

SKEENA PINK FRY OUTPUT: 1959

Trapnetting for pink fry has been carried out annually since 1956 to indicate the number of fry produced from the spawning run of the previous fall on the Lakelse, Kispiox and Kitswanga rivers, three of the largest spawning tributaries in the Skeena Drainage. The object of the work is to determine the escapement size which will most efficiently produce the greatest number of fry and the greatest number of adult salmon.

Since the fry output from the three tributaries mentioned above constitutes a major part of the total output from the whole of the Skeena system, the information that is obtained is also used to indicate very generally the magnitude of the total Skeena output and the most likely number of returning adults.

The same method of fry trapping has been used each year. A small-meshed net, which strains the water to a depth of one foot, is fished at a number of stations across each river mouth, usually two or three times each week during the migration. The average catch per hour is used to calculate an index which is a relative measure of the total number of migrants.

The degree of accuracy of the method has not been fully determined. Special netting carried out in 1958 and 1959 has shown that the proportion of the fry present in the top foot of water (and thereby captured in the standard net) may vary with changes in the total depth of the river at the trapping site. Error arising from these changes in the vertical distribution of the fry has been minimized by using the same trap site whenever possible. Any change in water depth was therefore due only to seasonal changes in water level which follows a similar annual pattern.

In 1957 and again in 1959 it was necessary to change the location of the Lakelse River trapping site. The sites used from 1956 to 1958 were comparable in depth and other physical characteristics. However, the depth of water at the 1959 site was about twice that at the sites used previously. The index for abundance of fry from the 1958 brood year is therefore not comparable to that obtained in other years and on the basis of available evidence the index shown is relatively very much too low.

The indices of fry output and the best estimates of the escapement size in the parent year are given below:

| PLACE       | PARENT YEAR | ESTIMATED ESCAPEMENT | INDEX OF FRY OUTPUT |
|-------------|-------------|----------------------|---------------------|
| Lakelse R.  | 1955        | 175,000              | 3.2                 |
|             | 1956        | 75,000               | 1.9                 |
|             | 1957        | 140,000              | 13.5                |
|             | 1958        | 262,000              | 3.3*                |
| Kispitox R. | 1955        | 540,000              | 8.6                 |
|             | 1956        | 75,000               | 1.4                 |
|             | 1957        | 360,000              | 13.2                |
|             | 1958        | 66,000               | 5.4                 |
| Kitwanga R. | 1955        | 125,000              | -                   |
|             | 1956        | 35,000               | 3.7                 |
|             | 1957        | 160,000              | 7.6                 |
|             | 1958        | 158,000              | 7.3                 |

\* derived from catches made at a different trapping site. To be comparable it is believed the index should be much higher.

Kispiox River:

Since the brood year of 1955 the index of fry output has varied from 1.4 to 13.2 or about 9 times while the escapement has varied from 75,000 to 540,000 or about 7 times.

The largest numbers of fry have resulted from the largest spawning runs. The smallest spawning escapement (1956) produced the smallest fry output. However, the second largest escapement resulted in the highest fry index.

The index of 5.4 from the small escapement of 1958 indicates an above-average survival of fry from this deposition.

Kitanga River:

Three years' data indicate that a twofold increase in the number of fry resulted from an increase in the brood stock of over four times.

The 1957 and 1958 brood stocks were of comparable size and produced a comparable number of fry.

Lakelse River:

As was mentioned previously, the index of the output from the 1958 escapement cannot be compared to the indices obtained previously. Special netting carried out in addition to the routine netting has indicated that this index is relatively low and that the number of fry from the 1958 spawning was large.

J. McDonald

Table I. Lakelse River: Average catch per hour of pink fry, 1956-59

| Date    | Night |       |        |       | Day  |      |      |      |
|---------|-------|-------|--------|-------|------|------|------|------|
|         | 1956  | 1957  | 1958   | 1959  | 1956 | 1957 | 1958 | 1959 |
| March 6 |       |       | 1.9    |       |      |      |      |      |
| 8       |       |       | 0.4    |       |      |      |      |      |
| 11      |       |       | 1.1    |       |      |      |      |      |
| 17      |       |       |        | 5.9   |      |      |      | 2.5  |
| 18      |       |       | 1.1    |       |      |      |      |      |
| 22      |       |       |        | 2.7   |      |      |      | 0.9  |
| 24      |       |       | 78.1   |       |      |      |      |      |
| 26      |       |       |        | 2.4   |      |      |      |      |
| 28      |       |       | 125.4  |       |      |      | 3.7  |      |
| April 1 |       |       | 253.8  | 2.3   |      |      | 14.8 | 0    |
| 4       |       |       | 571.6  |       |      |      | 6.0  |      |
| 5       |       |       |        | 2.3   |      |      |      | 1.0  |
| 8       |       |       | 643.0  |       |      |      | 0.3  |      |
| 9       |       |       |        | 9.7   |      |      | 1.6  | 0    |
| 11      |       |       | 717.2  |       |      |      | 2.7  |      |
| 12      | 7.8   |       |        | 4.7   |      |      | 9.2  | 0.4  |
| 15      |       |       | 253.1  | 39.5  |      |      |      | 0    |
| 17      |       |       |        | 96.1  |      |      |      | 0.5  |
| 18      |       |       | 293.3  |       |      |      | 0.1  |      |
| 19      | 11.4  |       |        |       |      |      |      | 2.0  |
| 20      |       |       |        | 334.6 |      |      | 0    | 4.0  |
| 22      |       | 61.8  | 525.6  | 326.8 |      |      | 0    |      |
| 23      | 31.2  |       |        |       |      |      |      | 4.6  |
| 24      |       |       | 1352.6 | 217.9 |      |      | 0    | 2.2  |
| 25      |       |       |        |       |      |      |      |      |
| 26      |       | 110.3 |        |       |      |      |      |      |
| 27      |       |       |        | 95.8  |      |      |      | 2.2  |
| 28      | 54.6  |       |        |       |      |      |      |      |
| 29      |       | 97.0  | 1104.2 | 42.3  |      | 3.3  |      |      |
| May 1   |       |       |        | 31.2  |      |      |      |      |
| 2       |       |       | 242.4  |       |      |      |      | 5.3  |
| 3       | 232.2 | 71.8  |        |       |      |      |      | 2.1  |
| 4       |       |       |        | 57.9  |      |      |      | 0.8  |
| 6       |       | 303.3 | 35.7   | 56.1  |      |      | 0    |      |
| 7       |       |       |        |       |      | 16.5 |      | 11.0 |
| 8       | 240.6 |       |        | 34.6  |      |      |      | 1.6  |
| 9       |       |       | 21.7   |       |      |      |      |      |
| 10      |       | 64.4  |        |       |      | 2.1  |      | 0.9  |
| 11      |       |       |        | 64.0  |      |      |      |      |
| 12      | 118.2 |       |        |       |      |      |      | 0    |
| 13      |       | 56.6  |        | 29.3  |      | 5.0  |      |      |
| 14      |       |       | 18.0   |       |      | 6.0  |      |      |
| 17      | 69.6  | 12.2  |        |       |      | 1.8  |      |      |

| Date   | Night |      |      |      | Day  |      |      |      |
|--------|-------|------|------|------|------|------|------|------|
|        | 1956  | 1957 | 1958 | 1959 | 1956 | 1957 | 1958 | 1959 |
| May 18 |       |      |      | 6.3  |      |      |      | 0.5  |
| 20     |       |      |      | 2.3  |      |      |      | 0.5  |
| 21     |       |      | 0.4  |      |      |      | 0    |      |
| 22     |       |      |      | 1.5  |      |      |      | 0    |
| 23     | 25.8  | 1.4  |      |      |      |      |      |      |
| 27     |       | 0.4  |      |      |      |      |      |      |
| 28     |       |      |      | 0.2  |      |      |      |      |

Table II. Kisplox River: Average catch per hour of pink fry, 1956-59

| DATE  | Night |       |        |       | Day   |       |       |       |
|-------|-------|-------|--------|-------|-------|-------|-------|-------|
|       | 1956  | 1957  | 1958   | 1959  | 1956  | 1957  | 1958  | 1959  |
| April | 2     |       | 4.0    |       |       |       |       |       |
|       | 3     |       |        | 4.3   |       |       | 2.9   |       |
|       | 6     |       |        | 2.1   |       |       |       | 0     |
|       | 8     |       |        | 2.6   |       |       |       | 0     |
|       | 10    |       |        | 38.0  | 7.7   |       | 2.3   | 0.3   |
|       | 13    |       |        |       | 10.0  |       |       | 7.1   |
|       | 14    |       |        | 44.9  |       |       |       |       |
|       | 15    |       |        |       | 6.6   |       |       | 0.3   |
|       | 17    | 1.8   |        | 20.9  | 4.7   |       | 1.2   | 0.4   |
|       | 20    | 6.4   |        |       | 16.9  |       |       | 0.5   |
|       | 21    |       |        | 87.3  |       |       | 2.6   |       |
|       | 22    |       |        |       | 30.5  |       |       | 5.3   |
|       | 24    | 12.0  | 11.0   | 266.2 | 18.4  |       |       | 2.3   |
|       | 25    |       |        |       |       |       | 11.6  |       |
| 27    |       |       |        | 29.6  |       |       | 0.9   |       |
| 29    |       |       |        | 43.3  |       |       | 0.9   |       |
| 30    | 21.8  | 9.4   | 1464.4 |       |       | 308.9 |       |       |
| May   | 1     |       |        | 109.7 |       |       |       | 4.4   |
|       | 2     |       | 805.2  |       |       |       | 128.5 |       |
|       | 4     | 34.2  |        |       | 256.9 |       |       | 8.2   |
|       | 5     |       |        | 401.7 |       |       | 61.9  |       |
|       | 6     |       |        |       | 188.4 | 28.0  |       | 1.3   |
|       | 7     |       | 18.6   |       |       |       | 1.7   | 74.1  |
|       | 8     |       |        |       | 362.8 |       | 2.5   | 32.4  |
|       | 9     |       |        | 306.2 |       |       |       | 87.8  |
|       | 10    |       | 56.6   |       |       |       |       |       |
|       | 11    |       |        |       | 400.8 |       | 15.1  | 12.6  |
|       | 12    |       |        | 244.0 |       |       |       | 99.3  |
|       | 13    |       |        |       |       |       | 16.4  |       |
|       | 14    |       |        | 44.8  |       | 4.0   |       |       |
|       | 16    |       |        |       |       |       | 35.0  |       |
|       | 18    | 122.4 |        |       | 66.3  | 103.2 | 38.6  | 28.8  |
|       | 19    |       |        | 116.5 |       |       |       | 132.0 |
|       | 20    |       |        |       |       |       | 60.2  | 15.7  |
|       | 21    |       | 31.1   | 13.5  |       |       | 21.6  | 21.6  |
|       | 22    |       | 29.8   |       | 29.0  |       |       | 5.9   |
| 23    |       |       | 10.5   |       |       |       | 12.0  |       |
| 24    | 79.2  | 41.9  |        |       | 24.8  | 5.3   |       |       |
| 25    |       |       |        | 11.1  |       | 39.4  | 1.0   |       |
| 26    |       |       | 2.2    |       |       | 6.8   | 3.5   |       |
| 27    |       | 25.7  |        | 25.1  |       |       | 2.5   |       |
| 28    |       |       | 0.8    |       |       |       | 2.7   |       |
| 29    | 240.2 | 39.8  |        | 8.9   | 225.6 | 3.0   | 1.2   |       |
| 30    |       |       | 1.2    |       |       |       | 2.4   |       |

| Date   | Night |      |      |      | Day   |      |      |      |
|--------|-------|------|------|------|-------|------|------|------|
|        | 1956  | 1957 | 1958 | 1959 | 1956  | 1957 | 1958 | 1959 |
| June 1 | 137.4 | 13.7 |      | 9.6  |       | 6.0  |      | 4.3  |
| 2      |       | 6.2  | 0.7  |      | 96.0  |      | 1.1  |      |
| 3      |       |      |      | 1.3  |       |      |      | 1.1  |
| 4      |       | 4.7  |      |      |       | 1.1  |      |      |
| 5      |       |      |      | 1.4  |       | 0    |      | 0.3  |
| 8      |       |      |      | 2.9  | 10.2  |      |      | 0.1  |
| 10     | 198.6 | 2.0  |      | 0.3  | 21.0  |      |      | 0.1  |
| 14     |       | 0.5  |      |      |       | 0    |      |      |
| 15     |       |      |      |      | 134.4 |      |      |      |
| 16     | 30.0  |      |      |      | 55.8  |      |      |      |
| 17     |       |      |      |      | 154.8 |      |      |      |
| 20     |       |      |      |      | 175   |      |      |      |
| 30     | 0.7   |      |      |      | 0.2   |      |      |      |

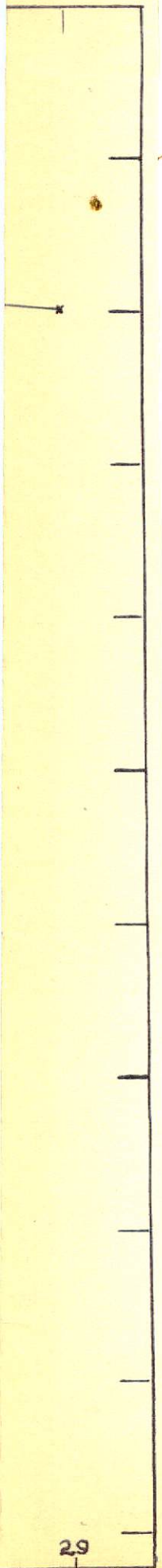
Table III. Kitwanga River: Average catch per hour of pink fry 1957-59

| Date  | Night |       |        |        | Day   |       |       |      |
|-------|-------|-------|--------|--------|-------|-------|-------|------|
|       | 1956  | 1957  | 1958   | 1959   | 1956  | 1957  | 1958  | 1959 |
| March | 11    |       | 0.8    |        |       |       |       |      |
|       | 19    |       | 3.3    |        |       |       |       |      |
|       | 24    |       |        | 0.9    |       |       |       | 1.0  |
|       | 25    |       | 22.1   |        |       |       |       |      |
|       | 30    |       |        | 10.8   |       |       |       | 0    |
|       | 31    |       |        |        |       |       |       | 2.3  |
| April | 2     |       | 16.0   |        |       |       |       |      |
|       | 3     |       |        | 29.0   |       |       |       | 0    |
|       | 4     |       | 36.6   |        |       |       |       |      |
|       | 6     |       |        | 29.2   |       |       |       | 0.2  |
|       | 8     |       |        | 40.1   |       |       |       | 0    |
|       | 10    |       |        | 90.8   |       |       |       | 2.7  |
|       | 11    |       | 163.5  |        |       |       | 12.3  |      |
|       | 13    |       |        | 53.8   |       |       |       | 6.4  |
|       | 15    |       | 175.2  | 75.8   |       |       |       | 2.0  |
|       | 17    |       |        | 114.0  |       |       |       | 0.6  |
|       | 18    |       | 228.5  |        |       |       | 4.5   |      |
|       | 20    |       |        | 229.3  |       |       |       | 4.0  |
|       | 21    |       | 187.3  |        |       |       | 3.3   |      |
|       | 22    |       |        | 242.2  |       |       | 2.2   | 32.9 |
|       | 23    |       | 33.7   |        |       | 1.9   |       |      |
| 24    |       |       | 324.5  |        |       | 1.7   | 12.0  |      |
| 25    |       | 465.4 |        |        |       | 2.3   |       |      |
| 27    |       |       | 412.0  |        |       |       | 6.0   |      |
| 28    |       | 958.3 |        |        |       | 5.3   |       |      |
| 29    |       |       | 534.1  |        |       |       | 2.8   |      |
| 30    |       | 97.4  | 1821.4 |        | 30.2  | 100.9 |       |      |
| May   | 1     |       |        | 588.7  |       | 40.7  |       | 2.7  |
|       | 2     |       | 1391.2 |        |       |       | 210.2 |      |
|       | 4     |       |        | 642.3  |       |       |       | 12.8 |
|       | 5     | 483.7 | 1134.0 |        |       | 75.8  | 83.3  |      |
|       | 6     |       |        | 627.0  |       | 39.1  |       | 1.8  |
|       | 7     |       | 1026.7 |        |       |       | 53.6  |      |
|       | 9     | 245.3 | 808.5  |        |       | 29.3  | 49.7  |      |
|       | 10    |       |        | 1129.0 |       | 244.9 |       |      |
|       | 11    |       |        | 794.2  |       |       |       | 6.4  |
|       | 12    |       | 359.7  |        |       | 94.0  | 11.6  |      |
|       | 13    |       |        |        |       |       |       | 1.5  |
|       | 14    | 500.5 | 314.1  |        |       | 324.2 | 2.6   |      |
| 15    |       |       | 305.2  |        | 169.5 |       | 175.7 |      |
| 16    | 337.2 | 176.3 |        |        | 121.0 | 5.9   |       |      |
| 17    |       |       |        |        | 376.4 |       |       |      |
| 18    |       |       |        |        | 87.3  |       |       |      |
| 19    |       | 166.2 |        |        |       | 49.7  |       |      |
| 20    |       |       | 73.7   |        |       |       | 9.8   |      |



| Date   | Night |      |      |      | Day  |      |      |      |
|--------|-------|------|------|------|------|------|------|------|
|        | 1956  | 1957 | 1958 | 1959 | 1956 | 1957 | 1958 | 1959 |
| May 21 |       |      | 90.0 |      |      |      | 28.8 |      |
| 23     |       |      |      |      |      | 18.1 |      |      |
| 24     |       | 20.9 |      |      |      | 12.0 |      |      |
| 25     |       |      |      | 14.3 |      | 16.3 |      | 2.0  |
| 26     |       | 17.2 | 6.5  |      |      | 2.2  | 1.4  |      |
| 27     |       |      |      |      |      | 11.0 |      |      |
| 28     |       | 5.8  | 3.3  |      |      | 1.8  |      |      |
| 29     |       |      |      | 3.2  |      | 2.8  |      | 0.7  |
| 30     |       |      | 3.7  |      |      | 0.8  | 0.4  |      |
| June 5 |       | 0.0  |      |      |      |      |      |      |
| 6      |       |      |      |      |      |      |      |      |
| 9      |       | 0.2  |      |      |      | 0.0  |      |      |



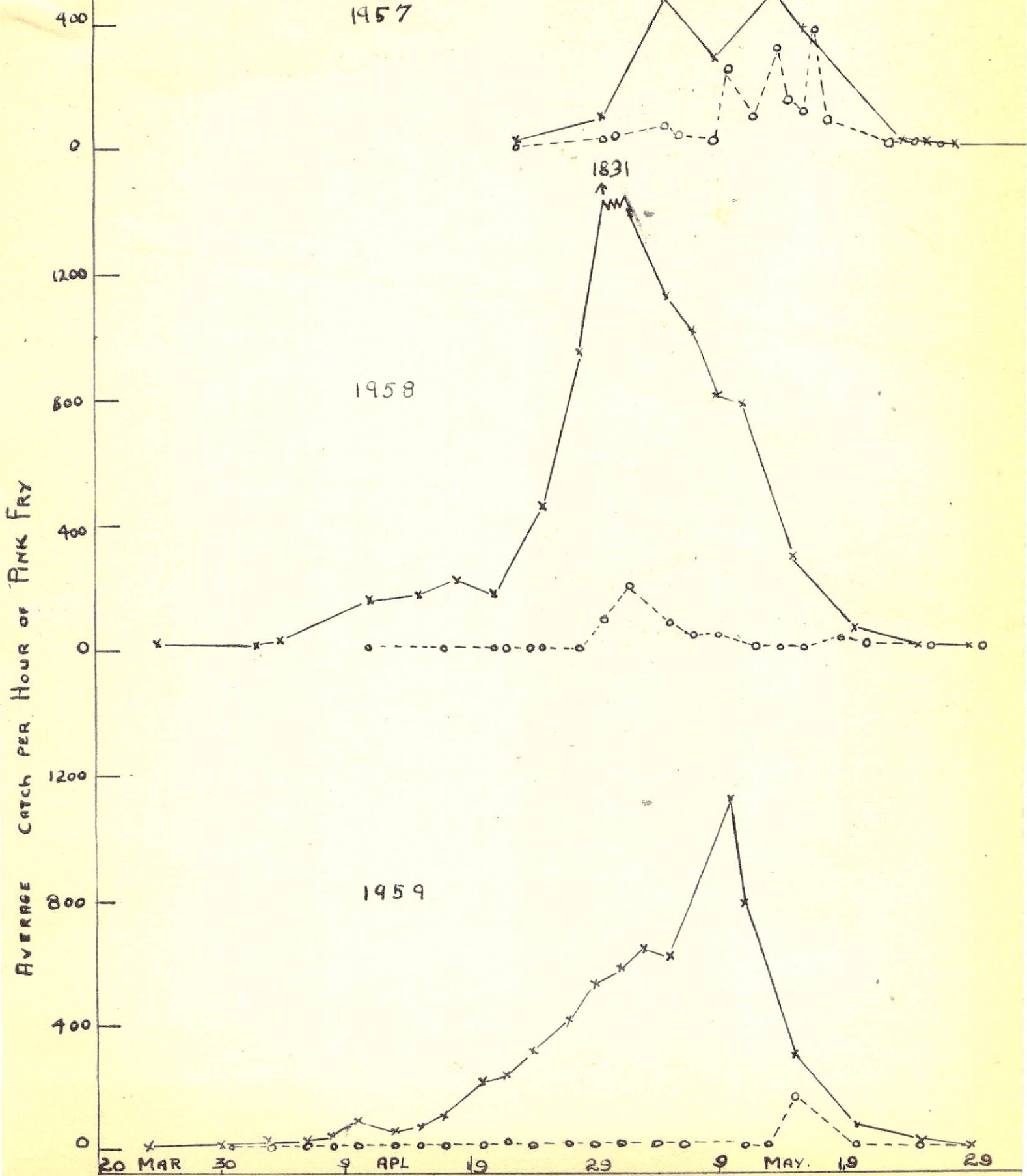


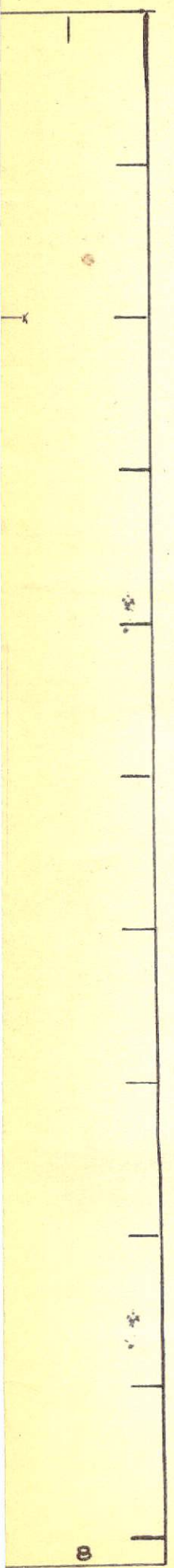
# KITWANGA RIVER

x-x Night

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1957





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