Virtual Fisheries Forum 14/06/2022 (An Introduction To Riverfly Monitoring).

Q&A session

Q. Would wild fish consuming human foods like McDonalds and bread affect their health/habits over time and would access to this kind of this diet affect fly-fishing sport?

A. (Arron) Answering from the perspective that I am an entomologist and not a fish ecologist I would say fish having access to/consuming non-natural human food items will definitely condition them over time to have changed feeding habits. This will negatively affect fish health and fly-fishing sport I would suspect as the fish become conditioned to eat less river flies/insects.

Q. Are there macro inverts that thrive in 'polluted' environments, e.g., dragonflies?

A. (Arron) Yes, the BMWP scoring system irons out which groups of insects are more tolerant to less favourable conditions. Things like fly/midge larvae, crustaceans and such like are seen as “low scorers” on the BMWP as they are quite resilient to lower dissolved oxygen levels but are, however, still sensitive to presence of certain chemicals. You mention dragonflies and they can survive in quite low dissolved oxygen levels but still need clean water. It is tricky to use the word “polluted” to describe water quality as water can be ‘polluted’ but still be a high quality to support invertebrates. The purpose of the BMWP is to use indicator families of invertebrates and when present in a river we can get a good idea of if the community is built up of 'pollution' tolerant insects. Anything which scores below 5 on the BMWP is able to tolerate more impurities. There is also the Urban Riverfly indicator system which is designed to go a step further from standard riverfly by adding/removing indicator species to get an overall indicator that is

more responsive to specific pollutants within an already lesser water quality environment.

Q. How will the new EA triage system affect the EAs response to ARMI trigger events?

A. (Arron) I cannot comment on the EA triage policy changes themselves, but from my own personal views on riverfly it should not effect the response. The way the riverfly scheme works is any reports of pollution/concern based off riverfly findings are put through the regional Environment Agency ecology contact. Reporting out of working hours for the ecology contact would be picked up the next working day and a kick sample could be performed but whilst the ecology contact is not in office outside 9-5, out of hours reports will not be acted upon as there is nobody else who would go to perform a kick sample. Riverfly is there as an early warning system, if there is evidence of pollution visually or from smell and concerns towards fish, every member of the public is entitled to report incidents to the EA hotline which would be responded out of hours if its reporting pollution and not a riverfly score.

Q. Any plans for looking at parasites and disease as indicators in riverfly?

A. (Arron) No, not in riverfly as it is designed for the general public whereas parasites and disease is more specialist knowledge/skill in terms of identification. If you wish to learn about fish parasites and disease, there is some great resources on the Institute of Fisheries Management website and I would suggest contacting me after the meeting to discuss it more.

Q. Is it just EA staff that you are training up for the extended riverfly scheme? I haven't been involved in Riverfly yet, but I can do family level ID and would be interested in finding out more about becoming a certified riverfly trainer.

A. (Arron) Anyone can become a trainer, most who are do it in their spare time separate from their line of work. To become a trainer, you are watched by another already certified trainer as you deliver a training course giving presentations and practical riverfly demonstrations etc. Contact Alex or Trine at riverfly to register your interest. (Address is info@riverflies.org). Main Riverfly partnership website.

Q. Snails, limpets and bivalves are included in Extended Riverfly. Sampling in River Wensum produces very few live ones but many empty shells. Has anybody observed this and may offer a reason?

A. (Arron) My thoughts are the empty shells could have been there for a long time but if you have been regularly monitoring the same sites and notice the number of empty shells increasing each visit then obviously, they are dying. It could be they are dying because of water quality or other predatory organisms eating them whether native or invasive, but without more information it is impossible to say precisely what the cause is.

You can look up the Environment Agency's water quality results for the River Wensum HERE which may suggest an issue as to why they are dying or not.

You could do some investigations yourself like seeing if there is anything inflowing into the river upstream or slurry run off into the river during heavy rainfall events or invasive species issues in the catchment to build up a better picture of what is adversely influencing the environment. Signal crayfish are known to predate upon bivalves, so they are a strong possibility if present. Bivalves are very sensitive to specific chemicals also so we would need to follow this up to discuss in more detail.

Q. Asiatic clam is invasive species and not included in Extended Riverfly. Any reason why?

A. (Arron) Good question. I found an Asiatic Clam myself recently, I am guessing that the creators of the extended riverfly were happy with the 33 indicator species already included in terms of their responsiveness to environmental quality factors.

If you do find an Asiatic Clam however, it is important you report it through i-Record.

Q. You mention England and also Pembrokeshire, so this does extend to Wales and Scotland?

A. (Arron) Riverfly originally started in England, the EA has funded it for 6-7 years for England. There are now some groups set up in Scotland and Wales albeit limited in coverage by resources/staff. You can get in touch

with Riverfly at info@riverflies.org and find out where the Scottish and Welsh riverfly groups are located.

Q. How do you sample deeper rivers that are say over 1M deep?

A. (Arron) For the purpose of general riverfly sampling protocol, it is designed to be safe for the general public to do. Therefore, we never recommend anybody to get into a river over knee to waist deep. It is a case of finding a shallower part of the river to kick sample from or not sampling. Generally, there will always be a spot somewhere to get a safe sample collected. The way the EA would sample from a deep river would be an ALS sample or they would take a sample from a bridge but these methods are not suitable to a citizen science scheme.

A useful resource is the Environment Agency Fish Data Explorer where you can drop a box around any river in England and see the EA's collected fish/ecology data for that or a nearby location which could offer substitute for where it is unsafe to perform any sampling yourselves although the data coverage with this tool is not fully comprehensive.

Q. Do we need to buy the equipment for riverfly and if so, what is the cost?

A. (Arron) There is 2 ways of obtaining equipment. If you are joining a riverfly hub which is ready established, they will have equipment for the group to use/share. The other way is to buy it as an individual from NATURAL HISTORY BOOKSTORE. Once contacting your local group through Riverfly, you will find out which one it would be.

Q. Do any riverfly monitors combine riverfly with water chemistry testing? Any contacts for those who do both?

A. (Alex) Mersey rivers trust have a river guardian scheme where I believe they do both. I would guess a lot of the rivers trust organisations do this.

A. (Arron) Freshwater watch is one initiative where water chemistry testing is combined with riverfly. Any independent groups that are taking it upon themselves to do both simultaneously will need to purchase their own water chemistry testing equipment. Consistency of methodology between groups can be an issue but there are good case studies also of this kind of citizen science activity highlighting real

problems and having positive influence. Worth checking out the Catchment Monitoring Cooperative work as they are devising the best universal methods Here.

Q. After a major pollution incident how long can it take for the invertebrate community to recover? Are there any case studies that show recovery progress over time?

A. (Arron) Usually they bounce back fairly quickly, some within weeks or a few months. The invertebrate data we collect through the BMWP shows that following a major pollution incident where total wipe out occurs, in a few months there are numerous invertebrates established again where there aren't persistent problems. If there is constant pollution or long-term problems impacting the invertebrates, they may not come back in strong numbers at all, the industrial revolution around Manchester is an example of this.

Key contacts from this forum meeting:

- Alex Clegg (Angling Trust National Angler Engagement Manager) alex.clegg@anglingtrust.net
- Sam Hubbard (Angling Trust National Angler Engagement Officer) sam.hubbard@anglingtrust.net
- Arron Watson (Environment Agency Monitoring, Analysis and Reporting Officer) arron.watson@environment-agency.gov.uk