

LAKE IN IRELAND

MIRRORS OF CHANGE

**United Kingdom and Ireland
Lake Network**

Killarney 14th October 2025

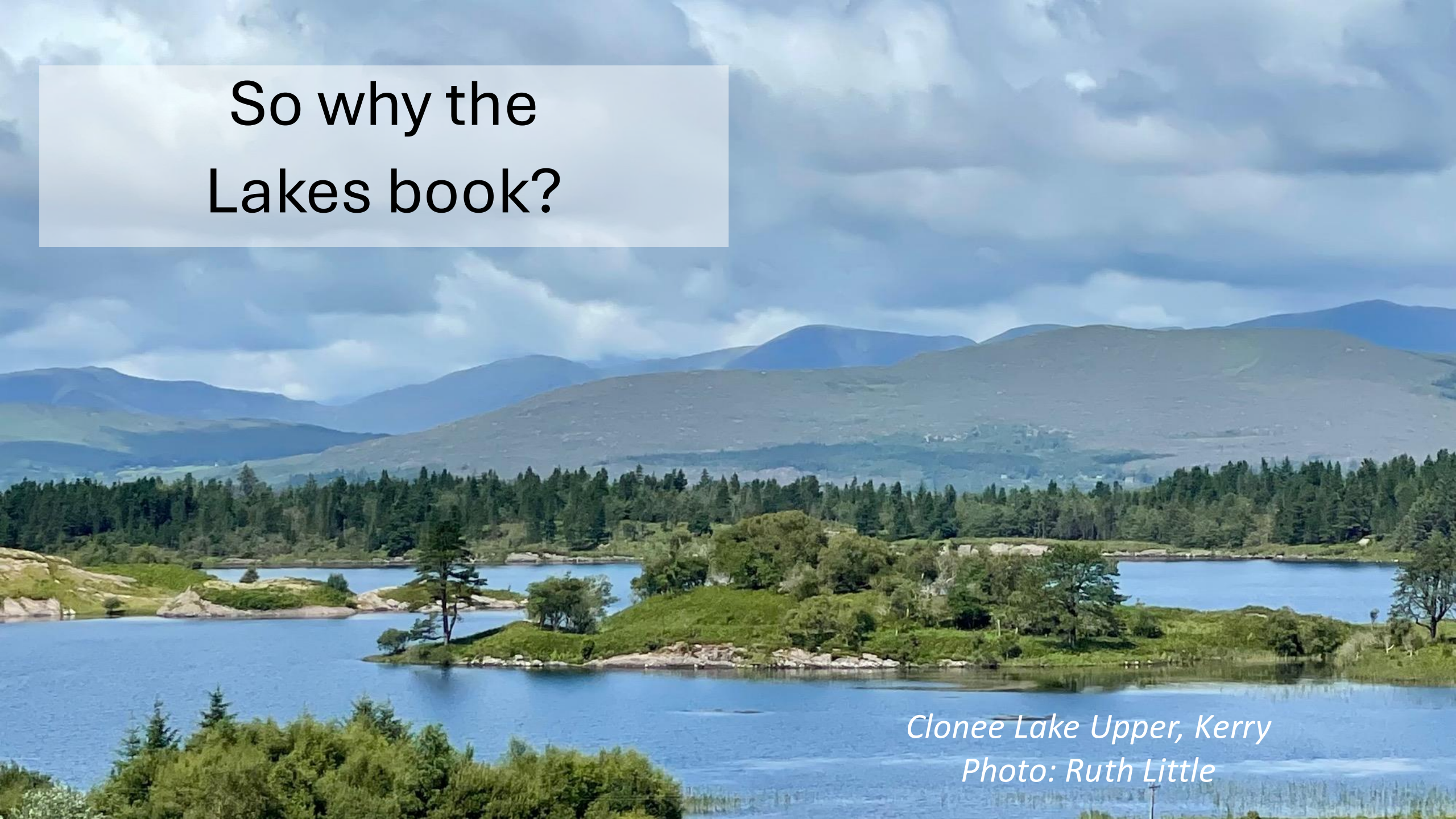
*Kylemore Lough
Photo: Daniel Cierpal*



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



So why the Lakes book?



Clonee Lake Upper, Kerry
Photo: Ruth Little

Inspiration

Irish Geography
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Natural capital: An inventory of Irish lakes

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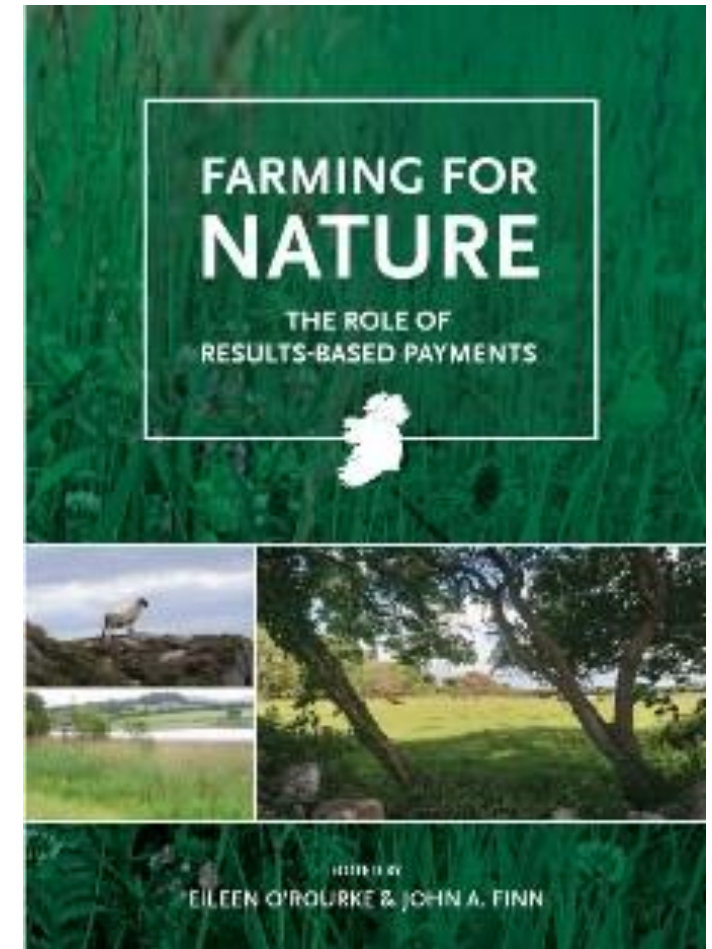
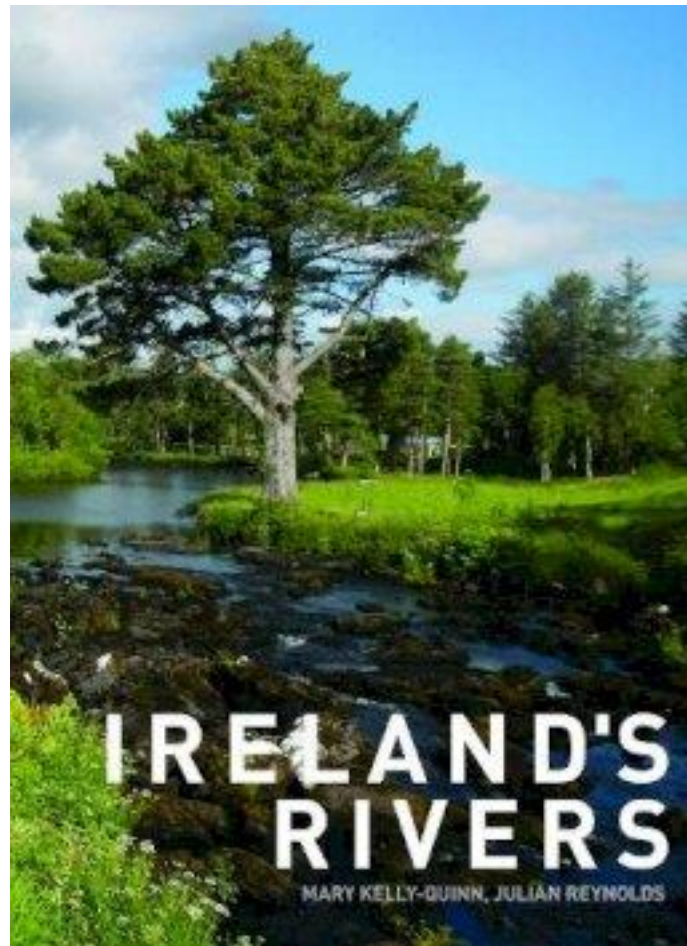
Abstract: Lakes are important components of our landscape and along with networks of rivers and streams provide a range of important ecosystem services and natural capital. Estimates of lake numbers, particularly small lakes, have generally been under-represented historically as they did not appear on most printed maps. Accurate calculation of lake numbers is necessary in determining realistic estimates of their collective contribution to provisioning, regulating, supporting and cultural ecosystem services. A summary of the available lake data is vital to help shape research efforts to determine catchment and lake system contributions to biogeochemical processes, for example, carbon burial, pollution, filtration, and biodiversity. This is particularly important in the context of global climate change. In light of the most recent global inventory of lakes and an increasing recognition of aquatic ecosystem services, this paper summarises the publicly available spatial data on the lake population for the island of Ireland. A range of datasets of variable spatial resolution exists for the Irish ecoregion, which suggest varying lake populations of 360, 908 and 976 lakes greater than 0.1 km² surface area. Moreover, the most detailed dataset includes 12,205 lakes greater than 0.00001 km² in the Republic of Ireland (RoI). Additional complexities exist with access to lake data for Northern Ireland (NI). This creates confusion in efforts to valorise lake natural capital for the Irish ecoregion. This summary of the Irish lake population provides context for the selection of lakes for future study and highlights the variable nature of the spatial data.

Keywords: lake inventories, digital datasets, natural capital, Ireland

Introduction

Lakes have been described as temporary landscape features resulting from natural or human interferences in the drainage area (Reynolds, 1998; Downing, 2010). The number of lakes in the landscape varies with geography and the relatively permanent landscape morphological characteristics. Other influences include the more transient climatic conditions and increasingly anthropogenic catchment activities. For example, high altitude lakes often occur in glacially scoured basins and have outlets but no inlets and thus are described as headwater lakes. Valley lakes are invariably drainage lakes with

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This FREE Digital Book contains

- 22 Chapters
- in 560 pages
- by 52 Co-authors
- Lakes in 29 counties
- All-Island

Pine Island, Connemara
Photo: Ruth Little



1	Introduction - lakes a valuable resource
2	Glacial lake origins - icy histories
3	Lake sediments - invisible archives
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20	Dive in – engaging public participation in water stewardship
21	Lakes and local communities - deeper links?
22	Lake water futures

- Showcase all-island lakes
- Geography, science, and history
- Significant lake water issues
- Highlight research gaps

Peer reviewed

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LAKE IN IRELAND

MIRRORS OF CHANGE

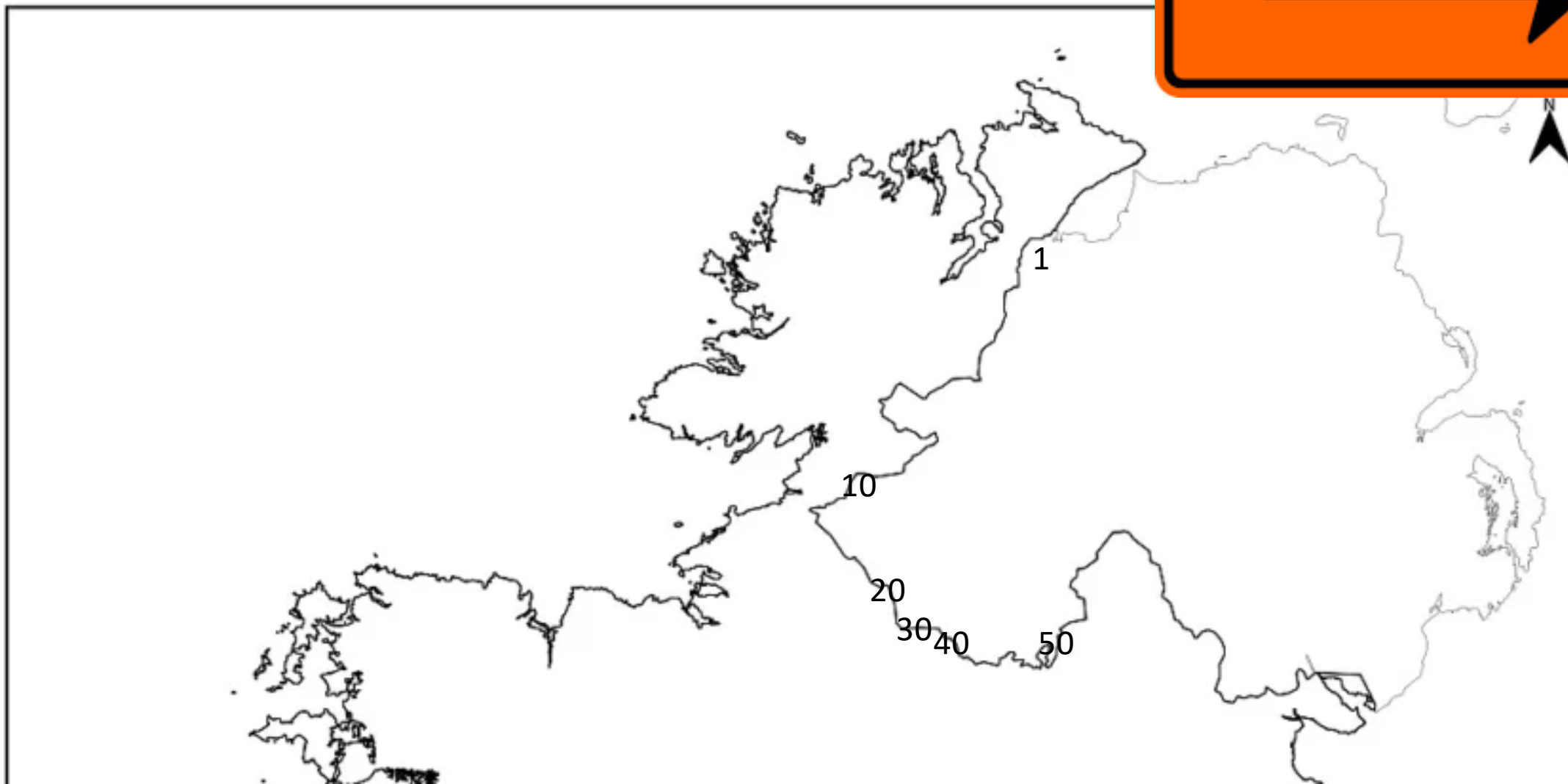
Edited by
Catherine Dalton
Elvira de Eyto • Eleanor Jennings



Chapter Lead Authors



Lakes that straddle the border?



Lough Cummeenoughter, Kerry

Photo: Emer Magee



Past

Ch. 2 Glacial lake origins – icy histories

Ch. 15 Shore thing-Lake settlement in prehistoric Ireland

Ch. 16 Dive time-lake settlement in medieval Ireland

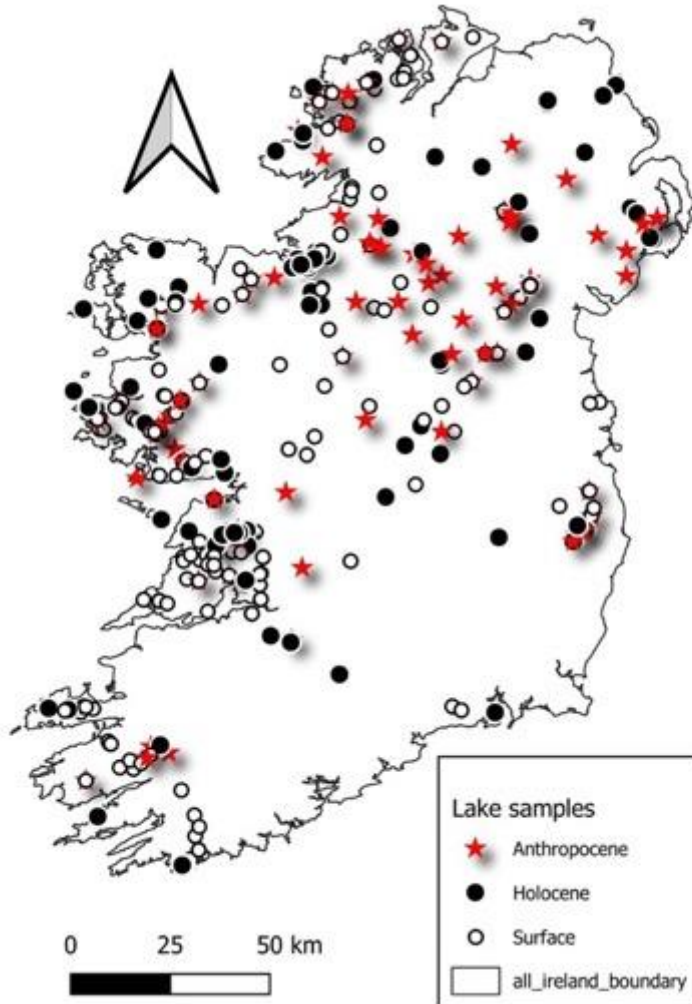




Ch. 3 Lake sediments– invisible archives



- Syntheses work on Holocene, Anthropocene and surface sediment samples
- A modest subset of the lake population



OLLSCOIL NA GAILLIMHE
UNIVERSITY OF GALWAY



Loughborough
University



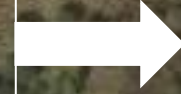
Gortlecka and Gealáin, Clare

A satellite map of a landscape in Clare, Ireland. The terrain is a mix of green vegetation and greyish-brown bare ground or low vegetation. Two prominent lakes are visible: a larger one in the center-left and a smaller one in the upper right. Two white arrows point upwards towards these lakes. The larger lake is surrounded by a greenish-yellow area, possibly a wetland or marsh. The smaller lake is surrounded by a darker, more brownish area. The overall landscape appears to be a mix of natural and possibly managed land.

Watts, W.A. (1984) The Holocene vegetation of the Burren. In: *Lake sediments and Environmental History*

Holmes 2016. Lake isotope records of the 8200-year cooling event. *Quaternary Science Reviews*.

Weir (1993) Dark Ages
and the pollen record.
Emania 11.



Ch. 17 Lake Cultural Histories - Snapshots



Demesne pond, Montalto, Co. Down

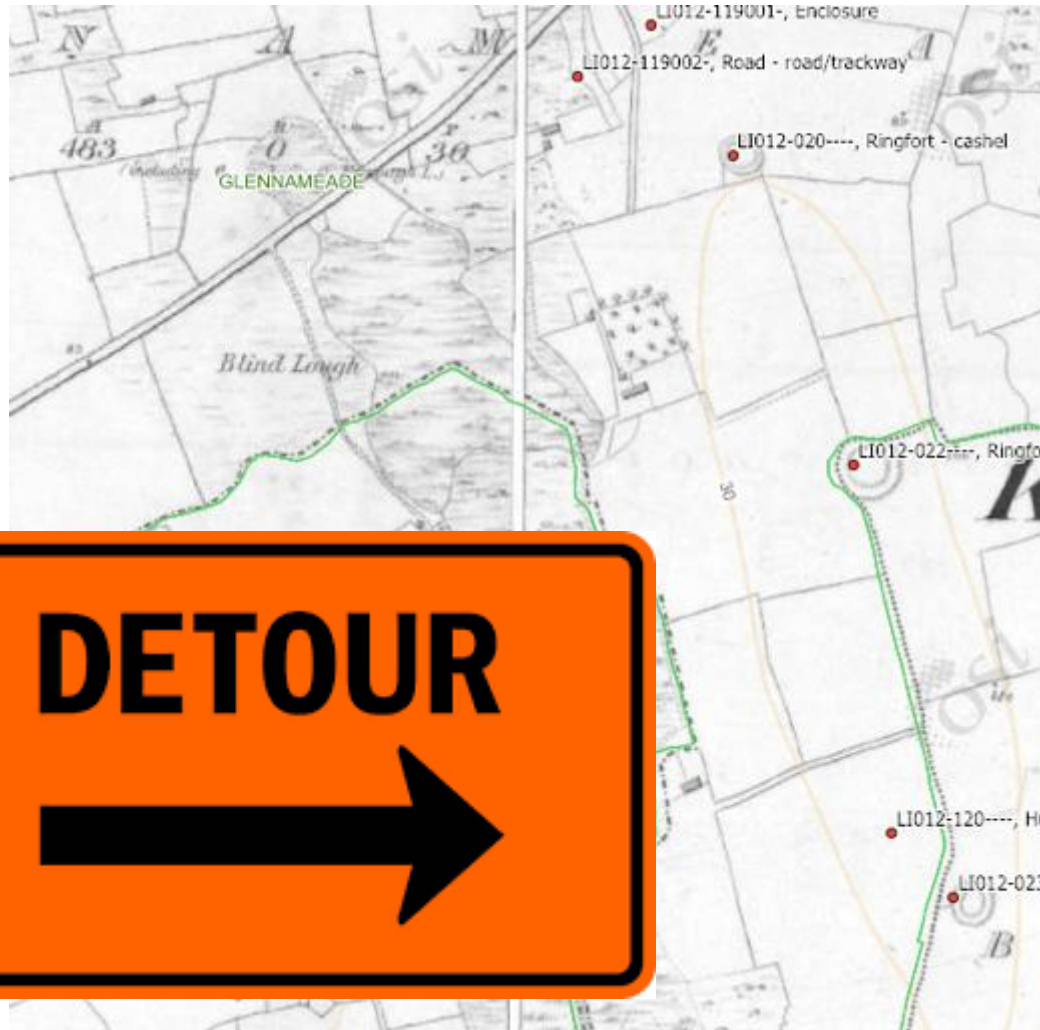


Reviews human interactions and cultural influences of lakes

- Mythology and folklore
- Art and leisure
- Land and lake drainage
- Demesnes
- Industrial use
- Knowledge of lakes

Blind Lough, Glenameade Co. Limerick

6" Map First Edition



EXTINCT Blind Lough: Rinboy, Fanad Co. Donegal

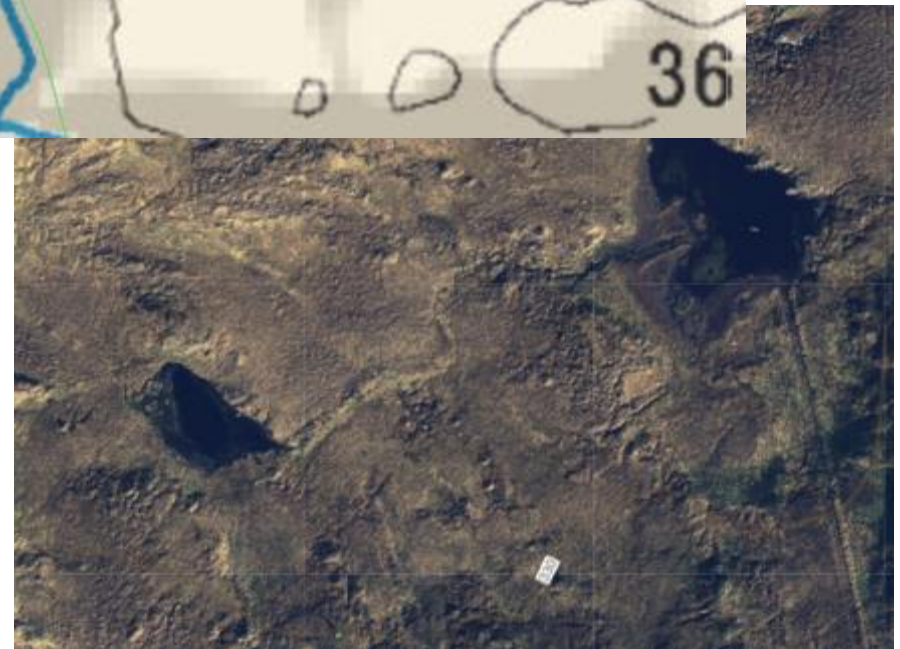
55.243612, -7.732883



EXTANT Blind Lough

Meenbog Donegal

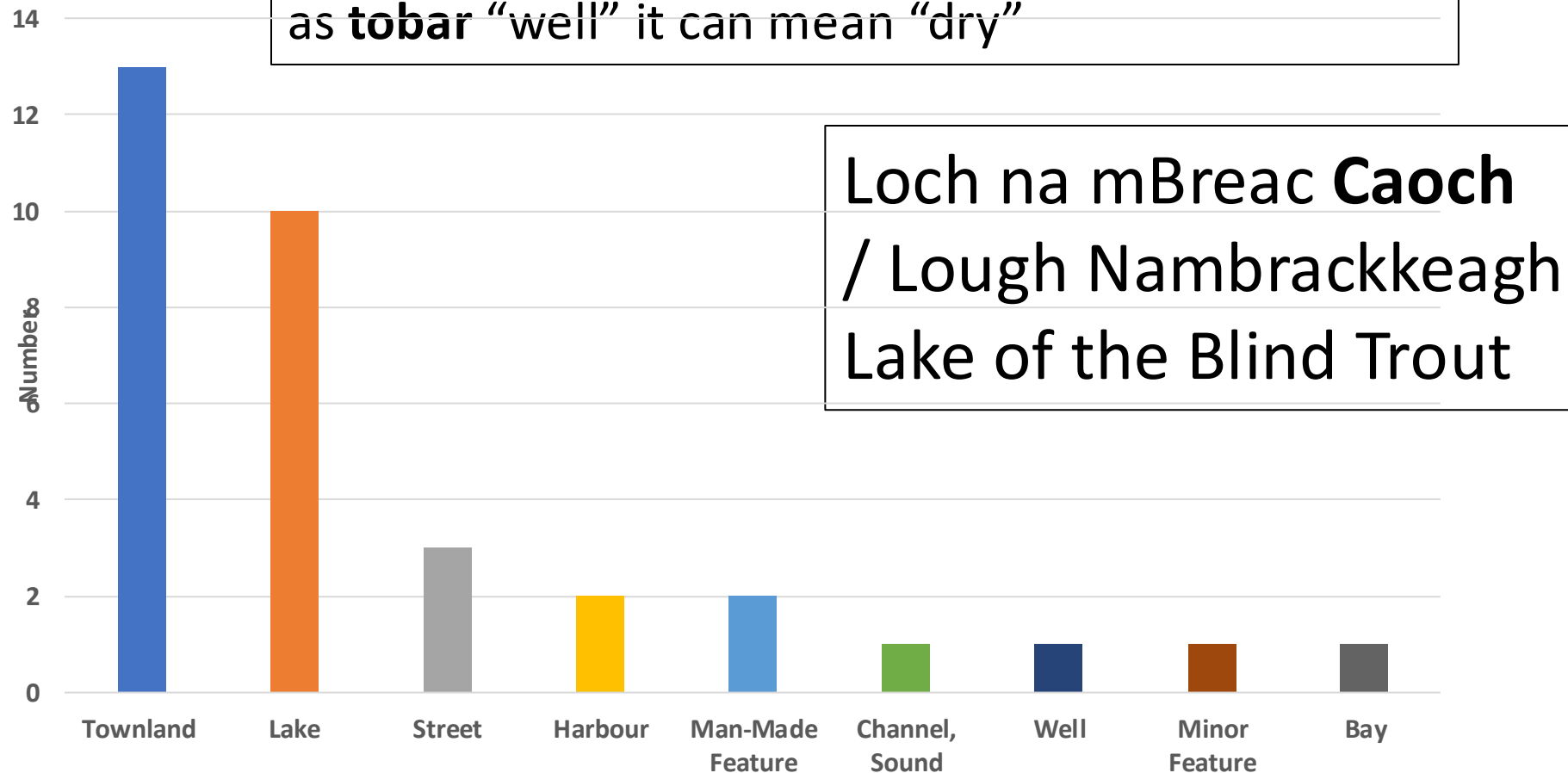
54.707189, -7.929701



Caoch - “Blind” as Gaeilge



The adjective **Caoch** is generally explained as “**blind**”, but in compound with other elements such as **tobar** “well” it can mean “dry”



Historical Newspapers

- Mentions



*The lake of the red bog is a **Blind Lough** at Philipstown, west of Dundalk* (Dundalk Democrat January 17, 1903; Page: 2)

*At present the sewage flowed into a **blind lough** ; outside the asylum boundary, and from there passed through reeds and bushes: into the stream which flowed into Lough Lannach* (Connaught Telegraph March 16, 1907; Page: 7)


*An eleven-ton digger is devoured by a marsh...known locally as the **Blind Lough*** (Anglo-Celt, Friday, January 02, 1970 Page: 1)

UK Lakes Portal – 40K lakes (only 3)

ONLINE LECTURES x Events – AICBRN x Ireland's Rivers – M x deirdre tierney epa x UK Lakes Portal x Blind Tarn, Cumbria x Google Maps x +

uklakes.ceh.ac.uk/detail.html?wbid=27846

☆ ⌵ ⬇️ C ⋮

 UK Centre for Ecology & Hydrology

UK Lakes Portal

Map search

About


Search

Blind Lochs

Water body ID 27846

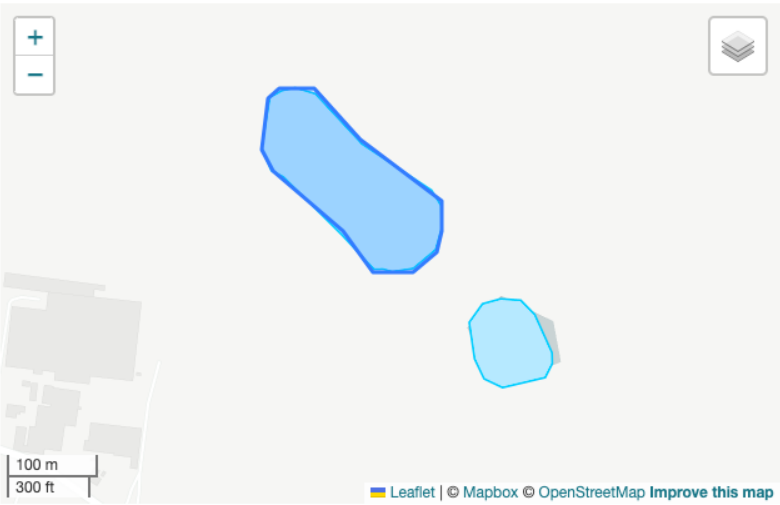
Blind Lochs is a very small freshwater lake located in Dumfries and Galloway, Scotland. It is generally shallow with low alkalinity and is situated at low altitude.

Surface area	2 ha
Mean depth [i]	3.5 m
Catchment area	271 ha
Grid reference	NY06088390
Elevation	57 m A.O.D.



Leaflet | © Mapbox © OpenStreetMap [Improve this map](#)

+
–



Leaflet | © Mapbox © OpenStreetMap [Improve this map](#)

☒ Show selected lake ☒ Show all lakes ☐ Show lake catchment

Parameters

Typology

Chemistry

Land cover (2007)

Biology

Connectivity

Perimeter length

1 km

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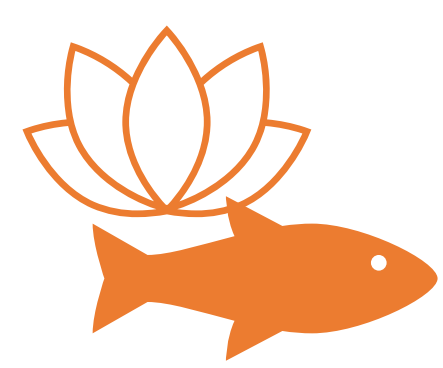
[Contact](#)

Lough Alewnaghta, Clare
Photo: Ruth Little



Present



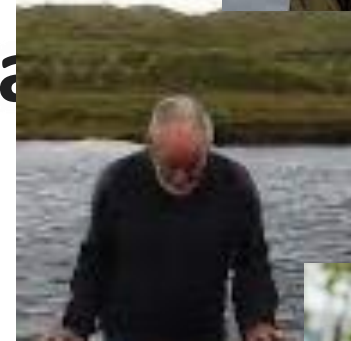


Ch. 5. Biodiversity in lakes – nature in balance?

Ch 6. Fish, fisheries and angling – the status quo

Ch 10. Lakes of distinction - Annex I lake habitats

Ch 13. Aquatic invasive species – lake aliens



Lough Neagh
Photo: James Thompson



Ch. 4. Hydrology - going with the flow

Ch. 11. State of lakes – lake health

**Ch. 12. Sentinel lakes –
chronicles of change**

**Ch. 14. Lakes and climate
change – looking to the future**





Lough Bunny, Clare
Photo: Ruth Little



Ch. 7. Turloughs – a disappearing act



Ch. 8. Uplands - lakes in the clouds



Ch. 9. Coastal lakes and lagoons – the land's edge

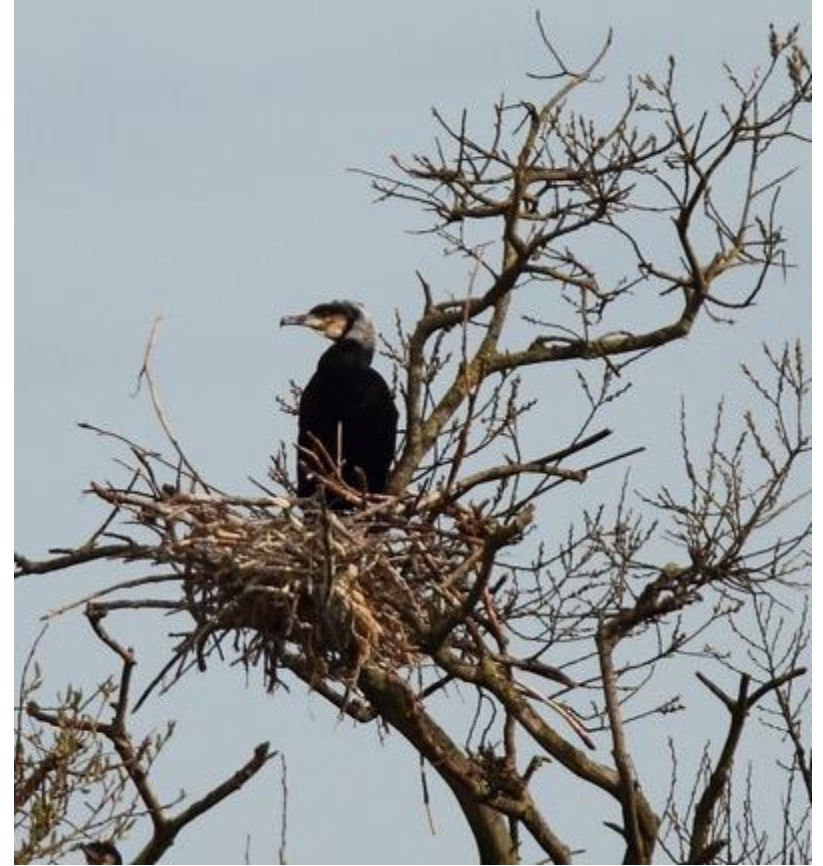
DETOUR





18. Recreation and amenity lakes – hotspots for wildlife and people





Lake Habitats – shore, shoreline, near shore, open water
c.40% of our lake/pond population in SACs



Photo: Thomas Flynn



Photo: Catherine Dalton



Photo: Emer Magee



An Roinn
Ealaíon, Oidhreachta agus Gaeltachta
Department of
Arts, Heritage and the Gaeltacht

LOCH BHAILE UÍ AILLE
TEARMANN ÉANLAITHE FIÁINE

BALLYALLIA LAKE
WILDFOWL SANCTUARY

COSC AR FHIACH

HUNTING PROHIBITED

Faoi Ordú I.R. Uimh. 192 de
1979

by Order S.I. No. 192 of 1979

Na hAchtanna um Fhiadhúlra,
1976 agus 2000

Wildlife Acts, 1976 and 2000

NATIONAL PARKS AND



Ballyallia Lake, Ennis



Ch 19. Navigating governance in water management

Ch 20. Dive in – engaging communities in water stewardship



Ch 21. Lakes and local communities – deeper links



Lough Curraghlickey, Cork
Photo: Ruth Little

PJ Blaines Lake, Donegal
Photo: Emer Magee



Future

Current state of lakes in Ireland?

Better than our more industrial
European neighbours



Maintaining the status quo for
the last 50 years



Lacking progress



52% of
lakes in
moderate,
poor or
bad status

Ch. 22 Lake Futures?

The chapter authors make 50+ recommendations for lake research in response to the current and future water quality, biodiversity and climate warming challenges





BRITISH ECOLOGICAL SOCIETY

Book Review



- Restricted range and number of references
- Include more Irish Historic studies to illustrate plant and animal groups
- The Quaternary and Anthropocene paleolimnologist can only ponder on whether their sites/publications are included
- Add a chapter on lowland lakes of the Carboniferous central plain

Lakes in Ireland: Mirrors of Change

Edited by Catherine Dalton, Elvira de Eyto & Eleanor Jennings

Open access

It took great courage and leadership to produce *Lakes in Ireland: Mirrors of Change*. Editors, please take a bow! A whole generation of over 50 limnologists in Ireland, UK and beyond was marshalled to produce the 22 peer reviewed chapters covering glacial history, hydrology, wildlife and habitats, cultural connections, environmental governance and water resources. It is published free online by the Marine Institute.

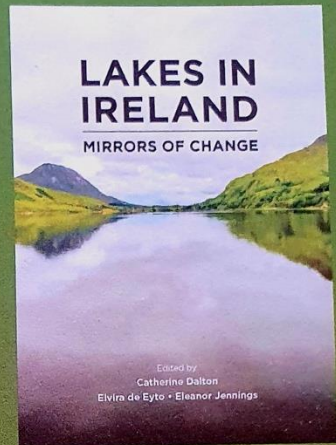
With nearly 14,000 lakes and ponds, Ireland is a fantastic place to learn freshwater ecology. This book is a celebration of the diversity and environmental history of lakes, and provides a valuable environmental baseline for our time. It also contains guidance on the future management of this valuable resource. In an all-island context, you will learn about lake processes, biodiversity and key environmental pressures, such as invasive species, eutrophication and climate change.

It is not a classic natural history of lakes based on a fully comprehensive compendium of earlier investigations. Indeed, some of the general biodiversity accounts could have benefitted from using more Irish historic studies to illustrate the plant and animal groups. Sometimes there is also a restricted feel to the number and range of supporting references. Quaternary and more Anthropocene palaeolimnologists can ponder where their publications rest in the bar graphs of papers illustrating the comprehensive account of the development of this field in Ireland.

The book does not disappoint with its specific consideration of Ireland's unique turloughs and rare types of coastal lagoons. There is also a chapter on Ireland's marginal rim of oligotrophic and dystrophic upland lakes, but a complimentary chapter on the lowland lakes of the Carboniferous Central Plain feels absent. However, with rich Chara communities and Najas records, the best of the unusual alkaline marl producing waterbodies are discussed as lakes of distinction protected by the Habitats Directive. Debates about the true nature of "natural eutrophic lakes" look set to continue. Sadly, an overall picture of degradation of the EU lake types emerges, with few lakes now described as in good conservation condition.

Monitoring under the Water Framework Directive (WFD) has shown that despite some local management interventions, there has been no significant improvements in overall national lake health, with eutrophication being the main challenge. However, Ireland's lake quality is in a better position than most EU members states, although Brexit has complicated the all-island governance across the international border.

In this book, the social and cultural aspects of lakes are a highlight. The richness of Ireland's lacustrine archaeology is remarkable, with 600 log boats recovered and large hoards and votive offerings of gold and other metal objects. Lakes are defining features of ancient landscapes, providing habitation in crannogs, defence, food sources and communication routes. They continue to mark geographical and administrative boundaries. The



colonial descriptions of the Irish people and the abuse of wetlands will make you squirm with discomfort, but this shared history also produced amenity lakes and reservoirs. Today a balance is being sought between nature and the multiple recreational uses of lakes, including angling, water sports, boating and tourism.

Although much knowledge has accumulated, Irish limnology still has a strong exploratory component, and lakes continue to be surveyed, cored and ecologically understood, which is a great opportunity for early career researchers. With academics and environmental managers working closely together, this publication is a very powerful example of the critical importance of long-term monitoring and interdisciplinary collaboration. Future research priorities are drawn together in a final chapter. In an environmentally sensitive location on the edge of the Atlantic, Ireland's lakes have been placed on the international stage as an extremely critical natural resource responding to a changing world.

Catherine Duigan



Lough Gur, Ireland



EUROLakes



ProCleanLakes

Associated Region



EPA Call Topic: Protecting and Restoring our Natural Environment

LIGHTHOUSE

Project Reference #2025-NE-1297

Leveraging Island liGHthouses and Harnessing Technology to examine Heritage Opportunities in Unique offShore Environments

Inform '**Manage by Nature Plans**'
for the Lighthouse Sector



Commissioners of
IRISH LIGHTS



Mew Island

All-Island Climate + Biodiversity Research Network

Plug 😊



LAKE IN IRELAND

MIRRORS OF CHANGE

2nd Edition?

THANK YOU !



Kylemore Lough
Photo: Daniel Cierpal