



**Hampshire's Chalk Stream Headwaters Forum  
Monday 5<sup>th</sup> October 2009**

**CONFERENCE PROCEEDINGS**

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## **Welcome and Introduction – Lord Selborne, Vitacress Conservation Trust**

“Welcome to those here at the Forum for the first time and to those returning, as I can see many familiar faces in the audience. This is the third annual Chalk Stream Headwaters Forum that has been held. In the first Forum in 2007, one of the issues that we discussed was mustard oils, and we will be having an update from Melanie Dixon on this topic later on this afternoon. A theme that emerged from the first Forum was that we need to ensure that practical science is applied in a way that is both useful and relevant to land managers on the ground. It was through this theme that the Bourne Rivulet Initiative was based.

The second Forum in 2008 focussed on the issue of phosphorous in all of its forms, both in sediment and in the stream. This issue will also be covered today in a talk by Paul Withers from ADAS. One of the main outcomes of the Forum last year was the Upper Itchen Initiative, which Graham Roberts will introduce.

We have had two very productive years of the Chalk Stream Headwaters Forum, and have advanced the agenda for this conference considerably. I hope we will have a lively discussion and informative discussion session this afternoon.

I would like to introduce our first speaker of the day, Debbie Tann from Hampshire and Isle of Wight Wildlife Trust. Debbie has been with the Trust over 11 years, and has been the Chief Executive for two years. Thank you for joining us Debbie, over to you.”

## Presentations

- **“Gin Clear or Clear as Mud – The Future of Chalk Streams”** by Debbie Tann, Hampshire and Isle of Wight Wildlife Trust

This presentation provided an introduction to the work of Hampshire and Isle of Wight Wildlife Trust and the importance of chalk stream habitats using the Winnall Moors HLF programme as a flagship project and case study of the Trust's commitment to conserving and restoring the River Itchen.

The pressures put on chalk streams and future issues were discussed, including water abstraction, development, climate change leading to low flows, algal blooms, urban debris, alien species, poor management and access and recreation.

Work has been started on the Barton Carrier to improve its diversity and a bypass channel has recently been excavated to improve the dynamics of the carrier and create a more meandering profile. Gravel has also been put into the carrier to decrease the depth and provide habitat for a range of species.

The H&IOWWT believe that wildlife and the environment are vital to our quality of life and need to be safeguarded for ourselves and future generations. Wildlife is under constant pressure but due to the economic climate there is a worry that public spending will be cut and public bodies could be facing up to 50% cuts in budgets.

- **“Chalk Streams for the 21<sup>st</sup> Century – The Challenge Facing us Over the Next 100 Years”** by Tom Davis, Test & Itchen Association

This presentation provided a look at the next 100 years for our chalk streams and the threats they face including climate and population growth. Threats included increased abstraction rates, reduced flows, excess nutrients and water temperature increase. Potential actions and methods of protection to combat the threats were outlined and discussed.

The presentation concluded with the identification of several fundamentals that need to be put in place to face the issues that are ahead of us. (i) The public needs to be persuaded to use less water, so we need to educate and inspire them to do more. (ii) We need a long-term, holistic mindset in order to see the bigger picture when thinking about water resources and not have a single issue focus e.g. fishery interests. (iii) We need a streamlined, effective and responsive bureaucracy to avoid duplication and ensure that the relevant organisations are working in partnership to be decisive, practical and consistent. (iv) We need to work with our chalk streams, not fight against them in order to reach the 22<sup>nd</sup> century with them intact. (v) The key message and theme above all others is the maintenance of flow.

- **“The Bourne Rivulet Initiative”** by Gail Taylor, University of Southampton

The Bourne Rivulet Initiative was formed following the first Forum in 2007. The Bourne Rivulet is a major tributary of the River Test, one of the world's leading chalk rivers. The headwater has been impacted in recent years due to intensification of several activities. By working together, the BRI group have been able to begin to unravel the issues and activities affecting the Bourne Rivulet.

The main aim of the Bourne Rivulet Initiative is to engage with all agencies, stakeholders and representative groups interested in the Bourne Rivulet, to identify the 'ideal state' of the Bourne Rivulet and develop an action plan for multi-purpose long term management. The Bourne Rivulet Initiative also sets out to develop an approach which can provide an exemplar to apply to other chalk stream headwaters.

The membership of the initiative is extremely wide including angling groups, landowners, Southern Water, Vitacress, Vitacress Conservation Trust, regulatory bodies, Hampshire and Isle of Wight Wildlife Trust, the University of Southampton and the local community. The current objectives of the Bourne Rivulet Initiative are to set out what constitutes 'good environmental status' for the headwater, along with identifying current factors influencing that status e.g. discharges, abstraction, sewage, surface water.

The Bourne Rivulet Initiative has produced a working definition of what constitutes 'good environmental status' of a chalk headwater using targets for the macro-invertebrate community, pollution and fish populations. The initiative has recently secured funding from the Vitacress Conservation Trust to conduct quantitative fish population surveys using electro fishing at 3 locations along the Bourne, twice a year. It is hoped that this will continue as a long term study. A PhD is also planned, that will look at improving the

understanding of phosphorous within the Bourne Rivulet system. The findings of this study will help to further understand how we can solve Phosphorous issues elsewhere by using the Bourne Rivulet as an example.

**Question from Peter Evans,**

*Are the Environment Agency involved in funding?*

**Answer from Gail Taylor**

We have had an offer for co-funding for that project from the EA so they are interested and we are just discussing how that will be managed.

- **“The Upper Itchen Initiative”** by Graham Roberts, Hampshire and Isle of Wight Wildlife Trust

The Upper Itchen Initiative was set up following last year’s Forum. There is an urgent need to engage and educate a wider audience to be captivated by the issues facing chalk headwaters using feature interests and iconic species do this.

The main project area is focussed on Candover stream, with the Arle and Titchborne confluence at Ovington identified for initial investigations. The only viable population of native crayfish in the Itchen catchment is found on the Candover, and the population has doubled in the last few years.

The remit of the Upper Itchen Initiative is to establish a baseline of condition indicators and establish 'good environmental condition' parameters. Representatives on the stakeholder group include landowners, EA, NE, H&loWWT, watercress industry, Test & Itchen Association, fish farms, WWF, and the University of Southampton.

The initial issues highlighted in the Upper Itchen include low flows, water quality, lack of invertebrates, *Ranunculus*, predation and development. Rivers can recover quickly, but we need to research the issues and understand them to ensure that we get the solutions right. We should all play a part in safeguarding these amazing rivers.

- **“The Elephant in the Stream – The Management of Phosphorous in Chalk Streams”** by Paul Withers, ADAS

Phosphorous is a key issue with chalk streams and the responsibility is currently shifting. Following research on the Hampshire Avon, DEFRA have launched a new 5 year initiative on the Hampshire Avon to identify cost effective management options.

Case studies were used to highlight the different methods of Phosphorous input into river systems. The results from these studies show that track, roads, and septic tanks contribute to a higher amount of Phosphorous entering the river system than agriculture.

Chalk streams are fragile ecosystems that need careful management, and that increased Phosphorous input does cause problems. We need to consider further upstream than the perennial headwaters (eg the impact of septic tank soakaways) as Phosphorous inputs are very complex and need to be understood before tackling them.

- **“Trout that Glow in the Dark’ – Survival Rates in Stocked Wild Brown Trout”** by Dylan Roberts and Dominic Stubbing, Game and Wildlife Conservation Trust

This presentation was based on a case study on the Candover Brook of stocking with native Brown Trout. Each year, 1 million brown trout are put into UK rivers to support angling. There are two types of brown trout stocked into rivers – triploid and diploid. Triploids have 3 sets of chromosomes and are infertile and cannot interbreed with native trout. The Environment Agency have recently decreed that by 2015 all brown trout must be triploid, but there is little research to support this

In the Candover brook, a study has been conducted looking at survival rates of Brown Trout from wild stock released as fry using the marking chemical calcein, which glows under certain light. The fry are dipped into the calcein, which is absorbed through the gills and binds with calcium in the bones. River sections are then electro-fished after 12 months and the fish scanned for calcein. The study found that survival rate of trout eggs in hatchery is over 50% and compares well with fish farm survival rates. Initial results of this two year study show that the densities of the marked wild trout as a whole were encouraging.

- **“Potted Shrimps and PEITC – Gammarus and Watercress Harvesting”** by Melanie Dixon, University of Southampton

This presentation provided a summary of the findings of the PhD that Melanie has been working on for the past 3 years which was prompted by the deterioration and subsequent improvement of water quality in a channel of the Bourne which takes most of the watercress farm salad wash and packaging effluent.

The investigation focussed on the effects of the chemical PEITC (an isothiocyanate released by watercress during cell breakdown), on the key detritivore *Gammarus pulex*. Gammarus are a mobile species which live in the gravel beds of chalk streams and are usually present in their thousands in healthy streams. The study set out to test just how site changes had brought about a strong recovery.

A study in the laboratory found that PEITC had an effect on breeding Gammarus. The chemical caused more than 80% of pairs to separate after 2 hours. The pairs were able to reform after going into clean water after PEITC exposure, but repeated pair disruption would reduce the success of breeding. Since 1995 the watercress farm have put in several methods to increase the quality of the discharge water including a settlement tank, chlorine wash ceased, and most recently, with significant success the redirection of factory wash water through watercress to allow PEITC to dissipate.

**Question from Lord Ashburton:**

Your research first looked at breeding but then looked at survival and the toxicity of PEITC?

**Answer from Melanie Dixon:**

In a lab you can work under very controlled conditions, which makes it possible to look at breeding patterns, pairing and separation. The acute study looking at survival rate and toxicity was on site at the watercress farm so I wasn't able to look at the breeding conditions due to time.

**Question from Jim Glasspool:** Did you measure PEITC in the field to get a value within the wash water?

**Answer from Melanie Dixon:** Another part of my PhD which I am still working on is to look at the methods of measuring PEITC in the field as it is difficult to do.

**Lord Selborne**

“Thank you to all of the speakers for their thought provoking talks. The role this afternoon is for all of us to participate so we look forward to hearing all of your thoughts. During the lunch break, please remember to fill in your post its and stick them at the back of the room”.

## **Panel session**

### **Members of the panel:**

**Melanie Dixon, University of Southampton**

**Paul Withers, ADAS**

**Debbie Tann, Hampshire and Isle of Wight Wildlife Trust**

**Dylan Roberts, Game and Wildlife Conservation Trust**

**Gail Taylor, University of Southampton**

**Tom Davis, Test and Itchen Association**

**Lord Selborne, Vitacress Conservation Trust Patron**

### **Introduction from Tim Nevard:**

“The feedback from the Forum last year was that people would have liked the opportunity to have more interaction with the speakers. Therefore, this year we have our speakers on a panel at the front of the room and we will be discussing the questions posed by people’s ‘post its’, as well as others from the floor and asking for responses from our speakers.”

### **QUESTION 1 - Access**

#### **Question from Rose Timlett, World Wildlife Fund posed to Debbie Tann, Hampshire & Isle of Wight Wildlife Trust:**

*“We’re asking the public to value water to protect special habitat. Is allowing more access to rivers a key step in increasing value of water? What is the balance between wider access, better management and protected habitat?”*

#### **Debbie Tann, Hampshire & Isle of Wight Wildlife Trust:**

That’s a very good question and an interesting discussion topic. We are all aware of the CROW Act and whilst we welcome and invite people into the environment because if you don’t experience nature you won’t want to protect it, we are seeing negative impacts of access on our land. Our attitude at Hampshire and Isle of Wight Wildlife Trust is that all access should be responsible access. The issue is that there simply isn’t enough public access land available to the wider community and so more vulnerable sites that are special for wildlife have to take all of the pressure. We are striving for the provision of green infrastructure in new developments in order to provide amenity land for residents. There hasn’t been a new country park opened since the 1980s and so the local authorities and developers need to put land forward for public use. It is a difficult balancing act but Hampshire and Isle of Wight Wildlife Trust are trying to work with the local authorities to take the pressure off our wildlife reserves.

#### **Tim Nevard, Vitacress Conservation Trust:**

Tom how do you feel about that? We’re going to be asking the public to play an increasing role in order to put back rivers into favourable condition - so do we have to provide access?

#### **Tom Davis, Test and Itchen Association:**

The key drivers must be conservation and protection. If increased access will provide problems for nature conservation then we need to make the access more responsible. Access doesn’t have to be physical or linear, it can be an intellectual engagement or achieved by the use of crossing points over the river, or points of enhanced access with associated interpretation. Another issue is what the impacts of increased access would be on angling – there is a potential conflict there. To sum up, there probably is a trade to be done but it shouldn’t be uncontrolled access – let’s look at the access that does already exist.

#### **Tim Nevard, Vitacress Conservation Trust:**

Rose do you have anything to add to that?

#### **Rose Timlett, World Wildlife Fund:**

It all comes back to the key thing - people. The reason why people don’t understand the water efficiency issues is that there is a disconnection between the water in their homes and the water in nature. WWF are taking policy makers to river banks to give them a ground experience and show them that sustainability is required to protect nature, and is not just for its own sake.

**Warren Gilchrist, Test and Itchen Association:**

Debbie talked about responsible access and it is one thing to have walks along a river but what happens in practice is that dogs come along for the walk too. This clearly needs to be measured in the balance in relation to more open access.

**Tim Nevard, Vitacress Conservation Trust:**

I would like to ask how many people in this room know about green infrastructure? (Less than half). Debbie, please could you explain what the term 'green infrastructure' refers to?

**Debbie Tann, Hampshire & Isle of Wight Wildlife Trust**

Green infrastructure is a new term for planners, but it's certainly not new to ecologists. When you plan a new development, you put in infrastructure to provide the new housing; roads, shops, schools. Providing green infrastructure is about responsible planning, and provides places for people to go, buffers special surrounding habitats, provides flood relief. We are hopeful that due to the new policies regarding green infrastructure that are in the South East Plan, the local authorities will put in new areas for people to walk their dogs. Dog walkers are no longer allowed in recreation spaces, which then pushes them into nature reserves and rivers.

**Lord Ashburton KCVO:**

As long as fishing rights exist they have a value, but they can easily be devalued by excessive access.

**Debbie Tann, Hampshire & Isle of Wight Wildlife Trust:**

What we must not forget is that we need to inspire people, so the issue of access will always be a balance.

**Tom Davis, Test and Itchen Association:**

The 'natural' chalk stream is different to what we see today. The biodiversity we see as under pressure now is a consequence of pressure and management by man - milling etc. Today the only economic income to provide rivers is from angling.

**John Bass, Wessex Chalk Streams and Rivers Trust**

I have seen honey pot sites that are managed specifically for high numbers of visitors to protect wildlife areas. There is more scope for those types of sites with visitor centres and interpretation.

**QUESTION 2 - Phosphorous**

**Question from Peter Evans:**

*Essentially this question is about the movement of phosphorous through aquifers and the potential for phosphorous to move through aquifers and appear somewhere else. Is that an issue that is becoming more obvious? It is important that we understand the sub-surface flow and mobilisation of phosphorous in gravel.*

**Response from Paul Withers, ADAS**

Traditionally phosphorous contamination at ground level has not been a problem as soil organic matter can bind phosphorous. Lately we have been finding phosphorous contamination in groundwater but this is only a problem in localised areas. There are theories as to why this might be happening, including septic tank leakages and manure holding lagoons. There are isolated cases where groundwater phosphorous contamination could be a problem, one of which may have been found on the greensand areas of the River Avon. It may be that the large amounts of phosphorous used in agriculture since the war may have saturated the system, causing the phosphorous to show up in the groundwater.

**Peter Evans:**

I think the Environment Agency need to look at their discharge consents. There are numerous diffuse pollution problems that may arise in these areas. For example large compost heaps on the flood plain. Most of the chalk stream headwaters are on gravel and my question is; is it not likely that you would get some phosphorous permeation through the gravel which would then appear elsewhere.

**Paul Withers, ADAS**

On gravel, the answer could be yes, phosphorous may travel through, as the gravel has no capacity to retain it. However, some work on sandy soils has shown that even with saturation of phosphorous they couldn't get leakages. In order for high levels of phosphorous to be detected, there needs to be constant high level of phosphorous being released within a localised area

**Peter Evans:**

Should we be looking at more than just the discrete discharges in these head waters, or more diffuse problems as there is a common factor of fairly shallow water and a gravel substrate within the rivers.

**Tim Nevard, Vitacress Conservation Trust:**

We have been shown today that 61% of all phosphorous pollution is household generated. Will this produce the levels of concentration that Peter would suggest are passing through the geological strata?

**Paul Wither, ADAS:**

Agriculture puts in a proportion of the phosphorous load, and all of the work we have conducted to date suggests that household sources are a more important source than agriculture. However, you would need to look at the particular catchment to understand the concentrations and proportions of phosphorous input from different sources.

**Peter Evans:**

In the headwaters, the proportions of household phosphorous input will show as less because the sewage treatment is lower down in the catchment. The Bourne is suffering as it has an emergency pumping system so local concern about extra point sources of P

**Paul Withers, ADAS:**

All of the research shows that although you don't have sewage treatment, you do have septic tanks which don't contribute much phosphorous individually, but collectively they contribute a lot. Also, timing is important. The agricultural run off mostly occurs during winter when there is not much biological activity within the river and levels are generally higher. The phosphorous from households is all year round, and at times of high biological activity, therefore having a greater impact on the river. We all have a responsibility as we all contribute to the problem.

**Tim Nevard, Vitacress Conservation Trust:**

It seems that the solution isn't a 'one size fits all' – it seems to depend on the sources of phosphorous. This being the case, how do we define and tackle the issues e.g. Southern Water issue in St Mary Bourne?

**Paul Withers, ADAS:**

The only way is to walk the catchment take systematic samples in order to identify what is going on. CEH have developed a methodology to quantify what the phosphorous contribution from each source is. The methodology also measures the proportion of time that each source is contributing phosphorous. The only way to fix the problem is to gather more data in order to understand the phosphorous source.

**Peter Evans:**

I agree entirely – one of the problems is finding out who is contributing the phosphorous, and one of the important points is the temperate variability of when and how much phosphorous is coming into the river. We know what the impacts are in principle, but we need the actual data to confirm it.

**Tim Nevard, Vitacress Conservation Trust:**

So where is the starting point for that?

**Pete Shaw, University of Southampton:**

We need to look for funding and set up a PhD.

**QUESTION 3 – Diffuse pollution and problem solving**

**Question from Michael Malyon**

*This question is regarding the effluent problem on the Bourne rivulet. We've being told that the water quality is getting better on the Bourne. The short term effect is that there is a huge amount of water coming down the water course, but what about the longer term effects?*

**Response from David Bone, Southern Water:**

For those that aren't familiar with the issues, St Mary Bourne has suffered from ground water flooding from sewage. Southern Water has been funded by OFWAT to stop the contamination of foul water. We re-lined the public sewer in order to seal it so that it is no longer being infiltrated by groundwater. However private sewers are leaking significant levels of groundwater into the public system so we need to investigate what happens with the groundwater and that study needs to be led by Hampshire County Council as they have the

powers to get private owners to fix their drains, whereas Southern Water does not have that power.

The Environment Agency needs to undertake a strategic overview and we need co-operation of the local authority, Environment Agency and Southern Water, working in partnership to deliver. Southern Water need to remove flooding risk to properties and we have a short term solution which is to formalise what happens at the moment. Sewage is tankered to the treatment works when the groundwater reaches sewer – but there is an overflow system to the river which is used when the tankers cannot keep up to stop flooding. In previous questions, the difference between winter and summer was discussed. Most water infiltration will happen in the winter when the sewage will be relatively dilute so the environmental impacts will be insignificant. In summer, the groundwater levels will be lower and so less likely to flood the sewers so hopefully we will get no problem.

**Tim Nevard, Vitacress Conservation Trust**

Perhaps someone from the Environment Agency can comment on this. I also have another question here that could be dealt with at the same time: *“Diffuse pollution in chalk rivers was recognised as a problem in the 1950s and given that they haven’t been dealt with to date and we’re entering into an economic depression, what is the time on the horizon and how will we solve the issue?”*

**Rod Murchie, Environment Agency Southern:**

We have been taking samples from upstream and downstream of St Mary Bourne and we can barely detect the effluent so we don’t consider it to be a risk to the environment or human health. It is difficult to come to a sustainable solution. Our groundwater is not generally in a deteriorating downward spiral. If we look at the average weekly conditions, things are generally OK but dry summer conditions may cause problems. Unfortunately I believe that we are going to have to put up with risks that rising temperatures pose already and that this may finally kill off salmon in our chalk rivers.

**Tim Nevard, Vitacress Conservation Trust:**

You are painting quite a bleak picture Rod

**Rod Murchie, Environment Agency:**

Well yes, it isn’t good. We can all use less water and we need to educate, raise awareness and implement water meters. We need to respect the rivers we have inherited and we need to invest in rivers themselves.

**Allan Frake, Environment Agency:**

Gail said we should “agree an ideal state”. We can extend this to all chalk rivers. Before we prioritise everything else we need to have a clear idea of what we want to achieve. To agree a realistic state would be better – in the 1950s my boss said if we don’t get to grips with the issue we will lose them, and we’re still having the same debate.

**Tim Nevard, Vitacress Conservation Trust:**

But how do we find the ideal state - who does it, and how?

**Allan Frake, Environment Agency:**

There is a lot of confusion surrounding favourable or good ecological status. We haven’t got a vision in our mind of what we are trying to aspire to, so we need to revisit what we aspire to for chalk river management. We all have our interests but we need to focus our view in light of the limited funding available and the potential effects of climate change etc.

**Tim Nevard, Vitacress Conservation Trust:**

We need to apply what money we do have as best as we can. Can you give us some idea of the costs involved?

**Allan Frake, Environment Agency:**

It would cost £128 million to fix the Avon and there is around £6 million available.

**Paul Knight, Salmon and Trout Association:**

There are several issues here, one of which being have we got political commitment to do this? We have a Water Framework Directive and with the relevant NGOs’ 8.5million members behind us to take notice we could tip the balance. Is there a general consensus as to how we deliver the Water Framework Directive? We all agree it needs to be at a catchment level using local expertise. The environment and the environmental service need to be valued, and if you do that and show decision makers that, e.g. if you re-wet uplands (SCAMP project) you can start valuing it and give a better source of water as well as having biodiversity benefits at the top of the catchment. Then you have proof that the resources should be

ploughed in. Until we properly value the environment we won't be able to come up with a solution.

**Tom Davies, Test and Itchen Association:**

I would like to put a question back to Allan - how as a community can we come to a consensus for chalk streams – can we set up a working group?

**Allan Frake, Environment Agency:**

It's a radical change so we need a radical solution. How do we get that to political level?

**Tim Nevard, Vitacress Conservation Trust:**

Do we think it is about ownership and the wider public having an involvement in what happens to our streams and rivers?

**Debbie Tann, Hampshire and Isle of Wight Wildlife Trust:**

Valuing the environment is key and Tom said the only commercial value of our chalk rivers is for fishing, but I don't agree with that statement. There is a very interesting report 'The Economics of Ecosystems & Biodiversity (TEEB) commissioned by the European Commission which contains good discussions and arguments as to what is the value and how can you commercialise it. NGOs will be pushing these messages when we lobby in policies concerning ecosystem services. Unless the environment is valued more widely, we are going to have the same problems arising.

**Dylan Roberts, Game and Wildlife Conservation Trust:**

We haven't progressed very much with this, as the political will isn't there and until it is high on the agenda we are not going to move anywhere. We need to have a radical rethink about the environment and the value we put on it.

**Tim Nevard, Vitacress Conservation Trust**

Dylan, you work with a landowner based NGO, how will your membership feel about trading privacy for increased access to public funds?

**Dylan Roberts, Game and Wildlife Conservation Trust:**

From the angling front there's a huge debate with canoeists and the anglers aren't happy but we need to find a balance. Shooting is different as you can't have people on land where there is shooting. The issues need to be looked at on a local level.

**Melanie Dixon, University of Southampton:**

In general the human population has been too successful at managing our environment for our own good and we are now exceeding our resources. We should be managing our own habitat as a first step. We have to manage what we have and then look at what we can achieve in the wider environment.

**Gail Taylor, University of Southampton**

There is always the untouchable topic of population – we can never discuss the issue of population growth.

**QUESTION 4 – Insecticide pollution**

*We have another question here from John Baker regarding cattle ear tags and insecticide concentrations in our rivers.*

**Dylan Roberts, Game and Wildlife Conservation Trust:**

There were a lot of issues surrounding sheep dip washing into river courses which can cause huge issues in river systems. The concentrations of the chemicals are very low and as little as 1 drop in 30 swimming pools can cause damage to invertebrates and entire crayfish populations were wiped out.

**Tim Nevard, Vitacress Conservation Trust**

Could cattle ear tags cause the same problems?

**Melanie Dixon, University of Southampton:**

It depends on how much of the chemical is in cattle ear tags. Studies with aquatic species would have been conducted to assess the risk but then you need to look at how often the tags will fall into rivers. There are a combination of factors that could lead to pollution and environmental damage.

**Norman McLean, Test and Itchen Association:**

Most people know that the problem with cattle ear tags is pulling out fences as it gives cattle access to the river. The decline of river flies over 50 years has been dramatic so however dilute the pollutants are, something has happened.

**Tim Nevard, Vitacress Conservation Trust**

Do you think it is insecticide related?

**Norman McLean, Test and Itchen Association:**

Yes I assume so. Maybe the half lives of the chemicals used weren't as short as they thought?

**Lord Selborne, Vitacress Conservation Trust**

I'm sure many would agree with Norman. Fifteen or twenty years ago insecticides were used irresponsibly but there is not a biologically secure alternative overnight. They do have a role.

**Nick Sotherton, Game and Wildlife Conservation Trust:**

These products are powerful pyrethroids and are extremely efficient with a worldwide market. You can also get to exceedingly low doses. I am on the environmental panel on pesticides and I will ask the question about ear tags at our next meeting. We were not allowed to comment on the sheep dip issues as it was for veterinary use but now we can get involved as awareness has been raised.

**Tom Davies, Test and Itchen Association:**

There are no means of monitoring the response, but the Riverfly Partnership is growing a good monitoring system through anglers and river fly monitoring. We use 8 groups of invertebrates as centinals and we currently have 55 sites on the River Itchen being monitored, 30 of which are on a monthly basis.

**Paul Withers, ADAS:**

There is a new DEFRA project and one of the three catchments being monitored as a demonstration is the Hampshire Avon. It is a 5 year programme so there is political will. DEFRA are putting money in to see what they can do about diffuse pollution. You can have a say in the design so please get in touch with them. All of the data and the monitoring sites should be put in front of the Advisory Board

**Peter Francis, Riverfly Partnership:**

We use Gammarus as an indicator. A spill of insecticide can wipe out invertebrates. We have a 'gam monitor', which consists of 22 pots. If we find that Gammarus are dead in 11, the EA are called.

**Paul Knight, Salmon and Trout Association:**

To back up what has been said; in Wales we have picked up Cypermethrin from a wood yard twice which involved a £45,000 fine. 35 testing points on Romney over 4/5 years have been able to map pressure points through the Riverfly monitoring network. So we can then map and fix the pressure points.

**QUESTION 5 – Information sources**

**Question from Lawrence Talks, Environment Agency**

*Do we need a chalk river information network and is there an appetite for an International scientific conference?*

**Gail Taylor, University of Southampton**

Nationally, it would assist immensely if we had access to an archive. This has been discussed previously in last year's Forum, but you should talk to Pete Shaw over coffee and we may be able to make progress.

**Pete Shaw, University of Southampton**

Southampton University has an archive and special collections section and we currently have an historic rivers archive from the Environment Agency and the National Rivers Association accrued through Terry Langford. The collection includes biological and chemical records dating back to 1902. There is a network of contacts, locations and other archives. The University of Southampton have the expertise to drive it forward and we could provide a hub for information on chalk rivers.

**Gail Taylor, University of Southampton**

We've been struggling with the resources required to set up such an information network. Internationally there may be scope to arrange a conference. One would be to have an international meeting, the other way would be to go through to the regulatory authorities to look at more national pressing issues. That may result in a political view for ecosystems services.

## **QUESTION 6 – Chlorine**

### **Question from Peter Evans:**

*Early work by Clare Marsden studied chlorine washing when it ceased and subsequent papers on the internet have shown that chlorine washing is bad for the environment. Going back to chlorine – why don't the Environment Agency take the lessons further? The Environment Agency and the Water Framework Directive are suggesting that the limit for chlorine may have been set too high but the equipment the Environment Agency use isn't accurate enough to monitor the levels. What lessons have we learnt from Bourne rivulet?*

### **Steve Rothwell, Vitacress Salads**

The watercress industry is finite...only a handful of producers use chlorine - and the use of chlorine is controversial anyway as supermarkets have asked suppliers to move away from chlorine washing. The NRA was happy to sign off de-chlorinated water into the Bourne and it was only our own research that showed the water quality wasn't good enough, causing us to move away from it.

### **Tim Nevard, Vitacress Conservation Trust**

Thanks for this Steve. I'd like to take us back a little. A lot of what was presented and discussed earlier focussed on flows, reducing abstraction and reducing use. If each member of the panel were to put forward three most important issues for chalk streams what would they be?

### **Tom Davis, Test and Itchen Association:**

Flows, flows and flows

### **Gail Taylor, University of Southampton:**

I feel that the biggest issue is phosphate

### **Dylan Roberts, Game and Wildlife Conservation Trust:**

Sediment, phosphate and flows.

### **Debbie Tann, Hampshire and Isle of Wight Wildlife Trust:**

Flows and improved connectivity between the river and floodplain in order for it to be more natural.

### **Paul Withers, ADAS:**

Flows, phosphate and sediment

### **Melanie Dixon, University of Southampton**

We need to look at the community use of our rivers and how they need to be used, not restoring to former glory.

### **Norman MacLean, Test and Itchen Association:**

A lot of us come from different backgrounds and most of our interests are common. However, we don't always talk to each other. For the sake of chalk streams we need to talk together.

### **Michael Malyon:**

Humans are the problem and unless we talk about less people we won't get anywhere. There is an interaction of phosphorous, abstraction, sediment – the Bourne has been a very interesting project as it is a microcosm of the problems. A lot of research is now being done but not yet being applied.

### **Allan Frake, Environment Agency:**

No-one has yet mentioned climate change

### **Laurence Talks, Environment Agency**

Flow is a top priority for UK BAP chalk rivers. We have four SAC rivers and the rest are not designated. Only one or two of the rivers have established an ecologically based target flow. The River Itchen has a target flow regime to protect the wildlife of the chalk stream. However, we have no real sense of how much we need to keep in the river to prevent damage to the habitat. CEH Wallingford and the Environment Agency are working to find out what is the flow that will protect the interest of the chalk stream, and give us enough water to drink. Without this data there is no incentive from the water companies to reduce abstraction.

Under the review of consents, different methodologies have been put into place to get targeted flow regime. The lessons taught from these methodologies hasn't always been shared so we're trying to come together to get a consensus from all bodies and water companies. We need to get to a situation where we have a

consensus and a methodology to move forward.

**Robin Lalonde, Test and Itchen Association**

I cannot think of a more appropriate body of people than the Vitacress Conservation Trust trustees and this Forum to put into further progression what has been said today. Apart from our Patron we haven't got anyone from Westminster here and we need to get their ear.

**Closing Remarks - Lord Selborne, Vitacress Conservation Trust**

I have made several observations from the discussion this afternoon, and I am very glad that we came back to a well focussed discussion that was well within the Forum's area and remit to address. The Bourne Rivulet Initiative has shown us a range of achievements that we can take away with us from today. Stakeholders have come together to find out what issues there were on the Bourne and appropriate actions were taken. It is an impressive story and what the Bourne Rivulet Initiative has shown is that the Forum has made a modest contribution to the success of the Initiative. I am confident that the Upper Itchen Initiative will have the same success.

It becomes more complicated when we try to solve everything from population crisis to water use habits – quite frankly this Forum isn't going to make an impact even if politicians come along. We need to stick to a bottom up approach and show that we have made a valuable contribution locally.

Biodiversity issues will be topical when we have an election although the issues surrounding climate change may take over. Time and time again we come back to the same question – do we have the data to prove what is happening to our chalk streams? The data is fundamental, so I would like to say congratulations to the data collectors like the river fly monitoring volunteers. If we are going to address the issues, we must ensure that the government understand so we need long term datasets.

The harsh reality that we have heard today is that the estimated cost of the restorative works on the River Avon is £128 million, but only £6 million is available. We have a Water Framework Directive that cannot fulfil our European obligations. We have to realise that much as we would like an easy solution, it is essential that we take a strategic approach. Surely we should be encouraging every catchment area or stream to come up with ideas about which flows are needed, making sure that the local people have identified what they think are the needs so that the regulatory bodies can look at the impacts. Let us try to identify what we can do in our own rivers and be proud that in the Rivers Bourne and Itchen we have set an example that others should and can follow.

**Closing remarks: Tim Nevard, Vitacress Conservation Trust**

Having listened to the debate today, four key issues have emerged for us to take away and develop before next year's Forum:

1. An overarching need to find effective ways to ensure that flows are maintained in chalk streams.
2. Research on phosphorous is urgently required in chalk stream catchments – we need an exemplar to inform policy and practical solutions.
3. The issue of sediment needs to be addressed through improved agricultural soil management and highway drainage.
4. The success of the grass-roots approach of the Bourne Rivulet and Upper Itchen Initiatives needs to be extended to other catchments.
5. We need to look hard at increased public access to riparian areas and the trade-offs that this will require in return for the level of public funds needed to address the problems we have identified.

Thank you all for your participation and we hope to see you again next year.