A Fish Stock Assessment of Lough Inchiquin

Co. Clare, 2002

January, 2003

This survey was carried out in August 2002 at the request of the Shannon Regional Fisheries Board. The aim of the survey was to determine the current status of the various fish species in the lake, in particular the brown trout population. The last survey of the lake had been carried during the period 1976 – 1978.

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A Fish Stock Survey of Lough Inchiquin, Co. Clare – August, 2002

Introduction

Inchiquin lake is part of the R. Fergus catchment, with a surface area of 280 acres. It is quite a deep lake (up to 90ft) with limited shallows (Champ, 1979). The lake had been surveyed in the past, the most recent of these studies was during the period 1976 – 1978 (O'Grady, 1981). Those surveys had indicated that Lough Inchiquin had the highest CPUE value ever recorded for brown trout, in an Irish lake, at that time.

Survey Methodology and Results

During the current survey 10 of the same sampling areas (from the 1978 study) were re-sampled (fig. 1). The sampling procedure involved setting gangs of gill nets over-night and servicing them the following day. The majority of fish taken in the nets were retained for processing. This involved taking length, weight, scale samples and dietary analyses of all fish. The survey yielded 73 brown trout, 23 pike and 3 perch (table 1). The survey nets used are capable of capturing all trout >= 19.8 cm in proportion to their presence and a cross-section of all other fish species present.

As a method for comparing numbers of fish caught in different lake surveys "catch per unit effort" (CPUE) is more commonly used. CPUE reflects the relative density of that species present in the lake. CPUE values, for any species, are obtained by dividing the total number of fish, for that species, by the number of net gangs set. It has proved to be a very effective management tool in illustrating the fluctuations in fish stocks over time (O'Grady, 1983).

The CPUE for trout in this survey was 7.3 (fig. 2) while the mean value recorded for brown trout during the earlier studies in the 1970's was 8 (fig. 3). This suggests the presence of similar numbers of trout during both periods (1970's and 2002). A

comparison of CPUE values for other Irish lakes, sampled in summer time (fig. 4), show that Inchiquin appears to be in a relatively healthy position, especially when compared to the low CPUE values of Loughs Conn and Cullin, whose trout fisheries are known to have almost completely collapsed.

As the previous surveys (1976-78) indicate the trout in Inchiquin exhibited a fast growth rate pattern. The growth pattern in the 2002 sample is very similar to the 1970's data (fig. 5).

Information from scale reading and backcalculations suggests that the majority of the trout enter the lake as 0+, as was also noted during the 1976-1978 study period.
The length frequency distribution pattern of the trout sample from L. Inchiquin in 2002 (fig. 6) suggests a relatively steady level of recruitment to, and survival in, the lake of brown trout over a four year period (1996 to 2000).

The dominance of three, four and five year old fish among the adult brown trout population in the 2002 sample is typical of Irish limestone lake populations – in these waters few fish live beyond their sixth year (5+ = 6) except for the Ferox trout. The latter species (ferox) is not a feature of the stock in L. Inchiquin.

The length range for the pike taken during this survey was between 31 and 83.5 cm and weighed between 0.2 and 5.26 kg. The majority though were greater than 50cm and weighed over 1kg. The CPUE for pike was 2.3. This is a relatively low value.

Perch were also recorded though in very small numbers and while no rudd or tench were taken on this occasion they are known to be present in the lake.

The survey suggests that roach may have not yet colonised this water and staff from the Shannon Fisheries Board also have no record of this species from this water to date (M. Cleary, pers comm.).

Management Recommendations

Lough Inchiquin, in 2002, supports one of the highest stock densities of brown trout of any Irish lake trout fishery. The Shannon Regional Fisheries Board should therefore consider the continued maintenance of this fishery as a trout angling water.
The following management recommendations are proposed in that context:-

- Continue pike control measures using a gill-netting programme.
- Investigate the effectiveness of the lake electrofishing equipment on this water. There are relatively limited shallow weedy areas on L. Inchiquin. Juvenile pike are confined to such areas. With the relatively high water clarity on this water electrofishing should prove to be a particularly effective means of controlling pike numbers here when lake levels are high in springtime – recent trials on Lough Corrib have resulted in the capture of up to 900 juvenile pike per day in calm sunny conditions. In a small water like Inchiquin the effective use of electrofishing for pike could possibly replace a gill-netting programme and be more cost effective.
- Few anglers (local or visitors) are using this water in recent years (M. Cleary, pers comm.) The Sh.R.F.B. should consider actively promoting this water as a quality lake trout fishery.
- The Sh.R.F.B. might discourage pike angling activities on this water in the interest of preventing the introduction of roach.

References

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