DARKER SKY | Interreg North Sea

Co-funded by the European Union

GOOD PRACTICE STORY 2 SUMMARY

SPIEKEROOG

GERMANY

SETTING

- **Timeframe**: as of September 2024
- Small car-free island in the Wadden Sea, Lower Saxony, Germany; part of the Lower Saxon Wadden Sea National Park; village with ~800 residents and seasonal tourism.
- Spiekeroog's successful **development and certification as a Dark Sky Community** and the **use of darkness as a tourism and conservation asset.**

MAIN STAKEHOLDERS

- Island municipality and mayor
- Lower Saxon Wadden Sea National Park Authority (NLPVW)
- Astronomer Andreas Hänel
- Island residents and local businesses
- National Park House Wittbülten and trained Dark Sky Guides
- Visitors, tourists, and nature enthusiasts

KEY TOPICS

- Protection of natural darkness and reduction of light pollution
- **Development of an island-wide lighting concept**
- Community involvement and public awareness
- **Dark sky tourism and guided night experiences**
- Ecological preservation and energy efficiency

KEY APPROACH

- **Implementation of IDA-compliant lighting concept (reduced brightness, shielding, warm light tones)**
- Dimming and reprogramming existing lights; replacing fixtures in sensitive areas
- Community outreach and reassurance regarding safety and cost benefits
- Establishment of designated stargazing and educational sites
- **Development of guided dark sky tourism offers and training of specialized guides**

IMPACT

- **Island achieved official Dark Sky certification**
- Energy costs reduced by approx. 70%
- Increased awareness of biodiversity-light pollution links
- Growth in demand for dark sky experiences, especially in off-season
- **Strengthened island identity and reputation as a sustainable tourism model**
- Inspiration for neighboring regions to pursue similar paths

"SPIEKEROOG IS LIGHTING THE WAY FOR THE FUTURE OF DARK SKY TOURISM."

Turning Darkness into a Tourism Asset on Spiekeroog

On the small Wadden Sea island of Spiekeroog, nature is a constant companion. Without cars, with only the sound of waves, winds and bicycles, the island offers an escape to tranquillity and, above all, to the stars. Beneath one of the darkest skies in northern Germany, Spiekeroog is setting an example of what it means to embrace the night.

But this journey towards the active protection of darkness did not happen overnight. It began with repeating questions posed to astronomer Andreas Hänel at the Osnabrück Planetarium: why had the extraordinary starry skies of the East Frisian coast and its islands not yet received the recognition of a Dark Sky certification?
In line with the 2018 Leeuwarden Declaration, which emphasised measures to reduce light pollution, Hänel and the Lower Saxon Wadden Sea National Park Authority (NLPVW) identified Spiekeroog as the ideal candidate for a Dark Sky certification.

The island's unique conditions provided an ideal foundation: the majority of its area is strictly protected as part of the Lower Saxon Wadden Sea National Park, while the inhabited village, home to 800 residents and welcoming 63.000 overnight guests annually, provides a car-free infrastructure**. Initial measurements confirmed the island's exceptional darkness.** In some areas, after public lighting was switched off at 00:30, the sky brightness was lower than Hänel had recorded in hundreds of other locations: 22,1 mag/arcsec2.

Balancing light and darkness in Spiekeroog's lighting concept

Achieving Dark Sky certification required strong collaboration and commitment. Spiekeroog's mayor at the time, Matthias Piszczan, spearheaded the effort, alongside with the island's council, the NLPVW, the island's National Park House Wittbülten and Andreas Hänel. Since most light sources to be regulated were within the village, the application was submitted for the entire island as a Dark Sky Community, supported financially by the EU funded Dutch-German Interreg project "Wadden-Agenda 2.0".

Together, a lighting concept was developed according to International Dark-Sky Association (IDA) certification standards which balanced diverse needs: **reducing light pollution while ensuring safety for pedestrians and cyclists, meeting legal and financial constraints and convincing residents and businesses of the benefits.**

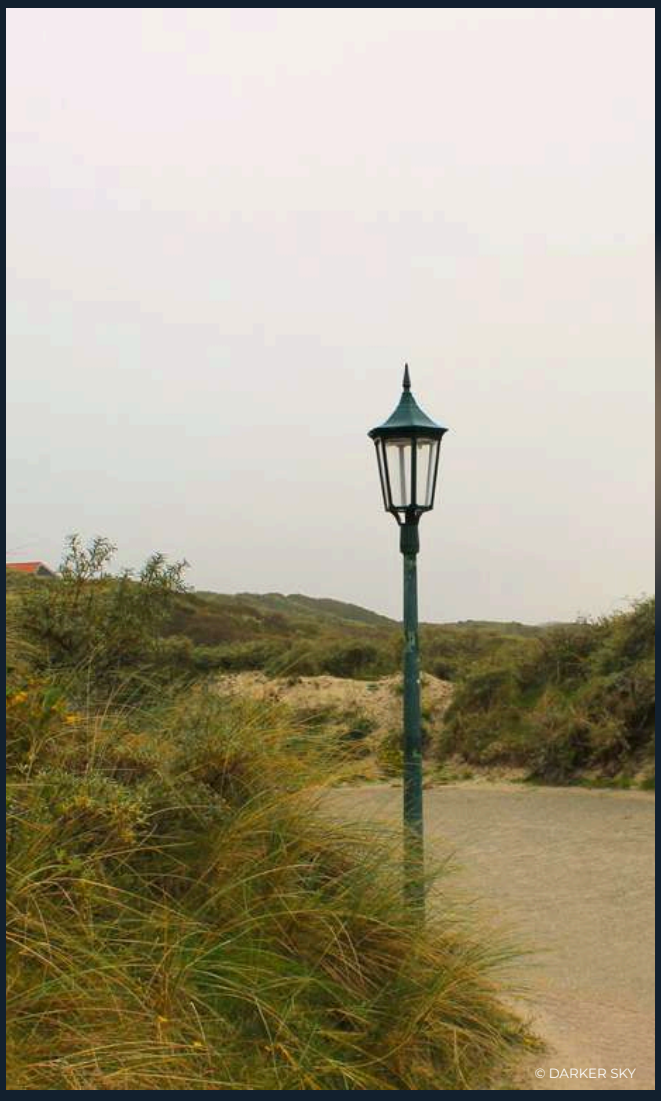
According to this thoughtful lighting concept, tailored to pedestrian use, focusing on minimal and directional lighting for orientation, the transformation began. Public lighting was either substituted with new fixtures or adapted to the IDA standards. Previously installed 68 fixtures with modern LED modules and a 3000 Kelvin (K) colour temperature already aligned with IDA guidelines. However, their excessive brightness (40–60 lux) and partial shielding created glare and failed to fully meet expectations.

The solution? A hands-on approach. Mayor Matthias Piszczan personally reprogrammed each of the 68 lights, reducing their luminous flux to 30%. This adjustment not only achieved IDA compliance but also enhanced energy efficiency and extended the LEDs' lifespan. Meanwhile, in the environmentally sensitive areas along the beach promenade and national park access paths, new fully shielded fixtures with a 2200K colour temperature replaced the older lights, safeguarding the island's protected landscapes.

The result? Energy costs were reduced by 70% and the new lighting proved safer, more efficient and far less intrusive. Even the island's harbour, a critical and traditionally bright are, updated its lighting concept. During peak working hours, particularly when ferries arrive and depart, the colour temperature is set to 3000 K, while for the rest of the night, it is dimmed to warmer 1800 K.

Community engagement built on a shared appreciation for nature

For Spiekeroog's success, community engagement was vital. Despite the challenges posed by the pandemic, efforts to inform and involve residents remained. Press coverage played a crucial role, keeping the public updated on progress and highlighting the benefits of the new lighting concept.
Convincing the islanders, however, proved to be less of a hurdle than expected. With a community of residents and visitors who



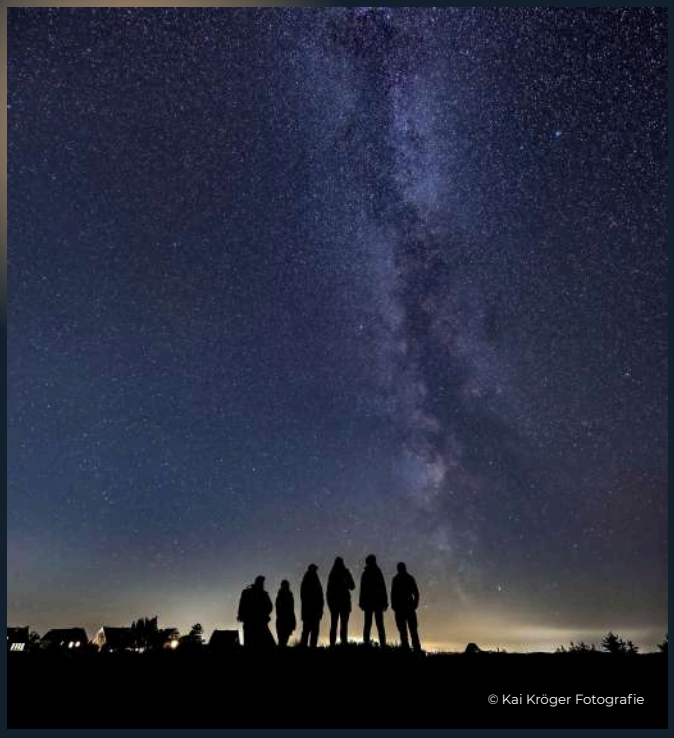
share a deep appreciation for the island's nature, acceptance came naturally. The mayor, a former police officer, reassured locals about safety concerns, explaining that reduced lighting can still provide a safe environment when lamps are strategically placed to ensure clear visibility along pathways. His message was clear: the changes prioritized safety and protected the island's environment. Cost savings also won over residents. The lighting upgrades reduced energy costs significantly, a tangible benefit that resonated with many practical-minded islanders.

Visitors, many of whom are nature enthusiasts and academics, embraced the changes. For them, the island's protected environment is a major draw and the lighting adjustments further enriched their experience. Repeated visitors even celebrated each newly installed lamp, seeing it as another step toward preserving Spiekeroog's unique charm.

Tourism: embracing the dark sky potential

The island's newfound status as an IDA certified stargazing destination has opened doors for Dark Sky tourism. The NLPVW installed three dedicated observation points on the island in collaboration with the National Park House Wittbülten:

- The "**Light Place**" where the impact of artificial light from the mainland and on the sea is visible.
- The "**Dark Place**" nestled in a dune valley, completely free of artificial light.
- The "**Stargazing Place**" is equipped with reclining benches and railings, perfect for stargazing.



The tourism office and National Park House Wittbülten coordinate and offer the highly demanded guided night walks and educational programmes, all receiving very positive feedback. A main aim of the NLPVW is to strengthen the awareness about the link between biodiversity and dark skies. To ensure well-trained guides for these activities, a dedicated training for Dark Sky Guides was initiated by the NLPVW, provided by "Ländliche Erwachsenenbildung in Niedersachsen e. V. (LEB)". These trained guides now lead tours through the night, spreading awareness and knowledge about the night sky and light pollution.

Though the island has yet to see a significant increase in visitor numbers. What has grown noticeably is the interest in Dark Sky experiences, with an expected shift towards off-season tourism. With the best conditions for stargazing found in the spring, autumn and even winter months, Spiekeroog is adapting its offers to cater to this demand, focusing on the quieter seasons when visibility is at its peak. National press coverage has

boosted awareness and partnerships with the Bochum Observatory have allowed the island to offer specialised astronomy presentations and family-friendly night sky activities.

However, the journey towards developing robust Dark Sky tourism is not without its challenges. For example, managing expectations during cloudy nights requires flexibility, as visitors are still taken on tours and offered alternative narratives, learning about light pollution and the stars they may not see.
Despite these and other obstacles, the island remains committed to enhancing its Dark Sky offerings, with the hope that increased awareness will ultimately highlight Spiekeroog's Dark Sky status as a unique selling point for the region.

Lighting the way for the future of Dark Sky tourism

Achieving Dark Sky certification was a monumental effort that strengthened the island's identity. Strong dedication, commitment and teamwork by everyone involved made it possible. **Spiekeroog's success demonstrates the potential of Dark Sky tourism to bring economic benefits while staying true to ecological preservation.** Despite challenges such as limited resources, staff shortages and unpredictable weather, the island is fulfilling this potential as best as possible, offering unique and inspiring experiences to visitors and thereby creating dark sky ambassadors.

Beyond boosting local tourism, Spiekeroog's Dark Sky initiatives are paving the way for others. By sharing its journey, the island serves as a lighthouse for communities across the North Sea Region, showcasing what's achievable even in remote settings with similar constraints.
Spiekeroog is already inspiring neighbouring islands to embrace Dark Sky tourism. Certified or not, these destinations are adopting stargazing activities, proving that the desire to reconnect with the night sky is universal.

By leading the way, Spiekeroog highlights the transformative power of collaboration and serves as a model for sustainable, nature-focused tourism across the North Sea Region.

ABOUT

Interview took place in **September 2024** with Andreas Hänel (Association of Startgazers) and Katrin Kirfel (NLPVW)

Main stakeholders

- Spiekeroog municipality
- Astronomer Andreas Hänel
- Lower Saxon Wadden Sea National Park Authority (NLPVW)
- National Park House Wittbülten

LEARN MORE

- Dark Sky: Spiekeroog
- Star Island Spiekeroog (German)
- Our Partner Meeting on Spiekeroog
- DARKER SKY News

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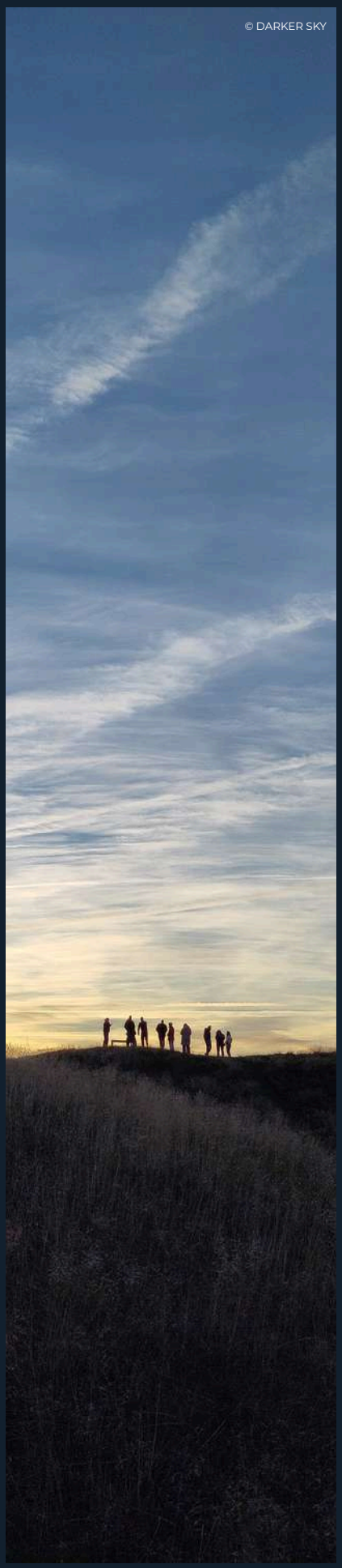
REDUCING LIGHT POLLUTION
IN THE NORTH SEA REGION

GOOD PRACTICE STORY COLLECTION



This story is part of the Good Practice Story Collection of the Interreg North Sea DARKER SKY Project. The stories are gathered by our project partners and connected stakeholders, based on their work and experiences in different regions. They were collected during the first two years of the project (2024–2025). **Some reflect earlier stages and in many places further progress has been made since then.** For updates, pleasevisit the project website and LinkedIn.

The collection aims to inspire and share practical insights into how different places reduce light pollution. **The stories come from diverse settings but are connected by a common approach:** bringing people together, balancing safety, everyday use and nature and learning through practice.

Enjoy reading! We hope the stories offer ideas and perspectives you can take with you.

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LEARN MORE ABOUT DARKER SKY

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