

**A brief from the workshop on „Payments for Ecosystems Services: Lessons (PESLES) two local Scottish research case studies in adaptive water management” (10<sup>th</sup> December 2021)**

**Summarized by Stan Martinat and Andy Vinten**

***Key messages:***

- We need to better understand how redundant or semi-redundant structures on rivers are managed.
- Stakeholders prefer their councils to reflect ecosystem services within the council tax, meaning Payments for Ecosystem Services schemes are difficult to initiate where the governmental funding is present.
- We need to better understand what the key barriers are to offering the farmers compensation to influence water management.
- Riparian owners can be concerned about the risks of taking on something new and taking on a legal and managed responsibility. There is a huge need for better legal arrangement templates.
- The private sector is frequently missing in stakeholder partnerships despite evidence that land managers are more interested in doing trades with private business compared to agri-environmental scheme because it is simpler.
- A suitable intermediary for managing weirs and other structures, such as Internal Drainage Boards used in England could be helpful, as long as multiple benefits from ecosystem services are represented.
- The just transition principle is central to discussions with Scottish government for carbon offsetting and is relevant to water as well.
- A more local catchment group approach to funding is needed and could benefit from having elected catchment facilitators.

***Attendees***

Jill Robbie, Glasgow University

Richard Lockett, Independent consultant

Penny Lawson, Spey Catchment Initiative Project Office

Ceri Gibson, Tyne River Trust

Jack Bloomer, Tyne River Trust

Marcus Walters, The Deveron, Bogie & Isla Rivers Charitable Trust & River Deveron District Salmon Fishery Board

Lorrain Hawkings, Dee District Salmon Fishery Board & River Dee Trust

Ruari Kaylor, Perth & Kinross Council, Environmental Health

Sarah Cowie, National Farmers Union Scotland

Nicola Melville, Scottish Environment Protection Agency

Joe Taylforth, Tweed Forum

Antonio Ioris, Cardiff University

Mahath Mangal, Cardiff University

Patrick Jean Martel, Environmental Green Finance Manager, NatureScot

Jack Wooten, Freshwater Ecologist and Anguillid Specialist, Forth Rivers Trust

Hannah Wilson, Perth & Kinross Council, Planning Strategy

On 10<sup>th</sup> December 2021, an online workshop based on the findings from the PESLES project (2017-2022) funded by the Scottish Government's Strategic Research Programme (2016 – 2022), the Rural and Environment Science and Analytical Services (RESAS) Division (1.4.3) was organized by the James Hutton Institute to discuss options for adaptive water managements and the schemes for Payments for Ecosystem Services in two lowland catchments in Scotland (Lunan Water and Loch Leven).

The workshop was structured into three sessions. In the first session, experiences, technical, economic and social science insights on water level issues were summarized. The second session focused on water quality management and pollution issues in two studied catchments. Finally, the third session was aimed to discuss ideas for advancing with innovative ways of catchment management and their transferability.

Circa 20 participants were present at the workshop to discuss the above-mentioned issues. The comments, ideas and observations of participants were summarized in the bullet points below:

***Key messages expanded:***

1) The problems of lowland catchments are quite common across most lochs in Scotland. a lot of catchments across the east of Scotland have a lot of redundant watermills and hydraulic structures present that are not for commercial or practical use anymore. Scottish Environment Protection Agency (SEPA) proposed these structures to be removed to reduce their influence on water flows. **We need to better understand how these redundant or semi-redundant structures are managed and how they can be potentially helpful.**

2) The **social issues around the management of Scottish catchments** and opinions of the stakeholders need to be taken into account and addressed. Particularly beneficial would be to find a suitable intermediary for managing weirs such as are internal drainage boards in England. The idea of delivery of **multiple benefits from water level management needs to be driver of drainage boards formation.** We need to carefully consider who is on the board and how the multiple benefits from ecosystem services are represented. Just a single perspective should be avoided. It's about accounting for the multiple needs and demands for ecosystems associated with water levels.

3) **Alternatives to engineering options (particularly nature-based solutions) for managing water streams** are frequently highlighted among the stakeholders. At the moment, the main actions for managing water expressed by stakeholders were the management of sediment and the removal of vegetation, particularly fallen trees from the water course. The reduction of sediment inputs is obviously needed. But we know from previous discussions and surveys that there was a body of opinion in the catchments that felt that more needed to be done. There is no doubt that options other than hard engineering such as natural flood management need to be considered.

4) Using of **hydro-energy must be kept in mind**, where possible. It is important to talk about renewable energy in the context of necessity of low carbon solutions. We know that some of hydro-energy installations were removed some decades ago and these locations are worth investigation. Undoubtedly, hydro-energy has potential while seriously considering connected risks.

5) Some stakeholders prefer their councils to reflect ecosystem services within the council tax. It seems that **a high trust in the state and state responsibility is emphasized.** This is probably a reflection of the current status quo. Building a community and management of the community when

highlighting stakeholder engagement is indeed helpful. We have to be careful when introducing schemes to avoid that the fears of people that their views are not being prioritised. **PES schemes are harder to initiate in locations where governmental funding is present. It makes the situation more difficult as people tend to say that actually it is the state's responsibility.** One of the things we found was that local stakeholders worried about the legal implications of a management scheme and the blame that would come if flood or drought happened. **People are worried about a legal and managed responsibility.**

6) **Owners of land are gatekeepers for carrying out any form of managed PES experiments.** In our cases, particularly riparian land owners were key and it was challenging to get to mutual agreement. People tend to worry about the risks of taking on something new. On the other hand, people are keen to try out minor changes without too much possible damage.

7) **Water pollution.** We have to be really cautious that we don't let pollutants into the river that could then travel further down the catchment. Particularly in our cases, a lot of new housing developments are not well connected up the system the way they should through 'misconnections' which means that sewage systems can drain into local bodies of water. Communities perceive that there are misconnections and runoff of pollutants. We need to reduce the level of water pollution. **We should focus more on recycling of nutrients, but this is expensive and significant investments are needed.** All of this is wasted resource that has valuable potential. The sediment management is enormously important as it has come up as one of the major options for controlling phosphate and managing and storing water for the future.

8) **The farmer led approach is clearly needed when managing run off of nutrient and soil. It is vital to involve farmers directly in the dialogue. We need funding for a systems approach rather than funding of the individual measures.** We think that the farmers should participate in funding because of the benefits to their crops. Rural Sustainable Drainage Solutions (SUDS) and irrigation ponds are part of the farmers interest and planning for their future and climate friendly farming as well as measures in field in terms of soil management. **A catchment management group would greatly help to delivering a multiple-benefit approach.**

9) **We need a whole systems approach to recognise the unintended consequences.** If you put ponds on farmlands where it's very nutrient rich you increase the greenhouse gases of that area you have flooded quite significantly. Standing waters tend to increase the level of greenhouse gasses. We need to work through these problems and assess them against each other.

10) **A more local approach where the local catchment group has a branch of funding is needed.** Multiple concerns can be assessed locally rather than responding to a broader national or international scheme. Benefits and disbenefits can be picked up much better at a local scale.

11) We need to ensure that the landscape scale is taken into account when asking farmers to consider local measures. **A landscape approach to targeting measures** is something we should think about. Farmers need to be willing to participate and we need an incentive for farmers to participate. For example, if they are willing to participate in measures, they might get advice from advisors and help with designing the project proposal and given ways to implement to measurements on the farm that will give the most benefits.

12) Because **of the difficulties arising from multiple perspectives between multiple different stakeholders**, we need to consider differences in stakeholder perspectives when achieving an agreement on local water management. Stakeholders can mean a lot of things to different people (farmers, boards, fisheries, estates managements, NGOs, communities of interest, organisations, and agencies with responsibilities). However, **the private sector is frequently missing** in these stakeholder partnerships. We need to consider that all the different individuals, groups and organisations have their own constraints, interests, and goals. Moreover, also there are probably very different levels of knowledge and expertise, which tends to give the appearance of inefficient, slow, conflictual, potentially circular processes. In the long term, we believe that by sharing these different knowledges improves the result. Additionally, the sharing of knowledges influences better buy in too. In the long term bringing in all these perspectives is good but in the short term it sometimes challenging. Difference always needs to be resolved, but difference can be productive and stimulating. A healthy debate, good coordination and facilitators are helpful tools. We need to allow some time to learn. Both big and small scale demonstrations are enormously useful. **Governance changes and changes in path dependency in the decision-making are needed.**

13) **Soil and nutrient loss from farmland and its impact on water quality needs to be seriously dealt with.** The value of the loss of nutrient and soil to the farmer is striking, although not as significant as the value of the impact on water quality. A relatively small loss of soil and nutrient can have quite a large impact which farmers often don't recognise. Even big losses surprisingly don't concern some farmers. **There is an issue of valuing a loss of soil and nutrient.** It seems that bringing people together and providing good advice is key, but it requires a lot of time and effort if change is going to happen. Introduction of incentives and rewarding the farmers seems to be the way. We undoubtedly **need better regulation** for underpinning those incentives. There is land manager interest for hosting experimental and pilot schemes to influence water management, but the opportunity costs of removing land from agricultural production are rarely seen to be adequately or reliably compensated. **We need to better understand what the key barriers are to offering the farmers compensation to influence water management.** We need to think more creatively about how we do 'pollutant trading', how a simple mechanism for achieving this with regard to water quality might be useful.

14) We urgently need the change to be implemented. We have been asking people to change and trying to react to changes people have made in the past and the implications of those. There are obvious legacy barriers. **But we also have to bear in mind the future changes like climate change, there being less water around, changes implemented by policy for example for low carbon systems.** Within that we are trying to manage landscapes at a local level. A focus on potential unintended consequences is needed as we don't want to be making things worse. We urgently need to study whether what changes we are doing now are the right thing to have done under climate change.

15) Fears exist about valuing ecosystem services in a financial way and market-based solutions. There may be many unintended consequences (e.g., carbon markets might have a lot of funding going into establishing landowners that already have a lot of money). This has clear potential for creating further inequalities in communities. **We have to ask who benefits from this particular ecosystem? Is it the local community?** Why should communities pay a big land owner to take action which really could be argued as the good governance of land anyway?

16) We need to ask what good land stewardship is. This needs to be **reconsidered in the context of sustainable development.** We should do more to have such conversation with landowners.

17) Private companies are trying to secure land for future offsetting. For big land owners there is this opportunity for big scale landscape projects rather than going into smaller projects. There is a need to get everyone together to develop a solution. Due to the urgency, it is also vital to implement landscape scale projects. **Important thing is the just transition principle that is central to discussions with Scottish government.** The carbon market is voluntary for now for woodland and peatland restoration. Before giving access to carbon units, perhaps there should be an index for measuring biodiversity rather than having the sole focus on carbon. We should also integrate social integration and improvements for local communities in this sort of carbon credit consideration. It has to be taken into account that local communities frequently don't have resources and acquisition ability. Management processes being paid for might even lock in the land, in terms of the equality of the resource the status quo might then become fixed.

18) There are some land owners that wouldn't do anything with their land without the incentives. For example, you might be trying to rewild these lands and incentives might help you achieve this. Sometimes it gives the funding to actually allow for better land management but in some cases it is unavoidable that landowners are just given money regardless. **There is a huge need for better legal arrangement templates** to get everyone at the table and make them feel safe there for these negotiation processes. **We have to distinguish between targeting a scheme on land owners and land managers as the results might be very different.**

19) The codes in the carbon market help make sure the markets are fair. In terms of private investment, experience from the landscape enterprise networks which are business led, shows businesses wanting to buy services from land managers and mediated by intermediaries.. Rather than saying these are the problems that need to be solved and projects we want and funding we need, it starts with supply chain and business risks. Through understanding their risks they start to understand what is needed in terms of their issues. An intermediary is also working with the land managers to see how they might benefit. The benefits need to sit alongside the public funding for public goods. Big companies are investing in catchments because they need to address risks in their supply chains (like milk suppliers in the south of Scotland and flooding their premises). They are one of the potential buyers of services in the catchment. **They found that the land managers are more interested in doing trades with private business compared to agri-environmental scheme because it is simpler.** This private trade is seen as potentially more business like. Recognising that it is another way of funding landscape change but will come up with their own issues in terms of management. One of the things that needs to be ensured is the long term gain that the carbon code has enshrined in it. Question is how to make those guarantees long-term. Still **a very important role of the state is looking at how these private interventions are being coordinated**, and then looking at how these public and private approaches are implemented and might **complement each other.**

20) **Water quality interacts a lot with land management and landscape features.** A lot of conversation is going on about carbon because in a way it is easier to assess when something is done on land. We need more demonstrations, pilot programmes, legal templates and examples of how contracts and trades can be set up. But working on the water quality code in its very early stages.

21) Trying to value different benefits is quite complex for land owners and project developers as each is going through a specific code. It might be appropriate to package everything to be valued. There must be a way how to make the different codes more compatible and have further synergies. Further research is needed here. On the other hand, land managers need something quick and easy to understand the potential scale of benefit they might get in their particular location. Farmers usually don't have the capacity to assess the benefits by themselves. **Some facilitators are needed, who will**

have conversations with farmers, policy makers, researchers etc. But there isn't that capacity at the moment in terms of the people who have the range of knowledge and skills and ability to speak to land manager to deliver this problem in a meaningful way on the scale that is needed. This is a massive gap that needs to be dealt with. Role of facilitators helps to coordinate at the catchment and landscape scale.

At the moment, coordination at the catchment level is still very fragmented. It is challenging to have a good technical and social knowledge in even a fairly small catchment. We could have **elected catchment facilitators** that sit on the council that could be funded to do that coordination.