When the Lights Go Out, Nature Shines Brighter

Understanding Light Pollution on the Outer Banks

Forward

This pamphlet was created by the Outer Banks Coastal Conservation (OBCC), a nonprofit organization whose mission is to foster environmental stewardship and a deeper connection to the Outer Banks of North Carolina through outreach, education, and conservation efforts.

We believe that small stories can spark big change. That is why we have made this book available as a free resource for parents, teachers, and community members.

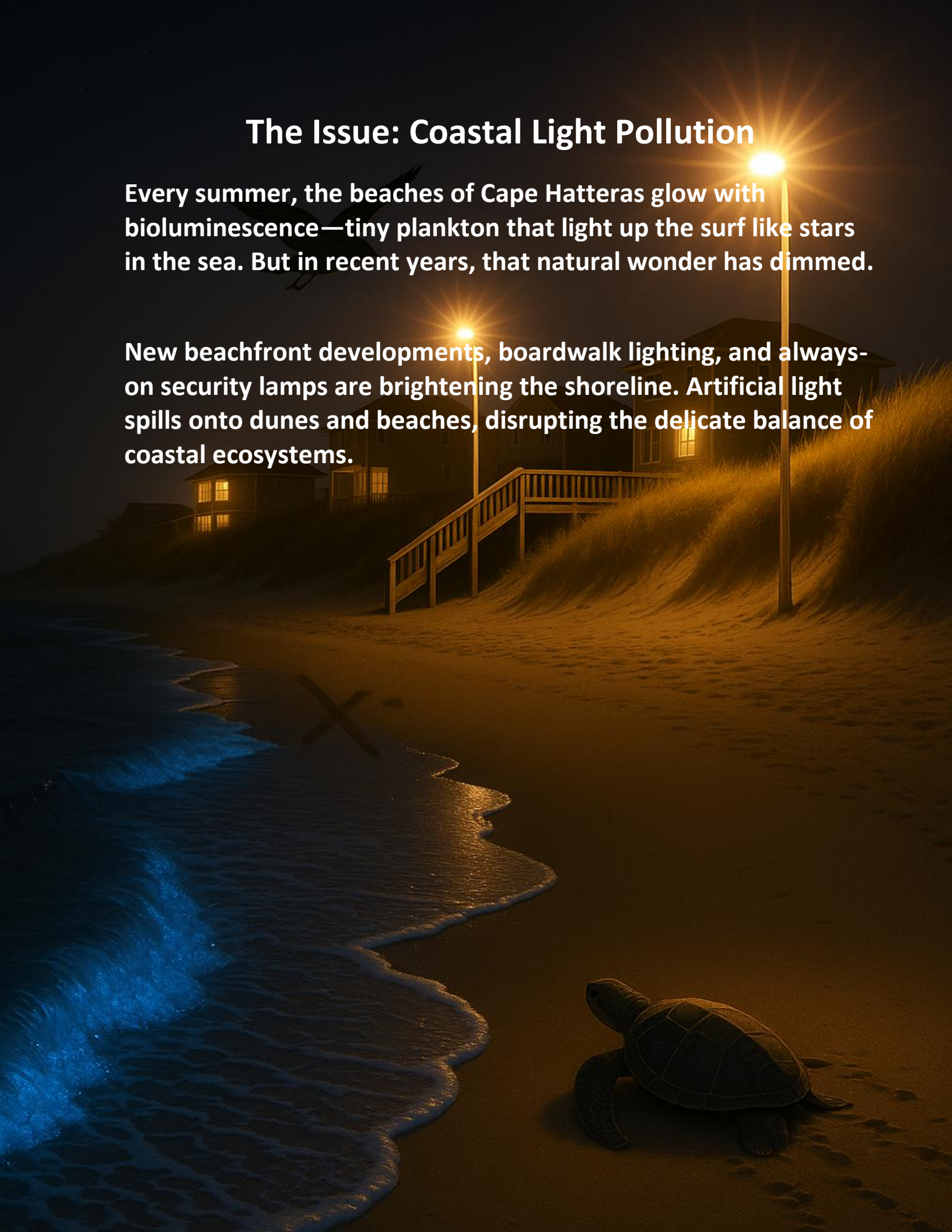
All materials in this pamphlet may be freely downloaded, shared, printed and used for educational or nonprofit purposes.

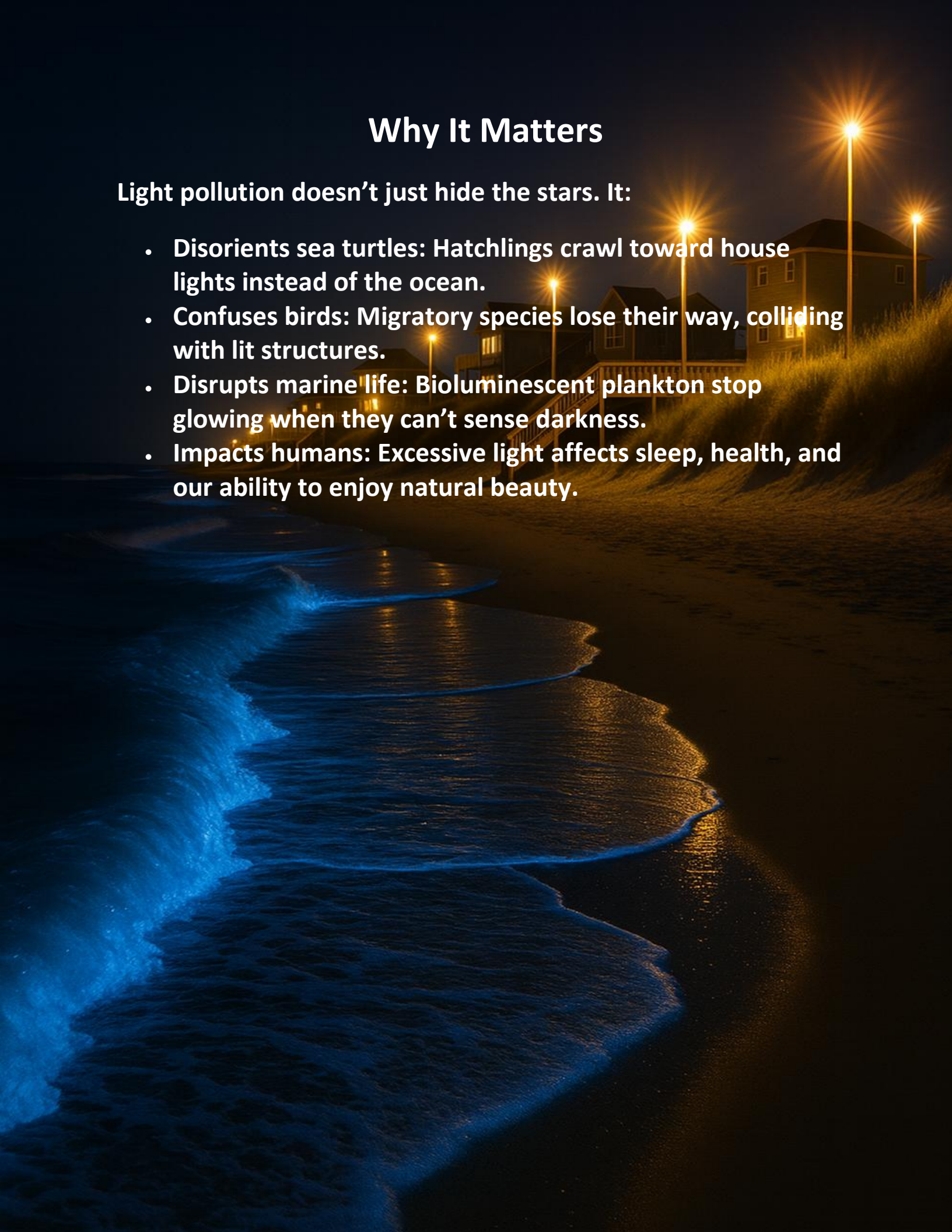
To learn more, access additional resources at: www.theobcc.org.

The Issue: Coastal Light Pollution

Every summer, the beaches of Cape Hatteras glow with bioluminescence—tiny plankton that light up the surf like stars in the sea. But in recent years, that natural wonder has dimmed.

New beachfront developments, boardwalk lighting, and always-on security lamps are brightening the shoreline. Artificial light spills onto dunes and beaches, disrupting the delicate balance of coastal ecosystems.





Why It Matters

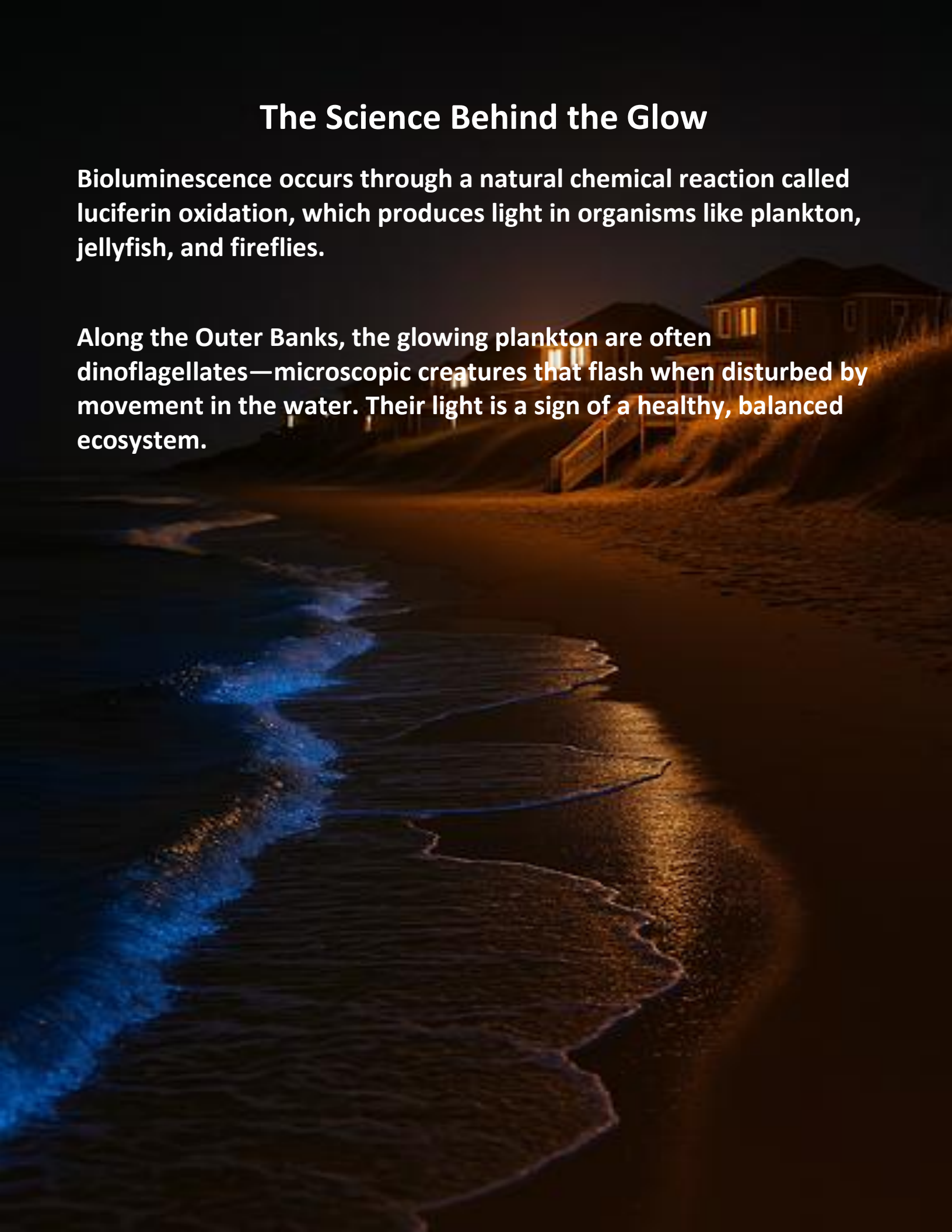
Light pollution doesn’t just hide the stars. It:

- **Disorients sea turtles: Hatchlings crawl toward house lights instead of the ocean.**
- **Confuses birds: Migratory species lose their way, colliding with lit structures.**
- **Disrupts marine life: Bioluminescent plankton stop glowing when they can’t sense darkness.**
- **Impacts humans: Excessive light affects sleep, health, and our ability to enjoy natural beauty.**

The Science Behind the Glow

Bioluminescence occurs through a natural chemical reaction called luciferin oxidation, which produces light in organisms like plankton, jellyfish, and fireflies.

Along the Outer Banks, the glowing plankton are often dinoflagellates—microscopic creatures that flash when disturbed by movement in the water. Their light is a sign of a healthy, balanced ecosystem.



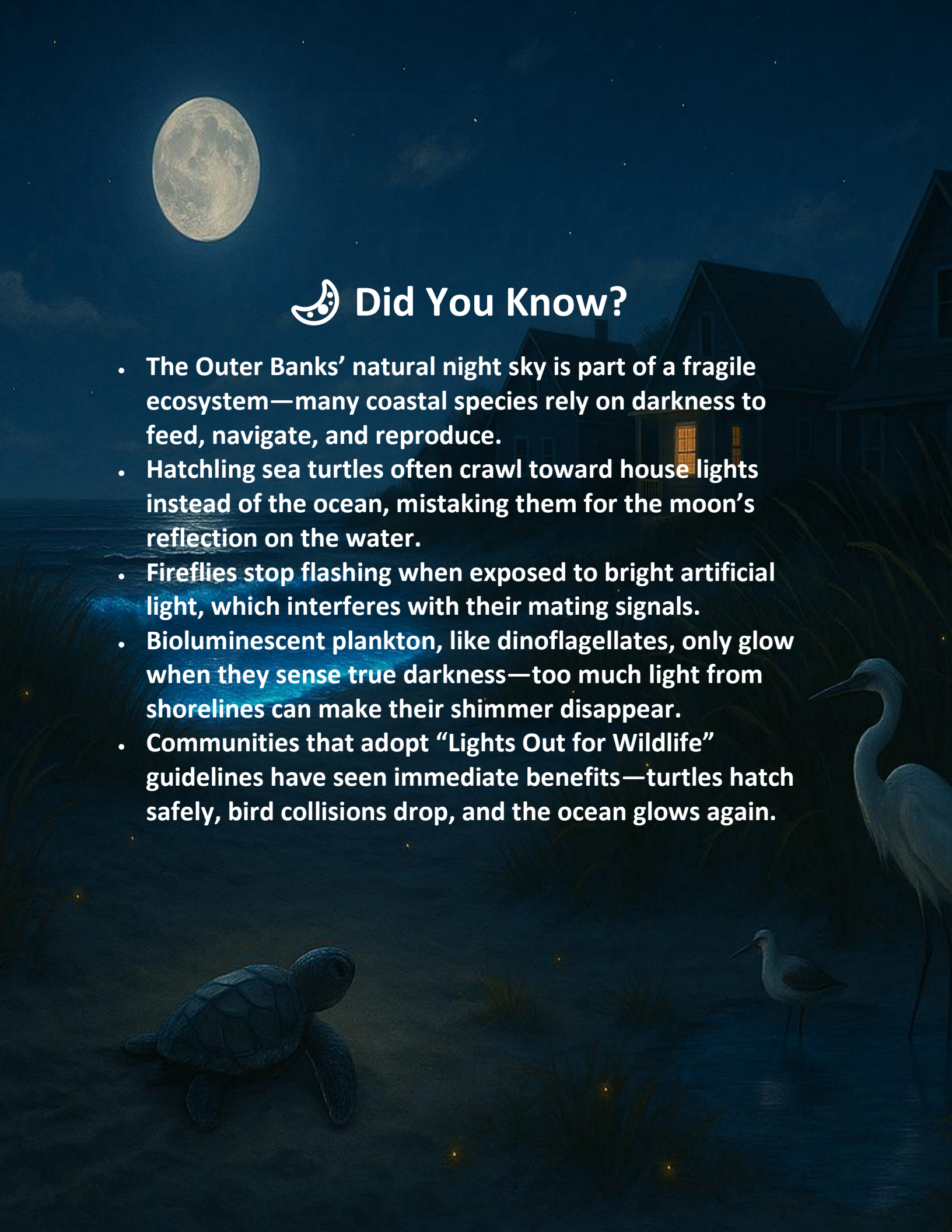
Simple Solutions for a Brighter Future

Reducing light pollution doesn't mean living in the dark—it means lighting smarter:

- **Use shielded, downward-facing fixtures to prevent light spill.**
- **Install motion sensors and timers to turn lights off when not needed.**
- **Choose low-intensity amber or red bulbs that are less disruptive to wildlife.**
- **Turn off decorative and outdoor lighting by 10 p.m. near the shore.**
- **Support community "Lights Out for Wildlife" initiatives.**

How You Can Help

- **Educate neighbors and local businesses about responsible lighting.**
- **Ask rental owners to follow "Dark Sky" and "Lights Out for Turtles" guidelines.**
- **Join OBCC's volunteer programs to promote light-smart communities.**



Did You Know?

- The Outer Banks' natural night sky is part of a fragile ecosystem—many coastal species rely on darkness to feed, navigate, and reproduce.
- Hatchling sea turtles often crawl toward house lights instead of the ocean, mistaking them for the moon's reflection on the water.
- Fireflies stop flashing when exposed to bright artificial light, which interferes with their mating signals.
- Bioluminescent plankton, like dinoflagellates, only glow when they sense true darkness—too much light from shorelines can make their shimmer disappear.
- Communities that adopt "Lights Out for Wildlife" guidelines have seen immediate benefits—turtles hatch safely, bird collisions drop, and the ocean glows again.

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