

STARVATION

Fish will normally be starved for 48-72 hours before treating. The starvation period may be varied on veterinary advice and must be agreed in advance.

METHOD

The fish are crowded within the pen by raising the net and by use of a sweep net or float line as appropriate. Supplementary oxygen may be required for crowded fish. The wellboat's suction pipe is placed in the pen, the well hatch covers secured and the fish are siphoned on board. A modern pressure siphoning system is the preferred method of loading the wellboat, allowing the fish to be loaded smoothly without pumping.

The biomass and density for treatment will be agreed between the site manager and wellboat Skipper beforehand and may be restricted under veterinary advice. The fish will normally be counted into the wells to allow biomass estimation. The well valves are closed and water re-circulated within the wells, with oxygen supplied through the boat's systems.

The medicine is prepared and diluted according to the manufacturer's data sheet instructions or other specific advice from the veterinary surgeon. The method of delivery of medicines into the wells will depend on the wellboat design and whether or not the boat has specific treatment dosing equipment fitted. The system used must be discussed and understood before commencing.

At the end of the treatment period, the valves will be opened and the wells will normally be flushed with clean seawater to remove residual medicine before discharging the fish. The duration of flushing should be discussed and agreed with the Skipper beforehand. Fish are discharged into the receiving pen preferably using a pressure siphon system.

OXYGENATION

Oxygen must be supplied to the enclosed volume to maintain the DO **above 7mg/litre (7 ppm) and between 90% - 120%** saturation. Treatment should be aborted if the oxygen is falling rapidly below 60% saturation or 4.5mg/litre, and can't be immediately recovered. Treatment must not be started unless there is sufficient oxygen available to complete the treatment duration required.

MONITORING

Fish undergoing treatment must not be left unattended and should be observed frequently for signs of distress. The treatment must be aborted if the fish show significant evidence of distress or other unexplained change in behaviour likely to represent a significant adverse reaction to the treatment. Camera inspection of the wells should be available, ideally with several fields of view. DO must be checked every few minutes during treatment, using the boat's continuous display equipment. A low oxygen alarm should be enabled if available. Fish should also be observed throughout discharge.

Following treatment, the fish should be observed for signs of distress or abnormal behaviour regularly until normal behaviour and feeding pattern are re-established. A camera or diver check should be made if there is any doubt. A mortality check should normally be made within 24 hours of treatment.

All treatments using hydrogen peroxide must have peroxide levels in mg/ltr accurately titrated.

OPERATOR SAFETY

The appropriate PPE (outlined in the prescription, veterinary data sheet or other instructions) must be used while mixing, diluting and administering the medicine. The manufacturer's safety data sheets must be available and all safety requirements followed.

Managers must make themselves aware of any specific safety advice relating to the medicine being used and equip operators to deal with spillages and accidental self-exposure. SSF guidelines for health and safety must be followed, including the requirement for cholinesterase baseline samples before using organophosphates (Salmosan).

PRESCRIBING, MEDICINE CONTROL and RECORDS

All medicine use is strictly under veterinary prescription and the veterinary surgeon must be contacted prior to undertaking treatments. The veterinary surgeon will authorise release of the medicine from secure storage, or supply from the manufacturer as appropriate.

The medicine to be used, dose and duration of treatment will be agreed with the veterinary surgeon **in advance** of each treatment and will be set out in the prescription, together with details of the pens to be treated. The well volume to be treated must be agreed with the Skipper before commencing and allowance may be made for the volume of fish enclosed.

Details of treatments should be entered into the farm's production database on completion, preferably at the end of each day. The medicine batch number and expiry date should be checked before use and this information must be recorded. Treatment records are to be kept for a minimum of 5 years and must be sufficiently complete to allow for full traceability of all treated stocks. The times of starting and finishing each individual well treatment should be recorded. A specific log of the medicine discharge is required for Marine Scotland and should be completed for each treatment carried out.

The withdrawal period, within which treated fish must not be slaughtered for human consumption, will be notified by the veterinary surgeon and included in the prescription.

DISCHARGE CONSENTS

All discharges of medicines from boats require a site-specific licence from Marine Scotland, before medicines used to treat fish can be released into the aquatic environment. Farmers must ensure that they have a valid licence for their site which identifies the treatment vessel to be used and must comply with the discharge restrictions detailed in their licence.

ADVERSE REACTIONS

Any abnormal reactions by the fish which are observed during or after a treatment and which are related to the carrying out of the treatment, must be notified to the veterinary surgeon as soon as possible. This should include all examples of abnormal behaviour, injury, illness, disablement or death which may have arisen as a result of exposure to the medicine or due to the treatment method. Suspected adverse reactions in operators due to exposure to the medicine must also be reported immediately in accordance with SSF H&S guidelines.

EFFICACY

Lice counts should be made within 7 days of treatment in accordance with the normal counting protocol. Where initial counts indicate a poor result, counts should be obtained from all the treated pens as soon as possible. Overall efficacies (of susceptible lice stages) <70% should be notified to the veterinary surgeon as a possible adverse reaction. All counts should be entered on the farm's production database.