

PROTECTING NATURAL DARKNESS

Transnational Dark Sky Strategy
for the North Sea Region



DARKER SKY

Interreg
North Sea



Co-funded by
the European Union

© DARKER SKY

© DARKER SKY



**Interreg
North Sea**



Co-funded by
the European Union

DARKER SKY

PROTECTING NATURAL DARKNESS

Transnational Dark Sky Strategy for the North Sea Region

Prepared for the Common Wadden Sea Secretariat (CWSS) & DARKER SKY
Interreg North Sea Project

Published by DARKER SKY Interreg North Sea Project

August 2026

AUTHORS

Monika Radomska

Common Wadden Sea Secretariat, DARKER SKY Project Partner

Chiara Carucci

Noctua | Member, IUCN World Commission on Protected Areas (WCPA)

Dr. phil. nat. Annette Krop-Benesch

Founder Scientia Lucis and co-founder ELPC

Giulia Sala

Urban Planner, Stakeholder Engagement Expert

Dr. Angelo Gilles

REM Consult, DARKER SKY Project Partner

EDITORS

Monika Radomska & Chiara Carucci

CREATIVE DESIGN

Anna Vollmer & Chiara Carucci

Cited as: Radomska, M., Carucci, C., Krop-Benesch, A., Sala, G., Gilles, A. (2026).
Protecting Natural Darkness: Transnational Dark Sky Strategy for the North Sea
Region. DARKER SKY Interreg North Sea Project.

DARKER SKY is carried out in the framework of the Interreg North Sea Programme under the Programme Priority 3 "Sustainable North Sea Region" and the Specific Objective 3.2 "Develop new methods for the long-term sustainable management of North Sea ecosystems". The programme is funded by the European Regional Development Fund (ERDF) of the European Union.

CONTENTS

Introduction	1
1. Towards the Recognition of the Night as Part of Nature	2
2. Safeguarding Dark Corridors and Infrastructure	4
3. Lighthouse Demonstrators and Best Practices	6
4. Transnational Roadmap to Restore the Natural Night	8
5. The “Metric of Success” for the Natural Night	11
Conclusion	13
References	14



INTRODUCTION



For millennia, **darkness has been an essential part of the human and natural world**, shaping ecosystems, cultures, and our understanding of time and space. Today, artificial light at night (ALAN) enables societies to thrive, by supporting productivity and comfort. However, the rapid **expansion of ALAN has fundamentally altered the natural night**, resulting in a loss of heritage, identity, and our connection to the natural world.

This transformation of the natural night **disrupts biological rhythms and ecological processes, with far-reaching consequences** for both human health and biodiversity. In humans, ALAN alters circadian rhythms and melatonin production, contributing to sleep disorders, obesity, diabetes, and depression. In nocturnal wildlife, it fragments habitats and interferes with essential behaviours, including foraging, reproduction, and migration

Fortunately, **light pollution, unlike many other forms of pollution, is fully reversible** and can be addressed at a relatively low cost compared to other major infrastructural changes, through smarter lighting design. As the impacts of ALAN transcend national boundaries, protecting shared nocturnal ecosystems requires coordinated action across the region.

The solution lies in a coordinated trans-national framework that moves beyond fragmented national efforts toward a unified approach. By establishing a functional **Transnational Dark Ecological Infrastructure**, we can restore the natural rhythms of the night while safeguarding the **"Right to the Night"** for future generations.



1 TOWARDS THE RECOGNITION OF THE NIGHT AS PART OF NATURE

FORMAL RECOGNITION OF LIGHT POLLUTION AS A GLOBAL ISSUE

International bodies like the Convention on the Conservation of Migratory Species of Wild Animals (CMS) and The International Union for Conservation (IUCN) explicitly recognize **light pollution as a global environmental threat**, calling for the **restoration of natural darkness**. Despite this progress, significant policy gaps remain, highlighting an urgent need for stronger, evidence-based measures at the highest levels of governance.



ACTION:

Protected area managers and environmental NGOs can reference the CMS Guidelines and IUCN Resolutions to strengthen local engagement, thus establishing **light pollution as a matter of international priority**.

THE NATURAL BIOLOGICAL RHYTHMS

Nighttime supports half of ecological functioning, yet ALAN is increasingly disrupting the **natural light-dark cycle** on which wildlife depends. More than 70% of species are nocturnal and particularly vulnerable to these impacts. ALAN can falsely signal "daytime", thus severely disturbing the circadian rhythms and physiological recovery of many species.



ACTION:

Research institutions can contribute by developing monitoring protocols and by creating shared datasets that **strengthen the case for transnational governance**.

FRAGMENTATION OF THE NIGHTSCAPE

Unlike many environmental pressures, **ALAN drifts across borders** and acts as a physical barrier to movement. Skyglow increases isolated dark patches within mammal ranges by 154%, restricting migration and gene flow. Illuminated infrastructures, such as roads and bridges further block photophobic (light-shy) species, effectively reducing the connectivity even within intact habitats, while for numerous migratory species, ALAN can act as a trap.



ACTION:

NGOs and protected area managers can use sky.glow data to link light pollution directly to **habitat degradation under the EU Habitats Directive**.





REGULATORY "ISLANDS" AND EXEMPTIONS

Naval bases, ports, railway stations, greenhouses, waterway infrastructure, and commercial/private buildings often create **persistent "islands of light"** that local strategies can't regulate. Maritime security codes and port facilities (Standard EN 12464-2:2024) often mandate high levels of lighting, creating conflicts with ALAN-reduction goals. Furthermore, major sectors, like railway networks and large-scale industrial sites frequently fall outside the scope of local nuisance regulations.



ACTION:

Protected area managers adjacent to these infrastructures can collaborate to advocate for **closing these regulatory gaps**.

INTERNATIONAL REGULATORY DIFFERENCE

Different national standards and guidelines make it challenging for one country to effectively protect its dark skies and natural darkness without **cross-border cooperation**. France provides a leading example of tiered governance, where national law introduced *Trame Noire* (Dark Infrastructure) with several mitigation measures such as lighting curfews. Conservation efforts are unlikely to succeed without a **transnational, actionable approach**.



ACTION:

Environmental NGOs operating across borders can **document the legal asymmetries** firsthand and bring comparative cases to national ministries.

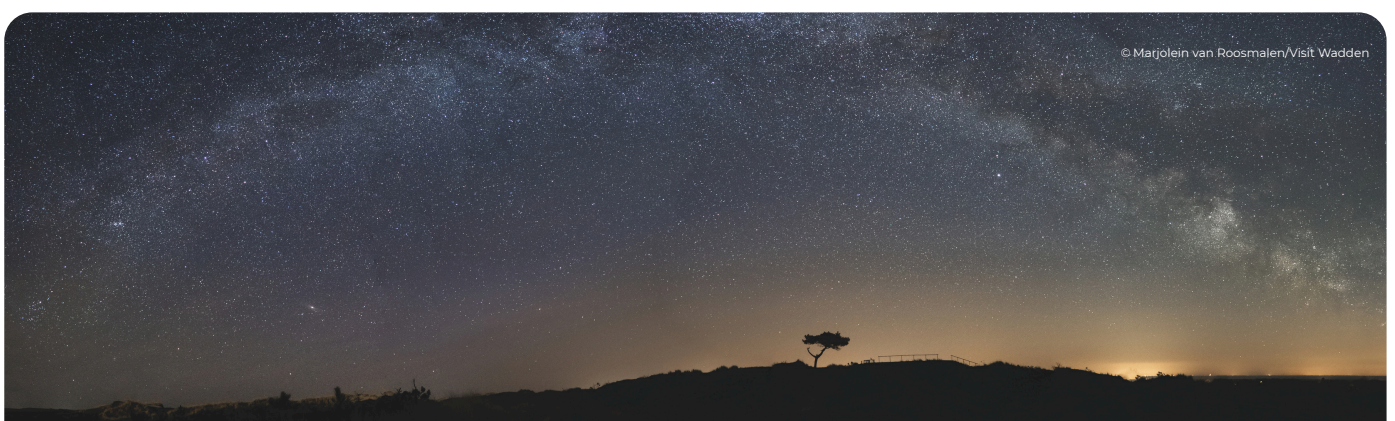
NIGHT AS A COMPONENT OF NATURE

Policy must recognise the night as an integral part of nature. Protecting darkness means conserving the ecological conditions essential for humans, plants, and wildlife. **Darkness is a vital environmental resource, with conservation value equal to that of clean water, air, and soil.** Protection of the night should become a formal requirement within green and blue infrastructure strategies, safeguarding natural cycles and the processes they support.



ACTION:

Environmental NGOs can make the **'Right to the Night'** tangible by promoting darkness as a civic and ecological right in their public engagement activities.



© Marjolien van Roosmalen/Visit Wadden

2 SAFEGUARDING DARK CORRIDORS AND INFRASTRUCTURE



DEFINING ECOLOGICAL CRITICALITY

Critical Environmental Zones are areas where darkness provides the conditions needed for species to carry out vital activities, such as breeding, roosting, and navigating migratory pathways. They **include sensitive habitats** like wetlands and coastal dunes, often the final refuges of natural darkness in urbanised regions. These zones cover key habitats, like **bat roosts**, where ALAN can significantly impact threatened and migratory species.



ACTION:

Protected area managers can identify **Critical Environmental Zones** to prioritise lighting reduction within site management plans.

MAPPING FUNCTIONAL ECOLOGICAL CONNECTIVITY

To protect species from ALAN, "**Dark Cores**" (high-biodiversity areas) and "**Dark Corridors**" (migration pathways) can be mapped to assess functional connectivity. This involves identifying habitat areas that retain sufficient darkness and connecting them into ecological networks where night rhythms are preserved. This spatial strategy allows for targeted recovery efforts tailored to the movement requirements of vulnerable species.



ACTION:

Protected area managers and research institutions can identify where light acts as a **barrier to movement** and contribute to mapping and preserving **Dark Cores and Corridors**.





BUFFER ZONES

The effects of ALAN should be considered in **environmental assessments** beyond the protected area boundaries. Direct spill and diffuse skyglow from adjacent areas can penetrate deep into dark refuges, even from significant distances, e.g. ALAN disorients migrating birds, while intrusive light from adjacent areas fragments habitat for light-shy bats and other sensitive species. Consequently, **spatial buffer zones** should be used to safeguard dark corridors and core habitats.



ACTION:

Protected area managers can apply 5–20 km **buffer zones**, depending on species sensitivity and ecological context, as a basis for requesting ALAN impact assessment.

ESTABLISHING FUNCTIONAL DARK INFRASTRUCTURE

Planning should prioritize connecting Dark Cores and Corridors to ensure habitat functionality and support species movement without the interference of ALAN. **Dark Infrastructure can** integrate **darkness quality as a criterion** into existing green and blue infrastructure policies. The goal is to secure high-quality habitats and transform isolated dark areas into a **cohesive, interconnected territory**.



ACTION:

NGOs and protected area managers can advocate for **adopting Dark Infrastructure** and guide the expansion of connected dark zones within and between their sites.



© Bogdan/Getty Images

3 LIGHTHOUSE DEMONSTRATORS AND BEST PRACTICES



THE TRANSNATIONAL BEACONS

The transnational **Lighthouse Demonstrator Sites** provide real-world evidence that environmentally sound lighting is both effective and replicable. By bridging governance and technical practice, they demonstrate that ecological restoration and functional lighting can coexist through **scalable, standardized measures**. "Before & after" assessments show that responsible lighting reduces glare, improves visual comfort and spatial legibility.



[DARKER SKY
GOOD PRACTICE
STORY COLLECTION](#)



ACTION:

Research institutions and early adopters can **apply demonstration results** to inform lighting mitigation measures and interventions, and adopt the **pilot assessment methodology**.

MORE LIGHT ≠ MORE SAFETY

More lighting does not automatically mean more safety. Beyond a certain point, often around 5-10 lux, depending on context, additional light provides little improvement in perceived safety while increasing impacts on people, wildlife, and energy use. Identifying these limits helps **prevent "light inflation"** and ensures lighting levels match actual needs without causing ecological disruption.



ACTION:

Municipalities can demand mock-ups and post-implementation validation, using Lighthouse Demonstrators as peer-tested examples.



ELIMINATING THE "WORST-CASE" PARADIGM

Lighting is often designed for peak traffic or the most demanding safety tasks, regardless of actual use. Breaking this cycle requires a shift from static designs to **adaptive management** that reflects real-time demand. Utilizing context-informed design, including adaptive lighting and **risk-analysis mechanisms** enable reducing lighting levels while maintaining safety standards and avoiding permanent peak-intensity.



ACTION:

Protected area managers and research institutions can document **real occupancy and traffic rhythms** to justify downgraded lighting classes.

PRINCIPLES OF ENVIRONMENTALLY SOUND LIGHTING

To ensure consistency across borders, lighting should adhere to a **unified transnational baseline**: every light source must be **Useful, Controlled, Targeted, Warm-White** and **Low Level** - following the **ALARA** (As Low As Reasonably Achievable) principle; e.g. Lighting Standard EN 12464-2 allows for average horizontal illuminance $E_m = 2$ lux or lower in specific outdoor settings.



ACTION:

Protected area managers, local authorities, and municipalities can **review lighting proposals against these principles** and **reject non-compliant applications**.

THE SPATIAL FRAMEWORK

CIE 150:2017 classifies territories into **Environmental Zones (E0 to E4)** based on ambient brightness, enabling decision-makers to tailor technical lighting requirements to ecological sensitivity of each area, providing a **standardised approach** to transnational nocturnal environmental protection. This approach shifts lighting management from fragmented guidance towards a **unified, sensitivity-based spatial framework**.



ACTION:

Municipalities, local authorities and protected area managers can begin the **self-classification** process for their sites and buffer territories.





FOUNDATION 0-12 MONTHS

GOAL: Overcoming systemic inefficiencies through shared language, evidence, and cross-sectoral coalitions.

FOUNDATION → SCALING → TRANSFORMATION



GOVERNANCE - Advocacy for Formal Policy Integration

Embedding ALARA principles and the Light Pollution Guidelines within municipal and regional master plans and planning frameworks.

Stakeholders: Municipalities with demonstrator sites, lead project partners, local NGOs.



NETWORK - Decision-Maker Capacity Building

Building decision-maker capacity through knowledge of the value of darkness, ALAN impacts and effective mitigation strategies.

Stakeholders: Pilot site managers, local universities and NGOs.



ECONOMY - Mobilise EU Instruments

Utilizing existing platforms such as Cohesion Fund, LIFE, Interreg, and Horizon Europe to secure long-term financial certainty.

Stakeholders: Lead project partners, EU project networks.



PLANNING - Baseline Mapping

Defining the "intrinsically dark" baseline and areas affected by ALAN to provide the data necessary for spatial prioritization.

Stakeholders: Local universities, NGOs, protected area managers and municipal planners.



IMPLEMENTATION - Lighthouse Sites Validation

Leveraging results from DARKER SKY pilot sites to provide tangible success stories demonstrating the technical feasibility of light reduction.

Stakeholders: Pilot site managers and municipalities, local communities.



SCALING 1-3 YEARS

GOAL: Building the coalition for advocacy towards policy integration and technical validation through tangible evidence.

FOUNDATION → SCALING → TRANSFORMATION



GOVERNANCE - Advocacy for Green Public Procurement

Defining technical procurement standards and advocating for their inclusion in national green public procurement.

Stakeholders: Pilot site managers and municipalities, local universities, national ministries, national road and safety authorities.



NETWORK - Professional Training

Equipping planners with tools, aiming to replace the "worst-case" framework that leads to over-lighting.

Stakeholders: Pilot site managers, local universities, and lighting industry.



ECONOMY - Darkness Task Force

Developing an economic roadmap that uses energy consumption and measurable ecological data to support regional branding and private investment.

Stakeholders: Pilot site managers and municipalities, NGOs, protected area managers, tourism sector, and local entrepreneurs.



PLANNING - Mapping with Model Species

Translating the biological requirements of model species into a spatial model identifying dark cores and corridors to inform regional planning.

Stakeholders: Protected area managers, environmental NGOs, and universities.



IMPLEMENTATION - On-site Validation

Defining and implementing requirements for on-site validation of "as-built" performances for lighting fixtures and projects.

Stakeholders: Pilot site managers, universities, and lighting industry.



TRANSFORMATION 3-7 YEARS

GOAL: Achieving the **Transnational Vision of a functional Dark Infrastructure** and overall reduction of light pollution. **Stakeholders** can vary depending on strategic ownership and implementation leadership.

FOUNDATION → SCALING → TRANSFORMATION



GOVERNANCE - The Adaptive Management Framework

Implementing adaptive lighting_policies that are continuously adjusted based on real-time wildlife and darkness monitoring.



NETWORK - Human Health and Well-being

Recognizing responsible lighting as an essential component of a healthy environment, comparable with regulatory approaches for noise.



ECONOMY - Mainstreaming the Right-to-Night

Leveraging darkness as a unique regional selling point to support a sustainable economic development.



PLANNING - Seasonal Lighting Protocols

Implementing data-led "seasonal darkness windows" during critical biological_periods to align the infrastructure with natural rhythms.



IMPLEMENTATION - The Functional Dark Infrastructure

Establishing the Transnational Dark Ecological Infrastructure, with mandatory requirements for both spatial planning and nature conservation.





5 THE “METRIC OF SUCCESS” FOR THE NATURAL NIGHT

The following metrics provide the framework to measure and evaluate the extent to which the strategy is driving the recognition, protection, and restoration of natural darkness. Collectively, they establish a robust evidence base to track how commitments are being translated into concrete, coordinated action and to verify measurable ecological, social, and economic outcomes.



GOVERNANCE



NETWORK



ECONOMY



PLANNING



IMPLEMENTATION



STATE INDICATORS

Measurements of the biological reaction to reduced pressure, including species richness, recovery in nocturnal communities, and restoration of functional connectivity for model species.



RESPONSE INDICATORS

Tracking policy actions taken, such as the number of new municipalities implementing middle-of-night switch-offs and the removal of unnecessary light points.



SOCIAL INDICATORS

Tracking public awareness and the "acceptability" of darkness, as well as objective data on nocturnal safety and crime to mitigate the subjective "fear of darkness".



ECONOMIC IMPACT

Monitoring the growth of a sustainable "night-time economy," such as astrotourism or regional branding linked to the "Right to the Night" and the establishment of certified protected areas.



POLICY INTEGRATION DEPTH

Success is measured as Dark Infrastructure requirements transition from optional recommendations to mandatory statutory requirements including specifications for private developers.



LEGISLATIVE MATURITY

Tracking the shift from nuisance-based regulations, to dedicated, metrics-based legislation that offers a more pre-emptive solution.



TRANSNATIONAL ASSESSMENT INDICATORS

Combining factual measurements of light reduction with ecological outcomes across borders of the four countries.



TRANSNATIONAL COORDINATION

Success is quantified by the number of cross-border obstacles addressed or resolved through established administrative ad-hoc conventions and committees.



ADAPTIVE LIGHTING UPTAKE

Monitoring the implementation of real-time infrastructure scaling, such as using AI or motion sensors to match light output to the actual use and traffic flow.



LIGHTSHED MANAGEMENT

Measuring the efficacy of buffer zones by monitoring whether skyglow from adjacent areas is being mitigated at the borders of protected areas.



NOCTURNAL ECOLOGICAL CONNECTIVITY

Continuous monitoring of light pollution at habitat transition zones to protect the connectivity of dark corridors and core reservoirs.





CONCLUSION

FROM STRATEGY TO ACTION

The restoration of darkness is achievable – and the opportunity to act is within our reach. Reducing unnecessary artificial light at night and safeguarding dark corridors can reconnect fragmented habitats, strengthen ecological connectivity and restore natural functions of the night for wildlife and people.

The principles of this strategy lay the **foundation for coordinated action across borders and levels of governance**. It outlines practical actions to embed natural darkness into policy, spatial and infrastructure planning, environmental assessments, and investment decisions. Through **aligned approaches**, and stronger **cross-border collaboration**, authorities and stakeholders across the North Sea Region can **protect the night** as an essential component of ecological infrastructure.

The opportunity is to act now. This strategy provides a shared framework for moving from ambition to implementation: translating evidence into policy, policy into planning, and planning into measurable action and institutionalised framework.

The decisions we make today will determine whether the natural night becomes a connected and functioning part of the dark ecological infrastructure or continues to be fragmented by artificial light. Restoring the night is not only a technical objective, but a collective commitment to safeguarding a vital environmental resource.

The next step is clear: turn this strategy into action – working together, across borders and sectors, to protect the **"Right to Night"** of the North Sea Region.

REFERENCES

- Asaad, I., Lundquist, C. J., Erdmann, M. V., & Costello, M. J. (2017). Ecological criteria to identify areas for biodiversity conservation. *Biological Conservation*, 213(Part B), 309-316. <https://doi.org/10.1016/j.biocon.2016.10.007>
- Barnes, C., & Passmore, H.-A. (2024). Development and testing of the Night Sky Connectedness Index (NSCI). *Journal of Environmental Psychology*, 93, 102198. <https://doi.org/10.1016/j.jenvp.2023.102198>
- CMS. (2024). CMS International Light Pollution Guidelines for Migratory Species. Convention on Migratory Species.
- DARKER SKY Interreg North Sea Project. (2026). Monitoring guide (Version 3). Interreg North Sea Programme. https://www.interregnorthsea.eu/sites/default/files/2026-08/Monitoring%20Guide%20DKS_V3%20-%20Full%20Version_compr.pdf
- Ditmer, M. A., Stoner, D. C., & Carter, N. H. (2021). Estimating the loss and fragmentation of dark environments in mammal ranges from light pollution. *Biological Conservation*, 257, 109135. <https://doi.org/10.1016/j.biocon.2021.biocon.109135>
- European Commission. (2019). Managing Natura 2000 sites: The provisions of Article 6 of the Habitats Directive 92/43/EEC (2019/C 33/01). Publications Office of the European Union. [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52019XC0125\(07\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52019XC0125(07))
- European Union. (1992). Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive). Official Journal of the European Communities, L206, 7-50. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A31992L0043>
- García-Montero, L. G., Otero Pastor, I., Mancebo Quintana, S., & Casermeiro, M. A. (2008). An environmental screening tool for assessment of land use plans covering large geographic areas. *Environmental Science & Policy*, 11(4), 285-293. <https://doi.org/10.1016/j.envsci.2007.10.002>
- Gaston, K. J., Bennie, J., Davies, T. W., & Hopkins, J. (2014). Demographic effects of artificial nighttime lighting on animal populations. *Environmental Reviews*, 22(4), 323-330. <https://doi.org/10.1139/er-2014-0005>
- Gaston, K. J., Gaston, S., Bennie, J., & Hopkins, J. (2015). Benefits and costs of artificial nighttime lighting of the environment. *Environmental Reviews*, 23(1), 14-23. <https://doi.org/10.1139/er-2014-0041>
- Hölker, F., Wolter, C., Perkin, E. K., & Tockner, K. (2010). Light pollution as a biodiversity threat. *Trends in Ecology & Evolution*, 25(12), 681-682. <https://doi.org/10.1016/j.tree.2010.09.007> https://www.interregnorthsea.eu/sites/default/files/2024-09/DARKER%20SKY%20Principles%20for%20Environmentally-Sound%20Lighting_V3.pdf
- International Commission on Illumination. (2017). Guide on the limitation of the effects of obtrusive light from outdoor lighting installations (2nd ed., CIE 150:2017). CIE. <https://doi.org/10.25039/TR.150.2017>
- International Commission on Illumination (CIE). (2025). CIE position statement on obtrusive light and light pollution (1st ed., CIE PS 003:2025). CIE. <https://doi.org/10.25039/PS.5dqvhsty>
- International Maritime Organization. (n.d.). SOLAS XI-2 and the ISPS Code. <https://www.imo.org/en/ourwork/security/pages/solas-xi-2%20isps%20code.aspx>
- International Union for Conservation of Nature. (2025). Global strategy for natural darkness restoration: Protecting key habitats and mitigating light pollution (WCC-2025-Res-046). IUCN World Conservation Congress. <https://portals.iucn.org/library/node/52696>
- Liedtke, C. (2024). Principles for environmentally-sound lighting. DARKER SKY Interreg North Sea Project. https://www.interregnorthsea.eu/sites/default/files/2024-09/DARKER%20SKY%20Principles%20for%20Environmentally-Sound%20Lighting_V3.pdf
- MacMillan, G., Dalgleish, H., Conway, T., & Mahon, M. (2023). Tread softly in the dark. In N. Dunn & E. Tim (Eds.), *Dark Skies: Places, Practices, Communities* (pp. 205-216). Routledge. <https://doi.org/10.4324/9781003408444-20>
- Pérez Vega, C. (2024). The environmental impact of artificial lighting in urban settings: Gaps, challenges, and sustainable lighting design (Doctoral thesis, Freie Universität Berlin). Refubium. <https://refubium.fu-berlin.de/handle/fub188/43770>
- Seymoure, B., Dias, B., Grovijahn, M., Owens, A. C. S., et al. (2023). A framework for untangling the consequences of artificial light at night on species interactions. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 378(1892), 20220356. <https://doi.org/10.1098/rstb.2022.0356>
- Trop, T., Shoshany Tavory, S., & Portnov, B. A. (2023). Factors affecting pedestrians' perceptions of safety, comfort, and pleasantness induced by public space lighting: A systematic literature review. *Environment and Behavior*, 55(1-2), 3-46. <https://doi.org/10.1177/00139165231163550>
- Yakushina, Y. (2025). Light pollution regulations and where to find them. *Journal of Environmental Management*, 373, 123757. <https://doi.org/10.1016/j.jenvman.2024.123757>

LEARN MORE ABOUT DARKER SKY



www.interregnorthsea.eu/darker-sky



linkedin.com/company/darkersky-ns



youtube.com/@darkersky-interregnorthsea



Light Pollution Knowledge Hub

>> Join to find all DARKER SKY fact sheets, guides and more resources while connecting with stakeholders across the North Sea Region!

CONTACT

Strategy Development Leader & Author:

Monika Radomska, radomska@waddensea-secretariat.org

Strategy Author:

Chiara Carucci, chiara@noctua.life

DARKER SKY Project Management:

Arthur Renaud, arthur.renaud@univ-brest.fr

© 2026 DARKER SKY Interreg North Sea Project

You may share and reuse this publication for non-commercial purposes, provided that proper credit is given.

Use of AI:

AI was used support language editing and improve readability. All technical and scientific content was reviewed and validated by the project experts.



DARKER SKY

Interreg
North Sea



Co-funded by
the European Union



Interreg
North Sea



Co-funded by
the European Union

DARKER SKY