

Fisheries Performance Assessment Program

Introduction

Lake Lea is a small natural lake of approximately 1.5 square kilometres located 16 kilometres North West of Cradle Mountain. The lake receives around 730 visits (days fished) per annum and is an important regional fishery offering anglers of the North West and West Coast a remote natural lake fishery for brown trout.

During the period 4-6 February 2003, the Service undertook an intensive survey within Lake Lea. The purpose of the survey was to gain information on catch per unit effort and the age structure of the brown trout population. Until this time, no previous assessment of the trout population within Lake Lea has been undertaken.

An analysis of fishery performance indicators in conjunction with the results of this survey are reported.

In-Lake Surveys

A total of 55 brown trout (35 females & 20 males) with lengths ranging between 339 – 476 mm were captured (see fig 1). The average weight and length was 829 g and 416 mm respectively. The maximum length recorded for an individual fish was for a 4 year old male of 476 mm with a weight of 1 240 g.

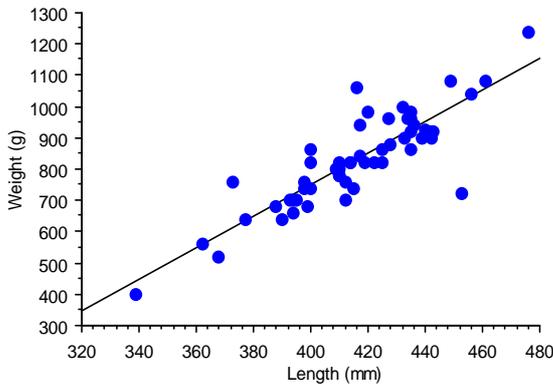


Figure 1. Length and weight of brown trout - Lake Lea 2003.

Eighty two percent of the fish sampled were in the condition factor range 1.0 - 1.2 k with 17 percent 1.2 k or above, indicating most fish were in good condition.

Catch per unit of effort by comparison to most other lake fisheries was modest, suggesting the water holds a reasonable head of brown trout.

From the analysis of age and length data, there were no signs of recruitment failure in the 3-7 year old cohorts.

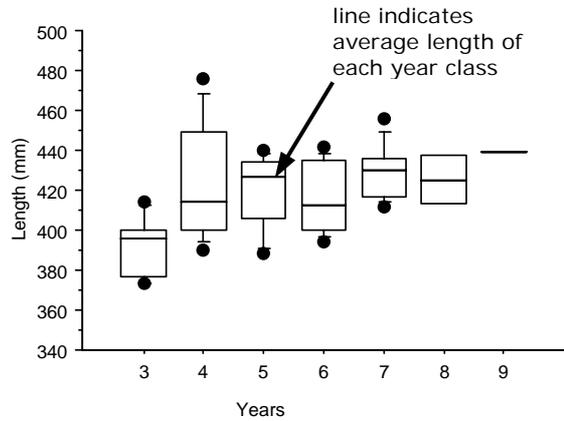


Figure 2. Length at age for brown trout - Lake Lea 2003.

Growth rates for fish of three years old or greater were very low with evidence of fish living to at least 9 years old (see fig 2). On average, a fish in Lake Lea takes 3 years to reach 393 mm. While this rate of growth is comparable to other lower productive waters, once a fish reaches maturity and begins spawn (3-4 years), growth slows dramatically with maximum lengths of fish generally reaching around 440 mm. On average, a fish of 393 mm (3 year old) takes an additional 5 years to reach a length of 425 mm (8 year old), although this rate is highly variable within individual year classes. Neither 1 or 2 year old fish were collected.

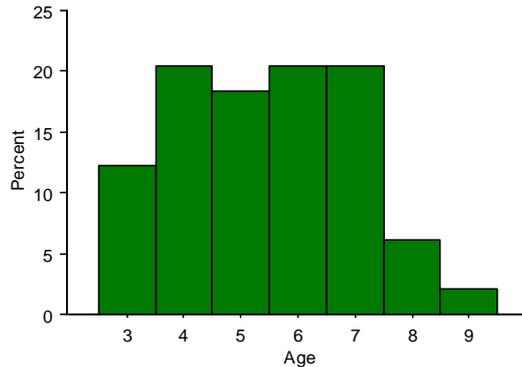


Figure 3. Percentage of brown trout in each age class - Lake Lea 2003.

Eighty percent of the fish sampled were in the age range 4-7 years old, with almost 20 percent of fish occurring in each of these cohorts (see figure 3).

Three year old fish represented 12 percent of the sample while 8 and 9 year old fish represented 8 percent. The large percentage of fish in each of the 4 – 7

- Lake Lea 2003 -

year old age classes (390 – 476 mm) indicates that total mortality in these cohorts is low. Neither natural mortality nor mortality due to fishing is significantly impacting on this section of the population. A high rate of natural mortality would appear to be occurring in fish greater than 7 years old (see fig 3).

Stocking History

Since the late 1950's, there have been no sanctioned releases of any species of trout until December 2002, when the Inland Fisheries Service stocked 3 000 advanced brown trout fry.

Angler Creel Survey

Just three anglers were interviewed in the period January 2003 to April 2004. In total they fished for eight hours and caught two fish.

Angler Postal Survey

Since the commencement of the postal questionnaire in 1985/86, on average less than 1.5 percent of all licensed anglers (290 anglers) fished Lake Lea on a seasonal basis. This number has varied greatly ranging from a high of 560 to a low of 127 anglers.

The maximum fishing effort (total number of days fished per season), occurred during the 1995/96 season with 2 084 days fished while in 1997/98 this figure was just 208 days (see figure 4). An interesting point is the marked decline in fishing effort between the 1999/00 and 2001/02 seasons when the estimated catch rate increased from 0.79 to 1.38 fish per day (see figure 5).

The long term average catch rate for brown trout is almost 1 fish per day (0.99), with a high of 2.63 during 1987/88 and a low of 0.53 during 1997/98.

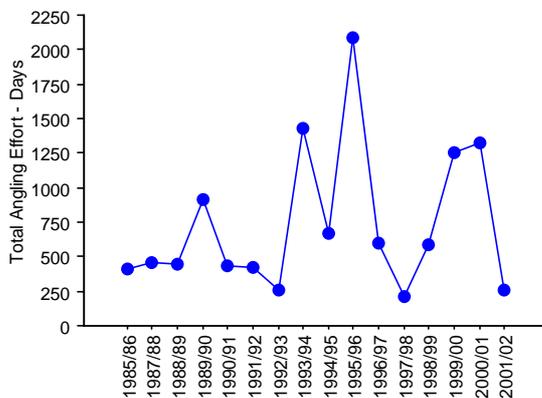


Figure 4. Total number of days fished – Lake Lea 1986 – 2002.

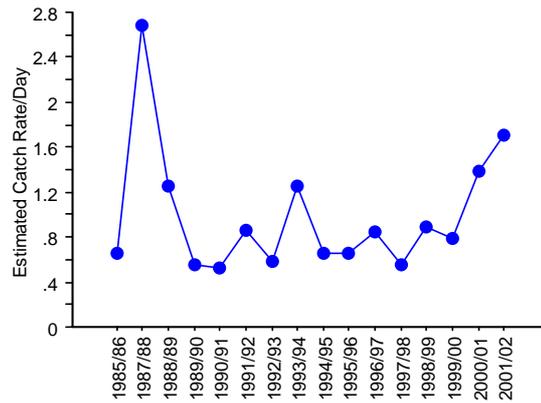


Figure 5. Catch rate per day for brown trout – Lake Lea 1986 – 2002.

By comparison to other popular waters, the estimated annual harvest of brown trout of 708 fish is low and reflects the low angling effort expended at this water. When this is interpreted in conjunction with the consistent high proportion of brown trout existing in the 3 - 7 year old cohorts, it could be concluded that fishing pressure is minimal.

The number of anglers fishing Lake Lea on a statewide basis is very low, with the majority of anglers fishing only 1 or 2 days per season (see fig 6). Of those anglers that did fish Lake Lea, some 58 percent caught at least one fish (see fig 7).

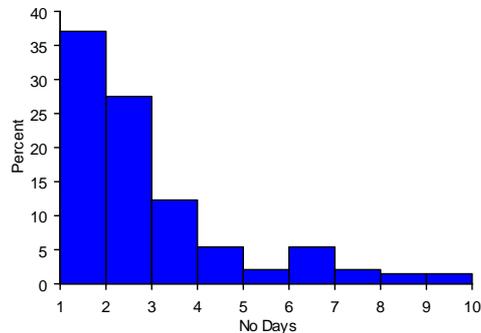


Figure 6. Percentage of anglers and the number of days they fished on a seasonal basis, 1985 to 2002 - Lake Lea.

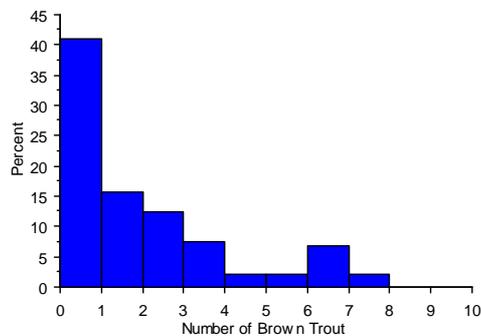


Figure 7. Percentage of anglers and the number of brown trout they caught on a seasonal basis, 1985 to 2002 – Lake Lea.