

Trees & Water Quality

The Sustainable Catchment Based Approach

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Catchment Manager
2nd October 2024

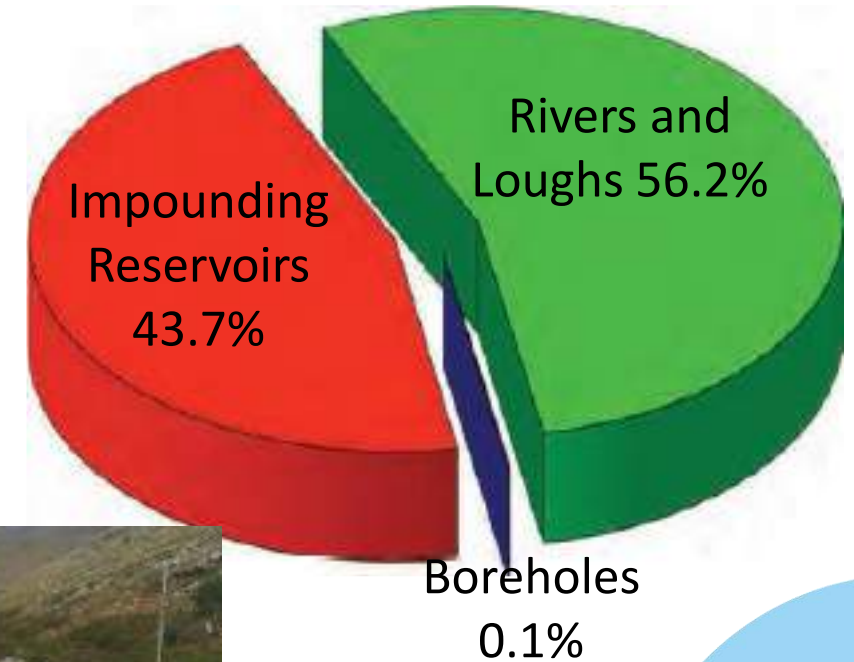


Overview:

- 🌿 Drinking Water Catchment areas
- 🌿 What is SCaMP?
- 🌿 NI Water RE-Greening Programme
- 🌿 The influence of forestry on water quality

NI Water - Drinking Water Catchment areas

- 24 Water Treatment Works
- 38 Raw water abstractions
- Total Catchment area = 1,277,000 Hectares
- NIW Ownership = 11,300 Hectares (2%)
- Water – 9%
- Peat Bogs – 14%
- Forestry – 11%
- Agriculture – 66%
- Mostly rural
- Pesticide application major treatment challenge, particularly MCPA



What is SCaMP?



- UN Sustainability Goals 2030
- 25yr Env Strategy
- NIW's sustainability strategy

- Water resources enhanced
- Reduce future risk/capital works
- Meet our obligations as landowners

- Turbidity/colour
- Priority substances
- Nutrients
- Lower chemicals

- Less power needed
- Sustainable
- DWI/Regulator support
- WFD status impact

SCaMP Partnerships



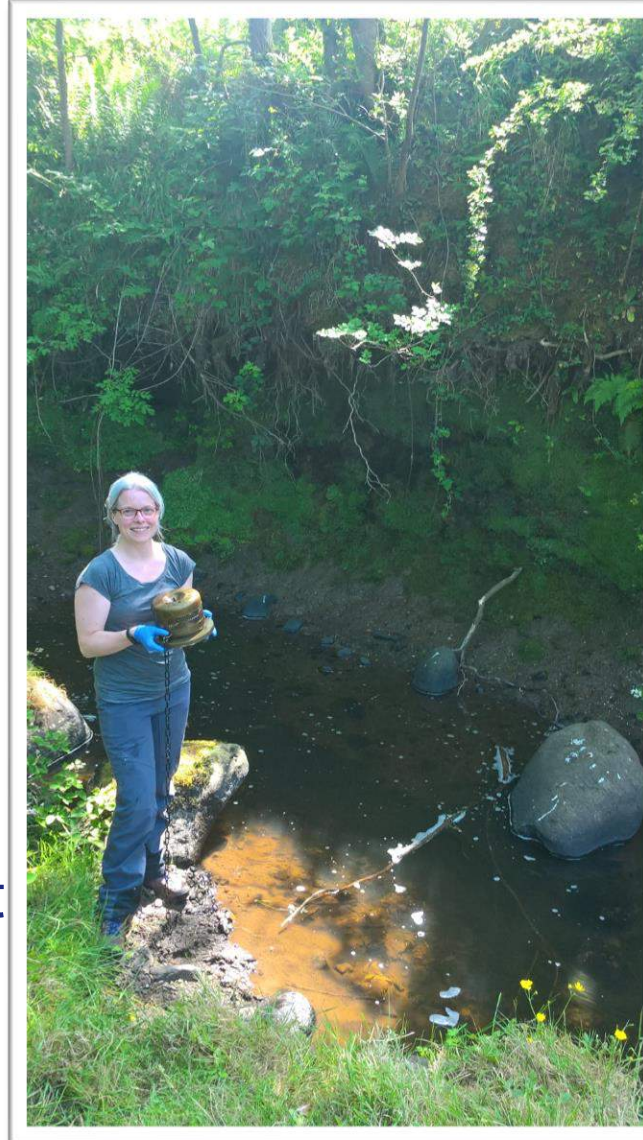
SCaMP Projects

- Peat Restoration
- Pesticide Risk Reduction
- Farm Nutrient Management
- Farm Incentive Schemes
- Riparian Tree Planting
- Mourne's Habitat Management
- Wildfire Risk Management
- Catchment Modelling
- All Ireland Pollinator Plan
- Biodiversity Surveys
- Invasive Species Management
- INTERREG & Peace Plus
- Academic Studies
- Press Releases / Comms
- Stakeholder Engagement



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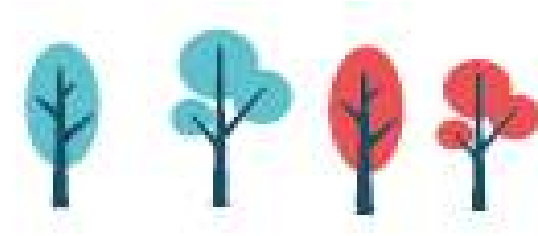


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NI Water's Ambition for Re-greening



Benefits:

Helping to offset
some of our carbon
emissions

Improving our
water quality

Helping with flood
mitigation

Enhancing the
natural
environment

NI Water's Ambition for Re-greening



- Plant **1 million trees** on over 500 hectares of land by 2030
- Target of **net zero** energy by **2030** and net zero by **2040**
- Second biggest landowner in Northern Ireland, owning **11,300 hectares** of land
- Produce c.90,000 tonnes of operational CO2 per year
- Trees help reduce the effect of climate change by **capturing carbon**, offset the carbon emissions from NI Water
- Working in partnership with **Forest Service** and the **Woodland Trust NI**

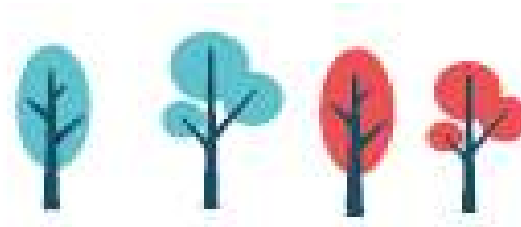


RE-Greening...Progress to date

- Pre 2020, NI Water planted over **150,000 trees** in 24 drinking water catchments.
- Plant a million trees initiative began November 2020, NI Water pledged to plant **1 million trees on over 500 hectares of land by 2030**.
- At present we have planted over 450,000 trees...almost half a million trees planted in less than 4 years!!



Our Key Partner – Woodland Trust



- Evaluate of land for areas which could be planted
- Management plan completed by Woodland Trust
- Complete environmental impact assessments
- Complete funding applications - FES
- Complete the planting for NIW
- Manage the trees for The following 20 years

The influence of forestry on water quality in upland catchments in Northern Ireland

Claire McMahon

Ulster University, School of Geography
and Environmental Sciences

Rebecca Allen

Ulster University, School of Geography
and Environmental Sciences



Site Locations



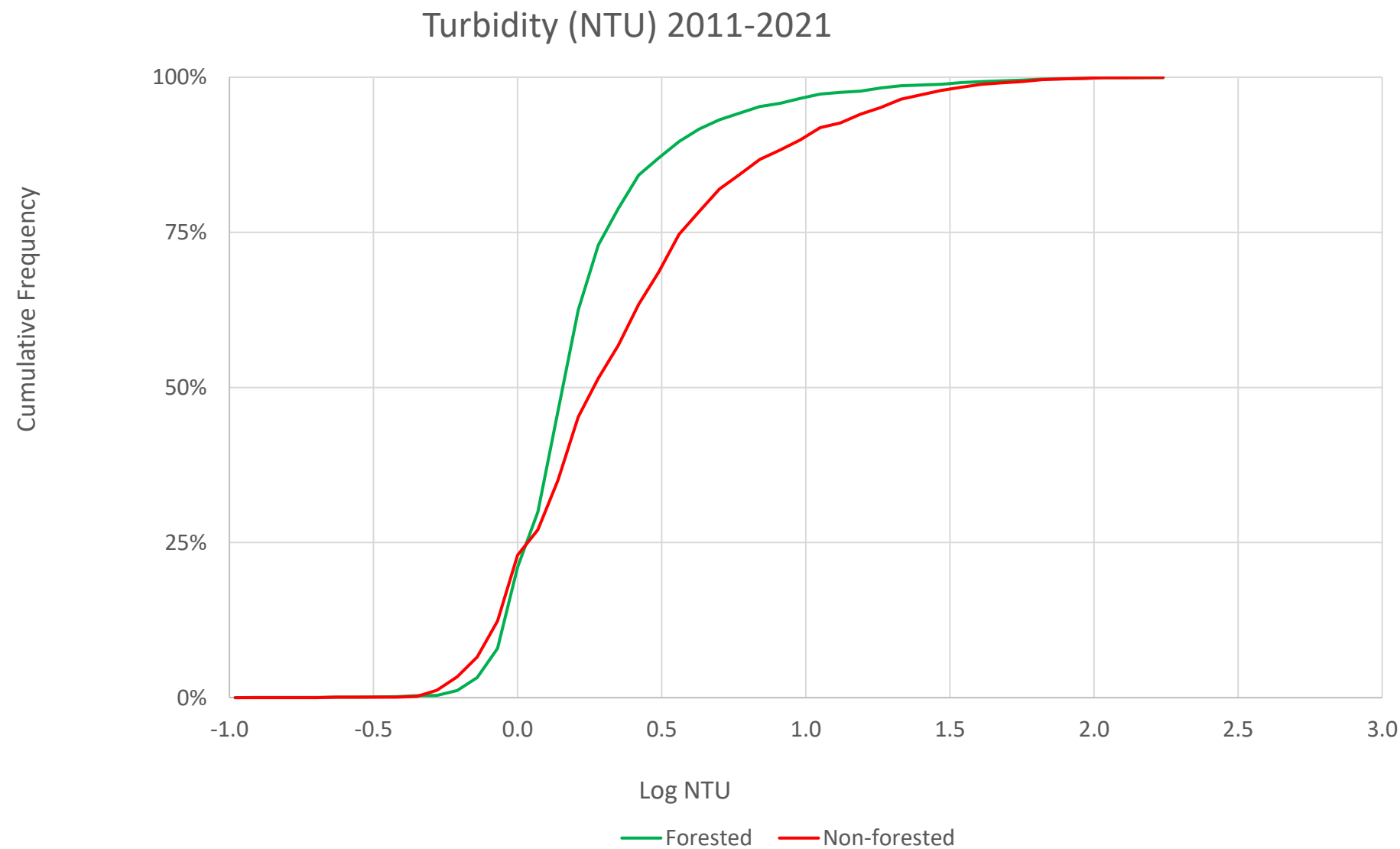
Non-Forested:

- Loughmacrory
- Dungonnell
- Foffanny
- Lough Fea

Forested:

- Lough Bradan
- Caugh Hill
- Altnahinch
- Killylane

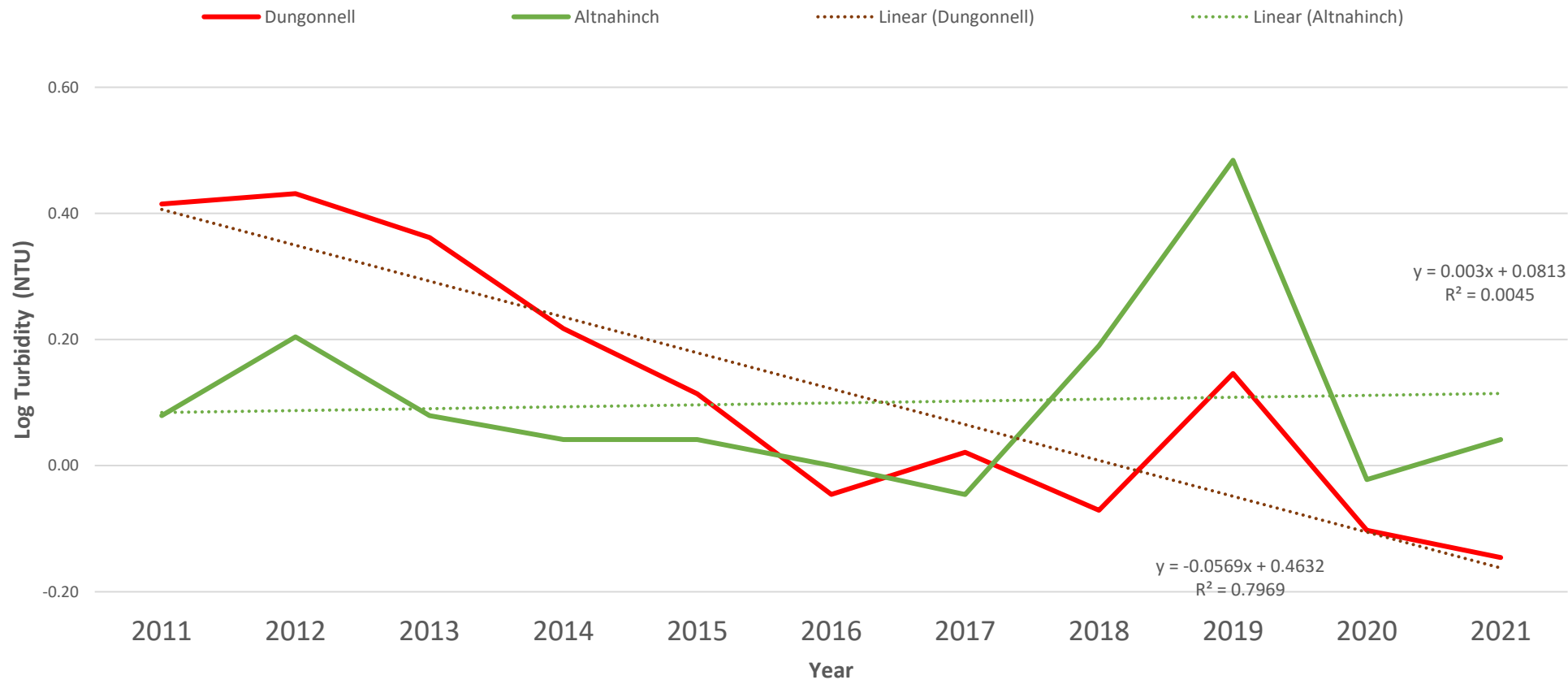
RESULTS - Turbidity



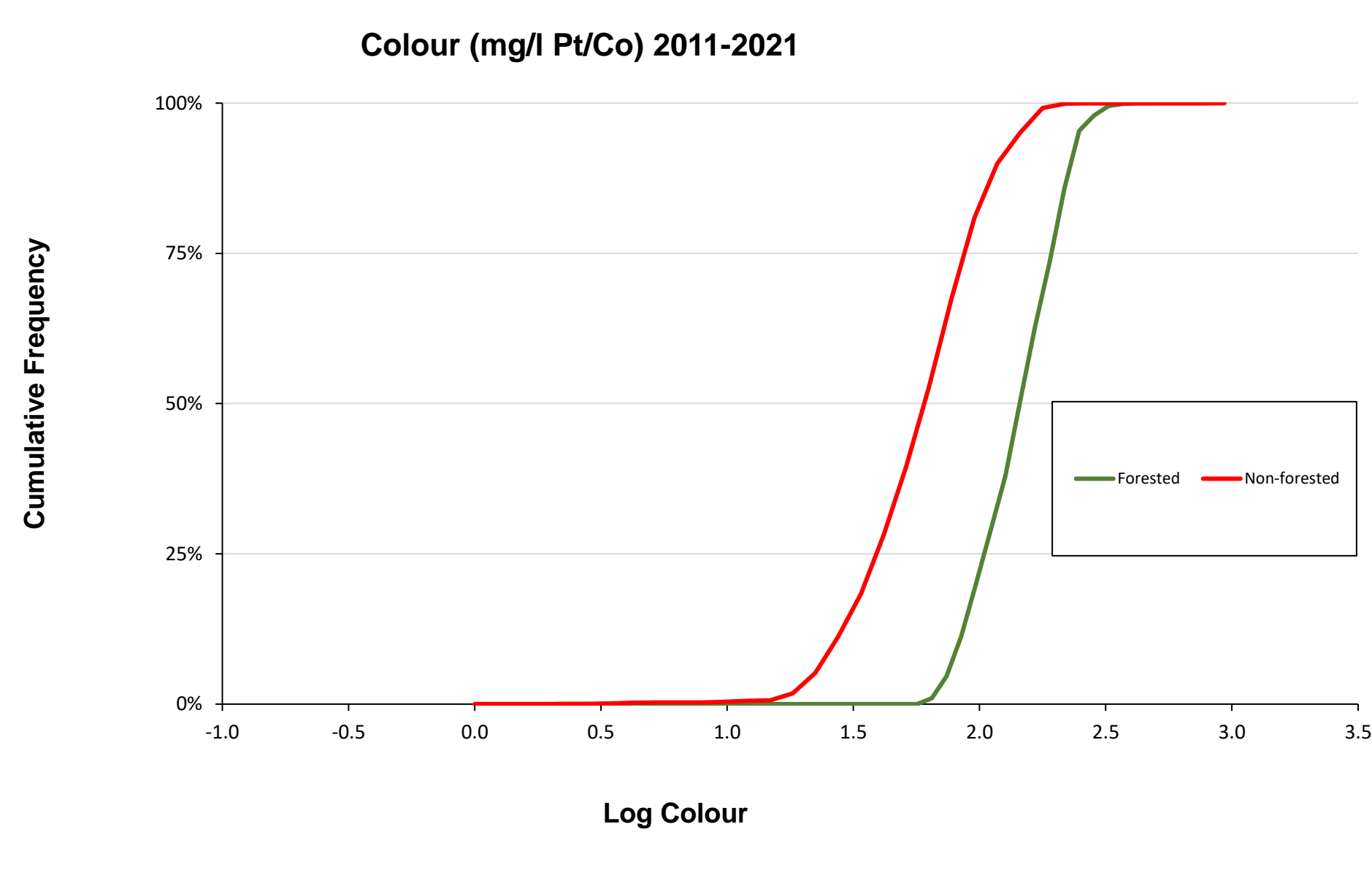
RESULTS - Turbidity



Annual Median Turbidity (NTU) 2011-2021 Forested Catchment vs Non-Forested Catchment



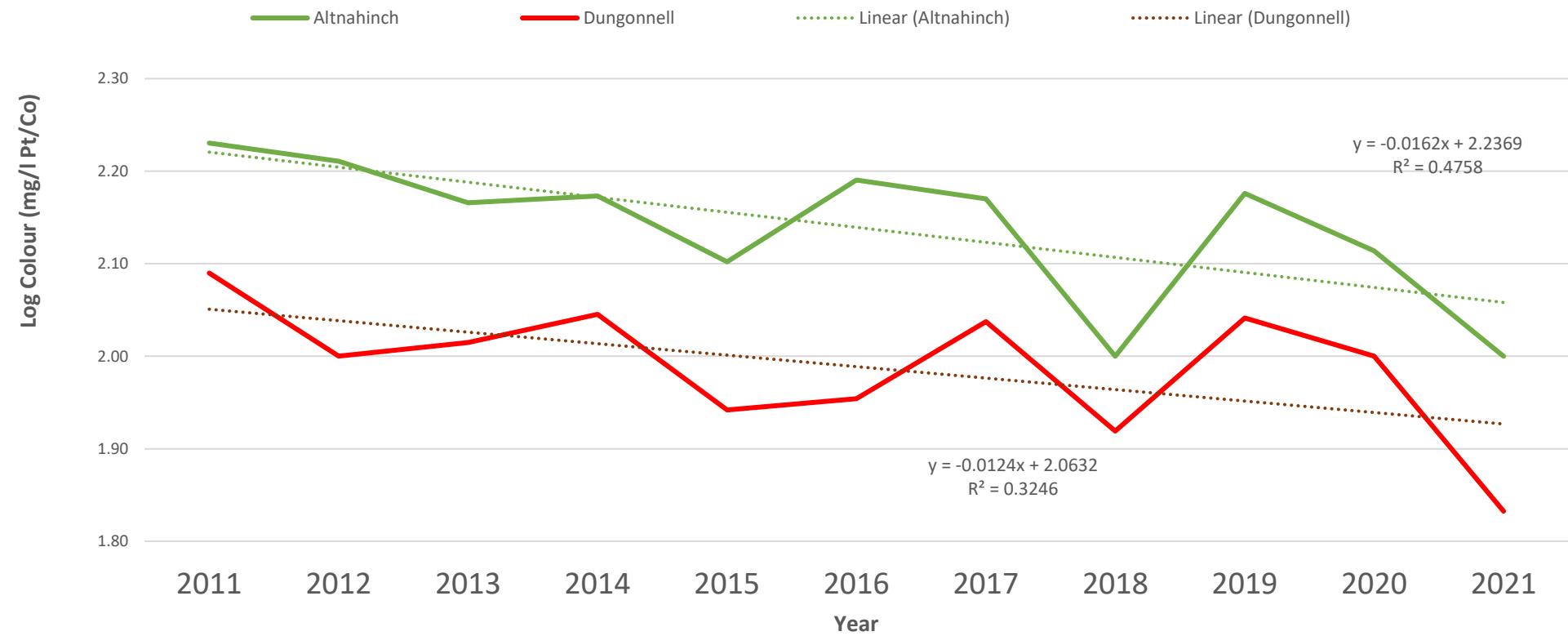
RESULTS - Colour



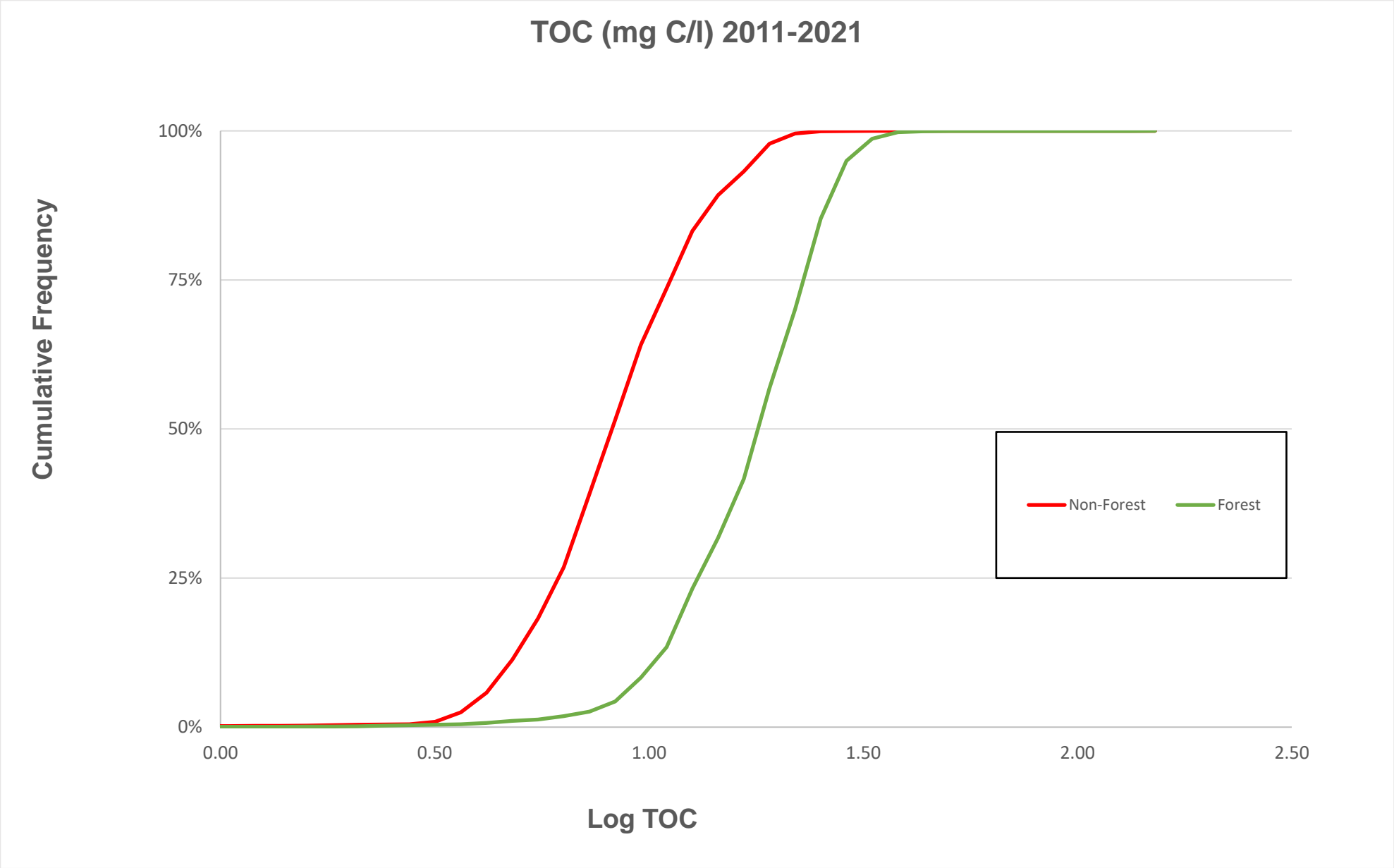
RESULTS - Colour



Annual Median Colour (mg/l Pt/Co) 2011-2021 Forested Catchment vs Non-Forested Catchment



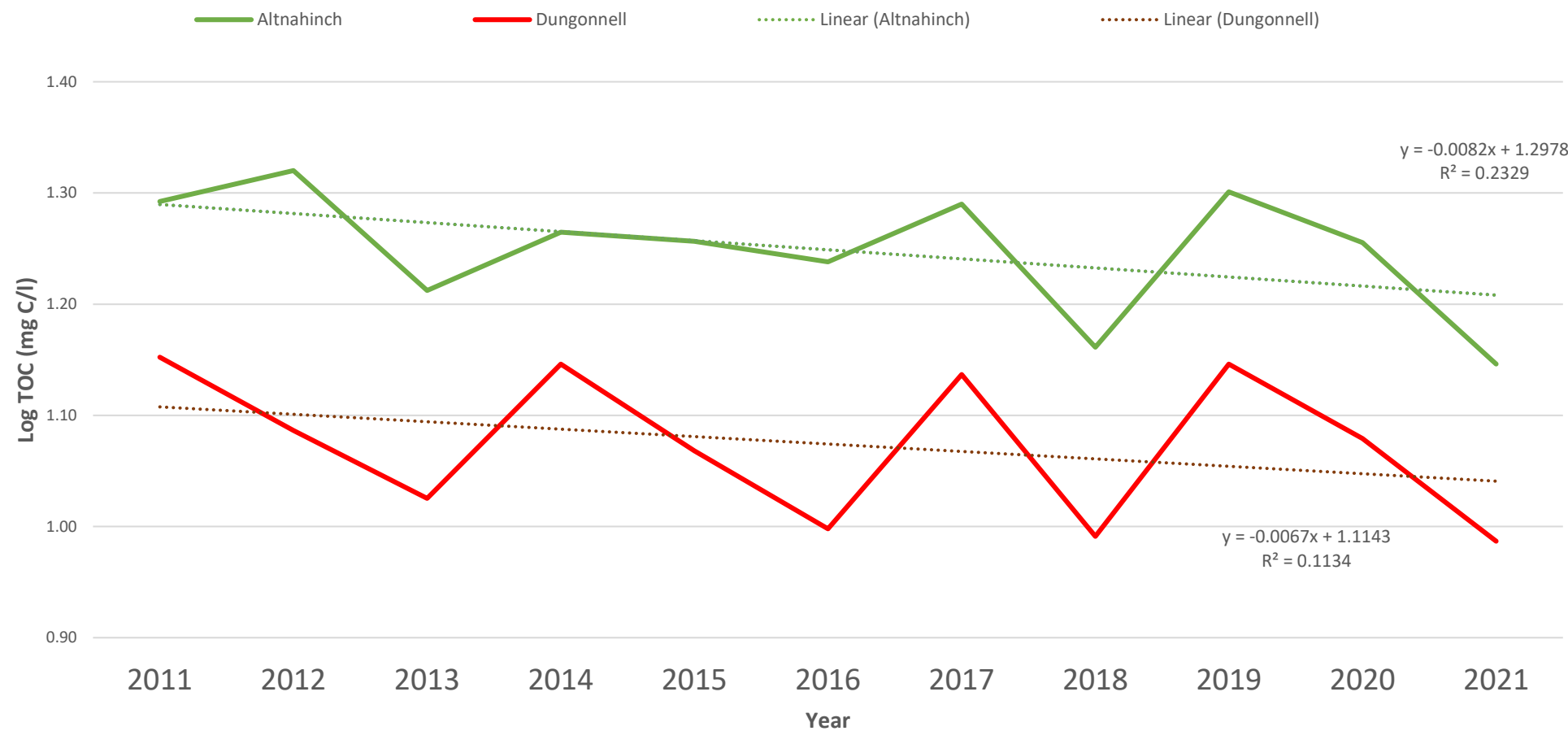
RESULTS - TOC



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Annual Median TOC (mg C/l) 2011-2021 Forested Catchment vs Non-Forested Catchment



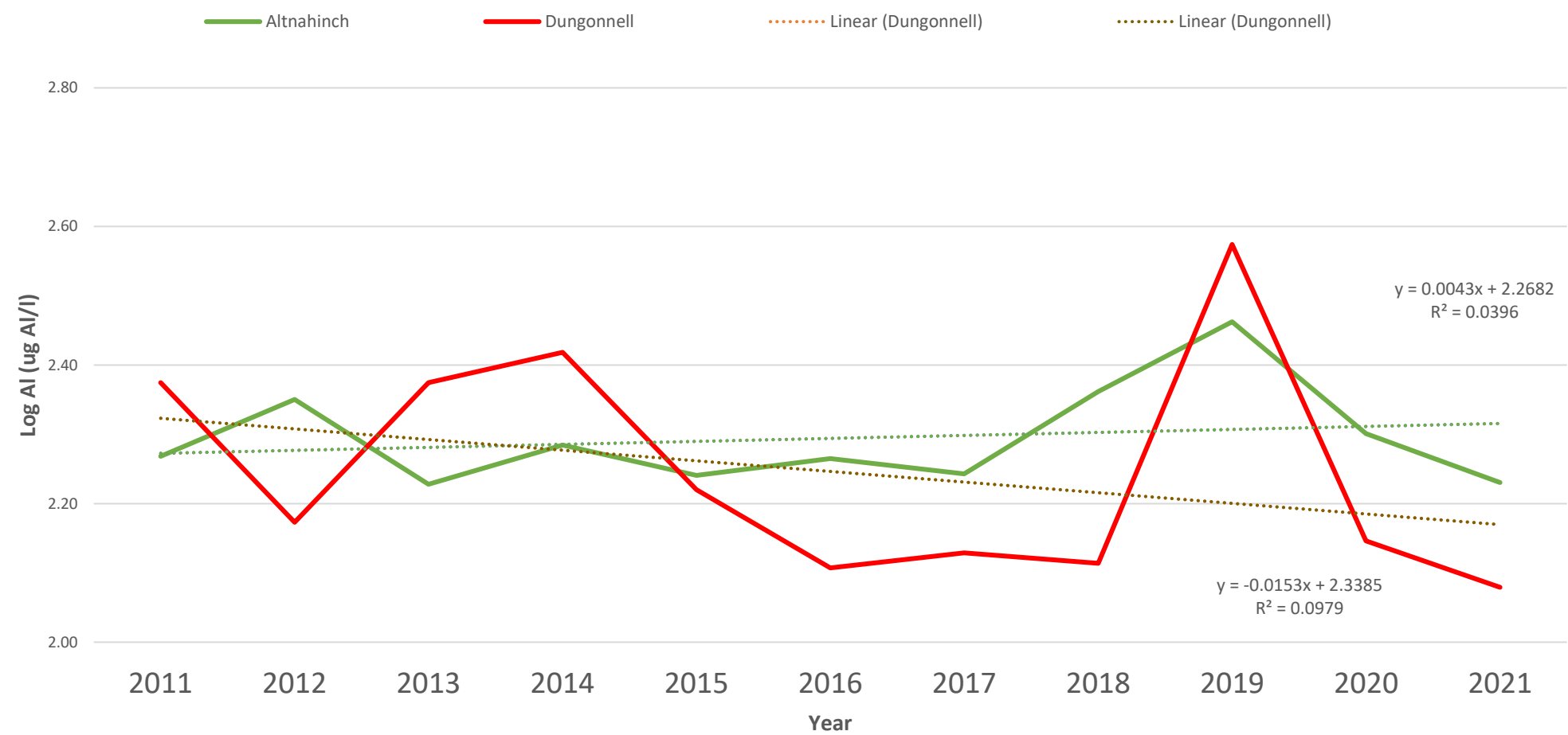
RESULTS - Aluminum



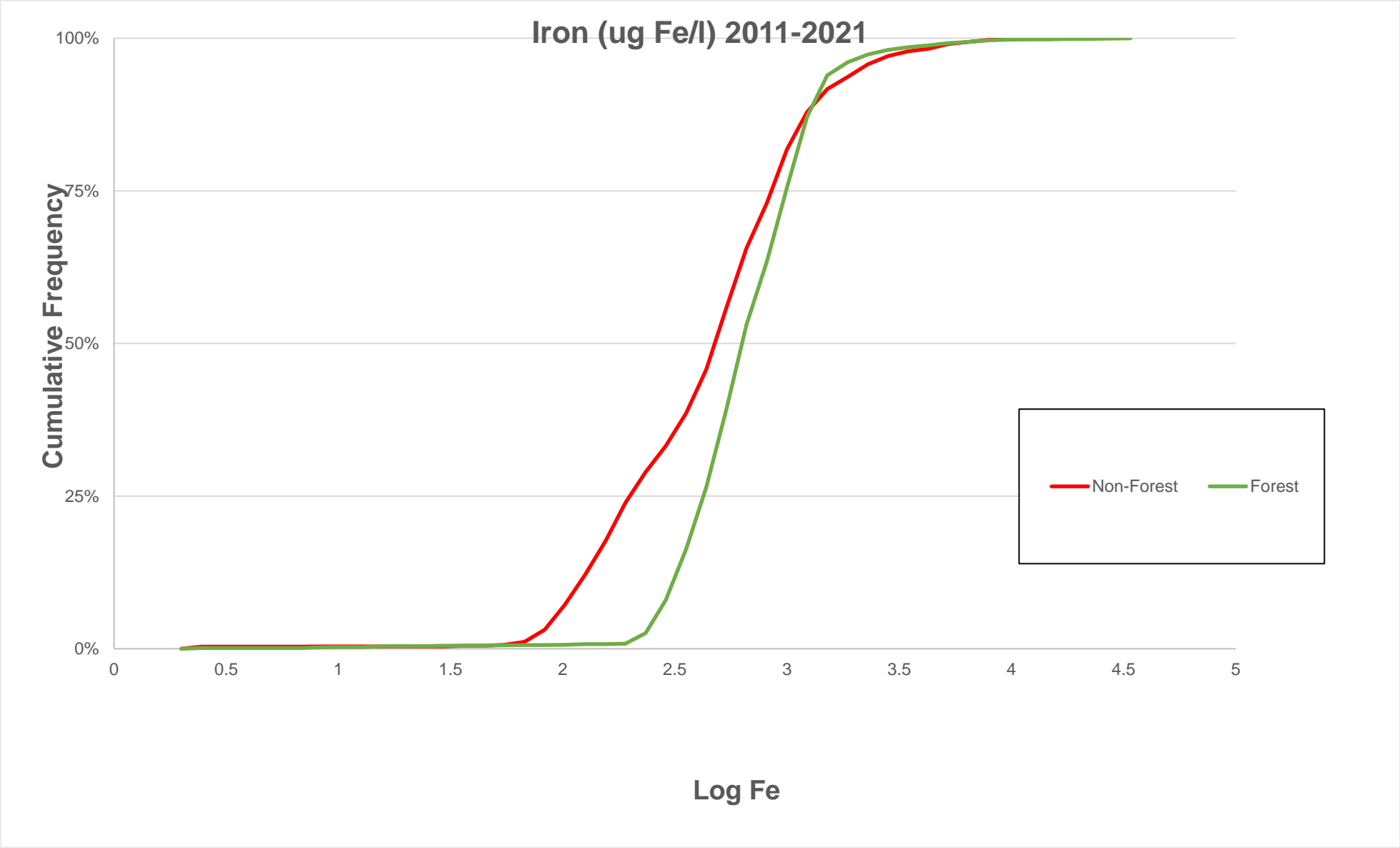
RESULTS - Aluminum



Annual Median Al (ug Al/l) 2011-2021 Forested Catchment vs Non-Forested Catchment



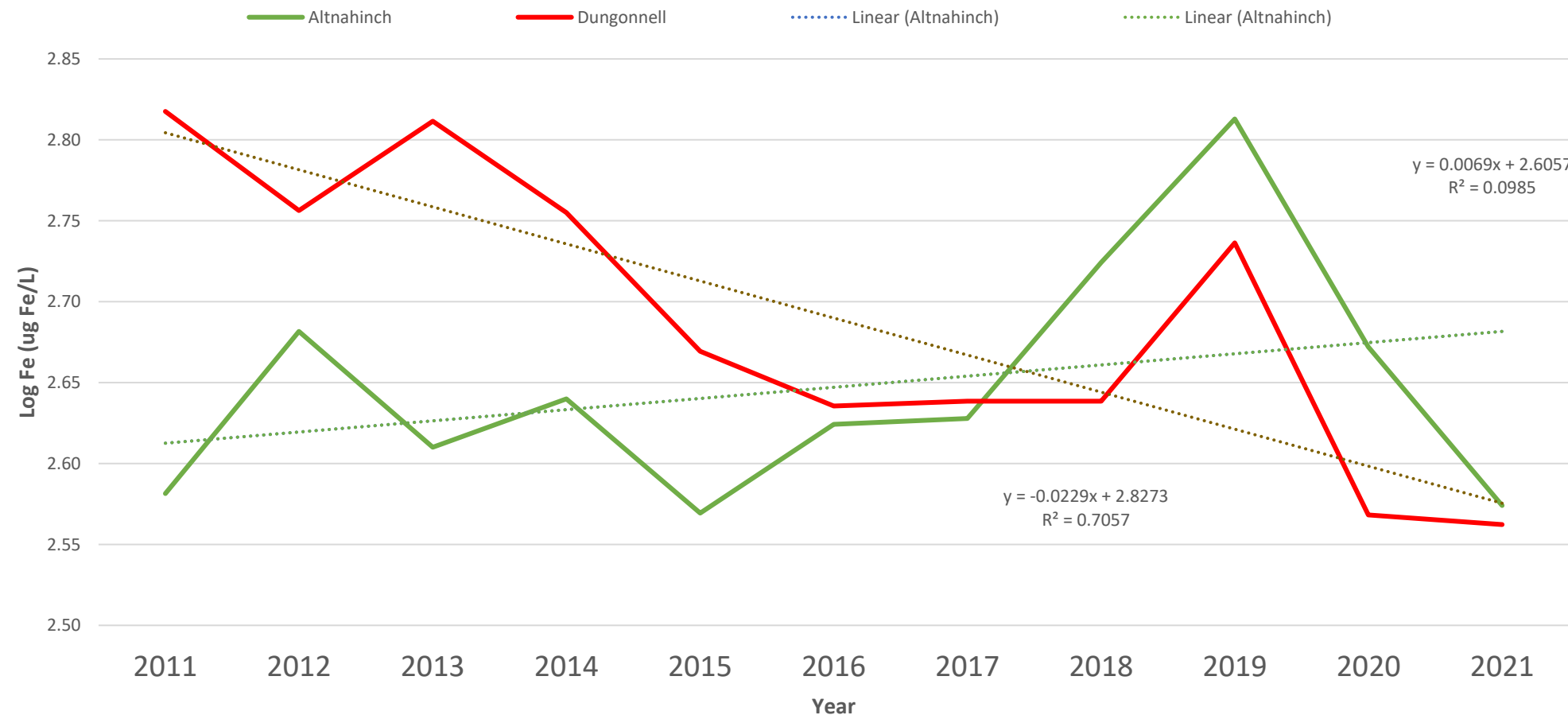
RESULTS - Iron



RESULTS - Iron



Annual Median Fe (ug Fe/l) 2011-2021 Forested Catchment vs Non-Forested Catchment



RESULTS – Trihalomethanes (THMs)

Catchment	% forested	Number of THM exceedances
Lough Bradan	90.83	18
Caugh Hill	73.60	40
Altnahinch	30.78	22
Killylane	72.43	1
Lough Fea	0.02	0
Fofanny	1.69	0
Dungonnell	1.78	12
Lough Macrory	0.35	0

Summary

- Native species trees are welcomed – stabilise riverbanks, reduce erosion, create buffer areas, enhance biodiversity, improve water quality
- Commercial conifer plantations can cause difficulties:
 - Colour, TOC, and Fe was higher in raw water from forested catchments.
 - Turbidity was higher in water from non-forested catchments.
 - Al was generally similar in both forested and non-forested catchments.
- THM Exceedances mostly came from forested catchments

THANK YOU



Delivering what matters

