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NEW ZEALAND FRESHWATER FISHERIES MISCELLANEOUS REPORT NO. 8

RISK ASSESSMENT REPORT ON PROPOSED
RESTOCKING OF PARTS OF THE
AKA AKA DRAINAGE SYSTEM

by

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Servicing freshwater fisheries and aquaculture

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**RISK ASSESSMENT REPORT ON PROPOSED RESTOCKING OF PARTS OF THE AKA
AKA DRAINAGE SYSTEM**

Summary.

Grass carp have been present in the Aka Aka drainage area since 1980. The principal areas are the Mangawhero Stream, McCarthy's drain and Eastern Drain.

Natural mortality has reduced the effectiveness of the population. Only about 2 km weed in McCarthy's drain is now effectively controlled.

The Aka Aka and Otatau Land Drainage Board asks:-

1. To release 150 triploid grass carp into the Western end of McCarthy's Drain.
2. To release 150 fish into Mangawhero stream.
3. If satisfactory control is achieved in McCarthy's drain, to remove the screen at the eastern end of the drain and allow the fish free access to the Eastern drain.

Recommendations

1. Permission be given to restock McCarthy's and the Mangawhero.

2. Permission to allow fish from McCarthy's free access into the Eastern drain be given subject to satisfactory repairs to the screen at the southern end of the Mawhitiwhiti. The Board should notify MAFFish (Rotorua) when the repairs are complete, and the screen will be inspected either by MAFFish, DOC or the Auckland Acclimatisation Society.

1. Introduction

Trials in the Aka Aka area began in 1980 when MAF stocked a 2 km section of the Mangawhero Stream (Map 1). MAF released more grass carp into McCarthy's and the Eastern drains in 1983 and 1984. At the beginning of 1984, some fish escaped into the Waikato River via badly fitting and poorly constructed screens.

No further fish have been put into McCarthy's or the Eastern Drain since 1984. The Mangawhero stream was restocked with 142 diploid fish in 1987.

The fish have controlled weed growth over parts of McCarthy's Drain, the Eastern Drain and the Mangawhero for the last five years. However, natural mortality and some fish kills have reduced the total numbers of fish to the point where only about 2 km of drain are effectively controlled.

The Aka Aka Otaua Drainage Board estimates that mechanical clearance in this area costs about \$3000 a km a year. Once the capital cost of the screens is paid for, \$1000 dollars of triploid grass carp may keep the weeds under satisfactory control for up to five years.

This application is to restock the Mangawhero Stream with further 150 triploid grass carp and the western portion of McCarthy's drain with 150 triploid grass carp. If control is complete in McCarthy's, the board wishes to release some of these fish into

the Eastern Drain.

2. Location of stocked areas.

1. Mangawhero stream.

This section flows south from Aka Aka Road Crossing (NZMS725348) to pumping station at the bottom of Elbow Road (NZMS 735339). The culvert under the Aka Aka Road is closed by a grid and a flap gate, which opens to permit northerly flow under flood conditions. The grid and gate are in good condition.

Water is pumped from the stream over the flood wall into the Waikato. The pumps are a fish proof barrier.

One hundred and forty two fish were released in February 1987. Two corpses were found in April 1987, and seventy more corpses were recovered from the drain July 1987. No fish have been seen in the stream for several months. There have been several fish kills in this stream from poor water quality, and I suspect the last stocking was not successful. There is excessive weed cover and the board mechanically cleaned the stream in February.

2. McCarthy's Drain

McCarthy's is a balancing drain between the Eastern and Western Drains (NZMS 719358 & 698347). The western end the drain is closed by a large grid screen sitting a concrete

pad. This screen is in good condition. At the eastern end, the drain is closed by a culvert screen which can be removed to allow fish into the eastern drain.

There is also a culvert in the centre of the drain at 706352. About sixty fish were seen in the western part of the drain about two weeks ago.

These fish have maintained this section of drain about 60% weed cover. The eastern part of the drain was mechanically cleaned in February, but is choked by weeds already.

The board proposes to:-

- (a) Put a screen across the central culvert before stocking.
- (b) Repair the screen to the eastern drain.
- (c) When repairs are complete, lift the central screen to allow the fish access to all of McCarthy's drain.
- (d) If weed control is effective in McCarthy's, the board will lift the screen at the eastern end of McCarthy's and allow the fish into the Eastern drain.

3. Other Screens

There are other screens to prevent fish from passing from other parts of the Aka Aka drainage area into the Waikato. We inspected two other screens. The screen at Bregman road is in good condition and as far as one can tell, fish proof. However the screen at the southern end of the Mawhitiwhiti is in poor

condition and in theory, fish could pass from the Eastern drain, along Arrowville, down the Mawhitiwhiti and into the Waikato.

Therefore I recommend the board repairs this screen before permission is given to let fish into the Eastern drain.

4. Control required

At the western end of McCarthy's, the fish have eaten large holes in the weed cover. Mats of weed float on the surface and the board considers there is sufficient passage under the surface to allow free drainage.

In other words, the board is satisfied with 40-80% removal of weed, and does not intend to overstock to achieve complete weed eradication.

This policy would leave adequate plant species for wildfowl, and indeed, the production of holes in dense weed cover may be beneficial to wildfowl.

Both drains are about 2 km long and average 5 m wide, or about 1 ha total. Complete plant removal occurs at stocking rates of about 250 per ha. A stocking rate of 150 fish per ha should maintain adequate weed control.

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E. Long 174°50'