

# Two Lakes Trout Farm - Pemberton

Marine Industries Limited

Report and Recommendations  
of the  
Environmental Protection Authority

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## i SUMMARY AND RECOMMENDATIONS

Marine Industries Limited has for the past five years farmed trout and salmon at three locations on the Treen Brook at Pemberton. The present proposal is to expand those operations by constructing an additional seven "Danish earth" ponds, six of which are fish ponds and the seventh a settling pond, at the company's Two Lakes site.

A Notice of Intent (NOI) was submitted by the proponent in March 1989, describing the proposal. The NOI was circulated to decision making authorities and interested individuals.

The Authority has assessed the environmental impacts of the proposal from the NOI and from advice received by other Government agencies.

### RECOMMENDATION 1.

The EPA recommends that effluent discharges from Marine Industries existing fish farms on the Treen Brook and its tributaries be licensed under Part V of the Environmental Protection Act (1986).

### RECOMMENDATION 2.

The EPA recommends that before approval for the proposed expansion is considered, Marine Industries Limited should be required to demonstrate the environmental acceptability of its existing operations in the Treen Brook catchment. This should be done by undertaking a water quality monitoring programme for the following parameters:

- Total nitrogen, ammonia nitrogen and nitrates;
- Total phosphorus and phosphate phosphorus;
- Suspended solids;
- pH
- Dissolved oxygen and,
- Water temperature.

Twelve samples for each of the above should be taken, concentrating on the summer and autumn months.

Samples should be taken from the final effluent discharge stream at King Trout Farm and matching samples should be taken above Marine Industries Limited's operations to provide ambient water quality data.

Analyses should be carried out by a laboratory recognised by the EPA and results should be submitted regularly to this Authority for assessment.

## 1. DESCRIPTION OF PROPOSAL

Marine Industries Limited has for the past five years farmed trout and salmon at three locations on the Treen Brook at Pemberton. The present proposal is to expand those operations by constructing an additional seven "Danish earth" ponds, six of which are fish ponds and the seventh a settling pond, at the company's Two Lakes site.

The proposal is to be located on freehold land owned by Marine Industries Limited. The property is situated on Old Vasse Road, Pemberton and consists of Nelson Location 12234, with a total area of 2.6 ha (Figure 1.).

The planned ponds will be constructed using clay for the base and sides. Internal pond surfaces will be covered with a layer of sand and shale. Topsoil is to be distributed on the external dam walls which will be revegetated. Timber and cement inlet/outlet "monks" will be installed to control water flows. All earth and clay construction materials are available on-site.

Water will be pumped from the Treen Brook to the reservoir at the rate of two litres per second for ten hours per day. From the reservoir it will be reticulated by gravity to the ponds and detained for seven hours in the fish ponds. Discharge water flows through a baffled settling pond with a residence time of two hours before re-entering the Treen Brook.

The capacity of each dam will be approximately 125m<sup>3</sup>, and the estimated increase in fish production resulting from the proposed development is ten tonnes annually.

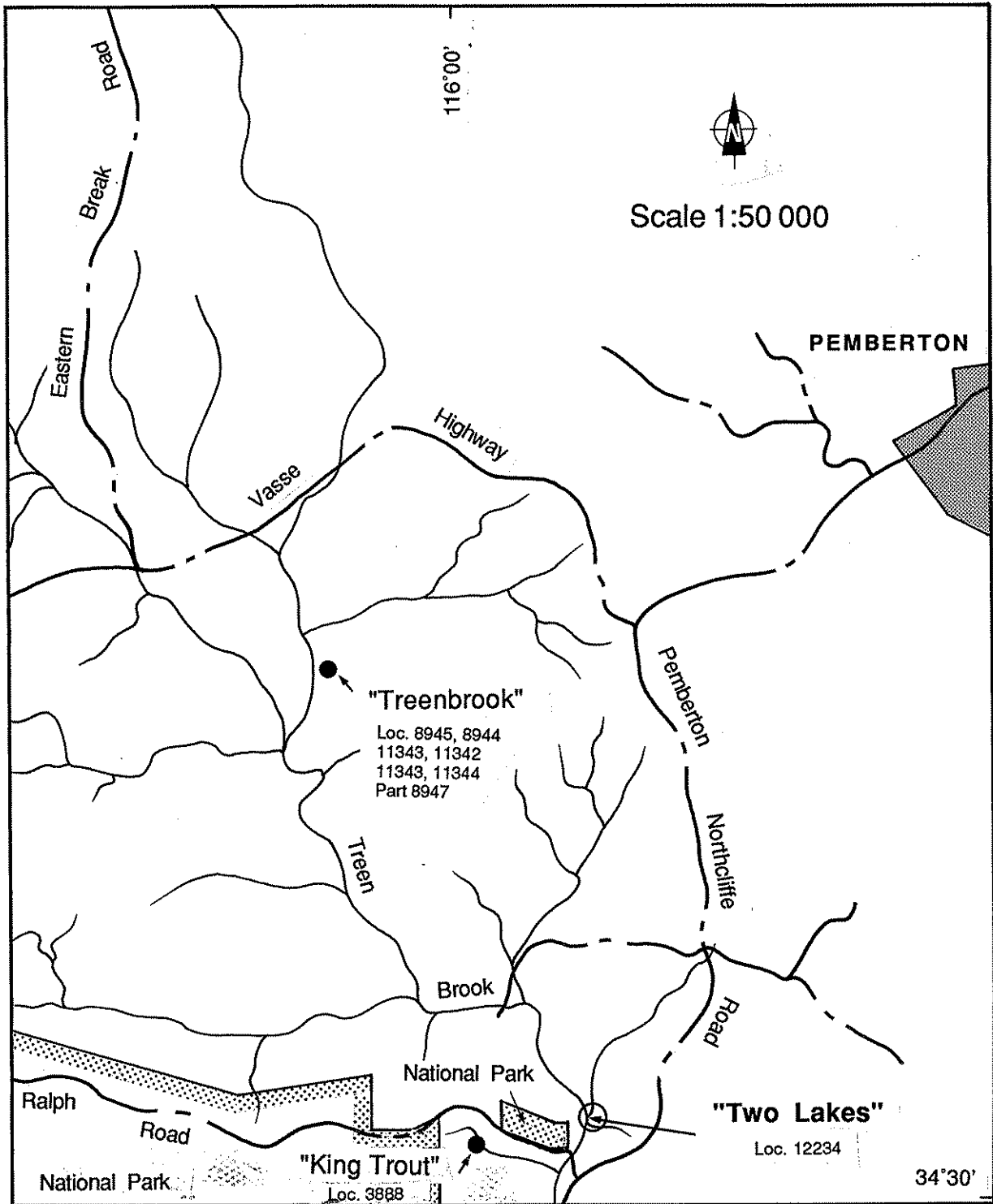
## 2. ENVIRONMENTAL IMPACTS

A number of environmental impacts associated with the proposal have been identified. These impacts relate specifically to water quality.

Treen Brook is within the Warren River catchment which is classified as a controlled area under Part II of the Country Area Water Supply Act. Approval is therefore required prior to clearing of vegetation in the region. Although the vegetation of Treen Brook is well represented on a regional scale, it must be maintained to prevent erosion and turbidity.

As well as providing stream zone stability, vegetation serves as a filter for nutrients which would otherwise be discharged to the Warren River. Excessive nutrient loading of the Warren can have detrimental effects on environmentally sensitive areas such as the D'entrecasteaux National Park at the river mouth.

Water quality in the Treen Brook is also important because the Treen dilutes the saline, nutrient laden waters from the mid and upper reaches of the Tone and Warren river catchments.



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Figure 1 showing the location of the proposed expansion of Marine Industries Limited's Two Lakes Trout Farm.



## 2.1 EXISTING INFRASTRUCTURE

Marine Industries Limited's existing facilities are on Treen Brook and its tributaries which are in the Warren River catchment. Each of the company's operations involves abstracting water from the stream. Discharge waters return to the Treen Brook via settling ponds designed to let solids settle. Marine Industries Limited's expansions of operations have been incremental over a number of years and consequently no controls over discharges have been imposed.

Licensing existing facilities under Part V of the Environmental Protection Act (1986) would regulate the discharge of effluent into the Treen Brook by imposing monitoring requirements on Marine Industries Limited.

### RECOMMENDATION 1.

The EPA recommends that effluent discharges from the existing Marine Industries fish farms on the Treen Brook and its tributaries be licensed immediately under Part V of the Environmental Protection Act (1986).

## 2.2 WATER QUALITY

Little is known about the water quality in Treen Brook. A small number of water samples from various locations on the stream have been collected and analysed for nutrients by the Water Authority of Western Australia. Results from those analyses revealed that water quality in the brook was generally high, however, no systematic sampling has taken place since the WAWA gauging station on Treen Brook was de-commissioned approximately a decade ago.

All of Marine Industries Limited's operations on Treen Brook and its tributaries involve depositing high nutrient fish feed directly into water flowing through the farms. Most of those nutrients are presumably assimilated as fish biomass and harvested, but no attempt has been made to quantify the fraction of added nutrients which enters the brook in a dissolved state.

The proposed expansion will annually add several tonnes of dry fish feed to the stream. The quantity, nature and effects of excess nutrients on the stream is not known.

### RECOMMENDATION 2.

The EPA recommends that before approval for the proposed expansion is considered, Marine Industries Limited is required to demonstrate the environmental acceptability of their existing operations in the Treen Brook catchment. This should be done by undertaking a water quality monitoring programme for the following parameters:

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- Total phosphorus and phosphate phosphorus;
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Samples should be taken from the final effluent discharge stream at King Trout Farm and matching samples should be taken above Marine Industries Limited's operations to provide ambient water quality data.

Analyses should be carried out by a laboratory recognised by the EPA and results should be submitted regularly to this Authority for assessment.

### 3. CONCLUSION

The EPA concludes that insufficient data on the water quality of Treen Brook, and on the potential impacts of fish farming in that environment, to enable an assessment to be carried out. The environmental acceptability of the proposal will be assessed subject to the proponents compliance with the recommendations of this report.