MANAGEMENT OF specialist stillwater coarse fisheries

ENVIRONMENT AGENCY

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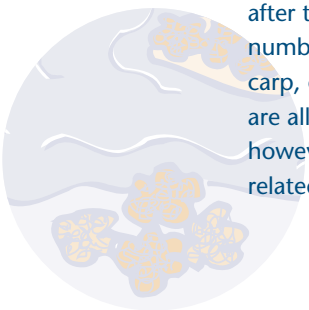
Management of specialist stillwater coarse fisheries

Specialist fisheries in the context of this booklet are those in which an angler expects to catch a certain target species. Such fisheries are intensively managed, nearly always stocked and have been subject to habitat improvement works.

The techniques used to manage such fisheries exploit their natural biological and physical characteristics. It therefore helps to have an understanding of the three main biological groups of coarse fish.

GROUP 1 BREAM, CARP AND TENCH

The requirements of the first group are similar. The adults live in slow-flowing rivers, or lakes that are normally warm. The fish are predominantly shoal members, and spawn in spring or early summer at temperatures varying from 14°C (for bream) to as much as 20-22°C (for carp and tench). The eggs are normally deposited on weed or in reed beds, and although the fish spawn in shoals, the eggs are scattered fairly diffusely over the weeds so that some should escape predation. The eggs hatch after a week or so, and the fry feed during daylight hours on the early summer zooplankton. They grow quickly during the warm months and can form large shoals at this time. Tench may not, however, be seen for a year or two. The fish normally mature after three or four years. In the case of carp, there are a number of different scale patterns and body forms: wild carp, common carp, king carp, mirror carp and leather carp are all the same species, *Cyprinus carpio*. Crucian carp are, however, a separate species to which goldfish are closely related.



GROUP 2 BARBEL, DACE AND CHUB

The second group of fish comprises the mid-river cyprinids such as barbel, dace and chub. These fish are naturally absent from stillwaters but can live, although they may not breed, in stillwaters if introduced. They differ significantly from stillwater cyprinids in their temperature requirements. They spawn, usually in flowing water, from March (in the case of dace) until July (for chub and barbel) at temperatures of 6-20°C. The preferred spawning substrate is gravelly shallows, and the eggs can take up to 25 days to hatch at 13°C. Maturity occurs after two or three years. A good deal of vegetable matter is contained in the diet, and chub can also eat a great range of scavenged matter as well as small fish and crayfish.

GROUP 3 PIKE, PERCH AND ZANDER

The third group contains the predators – pike, perch and zander. These are all piscivorous, although the young stages take zooplankton. Older pike and zander eat mainly fish, but perch eat a more varied diet of small fish, crustaceans, beetles and worms. Perch form shoals to locate and catch their prey, but zander and pike are more solitary hunters. Pike and perch spawn between March and May, pike in shallow areas, on last year's reed beds; perch spawn later than pike and leave very characteristic ribbons of eggs around reed stems in deeper water; zander spawn from April to June at temperatures around 15°C, and the eggs are shed in a nest of exposed plant roots that is guarded by the male. Pike and zander grow large, pike reaching 20kg and zander reaching 8kg. Perch are smaller fish – seldom exceeding 2kg.

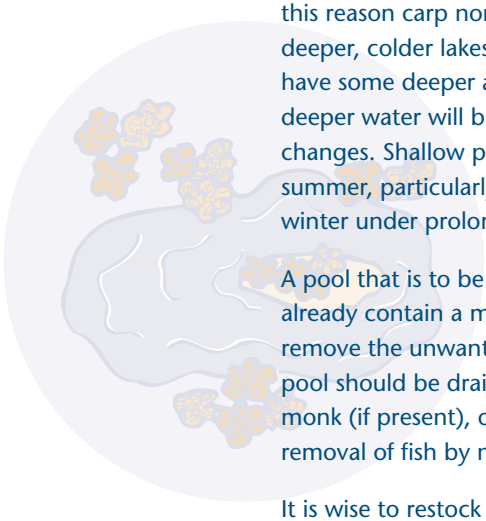
SPECIALIST COARSE FISHERIES

There is increasing demand by anglers for specialist coarse fisheries. They therefore need to be biologically productive and the chosen species stocked at a low initial density to allow for growth.

To maintain a fishery of this type, regular cropping of any progeny from the initial stocking of fish may be necessary to reduce competition for food and create conditions for fast growth. Two examples of specialist fisheries are those managed for carp and for pike.

CARP

Carp were originally introduced into Britain several hundred years ago. Because their natural range is in areas of warmer summer climate, British water temperatures seldom reach the optimum for growth of this species (around 25°C). For this reason carp normally grow faster in shallow lakes than in deeper, colder lakes. However, an ideal carp pool should have some deeper areas as well as shallow ones, since deeper water will buffer the effects of sudden temperature changes. Shallow pools often suffer oxygen shortages in summer, particularly if weed growth is heavy, and also in winter under prolonged ice cover.



A pool that is to be developed as a carp fishery will probably already contain a mixed fish population. The first step is to remove the unwanted coarse fish. To do this properly, the pool should be drained either by lowering via a sluice or monk (if present), or by pumping, in order to facilitate removal of fish by netting or electric fishing.

It is wise to restock the pool with only about 150-250kg/ha of carp to allow for growth. If the pool was not very productive initially, fertilization should be undertaken to improve the productivity. If, after fertilization, the pool is capable of supporting 600kg/ha, the young fish of successive spawnings will quickly grow to achieve the maximum biomass the pool can support. Annual or bi-annual cropping of small carp may then be necessary if good growth rates are to be maintained. Carp of over 0.45kg (1lb) in weight should put on at least 0.45kg per year and 0.9kg per year is quite common in waters that are not overstocked.

PIKE

The same basic techniques are required to produce a specimen pike fishery. The pool should be fertilized to provide a high standing crop of prey fish, which in turn will support a high standing crop of pike. Although carp fisheries can be developed in small waters, pools larger than about 3ha are needed to produce the level of stock that will support a specialist pike fishery.

The main problem with a pike fishery is in trying to achieve the correct balance between pike and prey fish. Pike often live in balance with a prey fish population when the weight-for-weight ratio is 1:7 or 1:8 – that is, 1kg of pike for every 8kg of prey fish. There is evidence, however, that balance can be achieved even at ratios as far apart as 1:4 and 1:20. Obviously the lower ratio is more advantageous to pike fishermen since any water stocked in this way will contain more pike.

Once the fishery has been created, great care must be exercised in managing it. Because the fish are likely to be caught several times, it may be necessary to persuade anglers to use tackle and tactics that cause the least damage to the pike they catch (barbless hooks, knotless nets, adequate line strengths). Similarly, to further protect the stocks, the angler effort and use of the fishery may also have to be carefully controlled to help avoid the accidental death of some of the fish.

OTHER SPECIES

Other specialist fisheries can be created, with other species. Advice regarding such fisheries can be obtained on request from the local Environment Agency Fisheries office.

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