HALLINGTON RESERVOIR ECOLOGICAL SURVEY

By Cliff Johnston

It doesn't seem to be almost a year ago, at the A.G.M„ when I offered to do some qualitative and quantitative surveys of the club's waters in an endeavour to shed light on their ecology. At the time, I expected to have a considerable amount of ‘free time' in which to conduct these but as they say, 'the best laid plans of mice and men...'! As I was approaching retirement age my lecturing commitments were supposed to be reducing considerably, but the serious illness of a colleague put paid to that. Consequently, I have only been able to complete a reduced initial survey, but it did throw up some interesting points, some of which you may wish to bear in mind during the coming season.

Hallington reservoirs are typical upland water-storage facilities in which the quality of the water is 'good', that is it has a high oxygen concentration, limited mineral content and generally no significant pollutants. This type of water-body is classed as 'oligotrophic' by the ecologists, from the Greek ‘oligos’ meaning little, and ‘trophe’ meaning food.

The 'rich' reservoirs of the South, such as Rutland, Pitsford, etc. are classed as ‘eutrophic’, where ‘eu’ means good. All of this is based on the fact that in order to grow well, plants need a good supply of minerals or fertiliser, Inevitably, the successful, or otherwise, growth of the plants is reflected in the size of the animal population present. The types of plant fall into two categories, the larger, fixed forms known as algae and pond-weeds, and the free-floating, microscopic variety which makeup the phytoplankton (plant-plankton).

'Fixed' plants are rather scarce at Hallington, for several reasons. The substrate of parts of the reservoir is generally unsuitable for plant growth, much of it consisting of stone blocks, The banks are often steep, meaning that the water quickly falls to a depth where the available light is insufficient to maintain good photosynthesis, but, of particular significance, is the fact that the water is constantly 'drawn-down', leaving any plants that have managed to become established at the mercy of the sun (and aquatic plants do not possess the characteristics of land plants that enable them to withstand drying-out). The overall effect of this is that most of the ‘productivity' of the reservoir, i.e., its ability to support life, is mainly controlled by the phytoplankton, such as the microscopic free-floating algae. These plants are the prime food source for the zooplankton, the minute animals such as the water-fleas. In many of the richer reservoirs the most common water-flea is Daphnia, vast clouds of which provide good feeding for the stocked trout. This is easy feeding, for the trout simply swim around allowing the water they breathe to pass over their gills, where the gill-rakers filter out the Daphnia to provide a protein-rich source of food.

I regularly sampled the open water of Hallington, using a fine meshed plankton net to collect the organisms present, (If one looks into the water of the reservoir there appears to be a suspended sediment, but this is actually the plankton.) Microscopic analysis of the samples showed that there was a large enough population of phytoplankton to support a good population of zooplankton. Unfortunately, the dominant water-flea was not Daphnia, but a considerably smaller animal known as Cyclops (because it only has one 'eye'!). The trout will still extract these organisms with their gillrakers, but that will not constitute a very satisfying meal! However, all is not lost. I was able to sample the water to a depth of three metres below the surface (my net would go no deeper) and found that the plankton was

present in significant quantities. All plankton, like all living matter, must die and eventually sinks to the bottom of the water column. Here it becomes part of the detritus food chain and provides good feeding for many of the bottom-dwelling animals, especially the larvae of the midge family.

The draw-down of the water in the reservoir not only affects the plants, but also has a significant impact on the animal population present. Many aquatic invertebrates have life-cycles that extend over two years so, if they are sedentary forms living in tubes in the mud, they have little chance of survival along the shoreline that is exposed as the water level falls. Midge larvae, however, can live at considerable depths and here they will not be affected by the draw-down. More mobile animals, such as caddis larvae, snails, the swimming larvae of the up-winged flies and the large swan-mussels (Anodonta), all of which are present in Hallington, may be able to follow the water as it falls, but rapid draw-down will leave many stranded, leading to death by de-hydration, or being eaten by birds.

Over the year I have analysed the stomach contents of a significant number of trout and the results reflect the above facts. Those stomachs which contained food were from trout caught on wet or dry flies of various forms. The actual organisms present were generally small, over 99% were less than 5mm long. By far the most common food form present was buzzers, generally black or olive in colour. Small nymphs (mainly pond olives) were present in reasonable numbers, Adult insects included midges, olives, sedges and beetles (both aquatic and terrestrial). Often the stomachs were empty! Significantly, in all of these cases the fish was caught on a lure, suggesting that these fish were not actively feeding but had responded to the lure as a result of aggressive instinct.

If you have not yet managed to find a winning formula for Hallington, and are still struggling to achieve a decent bag, what then, if anything, is the significance of these findings to your angling? Well, firstly, if you are happy to catch newly- stocked fish that have not yet established a natural feeding habit, then use any lure, retrieve it at speed and hope that it passes such a fish.

However, after a short while most fish will begin to actively search for food. As our fishery is not well endowed with food organisms, it is fairly certain that most fish will accept any food item that appears within their zone of vision. They are unlikely to become 'fixed' on a particular food item, Hence, all one needs to do is present appropriate flies in an appropriate way!! I would suggest that there are two main lines of attack.

If there are no fish obviously feeding on the surface, then 'wet' flies could be the answer. A team of three small slim buzzers (black or olive) on a nine to twelve foot trace, allowed to drift below a floating line, will best emulate the naturals moving from their mud tubes towards the surface where they will eventually emerge. Watch the tip of your fly-line for any unusual movement and respond appropriately! Should you be one of those who cannot be an 'inactive' angler, then try a team of general nymphs, I use a goldhead gold-ribbed hare's ear on the point and select from Pheasant Tail Nymphs, Diawl Bach, Crunchers or a Greenwell nymph for the droppers. Allow these to sink to various depths and retrieve them as slowly as possible, watching the vertical bit of the line between the rod end and the water to indicate a take. If there is no vertical line between the rod end and the water you are probably retrieving too quickly!

Should there be obvious surface activity then turn to surface flies, either emergers or dries. If you can actually see what the trout are feeding on, then imitate it! However, as this is

often very difficult you could try offering them a 'mixed menu', Personally, I have great faith in small hoppers, CDC emergers, Invictas, Coch-ybondhus and parachute style Grey Dusters. These represent, respectively, general adult flies (aquatic and terrestrial), midges or buzzers, sedge flies, beetles (terrestrial and aquatic) and spent upwinged flies. I 'hedge my bets' by fishing one fly just below the surface on the point, and the second (on a dropper) either on or in the surface.

To conclude, if you want to catch feeding fish you must imitate the types of food present in the water, Accurate copies are not essential, but they must look 'buggy'. Remember that most of Hallington's invertebrates are small and that they move very slowly, if at all! Tight lines!

Postscript:

It definitely looks as though I will manage to 'retire' this Easter. I hope to do more detailed investigations during the coming season and, if there is a demand, I will run some workshops on the entomology of Hallington. Watch out for notices in the lounge.

Cliff

(Cliff passed away in July 2016)