

## Linlithgow Loch Summit: Summary

Thursday 26 November 2015  
Linlithgow Burgh Halls

**Attendees:** See attached list

**Morning session: 9.30 – 12.30**

### Introduction

1. The chair, Martyn Wade set out the purpose and format of the summit:

**Morning session:** to share an understanding of the key issues with experts, senior representatives from key agencies and community groups. Topics covered included water quality problems, recent management activities and their successes/failures, case studies in Scotland and the barriers to effective catchment management.

**Afternoon session:** to agree what joint strategic action can be taken from discussions with high level management representatives from the national agencies. Focus on what needs to be done to develop and resource a long-term programme of work, and who would be best placed to take forward actions.

2. Dr David Mitchell, Director of Conservation for HES gave a brief summary of the heritage, tourism, social and economic impact of the Loch for Linlithgow on a local, national and international scale. HES is responsible for the Loch. It is part of the Scheduled area and is a SSSI.
3. David stressed that the communities' ambitions for the Loch are important and that the national agencies must all work with the local community to deliver a joined up, long term solution.
4. The water quality in Linlithgow loch has been deteriorating for several years as a result of multiple factors in the surrounding landscape and environment. The impact is already being felt, and the situation will become steadily more serious unless there is a sustained, joined-up, multi-agency effort to address the roots of the problem.
5. There has been useful multi-agency work to date, involving Historic Scotland, West Lothian Council, SEPA and SNH among others, to identify and scope the problem and lay out the basis for a forward action plan.
6. A key issue is that, taken in isolation, purely as a body of water, Linlithgow Loch is not significant enough to trigger the funding that is required from individual agencies. Many organisations, and of course the local community, have a stake but no one organisation is in the lead. The full scale and costs of the task cannot be understood without further analysis and investigation. David noted that it was a key aim for the day was to get a clear direction of travel.

## **Presentations**

7. Copies of all the presentations can be found at the links attached.
8. A brief summary of the content of each of the presentations is included below, with notes re questions the speakers took.

### **Dr Bryan Spears: Centre for Ecology and Hydrology**

9. Brian summarised the work that has been completed at Linlithgow Loch over the last 10 years culminating in the publication of the Loch Catchment Management Plan in 2012.
10. The main problem is the toxic cyanobacteria, the algae blooms. Public health risks are not insignificant, highest in August - September and monitored by SEPA. Management controls are in place.
11. Nitrogen and phosphorus are both required to feed the toxic cyanobacteria. Higher levels of nitrogen and phosphorus may be produced by warmer and saltier conditions in the loch. Heavier rain events as a result of climate change may also cause increased run off from surrounding fields of nitrogen and phosphorus from fertilisers.
12. The SSSI status of the loch is based on the aquatic plants in the loch. There is a trend for suppressed aquatic plant diversity due to low light levels caused by the algae bloom and the ingress of non-native species especially nuttalls pondweed
13. There are two solutions to reduce the cyanobacteria levels: treatment or stopping the sources of the pollution (nitrogen and phosphorus). This is a long term issue; after turning off the phosphorus and nitrogen sources it could be 5-10 years before any improvements are evidenced.
14. Treatment has been successful elsewhere eg New Zealand. However this is an expensive solution (£2 – 2.5m for Linlithgow volumes). There must be an evidence base for the sources of the nitrogen and phosphorus BEFORE any treatment (which we don't have at present).
15. It is possible and desirable to set water quality targets for cyanobacteria.
16. The way forward for Linlithgow Loch:
  - Set priority management areas
  - Manage nutrient load - establish a baseline – how much and from where?
  - Manage alien plants
  - Manage legacy nutrient pollution and estimate potential recovery period
  - Assess, design and implement intervention – set realistic targets

### **Dr Linda May: Centre for Ecology and Hydrology**

17. Linda shared the experience at Loch Leven and the approach taken there over to identify and solve similar issues over 20 years ago.

18. The first step at Loch Leven was to identify the source of the problem and establish the nitrogen and phosphorus levels and sources through sampling along the inputs and catchments to the loch. The source apportionment results at Loch Leven were 39% runoff; 31% woollen mill; 25% sewage.
19. The project involved huge stakeholder engagement and lots of joint working with everyone in the catchment. Farmer buffer strips; septic tanks; local community re septic tank management; sewage works upgrade; local schools & open days; tea towels with key messages about phosphorus pollution all played a part. Cost of approximately £1.2m (mainly the sewage works upgrade)
20. Project also involved close working with local farmers. The local farmers were generally happy to co-operate within their constrained budgets eg sedimentation fences or bunds/ contour ploughing to reduce run off; buffer strips. Often unaware of connection and cause/ effect of their practices.
21. Between 1985 and 2005 phosphorus and nitrogen pollution reduced by 60%. Aquatic plants have been restored to almost 1909 levels; Habitat for wildlife some species had major improvements against the Scottish trend; fish stocks have improved substantially and fishing activity and economic activity improved.
22. Temperatures in lakes are rising at a faster rate than air temperatures are rising. This is an interesting issue, however the nutrient levels are a much bigger issue and should be the focus of attention at Linlithgow Loch.
23. Q&A: Convincing people to do something and get on board can be difficult especially as it may cost them money or affect their income. In this case particular parties were actually prosecuted in the end in order to comply. Communication is key and regular meetings/ updates essential.
24. Q&A: What interventions can be made? Can phosphates be banned? Phosphates in laundry detergents will be gone by 2016. There has not been an alternative that works as well as phosphates for dishwasher products, so this is still an issue currently.

### **Jan Dick: Centre for Ecology and Hydrology**

25. Jan talked through a European funded socio-economic modelling project at Glenlivet Estate that provided evidence on which to base management decisions.
26. The Openess Project [www.openness-project.eu](http://www.openness-project.eu) looked at capital and ecosystem services and mapped the benefits that humans receive from the natural environment. The project focused on the historic, environmental, rural, urban, biodiversity, mountain and wildlife factors and the benefits that each of these affords to locals and other stakeholders.
27. The methodology of the study was explained from the Structure – Function – Service – Benefits – Value.

28. Ecosystem services community exists in Scotland 'escom' (funded by openness project). There may be opportunities/ parallels with Linlithgow Loch for socio-economic studies that could be developed.

**Discussion Session:**

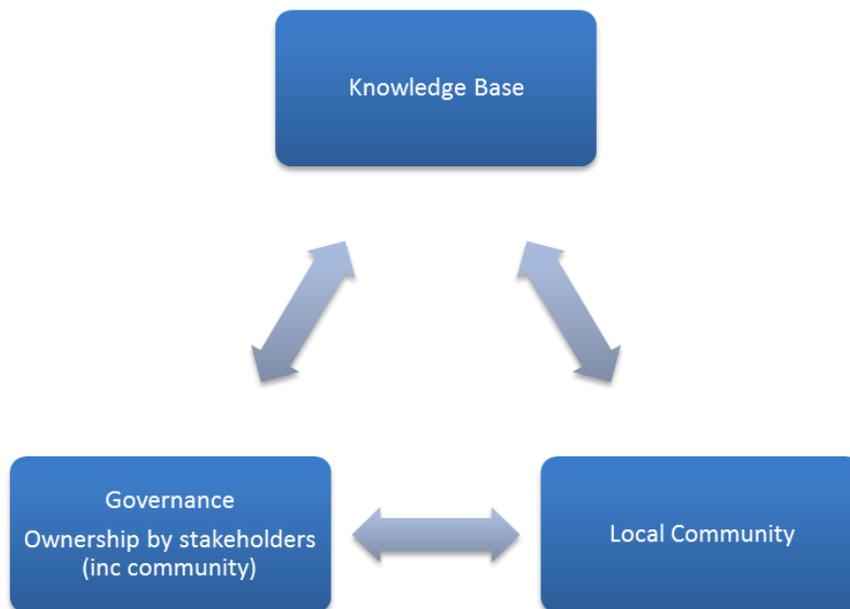
29. What are the barriers to effective catchment management at Linlithgow Loch?

- Source apportionment survey
- CEO buy in and senior support to officers
- Ownership of issues
- Commitment
- Community engagement and support
- Lack of momentum and visibility of improvement
- Governance
- Leadership
- Funding

**Summary of open discussion points (to be taken to afternoon session):**

30. Requirements to move forward:

1. Clear vision on outcome
2. Sound data to articulate the complexity, scale and source of the problem: source apportionment survey should be the first step
3. Identify a lead body to take ownership at appropriate CEO level with strong stakeholder support
4. Appoint a project manager embedded in the community with ownership and commitment or some other 3<sup>rd</sup> party involvement to work with management to coordinate the project.
5. Develop, identify or adapt a forum/ delivery framework
6. Support for community involvement



## Afternoon Session

**Afternoon session: 1.30 – 3.30pm**

**Attendees:** See attached list

### Introduction

31. The chair, Martyn Wade set out the purpose and format of the summit session:

**Afternoon session:** to agree what joint strategic action can be taken from discussions with high level management representatives from the national agencies. Focus on what needs to be done to develop and resource a long-term programme of work, and who would be best placed to take forward actions.

32. MW gave an overview of the morning session and highlighted that doing nothing is not an option, action needs to be taken. Bryan Spears also gave an overview presentation of the morning presentations from the Centre for Ecology and Hydrology.

### Discussion

33. MW summarised the opinions and discussions from the morning session and highlighted what the community groups wanted to get across to the national agencies. MW also stated that momentum needed to be developed in order for progress to be made and how to move forward.

### Agreement on way forward by all present:

1. **Vision:** to stop the algae blooms, through stopping enough phosphorus and nitrogen pollution entering the Loch.

This aligns with the Catchment Management Plan and will reduce public health risk and have additional benefits for wildlife, use, habitats

2. **Leadership:** HES agreed to be the lead body for the project via Director of Conservation with strong stakeholder support from key agencies and other partners.

All agencies present pledged their support and co-operation at CEO and senior management level to HES.

Stakeholders offered specific support to HES in the following areas:

SEPA: commitment to support staff involved at officer level on the ground; analytical expertise and sampling resource; modelling capability resource; SUDS mapping potential resource.

SNH: ecological survey and monitoring skills and expertise; Loch Leven experience; EU funding streams inc ECAF; small financial support; community empowerment agenda

Scottish Water: Long term commitment expressed; experience of stakeholder driven projects eg Glasgow MDVSP; team to focus on change behaviour; Integrated Catchment study due to complete SW/ SEPA/ WLC.

Transport Scotland: expertise and information on A9 road data including salination levels; water framework directive; legacy phosphorus data.

SG: Farmers roadshow specifically about water; local agricultural show involvement and messaging.

WLC: commitment to support staff involved at appropriate level with expertise and links to relevant areas within WLC and local community.

Community: Maximum co-operation including routes to potential funding streams, Linlithgow Planning Forum; and A Plan for the Future involvement.

3. **Knowledge base:** to gather sound data to articulate the complexity, scale and source of the problem. HES stepped forward to lead on finding a way to carry out the source apportionment survey as first step to understand the issues and the contributions.
4. **Governance:** HES to develop a new governance structure and delivery route.
  - New Strategic Management Group to be established to allow organisations to make decisions at the appropriate level. Existing Loch Catchment group to be restructured.
  - Specific task groups to be set up under this Strategic Management Group to deal with specific issues of source apportionment survey; funding; community and education projects etc.

- Ideally, a Project manager embedded in the community with ownership and commitment or some other 3<sup>rd</sup> party involvement to work with management to coordinate the project to be considered/ developed.
- Community Engagement and involvement is critical to move this forward. Visibility of the actions completed and proposed actions to be prioritised.

**Next Actions:**

1. HES to develop a new governance structure.
2. HES to lead on delivering the source apportionment survey.

J Russell, Head of Estates, HES  
21 December 2015