

# N loss to water and stocking rate Results from 12 years of ACP monitoring

Edward Burgess

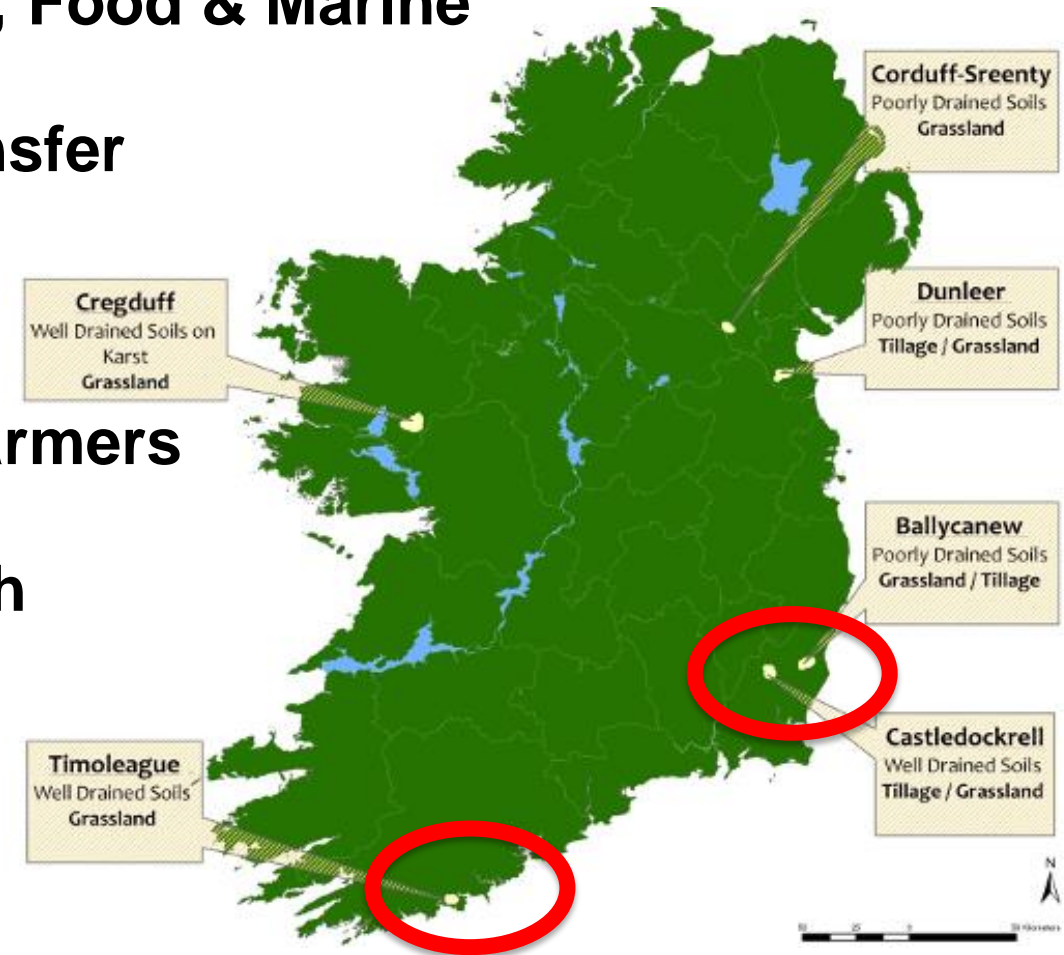
Teagasc's Agricultural Catchments Programme





# What is the Agricultural Catchments Programme ?

- **Funded by the Department of Agriculture, Food & Marine**
- **Combined Research and Knowledge Transfer**
- **12 years on the ground (in the river)**
- **23 staff across 6 catchments with 300+ farmers**
- **Biophysical and socio-economic research**
- **Focus points for Catchment Science KT**
- **Policy Evaluation**
  - **Nitrates & Derogation, WFD, Food Wise 2025, Climate Action Plan**



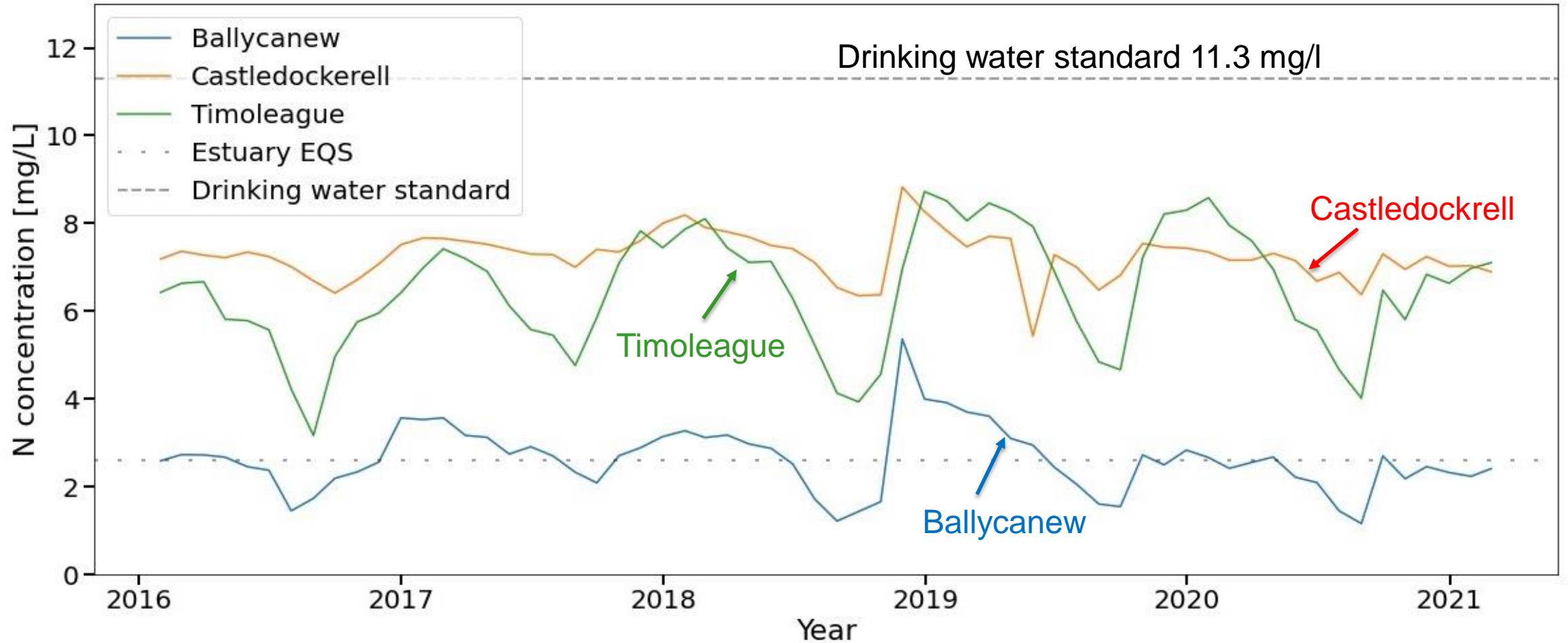
# Characteristics, rainfall, river flow & N

Catchment	Soil	Rainfall	River flow	Stocking rate	Concentration	Load
		mm	mm	kg N ha <sup>-1</sup>	NO <sub>3</sub> -N mg l <sup>-1</sup>	kg ha <sup>-1</sup>
Ballycanew	Clay	1044	512	101	2.59	13.4
Castledockrell	Loam	1009	528	41	7.05	37.3
Timoleague	Loam	1097	666	166	6.12	41.3

The Environmental Quality Standard (EQS) for Good Ecological Status is 2.6 mg/l as N in waters that discharge from rivers into estuaries

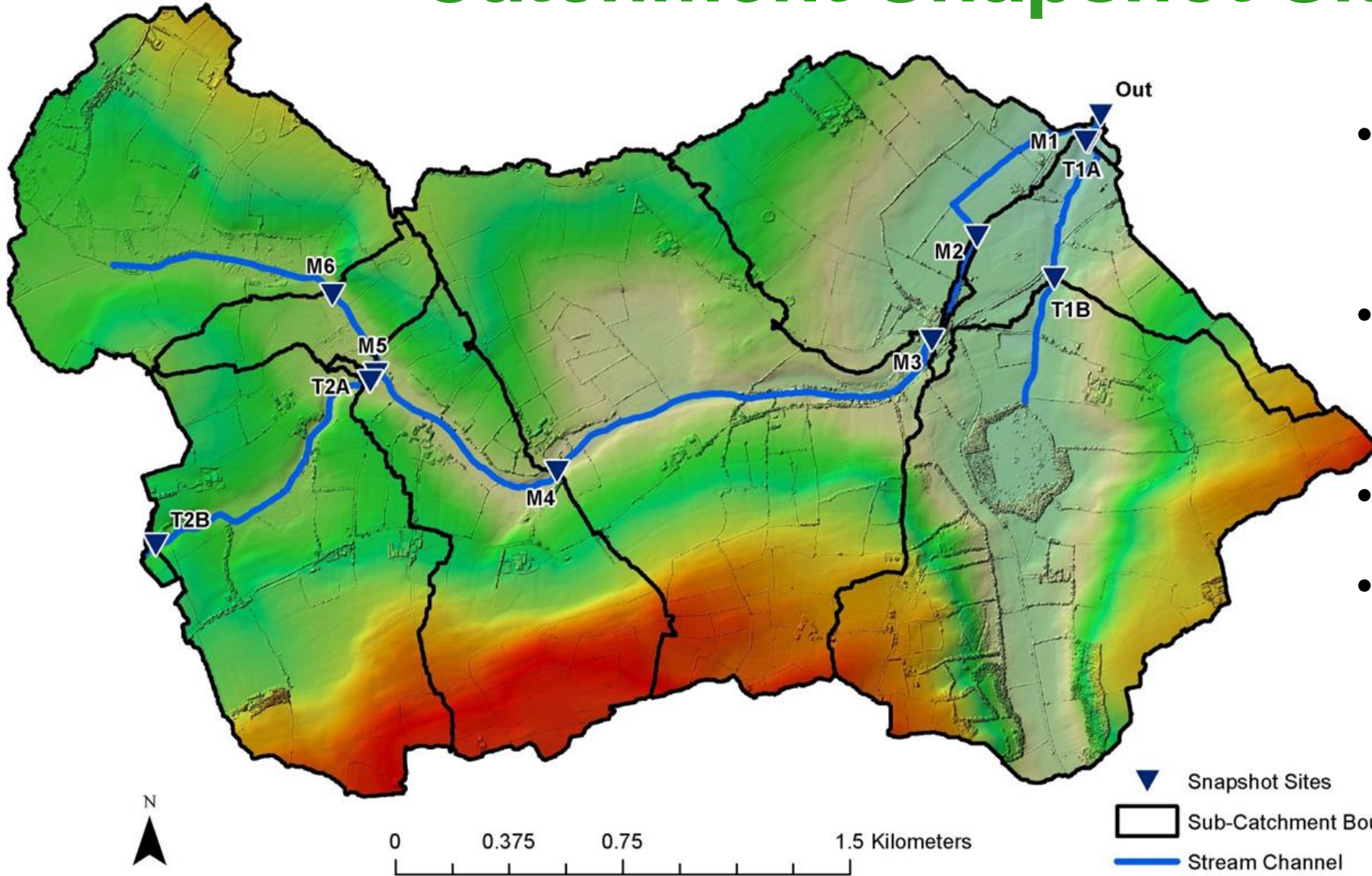
(High Status EQS = 1 mg/l as N )

# Monthly average N concentration





# Catchment Snapshot Sites

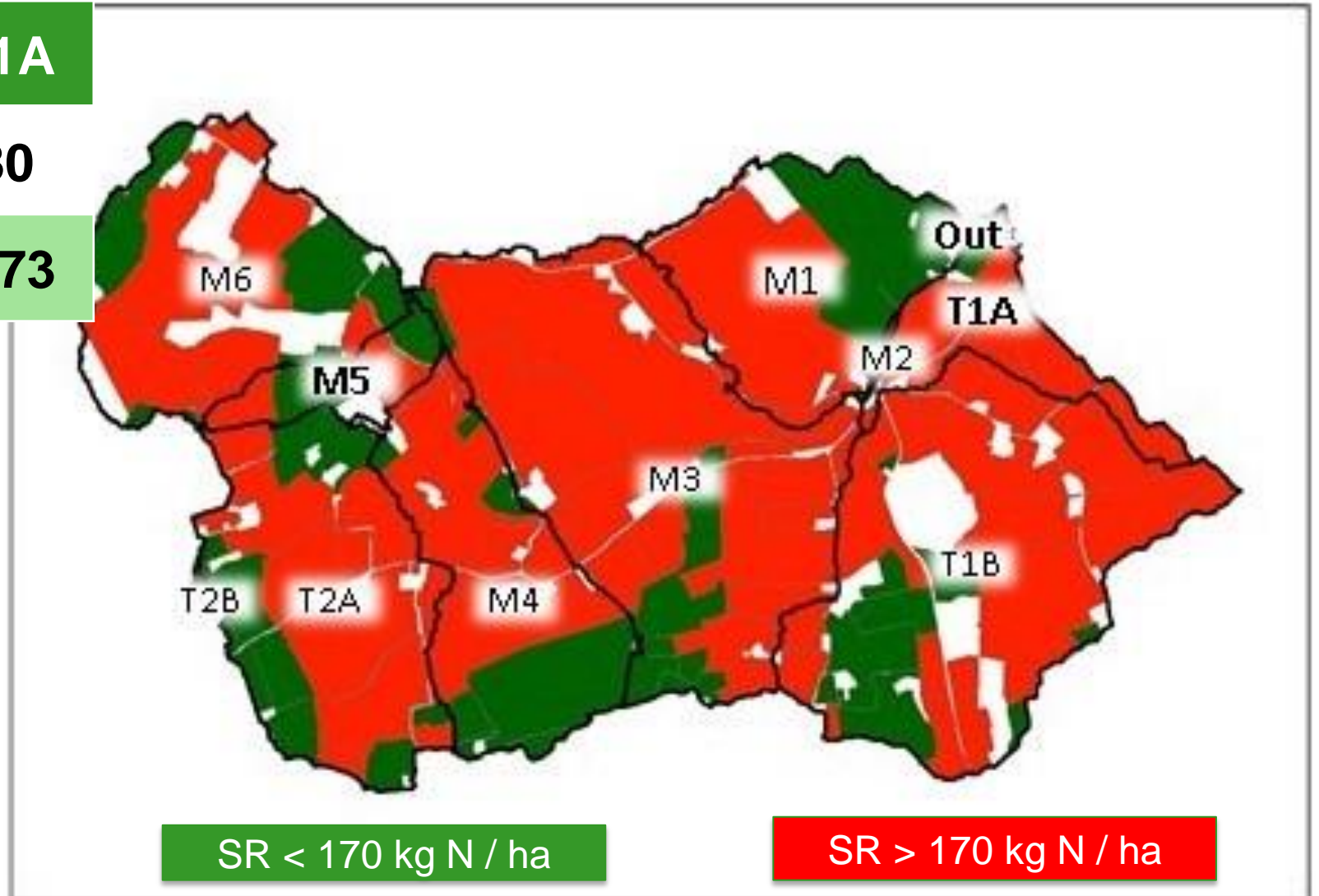


- 10 minute monitoring at Outlet
- Monthly grab samples
  - 8 Sub-catchments
- Stocking rate effect
- Comparison across similar soil & weather conditions

# Timoleague Sub-catchment SR & NO<sub>3</sub>-N mg l<sup>-1</sup>

	Total	M5	T1A
%>170	80	12	80
N mg l <sup>-1</sup>	5.97	4.24	5.73

In Timoleague, higher SR was reflected in the NO<sub>3</sub>-N concentrations monitored in sub-catchment stream water

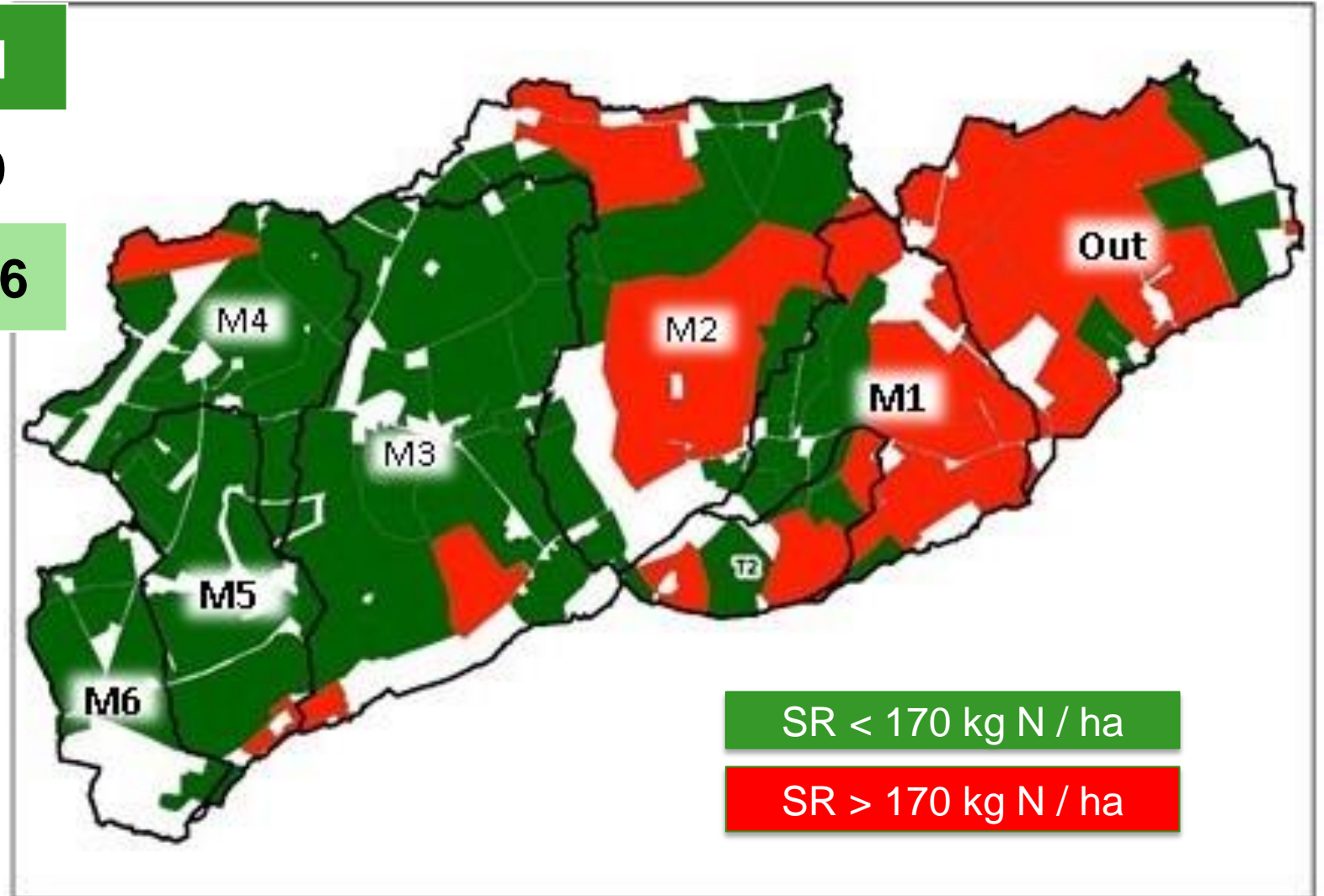




# Ballycanew Sub-catchment SR & NO<sub>3</sub>-N mg l<sup>-1</sup>

	Total	M5	M1
%>170	34	3	39
N mg l <sup>-1</sup>	2.6	3.4	2.36

In Ballycanew, higher SR was not reflected in the NO<sub>3</sub>-N concentrations monitored in sub-catchment stream water



# Can intensive pasture farming take place with improving water quality?

- N loss is both complex and diffuse
  - Focus on reducing N surplus
  - Reduce reliance on chemical N
  - Better use of organic manures
  - Increasing animal performance
  - Better understanding of high risk times and locations

**Yes, targeting actions in the right place at the right time**