 examples 19 and 17.5 mm.

in length.

Sta. 10074 July 22, 20 - 0 fathoms.

L. conger, 31 examples, 18 to 6 mm. in length. About 200 eggs, mostly in advanced stages of development.

Sta. 10076, July 24, 20 - 0 fathoms.

L. conger, 2 examples, 11.5 and 7.5 mm. in length.

13 eggs in advanced stages.

OCT 22 1913

Leptocephalids, Grampus, 1913.

Sta. 10071, July 20, 20 - 0 fath. One Leptocephalus 44.2 mm.

in length. This example is very close to Eigenmann's L. amphiæxus, differing slightly in pigmentation. The type of amphiæxus was 65 mm. in length, and was taken only 26 miles south of this station. The pigmentation is identical with that of L. eckmani Stromman.

From the data at hand it appears to me that L. eckmani, immaculatus and amphiæxus can probably all be referred to the same species, L. eckmani. This probability is heightened when it is remembered that all were taken in the same general region, in water showing similar physical conditions.

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The adult forms of these leptocephali are at present unrecognized.

Sta. 10073, July 21, 15 - 0 fathoms.

Leptocephalus conger, 2 examples 19 and 17.5 mm.

in length.

Sta. 10074 July 22, 20 - 0 fathoms.

L. conger, 31 examples, 18 to 6 mm. in length. About 200 eggs, mostly in advanced stages of development.

Sta. 10076, July 24, 20 - 0 fathoms.

L. conger, 2 examples, 11.5 and 7.5 mm. in length.

13 eggs in advanced stages.

Station 10077:
 Surface 31.32
 10 fath. 34.96
 25 fath. 34.33

Station 10078:
 Surface 29.25
 5 fath. 31.91
 12 fath. 33.50

Station 10079:
 Surface 32.41
 5 fath. 32.76
 10 " 33.86
 15 " 33.86

Station 10080:
 Surface 32.23
 5 fath. 33.36
 (bottle cracked and $\frac{1}{2}$ empty).
 13 fath. 33.14

Station 10081:
 Surface 32.11
 5 fath. 32.14
 11 fath. 32.65

Station 10082:
 Surface 31.85
 10 fath. 33.01
 22 " 33.09

Station 10083:
 Surface 31.29
 8 fath. 31.49
 16 fath. 32.75

Station 10084:
 Surface 32.29
 10 fath. 32.33
 20 " 32.65

Titration of Water Samples.

By W. W. Welsh,

Station 10057:
 Surface 31.90
 10 fath. 31.87
 20 " 32.48
 30 " 32.70
 40 " 32.68

Station 10058:
 Surface 32.40
 30 fath. 33.10
 60 " 33.35
 90 " 33.36

Station 10059:
 Surface 33.06
 15 fath. 33.07
 30 " 33.13

Station 10060:
 Surface 32.63
 10 fath. 32.68
 25 " 33.04

Station 10061:
 Surface 33.41
 25 fath. 33.51
 30 " bottle broken
 50 fath. 33.62
 75 fath. 34.30

Station 10062:
 Surface 32.86
 20 fath. 33.04
 40 " 33.44

Station 10063:
 Surface 32.11
 15 fath. 33.22
 30 fath. 33.22

Station 10064:
 Surface 33.16
 50 fath. 35.18
 150 fath. 35.05
 250 " 34.96

Station 10065:
 Surface 32.68
 20 fathoms 33.04
 40 " 33.89

Sta. 10066:
 Surface 31.55
 15 fath. 33.26
 25 " 33.22

Sta. 10067:
 Surface 31.22
 12 fath. 32.82

Sta. 10068:
 Surface 31.53
 20 fath. 33.16

Sta. 10069:
 Surf. 32.27
 7 fath 33.22
 15 " 33.25

Sta. 10070:
 Surface 32.23
 24 fath. 33.68
 44 " 34.02

Sta. 10071:
 Surface 35.25
 50 fath. 35.55
 150 " 35.25
 250 " 35.03

Sta. 10072:
 Surface 32.22
 10 fath. 33.29
 20 " 33.56

Sta. 10073:
 Surface 33.48
 10 fath. 34.04
 22 " 33.93

Sta. 10074:
 Surface 33.24
 15 fath. 35.06
 30 " 34.32

Sta. 10075:
 Surface 31.88
 10 fath. 33.48

Sta. 10076:
 Surface 33.57
 50 fath. 35.37
 100 " 35.36
 150 " 35.15