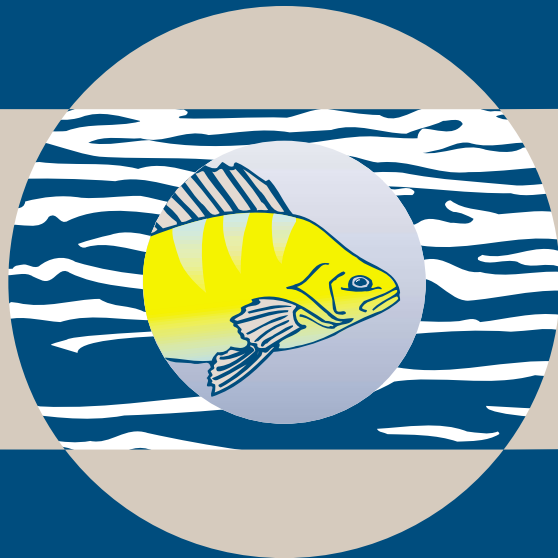


# Desilting stillwaters



ENVIRONMENT  
AGENCY



# Desilting stillwaters

Over a period of years, as they fill with mud, silt and plant material, ponds tend to revert to marsh and land, and after a time many ponds require desilting. This is also desirable when there is a large accumulation of semi-decomposed leaf litter and other organic debris. This material tends to reduce oxygen levels in the pond, and because it often produces acidic conditions it reduces the fertility of the pool. In ponds that have become very shallow as a result of silt and organic debris, fish stocks will be at risk and mortalities may occur.

The desilting of a pool can be expensive, but costs can be significantly reduced if spoil can be distributed on site and does not have to be carted away. The exercise can be speeded up if the pond can be drained; on a pool such as a gravel pit, without any monk or sluice arrangement, it may be possible to pump out the pool. This will depend on the permeability of the adjacent land and the proximity of water sources. However, it enables the contractor to see what he is doing and the spoil is relatively dry, so more silt than water is removed with each bucket.

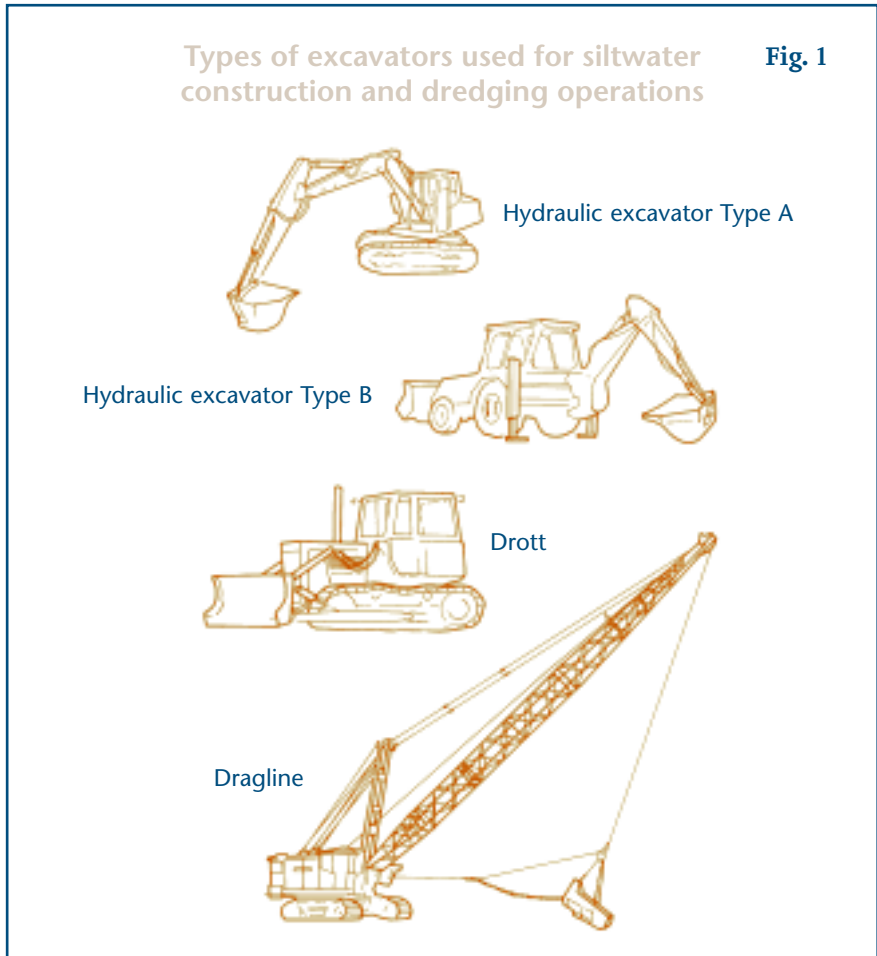
You will need a discharge consent from the Environment Agency if the pump discharges into a watercourse. It is also important to consider whether draining a pond will effect water level in rivers or lakes next to it.

The usual method is to employ a contractor who has machines for hire, with a skilled operator. The types of machines capable of desilting a pool will vary (see Figure 1). It may be possible, for instance, to drain the pool and employ a bulldozer with swamp tracks to push silt to the sides. On the other hand, draining may be out of the question and a dragline may have to be employed from the bank.

For larger pools, the dragline is the most common machine used, but it has limitations. The maximum reach that can be achieved with most of these machines is 20 metres,

## Types of excavators used for siltwater construction and dredging operations

Fig. 1



although a very large machine can reach more than 30 metres. Hydraulic excavators generally have a restricted reach, are not suitable for the majority of jobs, and tend to be more costly to hire than draglines.

### LIMITATIONS OF EXCAVATORS

Draglines cannot operate within 1.25 jib lengths of an overhead power line for safety reasons, and they require a considerable clear area to swing their bucket and dump

spoil. They cannot therefore be used on a pool surrounded by trees. They are usually delivered to the site by a low loader and require good access via a wide gate as they have a track width of about 3 metres. Because of their extreme weight, small bridges may not be able to accommodate them.

### HYDRAULIC EXCAVATOR

The reach of a hydraulic excavator is limited and generally they are not suitable for the majority of pools. On small ponds surrounded by trees, however, this is the only type of excavator that can be used. Larger machines can reach more than 12 metres.

### DROTT

A drott can only be used where access to the pond bottom is possible and there is a solid base to the pond under the silt. Drotts can move the spoil, lift and dump it. They are generally used for landscaping work around pools.

### BULLDOZER

A bulldozer can only push spoil and would require access to the pond bottom, which should be firm under the silt. This type of machine can move a great deal of spoil quickly, and can be fitted with swamp tracks to prevent sinking into silt.

### SMALL, PUNT-MOUNTED EXCAVATOR

This has a minimal reach and it is difficult to dispose of spoil on the banks since it has to make repeated trips to the shore. With this machine it is possible to work nearer to power lines than with a dragline and it can often reach parts of the pool that other excavators cannot.

### MUD CAT

This works by sucking silt off the bottom through flexible pipes to specially constructed reservoirs on land.

Its main disadvantage is that it is extremely costly to bring to site and because of its size requires good access. It pumps a great deal of water as well as silt, and a suitable space around the pool must be available for the construction of settlement lagoons. These often take more than a year to dry out thoroughly and consolidate. Generally there are cheaper methods of achieving the same result.

## GENERAL

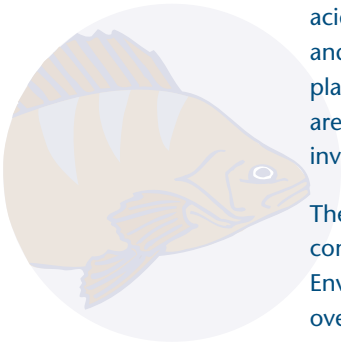
Where excavators have to work near overhead power lines the local electricity company should be contacted to determine a safe working distance. In some instances it may be possible to have power lines switched off for a period to allow work underneath.

For advice on probable costs and types of machine that could be used, contact your local Fisheries Office who can give you detailed advice, or put you in contact with commercial contractors.

## OTHER METHODS

The use of hydrated lime or similar products can reduce the amount of organic material in silt, and thus have a desilting effect. They produce an increase in the pH (a measure of the acidity/alkalinity) of the silt, promoting alkaline conditions and adding to biological breakdown of leaf litter or other plant remains. The nutrients released by this bacterial action are then available for uptake by plants and, ultimately, by invertebrate animals and fish.

The success of hydrated lime depends on the organic content of the silt, and advice should be sought from the Environment Agency before it is used. Lime should be spread over the silted area in winter from a boat, treating at 200-750kg/ha. If a large area or most of the lake is silted, only 25-30 per cent should be treated at any one time, leaving a week or two between treatments to reduce the overall pH change in the lake.



## CONTACTS:

### THE ENVIRONMENT AGENCY HEAD OFFICE

Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol BS32 4UD.  
Tel: 01454 624 400 Fax: 01454 624 409

[www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)

[www.environment-agency.wales.gov.uk](http://www.environment-agency.wales.gov.uk)

### ENVIRONMENT AGENCY REGIONAL OFFICES

#### ANGLIAN

Kingfisher House  
Goldhay Way  
Orton Goldhay  
Peterborough PE2 5ZR  
Tel: 01733 371 811  
Fax: 01733 231 840

#### MIDLANDS

Sapphire East  
550 Streetsbrook Road  
Solihull B91 1QT  
Tel: 0121 711 2324  
Fax: 0121 711 5824

#### NORTH EAST

Rivers House  
21 Park Square South  
Leeds LS1 2QG  
Tel: 0113 244 0191  
Fax: 0113 246 1889

#### NORTH WEST

Richard Fairclough House  
Knutsford Road  
Warrington WA4 1HG  
Tel: 01925 653 999  
Fax: 01925 415 961

#### SOUTHERN

Guildbourne House  
Chatsworth Road  
Worthing  
West Sussex BN11 1LD  
Tel: 01903 832 000  
Fax: 01903 821 832

#### SOUTH WEST

Manley House  
Kestrel Way  
Exeter EX2 7LQ  
Tel: 01392 444 000  
Fax: 01392 444 238

#### THAMES

Kings Meadow House  
Kings Meadow Road  
Reading RG1 8DQ  
Tel: 0118 953 5000  
Fax: 0118 950 0388

#### WALES

Rivers House/Plas-yr-Afon  
St Mellons Business Park  
St Mellons  
Cardiff CF3 0EY  
Tel: 029 2077 0088  
Fax: 029 2079 8555



### ENVIRONMENT AGENCY GENERAL ENQUIRY LINE

**0845 933 3111**

### ENVIRONMENT AGENCY FLOODLINE

**0845 988 1188**

### ENVIRONMENT AGENCY EMERGENCY HOTLINE

**0800 80 70 60**



**ENVIRONMENT  
AGENCY**

