



THE *Tweed* FOUNDATION

A Tweed Foundation Paper

3 THE FISHES OF THE TWEED AND THE EYE

C.7

Dace

Leuciscus leuciscus



Photo C.7.1 : A plastic model of a Dace caught on the Dry Fly at Norham Bridge by Dr. D.H. Mills, in June or July 1968 and presented by him to The Tweed Foundation

The Dace is a member of the Carp family, and is widespread across much of Europe and Asia, from the Atlantic coast of France to Siberia in the East. In the British Isles it is native only to the south of England, but has been widely distributed by use as live-bait. It is a shoaling species of rivers in lowland areas, generally in faster flowing areas, but can live in slow flows and some still waters. Spawning is from February to April, Dace being the earliest breeding carp found in the British Isles. Spawning sites are gravelly shallows, usually where there is some weed growth; females produce from 3,000 to 27,000 eggs. Hatching takes two to three weeks at 12° to 15°C, the young emerging at around 8mm in length, and growing rapidly afterwards, to 60 to 80mm by the end of their first year and 100 to 150mm by the end of their second. Most mature in their third or fourth years, and few live more than seven or eight. New fry feed on microscopic animals and plants such as diatoms (algae), rotifers and crustacean larvae. As they grow, their diet changes to aquatic invertebrates from the bottom, but in fine weather they

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A charitable trust established by the River Tweed Commission to promote the development of fish stocks in the Tweed River System

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will feed off insects flying over or trapped on the water surface. Algae and other plants are also eaten.

Dace on Tweed : Only one record of the introduction of Dace to the Tweed has been found so far, which reports that they were released into the Tweed at Tillmouth in the 1870's as unused live-bait by a salmon angler who used them as fresh spinning lures (Brennand, 1968). "*It is only within the past few years that small Dace have begun to appear amongst Roach taken in the Tweed from Twizel downwards*" was the comment of Bolam (1919) which possibly fits with an 1870's introduction. Dace would still appear to be confined to the lower river, particularly from Coldstream downstream, though a survey in the early 1970's found them as far upstream as Kelso, and as far downstream as Berwick estuary (Starkie, 1975), though in small numbers at these extremities.

Sizes of Dace on Tweed : The overall lengths of the Dace from a lower river sample taken in 1973 are shown in Graph C.7.1 : Four distinct groups can be seen, the first representing the youngest fish, the I+, the very small group at 140mm the II+. The third group, around 175-200mm are mainly, but not exclusively, III+, and the fourth group represents IV+ and older fish – as growth slows down with age, the sizes start to overlap so the peaks in numbers no longer correspond exactly with ages (Starkie, 1975).

The Scottish Record Dace (as recognised by the Scottish Federation for Coarse Angling) is a fish of 1lb 3oz caught in 1979 at Coldstream.

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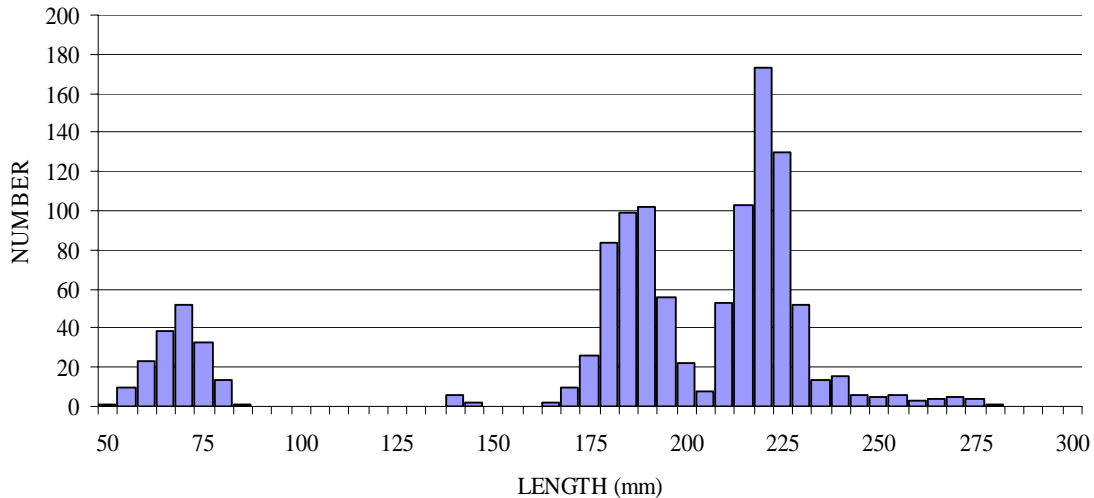
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Graph C.7.1: Lengths of a sample of 1161 Dace taken at Canny (Norham) on the 8th February 1973



Ages of Dace on Tweed : The “annual check” on the scales that marks one year’s growth from the next forms over a short period in May in Tweed Dace (Starkie, 1975). The average weights and growth pattern with age of lower Tweed Dace in the early 1970’s are shown in Graph C.7.2, which shows how growth slows with age. The oldest fish found were eight years old:

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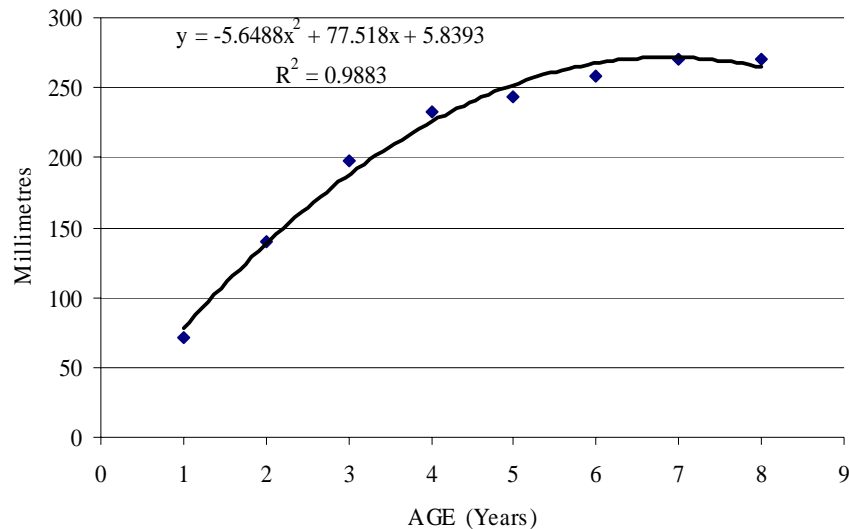
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Graph C.7.2: Age-Average Length relationship of lower Tweed Dace sampled in the early 1970's (Starkie, 1975)



Diet of Dace on Tweed : As with other carp, Dace do not have teeth, grinding up their food with special bones in their throats, nor do they have distinct stomachs. These features make analyses of their diet difficult. Starkie (1975) using a points scoring system (awarding points reflecting the amount of food in the whole guts of lower Tweed Dace) managed to produce an overall picture of their diet, as shown in Table C.7.3:

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Table C.7.3: The Percent Composition of lower Tweed Dace in the early 1970's (Starkie, 1975)

Midge larvae & pupae	27.80 %
Oligochaet worms	18.20 %
Caddis larvae	11.80 %
Aerial insects	11.40 %
Plant material*	11.00 %
Mayfly nymphs	5.60 %
Molluscs	3.80 %
Blackfly larvae and pupae	2.50 %
Shrimps	2.00 %
Other items	5.90 %

* *mainly filamentous algae*

The importance of midge (Chironomidae) larvae and pupae; Oligochaet worms (small mud living animals) and caddis larvae show that much of the food of Dace comes from the bottom, while the relatively significant proportion of aerial insects points to their habit of feeding at the surface in fine weather. Plant material, a typical food item of carps, is also important.

Dace as Prey on Tweed: Dace are taken by fish-eating birds on the Tweed. A 1972-73 study of the stomach contents of 26 Cormorants shot on the lower Tweed found 2 Dace amongst the 137 individual fish of all sizes that had been eaten (MacIntosh, 1978).

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Photo C.7.2: Some of the Dace netted at the Union Bridge in the 1970's study: Ages are (from top to bottom) –

0+
1+
2+
3+
5+
7+

Photo E. Hastings

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