

Supplementary Information

Out of the Dark: Establishing a Large-Scale Field Experiment to Assess the Effects of Artificial Light at Night on Species and Food Webs. *Sustainability* 2015, 7, 15593–15616

Stephanie I. J. Holzhauer ^{1,2,*}, Steffen Franke ³, Christopher C. M. Kyba ^{1,4,5}, Alessandro Manfrin ^{1,6}, Reinhard Klenke ⁷, Christian C. Voigt ⁸, Daniel Lewanzik ^{8,9}, Martin Oehlert ¹, Michael T. Monaghan ¹, Sebastian Schneider ¹⁰, Stefan Heller ¹, Helga Kuechly ^{1,11}, Anika Brüning ¹, Ann-Christin Honnen ¹ and Franz Hölker ^{1,*}

¹ Leibniz Institute of Freshwater Ecology and Inland Fisheries (IGB), Müggelseedamm 301/310, 12587 Berlin, Germany; E-Mails: kyba@igb-berlin.de (C.C.M.K.); manfrin@igb-berlin.de (A.M.); oehlert@igb-berlin.de (M.O.); monaghan@igb-berlin.de (M.T.M.); stefan.heller@igb-berlin.de (S.H.); helga.kuechly@lup-umwelt.de (H.K.); bruening@igb-berlin.de (A.B.); achonnen@igb-berlin.de (A.-C.H.)

² Senckenberg German Entomological Institute, Eberswalder Straße 90, 15374 Müncheberg, Germany

³ Leibniz Institute for Plasma Science and Technology, Felix-Hausdorff-Str. 2, 17489 Greifswald, Germany; E-Mail: steffen.franke@inp-greifswald.de

⁴ Deutsches GeoForschungsZentrum GFZ, Telegrafenberg, 14473 Potsdam, Germany; E-Mail: kyba@gfz-potsdam.de

⁵ Institute for Space Sciences, Freie Universität Berlin, Carl-Heinrich-Becker Weg 6-10, 12165 Berlin, Germany

⁶ Department of Biology-Chemistry-Pharmacy, Freie Universität Berlin, Takustraße 3, 14195 Berlin, Germany

⁷ Helmholtz Centre for Environmental Research (UFZ), Department of Conservation Biology, Permoserstr. 15, 04318 Leipzig, Germany; E-Mail: reinhard.klenke@ufz.de

⁸ Leibniz Institute for Zoo and Wildlife Research (IZW), Alfred-Kowalek-Straße 17, 10315 Berlin, Germany; E-Mails: voigt@izw-berlin.de (C.C.V.); lewanzik@izw-berlin.de (D.L.)

⁹ Acoustic and Functional Ecology, Max Planck Institute for Ornithology, Eberhard-Gwinner-Str. 11, 82319 Seewiesen, Germany

¹⁰ Technische Universität Berlin, Energy and Automation Technology, Lighting Technology, Einsteinufer 19, 10587 Berlin, Germany; E-Mail: s.schneider@tu-berlin.de

¹¹ LUP GmbH, Große Weinmeisterstraße 3a, 14469 Potsdam, Germany

* Authors to whom correspondence should be addressed; E-Mails: holzhauer@igb-berlin.de or stephanie.holzhauer@senckenberg.de (S.I.J.H.); hoelker@igb-berlin.de (F.H.); Tel. +49-33432-73 698 (ext. 3751) (S.I.J.H.); +49-30-64181 (ext. 665) (F.H.); Fax: +49-33432-73698-3706 (S.I.J.H.); +49-30-64181-663 (F.H.).

Academic Editor: Marc A. Rosen

Received: 17 August 2015 / Accepted: 12 November 2015 / Published:

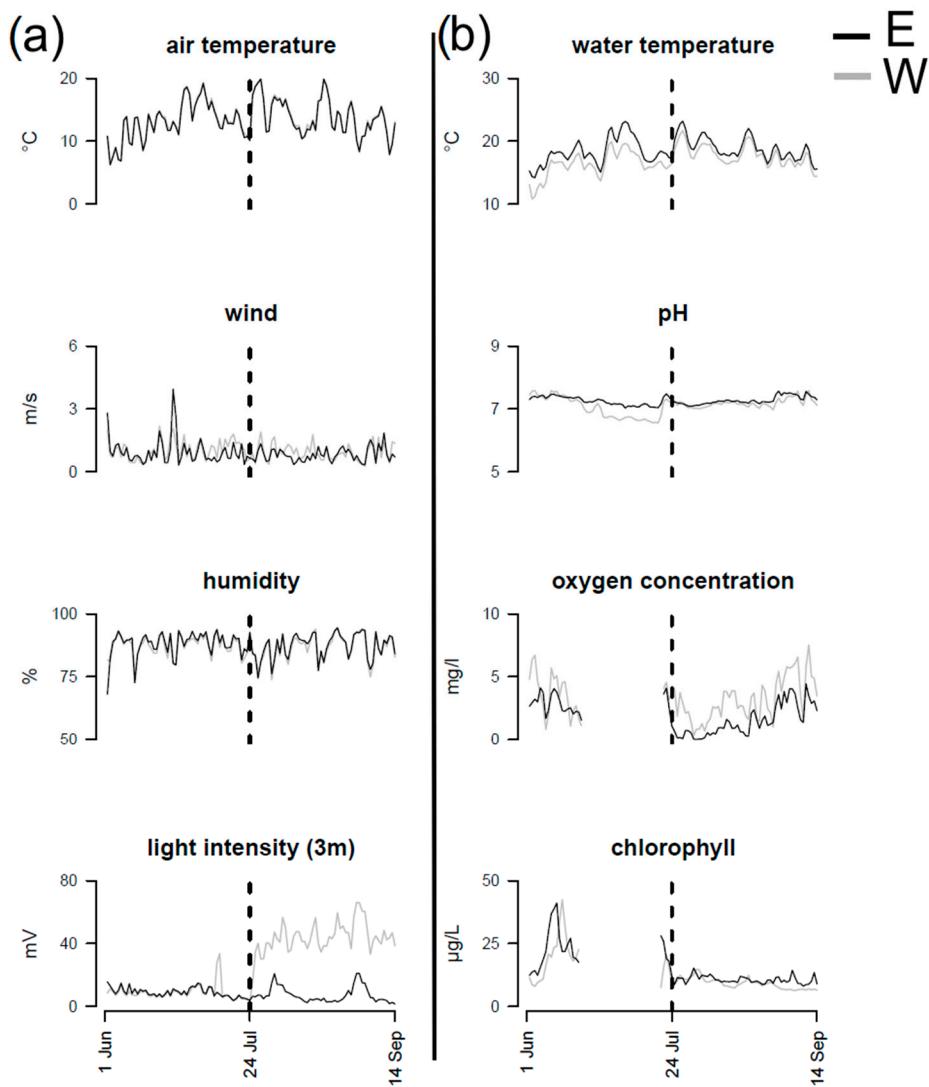


Figure S1. Selection of the most representative terrestrial (a) and aquatic (b) environmental parameters collected in 2012 before and after the starting of the illumination of the western site (indicated by a dotted line in each plot) in both experimental sites: western test site (grey line, W) and eastern control site (black line, E). The plots show daily means obtained by averaging the night values (light intensity < 80 mV). The light intensity values shown in the plot were recorded at 3 m height, *i.e.* below the luminaires' light. The peak before 24 July denotes the test night on 11 July. Gaps of data acquisition where probes were not running are shown as absence of lines in the plots (oxygen concentration and chlorophyll-*a*).

Table S1. Generalized least squares coefficients for the most representative environmental parameters as model variables (see Figure S1) in the period before the start of the artificial illumination to test for difference between the two experimental sites. None of the considered parameters were found to differ significantly between the two sites (p -value > 0.05).

Model Variable	Coefficient Estimates	Std. Error	t-Value	p-Value
air temperature	0.64	1.11	0.57	0.56
wind intensity	0.08	0.10	0.79	0.42
humidity	-0.67	0.86	-0.77	0.44
light intensity	-0.46	1.09	-0.42	0.67
water temperature	0.51	0.54	0.93	0.35
pH	-0.03	0.06	-0.55	0.58
oxygen	0.66	0.64	1.03	0.30
chlorophyll- <i>a</i>	-3.32	5.03	-0.66	0.51

© 2015 by the authors; licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).