



Bob Bridges
Environmental Quality Division
The Scottish Government
Area 1 H North
Victoria Quay
Edinburgh
EH6 6QQ

Dear Mr Bridges

RE: CONSULTATION ON RESERVOIRS ACT COMMENCEMENT AND REGULATIONS

Q1. Do you agree with the proposed approach to determining when a loch is to be considered artificial or partly artificial? or what alternative approach or definition would you propose?

Beaver dams and the ponds/lochans that form behind them are wholly natural features and therefore cannot be considered to be artificial or partly artificial. Scottish Wildlife Trust and Royal Zoological Society of Scotland would therefore support Scottish Ministers in clarifying the definition of beaver ponds/lochans as being natural lochs.

Q10. Should beaver dams be captured under the 2011 Act? If not, what would you suggest is the best approach to excluding them?

Scottish Wildlife Trust and Royal Zoological Society of Scotland believe that beaver dams should not be captured under the 2011 act and should therefore be specifically exempted from it.

Experiences from Europe (G. Schwab pers. comm.) and North America (M. Callahan pers. comm.) show that the largest beaver dams can impound areas of water in excess of 10,000 cubic metres, but this type of impoundment is uncommon. The complete and catastrophic failure of a large beaver dam leading to downstream flooding and associated damage is a very rare occurrence, with all historic records appearing to come from North America (Butler and Malanson, 2005). Scottish Wildlife Trust and Royal Zoological Society of Scotland have been able to find no evidence of any instances of catastrophic dam failure being recorded in Europe. More frequently smaller beaver dams can be partially washed out as a result of upstream peak discharges, beavers burrowing into the dam structure or human interference.

Based upon a risk based approach both organisations would suggest therefore that all beaver dams impounding water should be considered as being of very low risk and as such there is no need to capture them under the 2011 Act.

Q11. Alternatively, if reservoirs created by beaver activity are not specifically excluded, how can they be managed effectively under the 2011 Act?

Although Scottish Wildlife Trust and Royal Zoological Society of Scotland believe that beaver dams should not be captured under the 2011 act and should be specifically exempted from it, both organisations would wish to make Scottish Ministers aware that beaver dams differ significantly both in construction and effect to artificial dam structures. Beaver dams are constructed from cut sections of tree branches and stems; they are cemented together using sediments dug from the immediate area. This produces a linear often curving permeable structure which slows, but does not stop water courses to form a pond/loch. Even the most well maintained beaver dam continuously leaks

through and around the body of the structure and after heavier periods of rainfall will regularly overtop acting more like a natural weir.

Scottish Wildlife Trust and Royal Zoological Society of Scotland hold the view that beaver dams on water courses can provide important ecosystem services through the alleviation of flood discharge peaks by slowing upstream discharges (Nyssen et al 2010) and additionally helping to trap sediments, toxins and excess nutrients (Lamsodis & Ulevicius, 2012). Beaver ponds/lochans can also provide additional water storage capacity within river catchments at times of drought (Hood & Bayley, 2008) as well as increasing biodiversity by habitat modification (Rosell et al, 2005).

Scottish Wildlife Trust and Royal Zoological Society of Scotland would support the view that the future responsibility for the management of beaver dams (should the species become accepted as resident) would rest with the land owner working in conjunction with the necessary government agencies (Scottish Natural Heritage and Scottish Environmental Protection Agency), to fulfil any licensing requirements for management or mitigation actions in relation to European or domestic legislation. This is a model used successfully elsewhere in parts of Europe including Switzerland, Luxembourg, Austria, Sweden and Germany.

Yours Sincerely

Bruce Wilson

Living Landscapes Policy Officer
Scottish Wildlife Trust

On behalf of the Scottish Beaver Trial

REFERENCES:

Effect of beaver dams on the hydrology of small mountain streams: Example from the Chevral in the Ourthe Orientale basin, Ardennes, Belgium

J. Nyssen a,†, J. Pontzele a, P. Billi a,b
[Journal of Hydrology 402 \(2011\) 92–102](#)

Beaver (*Castor canadensis*) mitigate the effects of climate on the area of open water in boreal wetlands in western Canada. Glynnis A. Hood, Suzanne E. Bayley
biological conservation 141 (2008) 556–567

Butler, D.R. and G.P. Malanson. 2005. The geomorphic influences of beaver dams and failures of beaver dams. *Geomorphology* 71:48--60.

Mammal Rev 2005, Volume 35, Ecological impact of beavers *Castor fiber* and *Castor Canadensis* and their ability to modify ecosystems

FRANK ROSELL, ORSOLYA BOZSÉR, PETER COLLEN and HOWARD PARKER

Lamsodis, R. and Ulevicius, A. Impact of beaver ponds on migration of nitrogen and phosphorus via drainage ditches in agro-landscapes, Lithuania.

Poster, 6th International Beaver Symposium, Ivanic-Grad, Croatia