

## CEH UK Lakes Restoration – Publications 2007-2012

More details of the following publications are available on the [NERC Open Research Archive](#)

Updated 27 July 2012

Anthony, S., Duethmann, D., Turner, T., Carvalho, L., and Spears, B., 2008, Identifying the Gap to Meet the Water Framework Directive - Lakes Baseline. Final Report.

Bennion, H., Carvalho, L., Sayer, C.D., Simpson, G.L., and Wischnewski, J., 2012, Identifying from recent sediment records the effects of nutrients and climate on diatom dynamics in Loch Leven: FRESHWATER BIOLOGY.

Beresford, A.L., and Jones, J.I., 2010, Weedbeds and big bugs: the importance of scale in detecting the influence of nutrients and predation on macroinvertebrates in plant-dominated shallow lakes: FRESHWATER BIOLOGY, v. 55, p. 514-530.

Bernhardt, J., Elliott, J.A., and Jones, I.D., 2008, Modelling the effects on phytoplankton communities of changing mixed depth and background extinction coefficient on three contrasting lakes in the English Lake District: FRESHWATER BIOLOGY, v. 53, p. 2573-2586.

Blackburn, J.H., Clarke, R.T., Gunn, R.J.M., Gunn, I.D., Irvine, K., Jones, I.J., Kneebone, N.T., Neale, M.W., O'Hare, M.T., and Tree, A., 2007, Review of Lake Benthic Macro-invertebrate Sampling Methods and Strategy for the Water Framework Directive: Bristol.

Carss, D., Spears, B.M., Quinn, L., and Cooper, R., 2012, Long-term variations in waterfowl populations in Loch Leven: identifying discontinuities between local and national trends: Hydrobiologia, v. 681, p. 85-104.

Carvalho, L., Dudley, B., Gunn, I.D.M., and Kirika, A., 2007, Loch Leven 2004-2006: trends in water quality and biological communities.

Carvalho, L., Miller, C., Spears, B.M., Gunn, I.D.M., Bennion, H., Kirika, A., and May, L., 2012, Water quality of Loch Leven: responses to enrichment, restoration and climate change: Hydrobiologia, v. 681, p. 35-47.

Carvalho, L., Miller, C.A., Scott, E.M., Codd, G.A., Davies, P.S., and Tyler, A.N., 2011, Cyanobacterial blooms: statistical models describing risk factors for national-scale lake assessment and lake management: Science of the Total Environment, v. 409, p. 5353-5358.

Carvalho, L., Solimini, A., Phillips, G., van den Berg, M., Pietilainen, O.-P., Lyche Solheim, A., Poikane, S., and Mischke, U., 2008, Chlorophyll Reference Conditions for European Lake Types used for Intercalibration of Ecological Status: Aquatic Ecology, v. 42, p. 203-211.

Carvalho, L., Solimini, A.G., Phillips, G., Pietilainen, O.-P., Moe, J., Cardoso, A.C., Solheim, A.L., Ott, I., Sondergaard, M., Tartari, G., and Rekolainen, S., 2009, Site-specific chlorophyll reference conditions for lakes in Northern and Western Europe: Hydrobiologia, v. 633, p. 59-66.

- Corrigan, L.J., Lucas, M.C., Winfield, I.J., and Hoelzel, A.R., 2011, Environmental factors associated with genetic and phenotypic divergence among sympatric populations of Arctic charr (*Salvelinus alpinus*): *Journal of Evolutionary Biology*, v. 24, p. 1906-1917.
- Corrigan, L.J., Winfield, I.J., Hoelzel, A.R., and Lucas, M.C., 2011, Dietary plasticity in Arctic charr (*Salvelinus alpinus*) in response to long-term environmental change: *Ecology of Freshwater Fish*, v. 20, p. 5-13.
- Curtis, C., Simpson, G., Heaton, T., Maberly, S., Evans, C., Feuchtmayr, H., Shilland, J., Turner, S., Kernan, M., Jones, T., Burden, A., and Shilland, E., 2010, *Freshwater Umbrella third Annual Report October 2010*.
- Curtis, C., Simpson, G., Shilland, J., Turner, S., Kernan, M., Monteith, D., Rose, N., Evans, C., Norris, D., Rowe, E., Emmett, B., Sowerby, A., Heaton, T., Maberly, S., Ostle, N., and Grant, H., 2007, *Defra Freshwater Umbrella Programme - Final Report. Freshwater Umbrella - the effects of nitrogen deposition and climate change on freshwaters in the UK. Final report*, in Curtis, C., and Simpson, G., eds.: London.
- Curtis, C.J., Heaton, T.H.E., Simpson, G.L., Evans, C.D., Shilland, J., and Turner, S., 2012, Dominance of biologically produced nitrate in upland waters of Great Britain indicated by stable isotopes: *Biogeochemistry*.
- Diaz, M.M., and Maberly, S.C., 2009, Carbon-concentrating mechanisms in acidophilic algae: *Phycologia*, v. 48, p. 77-85.
- Dudley, B., Defew, L., and May, L., 2007, Elevated phosphorus inputs to Loch Leven during storm events - implications for load estimation and catchment management, in Heckrath, G., Rubaek, G.H., and Kronvang, B., eds., *Diffuse Phosphorus Loss. Risk assessment, mitigation options and ecological effects in river basins: DJF Plant Science: Aarhus, Denmark, National Environment Research Institute, University of Aarhus*, p. 141-144.
- Dudley, B., Gunn, I.D.M., Carvalho, L., Proctor, I., O'Hare, M.T., Murphy, K.J., and Milligan, A., 2012, Changes in aquatic macrophyte communities in Loch Leven: evidence of recovery from eutrophication?: *Hydrobiologia*, v. 681, p. 49-57.
- Duethmann, D., Anthony, S., Carvalho, L., and Spears, B., 2009, A model-based assessment of non-compliance of phosphorus standards for England and Wales: *International Journal of River Basin Management*, v. 7, p. 197-207.
- Durand, P., Breuer, L., Johnes, P.J., Billen, G., Butturini, A., Pinay, G., van Grinsven, H., Garnier, J., Rivett, M., Reay, D.S., Curtis, C., Siemens, J., Maberly, S., Kaste, O., Humborg, C., Loeb, R., de Klein, J., Hejzlar, J., Skoulikidis, N., Kortelainen, P., Lepisto, A., and Wright, R., 2011, Nitrogen processes in aquatic ecosystems, in Sutton, M.A., Howard, C.M., Erisman, J.W., Billen, G., Bleeker, A., Grennfelt, P., van Grinsven, H., and Grizzetti, B., eds., *The European Nitrogen Assessment: Sources, Effects and Policy Perspectives: Cambridge, Cambridge University Press*, p. 126-146.
- Edeline, E., Haugen, T.O., Weltzien, F.-A., Claessen, D., Winfield, I.J., Stenseth, N.C., and Vollestad, L.A., 2010, Body downsizing caused by non-consumptive social stress severely depresses population growth rate: *Proceedings of the Royal Society of London, B*, v. 227, p. 843-851.

Edeline, E., Le Rouzic, A., Winfield, I.J., Fletcher, J.M., James, J.B., Stenseth, N.C., and Vollestad, L.A., 2009, Harvest-induced disruptive selection increases variance in fitness-related traits: *Proceedings of the Royal Society of London, B*, v. 276, p. 4163-4171.

Elliott, J.A., 2010, The seasonal sensitivity of Cyanobacteria and other phytoplankton to changes in flushing rate and water temperature: *Global Change Biology*, v. 16, p. 864-876.

Elliott, J.A., 2012, Is the future blue-green? A review of the current model predictions of how climate change could affect pelagic freshwater cyanobacteria: *Water Research*, v. 46, p. 1364-1371.

Elliott, J.A., 2012, Predicting the impact of changing nutrient load and temperature on the phytoplankton of England's largest lake, Windermere: *FRESHWATER BIOLOGY*, v. 57, p. 400-413.

Elliott, J.A., and Bell, V.A., 2011, Predicting the potential long-term influence of climate change on vendace (*Coregonus albula*) habitat in Bassenthwaite Lake, U.K: *FRESHWATER BIOLOGY*, v. 56, p. 395-405.

Elliott, J.A., and Defew, L., 2012, Modelling the response of phytoplankton in a shallow lake (Loch Leven, UK) to changes in lake retention time and water temperature: *Hydrobiologia*, v. 681, p. 105-116.

Elliott, J.A., Irish, A.E., and Reynolds, C.S., 2010, Modelling phytoplankton dynamics in fresh waters: affirmation of the PROTECH approach to simulation: *Freshwater Reviews*, v. 3, p. 75-96.

Elliott, J.A., Jones, I.D., and Page, T., 2009, The importance of nutrient source in determining the influence of retention time on phytoplankton: an explorative modelling study of a naturally well-flushed lake: *Hydrobiologia*, v. 627, p. 129-142.

Emmrich, M., Brucet, S., Winfield, I.J., Jeppesen, E., Lauridsen, T.L., Volta, P., Argillier, C., Pedron, S., Holmgren, K., Hesthagen, T., Ritterbusch, D., and Mehner, T., 2011, WISER Deliverable 3.4-2: Changes in size structure of fish assemblages in European lakes along eutrophication and hydromorphological pressure gradients, Volume 2, p. 4-4.

Evans, C.D., Cooper, D.M., Monteith, D.T., Helliwell, R.C., Moldan, F., Hall, J., Rowe, E.C., and Cosby, B.J., 2010, Linking monitoring and modelling: can long-term datasets be used more effectively as a basis for large-scale prediction?: *Biogeochemistry*, v. 101, p. 211-227.

Evans, C.D., Monteith, D.T., Reynolds, B., and Clark, J.M., 2008, Buffering of recovery from acidification by organic acids: *Science of the Total Environment*, v. 404, p. 316-325.

Ferguson, C.A., Bowman, A.W., Scott, E.M., and Carvalho, L., 2009, Multivariate varying-coefficient models for an ecological system: *Environmetrics*, v. 20, p. 460-476.

Feuchtmayr, H., Moran, R., Hatton, K., Conner, L., Heyes, T., Moss, B., Harvey, I., and Atkinson,

D., 2009, Global warming and eutrophication: effects on water chemistry and autotrophic communities in experimental hypertrophic shallow lake mesocosms: *Journal of Applied Ecology*, v. 46, p. 713-723.

Feuchtmayr, H., Moss, B., Harvey, I., Moran, R., Hatton, K., Connor, L., and Atkinson, D., 2010, Differential effects of warming and nutrient loading on the timing and size of the spring zooplankton peak: an experimental approach with hypertrophic freshwater mesocosms: *Journal of Plankton Research*, v. 32, p. 1715-1725.

Fisher, J., and Stratford, C., 2008, Does reconnection mean restoration for an oxbow lake, Hungary?: *International Journal of River Basin Management*, v. 6, p. 201-211.

Foley, B., Jones, I.D., Maberly, S.C., and Rippey, B., 2012, Long-term changes in oxygen depletion in a small temperate lake: effects of climate change and eutrophication: *FRESHWATER BIOLOGY*, v. 57, p. 278-289.

Futter, M.N., Helliwell, R.C., Hutchins, M., and Aherne, J., 2009, Modelling the effects of changing climate and nitrogen deposition on nitrate dynamics in a Scottish mountain catchment: *Hydrology Research*, v. 40, p. 153-166.

Gunn, I., 2008, Analysis of Loch Lomond preserved crustacean zooplankton samples, 2001-2007.

Gunn, I.D.M., O'Hare, M., Carvalho, L., Roy, D.B., Rothery, P., and Darwell, A.M., 2010, Assessing the condition of lake habitats - a test of methods for surveying aquatic macrophyte communities: *Hydrobiologia*, v. 656, p. 87-97.

Gunn, I.D.M., O'Hare, M.T., Maitland, P.S., and May, L., 2012, Long-term trends in Loch Leven invertebrate communities: *Hydrobiologia*, v. 681, p. 59-72.

Hamerlynck, O., Duvail, S., Vandepitte, L., Kindinda, K., Nyingi, D.W., Paul, J.-L., Yanda, P.Z., Mwakalinga, A.B., Mgaya, Y.D., and Snoeks, J., 2011, To connect or not to connect?: floods, fisheries and livelihoods in the Lower Rufiji floodplain lakes, Tanzania: *Hydrological Sciences Journal*, v. 56, p. 1436-1451.

Houghton-Carr, H., Farquharson, F., Plinston, D.T., Sutcliffe, J.V., and Kimaro, T.A., 2008, Consultancy of the Development of a new Lake Victoria Water Release Policy: Final Report: Wallingford, UK.

Houghton-Carr, H., Farquharson, F., Plinston, D.T., Sutcliffe, J.V., and Kimaro, T.A., 2008, Consultancy on the Development of a new Lake Victoria Water Release Policy: Inception Report: Wallingford, UK.

Hunter, P.D., Tyler, A.N., Carvalho, L., Codd, G.A., and Maberly, S.C., 2010, Hyperspectral remote sensing of cyanobacterial pigments as indicators for cell populations and toxins in eutrophic lakes: *Remote Sensing of Environment*, v. 114, p. 2705-2718.

Jeppesen, E., Mehner, T., Winfield, I.J., Kangur, K., Sarvala, J., Gerdeaux, D., Rask, M., Malmquist, H.J., Holmgren, K., Volta, P., Romo, S., Eckmann, R., Sandstrom, A., Blanco, S., Kangur, A., Ragnarsson Stabo, H., Tarvainen, M., Ventela, A.-M., Sondergaard, M., Lauridsen, T.L., and Meerhoff, M., 2012, Impacts of climate warming on the long-term dynamics of key fish species in 24 European lakes: *Hydrobiologia*, v. 694, p. 1-39.

Jones, I., and Kelly, J., 2009, Using automatic monitoring to quantify the effects of weather and climate on the thermal structure of lakes in the UK.

Jones, I.D., Page, T., Elliott, J.A., Thackeray, S.J., and Heathwaite, A.L., 2011, Increases in lake phytoplankton biomass caused by future climate-driven changes to seasonal river flow: *Global Change Biology*, v. 17, p. 1809-1820.

King, L., Maberly, S.C., De Ville, M.M., Kitschke, M., Gibson, C.E., and Jones, R.I., 2009, Nitrogen stable isotope ratios of lake macrophytes in relation to growth form and nutrient-limitation: *Fundamental and Applied Limnology*, v. 175, p. 307-315.

Klavnsen, S.K., and Maberly, S.C., 2010, Effect of light and CO<sub>2</sub> on inorganic carbon uptake in the invasive aquatic CAM-plant *Crassula helmsii*: *Functional Plant Biology*, v. 37, p. 737-747.

Klavnsen, S.K., Madsen, T.V., and Maberly, S.C., 2011, Crassulacean acid metabolism in the context of other carbon-concentrating mechanisms in freshwater plants: a review: *Photosynthesis Research*, v. 109, p. 269-279.

Kolada, A., Hellsten, S., Søndergaard, M., Mjelde, M., Dudley, B., van Geest, G., Goldsmith, B., Davidson, T., Bennion, H., Nöges, P., Bertrin, V., and Institute of Environmental Protection, 2011, WISER Deliverable D3.2-3: Report on the most suitable lake macrophyte based assessment methods for impacts of eutrophication and water level fluctuations.

Kruk, C., Huszar, V.L.M., Peeters, E.H.M., Bonilla, S., Costa, L., Luring, M., Reynolds, C.S., and Scheffer, M., 2010, A morphological classification capturing functional variation in phytoplankton: *FRESHWATER BIOLOGY*, v. 55, p. 614-627.

Kubecka, J., Hohausova, E., Matena, J., Peterka, J., Amarasingh, U.S., Bonar, S.A., Hateley, J., Hickley, P., Suuronen, P., Tereschenko, V., Welcomme, R., and Winfield, I.J., 2009, The true picture of a lake or reservoir fish stock: a review of needs and progress: *Fisheries Research*, v. 96, p. 1-5.

Langangen, O., Edeline, E., Ohlberger, J., Winfield, I.J., Fletcher, J.M., James, J.B., Stenseth, N.C., and Vollestad, L.A., 2011, Six decades of pike and perch population dynamics in Windermere: *Fisheries Research*, v. 109, p. 131-139.

Layer, K., Hildrew, A., Monteith, D., and Woodward, G., 2010, Long-term variation in the littoral food web of an acidified mountain lake: *Global Change Biology*, v. 16, p. 3133-3143.

Letovsky, E., Heal, K.V., Carvalho, L., and Spears, B.M., 2012, Intracellular versus extracellular iron accumulation in freshwater periphytic mats across a mine water treatment lagoon: *Water, Air and Soil Pollution*, v. 223, p. 1519-1530.

Maberly, S.C., 2009, Options for the remediation of Windermere: Identification of current nutrient loads and future loads to meet ecological targets.

Maberly, S.C., and Carvalho, L., 2010, Reviewing phosphorus and nitrogen targets for the SSSI meres.

Maberly, S.C., De Ville, M.M., Feuchtmayr, H., Jones, I.D., Mackay, E.B., May, L., Thackeray, S.J., and Winfield, I.J., 2011, The limnology of Esthwaite Water: historical change and its causes, current state and prospects for the future.

- Maberly, S.C., De Ville, M.M., Kelly, J., and Thackeray, S.J., 2011, The state of Esthwaite Water in 2010.
- Maberly, S.C., De Ville, M.M., Thackeray, S.J., Feuchtmayr, H., Fletcher, J.M., James, J.B., Kelly, J.L., Vincent, C.D., Winfield, I.J., Newton, A., Atkinson, D., Croft, A., Drew, H., Saag, M., Taylor, S., and Titterton, H., 2011, A survey of the lakes of the English Lake District: The Lakes Tour 2010.
- Maberly, S.C., De Ville, M.M., Woods, C., Vincent, C., and Rowland, P., 2010, A comparison of chemical analyses on lakes from the English Lake District.
- Maberly, S.C., and Elliott, J.A., 2009, Options for the remediation of Windermere: PROTECH modelling of the effects of different management scenarios.
- Maberly, S.C., and Elliott, J.A., 2012, Insights from long-term studies in the Windermere catchment: external stressors, internal interactions and the structure and function of lake ecosystems: *FRESHWATER BIOLOGY*, v. 57, p. 233-243.
- Maberly, S.C., Thackeray, S.J., Jones, I.D., and Winfield, I.J., 2008, The response of Windermere to external stress factors: analysis of long-term trends.
- Mackay, E.B., Jones, I.D., Folkard, A.M., and Thackeray, S.J., 2011, Transition zones in small lakes: the importance of dilution and biological uptake on lake-wide heterogeneity: *Hydrobiologia*, v. 678, p. 85-97.
- Mackay, E.B., Jones, I.D., Thackeray, S.J., and Folkard, A.M., 2011, Spatial heterogeneity in a small, temperate lake during archetypal weak forcing conditions: *Fundamental and Applied Limnology*, v. 179, p. 27-40.
- Maltby, E., and Acreman, M.C., 2011, Ecosystem services of wetlands: pathfinder for a new paradigm: *Hydrological Sciences Journal*, v. 56, p. 1341-1359.
- Maltby, E., Ormerod, S., Acreman, M., Dunbar, M., Jenkins, A., Maberly, S., Newman, J., Blackwell, M., and Ward, R., 2011, Freshwaters : openwaters, wetlands and floodplains [chapter 9], UK National Ecosystem Assessment: understanding nature's value to society. Technical Report: Cambridge, UK, UNEP-WCMC, p. 295-360.
- May, L., 2008, Loch Leven: understanding environmental change, NERC Council visit to CEH Edinburgh: CEH Edinburgh, NERC/Centre for Ecology & Hydrology.
- May, L., and Carvalho, L., 2010, Maximum growing depth of macrophytes in Loch Leven, Scotland, United Kingdom, in relation to historical changes in estimated phosphorus loading: *Hydrobiologia*, v. 646, p. 123-131.
- May, L., Carvalho, L., Gunn, I.D.M., and Kirika, A., 2007, The impact of trophic interactions on the recovery of Loch Leven after reduction in phosphorus loads, in Heckrath, G., Rubaek, G.H., and Kronvang, B., eds., *Diffuse Phosphorus Loss. Risk assessment, mitigation options and ecological effects in river basins*: DJF Plant Science: Aarhus, Denmark, National Environment Research Institute, University of Aarhus, p. 71-73.
- May, L., Defew, L.H., Bennion, H., and Kirika, A., 2012, Historical changes (1905-2005) in external phosphorus loads to Loch Leven, Scotland, UK: *Hydrobiologia*, v. 681, p. 11-21.

May, L., Dudley, B., Spears, B.M., and Hatton-Ellis, T.W., 2008, Nutrient modelling and a nutrient budget for Llangorse Lake Final Report.

May, L., Spears, B., Carvalho, L., Dudley, B., Gunn, I., O'Hare, M., and Winfield, I., 2011, An assessment of recovery targets, endpoints and timelines associated with the proposed restoration of Loch Fitty (Fife).

May, L., and Spears, B.M., 2012, A history of scientific research at Loch Leven, Kinross, Scotland: *Hydrobiologia*, v. 681, p. 3-9.

May, L., and Spears, B.M., 2012, Managing ecosystem services at Loch Leven, Scotland, UK: actions, impacts and unintended consequences: *Hydrobiologia*, v. 681, p. 117-130.

May, L., Spears, B.M., Dudley, B.J., and Hatton-Ellis, T.W., 2010, The importance of nitrogen limitation in the restoration of Llangorse Lake, Wales, UK: *Journal of Environmental Monitoring*, v. 12, p. 338-346.

McGowan, S., Barker, P., Haworth, E.Y., Leavitt, P.R., Maberly, S.C., and Pates, J., 2012, Humans and climate as drivers of algal community change in Windermere since 1850: *FRESHWATER BIOLOGY*, v. 57, p. 260-277.

Meis, S., Spears, B.M., Maberly, S.C., O'Malley, M.B., and Perkins, R.G., 2011, Sediment amendment with Phoslock in Clatto Reservoir (Dundee, UK): investigating changes in sediment elemental composition and phosphorus fractionation: *Journal of Environmental Management*, v. 93, p. 185-193.

Meis, S., Thackeray, S.J., and Jones, I.D., 2009, Effects of recent climate change on phytoplankton phenology in a temperate lake: *FRESHWATER BIOLOGY*, v. 54, p. 1888-1898.

Mischke, U., Thackeray, S., Dunbar, M., McDonald, C., Carvalho, L., de Hoyos, C., Jarvinen, M., Laplace-Treytore, C., Morabito, G., Skjelbred, B., Lyche Solheim, A., Brierley, B., and Dudley, B., 2012, WISER deliverable D3.1-4: guidance document on sampling, analysis and counting standards for phytoplankton in lakes.

Moe, S.J., Dudley, B., and Ptacnik, R., 2008, REBECCA databases: experiences from compilation and analyses of monitoring data from 5,000 lakes in 20 European countries: *Aquatic Ecology*, v. 42, p. 183-201.

Mooij, W.M., Trolle, D., Jeppesen, E., Arhonditsis, G., Belolipetsk, P.V., Chitamwebwa, D.B.R., Degermendzhy, A.G., DeAngelis, D.L., De Senerpont Domis, L.N., Downing, A.S., Elliott, J.A., Fragoso Jr., C.R., Gaedk, U., Genova, S.N., Gulati, R.D., Hakanson, L., Hamilton, D.P., Hipsey, M.R., Hoen, J.t., Hulsmann, S., Los, F.H., Makler-Pick, V., Petzoldt, T., Prokopkin, I.G., Rinke, K., Schep, S.A., Tominaga, K., Van Dam, A.A., Van Nes, E.H., Wells, A., and Janse, J.H., 2010, Challenges and opportunities for integrating lake ecosystem modelling approaches: *Aquatic Ecology*, v. 44, p. 633-667.

Moran, R., Harvey, I., Moss, B., Feuchtmayr, H., Hatton, K., Heyes, T., and Atkinson, D., 2010, Influence of simulated climate change and eutrophication on three-spined stickleback populations: a large scale mesocosm experiment: *FRESHWATER BIOLOGY*, v. 55, p. 315-325.

Moss, B., Feuchtmayr, H., Moran, R., Atkinson, D., Harvey, I., Hatton, K., Connor, L., and Heyes, T., 2008, Climate change, eutrophication and shallow lakes: a prognosis, in Kernan, M., Battarbee, R.W., and Binney, H.A., eds., Climate change and aquatic ecosystems in the UK: science policy and management, ENSIS Publishing, p. 18-20.

Murphy, J.F., Nagorskaya, L.L., and Smith, J.T., 2011, Abundance and diversity of aquatic macroinvertebrate communities in lakes exposed to Chernobyl-derived ionising radiation: *Journal of Environmental Radioactivity*, v. 102, p. 688-694.

Neal, C., Lofts, S., Evans, C.D., Reynolds, B., Tipping, E., and Neal, M., 2008, Increasing iron concentrations in UK upland waters: *Aquatic Geochemistry*, v. 14, p. 263-288.

Nedveckaite, T., Filistovic, V., Marciulioniene, D., Prokoptchuk, N., Plukiene, R., Gudelis, A., Remeikis, V., Yankovich, T., and Beresford, N.A., 2011, Background and anthropogenic radionuclide derived dose rates to freshwater ecosystem - Nuclear power plant cooling pond - Reference organisms: *Journal of Environmental Radioactivity*, v. 102, p. 788-795.

Noges, P., Adrian, R., Anneville, O., Arvola, L., Blenckner, T., George, G., Jankowski, T., Jarvinen, M., Maberly, S., Padisak, J., Straile, D., Teubner, K., and Weyhenmeyer, G., 2010, The impacts of variations in the climate on seasonal dynamics of phytoplankton, in George, G., ed., *The impact of climate change on European lakes: Aquatic Ecology Series*, Springer, p. 253-274.

Norton, L., Elliott, J.A., Maberly, S.C., and May, L., 2012, Using models to bridge the gap between land use and algal blooms: an example from the Loweswater catchment, UK: *Environmental Modelling & Software*, v. 36, p. 64-75.

O'Hare, M.T., Gunn, I.D.M., Chapman, D.S., Dudley, B.J., and Purse, B.V., 2012, Impacts of space, local environment and habitat connectivity on macrophyte communities in conservation lakes: *Diversity and Distributions*, v. 18, p. 603-614.

O'Hare, M.T., Tree, A., Neale, M.W., Irvine, K., Gunn, I.D., Jones, J.I., and Clarke, R.T., 2007, *Lake benthic macroinvertebrates I: improving sampling methodology*: Bristol.

Ohlberger, J., Langangen, O., Edeline, E., Claessen, D., Winfield, I.J., Stenseth, N.C., and Vollestad, L.A., 2011, Stage-specific biomass overcompensation by juveniles in response to increased adult mortality in a wild fish population: *Ecology*, v. 92, p. 2175-2182.

Orr, H.G., des Clers, S., Simpson, G.L., Hughes, M., Battarbee, R.W., Cooper, L., Dunbar, M.J., Evans, R., Hannaford, J., Hannah, D.M., Laize, C., Richards, K.S., Watts, G., and Wilby, R.L., 2010, Changing water temperatures: a surface water archive for England and Wales, in Kirby, C., ed., *Role of Hydrology in Managing Consequences of a Changing Global Environment*, British Hydrological Society.

Palmer-Felgate, E.J., Mortimer, R.J.G., Krom, M.D., Jarvie, H.P., Williams, R.J., Spraggs, R.E., and Stratford, C.J., 2011, Internal loading of phosphorus in a sedimentation pond of a treatment wetland: Effect of a phytoplankton crash: *Science of the Total Environment*, v. 409, p. 2222-2232.

Penning, W.E., Dudley, B., Mjelde, M., Hellsten, S., Hanganu, J., Kolada, A., van den Berg, M., Poikane, S., Phillips, G., Willby, N., and Ecke, F., 2008, Using aquatic macrophyte



community indices to define the ecological status of European lakes: *Aquatic Ecology*, v. 42, p. 253-264.

Penning, W.E., Mjelde, M., Dudley, B., Hellsten, S., Hanganu, J., Kolada, A., van den Berg, M., Poikane, S., Phillips, G., Willby, N., and Ecke, F., 2008, Classifying aquatic macrophytes as indicators of eutrophication in European lakes: *Aquatic Ecology*, v. 42, p. 237-251.

Phillips, G., Pietilainen, O.-P., Carvalho, L., Solimini, A., Lyche Solheim, A., and Cardoso, A.C., 2008, Chlorophyll-nutrient relationships of different lake types using a large European dataset: *Aquatic Ecology*, v. 42, p. 213-226.

Pla, S., Monteith, D., Flower, R., and Rose, N., 2009, The recent palaeolimnology of a remote Scottish loch with special reference to the relative impacts of regional warming and atmospheric contamination: *FRESHWATER BIOLOGY*, v. 54, p. 505-523.

Poulickova, A., Hasler, P., Lysakova, M., and Spears, B., 2008, The ecology of freshwater epipelagic algae: an update: *Phycologia*, v. 47, p. 437-450.

Ptácnik, R., Lepistö, L., Willén, E., Brettum, P., Andersen, T., Rekolainen, S., Lyche Solheim, A., and Carvalho, L., 2008, Quantitative responses of lake phytoplankton to eutrophication in Northern Europe: *Aquatic Ecology*, v. 42, p. 227-236.

Raven, J.A., Giordano, M., Beardall, J., and Maberly, S.C., 2011, Algal and aquatic plant carbon concentrating mechanisms in relation to environmental change: *Photosynthesis Research*, v. 109, p. 281-296.

Raven, J.A., and Maberly, S.C., 2009, Phytoplankton nutrition and related mixotrophy, in Likens, G.E., ed., *Encyclopedia of Inland Waters*. Volume 3: Oxford, Elsevier, p. 192-196.

Rawcliffe, R., Sayer, C.D., Woodward, G., Grey, J., Davidson, T.A., and Jones, J.I., 2010, Back to the future: using palaeolimnology to infer long-term changes in shallow lake food webs: *FRESHWATER BIOLOGY*, v. 55, p. 600-613.

Read, J.S., Hamilton, D.P., Jones, I.D., Muraoka, K., Winslow, L.A., Kroiss, R., Wu, C.H., and Gaiser, E., 2011, Derivation of lake mixing and stratification indices from high-resolution lake buoy data: *Environmental Modelling & Software*, v. 26, p. 1325-1336.

Reynolds, C.S., and Elliott, J.A., 2012, Complexity and emergent properties in aquatic ecosystems: predictability of ecosystem responses: *FRESHWATER BIOLOGY*, v. 57, p. 74-90.

Reynolds, C.S., Maberly, S.C., Parker, J.E., and De Ville, M.M., 2012, Forty years of monitoring water quality in Grasmere (English Lake District): separating the effects of enrichment by treated sewage and hydraulic flushing on phytoplankton ecology: *FRESHWATER BIOLOGY*, v. 57, p. 384-399.

Rhodes, G., Porter, J., and Pickup, R.W., 2012, The bacteriology of Windermere and its catchment: insights from 70 years of study: *FRESHWATER BIOLOGY*, v. 57, p. 305-320.

Rooney, G.G., and Jones, I.D., 2010, Coupling the 1-D lake model FLake to the community land-surface model JULES: *Boreal Environmental Research*, v. 15, p. 501-512.

RoTAP, 2012, Review of transboundary air pollution (RoTAP): acidification, eutrophication, ground level ozone and heavy metals in the UK: summary for policy makers: Edinburgh.

Salgado, J., Sayer, C., Carvalho, L., Davidson, T., and Gunn, I., 2010, Assessing aquatic macrophyte community change through the integration of palaeolimnological and historical data at Loch Leven, Scotland: *Journal of Paleolimnology*, v. 43, p. 191-204.

Sayer, C.D., Davidson, T.A., and Jones, J.I., 2010, Seasonal dynamics of macrophytes and phytoplankton in shallow lakes: a eutrophication-driven pathway from plants to plankton?: *FRESHWATER BIOLOGY*, v. 55, p. 500-513.

Sayer, C.D., Davidson, T.A., Jones, J.I., and Langdon, P.G., 2010, Combining contemporary ecology and palaeolimnology to understand shallow lake ecosystem change: *FRESHWATER BIOLOGY*, v. 55, p. 487-499.

Scholefield, P., 2009, Esthwaite Bathymetric Map, NERC/Centre for Ecology & Hydrology.

Smedley, P., Cooper, D., Lapworth, D.J., Ander, L., British Geological Survey, Ecology, C.f., and Hydrology, 2008, Molybdenum in British drinking water : a review of sources and occurrence and a reconnaissance survey of concentrations: Nottingham, UK.

Solheim, A.L., Rekolainen, S., Moe, S.J., Carvalho, L., Phillips, G., Ptacnik, R., Penning, W.E., Toth, L.G., O'Toole, C., Schartau, A.-K.L., and Hesthagen, T., 2008, Ecological threshold responses in European Lakes and their applicability for the Water Framework Directive (WFD) implementation: synthesis of lakes results from the REBECCA project: *Aquatic Ecology*, v. 42, p. 317-334.

Spears, B., Gunn, I., Meis, S., and May, L., 2011, WISER Deliverable D6.4-2: Analysis of cause-effect-recovery chains for lakes recovering from eutrophication. CEH report commissioned by the European Commission within the Seventh Framework Programme.

Spears, B.M., Carvalho, L., Perkins, R., Kirika, A., and Paterson, D.M., 2012, Long-term variation and regulation of internal phosphorus loading in Loch Leven: *Hydrobiologia*, v. 681, p. 23-33.

Spears, B.M., Carvalho, L., Perkins, R., O'Malley, M.B., and Paterson, D.M., 2010, The contribution of epipelton to total sediment microalgae in a shallow temperate eutrophic loch (Loch Leven, Scotland): *Hydrobiologia*, v. 646, p. 281-293.

Spears, B.M., Gunn, I.D.M., Carvalho, L., Winfield, I.J., Dudley, B., Murphy, K., and May, L., 2009, An evaluation of methods for sampling macrophyte maximum colonisation depth in Loch Leven, Scotland: *Aquatic Botany*, v. 91, p. 75-81.

Spears, B.M., and Jones, I.D., 2010, The long-term (1979-2005) effects of the North Atlantic Oscillation on wind-induced wave mixing in Loch Leven (Scotland): *Hydrobiologia*, v. 646, p. 49-59.

Stratford, C.J., Acreman, M.C., and Rees, H.G., 2011, A simple method for assessing the vulnerability of wetland ecosystem services: *Hydrological Sciences Journal*, v. 56, p. 1485-1500.

Strong, C., and Maberly, S.C., 2011, The influence of atmospheric wave dynamics on interannual variation in the surface temperature of lakes in the English Lake District: *Global Change Biology*, v. 17, p. 2013-2022.

Thackeray, S., Noges, P., Dunbar, M., Dudley, B., Skjelbred, B., Morabito, G., Carvalho, L., Phillips, G., and Mischke, U., 2011, WISER Deliverable D3.1-3: Report on uncertainty in phytoplankton metrics.

Thackeray, S.J., Henrys, P.A., Jones, I.D., and Feuchtmayr, H., 2012, Eight decades of phenological change for a freshwater cladoceran: what are the consequences of our definition of seasonal timing?: *FRESHWATER BIOLOGY*, v. 57, p. 345-359.

Thackeray, S.J., Maberly, S.C., and De Ville, M.M., 2010, Investigation into water level requirements of interest features at Over Water SSSI: Phase 3.

Tipping, E., and Carter, H., 2011, Aluminium speciation in streams and lakes of the UK Acid Waters Monitoring Network, modelled with WHAM: *Science of the Total Environment*, v. 409, p. 1550-1558.

Tipping, E., and Chaplow, J.S., 2012, Atmospheric pollution histories of three Cumbrian surface waters: *FRESHWATER BIOLOGY*, v. 57, p. 244-259.

Tyler, A.N., Hunter, P.D., Carvalho, L., Codd, G.A., Elliott, A., Ferguson, C.A., Hanley, N.D., Hopkins, D.W., Maberly, S.C., Mearns, K.J., and Scott, E.M., 2009, Strategies for monitoring and managing mass populations of toxic cyanobacteria in recreational waters: a multi-interdisciplinary approach: *Environmental Health*, v. 8.

Vane, C.H., Kim, A.W., McGowan, S., Leng, M.J., Heaton, T.H.E., Kendrick, C.P., Coombs, P., Yang, H., and Swann, G.E.A., 2010, Sedimentary records of sewage pollution using faecal markers in contrasting peri-urban shallow lakes: *Science of the Total Environment*, v. 409, p. 345-356.

Verdonschot, P., Angeler, D., Boria, A., Brucet, S., Feld, C.K., Gunn, I., Johnson, R., Kail, J., Kernan, M., Marzin, A., May, L., Meis, S., and Spears, B., 2011, WISER Deliverable D6.4-2: Report on the differences between cause-effect-recovery chains of different drivers within the water categories.

Watson, N.M., Heathwaite, L., Maberly, S., Norton, L.R., Waterton, C., Tsouvalis, J., and Haygarth, P.M., 2009, Integrated catchment management and the WFD: Dealing with the complexity and uncertainty of diffuse pollution: *Tearmann: Irish Journal of Agri-Environmental Research*, v. 7, p. 195-210.

Watts, K., Handley, P., Scholefield, P., and Norton, L., 2008, Habitat Connectivity – Developing an indicator for UK and country level reporting. Phase 1 Pilot Study contract report to Defra. Forest Research & Centre for Ecology & Hydrology.

Whitehead, P.G., Battarbee, R.W., Crossman, J., Elliott, J.A., Wilby, R., Monteith, D.T., and Kernan, M., 2012, River and lake water quality: future trends.

Winfield, I.J., Adams, C.E., Armstrong, J.D., Gardiner, R., Kirika, A., Montgomery, J., Spears, B., Stewart, D.C., Thorpe, J.E., and Wilson, W., 2012, Changes in the fish

community of Loch Leven: untangling anthropogenic pressures: *Hydrobiologia*, v. 681, p. 73-84.

Winfield, I.J., Adams, C.E., Bean, C.W., Durie, N.C., Fletcher, J.M., Gowans, A.R., Harrod, C., James, J.B., Lyle, A.A., Maitland, P.S., Thompson, C., and Verspoor, E., 2012, Conservation of the vendace (*Coregonus albula*), the U.K.'s rarest freshwater fish, in Tallmann, R.F., Howland, K.L., Rennie, M.D., and Mills, K., eds., *Biology and management of coregonid fishes - 2008: Advances in Limnology*: Stuttgart, E. Schweizerbart, p. 547-559.

Winfield, I.J., Emmrich, M., Guillard, J., Mehner, T., and Rustadbakken, A., 2012, Guidelines for standardisation of hydroacoustic methods, in Schmidt-Kloiber, A., Hartmann, A., Strackbein, J., Feld, C.K., and Hering, D., eds., *Current questions in water management: book of abstracts to the WISER final conference, Tallinn, Estonia, 25-26 January 2012*: Estonia, Eesti Maaülikool, p. 186-188.

Winfield, I.J., Fletcher, J.M., and James, J.B., 2008, The Arctic charr (*Salvelinus alpinus*) populations of Windermere, U.K.: population trends associated with eutrophication, climate change and increased abundance of roach (*Rutilus rutilus*): *Environmental Biology of Fishes*, v. 83, p. 25-35.

Winfield, I.J., Fletcher, J.M., and James, J.B., 2008, Assessment of the vendace population of Bassenthwaite Lake including observations on vendace spawning grounds. Final Report.

Winfield, I.J., Fletcher, J.M., and James, J.B., 2010, An overview of fish species introductions to the English Lake District, U.K., an area of outstanding conservation and fisheries importance: *Journal of Applied Ichthyology*, v. 26, p. 60-65.

Winfield, I.J., Fletcher, J.M., and James, J.B., 2011, Invasive fish species in the largest lakes of Scotland, Northern Ireland, Wales and England: the collective U.K. experience: *Hydrobiologia*, v. 660, p. 93-103.

Winfield, I.J., Fletcher, J.M., and James, J.B., 2012, Long-term changes in the diet of pike (*Esox lucius*), the top aquatic predator in a changing Windermere: *FRESHWATER BIOLOGY*, v. 57, p. 373-383.

Winfield, I.J., Fletcher, J.M., and James, J.B., 2012, Monitoring the fish populations of Bassenthwaite Lake and Derwent Water, 2011.

Winfield, I.J., Fletcher, J.M., James, J.B., and Thackeray, S.J., 2012, Inter-calibration of scientific echosounders for monitoring deep lake fish populations. Draft final report.

Yankovich, T.L., Vives i Batlle, J., Vives-Lynch, S., Beresford, N.A., Barnett, C.L., Beaugelin-Seiller, K., Brown, J.E., Cheng, J.-J., Copplestone, D., Heling, R., Hosseini, A., Howard, B.J., Kamboj, S., Kryshev, A.I., Nedveckaite, T., Smith, J.T., and Wood, M.D., 2010, An international model validation exercise on radionuclide transfer and doses to freshwater biota: *Journal of Radiological Protection*, v. 30, p. 299-340.

