RIVER DARWEN

CATCHMENT REVIEW

1984-1995

ENVIRONMENT AGENCY
CENTRAL AREA ECOLOGY
NORTH WEST REGION

FIONA DUKE

Contents

Introduction

The River Darwen catchment is, in general, highly modified in nature and urban in location. The river is greatly affected by industrial development, which has adversely affected the rivers' ecology, physical characteristics and physical appearance. The catchment on the whole is very diverse, but the major problem is organic pollution.

Site 88. River Darwen u/s Hardman Way

This site shows much fluctuation in ASPT, BMWP and TBI. In October 1989 there is indication of a toxic pollution. This had a devastating effect some 20km downstream, with some dead invertebrates being found at Cann Bridge. However, this appeared to have recovered by April 91. In Aug 91 the inferred NWC dropped from class 2 to 3 as a result of organic pollution, recovered and dropped again from a class 1B to 3 in Oct 95 for the same reason. The current survey shows that this site has still not regained its former water quality and is fluctuating between a class 2 and 3.

Site 90. River Darwen d/s the major SSO opp Crown Paints Resrs.

This site appears to suffer from sporadic pollution problems from the SSO. In May 89 the SSO caused a significant deterioration from a class 2 to 3 with restricted faunal abundance, suggesting a possible toxic effect from Clarence St. SSO. Stale sewage litter was widespread at the site. In April 91 the class again deteriorated due to the SSO after a short period of recovery. The same problem reoccurred in Oct 95 with thick sewage fungus growths on the river bed, fresh sewage litter and the water being discoloured to a milky-white opaque colour. The class fell from class 3 to 4, with *Chironomidae* being the only family found (EC9562).
The current survey revealed that this site had improved significantly from a class 4 to 2. This may have been due to the lack of recent rainfall.

Site 92. River Darwen u/s Darwen STW d/s Hollins Paper Mill Discharge

This site shows a steady improvement from July 84 to December 94. One gross organic pollution took place in Sept. 89 when the class dropped from 2 to 4. Sewage fungus and paper fibres were found in abundance. The Nov 92 survey resulted in another class drop, from 2 to 3, again attributable to organic load. The site rapidly recovered, then from May 95 there appears to have been further problems, with the BMWP dropping quite dramatically and the class hovering around 3. The biology is currently slowly improving within a class 3.

Site 96. River Darwen Pleasington Fields

The ASPT and TBI at Pleasington Fields is fairly stable, perhaps with a slight improvement between Apr 84 and Jul 92. From then on the water quality has been declining, which is markedly shown in the BMWP graph. This may be due to possible toxic effects from the River Blakewater. Current results reveal that there have been no further declines in water quality.

Site 98. River Darwen at Hoghton Bottoms

The water quality shows some variation over time, with a marked decline until April 91. The BMWP has been increasing slowly from this point and has stabilised at NWC class 2. The site seems to suffer from organic problems and SSO's.

Site 99. River Darwen ptc Hole Brook
ASPT was very stable from Jul 84 to Apr 88. From this point it appears to have suffered from occasional pollution problems, attains recovery, then is hit by another organic problem. Much sewage litter has been observed at the site on several occasions, so the problems may be attributable to SSO's.

Site 101. River Darwen at Cann Bridge
This site appears to follow the same pattern as that found at Site 99. The ASPT and TBI are more steady over time showing that some of the effects of the upstream site may have been buffered by Blackburn STW. However, due to said STW, the site does suffer from organic pollution and sewage fungus problems.

Site 107. Davyfield Brook at Roman Road Bridge
In May 85 the watercourse suffered a class drop from 2 to 3 as a result of a toxic pollution. Recovery reached a peak in Oct 89, but in Aug 90 there was a pollution incident involving chronic heavy organic enrichment and fish mortality. 60% of the bed was covered in a thin layer of sewage fungus after this incident. Since this, the brook has made a steady recovery, apart from one organic pollution in Feb 94. In Nov 95 the brook reached a consistent class 1B water quality.

Site 109. Davyfield Brook ptc R. Darwen
Biological parameters fluctuate wildly at this site. In Oct 89 a toxic pollution incident which had effects all the way down to Cann Bridge was reported. This had a severe impact on the biology. However, the BMWP made a quick recovery until Apr 91 an organic pollution occurred resulting in a class drop from 2 to 3. Full recovery of ASPT, BMWP and TBI has taken place, but the fauna is now slightly restricted by the M65 works, resulting in a current NWC class 2.

Site 112. River Blakewater ptc R. Darwen
This watercourse suffers from gross organic pollution. The main problem appears to be the SSO's due to the abundance of sewage litter found on the site at each incident. In Nov 93 a severe toxic problem occurred with a drop in BMWP from 28 to 2 and a class drop of 2 to 4. The current survey (Nov 96) seems to indicate a recovery from this, but the sample was taken after a prolonged dry period.

Site 113. Knuzden Brook d/s A679
This site has seen a small increase in ASPT, TBI and BMWP from Apr 84. The BMWP score fluctuates regularly which is due to organic problems. If the organic problems were reduced in frequency the brook should be capable of sustaining a good class 2 invertebrate population.

Site 115. River Roddlesworth ptc Stock Clough
ASPT is very stable for this site and shows that there are no major problems. There are no results on the archive for July 92, so I presume that it was not sampled.

Site 116. River Roddlesworth d/s Star Mill
The R. Roddlesworth suffers from sporadic pollutions at this site. These are a result of both organic and toxic pollution. In the periods during which it is not polluted, the site shows that it is more than capable of holding a class 1B invertebrate population. The current fauna is sparse (class 3).

Site 119. Arley Brook u/s Lumb Bank Clough
This site suffered a slow deterioration in water quality from July 84 to Nov 91, possibly due to organic pollution and exacerbated by low flows. A poor class 3 result was found in Nov 93, but it is thought that this may have been due to sampling difficulties as a result of ice. From this date, the watercourse has made a marked recovery and is now a stable class 1B.

Site 121. Hole Brook d/s Blackburn STW
Hole Brook is suffering from continual deterioration in water quality. The trend appears to have started in Feb 85 with ASPT, BMWP and TBI all decreasing significantly. In Nov 95 the class dropped further from 3 to 4 as a result of gross organic pollution. There were massive growths of sewage fungus covering the majority of the bed and trailing vegetation. The Sept 96 survey revealed a class 4 result.

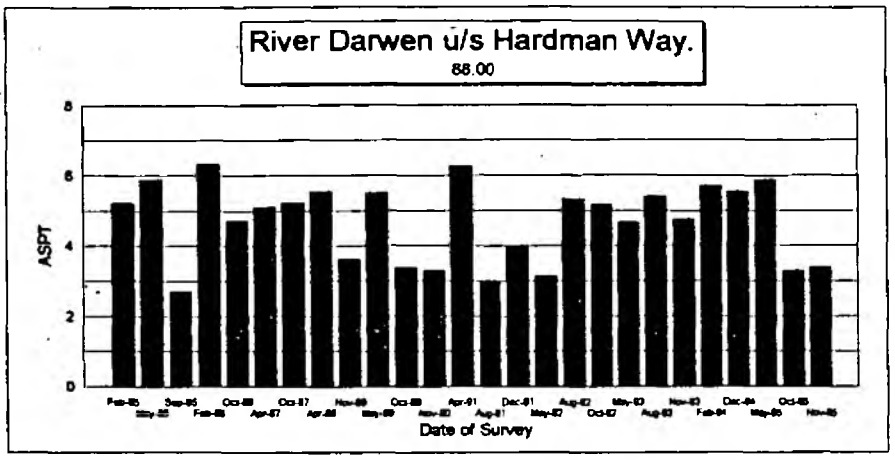
Site 124. Many Brooks ptc R. Darwen
Many Brooks showed an increase in water quality from Apr 84 to Nov 87. After this point, the watercourse deteriorated slowly due to organic pollution where it reached an all-time low of class 4 in Nov 93. This result may have been partly due to sampling difficulties due to the cold weather, but Fowler Brook is also implicated. Since then, the watercourse is improving and has stabilised at class 2, although some enrichment is still indicated by the fauna.

Site 125. Fowler Brook ptc Drumhead Brook
This site is in a dire state. The brook has a covering of sewage fungus and has suffered from oil pollution. As a result of this, the sediment is black and anoxic. The only invertebrates found are worms.

Site 128.24 Hennel Brook ptc R. Darwen
Prior to Feb 93, the ASPT at this site showed much variation and the BMWP was extremely low. This was due to organic pollution from a very active SSO. Since then there has been a marked upward trend and the brook appears to be recovering well. The brook now has a stable class 2 result.

Conclusion

The River Darwen catchment has many problems related to organic pollution. However, where the organic discharges are reduced, e.g. Hennel Brook ptc R. Darwen, a significant (and sustained) improvement has been noted. If this problem was addressed, and the highly urbanised sections of watercourse physically improved habitat wise, the River Darwen catchment should be capable of supporting a stable NWC class 2 invertebrate population.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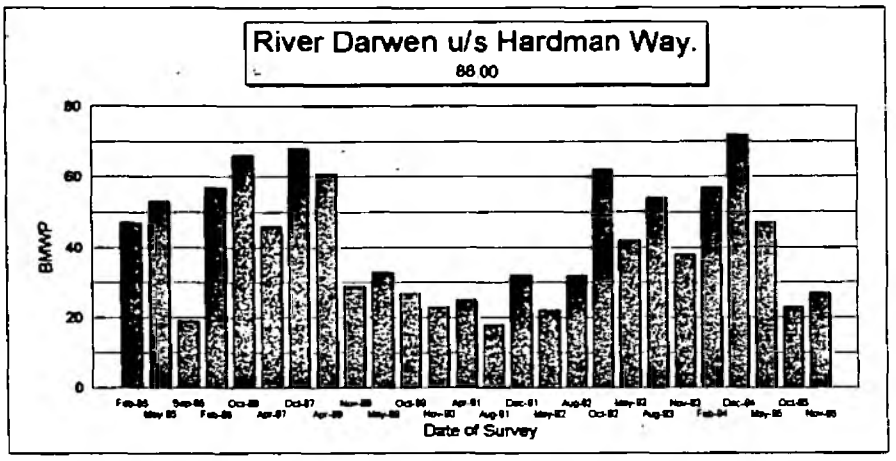
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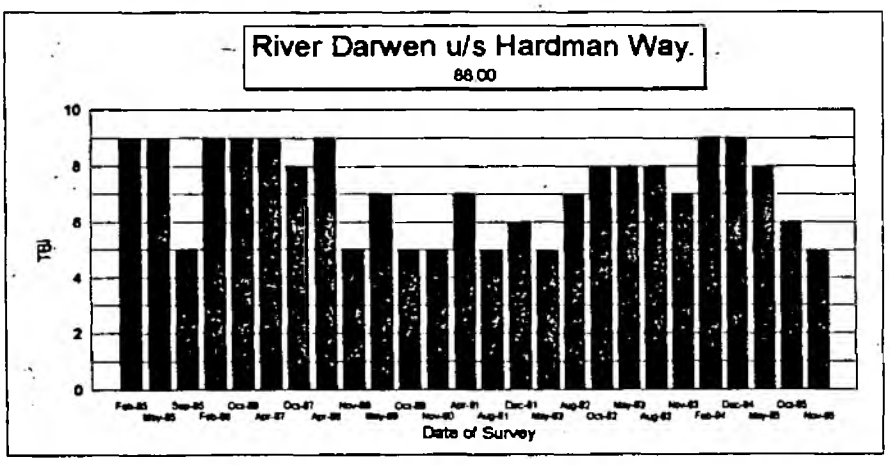
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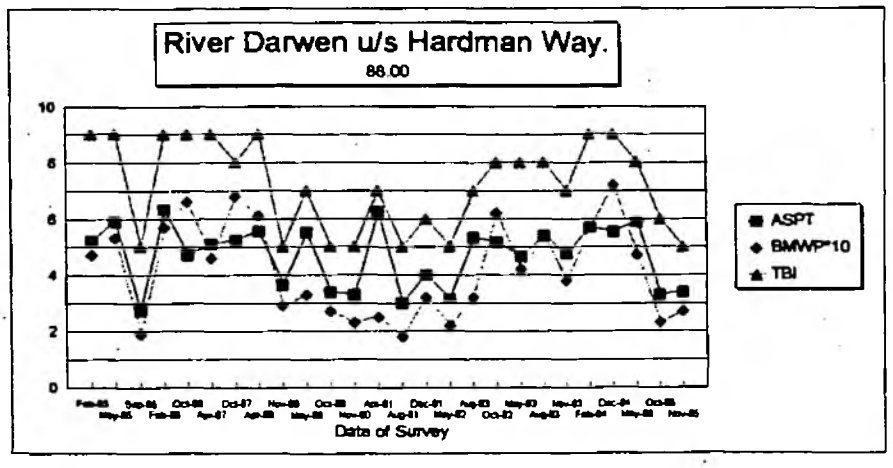
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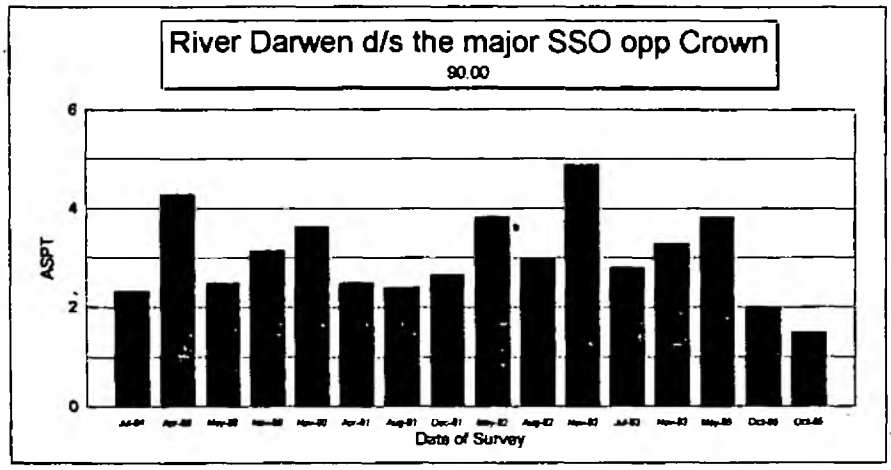
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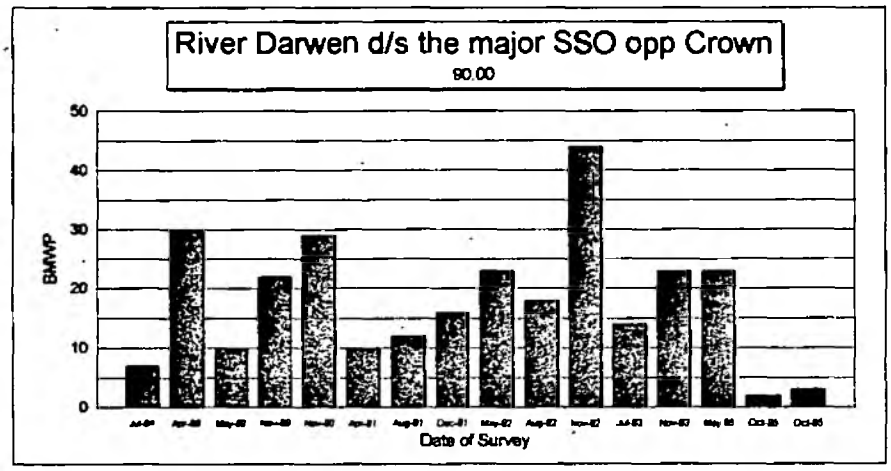
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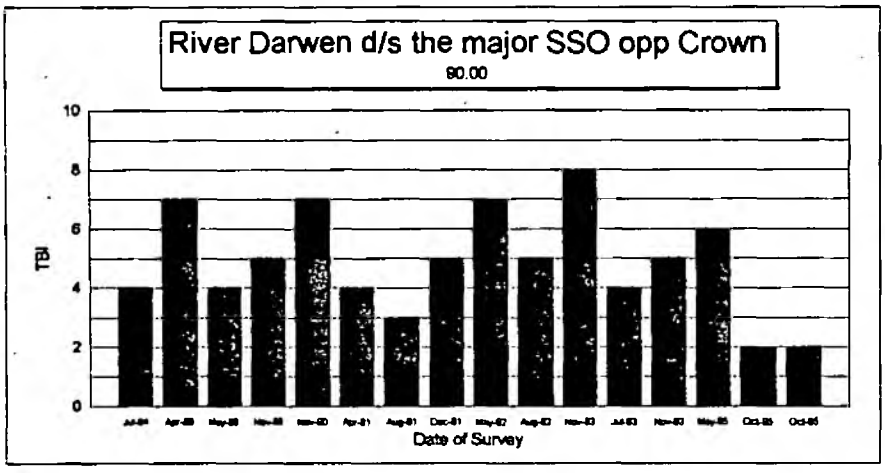
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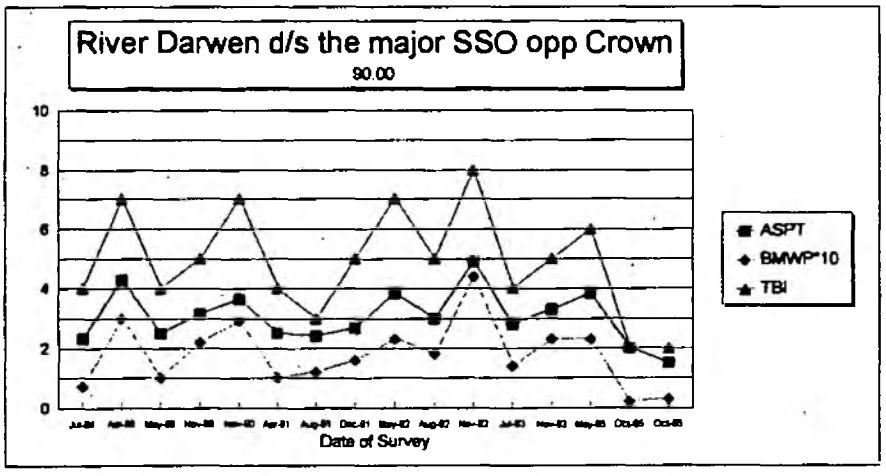
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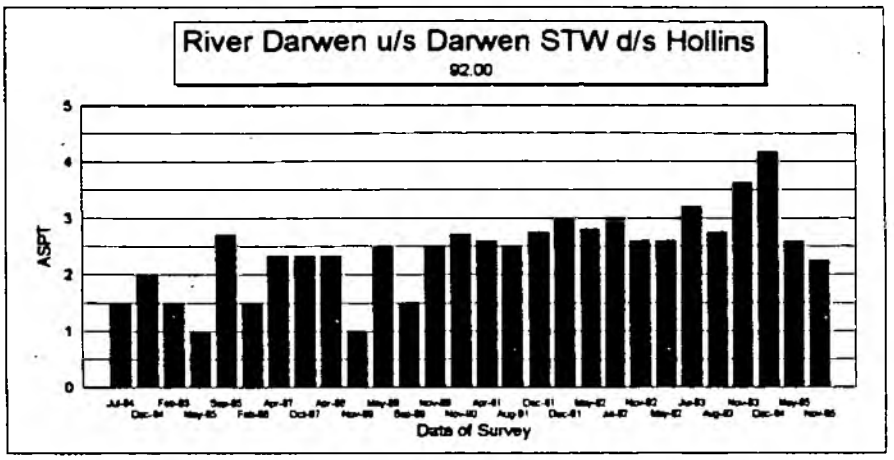
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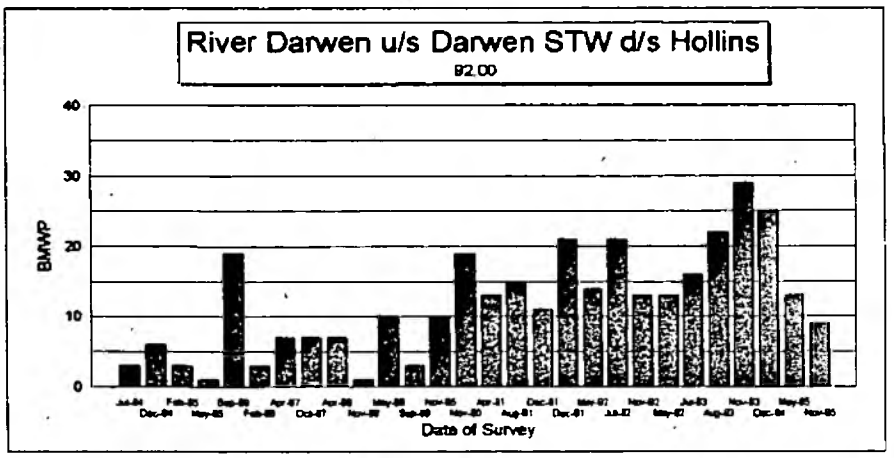
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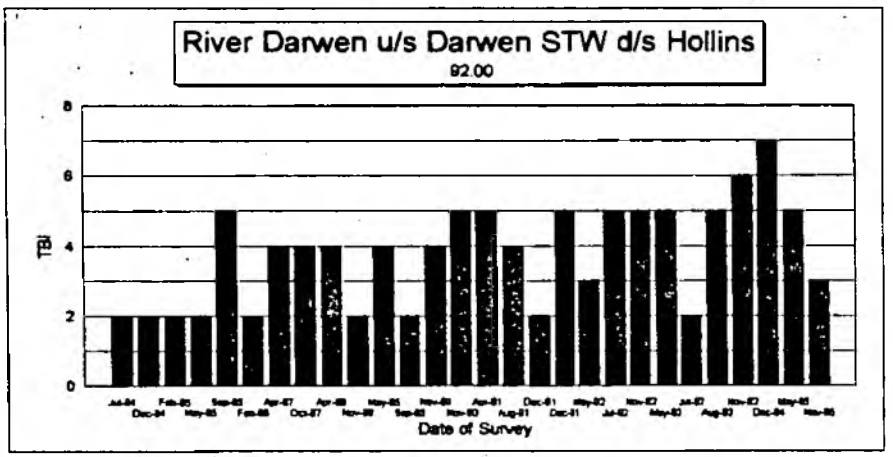
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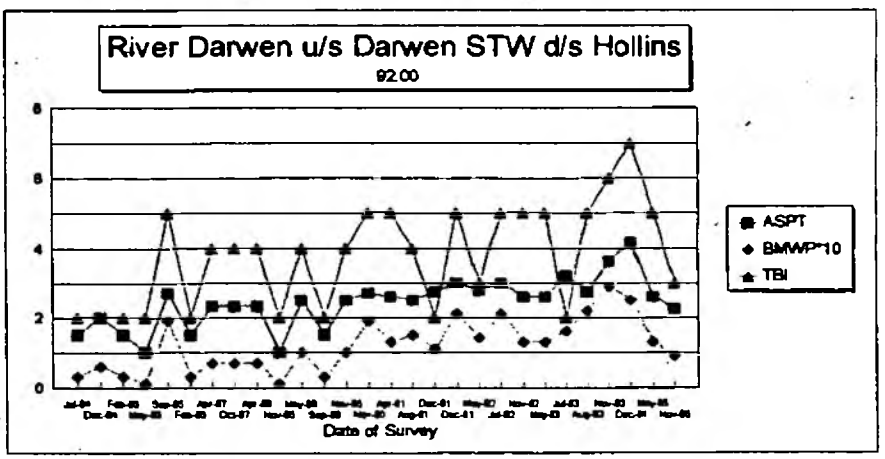
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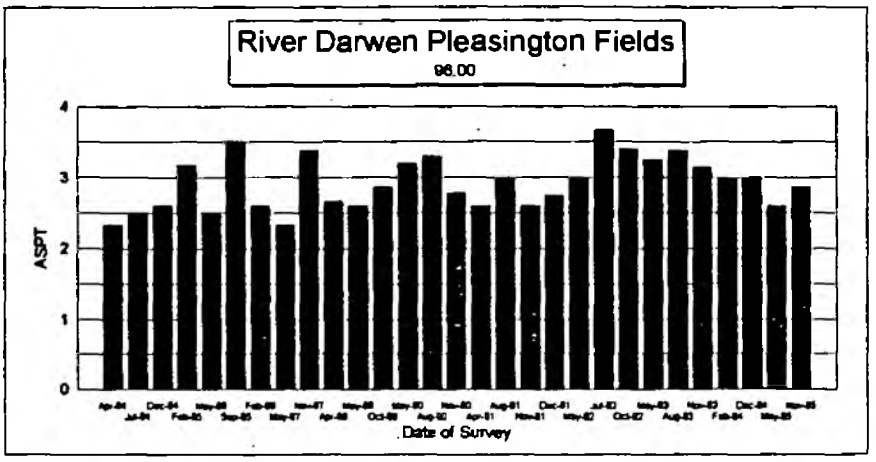
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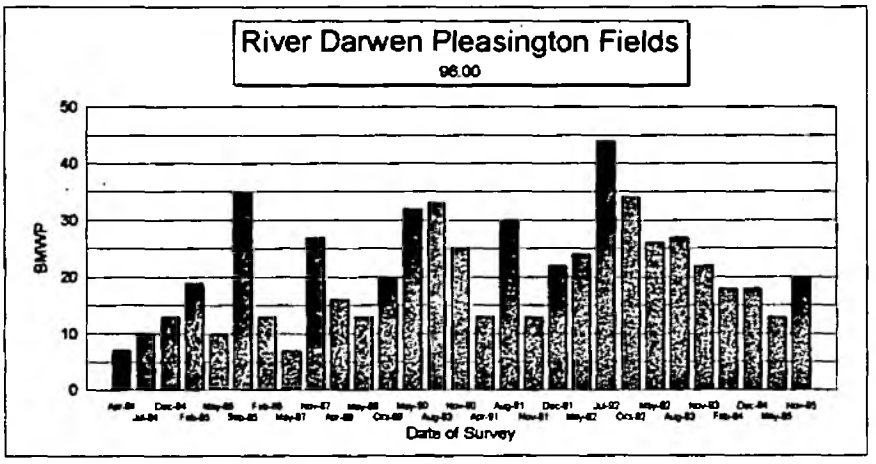
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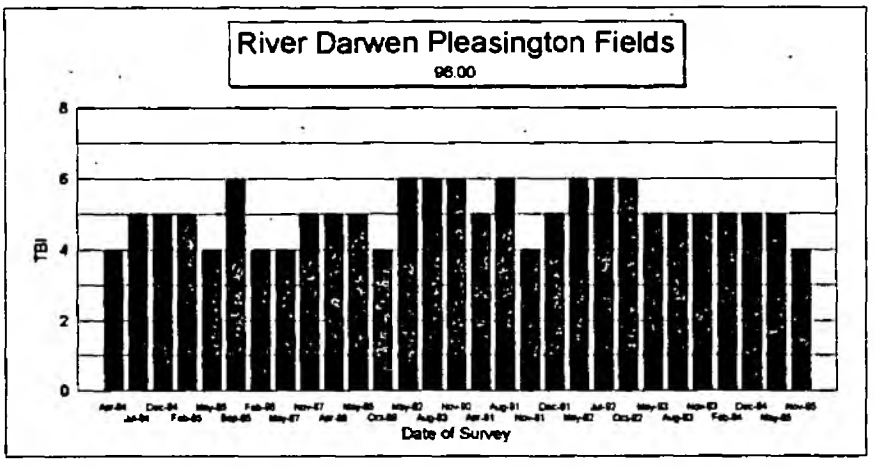
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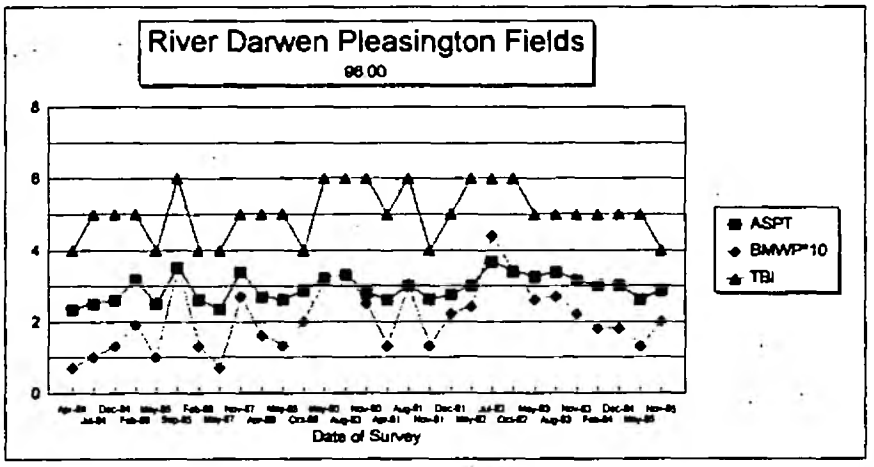
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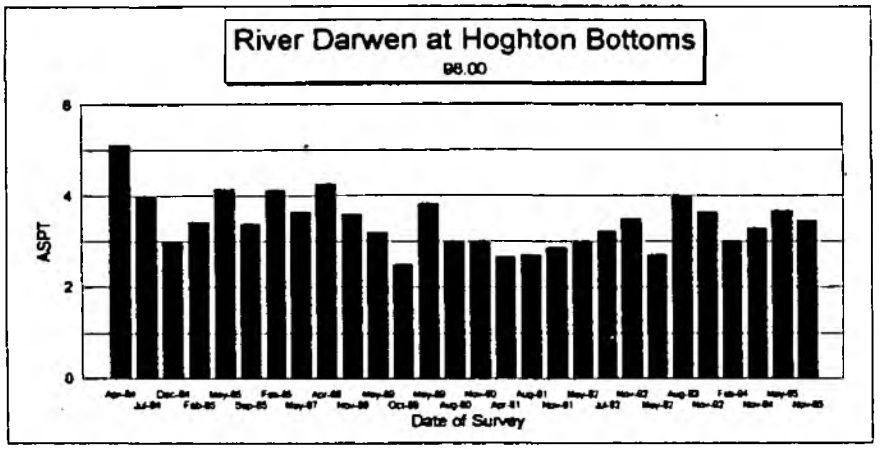
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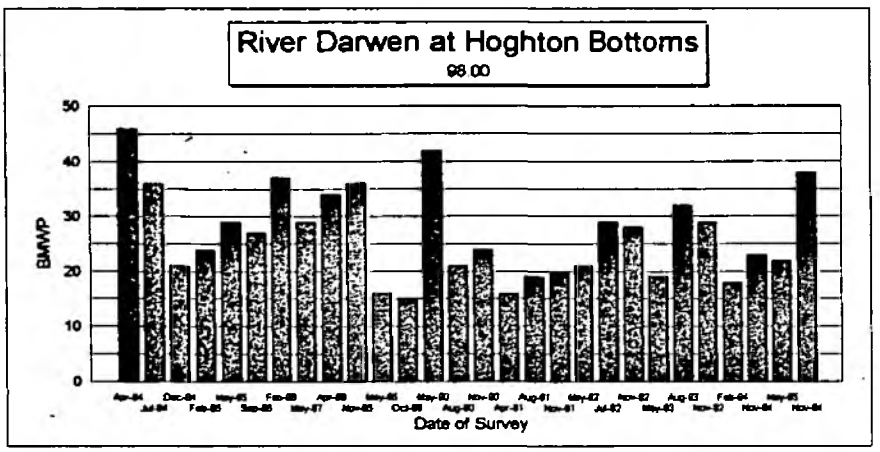
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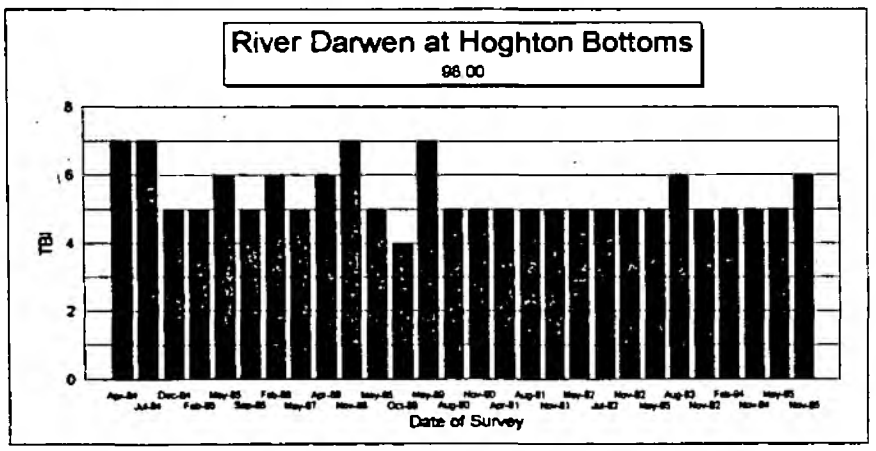
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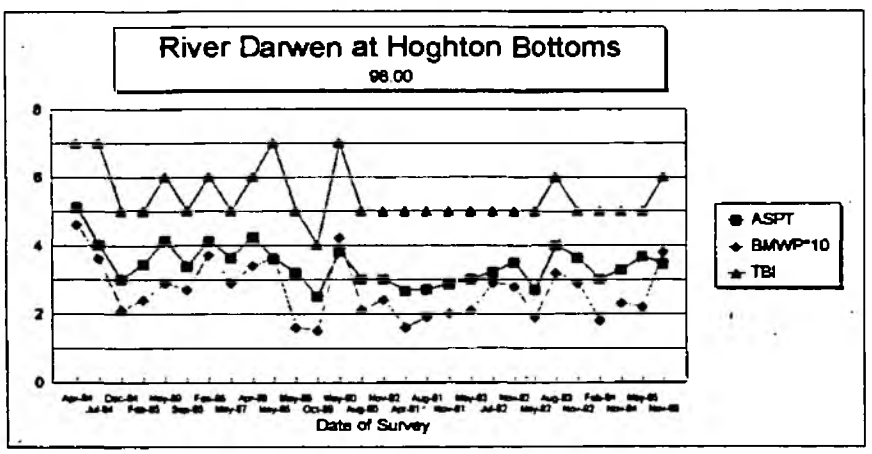
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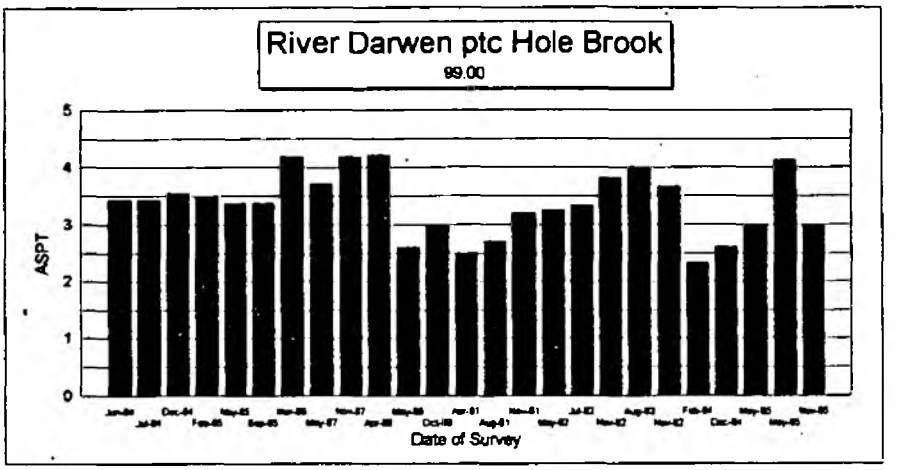
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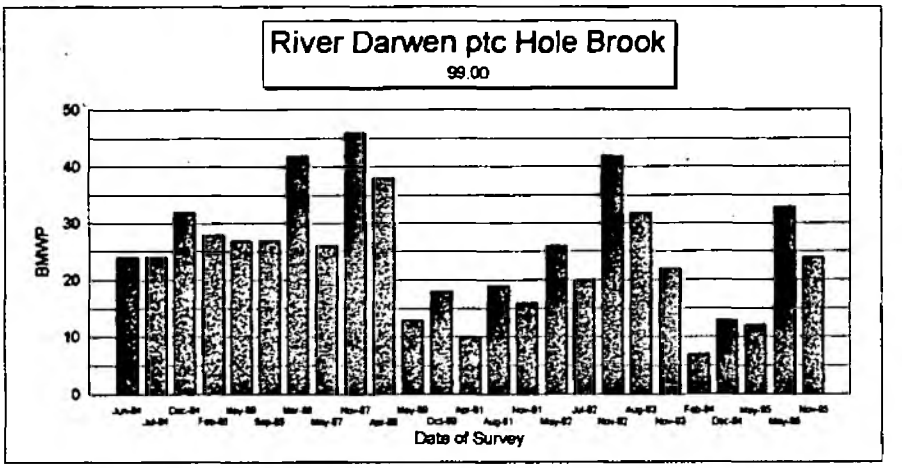
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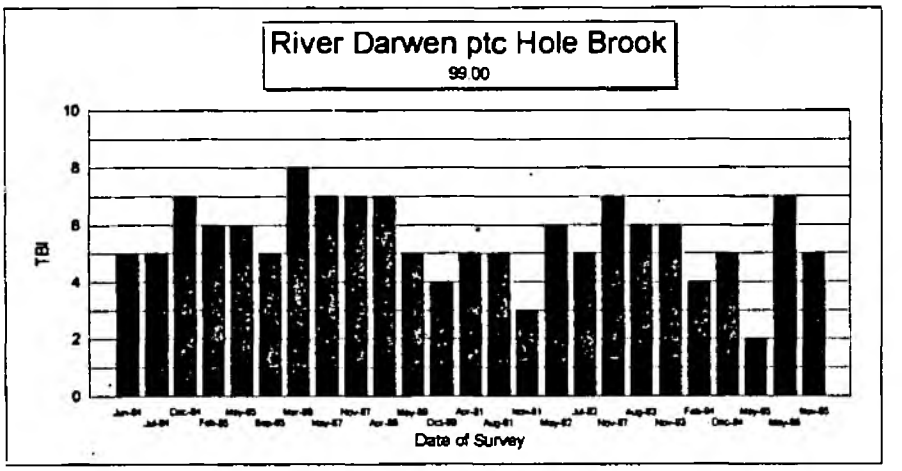
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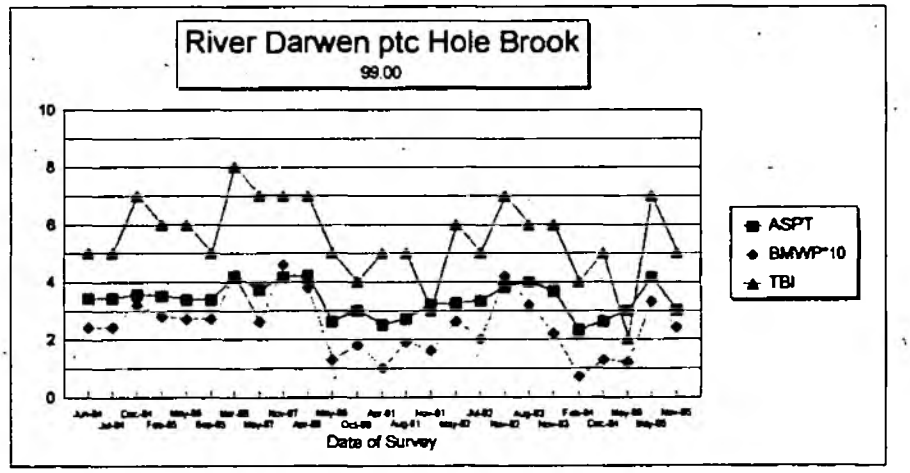
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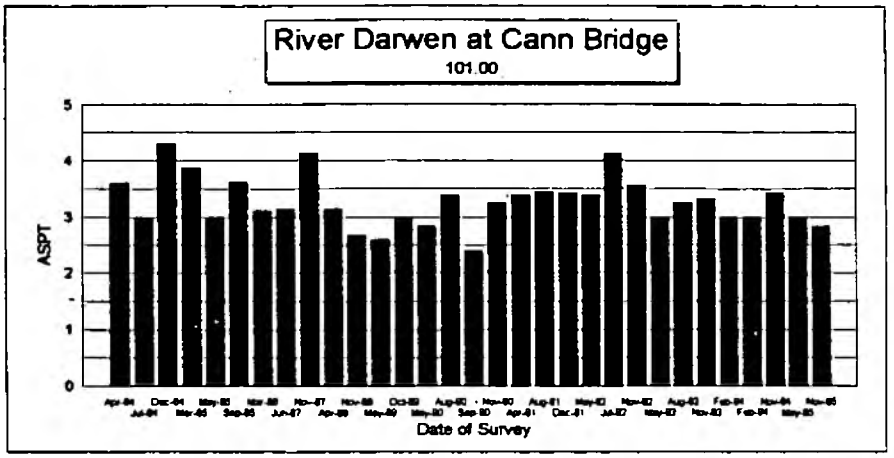
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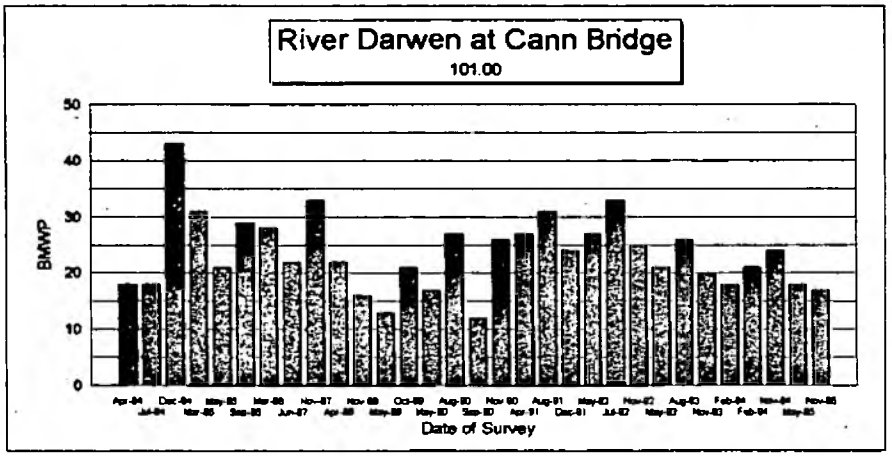
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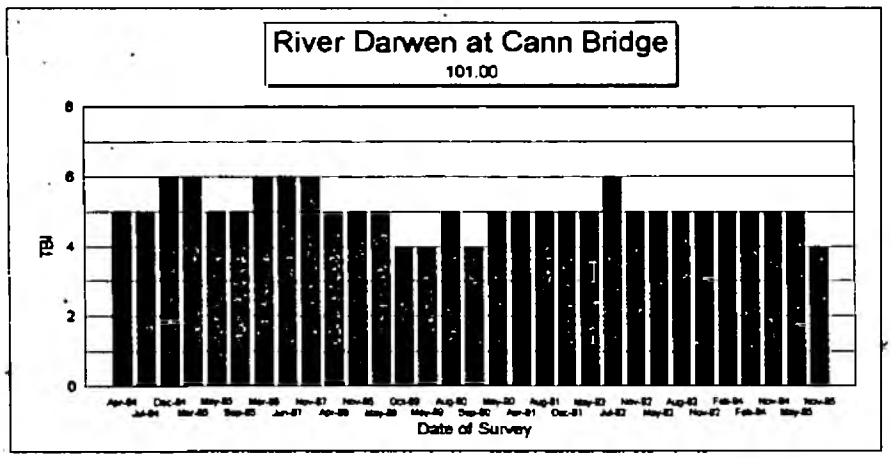
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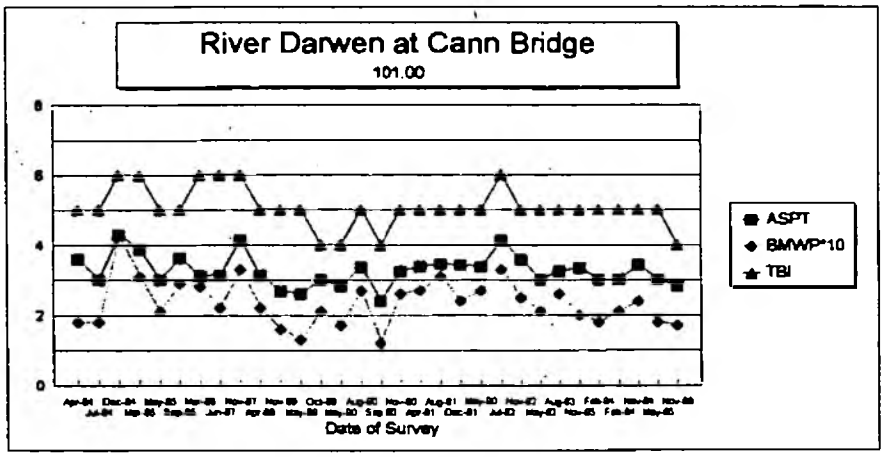
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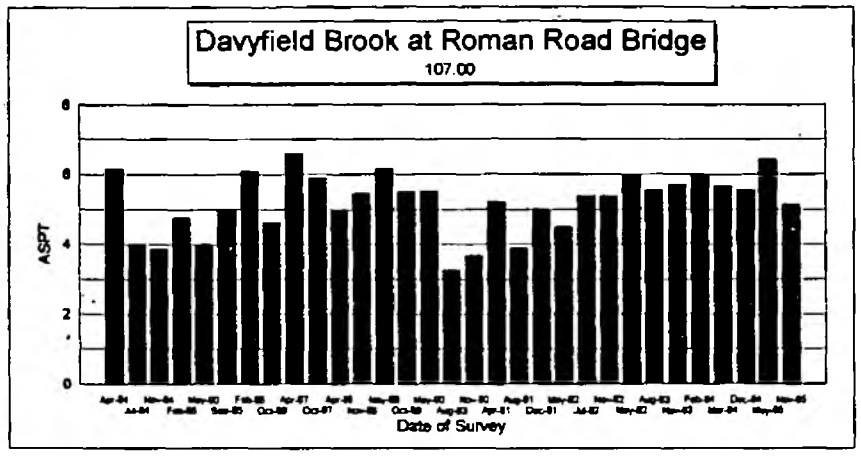
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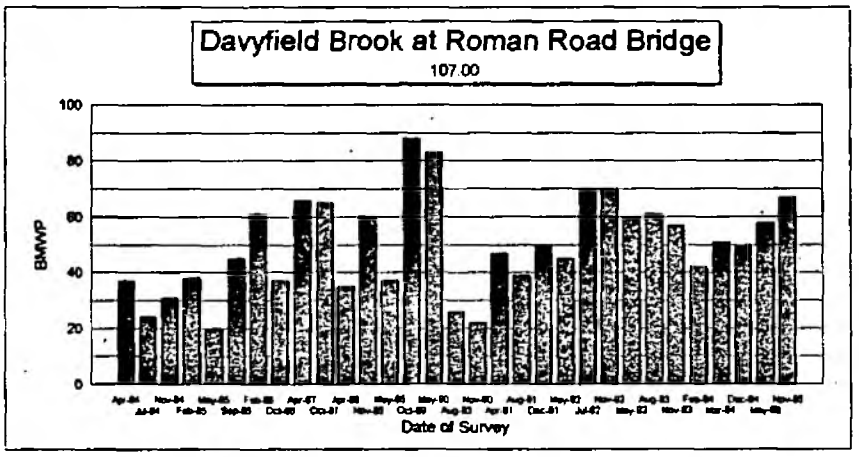
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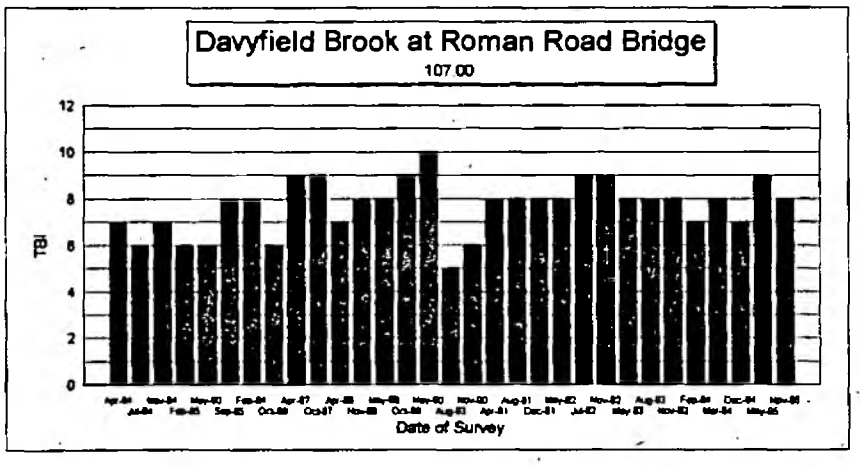
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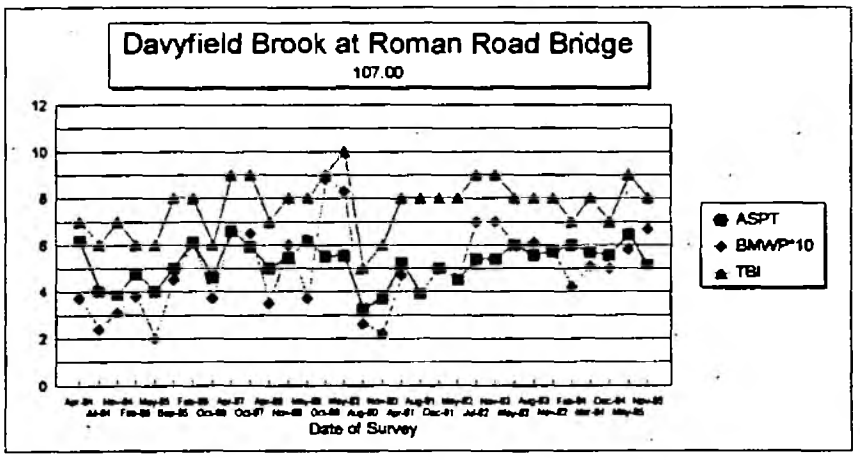
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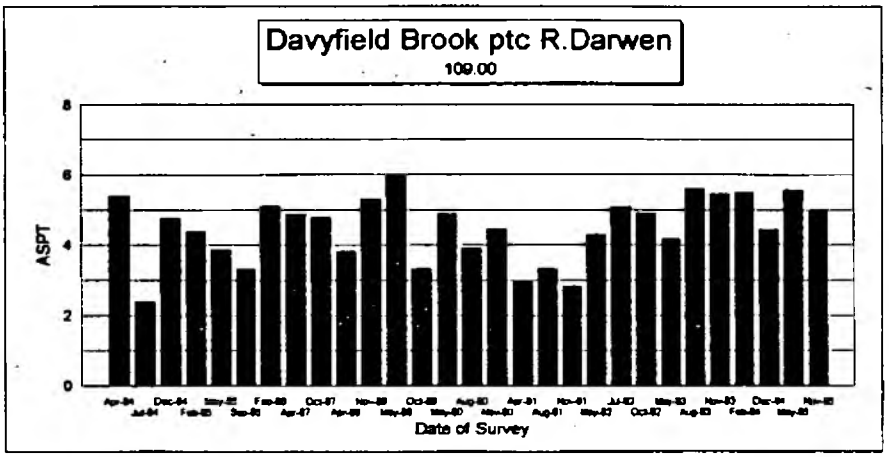
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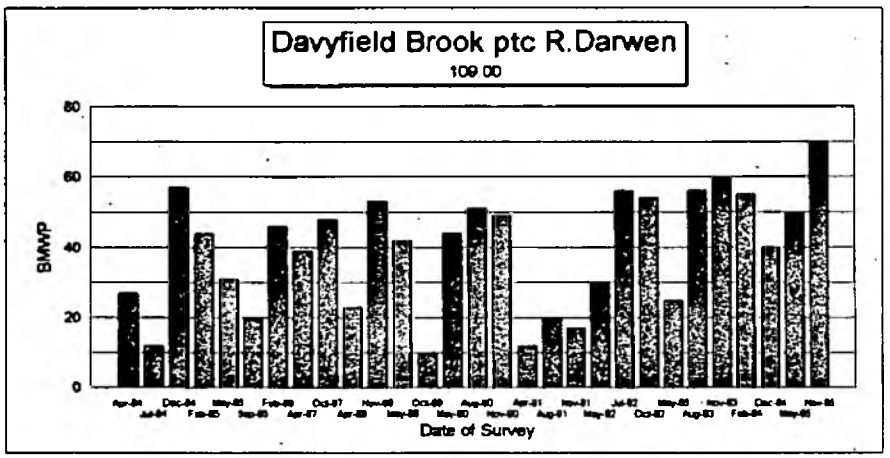
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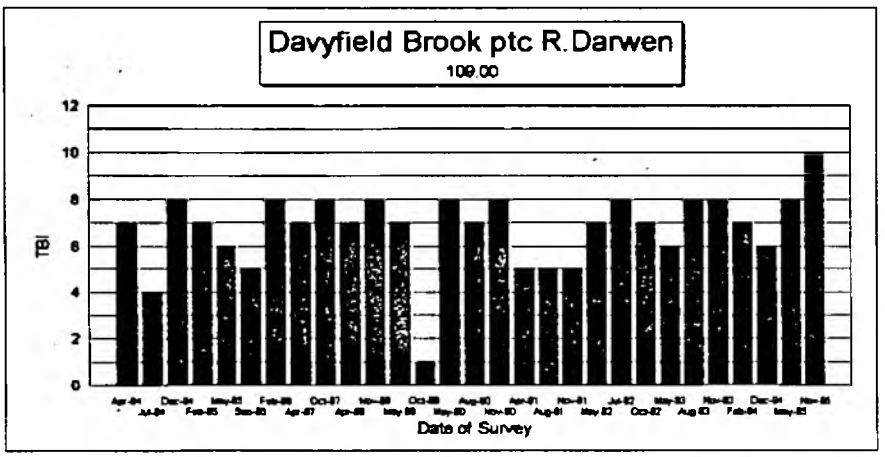
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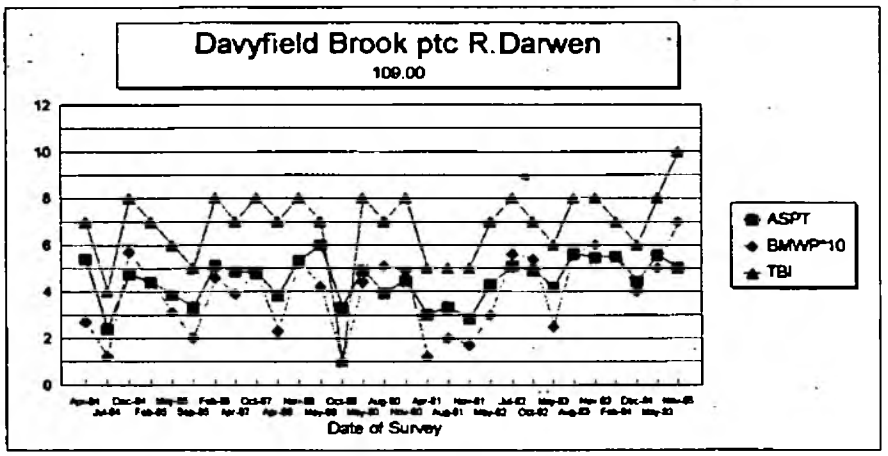
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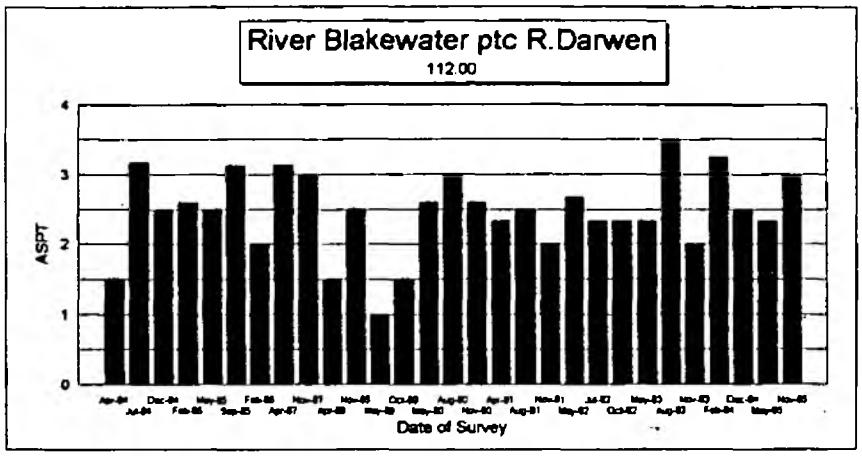
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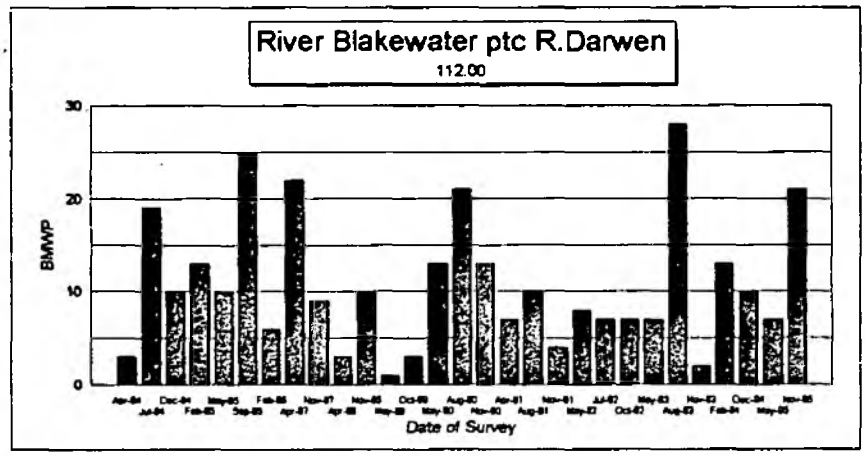
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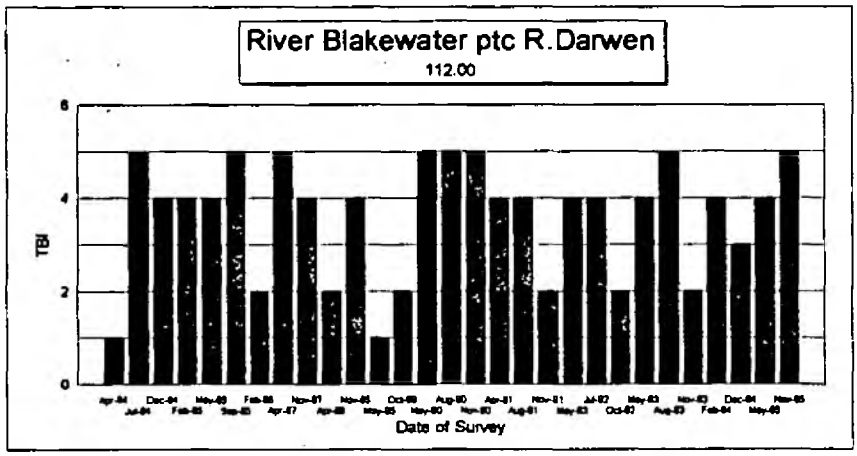
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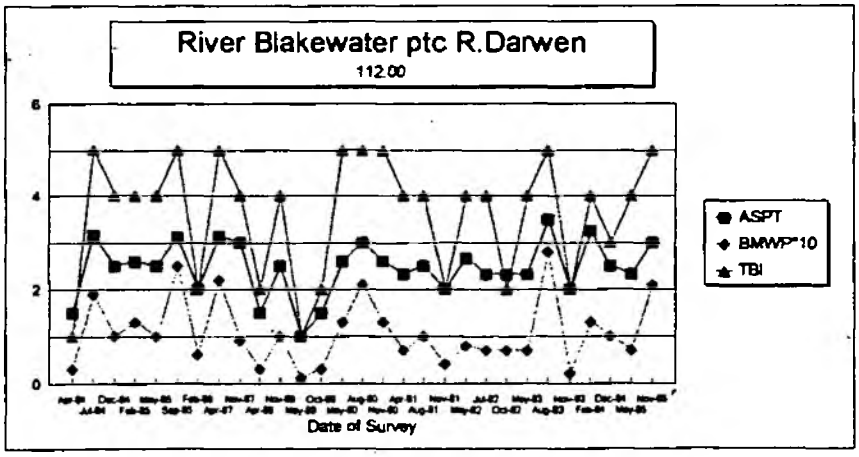
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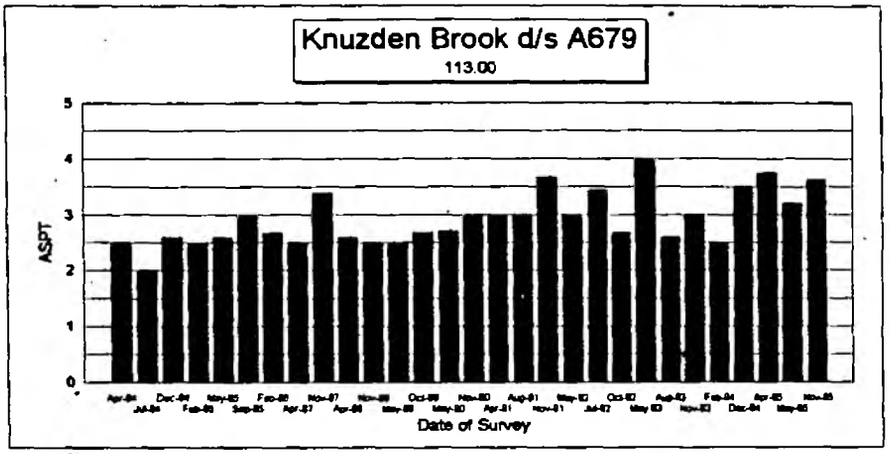
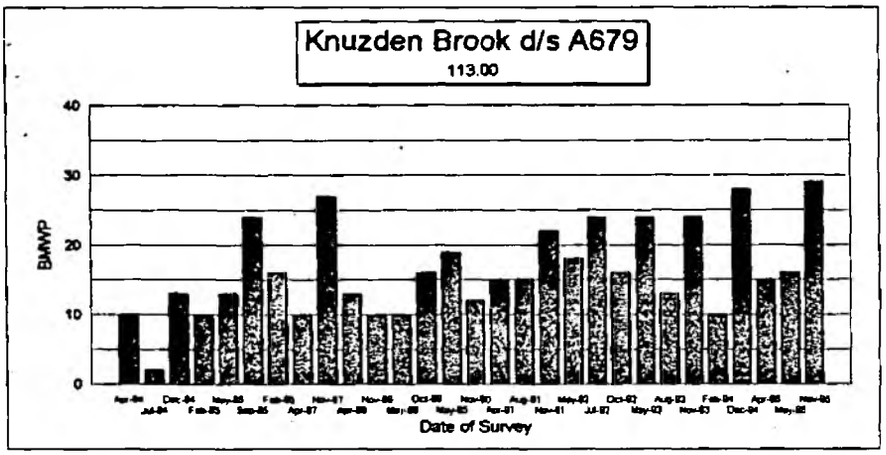

Knuzden Brook d/s A679
113.00
ASPT
Date of Survey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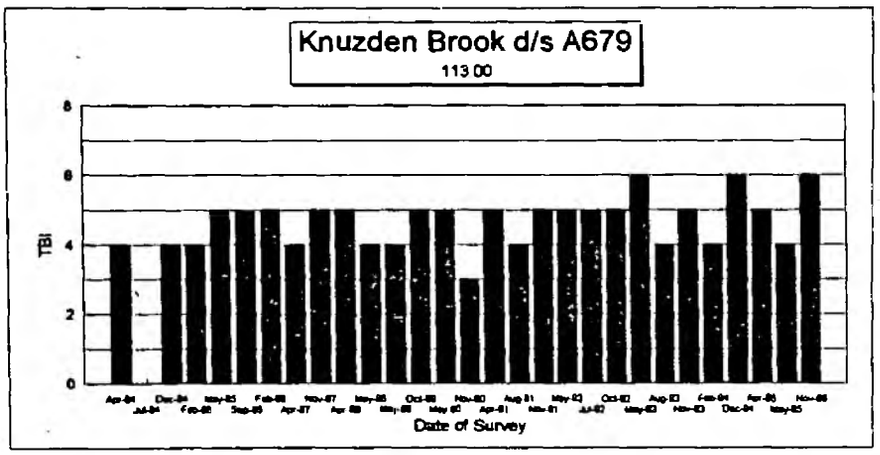
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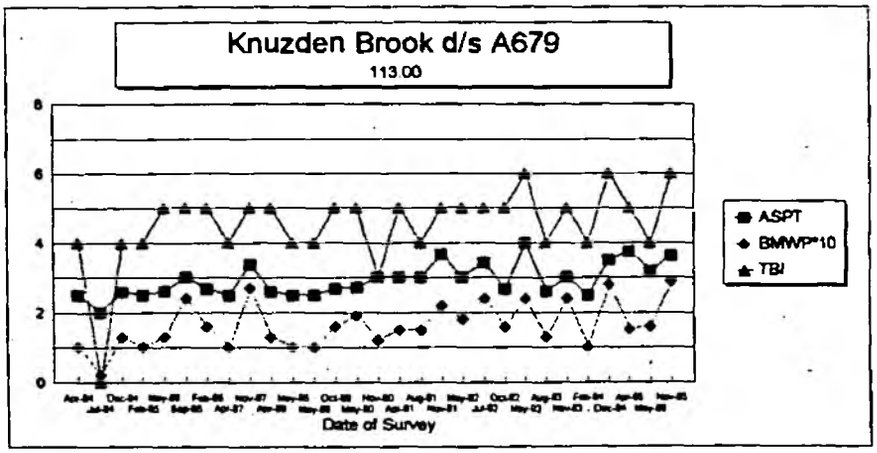
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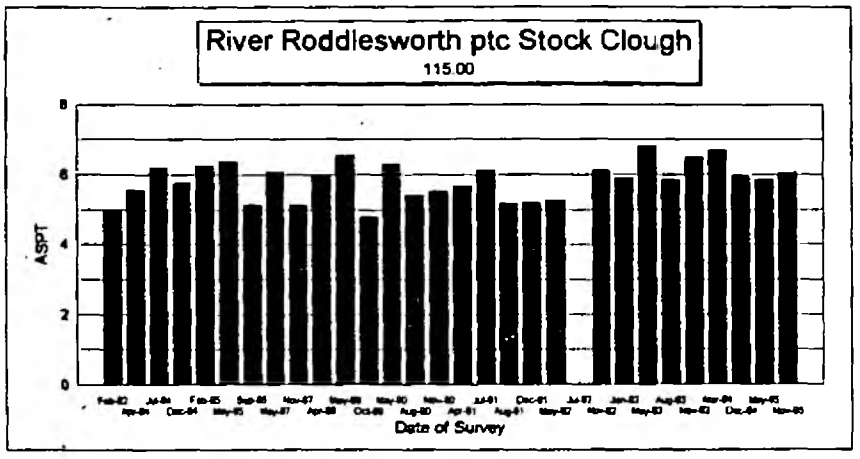
River Roddlesworth ptc Stock Clough
115.00
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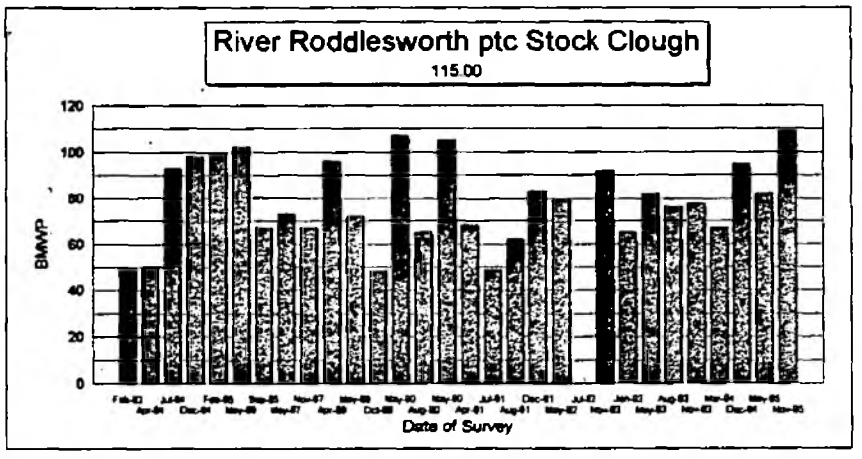
Date of Survey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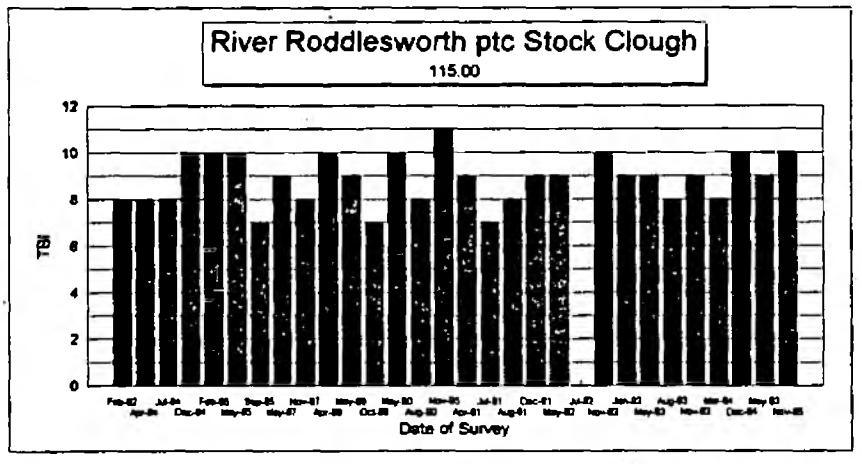
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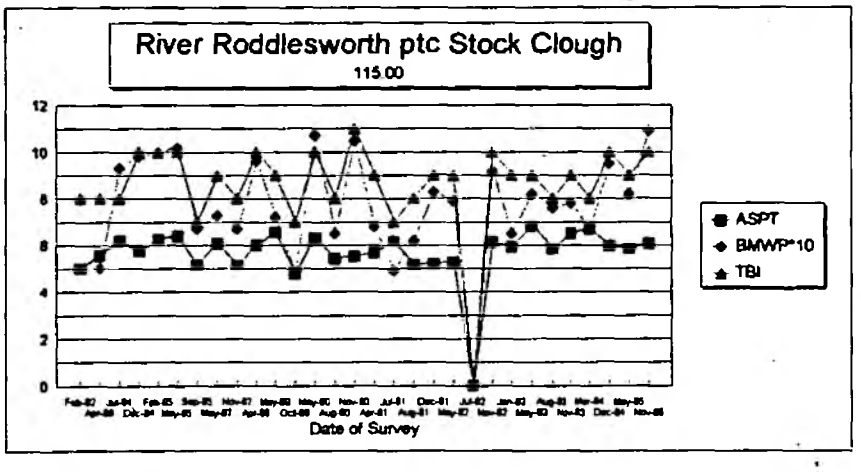
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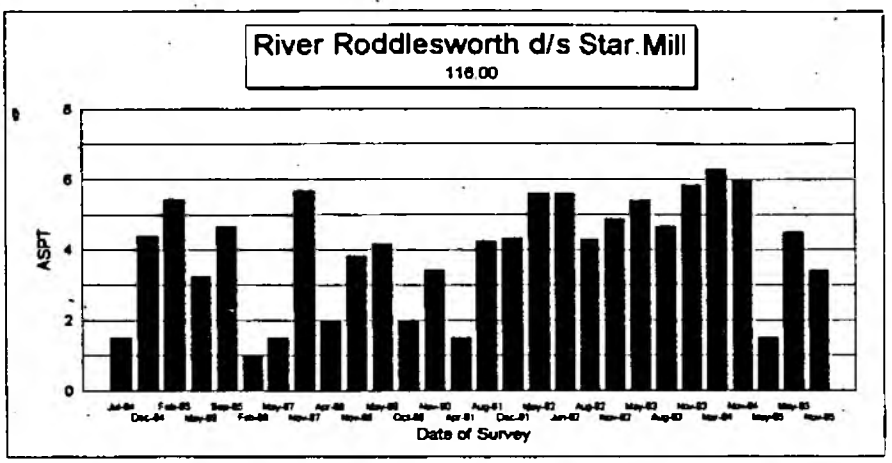
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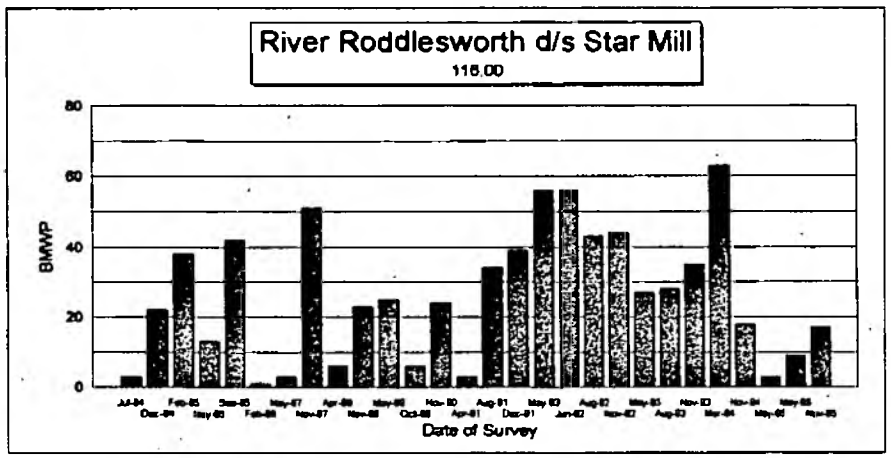
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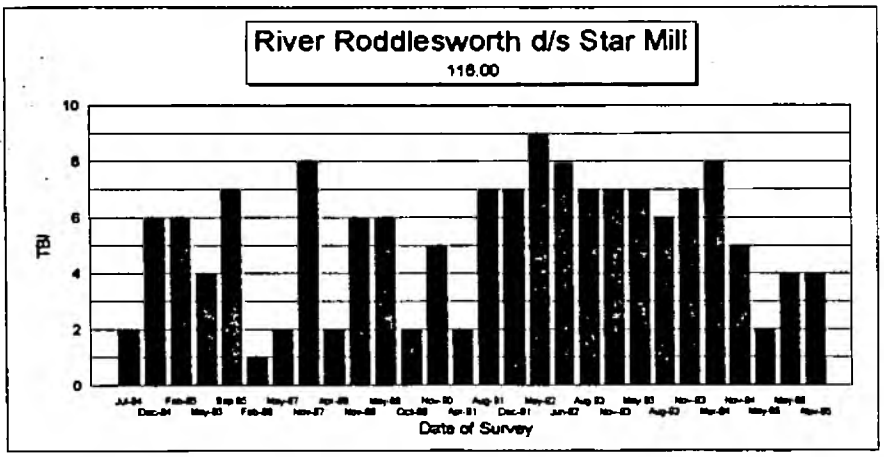
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116.00
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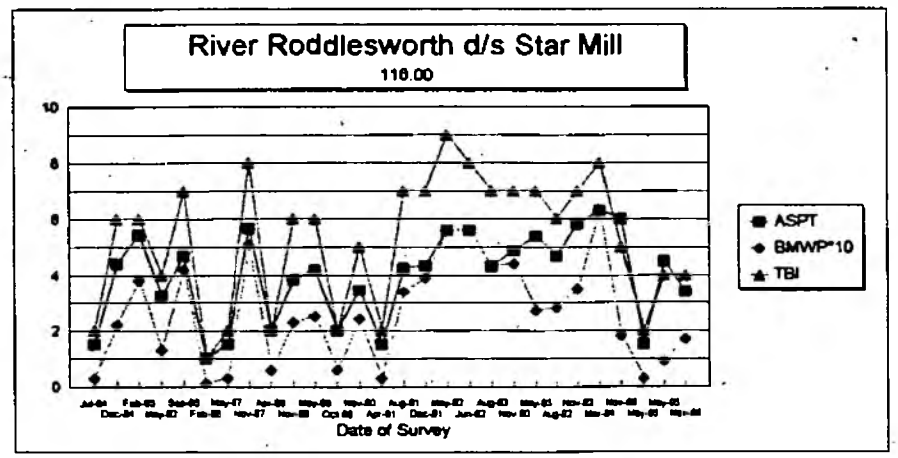
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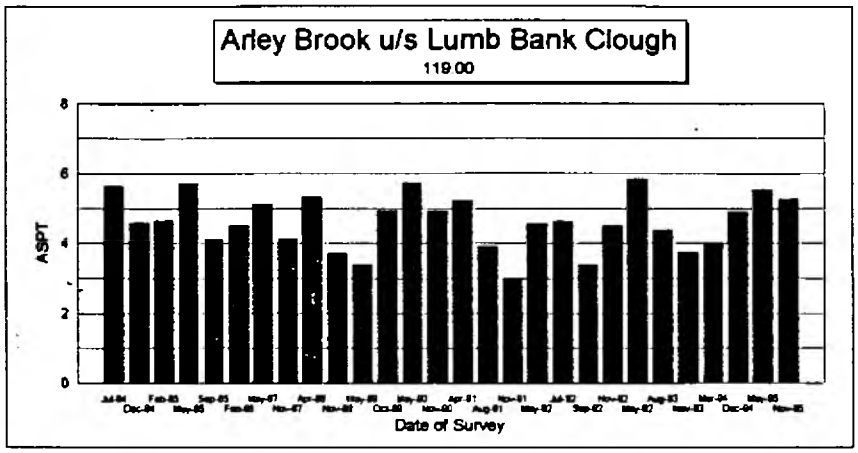
Arley Brook u/s Lumb Bank Clough
119.00
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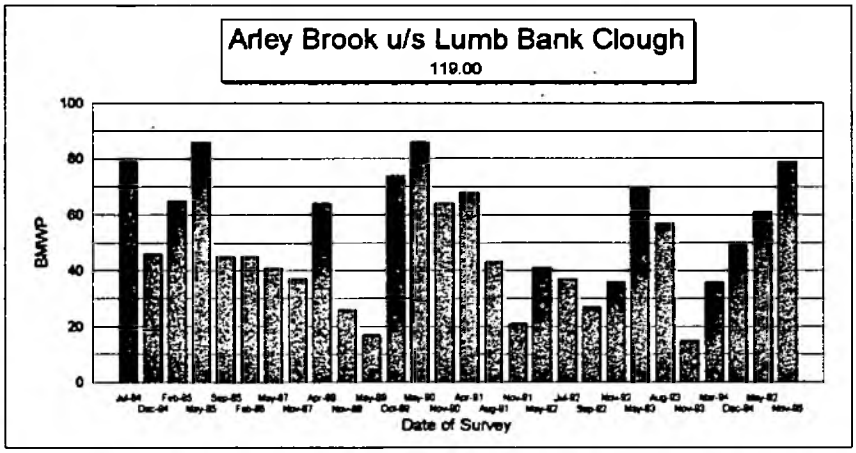
Arley Brook u/s Lumb Bank Clough
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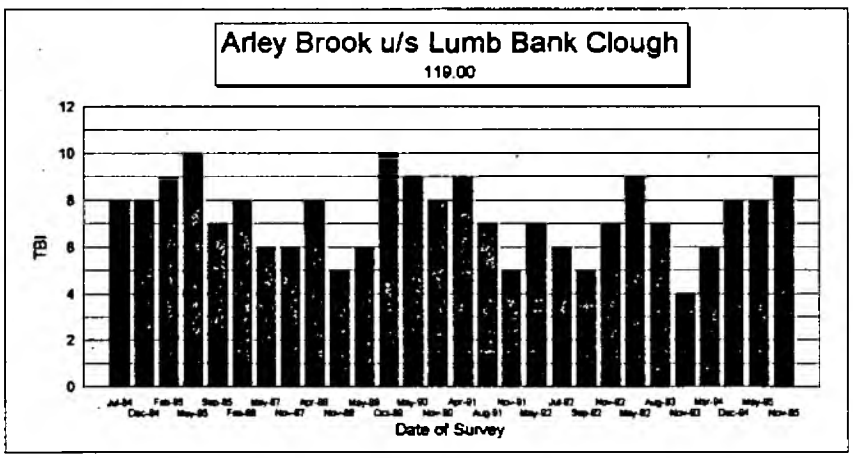
Arley Brook u/s Lumb Bank Clough
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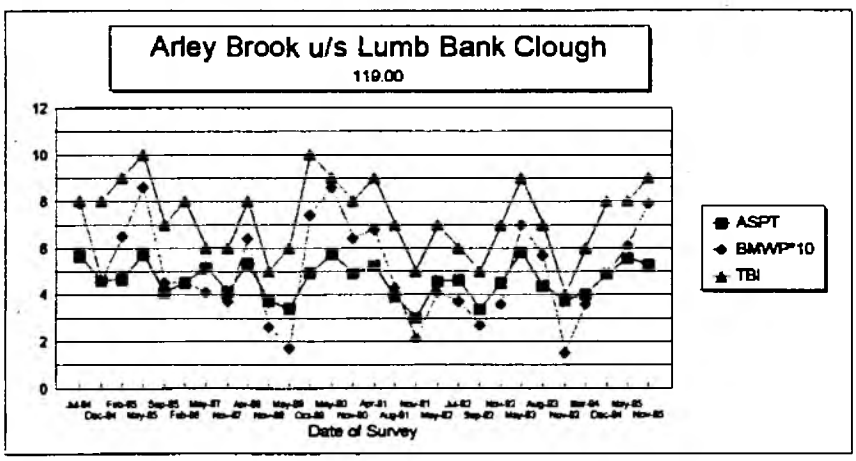
Arley Brook u/s Lumb Bank Clough
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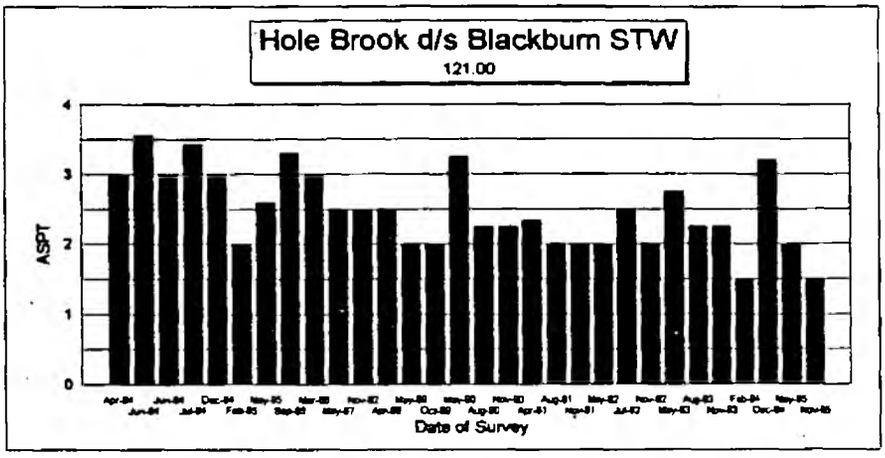
Hole Brook d/s Blackburn STW
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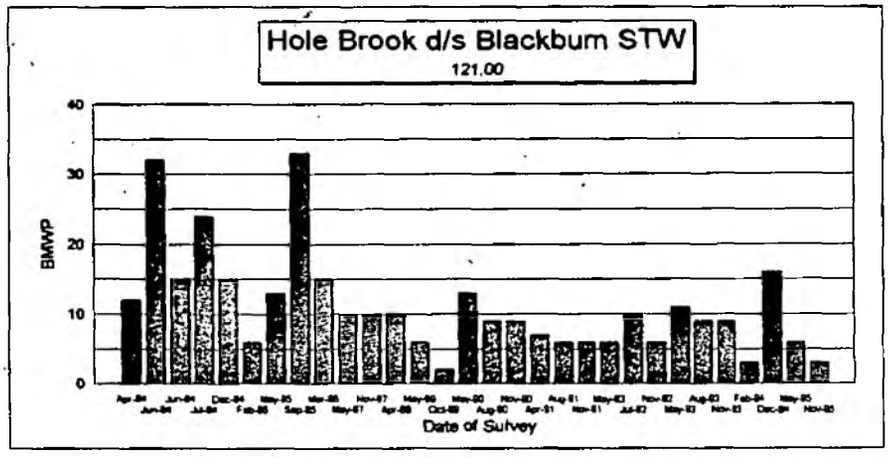
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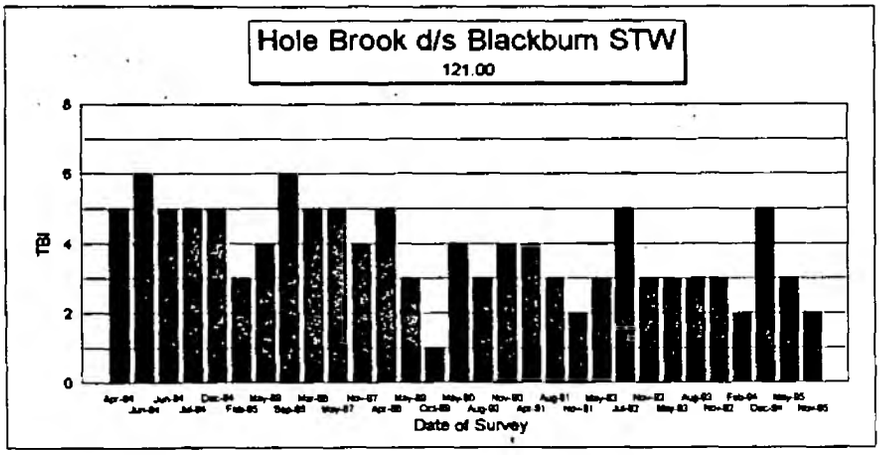
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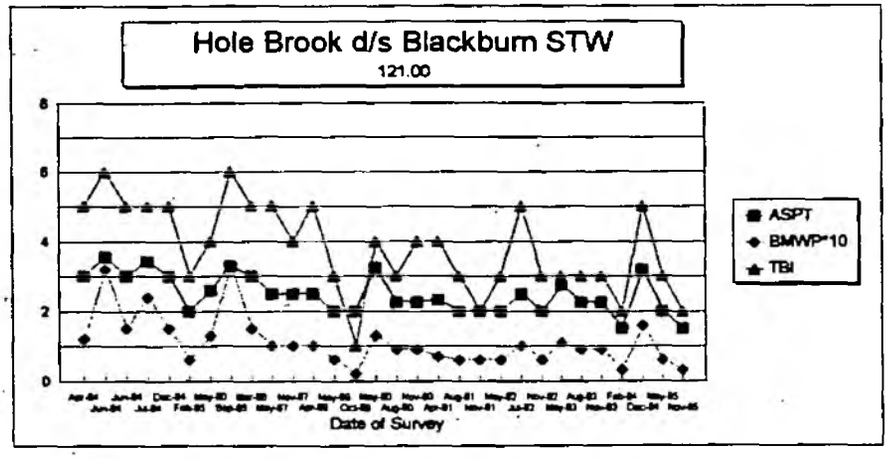
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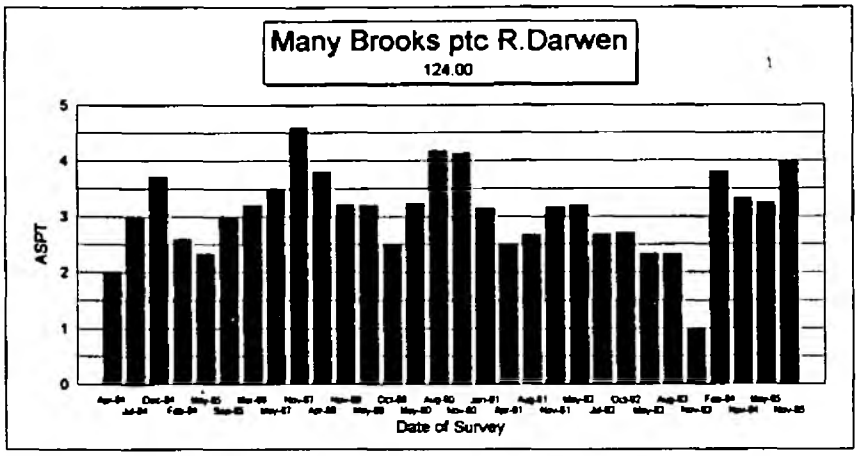
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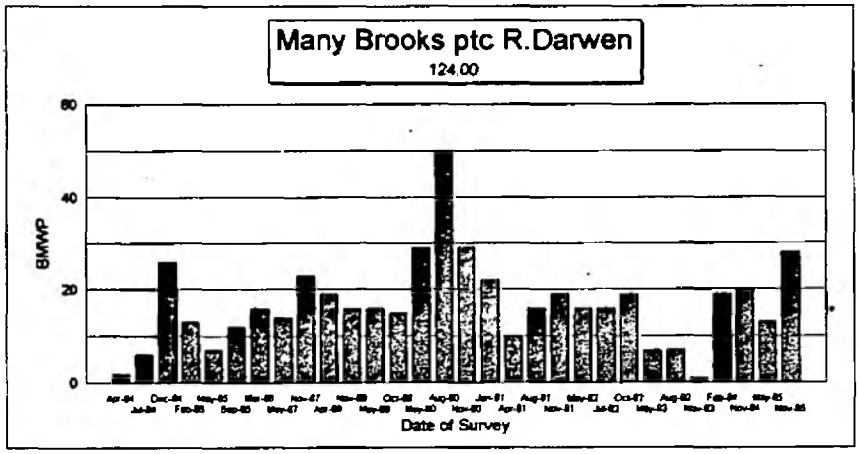
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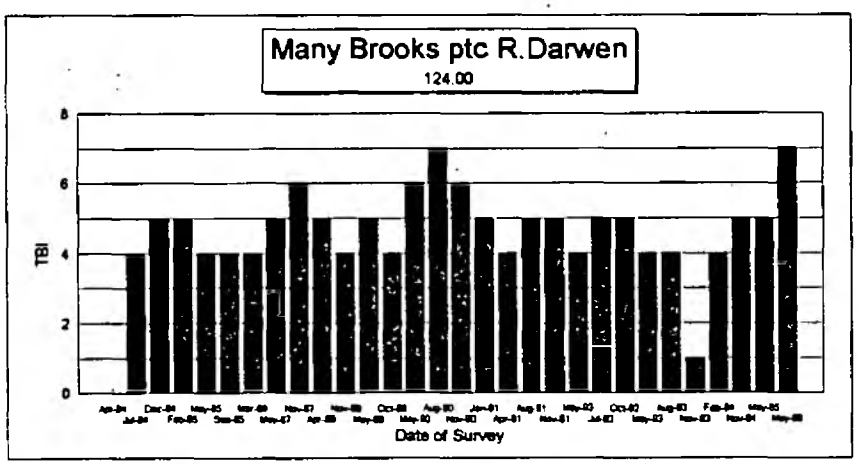
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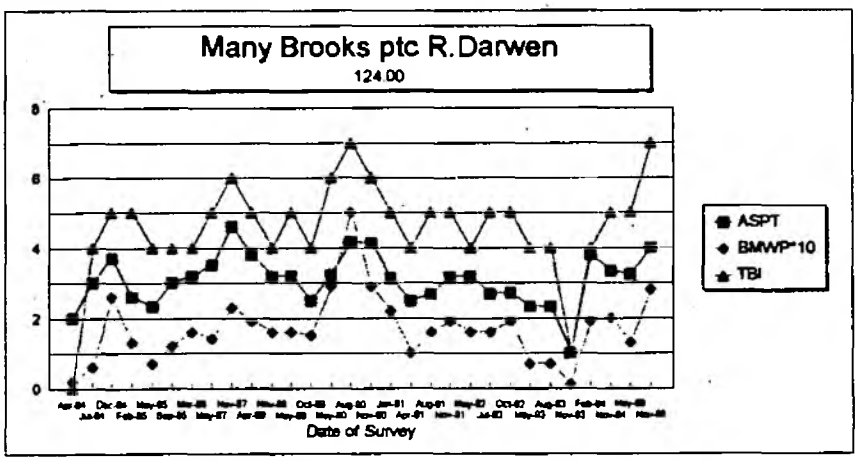
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124.00
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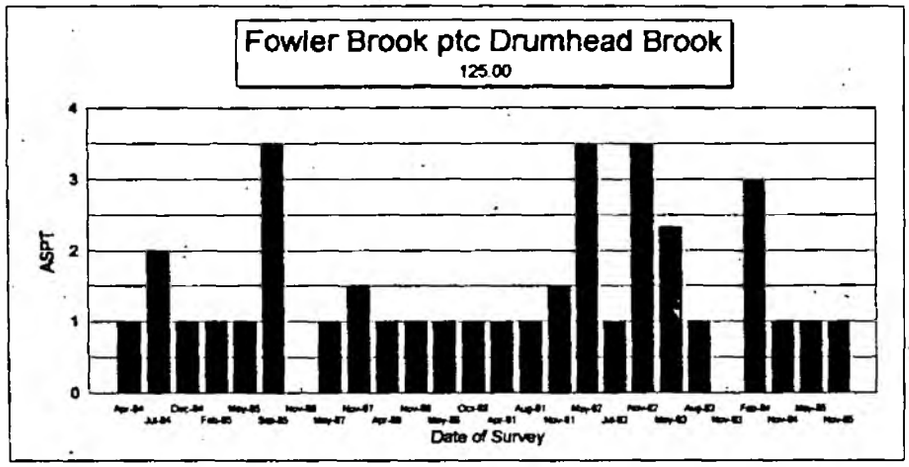
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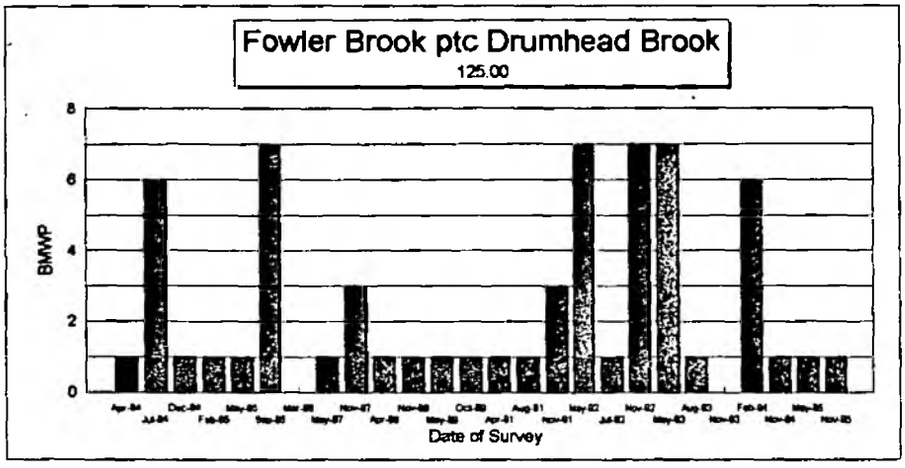
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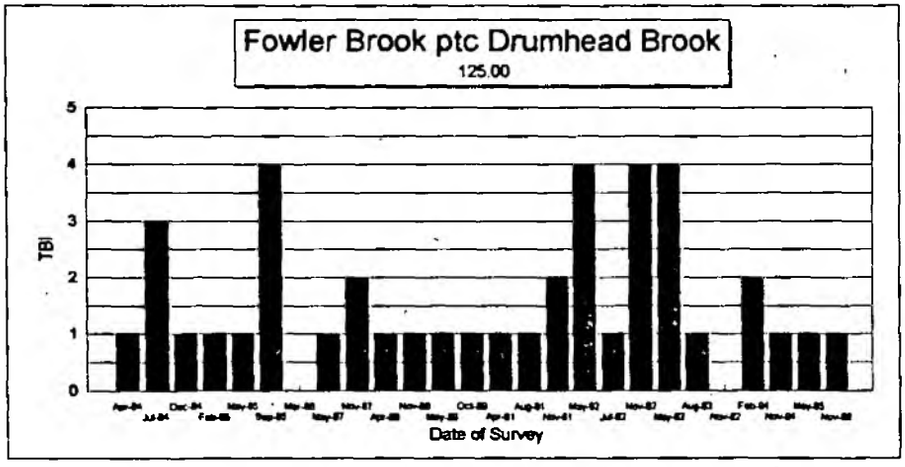
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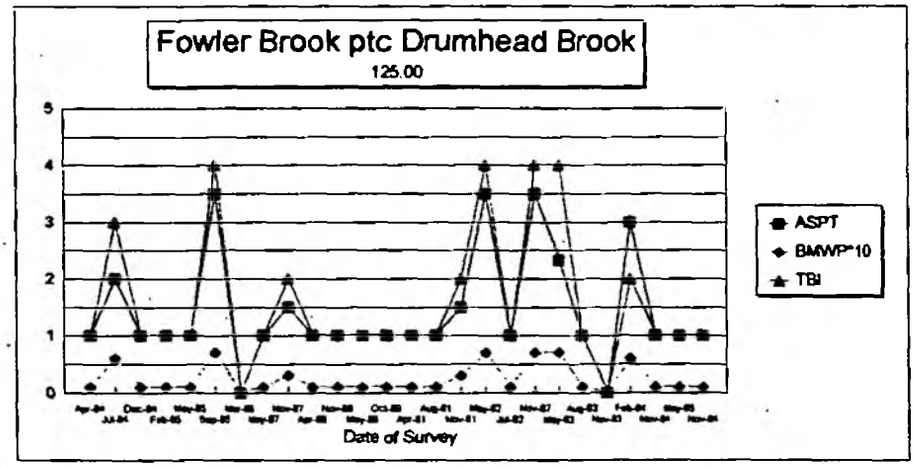
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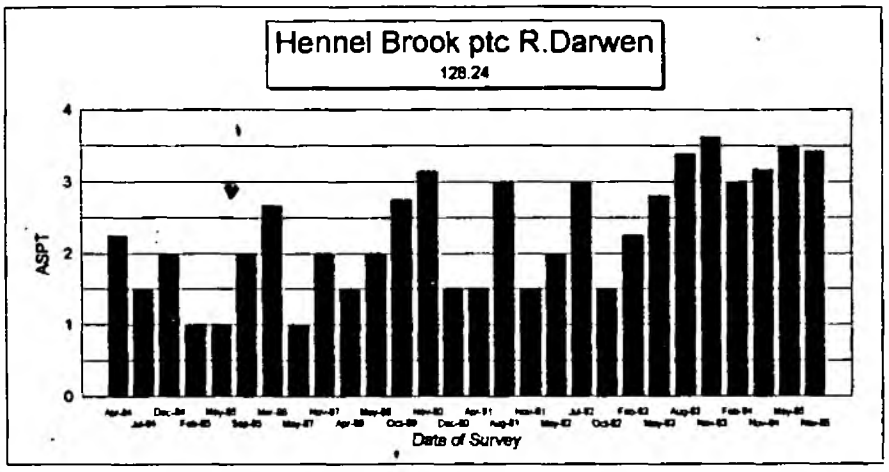
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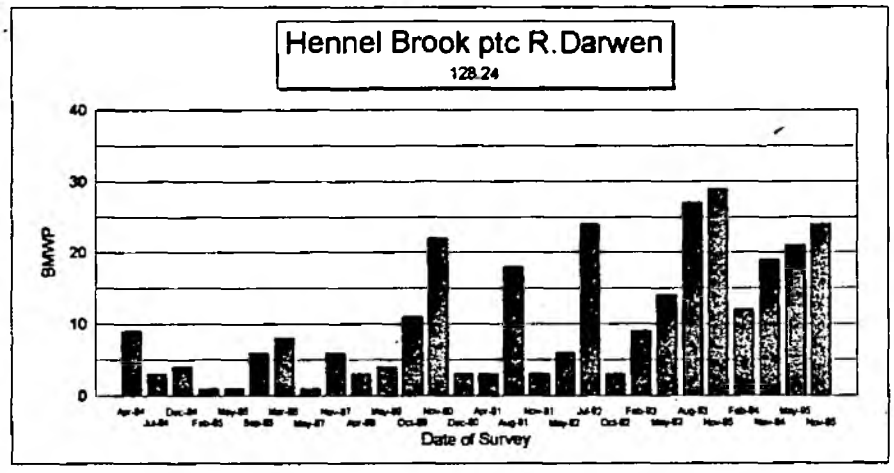
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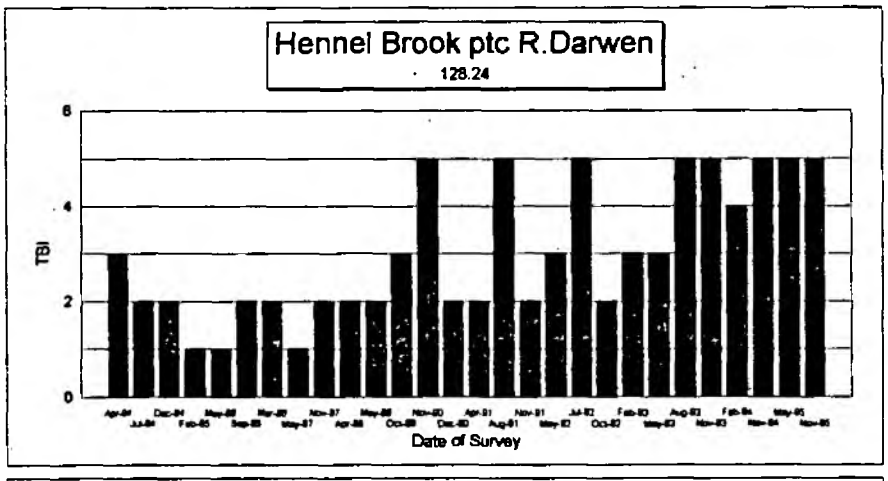
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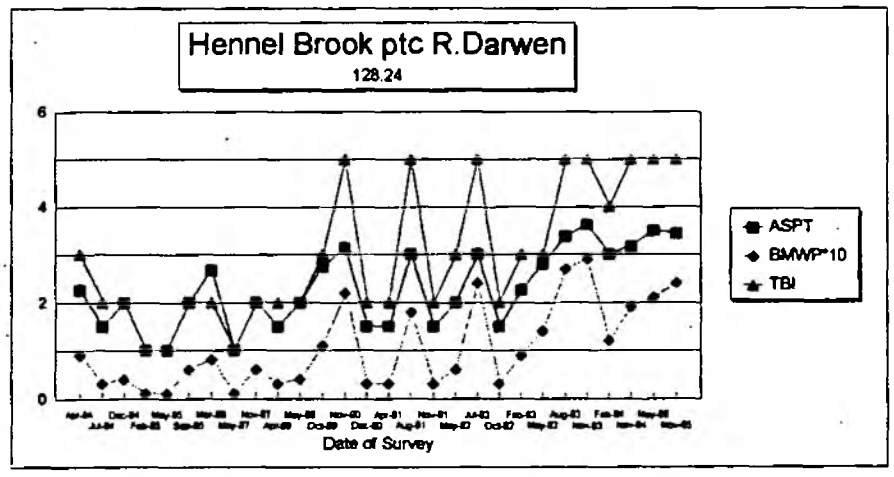
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