



Okarito Dark Sky Community

Photo in background, or stars!

*Surrounded by Tai Poutini National Park,
Okarito is the perfect place to be New
Zealand's first Dark Sky Community*

WHY PROTECT OKARITO'S DARK SKIES?

- The Dark Sky is a Natural Resource that is slipping away across the country and the planet, just like the clean air we breath and the clean water we drink
- One obvious benefit is seeing the stars and Milky Way that Maori enjoyed

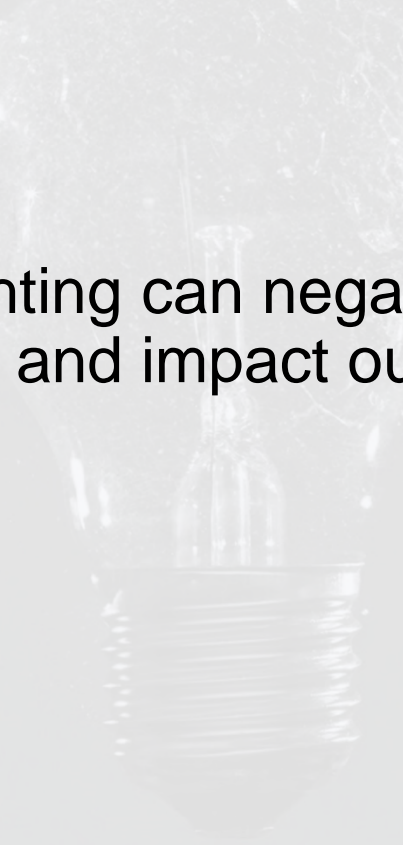
The basic principles of responsible lighting are:

- Light must be useful
- Light should be directed to only where it is needed
- Light should be off when it is not needed
- Lighting colors should be warmer tones ie amber
- Lighting should not be brighter than necessary



This is a global issue with lighting effects causing harm all over the world.

Improper lighting can negatively affect our environment and impact our quality of life.



Safety

- We often think bright outdoor lighting makes us safer. Several studies have shown that is not the case. There are ways to lessen our light pollution impacts and still have security lighting. Motion sensors are very useful in only lighting an area when required. Also, using a warmer light tone minimizes the detrimental effects of outdoor lighting.

e.g The city of Madrid, Spain reduced their outdoor lighting by 50% and saw no increase in crime.

Impact on Plants

- Leaves grow unnaturally long and weaken if exposed to artificial light at night
- Soybean plants exposed to artificial lights at night were 30% less productive
- Moths (important nocturnal pollinators) are often trapped and die due to their attraction to lights. Artificial lighting has led to a large decline in moth populations.

Impact on wildlife and birds:



- Animals have their natural circadian rhythm confused by artificial lighting.
- Shoreline life is adversely affected which can have impacts all the way up the food chain.
- Artificial night lighting lures insects to their death, some of those are an important food source for whitebait and other native species.

Impact on humans

- Our minds and bodies have a natural rhythm of winding down as the sun goes down, that trickles down to relaxation and ultimately sleep quality. Blue light (computer screens, bright white LED lights etc) is like the sun coming up and stimulates our senses.
- The American Medical Association declared light pollution a human health risk due to melatonin suppression. Melatonin helps regulate our hormones. Studies have found that hormonally driven cancers and childhood leukemia are more likely in those exposed to artificial blue enriched spectrum night lighting.
- Our eyes are impacted by too much nighttime lighting as well. Studies have shown a marked decline in the protective layers of the eyes for those exposed to excess lighting at night.

The International Dark Sky Places Program offers five types of designations:

1. [International Dark Sky Communities](#)
Communities are legally organized cities and towns that adopt quality outdoor lighting ordinances and undertake efforts to educate residents about the importance of dark skies.
2. [International Dark Sky Parks](#)
Parks are publicly- or privately-owned spaces protected for natural conservation that implement good outdoor lighting and provide dark sky programs for visitors.
3. [International Dark Sky Reserves](#)
Reserves consist of a dark “core” zone surrounded by a populated periphery where policy controls are enacted to protect the darkness of the core.
4. [International Dark Sky Sanctuaries](#)
Sanctuaries are the most remote (and often darkest) places in the world whose conservation state is most fragile.
5. [Urban Night Sky Places](#)
UNSPs are sites near or surrounded by large urban environs whose planning and design actively promote an authentic nighttime experience in the midst of significant artificial light at night, and that otherwise do not qualify for designation within any other International Dark Sky Places category.

RECENT DARK SKY IN THE MEDIA

Sustainability Nov 2021

Forest & Bird Spring 2022



Article

Looking Up to the Stars. A Call for Action to Save New Zealand's Dark Skies for Future Generations to Come

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Abstract: The rapid development of technology coupled with humanity's desire to reach beyond terra firma, has resulted in more than 60 years of Outer Space activities. Although the exploration of space has provided many advantages and benefits to society so far, including vast, new information that has greatly added to our understanding of our planet and beyond, unfortunately, mankind's footprint has negative aspects that need to be minimised as much as possible. In recent decades, a major worldwide problem has emerged in regard to the significant increase in light pollution from ground-based illuminations, as well as a lack of proper regulatory frameworks to mitigate the issue in order to protect the night sky and astronomical research. More recently, due to the escalating demand of air space for microsatellites and the rapid development of these new space technologies, as well as unmanned aerial vehicles (UAV), a new problem has arisen connected to visual light pollution (VLP). New Zealand has been especially affected, as, because of its dark skies, it has the third highest number of astronomical observatories in the world. The aim of this research is to identify critical areas for broader investigation; an action plan to improve the impact of new technologies is urgently required, not only at a national level but also worldwide. This is crucial in order to preserve humanity's right to access the night sky and to also enable continual professional and amateur night-time observations for the present and the future, as well as for New Zealand to become a Dark Sky Nation.

Keywords: light pollution; visual light pollution; astronomical observations; astrotourism; light pollution abatement; microsatellites; unmanned aerial vehicles; lighting ordinances; sustainable development goals; Māori astronomy



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WHAT TO DO WITH A GROUNDED SEABIRD

- Pick them up using gloves or a towel to avoid damaging their feather waterproofing with the oils from your skin.
- Place them in a ventilated box padded with towels or other fabric.
- Do not try to force feed them water or food.
- Seek help as soon as possible. Holding them for days significantly reduces their chances of survival.
- If you are in Auckland, bring them to BirdCare Aotearoa at 74 Arundel Road, Green Bay.
- The SPCA can help with transporting off to BirdCare Aotearoa.
- If outside Auckland, call DOC (0800 DOC HOT) or BirdCare Aotearoa (027 818 9319) for advice.

Thanks to BirdCare Aotearoa for sharing these tips. To learn more about its conservation and rehabilitation work, go to <https://birdcareotearoa.org.nz>.

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Dark Sky in New Zealand

- 'Dark Sky Reserve' – Tekapo - *the largest in the world at 4,300 sq kms.*
- Waiheke Island – *in process*
- 'Dark Sky Park' – Nelson/Tasman
- 'Dark Sky Sanctuary' – Stewart Island
- 'Dark Sky Sanctuary' – Aotea/Great Barrier Island – *NZ's first Dark Sky Sanctuary*
- 'Dark Sky Nation' – New Zealand - *in process now!*

The Observer New Zealand holidays

The star quality of New Zealand's Great Barrier Island

Chris Hall

Sun 20 May 2018 07:00 BST



109



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voyager. 2012 MEDIA AWARDS

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Dark Sky Sanctuary status will put Great Barrier Island on international stage

The Aucklander by Paul Charman

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NEW ZEALAND / SCIENCE

Wai-iti Reserve near Nelson to be New Zealand's first Dark Sky Park

7:25 am on 10 July 2020

Share this

Tracy Neal, Nelson Reporter

Ralph Bradley was a 10-year-old in Golden Bay when he went outside in the early hours of a morning with his father, and saw his first aurora.



National Geographic Nov 2022

TRAVEL

What's a 'dark sky nation' and why does New Zealand want to become one?

With Māori experts leading the way, the country is planning to slash light pollution at an unprecedented scale.

BY RINA DIANE CABALLAR



PUBLISHED NOVEMBER 3, 2022 • 8 MIN READ

On a clear night above Lake Tekapo, a township at the heart of New Zealand's South Island, the sky is studded with countless glittering stars. Light pollution affects 80 percent of the globe, making this stellar night view somewhat rare—but it's not uncommon in this island nation of 5 million.

In fact, New Zealand is aiming to become certified as a dark sky nation by the International Dark-Sky Association (IDSA), an unprecedented goal for a country of New Zealand's size.

Indigenous Māori people are leading the initiative by spreading awareness of the ecological and cultural importance of dark sky preservation.

"Our language [te reo Māori] and different cultural practices and beliefs come out of our observations of the night sky," says Rangi Mātāmua (of Ngāi Tūhoe tribal descent), an astronomer and professor of Mātauranga Māori (Māori knowledge) at Massey University. The Māori people use maramataka (the lunar calendar), for instance, to identify the best times to plant, harvest, fish, and hunt.





*Okarito could be the first 'Dark Sky Community'
In New Zealand*

Benefits of being a Dark Sky Community

- Internationally recognised accreditation
- Great nature tourism benefits that align with Okarito's ethos – fits in with our conservation goals, ZIP, J4N work etc
- Good for the community health & wellbeing
- Future proofing/protecting our skies for our next generations

Why Okarito?

- Already has the advantage of no current street lighting in place
- Small community
- Surrounded by Tai Poutini National Park

Okarito Stats

- 65 private residences
 - 15 commercial or community/public use
- = 80 TOTAL BUILDINGS
- 32 permanent residents (includes children)
 - can house up to additional 192 + campground (approx 75-100)

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- 19 residences
 - 14 used strictly for holiday rentals,
 - 24 predominantly baches,
 - 7 Vacant
 - 6 commercial or public use - not residential
 - 4 duplicate use

Ideas for events & promotion

- A Matariki Festival to strengthen Matariki public holiday
- Night sky photography competition – Okarito Wharf, Donovans Store historic buildings
- Night sky tourism
- Potential collaboration with the new Pounamu Pathway to enhance cultural & ancestral Maori legends & history of the skies

We currently
have support
from:

- Te Rūnanga o Makaawhio
- Okarito Community Association

Dark Sky NZ are able to assist us in the following areas:

- Measuring the level of darkness and night sky brightness in our area
- Obtaining dark sky accreditation for our area
- Providing astronomy outreach to our community
- Assistance with building a group of Dark Sky Ambassadors for our area

Dark Sky Requirements Summary

1/ A quality comprehensive lighting policy that includes all of the following minimum standards for permanent lighting:

A) Full shielding of all lighting fixtures over 1000 initial lamp lumens

B) A limit on the emission of short-wavelength light

C) A restriction on the total amount of unshielded lighting

D) A policy to address over-lighting, such as lumens per net acre

E) Regulations of new installations of publicly-owned outdoor lighting

F) Restrictions on the installation and operation of illuminated signs

G) Outdoor recreational and/or athletic field lighting may be exempted from the strict shielding & short-wavelength emission requirements

Dark Sky Requirements Summary

2) Community commitment to dark skies and quality lighting as shown by:

A) City owned lighting conforming with, or committed to conforming with the lighting policy

B) Municipal support of dark skies and quality lighting as demonstrated by city publications, flyers, public service announcements, funding of lighting upgrades, etc.




Dark Sky Requirements Summary

3) Broad support for dark skies from a wide range of community organizations such as chambers of commerce, local electrical utilities, IDA chapters, lighting retailers, home-owners associations, and others

4) Community commitment to dark skies and education



Dark Sky Requirements Summary

- **5) Success in light pollution control**
 - **6) A sky brightness measurement program must be established and maintained either by the Community or by a public or private entity**
 - **7) Once established, the Community must erect and maintain appropriate signage indicating the International Dark Sky Community designation**
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Goals/timeline

Application
process
takes 1-2
years

Aim to
apply by
start 2023

Aim to
complete &
launch at
Matariki
2024/2025

Next Steps...

1/ Seek support from:

- Development West Coast
- Westland District Council
- Glacier Country Tourism Group
- Forest & Bird

2/ Complete 'intent to apply' pre-application

3/ Research funding support (if any)



In Conclusion

Okarito is a special place and the opportunity for us to protect our night skies, our plants, birds, shoreline species and our health from future light pollution can be achieved by becoming part of the International Dark Sky Project.

WHAT CAN YOU DO TO HELP

- Install Dark Sky friendly lighting fixtures and bulbs
- Fully shielded fixtures direct light down
3000K CCT or less
- Use minimum lumens for application
- Consider using motion activated security lighting
- Do you need a light on all night?
- Darksky.org – IDA website has resources and links for compliant fixtures
- Join Okarito's Dark Sky Initiative by volunteering to help satisfy IDA's Dark Sky preservation criteria

International Dark Sky Association

<http://www.darksky.org/>

The **International Dark-Sky Association** works to protect the night skies for present and future generations.

- World-wide recognition
- The International Dark-Sky Association is a United States-based non-profit organization incorporated in 1988 by founders David Crawford, a professional astronomer, and Tim Hunter, a physician/amateur astronomer.



THANKYOU!

Any
Questions?

*Photo Donovans Store, Okarito
With thanks to Ben Sarten Imagery &
Glacier Valley Eco Tours*

