Iascach Intíre Éireann
Inland Fisheries Ireland

Mr. Karl Coggins,
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13 October 2014.

Re-: Forestry Programme 2014 – 2020

Dear Mr Coggins,

Further to our submission dated 22 April 2014 and arising from the meeting on 7 October, 2014, please find a further submission and observations from Inland Fisheries Ireland (IFI) in relation to the proposed Forestry Programme 2014 – 2020.

As the national statutory agency for the *"conservation management and protection of the inland fisheries resource"* IFI is concerned about the effects that this programme may have on the aquatic environment and in particular: fisheries, fish habitat and the associated riparian zones. As also noted in our previous submission IFI's concerns are in keeping with the requirements of the Water Framework Directive (WFD). In particular the requirements set out in Article 4 of the WFD and also the "Common Implementation Strategy for the Water Framework Directive (2000/60/EC)" issued by the European Commission (2009). It is clear that no deterioration of the status of surface and groundwater is permitted under the WFD and that there is provision for the protection enhancement and restoration of all water bodies.

Good ecological and chemical status for surface waters must be achieved and maintained from 2015 onwards. In addition there must be a progressive reduction of pollution. An integral part of the ecological status relates to the "Quality Elements for surface water status" and in particular the biological quality elements which are:

- Composition and abundance of aquatic flora.
- Composition and abundance of benthic invertebrate fauna.
- Composition, abundance and age structure of fish fauna

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In addition the morphological elements, morphological condition, chemical and physio-chemical elements, which support the biological elements must also be maintained.

IFI considers that in order for this programme to be considered as environmentally sustainable, as set out in the Department of Agriculture Statement of Strategy (National Forest policy), significant reference must be made to the requirements of the WFD. At this time we do not consider that in the context of the WFD sufficient emphasis on the protection of waters and the aquatic species in smaller water courses has been set out. These smaller water courses form the primary spawning and nursery areas for salmonid species. It should be noted that the WFD does not differentiate on the type of fish, invertebrates or aquatic flora that need to be protected. All of these species need to be protected.

Losses of Nutrients and Suspended Solids during Clear Felling Operations

It is clear that the new Forest programme is seeking to develop forestry on better quality mineral soils and that there is an intention to promote deciduous forestry to a greater degree particularly on these mineral soils. It is anticipated that lands where these better quality soils are available for deciduous plantation may not require the concentrated drainage proposals that currently exist for peat soils. However the existing problems in relation to afforestation particularly on peat soils cannot be ignored and significant impacts on the aquatic environment and fisheries habitat do arise. IFI has reviewed three recent scientific papers, which are detailed below, and these studies show that afforestation on upland peat deposits pose a significant environmental threat to water quality. The principal threat comes from forest harvesting, especially where plantations, which are now maturing, have been established prior to the implementation of forestry guidelines. The existing forest guidelines and best management practices may not be adequate to prevent significant pollution of waters downstream of the harvest area. It follows that poor water quality will impact on: fish, benthic invertebrates, and aquatic flora and these are the primary biological elements used in the classification of waters in the context of the WFD.

- Rogers *et al* (2012) found about there was significant increases in total reactive phosphorus (TRP) during the harvesting blanket peat forest. The phosphorus (P) concentrations increased from 6 µg/L prior to clear felling to a peak of 429 µg/L one year after harvesting. It was also found that more than 80% of the P release occurred during storm events. In addition the loss of phosphorus continued over a four-year period after clear-felling.

- O'Driscoll *et al* (2013) experimented with a newly formed and vegetated buffer zone downstream of a 10 ha clear-felling area. The study found that the buffer zone only retained 18% of the phosphorus and only 33% of the suspended solids. Clearly the construction of a vegetated buffer zone is useful but further design and experiment may be required.

- Finnegan et al (2013) also confirmed that current best management practises were not effective in reducing total phosphorus and dissolved reactive phosphorus loads from a clear felled site. In some instances the dissolved reactive phosphorus rose to 471µg/L. The accepted level for phosphorus is 30 µg/L, clearly the levels recorded are greatly in excess of this figure. The study also found a significant export of suspended solids with a maximum discharge of 481mg/L. Elevated suspended solids continued over a period of six months from the commencement of clear-felling. It should be noted that 60% of the suspended solids was organic material. This could have impacts on levels of dissolved oxygen due to biodegradation, which would affect aquatic species.

Establishment of baseline data and ongoing monitoring.

In IFI's opinion much more effort must be put in to establishing the effects on the three biological elements as set out in the WFD. This will require more detailed investigation and assessment of the fisheries status and fisheries potential. It is important to note that many salmonids will travel very high up in the catchment and right into small streams which may be receiving discharges from forestry either at the establishment or the harvesting phase. Significant impacts on recruitment of juvenile salmonids could result.

IFI recommends that, in relation to all forestry activities, the baseline fisheries status needs to be determined. In addition, particularly in the course of harvesting, the impact on the aquatic environment and fisheries in particular needs to be more closely monitored and assessed. Without this information it is not possible to accurately assess the effects of forestry discharges on the fisheries and aquatic habitats.

Innovation

In terms of innovation more emphasis must be placed on the design and construction of appropriate vegetated buffer zones and settlement areas in both existing forestry and any proposed new afforestation especially in areas where there are steep slopes. The design of the buffer zone or settlement area must be adequate to ensure sufficient retention time within the vegetated buffer zone to adequately prevent significant losses of nutrients and suspended solids to the aquatic environment.

Consideration should also be applied to developing whole tree removal (including all branches and brash) and the processing of trees in a controlled area. It is understood that brash so accumulated offsite can then be used as an energy source. We note from the literature that the loss of brash can leave the peat soils used for forestry with insufficient nutrients for subsequent crops. This suggests that it may be important to further examine and assess the sustainability of using upland peat areas for afforestation especially where

significant amount of nutrients need to be applied to peat soils which do not retain nutrients and phosphorus in particular.

Erosion

IFI have also encountered other issues arising from forestry developments. In particular on upland peat lands the construction of land drains at 12 m centres poses a particular problem. Precipitation will drain off with such rapidity that significant erosion problems in the important spawning streams and watercourses will take place. This in itself also exacerbates the suspended solids levels in watercourses and consequently will have a deleterious effect on fisheries recruitment and on the morphology of the river in general.

Road Construction and Maintenance

In terms of the road networks constructed through forestry IFI is concerned that in many instances, insufficient settlement areas or measures to reduce the energy in surface water flows are in place. This can exacerbate the problems as outlined in the paragraph above.

Riparian zones

As outlined at the consultation meeting on 7th October, IFI are concerned about the proper management and extent of the riparian buffer zones adjacent to forestry areas. IFI have outlined the necessity to maintain some tree-cover along riverbanks to provide important shade for aquatic species and fish in particular. We consider that it should be an integral part of the programme to provide appropriate incentive to leave sufficient riparian areas un-planted, except for suitably spaced copses of trees to provide the necessary shade. This will also improve the landscape appearance of forestry plantations. IFI considers that it is important to modify the proposals so that riparian zones are fully funded under proposals incorporated into the new Forest Programme and that native species are used in proximity to water.

Targeted training.

IFI confirms its request that there should be specific "Targeted Training" for forest operators to enable them appropriately manage the aquatic and associated riparian zone. There must be a clear emphasis on controlling water flows as to reduce erosion as well as maintaining or improving water quality by ensuring the operation and design of appropriate buffer zones and settlement areas during establishment and clear-felling.

Conclusion

IFI is concerned that the current regime to control loss of dissolved phosphorus and suspended solids which will increase the organic load to waters, has been found entirely unsuitable and in our opinion is environmentally unsustainable. Clearly deleterious or polluting matter has been discharging especially from clear-felled areas. The discharge of such high levels of phosphorus and suspended solids which must be considered "deleterious or polluting matter" could form the grounds of legal proceedings under either the Fisheries Acts or the Local Government Water Pollution Acts. IFI have found that considerable erosion in upland streams has taken place in some instances. The rapid loss of water from upland streams can also pose problems for migrating salmonids in particular to access spawning grounds. The rapid loss of water will impact on the hydromorphology of the upland rivers and streams in particular. It is also conceivable that the status of the water body under the WFD will also be seriously impaired.

IFI considers that the proposed Forest Programme 2014 – 2020 must take a more rigourous approach in tackling potential pollution and damage to rivers and streams. This has to be a fundamental aspect incorporated into the proposed Forest programme. In particular the environmental objectives as set out in the Water Framework Directive must be clearly incorporated into every aspect of the plan.

This concludes observations at this time. Should you require clarification on any of the above please do not hesitate to contact IFI.

Yours sincerely

Michael Fitzsimons

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For Dr. Greg Forde, Head of Operations.

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