

A person is fly fishing in a river, standing on a rocky bank. The river flows under a stone bridge. The background is filled with bare trees, suggesting a winter or late autumn setting. The water is dark and reflects the sky. The person is wearing a hat and a vest, and is holding a fishing rod. The overall scene is peaceful and scenic.

Grayling

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pharate adults (PA) and adults (males and females) in grayling stomachs (in parenthesis is the number of studied fish).

	PA	—	—
Meltaus (21)	21	2	135
Ylaineikoski (7)	4		1
Oudon (16)	271		135
Li (14)	15		43
Tornio (8)	7		
Varis (1)	66	1	

The presented data indicates that freshly transformed adults rarely fall prey to fish (this may be concluded from the small number of males). They are simply not available to fish, due to their behaviour (probably they leave the water very fast). The eaten specimens are predominantly females. This is certainly due to the underwater egg-laying activity, enhancing the availability of females to fish. In order to understand this issue better I determined the number of eggs in the abdomens of the females. In the case of fish from Meltaus there were 80 gravid females and 55 with partially filled or empty abdomens. In Oudon the numbers were – 106 and 29, while in Li – 27 and 16. Thus the data indicates that fish eat mainly diving females. To a lesser extent are eaten females, which have left the bottom during oviposition, or totally spent females.

This finding has some practical implications for a wary angler. In the last 20 - or so - years many entomologists-anglers, especially in the US, referred to diving caddis in their publications. Some authors (e.g. G. Odier in 1985) even devoted a whole book to the females and their imitations. However, neither in the scientific nor angling literature, did I find

empirical data proving the view about the strong role of diving females to fish and anglers. My data seems to be the first one in this respect. However, one should not draw the false conclusion that these females are a frequent item in fish stomachs. On the contrary, they are rather rare in most waters.

A behavioural approach to flyfishing for Grayling

Preliminary news from a field study on Slovenian waters

Vincenzo Penteriani & Roberto Pragliola

The Grayling (*Thymallus thymallus*) is considered by the majority of flyfishermen as a strange and unpredictable fish (see article in GRAYLING vol.19. No 1). Many of them agree that the reactions of this fish to the dry fly are often unpredictable: this view is probably at the origin of the impressive amount of the highly differentiated imitations that we find in the fly boxes of a grayling fisherman. Moreover, the angling literature on this species is very poor when compared to the large amount of books and articles on trout.

Two years ago, and with the support of the **Fisheries Research Institute of Slovenia** (Zupanc _"ic"_eva 9 ,SI 1000 Ljubljana - Slovenia; www.zzrs.si) in the person of his Director, Dr. Joze Ocvirk, we started a study on the grayling behaviours as regards dry fly. Behavioural observations and video recordings of graylings during dry fly pre-

Articles Wanted

Now, with both "Grayling" and the redesigned NEWS in full colour we are looking for even more articles or items of grayling interest during the coming months for the forthcoming issues.

If you have anything, long or short, that you would wish to tell members about, please contact Rod Calbrade (Editor) on 01706 842890 or e-mail rod@calbrade.demon.co.uk

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sentation, as well as experimental tests in the field (including fly features and presentations), will allow to better understand the reactions of this species to the fly and, probably, to collect information on its social and feeding behaviour. Finally, such an approach will give useful information on the possible impact of angler disturbance on the daily activity patterns of grayling.

The final result of such an investigation will be the publication of a book on the general biology of grayling also including the results of the above mentioned behavioural approach to the grayling flyfishing.

Background

Two rivers were selected for our proposals: the well known Unec and Soca. These rivers were chosen because they represent two extreme situations of typical grayling habitats, that is a typical flood river with slow waters and constant food availability (Unec) and a mountain torrent characterised by fast waters and irregular food availability (Soca).

We consider it very important to analyse grayling behaviours as regards flyfishing under such very different situations. In fact, water-dependent conditions (e.g., water speed, food availability, river structures) could determine different type of fish reactions. In fact, due to the fact that important intraspecific habitat segregation for water depth exists in this species (i.e. the larger individuals using much deeper habitats than did the smaller fish), our study needs to consider a large quantity of different situations. Because habitat segregation seems to be a direct consequence of the respective rank of fish in the hierarchy, larger dominant individuals being in the deepest habitats, it is important to evaluate possible difference in social and feeding behaviour between age classes mediated by habitat structure. The present study include the analysis of different aspects of the behavioural responses of graylings as regards flyfishing, mainly considering:

characteristics of the river sector (i.e., speed of streams, depth of the site). Food availability, directly

determined by the river structure, is an important factor influencing the feeding behaviour of grayling. As a typical rheophilic species (all the age classes prefer a narrow range of high water velocities) and because of similar age classes preferences for relatively similar substrates, evident behavioural differences need to be evaluated as a function of specific habitat features;

social typology (i.e., solitary individuals vs. schooling);

insect emergence (i.e., behavioural responses before, during, after or far from insect emergences). In the first three situations, the amount of the emergence is also considered;

flyfishing equipment characteristics. The reactions of graylings are evaluated as regards different, opposite dry fly types (e.g., exact imitation vs. fantasy fly) presented at the same time on the same fish, tip diameter (e.g., the same dry fly mounted on two different tips is presented consecutively to the same fish);

grayling response to a fly (e.g., the manner in which the presented fly have interested an individual, evaluated by the movement it did towards the imitation, ranging from absence of movements to surface refuse).

grayling activity patterns by day time and stream/river structures.

grayling diet under different conditions of fly emergence.

When possible (e.g. when the depth or the velocity of the river and the light conditions allow to the use of a video recorder, several recordings of the solitary individuals and schools will be tried under different conditions (e.g., fly emergence, dry fly presentations). We hope that the analyses of the grayling behaviour recordings could help us to solve some of the "ambiguous reactions" of this species when faced to a dry fly.



First remarks

We collected several samples of grayling diets (by a stomach pump, and successively conserved in phor-mol), trying to gather them when the conditions of food availability were different, i.e. no insect on the water surface vs. insect emergence vs. drifting spents. The analysis of the grayling diet at the end of the field work will give us useful information on feeding habits and behaviour, as well as on the best approach to successfully catch them. In fact, because several different dry flies are presented under different conditions of natural food availability, it will be possible to detect possible correlations between food availability rates and most successful dry flies (e.g., emergent vs. imago, mayflies vs. terrestrials, exact vs. generic imitation). At present, it is impossible to identify a "psychological" portrait of feeding graylings (this will need a lot of observations and several test replications) but it seems that, depending on the combination of several factors such as river structure, social interactions and food availability, the grayling behaviour can shift from a "rationale" and quite predicable conduct to some decision patterns difficult to understand and correctly interpret (at this stage of the analysis).

It is also evident that, dependent on the condition of food availability (due to several different factors), feeding behaviour of graylings can range on a wide array of preys, corresponding to different interests for extremely dissimilar dry flies (e.g. from a large terrestrial to a small emergent).

Under different conditions of stream speed and water turbulence we started several tests on the reactions of graylings as regards tip diameters. Also if the information we collected have to be considered as totally preliminary, it seems that nylon diameters only affect graylings under very specific water conditions, types and sizes of dry flies. We are especially focusing our attention on the structure of the river portions as an important factor determining the rhythms of grayling activity, that is, why graylings occupying close or neighbouring sectors of the same river can contemporaneously show different feeding activity?

Future investigations

During future years we will especially focus on the:

- importance of the exact imitation vs. fantasy fly, depending on the water features, depth characteristics and amount of insect emergence
- percentage of catching exit (compared to a more classical flyfishing approach) when drastically reducing the number of dry flies. That is, the importance of size and basic colours vs. a large spectrum of

possible choices: do we need a so large amount of flies to catch (and obtain refuse by...) few graylings?

- grayling responses to nylon characteristics: does it represent a factor really changing catching rates? If yes, under what conditions?

- the effects of the river structure on grayling rhythm of activity

- study of social interactions, feeding behaviour and school response to flyfishing pressure by sub-aquatic video recordings.

We will inform the members of the Grayling Society of the best results we obtain in the course of our work...

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Yellowstone Paradise

Dave Martin

During August 2004 I visited a fly fisher's paradise in the United States where I also caught Arctic Grayling. A few years ago I wrote a piece for 'Grayling' in which I described my first ever Arctic Grayling which I caught in Alaska. This summer was my first opportunity since then to reacquaint myself with the Arctic Grayling.

I read with interest the recent articles in 'Grayling' by Rod Calbrade ('*American Grayling Revival*', Winter 2003/4 edition) and Tony Bostock ('*Rise and Fall of the Michigan Grayling*', Summer 2004). Without doubt catching a Grayling in the lower 48 states of the US is a VERY rare event and very few places give you a realistic proposition of catching one. I found one place that does.

The Dan Bailey 2004 catalogue describes Yellowstone National Park by saying that 'there are few places on earth that offer an angler the opportunities that can be found in Yellowstone Park. Abun-