



Global carbon burial in lakes, reservoirs and ponds; an alternative approach

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It is widely stated that approximately 0.6 Pg of carbon are annually sequestered by lake, reservoir and pond sediments. The study from which this figure arises, Tranvik et al (2009), accepts:

1. previously published values for natural lakes (0.03 to 0.07 Pg),
2. rather higher than previously thought values for reservoirs (0.4 Pg C yr⁻¹, based on 400,000 km² at 1000 g C m⁻², up from 0.16-0.20 Pg previously estimated), and
3. and a previously omitted large contribution from “small eutrophic impoundments” (0.15 Pg yr⁻¹, based on 75,000 km² at 2000 g C m⁻²).

As these estimates depend heavily on C burial data from 25 artificial water bodies in Iowa, we have undertaken a wider analysis to assess their global applicability.

Reference:

Tranvik, L.J., Downing, J.A., Cotner, J.B., Loiselle, S.A., Striegl, R.G., Ballatore, T.J., Dillon, P., Finlay, K., Fortino, K., Knoll, L.B., Kortelainen, P.L., Kutser, T., Larsen, S., Laurion, I., Leech, D.M., McCallister, S.L., McKnight, D.M., Melack, J.M., Overholt, E., Porter, J.A., Prairie, Y., Renwick, W.H., Roland, F., Sherman, B.S., Schindler, D.W., Sobek, S., Tremblay, A., Vanni, M.J., Verschoor, A.M., von Wachenfeldt, E. and Weyhenmeyer, G.A., 2009. Lakes and reservoirs as regulators of carbon cycling and climate. *Limnology and Oceanography*, 54(6): 2298-2314.