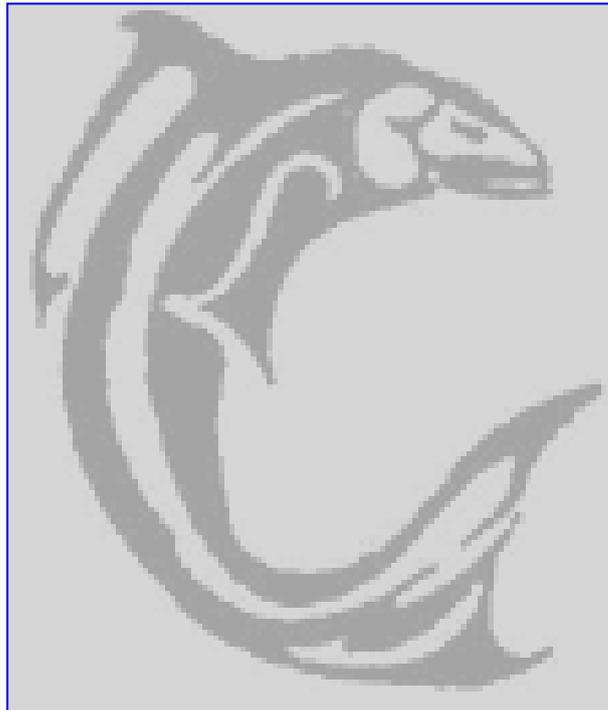


[Excerpt]

Submission to the Department of Environment, Heritage and Local Government

On “The Planning System and Flood Risk Management –

Consultation Draft Guidelines for Planning Authorities (September 2008)”



Prepared and submitted by:

Mark Boyden
Coomhola Salmon Trust, ltd.
Coomhola Lodge
Bantry, County Cork

streamscapes@eircom.net

027 50453

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“Land management practices can play a vital role in managing flood risk at a local level. For example, the creation and restoration of wetlands and woodlands can reduce the level of flooding, and in some cases remove the risk of local flooding altogether. These practices also produce wider environmental benefits at a local level, including encouraging an increase in wildlife species and habitats, reducing carbon emissions and improving water quality.” Department for Environment, Food and Rural Affairs (UK)

Regarding the 1993 floods in the Missouri/Mississippi system in the USA: “The importance of wetlands in reducing flood crests by soaking up rain and releasing it slowly was demonstrated in Illinois, where the ratio of peak stream flow to average rainfall decreased by 3.7% for every one percent increase in wetland area within a watershed”.

“Underpinning the whole presentation was the concept of the drainage basin as an integrated system, emphasising in particular the links between hill-slope runoff processes and channel response. This forms the basis for understanding both water quality variations in upland basins, and the integrated management of upland catchment systems...the movement of water and sediment in upland catchments is closely related. Rapid erosion and high sediment yields are often associated with periods of rainfall and high run-off. Evaluating the importance of such events and the cumulative significance of slower and less dramatic geomorphic processes can only be assessed if a systematic evaluation of sediment, production transfer and storage in upland catchments is undertaken.” Warburton, Evans, 2003

“Upland catchment management is vital to the supply of water, and involves many stakeholders. However, water suppliers at present deal with problems such as: catchment run off; bankside erosion; and effluent (agricultural/ industrial/ domestic) through end of pipe methods, at great cost to the taxpayer. Management practices upstream could considerably reduce these costs”. Spray, 2003

“The Draft TMDL ... (recognises) that 74% of sediment pollution stems from land use activities and calling for a 98% reduction in human caused sediment sources. Kaufmann et al. (1999) and Riemann et al. (1993) point out that salmonids cannot be recovered unless the anthropogenic sources of stress on habitat are lessened or abated...if the fines less than 1mm are greater than 14% (of total river benthic aggregate sample), salmon ova mortality starts to increase...together with a decrease in the number of Mayflies, Stoneflies and Caddis flies (EPT), as well as overall taxa.” Higgins, 2007

Background

Coomhola Salmon Trust, Ltd., of Bantry, County Cork, founded in 1989, is involved in aquatic environmental assessment, research, enhancement, and education actions (CST is the developer of the “*StreamScapes*” Aquatic Education Programme).

In this document, Coomhola Salmon Trust, Ltd. expresses observations and comments upon the publication of the “The Planning System and Flood Risk Management – Consultation Draft Guidelines for Planning Authorities” (the “Draft Guidelines”).

Coomhola Salmon Trust, Ltd. expresses gratitude for the invitation to respond to the Draft Guidelines.

Summary

Coomhola Salmon Trust welcomes the opportunity to comment upon the Draft Guidelines. The Draft Guidelines are far-reaching in their scope and rightly address the paramount concern of human suffering and property loss. However, although they consider some limited urban flood attenuation measures such as the introduction of permeable surfaces, and express vague acknowledgement of a possible role for restored or constructed wetlands (upstream), they seem predominantly concerned with imposing some common sense upon developers (to avoid floodplain development) and an over-reliance upon engineering solutions to counter existing threats to the exclusion of assessing and addressing causes of modern flood event exacerbation. Hence, though the Guidelines aspire to achieve a “holistic” approach, they fall short of this aspiration by;

- 1) Ignoring the contribution to flood events from immense hydrological disorders which are routinely, *de facto*, permitted upstream;
- 2) Relegating responsibility for flooding caused by roads to the National Roads Authority rather than incorporating this important factor into the “holistic” approach (and thereby failing to acknowledge the ecological impacts of road source flooding);
- 3) Not considering the important matter of provision for proactive public participation within the wider efforts to address flooding, and;
- 4) Finally, the Guidelines neither elaborate upon nor specify the ecological impacts wrought by anthropogenically-enhanced flood events. As the Guidelines act as a preamble for definitive legislation to follow, this should be an underlying theme to inform the process.

Therefore, the Guidelines do not go far enough in envisaging catchments in their totality and, though stating that they seek to align their objectives with those of the Water Framework Directive, they will struggle to achieve reconciliation with the high environmental objectives as required by WFD. “The Planning System and Flood Risk Management – Consultation Draft Guidelines for Planning Authorities” must utilise this opportunity to exhaust every issue associated with the subject (of planning) to anticipate and manage flood risk and all of its implications.

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General Consultation Comments

There is much to commend in the Draft Flood Guidelines document. The purpose of this reasoned consultative paper is to encourage an augmentation of what is expressed in the Draft and to propose a redoubling of these efforts to gain a holistic understanding of Catchments, an appreciation of the anthropogenic influence upon flood event, and to advocate a greater elaboration upon the ecological impacts of flooding.

No words are adequate to express sympathy for those who have suffered loss of life or property due to flooding. To be caught up in a flood event is to experience absolute terror; to sense that your loved ones or your home and all of your worldly goods are threatened is quite rightly addressed as the core theme of the “Guidelines”. Yet for all of this, the Draft Guidelines fall short of achieving the “holistic” approach they claim by:

- 1) Ignoring the contribution to flood events from immense hydrological disorders which are routinely, *de facto*, permitted upstream;

Upland drainage supporting a wide variety of enterprises has been on-going for many decades and continues to this day. This is undertaken largely without requirement for Environmental Impact Assessment and the resultant collective loss of attenuation (thus contributing to flooding) must be quantified in the proposed process of catchment modelling.

Informal and largely unregulated road building which services upland pasture, bog, forestry, mobile phone masts, wind-farm installations, et al, contribute to a lowering of local water tables and promotion of the velocity of rain run-off (thus creating more eccentric peak/trough flow event and acting as a major source for the recruitment of silts into water courses).

These factors must therefore be weighed in the context of the Guidelines.

- 2) Relegating responsibility for flooding caused by roads to the National Roads Authority rather than incorporating this important factor into the “holistic” approach (and thereby failing to acknowledge the ecological impacts of roads as a contributory source to flood event);

This is another failure of the Guidelines to achieve holism. Roads, as impermeable surfaces, do nothing to attenuate flood waters and again, because of the nature of cut-and-fill, grading and camber, may considerably increase flow velocities with all of the potential that carries for contributing to flood event as well as being harmful to the environment. At the very least, the “Catchment Modelling” efforts aspired to in the Guidelines must factor in the contribution of roads, and the National Roads Authority must have a seat at the table with all of the other agencies who will be responsible for flood mitigation.

And, roads by themselves have been demonstrated to be a significant index in predicting and anticipating ecological function and quality in a given catchment:

Km road:Km² catchment area: This is a crucial index in determining flood event, as well as loss of ecological value in a given catchment; “Road density is one indicator of catchment condition. The amount of roads in a catchment indicate the level of agricultural, forestry, industrial, commercial, recreational, residential, and other human activities, all of which may have an effect on catchment condition. More importantly, roads have a direct impact on streams by causing sedimentation, either at a continual low level or by large inputs from washouts, landslides, and other road-related failures. Streams sedimentation harms salmonids by covering gravel beds essential for spawning. In Oregon, roads cause more than twice the sedimentation of all other sedimentation sources (including clear-cut

logging) combined, and road densities of approximately 2.5-3.5 Km road:Km² catchment area and higher have been shown to have significant impacts on catchments. (Road density is a measure of the relative amount of roads in a catchment, but roads in close proximity to streams cause the greatest stream sedimentation). Vance Borland, *StreamScapes Advanced*, Coomhola Salmon Trust, 2000

- 3) Not considering the important matter of provision for proactive public participation within the wider efforts to address flooding;

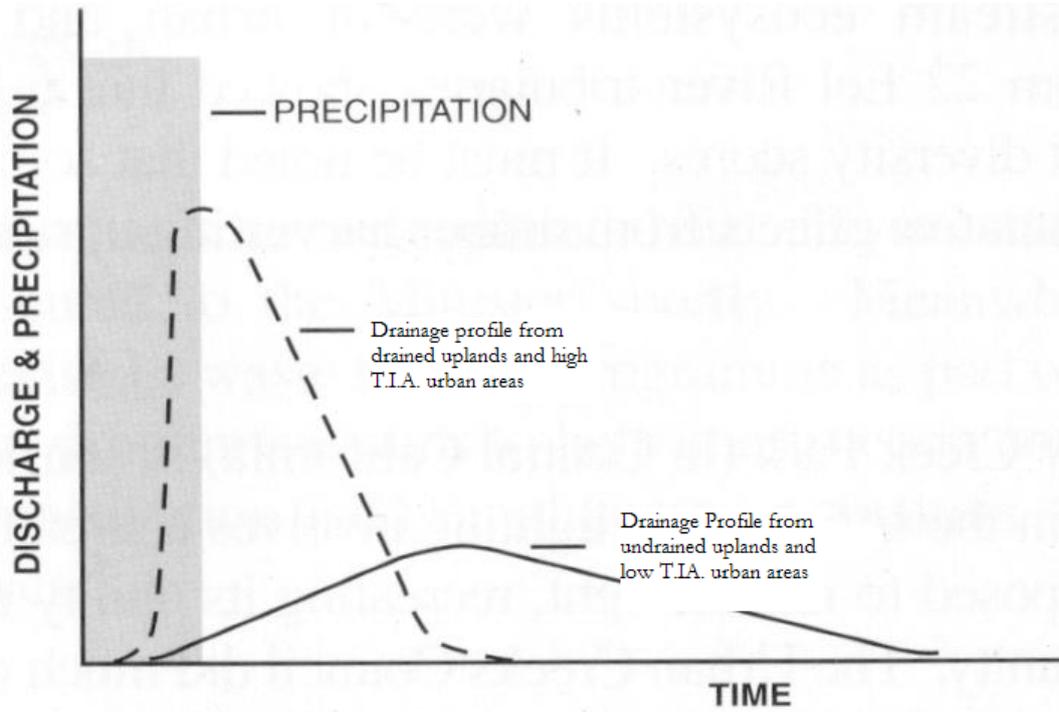
Curiously for an Aarhus-era document, there is no provision for public participation within the wider efforts to address flooding (indeed, a search for the phrase “public participation” within the document is fruitless). Annex VI Part B of the Water Framework Directive specifies that public awareness and education will be part of the (River Basin District) programme of measures and, as the Flood Guidelines must align themselves with WFD objectives, it follows that the public has a role to play. Hence provision must be made for empowerment of catchment citizens to enable them to “do their bit” (see Appendix 3 for example of a public participation initiative). This action must target the general public as well as addressing and assisting sectoral “best practice” advice through appropriate channels (e.g., information campaigns, training programmes, grant and incentive schemes).

- 4) The Guidelines neither elaborate upon nor specify the ecological impacts wrought by flood events (and most particularly anthropogenically-enhanced events). As the Guidelines act as a preamble for definitive legislation to follow, at the very least a solemn objective of the Guidelines must be to strive for the full understanding and appreciation of these impacts.

On the subject of the Environment, The Guidelines seem to take their lead from the previous Report of the Flood Review Group (OPW, 2004), Section 1.5.2, “Intangible Impacts”, which states that “There is little information readily available on the measurement of impacts of flood events on the environment.” To the contrary, internationally there is much historical and on-going research into quantifying the impacts of flooding upon natural ecosystems.

Finally, a chief concern of Coomhola Salmon Trust is the capacity for flood events to promote the movement of particulate matter into watercourses thereby limiting their capacity to support rich biodiversity (e.g., benthic invertebrates, freshwater pearl mussels, salmonids, et al). Where there is anthropogenic disturbance of soil structures (in the form of land drainage, all types of road construction, and the development of large urban swathes of impervious areas (referring to the important index of Total Impervious Area, “T.I.A.”) the capacity for impact increases exponentially. Therefore this concern is consistent with Coomhola Salmon Trust policy (as cited in previous submission (on “WFD and Dangerous Substances” et al) that suspended particulate matter (silts, sediments, etc.) be included in the registry of Dangerous Substances, and that this be furthermore reinforced by the inclusion of “Materials in Suspension” in the “Indicative List of the Main Pollutants”, Annex VIII, Water Framework Directive (2000/60/EC).

Indicative Flow Profiles from Drained and Undrained Lands



from Prof. John Gibson

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