

TAY DISTRICT SALMON FISHERIES BOARD

POLICY ON SALMON STOCKING

August 2011

INTRODUCTION

This document describes the policy adopted by the Tay District Salmon Fisheries Board for the artificial stocking of salmon within the Tay district.

AIMS

It is recognised that stocking has a valuable role to play in the development of salmon stocks in the district but that it must be managed carefully to avoid negative impacts and waste.

The main aim of salmon stocking in this district is therefore to assist the natural recovery of salmon populations where these have been depleted for some reason and where natural recolonisation processes alone are unlikely to be successful except in the very long term. This will be done in conjunction with best evidence and guidelines for population restoration and will be driven by needs which have been carefully assessed.

Stocking will not be undertaken in areas where healthy natural spawning populations are present. Stocking does not work in such situations.

All stocking will be carefully monitored to allow the success or otherwise of stocking to be assessed.

AREAS IDENTIFIED FOR STOCKING

The following areas have been identified as priorities for stocking / restoration work.

<i>The upper Garry and tributaries</i>	<p>This area is dry at present but is likely to have flow restored in the next few years. However, the proposed flows may not be ideal for encouraging salmon to spawn throughout the newly re-watered area.</p> <p>Even if that was not an issue, stocking would still help to greatly speed up the recolonisation of this stretch of river, but given it is, stocking might have an even greater role in restoring the population and thereafter maintaining it at full capacity.</p>
<i>Upper Tummel</i>	<p>The western part of the Tummel catchment is well understocked with salmon because of the difficulties of access to that area owing to the number of dams etc present.</p>

	Stocking could increase smolt production from this area, however there may still be questions regarding the survival of downstream migrating smolts which may reduce the success of any stocking in this area.
<i>River Lochay</i>	For some years fry were stocked into the upper Lochay with reconditioned salmon eggs and this did successfully increase salmon densities in this tributary which is impacted by partial barriers and perhaps water abstraction.
<i>Water of Cononish</i>	For reasons still not fully understood, the Cononish (Dochart headwaters) had very low densities of salmon. After stocking with reconditioned salmon fry the juvenile population has risen markedly. This stocking may need to continue for some years until natural spawner numbers build up.
<i>Water of Dubh Choirein</i>	Again, for reasons still not fully understood, this upper tributary of the River Earn has very low densities of salmon despite good habitat. As in the Cononish stocking may help restore fish to this area or if not, help to identify the cause of poor salmon numbers.

BROODSTOCK REQUIRED

Stocking requires a source of eggs to be introduced into the areas to be restored. The numbers of eggs required for the tributaries described above are shown below.

Tributary	Eggs required
Garry	500,000+
Upper Tummel	Up to 500,000
River Lochay	Up to 250,000
Cononish	100,000+
Dubh Choirein	100,000
Total	1,450,000+

In the past eggs have tended to come from fish which would have spawned in other more productive areas which are considered to have surplus populations. However, the most obvious sources of broodstock for these tributaries may themselves have relatively fragile populations, therefore this approach is not suitable.

In order to prevent depletion of donor areas, the eggs or juveniles to be stocked will all be obtained through the process of kelt reconditioning at the former Marine Scotland facility at Almondbank.

Broodstock for kelt reconditioning will be captured in donor tributaries in the autumn prior to spawning. Donor areas will be as close as possible to the areas to be stocked, and will have similar physical, biological and hydrological makeup. Before stripping, broodstock fish will be genetically typed and crosses between close relatives avoided. The eggs taken from fish in their first winter in captivity will be returned as eyed ova or unfed fry to the streams in which they would have spawned naturally the following spring. The broodstock fish will then be reconditioned and their eggs used to stock the target tributary in the second or subsequent years only. Thus, donor tributaries will not be sacrificed in favour of the tributaries to be restored.

Once a full stock of captive broodstock is established (*ca.* 300 fish), a smaller number of brood fish will be added each year to make up for losses and to ensure turnover of the stock. Males recondition less well than females, therefore annual top-ups will mainly consist of new males. First year males may be mated both with first time stripped females and with eggs to be stocked into the tributaries to be restored. Genetic testing will ensure that close relatives will not be crossed.

INCUBATION AND STOCKING OUT

Eggs will be incubated in the TDSFB's temperature controlled hatchery to ensure development rates are similar to what would be expected in the wild.

Stocking out will be undertaken with eyed ova or unfed fry in spring and early summer and parr "grown on" at Almondbank in the autumn. For logistical reasons it will be necessary to spread the stocking load in this way.

Comparative trials will be undertaken of the different stocking strategies to determine which provides the highest rate of return.

MONITORING

It is essential that stocking programmes are monitored robustly as possible to ensure they work and to deliver value for money.

- All broodstock fish will be genetically typed and detailed records kept of crosses made etc.

- All stocked areas will be subject to yearly electrofishing surveys to determine level of survival.
- Where naturally spawning fish are also present, genetic testing will be used to determine the relative abundance of stocked and artificially produced juveniles and to determine the extent to which natural spawning replaces artificial stocking.
- In future, genetic samples will be taken from adult fish caught in relevant fisheries to determine the effect of stocking on rod catches.
- In the case of the Garry and Lochay, monitoring of SSE's fish counters will demonstrate the presence or absence of significant change in the long term.