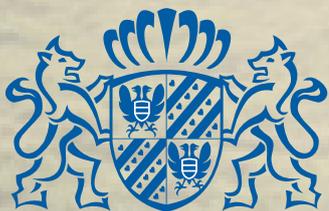


Dark Sky Park Lauwersmeer

Application to the International
Dark-Sky Association



**provincie
groningen**



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1 Preface

*Eens het rijk van zon en maan
De tijd van eb en vloed
Kotters koersen noord en zuid
Op een zee die vissers voedt*

*Once the reign of sun and moon
The time of ebb and flood,
Cutters steer for north and south
On a sea, which feeds fisherman*

From the poem 'Lauwersmeerballede', from the book Zinnen verzetten. by the poet Gritter

The poet Gritter, from Den Andel, a little village in the neighborhood, is the poet of the Lauwersmeer. Since its origin in 1969 he writes about the new land and its development and builds in this way an unique view on this lake which once was a real sea.

We propose to recognize Lauwersmeer as the second Dark Sky Park in the Netherlands.

The application is done by two different local organizations:

- Staatsbosbeheer, being the owner of Lauwersmeer. Staatsbosbeheer is commissioned by the Dutch government and manages a sizeable amount of the nature reserves in the Netherlands.
- The province of Groningen. National park Lauwersmeer is lying in the provinces of Friesland and Groningen. The province of Groningen is situated on the eastern part of the Park. The provinces are formally responsible for management of the nature and the nature parks in the Netherlands and so the provinces are formally principal of Staatsbosbeheer.
- The application is supported as nominator by Wim Schmidt, president of Platform Lichthinder, Dutch affiliate of the IDA.

Magisch land
Zie het land, Lauwersmeer
in al zijn wijdse pracht
Sper de ogen, richt de oren
Spits ingeboren zinnen

Magic land
*See the land, the Lauwerslake
in all its wide splendor
Open wide the eyes, point the ears
Prick innate senses*

Lauwersmeer, magisch land
Spiegel van mijn ziel
Ween met mij, lach met mij
Verzet mijn broze zinnen

*Lauwerslake,, magic land
Mirror of my soul
Weep with me, laugh with me
Divert my brittle senses*

from:Gritter, Magical land, first and last strophes

International Dark Sky Association
3223 N First Avenue
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USA

Datum : 24 mei 2016
Briefnummer : 2016-27.947/21/A.7, PPM
Zaaknummer : 617323
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Telefoonnummer : (050) 316 4395
Antwoord op :
Bijlage : 1
Onderwerp : application - International Dark Sky Park Lauwersmeer

Dear IDA Board of Directors,

The undersigned, the Province of Groningen and Staatsbosbeheer (National Forest Management) in the Netherlands, are hereby requesting you to grant the status of International Dark Sky Park to National Park Lauwersmeer. In this regard we would like to refer you to the application attached to this letter.

National Park Lauwersmeer is situated within two provinces and three municipalities. That's why we are also making this request on behalf of the other governmental organizations collaborating in the steering committee Lauwersmeer.

The steering committee Lauwersmeer bears responsibility for National Park Lauwersmeer. The joint governmental organizations surrounding Lauwersmeer seated in the steering committee are: Province of Fryslân, Province of Groningen, Municipality of Kollumerland, Municipality of Dongeradeel and Municipality of De Marne. The Province of Groningen is the coordinating party responsible for environmental policies. Staatsbosbeheer is landowner and the implementing organization for environmental policies in Lauwersmeer.

The steering committee Lauwersmeer endorses the ambition for obtaining the international predicate Dark Sky Park for National Park Lauwersmeer. By means of letters - submitted with the application - the boards of the Province of Fryslân and the Municipalities of De Marne, Dongeradeel and Kollumerland endorse the application.

National Park Lauwersmeer borders on World Heritage Waddenzee and is situated in one of the darkest areas on the main land of the Netherlands. There is much support in the surrounding areas for our ambition to foster darkness in and around Lauwersmeer. This wide support is underlined by the letter - submitted with the application - of the chairman of the sounding board Lauwersmeer, also on behalf of all stakeholders in this sounding board.

We - the Province of Groningen and Staatsbosbeheer - consider strengthening the value of the perception of darkness and natural values to be very important. In and around Lauwersmeer we are already stimulating awareness and education of these values. To achieve this, we yearly draw up a program of education. Dark Sky is an integral part of this program. For the execution of parts of the program, Staatsbosbeheer works together with the Institute for Environmental Education and Sustainability (Instituut voor Natuureducatie en Duurzaamheid). In addition, we support initiatives and programs on darkness by entrepreneurs, like 'the Night of Electra' event and yearly events like the 'Night of the Night' and TREK festival. For more detailed information on the exposure of darkness we refer to the activities calendar submitted with the application.

In order to be able to obtain and maintain the status of Dark Sky Park the parties within the steering committee have committed funds for investments in the Dark Sky concept. These investments are aimed both at improving the lighting near the National Park and at raising consciousness of what darkness means to man and animal.

Staatsbosbeheer as landowner declares by means of this letter that at this moment the lighting within National Park Lauwersmeer near the visitor centre complies with IDA standards and will comply with the IDA standards in the future. Furthermore, Staatsbosbeheer declares that no other forms of lighting are present within the National Park or will be installed in the future.

With kind regards,

The Provincial Executive of Groningen,



Henk Staghouwer,

Member of the Provincial Executive

Staatsbosbeheer,



Rieks van der Wal,

Head of the department of
Groningen

'Platform Lichthinder' is de roepnaam van International Dark-Sky Association Nederland, gelieerd aan de International Dark Sky Association.
KvK Amsterdam, nr 412 652 59 0000
Rabobank: 3767.61.229 t.n.v. Stichting Dark Sky

Utrecht, 12 January 2016

Dark Sky Park Lauwersmeer, application

In the north of the mainland of the Netherlands an old inland sea is since a forty odd years enclosed by a ten miles long dike.

A big lake is created with woods, grass, where birds and oxen are living.

Since the end of the last century this Lauwersmeer is also one of the 20 National Parks of the Netherlands and even one of the two wildernesses the Netherlands possess.

Because this is new land, nobody lives there and the land is owned by only a few partners.

Because the nearest big towns are twenty miles away and the sea nearby this is a very dark area, the darkest of the mainland of the Netherlands.

After the success of the Boschplaat as the First Dark Sky park we have been asked to help to erect also a Dark Sky Park on the mainland of Holland.

This secluded land, easy to reach compared to the islands but without the elaborate touristic infrastructure, is very willing to go into this new direction: nature at its most natural form: water, sky and stars over it.

We love to go there and discover our most darkest nights on the mainland: Lauwersmeer.

We wholeheartedly support this application. We learned from the experience of the last few years that the potential and the enthusiasm are abundantly present to make this a successful project in the north of Holland.

Wim Schmidt
President Platform Lichthinder

3 Introduction

After the first ideas about a Dark Sky Park in the Netherlands developed on one of the islands, this idea bore fruit in the whole area around the Waddenzee. This area from Harlingen in the west till Delfzijl in the east is for Dutch standards low populated and dark.

The strongest and most persistent enthusiasm came from organizations around the Lauwersmeer area at the north coast of the mainland of Holland.

The province of Groningen, together with the neighbouring province of Friesland, tries to develop the touristic possibilities of this new patch of land. It exists only for forty odd years, because it is conquered from the sea in the year 1969.

What better than making this unspoiled new land, part of a Dark Sky Park? The essence of a Dark Sky Park means just it is unspoiled and this new land is as unspoiled as it can be.

Furthermore the new land is also a National Park; some recreational facilities are built this last forty odd years in the form of harbors, bungalowparks etc. Public outreach is already well established. All the ingredients for a successful application were already there.

After the initial idea took form, the province of Groningen contacted Wim Schmidt, who also accompanied the making of the DSP in De Boschplaat.

Two years of work followed to get the participation of the three municipalities in two provinces, the few entrepreneurs who exploit the different camping places and bungalow parks around the area. Also organizations like the Ministry of Defense and the harbor of Lauwersoog, which both have lights spoiling the nights over the Lauwersmeer, joined in.

This all resulted in this application.

Contacting all the organizations around the Park and succeeding in really improving the nights in the area was much work, but we think we did a good job and have succeeded in 'getting all the noses in the right (dark) direction', which is an expression in Dutch for this whole process.

4 Lauwersmeer in the Netherlands

4.1 Lauwersmeer

Lauwersmeer is situated at the north of the mainland of Holland between the provinces of Groningen and Friesland. It lies on the coast of the Waddenzee and was till 40 odd years ago part of this sea. Originally it was a big inland river delta. This inland 'sea' was a threat to the inhabitants, who were building their houses on little hills and since the first half of the 19th century plans were made for constructing a dike.

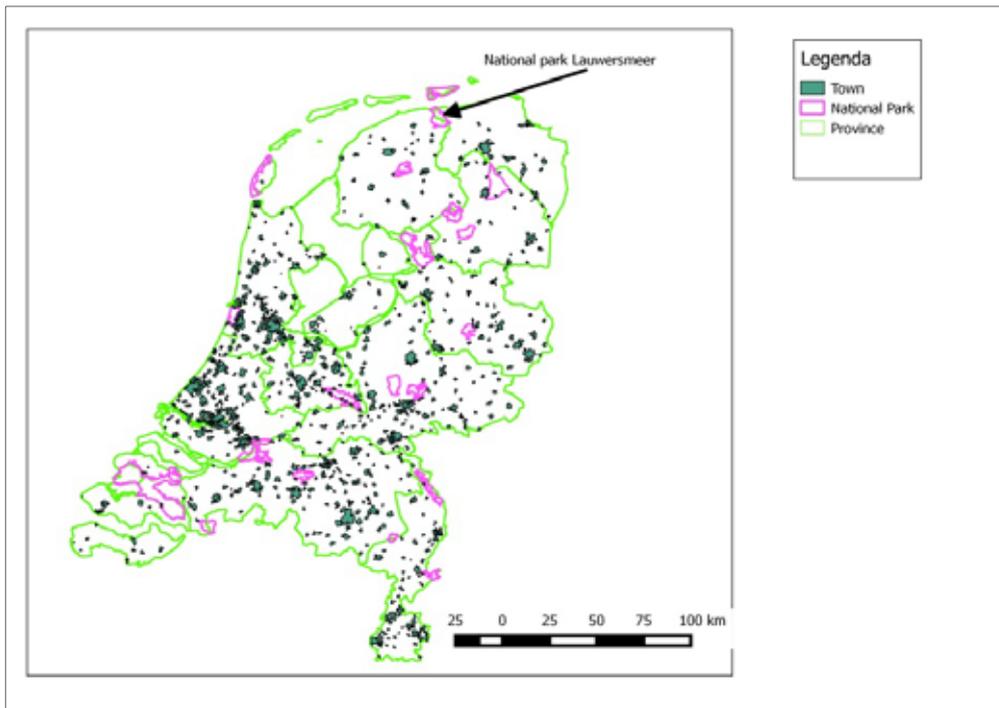


Figure 1 National park Lauwersmeer in the Netherlands

These plans were finally accomplished in 1969. The new land was originally planned for military purposes and agriculture. The land was first salt and no plants could grow there. After the first years of desalinization the first plants were growing and the land was sowed with grasses. In the eastern part, the Ministry of Defense erected a big terrain for large military exercises. In the north, a fishing port was erected with a little village Lauwersoog, where the ferry to one of the islands, Schiermonnikoog, departs. In the western part there was room for agriculture and nature. A big part of the new land was deserted and nature took it over, all kinds of orchids covered the ground and attracted a lot of birds.

4.2 Waddenzee

Lauwersmeer was once part of the Waddenzee, which stretches all the way along the northern coasts of the Netherlands, Germany and Denmark. The Waddenzee is very shallow and runs with low tide mainly dry. On specific times, you can even walk to the islands, where only a few hours later you can only travel by boat.

At the end of June 2009, the Dutch and German parts of the Waddenzee were declared a Unesco World Heritage Site. In June 2014 the Danish part of the Waddenzee received this nomination as well.

Together they form the largest tidal barrier island system in the world, internationally renowned as key feeding area for millions of migratory birds, which pass through, in spring and autumn, on their way to and from the breeding areas in the arctic to the wintering grounds in West Africa. There is a special website dedicated to the Waddensea World Heritage: <http://www.Waddensea-worldheritage.org/>.

The cooperation in the three countries for protecting the migratory birds is coordinated by the Wadden Sea Flyway Initiative (WSFI): see <http://www.waddensea-secretariat.org/management/projects/wadden-sea-flyway-initiative-wsfi>

4.3 National Park Lauwersmeer

4700 hectare of the new land got under the control of Staatsbosbeheer, and later on another 250 hectare extra. This became in 1993 one of the in total 20 National Parks in the Netherlands.

Lauwersmeer is in essence a square area consisting of land and water. Around the park there are a number of recreation parks and woods. At several points there are bike routes and walking paths into the Park itself, mostly to bird watching stations and view points over the Park.

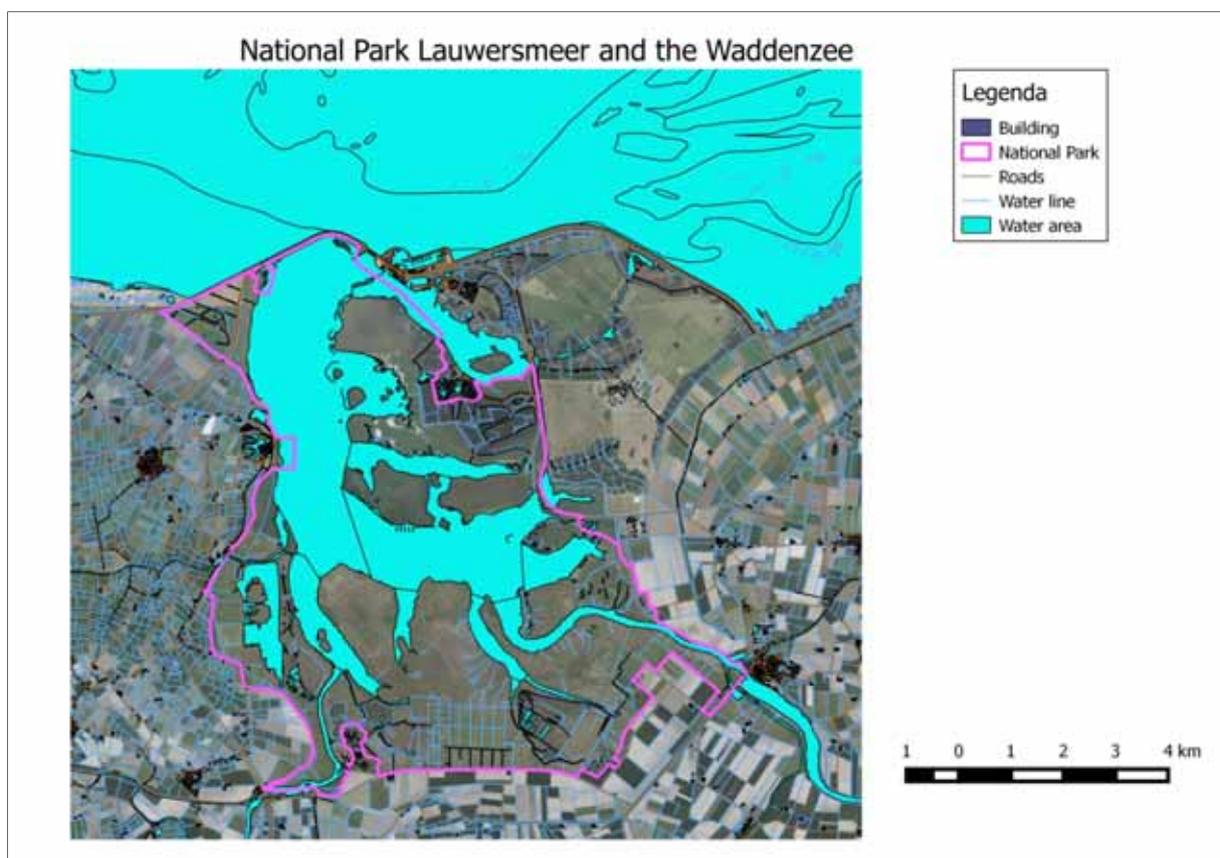


Figure 2 National Park Lauwersmeer, Waddenzee and the waterways

Nobody lives in the Park that consists solely of water, woods and grasses. The grasses have the important role to filter and clean the rain water that comes down river from the mainland, before it streams into the Waddenzee. To keep the area open and the grasses healthy, free of new trees and shrubs, is one of the main assignments for Staatsbosbeheer. They have to this purpose herds of Scottish Highlanders and Konik horses grazing.

Lauwersmeer is on the mainland the most important habitat and resting place for the millions of birds, traveling twice a year along the Waddenzee coast to and from Siberia. Here you can watch 30.000 barnacle goose flying ahead.

Below there are some impressions of the landscape by day.

In contrast to the Boschplaat, the Lauwersmeer is now an integral part of the Netherlands and will be protected just as well as the rest of the country against rising sea levels.

There is a multi billion 'High water defence program' to strengthen and heighten the dikes around the Netherlands and the dike of the Lauwersmeer will be one of the first to be improved.



Figure 3 Impressions of the open landscape of Lauwersmeer

North of Lauwersmeer, just outside the National Park, lies the new village of Lauwersoog where 150 people live.

Lauwersoog is also the main attraction of the region because the boat to the isle of Schiermonnikoog departs from there. Lauwersoog has a large fishing harbor and related fishing industry, and some touristic harbors.

To the outhast lies the old fishing town Zoutkamp (translated: Saltcamp) with 1200 inhabitants. To the west some little villages like Anjum (1500 inhabitants) and Kollum, a larger one, (5500 inhabitants). The closest big city is Groningen with 195.000 inhabitants at 30 kilometers to the southeast.

Formal situation at Lauwersmeer

Lauwersmeer is a National Park. National Parks in the Netherlands have to comply with the criteria of the IUCN and are a connected nature area of minimal 1000 hectares, which consists of nature terrain, water, woods with a landscape of particular interest, plants and animals, where also possibilities for recreational use are available'.

In total there are twenty National Parks in the Netherlands.

The National Parks¹ commit themselves to:

- Conservation and development of nature and landscape
- Nature directed recreation
- Education and information
- Research

Natura 2000 area

The National Park Lauwersmeer is since 1997 also a Natura 2000 area with the designation Vogelrichtlijn (directive bird protection): Lauwersmeer is very important for breeding birds of reedswamps, like the Western Marsh Harrier and the Bittern and for breeding birds of rough grasslands like the Montagu's Harrier.

At the website of the Dutch Ministry of Economy, one page is dedicated to the Lauwersmeer Natura 2000 area:

<http://www.synbiosys.alterra.nl/natura2000/gebiedendatabase.aspx?subj=n2k&groep=8&id=n2k8&topic=introductie>

In the management plan of this N2000 area, the different animal population is discussed together with the measures to preserve their habitat. The protection of birds and their natural habitat is the main priority of the management plan. For some of the birds like the Bittern and the Greater White-fronted Goose, preservation of the quietness and darkness in their habitat is mentioned as necessary. In this management plan of 2015 'Natura 2000-ontwerpbeheerplan Lauwersmeer' an inventory of all the lights present in the Park is proposed to assess the darkness as habitat for those birds. This inventory is now done in relation to the potential Dark Sky Park.

¹ <http://www.nationaalpark.nl/documents/home>

5 Criteria for becoming a Dark Sky Park

5.1 Eligibility Criteria²

- A. All protected public lands, whether managed by national, state, provincial, or local agencies, are eligible. These may include parks, refuges, forests, wilderness areas, monuments, protected rivers, or other categories of protected lands.
- B. Explains further possibilities of types of management, but is here not of importance.

Lauwersmeer is a National Park since 2003.

C. The Park must provide the opportunity for public nighttime access, with or without supervision. A portion of designated land may meet this requirement, or access must be available for a fraction of the length of the night. In some cases, such as when working with areas that protect endangered wildlife, this requirement may be adjusted.

Lauwersmeer is open at night; there is no curfew or other restriction: walking or biking can be done and also sailing or canoeing. There is a small part of the water which is not accessible with some kind of boats and even a little part is closed for all boats in relation to the nesting of birds.

D The Park must provide an exceptional dark sky resource, relative to the communities and cities that surround it. Core night sky quality must fit in one of the three tier qualifications Gold, Silver, or Bronze.

This criterion is met, as will be shown in the next chapter.

5.2 Minimum Requirements for all parks

- A) A quality comprehensive Lightscape Management Plan (LMP) with the following minimum standards (see "Lightscape Management Plan Guidelines" section for more details):
 - i. New, current, and retrofitted lighting must meet the Park's LMP (which must meet the "Lightscape Management Plan Guidelines" included in this document). The RASC/IDA Guidelines for Outdoor Lighting (GOL) should be consulted in creating the Park's LMP. These guidelines may be found on IDA's website AND;
 - ii. Included policy for determining whether an area should or should not be lighted, at what times an area should or should not be lighted, and appropriate illumination levels; AND
 - iii. Fully shielded fixtures are standard throughout the Park. Any lighting fixtures above 500 initial lumens are required to use fully shielded fixtures emitting no light at or above the horizontal. When unshielded fixtures are used, impacts to the lightscape must be minimized with the use of timers and/or curfews; AND
 - iv. Methods for determining the appropriate type of lamp (color, efficiency, technology) and fixture that should be used with goals to maximize energy efficiency and minimize impact to human vision dark adaptation/recovery time, wildlife, and the nocturnal ecology. The

² We are referring to the criteria published in October 2014.

correlated color temperature (CCT) of lamps installed in the Park shall not exceed 4000 K, and a CCT of 2500 K or less is recommended to minimize the impact on most wildlife; AND

v. The LMP should conform to or surpass applicable policy in the appropriate local jurisdiction concerning lighting and dark sky protection as well as other applicable guidance and laws (e.g. environmental leadership programs, agency orders, wilderness act, energy management guidelines).

There is some lighting in the Park, which has been changed according to the regulations in this criterion as explained in chapter 6.

Further declares the management organization Staatsbosbeheer of Lauwersmeer in the application no artificial light will be erected permanently in the future.

In chapter 6 is described how the lighting in the neighborhood of the Park is managed and what the future plans are concerning this lighting.

B) The Park's commitment to dark skies and light scape management, as shown by:

i. The Park recognizes dark skies as an important natural, cultural, and/or scientific resource value as demonstrated by inclusion in approved management documents (e.g. General Management Plan, Resource Management Plan, Facility Development Plan), AND

There is not a general management document of the Park itself. The task of Staatsbosbeheer is to implement the Natura 2000 policies and the Natura 2000 management plan. In those policies and management plan the darkness is recognized as an important value.

The three municipalities and the two provinces have in all their management plans concerning light, nature and the environment, concern for the night and the conservation of darkness is important in them. Two examples:

Municipality De Marne Managementplan 2010-2019 page 27: 'Darkness is in the countryside of the Marne important for animal nightlife. The Marne has boundaries to areas of the Waddensea, Lauwersmeer en Reitdiep with very high nature values. The municipality de Marne is therefore very reluctant with lighting of the countryside.; in this way we want to preserve the balance between light and darkness.'

The province of Groningen has just made their new 'Omgevingsplan 2016-2020 (environmental plan 2016-2020). This is the central management document for the development of the province. In the vision part darkness is often mentioned as one of the key components of the province together with quietness and space.

There is also a separate chapter darkness policy: page 129:

"Darkness is a central characteristic of our province. We take measures to reduce the light pollution and energy consumption by public lighting of provincial roads. We take in account the public and traffic safety.

We make agreements with the different municipalities about this. We ask municipalities and waterboard districts to implement darkness in their management plans.

In licenses for companies and institutions we are responsible for, we implement if necessary, limitations on the light output, in the form of a light management plan. We have two special areas chosen for darkness and quietness, where extra measures can be taken.

It is our ambition for the National Park Lauwersmeer to become a Dark Sky Park, and we pay attention to conserve and strengthen the darkness in the Lauwersmeer area.”

ii. At least two - thirds (67%) of existing outdoor lighting fixtures within Park boundaries conform to the Park’s LMP at the time of IDA DSP application (or an alternative fraction approved by the IDA Dark Sky Places Committee (DSPC) AND;

iii. Lighting Inventory and a plan to bring 90% of outdoor lighting into compliance with the Park’s LMP within five (5) years of receiving an IDA designation, as well as a written commitment to bring the Sanctuary into 100% compliance within ten (10) years of designation; AND

See chapter 6 for details about the lighting in the Park

iv. A measurement program must be maintained either by the Park, private landowner(s), or by another public or private organization (university, research center, IDA chapter, astronomy club, etc.) to follow the evolution of light pollution in the DSP and assert that the night sky quality does not degrade; AND;

Monitoring

Since the beginning of spring 2015 a permanent SQM datalogger is erected on a large pole, at the visitors center of Staatsbosbeheer inside the Park and measures the zenithal night sky brightness every 10 seconds. The results are on the internet in the following English website under Lauwersmeer: <http://nachtmeetnet.nl/indexEng.html>

In the yearly report these measurements will be documented.

v. The Park has set a leadership example in the restoration of dark skies by implementing at least one of the following:

- (1) Producing at least one “night sky friendly” lighting project that is publicly visible and interpreted, OR
- (2) Involving at least two external partners in dark sky restoration efforts (e.g. chamber of commerce, power utility, university research, tribal nations, environmental groups, conservation groups, natural history association), OR
- (3) Cooperation with at least two nearby municipalities that results in adoption of lighting codes that improve sky conditions in the Park, OR
- (4) Inventorying and monitoring night sky quality and using results to educate the public, OR
- (5) A combination of the above or an alternative restoration project may be suggested.

Realized restoration efforts by two external partners:

1. The municipality of De Marne

The municipality has adopted a plan to improve the public lighting of Lauwersoog in connection with the plans for erecting a Dark Sky Park. The lights of Lauwersoog are the most prominent lights, dominating the night view of the horizon. In april 2016 152 fixtures were replaced.

2. The Exploitatiemaatschappij Havencomplex Lauwersoog B.V. (EHL)

In april 2016 the EHL has replaced all 28 of their own fixtures in the harbour of Lauwersoog.

These improvements are a significant relevance for the quality of the dark sky. See further chapters 6 and 7.3.1.

Future improvement plans

Ministry of Defense

An other important result of the new potential Dark Sky Park are the plans for the improvement of the lighting of barracks of the Ministry of Defense east of Lauwersmeer. The low pressure sodium light now erected is a big source of light. The new plans for led lighting with no horizontal component are well received and are part of the plans for improvement this and the coming year.

Groninger Landschap (translate: Landscape of Groningen)

This organization supports the nature, landscape and culture in the province of Groningen. Churches and mills are their main supported cultural monuments, but the existing lighting is not done properly. Because of the cooperation with the new Dark Sky Park they have changed their policy and the lighting of one mill near the edge of the National Park will be changed in the near future.

6 Nights in and around Lauwersmeer

6.1 Darkness in the Netherlands

The Netherlands is one of the most light polluted countries in the World. In the World Atlas, which Cinzano and others have published in the year 2000, the Netherlands belong to the three most light polluted countries in the world, together with Belgium and Porto Rico.

Since ten years there have been inquiries in the Netherlands on the exact distribution of light and resulting light pollution in the Netherlands. The darkness in the Netherlands is one of the best studied in the world. There are different sources available.

The Viirs data from 2012 are shown in figure 7. This is the light going upwards. The downward light was extensively measured by a private company, in assignment of 8 of the 12 provinces in the Netherlands, including the two most northerly and probably darkest provinces; the map is shown in figure 6. In total more than 2000 measurements were executed between 2006 and 2014.

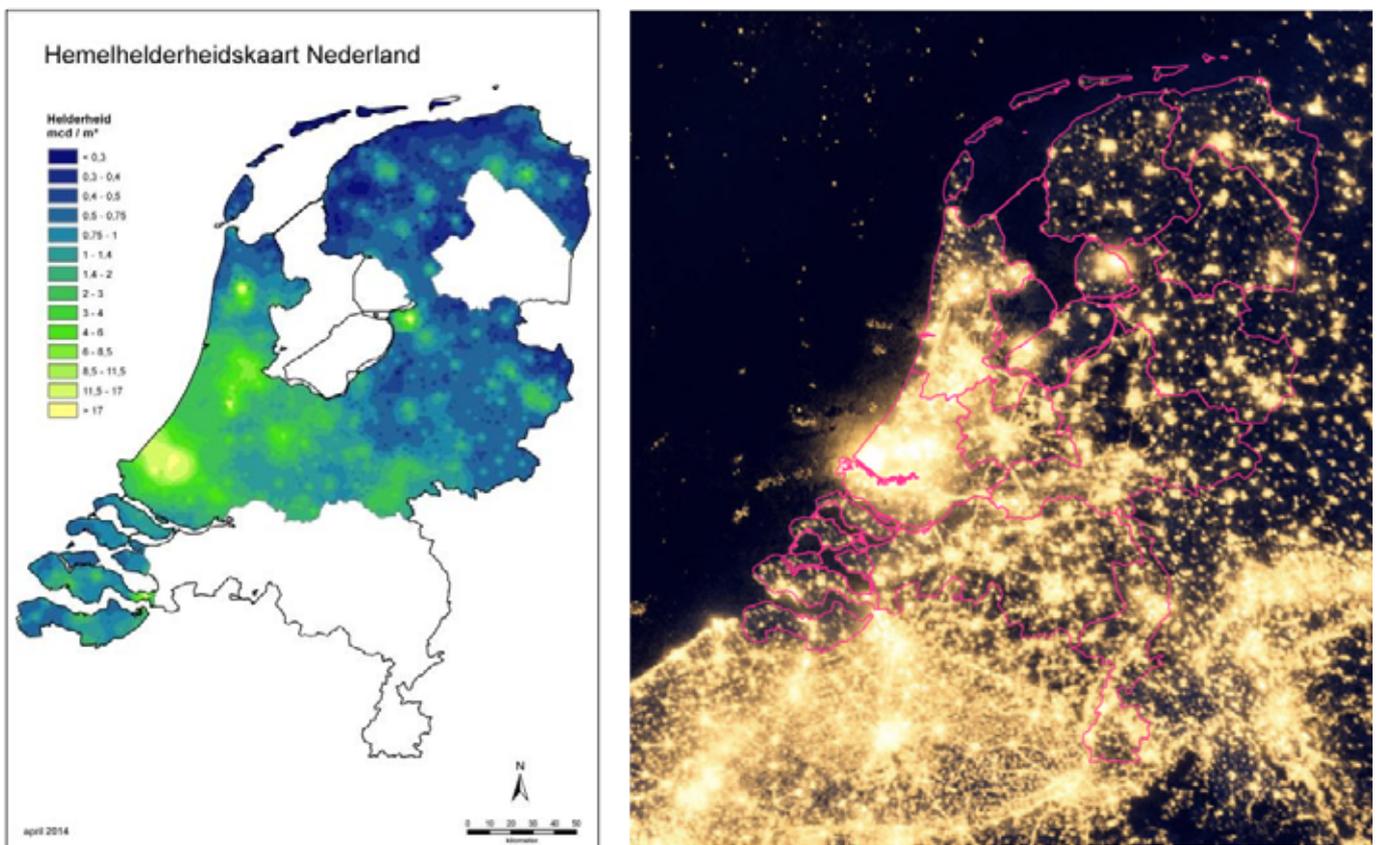


Figure 5 Zenithal sky brightness in 8 of the 12 provinces and Viirs data

One of the most surprising findings was the fact that there is a much larger variety of light pollution than was expected.

The darkness in the Netherlands is affected in a large part of the Netherlands. In the middle and western part of the Netherlands the luminance of the night sky is in general higher than 1 mcd/m^2 , which is around 20 magn/bs².

Going to the northeast the darkness progresses significantly. The darkness in the most northern part of the mainland is between 20,6 and 21,5 magn/bs², while on the four most eastern islands the darkness is in general between 21, 2 and 21, 7 magn/bs².

6.2 Darkness over Lauwersmeer

The darkness over and around Lauwersmeer has been monitored in two different methods.

6.2.1 Permanent SQM-LE

At the headquarters of the Staatsbosbeheer building in the park a permanent SQM-LE is erected. The results are permanent viewable at the website: www.nachtmeetnet.nl/ , search for Lauwersmeer.

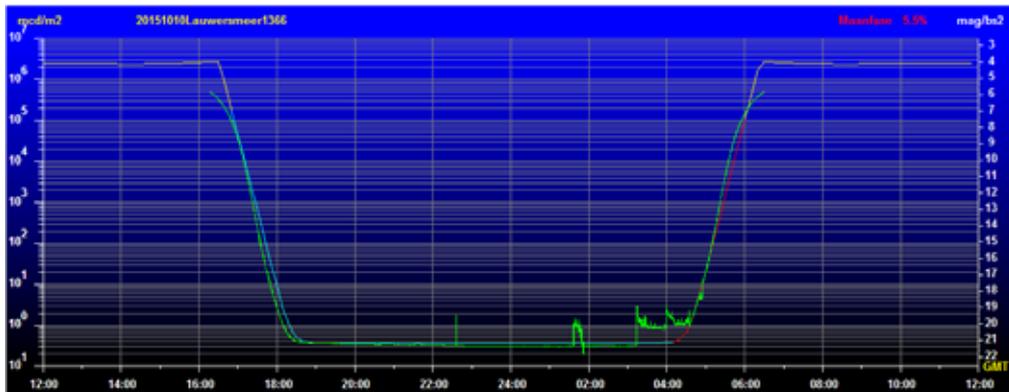
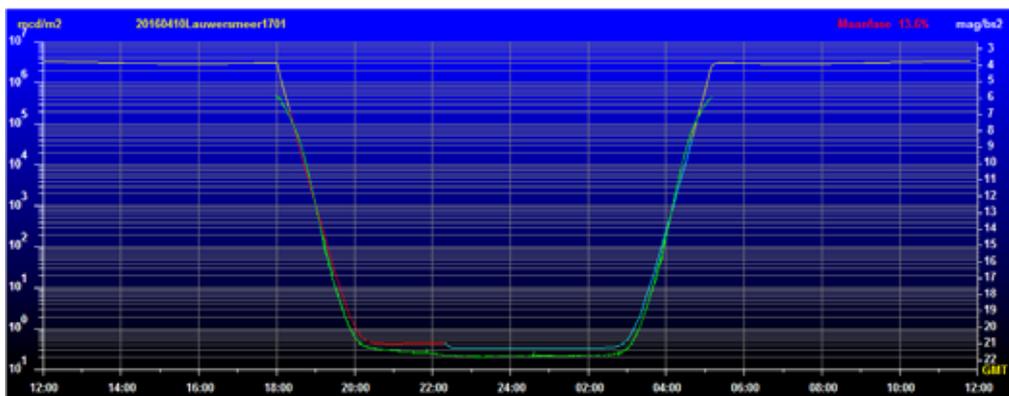


Figure 4 Data: the SQM-LE on as example 10-10-2015

Here above the result a typical clear night in October 2015 , with at left mcd/m² and to the right magnitude. The green line are the measurements and the blue line the theoretical value without light pollution (red when the moon is above horizon). This was before the improvement of the lighting in Lauwersoog with maximum value of magnitude 21,3.



Here the same graphic 10 April 2016 after the improvements of the fixtures: the minimal value has dropped to magnitude 21,6.

6.2.2 Handheld SQM measurements

As commissioned by the two concerned provinces elaborate measuring has already been done in the two concerned provinces as can be seen in the figure 5. But the distance between measuring locations was for the purpose of the Dark sky Park too big (around 3 miles).

In 2015 more measurements have been done, (especially for becoming a Dark Sky Park???). The measurements were done by two different handheld SQM's, one old model SQM and a new SQM-L model, with no significant difference.

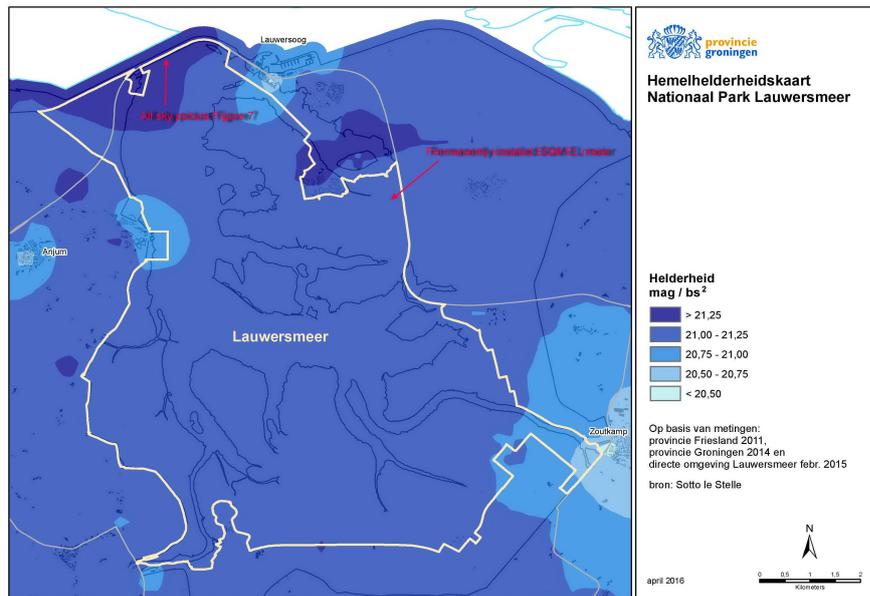


Figure 6 Zenithal sky brightness over and around Lauwersmeer before modifications

This map³ (figure 6) shows the sky brightness in the zenith in colors and numbers. The magnitude of the darkness at the perimeter of the Park Lauwersmeer is between 21,0 and 21,5. The mean of the measurements of all the measurements is 21,02 and on the perimeter 21,15. In the center of the villages around the Park the darkness was around magnitude 20,25.

As can be seen the measurements are taken in one large ring around the perimeter of the park. With a car there are hardly possibilities to go into the park, so some measurements were taken walking a few miles into the park.

It looks as if the darkness is highest in two large areas in the north, with in between the village of Lauwersoog. This village is a rather big contributor of light and brings down the darkness nearly 1 magnitude over it. The darkness is about 0,3 magnitude lower than on the islands but Lauwersmeer is the darkest region of the mainland, comparable to only a few other stretches along the Waddenzee. So the darkness is for Dutch standards exceptional. There is no other large area on the mainland of Holland with a darkness clearly above magnitude 21.

If we look at the all sky picture figure 7, taken in the east part of the Park at three kilometers from Lauwersoog, we see in the North West Lauwersoog, while in the south the horizon is lit up because the mainland is there, with in the southeast the town of Groningen.

³ Map made with Arcgis, Inverse distance weighted, raster 250 meter, power 2, search radius 12 km



Figure 7 Milky Way and different contributors of the sky luminance over Lauwersmeer.

In april 2016 the modifications of the fixtures in Lauwersoog were partly accomplished and the first 180 fixtures has been changed. To see the effect on the night sky brightness new measurements were taken in Lauwersoog and the map of these measurements is significantly changed.

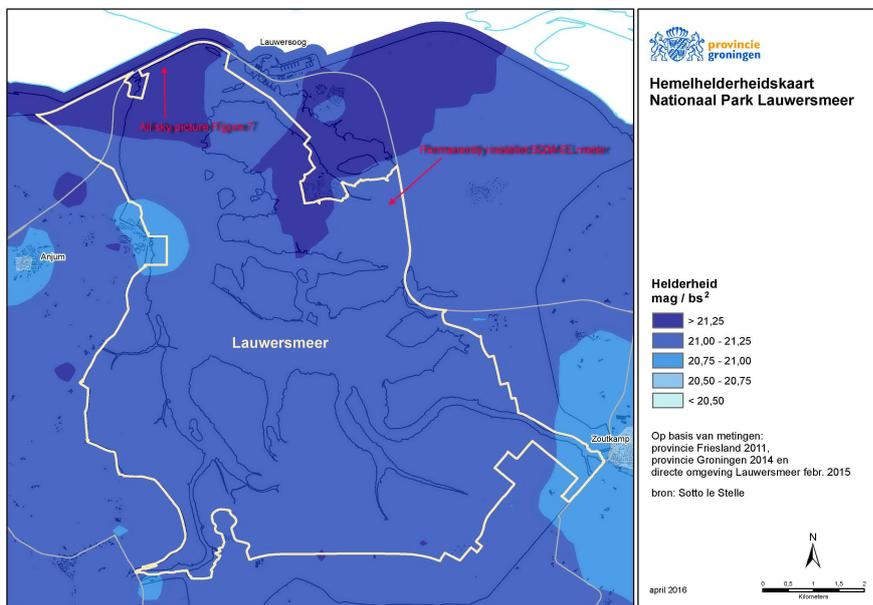


Figure 8 Zenithal sky brightness over and around Lauwersmeer after modifications

All measurements are stated in Appendix 1, including a map of the new situation with all the measurements as layer.

6.2.3 Darkness over Lauwersmeer (calculations)

To determine the relative contribution to the brightening of the night sky above Lauwersmeer, the well known Law of Walker was used. In the table below are the different contributing municipalities calculated by the Law of Walker, with the distance taken from the center of the Park.

In the Law of Walker only the relative increase of the sky luminance is calculated, so the numbers are only meaningful in relation to each other. The importance of the different towns can be determined this way.

The village Lauwersoog has only 150 inhabitants. In reality Lauwersoog is a bigger contributor because the harbors have more light than the village. The harbor has around 250 lampposts with a mean wattage of around 70 watt and the village 83 lampposts with 22 watt.

When we assess the whole situation we could give in the Law of Walker Lauwersoog a fictitious 1590 inhabitants to get more realistic values of the relative contribution.

According to the calculations the biggest contributor with 25%, is the town of Groningen at 30 kilometers distance. Lauwersoog also contributes significantly with 19%.

The villages of Anjum, Kollum and towns Dokkum en Leeuwarden contribute all around 10%; Zoutkamp only 5%.

Name	Inhabitants	Distance in meters	Contribution zenithal luminance	Relatif contribution zenithal luminance
Groningen	193.700	29.500	1,30	25,8%
Lauwersoog	1.590	4.900	0,95	18,9%
Anjum	1.065	5.000	0,60	12,0%
Kollum	5.500	10.000	0,55	11,0%
Leeuwarden	97.327	31.900	0,54	10,7%
Dokkum	12.600	14.200	0,52	10,4%
Zoutkamp	1.230	7.400	0,26	5,2%
Zuidhorn	7.000	18.700	0,15	2,9%
Winsum	7.615	21.900	0,11	2,1%
Schiermonnikoog	1.000	13.300	0,05	1,0%

6.3 Direct light on Lauwersmeer

The Netherlands is a flat country and Lauwersmeer is no exception. Besides that, Lauwersmeer is mostly an open landscape with few trees so the sight on the horizontal horizon is majestic.

But it means also the lights of different sources are visible in a large part of the Park.

Especially Lauwersoog, because it is so centrally and open placed, is visible at night from most parts of the Park.



Figure 9 Lauwersoog from the south over the water

To see the difference, two pictures were taken from the same location and two parts are chosen to see the improvement because of the changing of fixtures.

It is difficult to see because it is at the other side of the harbor, but the difference is significant even from here evident.



Figure 9a Left old and right new situation Lauwersoog

6.4 Conclusion

The darkness above Lauwersmeer is maybe not the same as at the islands but for Dutch standards and even European lowland areas, the night skies are magnificent with a Milky way with crisp features, given a sense of the underlying structure.

Last year around the moon eclipse at a festival at night, accompanied by hundreds of people from towns, seeing the eclipse of the moon and suddenly the appearance of thousands of stars and the Milky Way, was a special experience. The oh's and ah's were so loud, even the geese were frightened because of it. This can be accomplished by a trip to this nightly haven in an overly lit Holland.

The darkness is affected by a lot of different contributors, the large town of Groningen contributes probably the most. The biggest contributor of the light on the horizon is without doubt and by far Lauwersoog, visible from a large portion of the Park.

All the contributors and the plans for improving the lighting are presented in the next chapter.

7 Lighting management plan

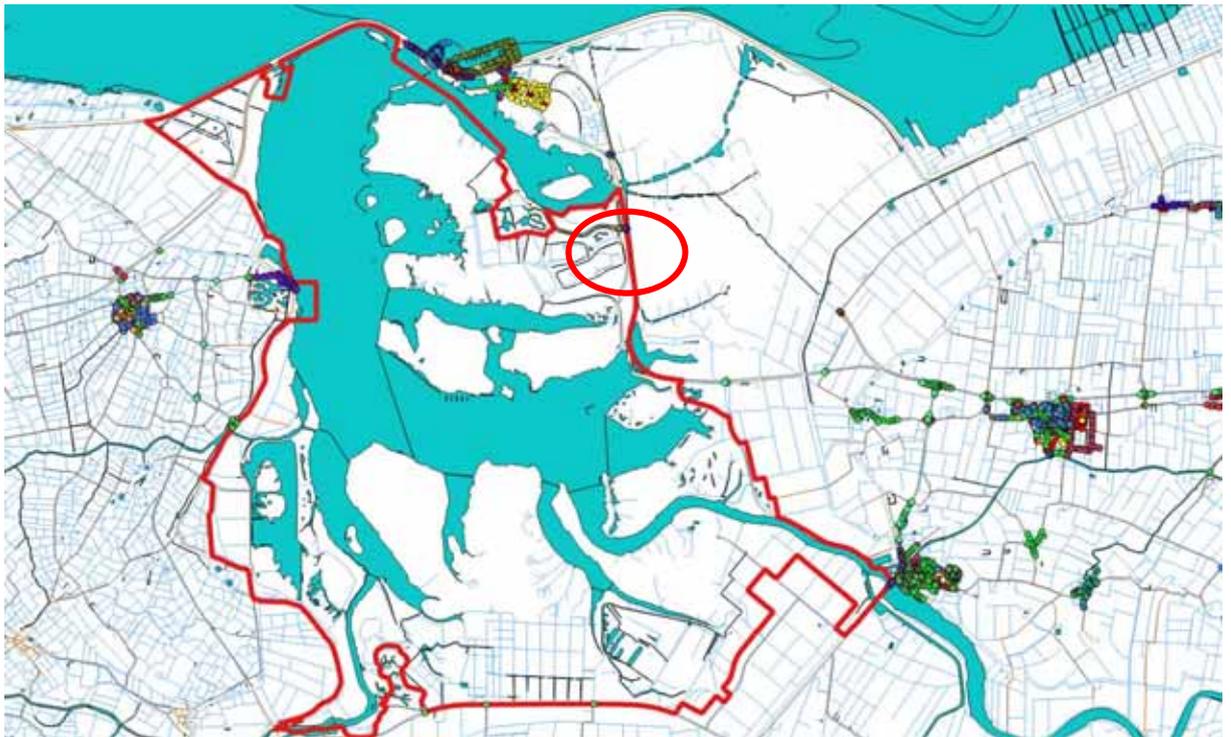


Figure 11 Public light in and around Lauwersmeer

7.1 Inventory of lighting inside the Park

In figure 10 are all the public light in and around the Park depicted. In de red circle are four lampposts inside the Park. The used fixtures were Indal Arc 80 with 0% Ulor. They are dimmed after 23 hour. Below a picture of the fixture and it's photometric details.

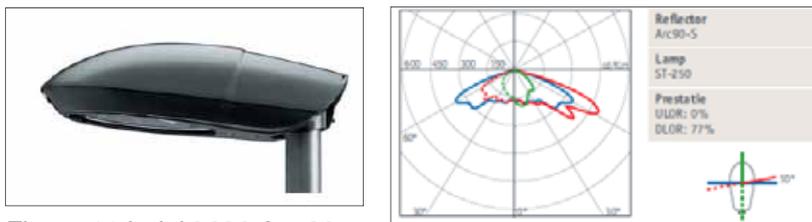


Figure 11 Indal 2696 Arc 80

There is one building in the Park (also in the red circle in figure 10) with a parking lot, the headquarters of Staatsbosbeheer Lauwersmeer. For the rest there is in the park no light as there are no roads through it except unlit bike and walking paths, no parking places. No one lives there, as there are no other buildings. It is new land with no history.

7.2 Lighting management plan inside the Park

Although the four fixtures of the public lighting were rather good, because of the start of the Dark Sky Park they are now replaced by special led lights Rimano 2 of 9 watts, see next paragraph. These led fixtures are the signature of the Dark Sky Park. They are even dimmed to 50% after 23 hours.

There are 5 lamps on the headquarters building. Two are excellent while the tree others are replaced in the spring 2016 by led lighting. They are standard dimmed to 80 lumen and when somebody moves full power of 425 lumen. There is no light upward.



Figure 12 Old and new situation lights of visitor centre Staatsbosbeheer

98% of the park is in possession of Staatsbosbeheer and they will not erect light themselves and will not allow anybody else to do it. The management Staatsbosbeheer of Lauwersmeer is very clear about it: **Staatsbosbeheer will not erect or allow any lighting in Lauwersmeer as she declared in the application.**

7.3 Inventory of lighting in the area of the park

In the neighborhood of the park there is light from different sources.

In the next figure the light is depicted schematically. The colors represent the quality and the diameter of the circles represent the quantity. Most of it is public lighting. Beside public lighting there are three big recreational areas (green arrows) and defense barracks Willem Lodewijk van Nassau barracks (red arrow).

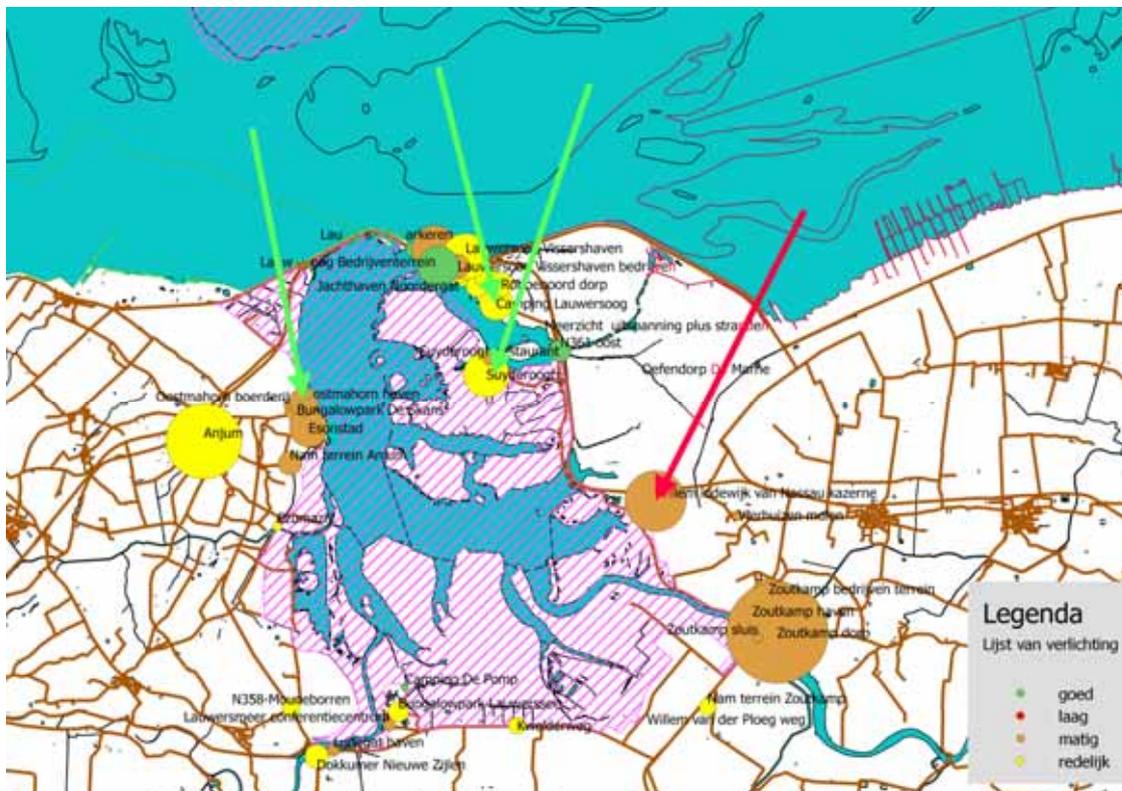


Figure 13 Lighting in the neighborhood of the Park

As can be seen the light is concentrated in three areas: Lauwersoog north of the Park, Anjum west and Zoutkamp at the southeast. Further there is a rather big contributor east center: defense barracks.

7.3.1 Lighting of Lauwersoog

The two biggest concerns after the inventory, were the surroundings of Lauwersoog and the defense barracks to the east. Both used low pressure sodium lamps in old big fixtures.

It was clear the fixtures in Lauwersoog were a problem for the darkness in the park. They radiate a lot of light upwards and are visible in a large part of the park.

In 2015 improvement plans were made to replace the old fixtures in Lauwersoog for new ones. In April 2016 180 old fixtures were replaced by fixtures of German origin Swarco Futrurit Rimano. See figure 14 below.

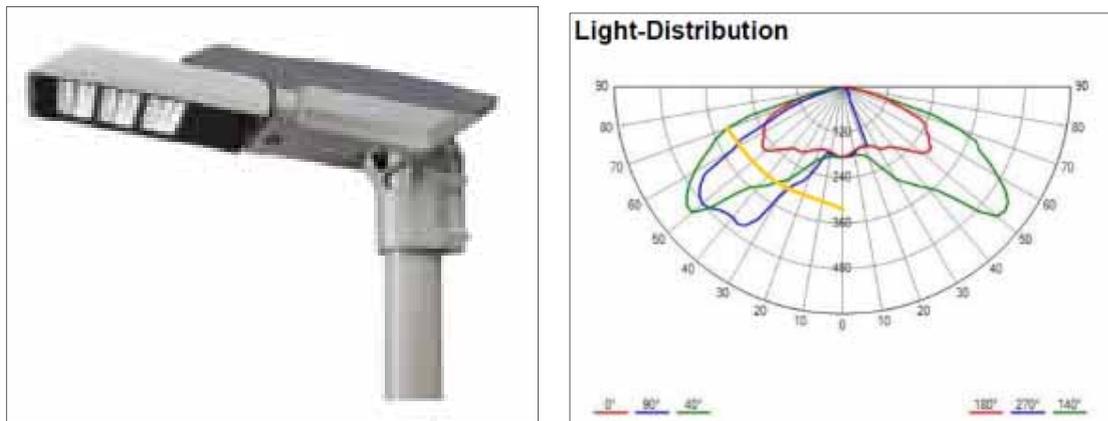


Figure 14 Swarco Futrurit Rimano

ULOR is 0% and there is hardly any light above 80 degrees. There are different types of led lights used between 9.2 and 36 Watt; between 23 and 6 hour 50% reduction; light temperature 3000 Kelvin.

Here a picture after the change of fixtures where the good directional quality of the fixtures is shown.



Figure 15 New lighting in Lauwersoog harbour

7.3.2 Lighting of the Willem Lodewijk van Nassau barracks

A rather large source of light are the barracks at the east of the Park. The light consists now of old fixtures with sodium lights. As can be seen from figure 16 the lamps are visible from a large distance.



Figuur 16 Willem Lodewijk van Nassau barracks

The Ministry of defense is developing plans to improve the lighting of the barracks. They are referring in a letter in 2015 to these three aspects:

- Decrease of light pollution(in connection with Dark Sky Park)
- Energy reducing led lighting (in connection with energy reducing project defense)
- Green, migratory birds friendly, lighting (in connection with nature preservation).

In 2016 the plans are indeed approved: the improvement of this light is now in the environmental plans of the ministry of defense and the needed capital is reserved for this purpose. The execution will be in 2016-2017.

7.3.3 Mill of Vierhuizen

One of the key marks of the area is the mill of Vierhuizen. The mill is illuminated at night in a bad manner. The organisation who has done it is interested in the Dark Sky Park and has developed plans to improve the lighting with only small lights on the mill itself with 14 watt led lights, 3000 Kelvin. When this is successful they will do this for their other properties in the whole of the province.

7.3.4 Lighting of three bungalowparks

All three campinggrounds/ bungalowparks at the edge of the Park are willing to cooperate and see possibilities for a new kind of tourism. There has been different meetings with them. The lighting of two is minimal with the 4 meters high cone formed fixtures.

The third has the Indal 2310 and they are not used sparingly.

All want to lengthen their season and want to increase this kind of tourism.

So they are thinking about improvements in their lighting.



Three of the bungalows in the bungalow park Suyderoogh are well placed for amateur astronomers in relation to a view on the horizon and no visible lights. On one a test weekend has been organized to evaluate the night conditions. The sky was indeed marvelous and there were possibilities to do good observations in the garden, directly behind the rented house. It is difficult to find a spot completely without visible lights, as can be seen on the picture. The report on the experiences is given to the owner. They are now considering installing new lighting.



Figure 19 Stars above Suyderoogh

In appendix 2 the public lighting in the surroundings of the Park is described.

8 Public outreach

8.1 In general

The public outreach around the Dark Sky Park had to be organized more or less from scratch. The only organization who structurally did education around darkness was Staatsbosbeheer. Every year around the 21st of June and the 21st of December and around a yearly festival 'Night of the night', Staatsbosbeheer organized a program with mostly a walk through the night with explanations about wildlife at night.

Since the first talks about a Dark Sky Park, private entrepreneurs also organized events like sailing at night on the Waddenzee. The number of events has therefore increased the last years.

Because of this very special landscape, with two National Parks and an world heritage nature reserve in the backyard, connections have been made in the region with two astronomy organisations and with a couple of recently organised festivals, : Trek festival and Electra festival. See chapter 8.5 for a list of all the events with attendees this last year.

8.2 Astronomy organizations

There are two active astronomy organizations around Lauwersmeer. In Ulrum, only 3 kilometers from the edge of the Park, lives a well known amateur astronomer with an own telescope, who engages as often as possible in public outreach. He gives lectures to pupils and organizes meetings, for other public visitors, . see <http://www.sterrenwachtulrum.nl/>

At the other side of the Park in Burgum lies one of the 30 public observatories in the Netherlands. It is open twice a week and on every astronomic interesting opportunity, see <http://www.observeum.nl/>

8.3 Other related organizations

Every year at the end of March, when the migratory birds are not yet away and the stationary birds are beginning to breed, a small scale Festival called Trekfestival, takes place to show the possibilities of the region with all kinds of nature oriented activities like ringing birds, dance and music. .

The Elektrafestival is a art initiative trying to connect art in this special landscape. Last year the centerpiece was the moon at the moon eclips in September.

8.4 Staatsbosbeheer and IVN

In the year 2015 occasionally programs around darkness were organized. Half way that same year a plan was made by Staatsbosbeheer and IVN, the organization responsible for nature and environmental public outreach, to implement structurally the public outreach around the night in the future Dark Sky Park.

As from the year 2016 this plan must structurally guarantee a yearly program with about every month an activity about darkness.

In the program for 2016 the following events will take place:

- full moon walking
- 21 June sun solstice
- bat excursions
- 'I am not afraid in the dark' excursions for kids
- Sleeping with the forester
- Sailing in the dark

8.5 Events in 2015 and 2016

Since half way 2015 the organizations in and around Lauwersmeer have decided to do as if they are already a Dark Sky Park and tried to organize every month in spring, summer and autumn a dark sky event, with the yearly event Night of the Night as endpoint.

Events in 2015

August 12: Perseiden rain, sailing on the dark Waddenzee, 45 people

August 14: Perseiden rain, laying down on camp beds, ca 25 people

September 23: In search of bats, walking in the dark looking for bats, ca 25 people

October 24: Night of the night, with astronomers enjoying the darkness at Lauwersmeer, 130 people

October 24: Sailing in the dark on the Waddenzee, in a small fishing boat with 8 people

October 24: Light festival, walking with candlelight through Wetland with storytellers

October 28: Moon eclipse, Watching the moon eclipse, Elektra festival, over 300 people

December 11: Year with volunteers ending with a darkness festival with stories in the dark, about 50 people

Events in 2016

April 25: All the recreational entrepreneurs in the region were introduced to dark sky dark plans. They enjoyed the stars and a hailstorm, ca 45 people, plus article in the regional newspaper (on the next page)

May 6: Excursion for children 'I am not afraid in the dark', about 26 people

May 7: Guests of Suyderoogh sailing on the Waddenzee in the dark, about 20 people

June 21: Excursion 'Longest day, shortest night'

Over ten more events will be organized before the end of this year.

The screenshot shows a mobile application interface with a dark background. At the top, the title 'Duisterniswandeling met de boswachter' is displayed in white. Below the title, there is a large image of a sunset over a body of water with a crescent moon in the sky. To the right of the image, there are three main sections:

- Meld je aan voor de nieuwsbrief**: A section with a yellow button labeled 'Aanmelden nieuwsbrief'. The text below it says: 'Wil je op de hoogte blijven van nieuws over lichtvervuiling en nachtelijke activiteiten bij jou in de buurt? Meld je aan en ontvang de Nacht van de Nacht nieuwsbrief vier keer per jaar in je inbox.'
- Meld een activiteit aan**: A section with a yellow button labeled 'Aanmelden activiteit'. The text below it says: 'Wil jij ook een activiteit organiseren? Kijk in de inspiratiegids voor voorbeelden van activiteiten. Of meld de activiteit direct aan.'
- Collectors item**: A section with the text 'De Nacht van de Nacht doet'.



Nacht van Electra 2015: Maansverduistering



Nacht van Electra
 @NachtvanElectra · VOLGT JOU

Festival De Nacht van Electra. Zondag 27 september 2015 vanaf middernacht. Totale Maansverduistering. Grass toegankelijk

Nationaal Park Lauwersmeer
 nachtvanelectra.nl
 Geregistreerd in maart 2011

78 volgers die je kent

TWEETS 218 VOLGEND 417 VOLGERS 450

Tweets Tweets en antwoorden Foto's en video's

Nacht van Electra @NachtvanElectra · 29 sep. 2015
 Korte impressie van de Nacht van Electra 2015 - wat een mooie Nacht was het..
nachtvanelectra.nl

Nacht van Electra @NachtvanElectra · 28 sep. 2015
 Dank aan alle bezoekers, crew en vrijwilligers van de Nacht van Electra - het was een SuperNacht! #maansverduistering

Nacht van Electra heeft gereweet
 Jacques Sambrink @jacsambrink · 20 sep. 2015
 Een bijzondere avond @NachtvanElectra

Wie te volgen · Vernieuwen · Meer...

- Boswachter Sabine @Bos... · Volgen
- Bregtje @BKnatuurlijk · Volgen
- Hans van den Berg @hans... · Volgen

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- #Uitgelicht door Sony Xperia NL
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- #WiersJezus
- #studentenglunder
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- #MOOlies
- #EUValies
- Marco Rubio
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BreedbandING en 12 anderen volgen

Bertha van der Noord @BaNoord · 28 sep. 2015
Terug van maansverduistering #nachtvanelectra Lauwersmeer nu slapen mooi op tijd

Anja Zijlstra heeft geretweet

★ govertschilling @govertschilling · 28 sep. 2015
yeah, daar is-ie weer! #maansverduistering #lauwersmeer @NachtvanElectra

Jacqueline Bevanwijk en 74 anderen volgen

★ govertschilling @govertschilling · 28 sep. 2015
kraakheider in het noorden, nog steeds bewoikt in het zuidwesten... ☹️ #maansverduistering #lauwersmeer @NachtvanElectra

Trekfestival en 25 anderen volgen

Binneninn @binneninn · 26 sep. 2015
Aankleden voor @nachtvanelectra #maansverduistering #lauwersmeer

Nacht van Electra @NachtvanElectra · 27 sep. 2015
Vol zicht op de maan #nachtvanelectra #maansverduistering #Lauwersmeer





Nationaal Park Lauwersmeer

Twintig Nationale Parken



06.05.2016 - In ben niet bang in het donker

Tijd	20.30-22.30 uur
Startplaats	Activiteitencentrum 'De Bosschuur' (SBB), De Rug 1, Lauwersoog
Doelgroep	alle leeftijden
Kosten	€ 3,50 per persoon
Aanmelden	niet nodig
Organisatie	Staatsbosbeheer Lauwersmeer, T: 0519 - 345 145 ('s ochtends), E: lauwersmeer@staatsbosbeheer.nl
Informatie	Speciaal voor kinderen die laat mogen opblijven. Om 21.15 uur gaat de zon onder. Met de boswachter maken we een wandeling door het donkere bos bij de Bosschuur. Als je ogen zijn gewend, kun je ook in het donker best veel zien! Ook dappere ouders mogen mee.

Share | Facebook | Twitter | Email

ACTUEEL

04.05.2016

Zwarend geboren in Nationaal Park Lauwersmeer

Het zal er al aan te komen, maar sinds deze week is het zeker! Er is in elk geval 1 jongte zwarend geboren in Nationaal Park Lauwersmeer! Het jong werd maandag ontdekt door Boswachters Hans Gartner en Liesbeth van den Berg.

Lees meer

21.04.2016

21 mei Wereldvluchtgedag

In het Lauwersmeer worden regelmatig driedoornige stekelbaarsen, peilringen en riviervalken, en af en toe flitsen en handens, aangevlogen. Dit zijn vissen die een deel van hun leven in het zoete water en een ander deel in de zoute zee doorbrengen. Een goede verbinding tussen zee en boezem is daarom van belang.

Lees meer

Home

- HIP Het Informatie Paviljoen
- Activiteitencentrum
- Actueel/Nieuws
- Activiteiten overzicht
- Junior Rangers
- Gastheren Nationaal Park
- Vat kan ik doen?
- Neem de tijd
- Natura 2000
- Schietoefeningen in de Marnewaard
- Jeugd en onderwijs
- Unieke natuur

WEERSVOORSPELLING

In het Lauwersmeer ervaar je de schoonheid van de nacht

GEERT JOB SEVINK

LAUWERSMEER Nationaal Park Lauwersmeer heeft zich aangemeld om Dark Sky Park te worden. Bezoekers kunnen genieten van het totale duister.

Er moet nog wel één en ander gebeuren voordat het in het Nationaal Park Lauwersmeer 's nachts écht donker is. Dat bleek maandagavond tijdens een wandeling waaraan toeristische ondernemers en natuurbeschermers deelnamen, naar aanleiding van de nominatie van het Lauwersmeer als Dark Sky Park.

Op vele kilometers afstand is te zien hoe de wolken worden verlicht door de Willem Lodewijk van Nassaukazerne. En even verderop zijn in westelijke richting de lichten van vakantiepark Esonstad te zien. „Die lantaarns zijn alleen bedoeld om daar de straat te verlichten, maar je kunt ze op kilometers afstand zien”, zegt Jaap Kloosterhuis van Staatsbosbeheer. „Dat is niet nodig.”

Voorafgaande aan de wandeling hebben de wandelaars zich laten bijpraten over lichtvervuiling, de sterrenhemel gezien vanuit Ulrum en over de toeristische mogelijkheden van een Dark Sky Park. Zo'n gebied onderscheidt zich doordat er weinig lichtvervuiling is.

Nederland is het land met de meeste lampen per inwoner ter wereld, vertelt Wim Schmidt uit Utrecht. Met zijn bedrijf Sottolo Stelle (Onder de Sterren) ondersteunt hij overheden die de overmaat willen aanpakken. „Hoe meer welvaart, hoe meer lichtvervuiling er is”, zegt Schmidt en toont een 's nachts gemaakte satellietfoto van Nederland, die laat zien dat vooral de Randstad



Ondernemers en natuurbeschermers met het logo van Dark Sky Park Lauwersmeer. FOTO GEERT JOB SEVINK

's nachts baadt in een zee van licht. Die luchtvervuiling is niet goed voor mensen die sterren willen kijken, maar ook niet voor de gezondheid. „We slapen er slechter door, vooral blauw licht is schadelijk.”

Om in aanmerking te komen voor het label Dark Sky Park worden de komende tijd nog maatregelen genomen om lichthinder te verminderen. Schmidt: „Defensie heeft een plan gemaakt om de verlichting van de kazerne te verbeteren, de verlichting van de molen in Vierhuizen wordt aangepast en er wordt overlegd met ondernemers.”

De gemeente De Marne heeft al een groot aantal lantaarns vervangen door armaturen die het licht naar beneden richten, vertelt wethouder Kor Berghuis.

Dan is het woord aan Aries van Calcar uit Ulrum. In zijn tuin heeft hij een schuur waarvan het dak kan worden opengeschoven. Daarin staat een sterrenkijker waarmee hij

tijdens heldere nachten onvoorstelbaar ver kan kijken, zoals hij laat zien aan de hand van foto's. Sterren op 30.000 lichtjaar (!) afstand, explosierende sterren (supernova's) en complete sterrenstelsels, hij legt ze allemaal vast met zijn telescoop.

En dat is allemaal mogelijk dankzij het duister, dat in het Noorden nog in ruime mate aanwezig is.

Architecte Nynke Rixt Jukema uit Mantgum is directeur van stichting Feel theNight. „Hier in het Noorden kunnen we de toerist een gastvrij donker landschap aanbieden”, houdt ze de ondernemers voor. Ze heeft ook al een idee hoe je dat doet: met *starbarns*. Dat zijn schuren – al of niet bestaand – met daarin wat voorzieningen voor mensen die graag de sterrenhemel bestuderen. Op dagen dat er veel vallende sterren te zien zijn, kun je een evenement organiseren, zegt ze. Alles om de schoonheid van de nacht te kunnen ervaren.

8.6 Locations and walks for stargazing

To the east, near by the big camping and bungalow parks, one of the walking paths could be made suitable for a night walking path.

Around the Waddenzee is a road with also biking paths. At the moment this path 'Circle the Lauwersmeer' is uplifted and plans are made to include also a dark sky component.

This could be a night marathon (it is about 40 kilometers in length).

One part of this route is probably the darkest and most secluded bike route on the mainland of the Netherlands and could become the 'once in a life time bike trip' you must do with your mum and / or dad as part of a ritual to mark the passage to adulthood .

Along the route there are plans to include camp beds to watch the sky and even a landscape art form like the ones done by Nancy Holt in Nevada.

Photography workshops in night photography are also in the making.

8.7 New developments around the Waddenzee

After the establishment of the first Dark Sky park on Terschelling, the ideas about darkness and its preservation are getting stronger around the Waddenzee.

Along with Lauwersmeer, on the island of Texel, west of the Waddenzee, Dark Sky plans have been made. A big number of organizations there formed a group under the name 'Closer to the Stars Texel' and a first meeting about this plan has taken place. The island has adopted a new lighting management plan. They are experimenting with different alternative forms of lighting: roundabouts without lights, different forms of active marking at crossings.

In the mean time the organization of Leeuwarden 2018, Cultural Capital of Europe in 2018, is getting more strongly every month with 'Feel the night', with its own website (also in English).

Included in this project are a lot of initiatives around astronomy and manifestations to enjoy the beauty of the night. The relation between all the municipalities along the Waddenzee and their common experience of darkness will be an important element. In this project even the bold initiative to work together with Germany and Denmark to integrate all the initiatives over the whole of the Waddenzee for a Dark Sky Park is on the way.

Lauwersmeer will probably not be the last Dark Sky Park in the Netherlands.

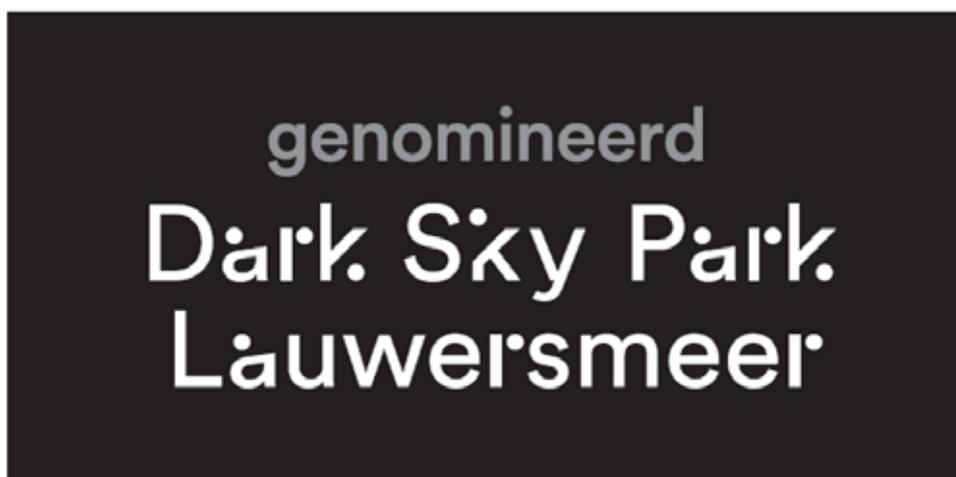
8.8 Logo tool kit

For organizations and businessmen who embrace the concept of Dark Sky Park, that recognize the preservation of darkness (next to peace and space) as core value of the area and as a business opportunity. A user's instruction is available with the logo (one for digital use, another to be printed), along with a text explaining the context of the concept, see picture. More information about the importance of darkness to people and wild life will be added in the short term.

The working group 'Communication Dark Sky Park' has commissioned the development of the tool kit. This working group consists of touristic and nature organizations, one businessman and the province of Groningen and as been establish in December 2015 during a major communication meeting about the plans for Dark Sky Park Lauwersmeer.

The communication working group accompanies the publicity around the application, the development of the public outreach, mainly for businessmen and the inhabitants around and about the Lauwersmeer area. The working group also supports a graduating student at the Amsterdam college with an interactive multi media project about the Dark Sky Park Lauwersmeer.

The official Dark Sky Park Lauwersmeer logo



Beste supporter, ondernemer of andere belanghebbende bij Dark Sky Park Lauwersmeer,

Het Nationaal Park Lauwersmeer is door de provincie Groningen en Staatsbosbeheer voorgedragen voor het predicaat Dark Sky Park. Een Dark Sky Park is een gebied waar het donker is, waar de sterren nog goed te zien zijn, waar de duisternis behouden blijft en waar bezoekers 's nachts welkom zijn om die duisternis te beleven. Een prachtige nieuwe kans om publiek te betrekken bij de bijzondere waarden in dit natuurgebied. En een kans voor lokale ondernemers en instellingen daarbij aan te haken.

Doet u mee?

Om de nominatie kracht bij te zetten en het project zichtbaarder en herkenbaarder te maken is een logo ontwikkeld. Tijdens de voordracht-periode is hiaraan de term 'genomineerd' toegevoegd. U kunt dit logo in hun uw eigen communicatie-uitingen over het Dark Sky Park, het Nationaal Park Lauwersmeer of daarmee samenhangende activiteiten en events gebruiken.

Via onderstaande link kunnen de verschillende logo-varianten voor online en drukwerkgebruik gedownload worden. Het staat iedereen vrij het logo te gebruiken. Het is niet toegestaan het logo in enige vorm aan te passen en te veranderen.

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logobestanden

NB

Zodra het Nationaal Park Lauwersmeer het predicaat verworven heeft, wordt het huidige 'nominatie-logo' vervangen door een definitief logo. Zodra het zover is, maken provincie en Staatsbosbeheer dat bekend.

Vragen?

Vragen over het project? Meedoen? Neem contact op met Heleen Slager van de provincie Groningen.
050 - 316 46 39 / h.slager@provinciegroningen.nl

genomineerd
Dark Sky Park
Lauwersmeer

Het Dark Sky Park is een van de projecten van het Uitvoeringsprogramma Lauwersmeer 2014-2018 van de Stuurgroep Lauwersmeer, waarin de provincies Groningen en Fryslân en de gemeenten De Marne, Kollumerland en Dongeradeel samenwerken.

Examples of the use of the logo



A text entrepreneurs and organizations can use (there are various lengths)

Beleef de nacht in Lauwersmeergebied

Het Nationaal Park Lauwersmeer is een van de laatste plekken in ons land waar het nog echt donker wordt, waardoor hier 's nachts nog een heldere sterrenhemel te zien is. Om dit te koesteren en er meer mensen van te laten genieten, werken de provincie Groningen en Staatsbosbeheer aan een aanvraag voor het predicaat Dark Sky Park. Een Dark Sky Park is een gebied waar de duisternis behouden blijft en waar je 's nachts welkom bent om die duisternis te beleven.

De provincie en Staatsbosbeheer dienen de aanvraag dit voorjaar in bij de International Dark Sky Association (IDA). De IDA heeft wereldwijd zo'n vijftig natuurparken en -reservaten aangeduid als Dark-Sky locaties, waarvan ongeveer de helft in de Verenigde Staten. Hopelijk wordt het Lauwersmeergebied dit jaar het tweede Dark Sky Park van Nederland. In 2015 kreeg de Boschplaat op Terschelling als eerste het predicaat toegekend.

Het Dark Sky Park is een van de projecten van het Uitvoeringsprogramma Lauwersmeer 2014-2018 van de Stuurgroep Lauwersmeer, waarin de provincies Groningen en Fryslân en de gemeenten De Marne, Kollumerland en Dongeradeel samenwerken.

There has been elaborate press coverage for the initiatives. See below some Dutch newspapers and websites clippings.

De maan kleurt bloedrood

In de nacht van zondag op maandag schuift de maan achter de aarde. Rond drie uur is een supermaansverduistering te zien. Dat komt zo'n vijf keer in een eeuw voor.

JEROEN VAN KLEEF

Wat is een supermaan?

De baan van de maan om de aarde is niet rond maar vormt een ellips. De maan staat daarom op bepaalde momenten dicht bij de aarde dan op andere momenten. Dat is op dit moment ook het geval. We zijn dicht bij het moment dat de afstand tussen de aarde en de maan het kortst is. Daardoor lijkt de maan tot wel 14 procent groter dan normaal. Dat heet een supermaan.

Wat is een eclips?

Een eclips komt voor als de maan tussen de aarde en de zon schuift. We noemen dat een zonsverduistering. Om het te kunnen zien, moet je een speciaal brilletje dragen zodat je ogen geen schade oploopt. Dat kan



'Blood moon' is in de nacht van zondag op maandag rond 3 uur te zien.

Kijken in Nacht van Electra

De Nacht van Electra, het Noord-Groningse eennachtsfestival, vindt dit jaar plaats in de nacht van 27 op 28 september. De zesde editie van het cultuurfestival staat in het teken van die maansverduistering. Als locatie is Nationaal Park Lauwersmeer uitgekozen. „Het Lauwersmeer is een van de weinige plekken in Nederland die in de running is voor het internationale predicaat Dark Sky Park”, zegt artistiek leider Peppie Wiersma uit Houwerzijl. „Het is een plek waar het nog echt donker is en dus ideaal om de maansverduistering bij te wonen.”

DAGBLAD VAN **HET**
NOORDEN

21 februari 2015 , pag. 18

Duisternis valt over Lauwersmeer

Martin Groenewold

LAUWERSOOG Het Lauwersmeergebied moet het eerste duisternispark op het Nederlandse vasteland worden. Daarmee richt het Nationaal Park zich op een nieuwe groep bezoekers.

Een duisternispark is een gebied waar zo weinig mogelijk lampen branden. Het is 's nachts toegankelijk voor mensen en er zijn geregeld

Natuurgebied wil internationale erkenning als 'Dark Sky Park'

en de recreatieparken. „Het betekent

De provincies Groningen en Friesland trekken beide 1 miljoen euro uit voor de eerste fase van het project 'Rondje Lauwersmeer', waarvan het duisternispark onderdeel is. Naar verwachting komt daar nog een bijdrage uit het Waddenfonds bij. De totale kosten van de eerste fase zijn begroot op ongeveer 3 miljoen euro.

Rondje Lauwersmeer is bedoeld om bezoekers het gebied te voet, op de fiets of met de boot te laten ontdekken. Hiertoe worden langs de

Verlichtingsplan voor Lauwersoog in uitvoering

Vrijdag 15 januari heeft de gemeente op Lauwersoog een toelichting gegeven op de plannen voor de aanpassing van de openbare verlichting. Ongeveer 30 omwonenden en ondernemers hebben de inloop in Restaurette Schierzicht bezocht.

Aan de hand van kaart- en beeldmateriaal en demonstraties konden geïnteresseerden een duidelijk beeld krijgen van de plannen. Zo kon men zien welke soorten verlichting de gemeente gaat plaatsen en werd uitleg gegeven over het dimmen van het licht. Waar mogelijk wordt de verlichting tot de helft gedimd zoals te zien is op de afbeelding rechts.



Uitvoering

Veel armaturen (lichtkappen) van lichtmasten in het gebied rond Lauwersoog voldoen niet meer aan de huidige eisen ten aanzien van lichtuitstraling en energiegebruik. De gemeente De Marne heeft in samenwerking met adviesbureaus Tauw en Montad in 2015 een plan gemaakt voor de aanpak van de verlichting. Dit plan wordt ondersteund door Provincie Groningen.

De aanpassing van de verlichting gaat binnenkort van start en wordt in april 2016 opgeleverd.



Licht gedimd tot 50%

Verlichtingsplan

De ambitie van gemeente De Marne voor het Lauwersmeergebied is: veilig, duurzaam en donkerte. Voor het verlichtingsplan betekent dit:

- doorvoeren donkertebeleid;
- vervangen van de huidige armaturen;
- energiebesparing en verduurzaming van openbare verlichting.

Beeld

De nieuwe verlichting bespaart energie en reduceert de lichtuitstraling in de omgeving van de havens. De aanpassingen zorgen straks voor een ander lichtbeeld. In de nieuwe situatie zal er alleen licht zijn waar dat nodig is. Dat betekent onder andere minder lichtstraling naar boven zoals te zien op onderstaande afbeelding.

Dark Sky Park

Het verlichtingsplan is onderdeel van de toekomstvisie voor het naastgelegen Nationaal Park Lauwersmeer. Het plan is om de lichtvervuiling in dit gebied te verminderen met als streven om in aanmerking te komen voor het

internationale predicaat Dark Sky Park (www.darksky.org en www.darkskypark.nl).

Daarmee richt het park zich op een nieuwe groep bezoekers. Mensen die de echte duisternis willen beleven en de sterren willen zien, kunnen dat straks doen in het Lauwersmeergebied. Een van de laatste gebieden in ons land waar het nog echt donker wordt.

Vervolg aanpak

Om daadwerkelijk voor het predicaat Dark Sky Park in aanmerking te komen moet er nog een aantal zaken gebeuren. Zo moet ook in de directe omgeving van het Nationaal Park iets aan de lichtvervuiling gedaan worden.

Daarom zijn naast de gemeente en provincie ook andere beheerders van verlichting in de omgeving van het Lauwersmeergebied bezig met de herbeoordeling van de verlichting. Het gaat dan om partijen als Rijkswaterstaat, Defensie en Groninger Landschap. Op dit moment zijn er in samenwerking met de Provincie Groningen gesprekken met deze partijen.

Dark Sky Park Lauwersmeer

Heleen Startpagina Vrienden zoeken

Pagina Berichten Meldingen Publicatietools



genomineerd

Dark Sky Park

Lauwersmeer

Dark Sky Park Lauwersmeer Community

Knop toevoegen Vind ik leuk Bericht ...

Tijlijn Info Foto's Vind-ik-leuks Meer

Zoeken naar berichten op deze pagina

2 personen vinden dit leuk

Paginaoverzicht bekijken
Berichten van pagina's die je als je pagina hebt leuk gevonden

Vrienden uitnodigen om deze pagina leuk te vinden

Zorg dat de mensen die jij belangrijk vindt je website bezoeken
<http://www.darkskyparklau...>
Website promoten

INFO

- Krijgt het Nationaal Park Lauwersmeer dit jaar de Dark Sky status? Het is een van de laatste plekken in ons land waar je 's nachts de sterren goed ziet.
- <http://www.darkskypark...> **Website promoten**

Status Foto/video Evenement, Mijlpaal +

Schrijf iets...

Dark Sky Park Lauwersmeer
2 minuten · 🌐

In de nacht van zondag op maandag was Jupiter goed te zien. Hoewel Jupiter in vergelijking met de maan zeer klein lijkt, is dat niet zo. De planeet is zo'n 40 keer groter dan de maan, maar staat ca. 1.700 keer zo verder weg...





Natuur en landschap

- Natura 2000: de stand van zaken
- Nationaal landschap Midden-Humsterland
- Nationaal Park Lauwersmeer
- Dark Sky Park Lauwersmeer
- Natuurnetwerk Nederland
- Agrarisch natuurbeheer in Groningen
- Ecologie en Economie in balans
- Landschapsontwikkelingsplannen

Wonen en welzijn

Klimaat en energie

Verkeer en vervoer

Cultuur

Wetken en ondernemen

Water, milieu en veiligheid

Provinciaal Omgevingsplan

Dark Sky Park Lauwersmeer

De provincie probeert, samen met andere overheden, voor het Nationaal Park Lauwersmeer het internationale predicaat 'Dark Sky Park' te krijgen. Daarmee richt het park zich op een nieuwe groep bezoekers. Mensen die de echte duisternis willen beleven en een heldere sterrenhemel willen zien. Er is een haalbaarheidsonderzoek uitgevoerd, met als hoofdconclusie dat het predicaat Dark Sky Park mogelijk is. Aan belangrijke voorwaarden als bereikbaarheid (het Nationaal Park is zowel overdag als 's nachts toegankelijk) en duisternis tijt al voldaan te zijn. Toch is er 's nachts nog onnodige verlichting.

Lichtmeter

Het afgelopen jaar is er op het terrein van Staatsbosbeheer in Lauwersoog een lichtmeter geplaatst om te monitoren hoeveel sterren er te zien zijn. Ook hebben we laten uitzoeken welke lichtbronnen er aangepakt kunnen worden, onder meer in Lauwersoog. Hierover worden gesprekken gevoerd met partijen uit het gebied, zoals de recreatieparken, het Haverbedrijf het Groninger Landschap, Defensie, en de gemeenten. Gemeente De Marne is gestart met het aanpassen van de openbare verlichting. Dat betekent daar verlichten waar het nodig is en onnodige verlichting voorkomen. Dit voorjaar worden de werkzaamheden afgerond. Aan een belangrijke voorwaarde, voldoende educatie en voorlichting over de duisternis in het park en het belang ervan, wordt ook nog gewerkt.



Nationaal Park Lauwersmeer

In het Nationaal Park Lauwersmeer doen we er alles aan om de waardevolle natuur in stand te houden.



Natuur Lauwersmeer

Het Lauwersmeer is een Natura 2000-gebied. Lees meer over de stand van zaken in dit gebied.



Ontwikkeling Lauwersoog

Met de gemeente De Marne en ondernemers zijn we bezig om Lauwersoog aantrekkelijker te maken voor toeristen en vissers.



Alle Groninger websites

LAUWERSMEER ER GAAT NIETS BOVEN GRONINGEN

HOME OVER HET LAUWERSMEER DEN, DOEN & BELEVEN ETEN & DRINKEN OVERNACHTEN EVENEMENTEN

Dark Sky Park

Home Dark Sky Park

Dark Sky Park Lauwersmeer
Het Nationaal Park Lauwersmeer is een van de laatste plekken in ons land waar het nog echt donker wordt, waarbij hier 's nachts nog een heldere sterrenhemel te zien is. Om dit te koesteren en er meer mensen van te laten genieten, werken de provincie Groningen en Staatsbosbeheer in opdracht van de Stuurgroep Lauwersmeer aan een nominatie voor het predicaat Dark Sky Park. Een Dark Sky Park is een gebied waar het donker is, waar de duisternis behouden blijft en waar bezoekers 's nachts welkom zijn om die duisternis te beleven.

Om dit predicaat in de wacht te kunnen slaan zijn er twee voorwaarden van belang: het moet er 's nachts donker genoeg zijn om veel sterren te kunnen zien en er moet voldoende aandacht zijn voor het belang van donkerte. De provincie en de gemeente kijken samen met beheerders en ondernemers in het gebied welke lichtbronnen er aangepakt kunnen worden. Daarnaast werkt de provincie, samen met Staatsbosbeheer, 10% en andere betrokkenen, aan voorlichting en promotie.

In het voorjaar van 2016 dienden de provincie Groningen en Staatsbosbeheer de aanvraag in voor het toekennen van de Dark-Sky status aan het Nationaal Park Lauwersmeer bij de Internationale Dark Sky Association (IDSA). De IDA heeft wereldwijd 200 rijkverreng natuurland- en reservaten aangewezen als Dark-Sky locaties, waarvan ongeveer de helft in de Verenigde Staten, het Lauwersmeergebied wordt hopelijk het tweede Dark Sky Park van Nederland. Afgelopen juni kreeg de Boschplaat, een sandplaat van circa 10 bij 5 kilometer op Terschelling, als eerste het predicaat toegeweend.

Facebook Twitter LinkedIn

Various organizations wrote a support letter, which you will find on the following pages.

1. Province of Friesland
2. Municipality of Dongeradeel
3. Municipality of De Marne
4. Municipality of Kollumerland
5. Platform National Park Lauwersmeer: the independent organization in which the stakeholders of the Lauwersmeer area like watersport, nature conservation, citizens, entrepreneurs, are participating and advising the Steering Committee Lauwersmeer.
6. Stichting Promotie Waddenland, organization for the touristic promotion of the area
7. Harbour Lauwersoog
8. Marketing Groningen
9. The conservation organization for the Waddenzee: Waddenvereniging
10. Cooperation The Marne (Hotel The Marne): an organization of 50 entrepreneurs in the hospitality sector
11. Bende van Acht: representing an open network of more than a hundred entrepreneurs

15 APR. 2016

ppm

provinsje fryslân
provincie fryslân

postbus 10120
8900 lzn Leeuwarden
twesbakama-kr 52
telefoan: (058) 292 59 25
telefax: (058) 292 51 25

www.fryslan.fr
provinsje@fryslan.fr
www.twitter.com/proofryslan

IDA, Board of Directors
Per adres
Gedeputeerde Staten van de Provincie
Groningen
t a.v. de heer J.M.S. Huis in't Veld
Postbus 610
9700 AP Groningen

Leeuwarden, 11 april 2016
Verzonden, 12 APR. 2016

Ons kenmerk : 01279212
Afdeling : Streekwurk
Behandeld door : (058) 292 54 14 of j.tadema@fryslan.fr
Uw kenmerk :
Bijlage(n) :

Onderwerp : Letter of support Dark Sky Lauwersmeergebied

Dear IDA Board of Directors,

The province of Fryslân is one of the 12 provinces in The Netherlands and is located in the northern part of the country. National Park Lauwersmeer is partly located in our province. The municipalities Dongeradeel and Kollumerland, located next to the National Park Lauwersmeer are part of our province.

Province of Fryslân is one of the darkest provinces of the Netherlands. If possible we like to maintain or improve darkness in our region. Therefore we were the first province of the Netherlands to reach a Dark Sky Park status for a part of the island of Terschelling.

Our province includes the National Park Lauwersmeer and is situated near the Unesco World Heritage Waddensea. As for the area on Terschelling, darkness is also for the National Park Lauwersmeer an important characteristic, that needs to be protected and maintained. Therefore, in 2011, we have given Wim Schmidt the assignment to measure the darkness in the whole of the province of Fryslân. This resulted in a so called darkness-map, which can be found on <http://www.fryslan.fr/3191/hemelhelderheidskaart/>. The map contains valuable information for provincial policy regarding darkness.

In current policy for our public lighting, we try to remove as much lighting as possible. But if this is not possible, due to social or traffic safety, we use dim techniques. Also, we stimulate the use of innovative and sustainable forms of lighting.

- 1 / 2 -

Ons kenmerk 01279212

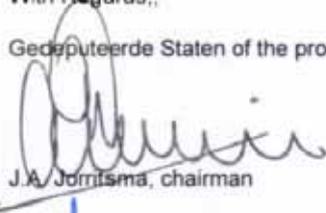
provinsje fryslân

In order to keep parts of our province as dark as possible, or even make it darker, we stimulate the cooperation between local governmental organizations (municipalities) and other parties. Moreover, we support the project "Feel the Night," which aims to realize more awareness about darkness and tries to realize more Darks Sky Parks, as unique selling points, in several places in Fryslân. The application for the Dark Sky Park status for Lauwersmeer National Park fits within these objectives.

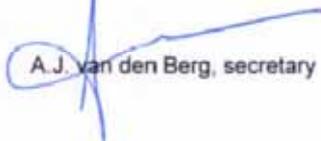
With this letter we strongly support the project International Dark Sky Park Lauwersmeer and want to contribute to maintaining the Dark Sky Park status.

With Regards,,

Gedeputeerde Staten of the province Fryslân,



J.A. Jorritsma, chairman



A.J. van den Berg, secretary



ons kenmerk: 2018000109
afdeling: ONTW - VRO Econom. en
Grondzaken
beheerder: ambtenaar: J.S. Zijlstra
doorkiesnummer: 14 0519

uw kenmerk:
uw brief:
uw KvK-nummer:

Aan: Gedeputeerde Staten van de Provincie Groningen
t.a.v. de heer J.M.S. Huis in't Veld
Postbus 610
9700 AP Groningen

14 JAN. 2016 / ppm

Onderwerp:
Letter of support - Municipality Dongeradeel Dark Sky
Lauwersmeer

Dokkum, 4 januari 2016
Verzonden:

13 JAN. 2016

Geachte heer Huis in't Veld,

Subject: Support of the Application of the International Dark Sky Park Lauwersmeer

Dear IDA Board of Directors,

The municipality of Dongeradeel is located on the western side of the Lauwersmeer and is part of the province of Fryslân. Dongeradeel is situated next to the Unesco World Heritage Wadden Sea and National Park Lauwersmeer. Both are highly important nature reserves. Dongeradeel has 28 villages, the largest town is Dokkum. With its rich cultural history, its extraordinary natural beauty and an abundance of recreational possibilities the Dokkum region has something to offer for everybody.

We consider quietness, order, nature and darkness to be important characteristics of the municipality of Dongeradeel.

Through our current policy we have the ability to ask for certain requirements to prevent light pollution. For example, when somebody wants to build an open cow stable we ask for a light-plan. This light-plan addresses a number of requirements regarding light intensity and luminance.

Also, we look critical at our own public lighting. It is our goal to adjust the public lighting in our rural areas as much as possible to prevent light pollution.

Furthermore, on October 24th we have participated in the national day 'Night of the Night', an initiative of the Nature and Environmental Foundation (Stichting Natuur en Milieu). Together with two other municipalities (Dantumadiel and Kollumerland) and Staatsbosbeier, we have organized a night full of darkness. The purpose of this initiative was to increase the awareness of inhabitants and local companies on light pollution and the value of darkness.

hjlagen

www.dongeradeel.nl

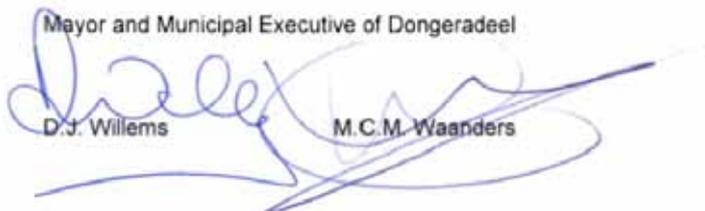
Koningstraat 13 Postbus 1 9700 AA Dokkum Tel. 0519-256886 Fax 0519-256889 gemeente@dongeradeel.nl

In communication towards our inhabitants and local companies near the Lauwersmeer we point out the importance of minimizing and optimizing outdoor lighting in order to protect the dark sky in the area of the Lauwersmeer.

We strongly support the project International Dark Sky Park Lauwersmeer and want to contribute to maintaining the Dark Sky Park status.

With kind regards,

Mayor and Municipal Executive of Dongeradeel



D.J. Willems M.C.M. Waanders

Datum
Oms kenmerk
Uw kenmerk
Onderwerp

22 MAART 2016
17 maart 2016
2/16/000/60
Support of the
Application of the
International Dark Sky
Park Lauwersmeer

Inlichtingen
Tussel
Uw brief
Bijlagen

Dhr. T. Klompmaker
1074

24 MAART 2016

/ppm

Provincie Groningen
College van Gedeputeerde Staten
Dhr. J.M.S. Huis in 't Veld
Postbus 610
9700 AP Groningen



Dear IDA Board of Directors,

Our municipality of De Marne is located on the eastern side of the Lauwersmeer and is part of the province of Groningen. De Marne has a total of 21 villages, and more than 10.000 inhabitants. Our municipality is situated next to the Unesco World Heritage Waddensea and National Park Lauwersmeer. Both are highly important nature reserves. Our ambition for the Lauwersmeer area is safety, sustainability and darkness.

In our current policy for public lighting we apply the following rule: 'No public lighting, unless...'. This means that we exercise restraint in the use of public lighting. We only use public lighting if it is necessary in terms of social or traffic safety. We try to use dim techniques and orientation lighting as much as possible, to minimize light pollution. That way the people that visit the area can really enjoy our beautiful nature reserve under the starry skies.

Through our current policy we have the ability to ask for certain requirements to prevent light pollution. For example, when somebody wants to build an open cow stable we ask for a light-plan. This light-plan has to address a number of requirements regarding light intensity and luminance.

Currently we are renovating the public lighting in the village Lauwersoog, on the northern side of the Lauwersmeer. The base for this renovation is our ambition to minimize light pollution and to show that we strongly support the project of creating an International Dark Sky Park Lauwersmeer and want to contribute to maintain the Dark Sky Park status.

In communication towards our inhabitants and local companies near the Lauwersmeer we point out the importance of minimizing and optimizing outdoor lighting, in order to protect the characteristic dark sky in the area of the Lauwersmeer.

Correspondentie
Postbus 11
9965 ZG Leens
Telefoon (0595) 575500
Fax (0595) 571249

Internet
www.demarne.nl

Bezoekadres
K. Ritzemastraat 2
Leens
Gemeentehuis Gronoed
Werkdagen 9 - 12 uur

Bank
NL36RNG110285008301

Bij beantwoording
a.u.b. datum en
kenmerk van deze
brief vermelden.

Volgblad 1
behorende bij .



With regards,

Mayor and Municipal Executive of De Marne

Municipal Executive,


dhr. B.W. Verwey

Mayor,


dhr. F.H. Wiersma

Uit 2016 - 00136

Uw brief :
Uw kenmerk :
Oms kenmerk :
Uw BSN :
Behandeld door : Berend Jan Kram
Doorkiesnummer : 0511 458872
Onderwerp : Support of the Application of the
International Dark Sky Park
Lauwersmeer

Aan het college van Gedeputeerde Staten
van Groningen
t.a.v. de heer J.M.S. Huis in't Veld
Postbus 610
9700 AP GRONINGEN

Kollum, 11 februari 2016
Datum verzending: 11 februari 2016

Dear IDA Board of Directors,

The municipality of Kollumerland c.a. is located on the southern side of the Lauwersmeer and is part of the province of Fryslan. Kollumerland is situated next to the Unesco World Heritage Waddensea and National Park Lauwersmeer. Both are highly important nature reserves.

We consider darkness to be an important aspect regarding public lighting policies. We try to minimize lighting as much as possible by using for example dimmer switches.

Through our current policy we have the ability to ask for certain requirements to prevent light pollution. For example, when somebody wants to build an open cow stable we ask for a light-plan. This light-plan addresses a number of requirements regarding light intensity and luminance.

On oktober 24th we have participated in the national day 'Night of the Night', an initiative of the Nature and Environmental Foundation (Stichting Natuur en Milieu). Together with two other municipalities (Dantumadiel and Dongeradeel) and Staatsbosbeheer, we organized a night full of darkness. The purpose of this initiative was to increase the awareness of inhabitants and local companies on light pollution and the value of darkness.

In communication towards our inhabitants and local companies near the Lauwersmeer we point out the importance of minimizing and optimizing outdoor lighting in order to protect the dark sky in the area of the Lauwersmeer.

We strongly support the project International Dark Sky Park Lauwersmeer and want to contribute to maintaining the Dark Sky Park status.

With regards,

Mayor and Municipal Executive of Kollumerland c.a.

H.J. Jonker, Municipal Executive

B. Biker, Mayor

Date April 29, 2016

Concerning:

Application of the Nature Park Lauwersmeer as Dark Sky Park of the International Dark Sky Association (IDA)

Dear IDA Board of Directors,

With great interest the Platform Lauwersmeer follows the effort of the Nature Park Lauwersmeer and its communities to reduce light pollution and the rediscovery of the night sky as an estimable cultural asset.

The aim of the Platform Lauwersmeer is to support the developments the National Park Lauwersmeer and the surrounding area. The Platform consists of citizens living in the area, stakeholders, representants of community organization, terrain managers, water managers, defense managers, and entrepreneurs in the touristic branch. The Platform is a independent forum and discuss about ideas, plans and project in the Lauwersmeer region and gives advice to the Steeringgroup Lauwersmeer. In The Platform participate 12 entrepreneurs and 13 community organizations in the provinces Groningen and Fryslan.

Besides the economic advantages of an increase in touristic possibilities, the principles of IDA support the nature park's efforts of protection and sustainable, nature friendly recreation and environmental education.

The designation of the Nature Park Nature Park Lauwersmeer as Dark Star Park will have a far reaching effect beyond the boundaries of the nature park. The provinces of Groningen and Fryslan are considering darkness is a center characteristic of their landscape and the ertation of a DSP between both provinces will be the centerpiece of this policy.

We will in this way offer the chance that a protected night sky could be experienced directly and easily by the inhabitants of our provinces.

The Platform welcomes the application of the National Park Lauwersmeer to become a "star park"

With kind regards,

Mrs. Mirjam de Meijer
Independent Chairperson
of the Platform National Park Lauwersmeer.



Stichting Promotie Waddenland
p/a Havenstraat 3,
9964 AN Wehe Den Hoorn
Rens@toerismewaddenland.nl
Tel 06 101614615

Wehe den Hoorn, 19-1-2016

Onderwerp: Ondersteuning aanvraag van provincie Groningen
en Staatsbosbeheer

Aan: International Dark Sky Association

Geachte bestuursleden,

Hierbij ondersteunen wij van harte de aanvraag van de provincie Groningen en Staatsbosbeheer om aan het Nationaal Park Lauwersmeer de status van Dark Sky Park te verlenen.

De status Dark Sky Park geeft het Nationaal Park Lauwersmeer een extra waarde.

De Stichting Promotie Waddenland is een organisatie van toeristische ondernemers in samenwerking met de gemeente De Marne en de gemeente Winsum.

Het bestuur bestaat uit ondernemers in de sector recreatie en toerisme.

De Stichting wil de regio op de kaart zetten en heeft twee belangrijke doelstellingen:

- ✓ *meer toeristen naar het gebied halen*
- ✓ *de toeristen vervolgens van goede informatie voorzien als ze in het gebied zijn*

Door de status Dark Sky Park te verlenen aan het Nationaal Park Lauwersmeer zal het gebied zal nog interessanter worden voor de toeristen die het gebied bezoeken en ontstaan er nieuwe mogelijkheden voor activiteiten en excursies in het kader van toerisme en recreatie.

Het hebben van de Dark Sky Park status zorgt bovendien voor een onderbouwing van de natuurwaarde en belevingswaarde van het Nationaal Park Lauwersmeer

De internationale uitstraling van het Dark Sky Park sluit ook zeer goed aan bij de uitstraling van het naastgelegen Unesco Waddenzee Werelderfgoed.

Als Stichting Promotie Waddenland nemen wij de status van Dark Sky Park uiteraard graag mee in onze communicatie rondom het Nationaal Park Lauwersmeer, Waddenzee Werelderfgoed en de regio.

Hoogachtend,
Anneke Sijpkens

Voorzitter Stichting Promotie Waddenland



International Dark Sky Association
IDA Board of Directors
3223 N. First Avenue
Tucson, Arizona 85719
United States of America

Support of the Application of the International Dark Sky Park Lauwersmeer

Dear IDA Board of Directors,

Lauwersmeer National Park is a national park in the provinces of Friesland and Groningen in the Netherlands. It consists of the southern and eastern parts of the Lauwersmeer (previously Lauwerszee). The Waddensea is the only Dutch natural property inscribed on the World Heritage List of Unesco. The Wadden Sea is the largest unbroken system of intertidal sand and mud flats in the world

The Harbour of Lauwersoog is situated just between the Lauwersmeer National Park and the Waddensea. The Harbour of Lauwersoog will receive the EcoPorts Certification within weeks and strives to improve the sustainability in all possible ways. Darkness and a decrease of unnecessary illumination in our harbour are part of our goals. This also includes the companies that are situated or will be situated in our harbour.

The Harbour of Lauwersoog strongly supports the project of creating an International Dark Sky Park on the Lauwersmeer National Park.

Best regards,

Harm D. Post
Director

Exploitiemaatschappij Havencomplex Lauwersoog BV (EHL)
Haven 2
NL - 9976 VN Lauwersoog
KvK Groningen 02058985

MARKETING GRONINGEN

International Dark-Sky Association
3223 North First Ave.
Tucson, AZ 85719

RETOURADRES GEDEMPTE ZUIDERDIEP 22, 9711 HG GRONINGEN

Groningen, 20 januari 2016

ONDERWERP Support request by province of Groningen and Staatsbosbeheer

Dear members of the board,

We would hereby like to support the request by the province of Groningen and Staatsbosbeheer to grant National Park Lauwersmeer the status of Dark Sky Park.

The status of Dark Sky Park adds extra value to National Park Lauwersmeer.

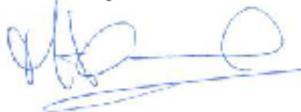
As Marketing Groningen, our task is to proactively expand and communicate the tourist profile of the province of Groningen.

Granting Dark Sky Park status to National Park Lauwersmeer will create new communication and education opportunities around National Park Lauwersmeer. Dark Sky Park status also highlights the value of nature and the perception of National Park Lauwersmeer.

The international image of the Dark Sky Park also fits in very well with that of the neighbouring Unesco Waddenzee World Heritage Site.

As Marketing Groningen, we will naturally incorporate the status of Dark Sky Park in our communications relating to National Park Lauwersmeer, Waddenzee World Heritage Site and the province of Groningen in a responsible way.

Yours sincerely,



Michel Aaldering
Regional coordinator Marketing Groningen

GEDEMPTE ZUIDERDIEP 22, 9711 HG GRONINGEN | T +31 (0)50 319 97 50 | F +31 (0)50 313 63 58 | KVK GRONINGEN 02080231 | BTW NL 8119.84.576.B01
INFO@MARKETINGGRONINGEN.NL | WWW.MARKETINGGRONINGEN.NL



DE BAAT NIETS BEVRIJEN
GRONINGEN

VVVEN GRONINGER UITZUURD ZIJN ONDERDEEL VAN MARKETING GRONINGEN, HET BUREAU VOOR DE MARKETING VAN STAD EN PROVINCIE.



Soule le Stelle
t.a.v. de heer Wlm Schmidt
Merwedeplantsoen 27
3522 J5 Utrecht

Datum: Harlingen, 26 april 2016

Kenmerk: AB/AP

Betreft: Statement of Support

Dear mr. Schmidt,

Through this letter, we want to support the designation of dark sky parks in the Wadden Sea area.

The Wadden Sea is the largest unbroken system of intertidal sand and mud flats in the world, with natural processes undisturbed throughout most of the area. It encompasses a multitude of transitional zones between the land, sea and freshwater environment, and is rich in species specially adapted to the demanding environmental conditions. It is considered one of the most important areas for migratory birds in the world, and is connected to a network of other key sites for migratory birds.

The Wadden Sea is unique in its kind and for this reason UNESCO gave out the World Heritage status in 2009. In this area you can experience the core values rest, space and darkness. The Wadden Sea Society will protect and restore the special properties of the Wadden Sea. Therefore we think the initiative to designate Dark Sky parks is very important, also in the Lauwersmeer area.

Achieving this designation brings recognition of the efforts a park has made towards protecting dark skies. It will raise the awareness of the importance of dark skies.

I wish you success in realizing the Dark Sky parks.

Best regards,



Waddenvereniging
Arjan Berkhuisen

Waddenvereniging Omroepstraat 3 Postbus 80 8630 AR Harlingen
tel (06)75 485 885 fax (06)75 485 621
info@waddenvereniging.nl www.waddenvereniging.nl

Rahnbank IBAN NL 07 HABI 0542 4267 10
BTC HARLEN 211
KvK 40710475





Coöperatie De Marne U.A.
Secretariaat:
Kerkstraat 34
9964 AD Wehe-den Hoom
t: 0595 577340
m: 06 40613432
e: welkom@hoteldemarne.nl
kvk: 60011203
btw : 8537.30.581
Bank : NL16 TRIO 0212 4102 53

Aan: International Dark Sky Association

Datum 18 februari 2015

Betreft ondersteuning aanvraag van provincie Groningen en Staatsbosbeheer

Geachte bestuursleden,

Wij kijken uit naar het verkrijgen van de status van Dark Sky Park! Bij deze willen we dit pracht van een initiatief ondersteunen bij de aanvraag van de provincie Groningen en Staatsbosbeheer om aan het Nationaal Park Lauwersmeer deze status te verlenen.

De status Dark Sky Park geeft het Nationaal Park Lauwersmeer een extra waarde. Als cooperatie van ondernemers (de sectoren recreatie, toerisme, streekproducten, cultuur & groen) uit het gebied De Marne, waarin ook een deel van het Nationaal Park ligt, kijken wij uit naar het ervaren van de donkerte. Voor onze gasten en bezoekers geeft dit echt een meerwaarde.

De aantrekkelijkheid van ons gebied wordt verhoogd, de vele en vele mogelijkheden openen zich. Graag nemen wij straks in onze communicatie op dat in dit deel van Nederland een Dark Sky Park ligt.

En natuurlijk ook als bewoners van dit gebied ondersteunen we eveneens dit initiatief.

Uitziend naar het beleven en ervaren van deze donkerte namens onze 50 cooperatielieden

AW Jansen
voorzitter cooperatie Hotel De Marne



Bende van Acht
Kerkstraat 34
9964 AD Wehe-den Hoom
www.demarneonline.nl

To: Internationale Dark Sky Association
Re: Dark Sky status Nationaal Park Lauwersmeer

Dear Members of the Board,
we hereby give our full support to the Province of Groningen and the State Forrest Association of The Netherlands for the application to obtain Dark Sky Park Status for the National Park Lauwersmeer. This status will provide the National Park and its surrounding region additional impetus, which we deem of great value.

As an open network of entrepreneurs in de municipality of De Marne (in the sectors tourism, recreations, culture, nature en local products), the Bende of Acht considers such a designation as extremely important: it represents our region in a positive way to tourists, day trippers and other visitors to the area. The participants of our network already attach great importance to our dark region. Its value to our nature, the beauty of our starry sky are already unique selling points in our marketing. The status of Dark Sky Park will certainly bring our region extra attention.

We will also take all actions necessary to bring the Dark Sky Park status to the attention of all residents and businesses, in order to create wide support for this phenomenon.

Sincerely,
Joke Kops - on behalf of the motivating team of the Bende van Acht: Anne Marie Smits, Anne Wine Jansen, Fenna Havenga, Irene Japenga, Nicolette Hetzler, Peternel Looze en Joke Kops.

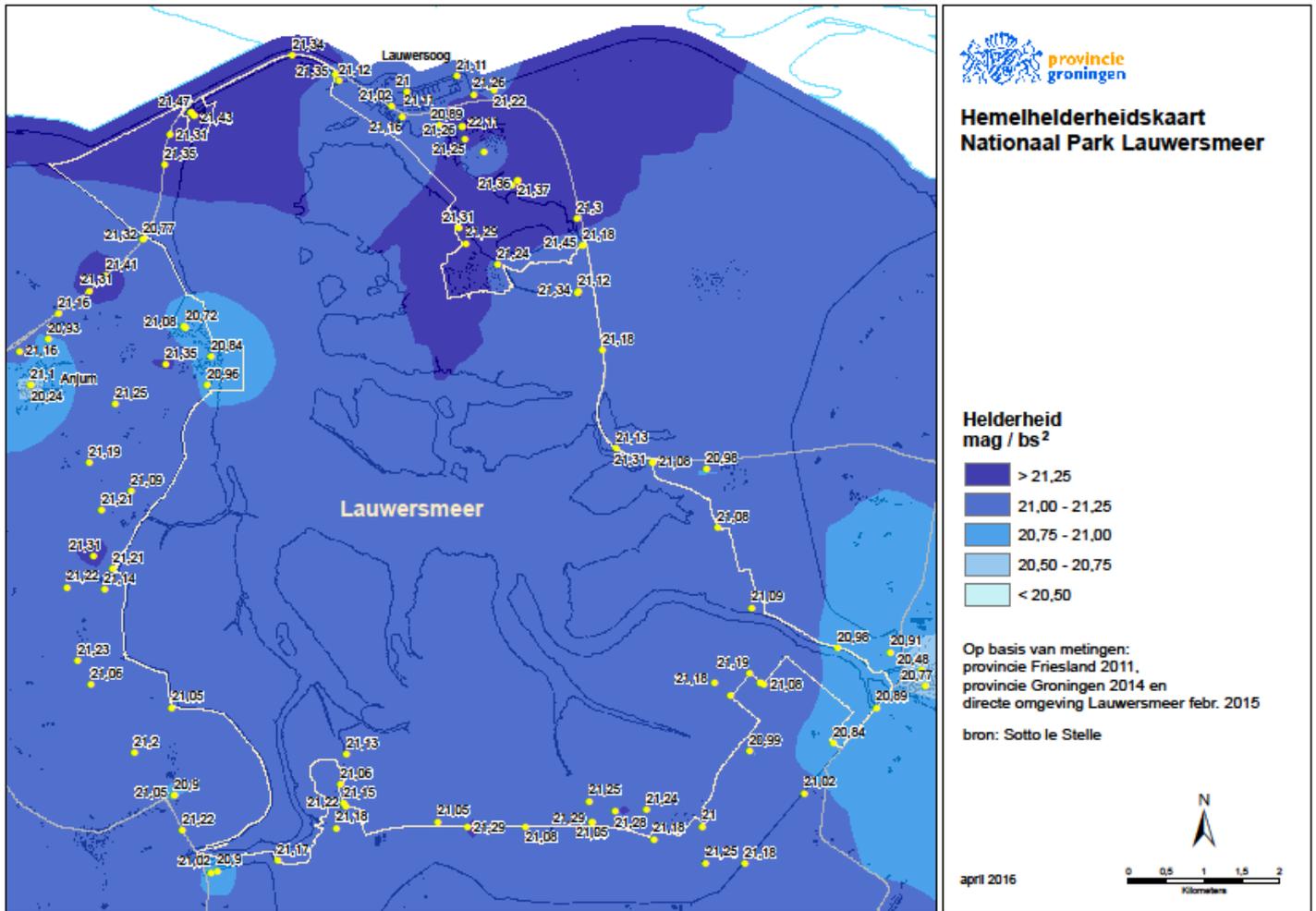
Bij Anne Wine - De Ruimtel - Kartbaan Ulrum - De Groene Luwte - 't Ailand - Galerie Het Raadhuis - Huisje aan de Dijk - Binnema Natural Living - Expoor - Salamander-Outdoor - De Energiek - de Fledder - Edit de Gooijer - Budget B&B - Kerk Vierhuizen - Waddenhoes - De Groene Kicker - Nieuw Midhuizen - Lauwersland-Online - Sloepenloods - Landhuis Oosterbouw - Gebroeders Luden - Waterrecreatie Zoutkamp - Sleepboot Willem - Schierstee - De Schreef - Domies Toen - Wongema - Landgoed Wilgenheerd - Noord Bromo - Juckemaheerd - d'Olle Pastorie - Tuktuk Lauweroog - M5-Tender - Bie Diek - Proeverij Heerlijk Hogeland - Bij tij en ontj... - Landgoud - Arjen Vanekamp - Taurterie De Dis - Tussen de Tuinen - Nou Nóg Mooier - De Verbeelding - Hogeland Films - Marnecultuur - De Broekstermaar - Rust Ruimte Groningen - Waddenfun Adventurepark - Lauwersland Wonen - DoeZoo Insektenwereld - Anne Hilderink - Sirt Jan - B&B Houwerzijl - Landbouwbedrijf Aling - Galerie Gewaagd - De Zilte Bries - Joke de Boer Verzekeringen & Hypotheken - Armhoes Joopke - Kerk Zuurdijk - Kado & Zo - Het Tuinhuis - Zorgboerderij Pieterburen - De Boeter - DasJaGoud - Elize Catharinaheerd - Eya Popeya STIPP - IVN Noord - Zolderman - Triona Pers - Uitgeverij Vliedorp - Taalcorrect - Mathilde van Wijnen - Klein Onrust - Lamsvachten uit het Hoge Noorden - De Oude Smidse - De Oelesprong - Waddenstee - De Kromme Raake - Abrahams Mosterd Makerij - Kookpodium Eenrum - Kunsthuis Noordwaarts - Het Appeltje - Bij de Kunstenaars - De Natuurschool - Robersum - Schuthuys - Korensant - Toenhoes - Roodelhaan - Waddenvoos - Stichting Wadloopcentrum Pieterburen - Meer Dscafe - Marianne Sorgdrager - Tammersheerd - De Maakplek Pieterburen - Zeehondenriche Pieterburen - Annemarie Mayers - Noorderloft - De Horizon - Klein Deikum - Camping Lauwerszee - De Najade - Gekruid en Geroerd - De Ciderwinkel - 't Marnehoes - Verhildersum - Nationaal Park Lauwersmeer - Ons Washoek - Schierzicht - Bed & Breakfast De Marne - Chocolaterie La Poutré - Wongema - Bakkerij Peters - ZK-86 - De Kleine Plantage - Joke Kops

Appendix 1 Darkness measurements Lauwersmeer

Tijd	X- Coördinaat	Y- Coördinaat	Sqm-L	Sqm	SQM gem
13-2-2015 19:42	215695,59	595022,12	20,17	20,29	20,23
13-2-2015 19:48	215389,81	594662,77	20,39	20,67	20,53
13-2-2015 19:51	214826,80	594192,15	20,71	20,97	20,84
13-2-2015 19:54	213854,34	594998,39	20,87	21,06	20,965
13-2-2015 20:10	213710,79	594081,99	20,88	21,1	20,99
13-2-2015 20:15	213080,32	593074,45	20,85	21,16	21,005
13-2-2015 20:23	211620,61	593136,61	20,89	21,21	21,05
13-2-2015 20:28	209569,41	593141,33	20,87	21,22	21,045
13-2-2015 20:33	208276,46	593632,92	20,88	21,24	21,06
13-2-2015 20:37	206641,42	592487,65	20,75	21,05	20,9
13-2-2015 20:42	206067,87	593484,24	20,74	21,05	20,895
13-2-2015 20:45	206036,66	594664,16	20,86	21,24	21,05
13-2-2015 20:51	204964,44	594975,50	20,88	21,24	21,06
13-2-2015 20:54	205140,92	596235,35	21,02	21,26	21,14
13-2-2015 20:58	205497,27	597558,39	20,97	21,22	21,095
13-2-2015 21:02	204165,19	598967,73	20,97	21,23	21,1
13-2-2015 21:08	204166,60	598968,38	20,07	20,41	20,24
13-2-2015 21:12	204396,35	599576,00	20,79	21,07	20,93
13-2-2015 21:17	206510,86	598980,38	20,81	21,11	20,96
13-2-2015 21:21	206220,10	599745,56	20,53	20,9	20,715
13-2-2015 21:27	204531,42	599924,56	20,99	21,32	21,155
13-2-2015 21:31	205656,33	600914,79	21,16	20,39	20,775
13-2-2015 21:33	206008,96	602312,96	21,16	21,45	21,305
13-2-2015 21:39	206329,34	602578,34	21,16	21,36	21,26
13-2-2015 21:43	208258,73	603036,35	20,99	21,25	21,12
13-2-2015 21:48	209099,30	602553,97	20,22	20,42	20,32
13-2-2015 21:51	210040,47	602804,22	20,8	20,98	20,89
13-2-2015 21:56	209462,11	602976,14	20,57	20,92	20,745
13-2-2015 22:01	209589,78	602447,67	20,77	21,01	20,89
13-2-2015 22:04	210181,84	602078,74	20,83	21,12	20,975
13-2-2015 22:07	210555,54	601640,54	21,1	21,39	21,245
13-2-2015 22:15	209943,95	600862,10	21,09	21,49	21,29
13-2-2015 22:20	211418,18	601193,22	21,15	21,45	21,3
13-2-2015 22:28	212426,97	597939,48	20,92	21,24	21,08
17-02-15 19:52	211498,15	600828,19	21,05	21,3	21,175
17-02-15 20:52	211439,20	600222,98	20,97	21,27	21,12
17-02-15 20:57	210368,82	600575,38	21,06	21,42	21,24
17-02-15 21:00	209850,36	601060,39	21,18	21,43	21,305
17-02-15 21:05	211756,50	599441,40	21,05	21,31	21,18
17-02-15 21:08	211941,19	598121,89	20,97	21,28	21,125
17-02-15 21:10	213136,11	597852,40	20,83	21,12	20,975
17-02-15 21:12	213285,69	597075,99	20,95	21,21	21,08
17-02-15 21:15	213739,07	595997,40	20,95	21,24	21,095

17-02-15 21:18	214878,75	595465,91	20,83	21,12	20,975
17-02-15 21:23	215582,40	595409,39	20,74	21,08	20,91
17-02-15 21:27	215994,68	595165,29	20,4	20,55	20,475
17-02-15 21:31	215392,55	594667,51	20,75	21,02	20,885
17-02-15 21:34	214435,74	593521,02	20,91	21,14	21,025
17-02-15 21:36	213645,47	592582,34	21,05	21,32	21,185
17-02-15 21:39	213130,12	592589,43	21,15	21,35	21,25
17-02-15 21:43	212435,98	592907,41	21,08	21,27	21,175
17-02-15 21:45	211615,39	593135,31	21,13	21,45	21,29
17-02-15 21:48	209961,56	593070,65	21,16	21,42	21,29
17-02-15 21:49	208219,05	593056,30	21,02	21,35	21,185
17-02-15 21:57	208318,87	593379,12	21,02	21,28	21,15
17-02-15 21:59	208346,67	593349,81	21,1	21,34	21,22
17-02-15 22:03	207441,41	592616,96	21,02	21,32	21,17
17-02-15 22:06	206552,48	592463,02	20,9	21,14	21,02
17-02-15 22:08	206178,55	593025,60	21,08	21,35	21,215
17-02-15 22:11	205538,95	594063,03	21,08	21,31	21,195
17-02-15 22:14	204789,17	595293,38	21,07	21,38	21,225
17-02-15 22:16	204644,69	596270,75	21,11	21,33	21,22
17-02-15 22:19	205107,07	597297,69	21,06	21,36	21,21
17-02-15 22:23	204939,29	597939,56	21,08	21,3	21,19
17-02-15 22:27	205291,51	598707,86	21,15	21,35	21,25
17-02-15 22:31	206194,40	599767,28	20,93	21,23	21,08
17-02-15 22:34	206559,83	599358,07	20,67	21,01	20,84
17-02-15 22:39	204014,74	599423,27	20,99	21,33	21,16
17-02-15 22:42	204941,35	600228,59	21,19	21,43	21,31
17-02-15 22:44	205662,08	600923,58	21,18	21,45	21,315
17-02-15 22:46	205939,94	601917,52	21,25	21,45	21,35
17-02-15 23:13	206293,47	602619,77	21,26	21,51	21,385
17-02-15 23:16	207638,85	603381,31	21,21	21,48	21,345
17-02-15 23:19	208210,99	603115,42	21,2	21,5	21,35
17-02-15 23:22	208959,35	602704,62	20,8	21,23	21,015
17-02-15 23:28	209892,28	602429,59	20,14	20,36	20,25
17-02-15 23:32	209892,67	602429,72	22,01	22,22	22,115
17-02-15 23:36	209792,93	602155,42	21,17	21,41	21,29
17-02-15 23:39	210633,97	601713,11	21,25	21,49	21,37
17-02-15 23:45	211498,15	600828,19	21,25	21,64	21,445
9-04-16 0:18	208358,10	594045,00	21,12	21,14	21,13
9-04-16 0:33	205253,68	596522,56	21,06	21,36	21,21
9-04-16 0:45	206337,10	602581,91	21,38	21,48	21,43
9-04-16 1:02	210047,49	602854,88	21,16	21,36	21,26
9-04-16 1:22	209158,69	602886,70	20,98	21,02	21,00
9-04-16 1:26	209820,88	603104,26	21,09	21,12	21,11
9-04-16 1:37	210316,49	602904,10	21,11	21,33	21,22
9-04-16 1:40	209929,45	602262,01	21,08	21,42	21,25
9-04-16 1:42	210628,83	601708,14	21,3	21,41	21,36

9-04-16 1:55	211425,38	600191,24	21,31	21,37	21,34
9-04-16 2:07	209099,30	602553,97	21,2	21,12	21,16
9-04-16 2:17	209892,28	602429,59	21,2	21,32	21,26



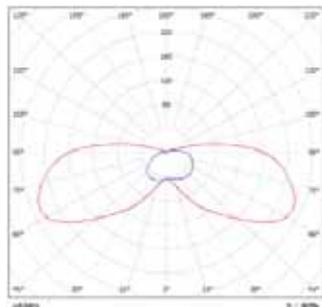
Appendix 2 Inventory of the public lighting in the neighbourhood of the Park

There are three villages in the neighbourhood of the park with public lighting: Lauwersoog, Zoutkamp and Anjum.

In the next table the most used fixtures are mentioned (all above 10 fixtures is counted). All the fixtures are described. There are of course of every type of fixture more than one type of installation with different lamps, glass versions and radiating profiles. The most common photometrics and ULOR were chosen.

	Anjum	Lauwersoog	Zoutkamp	Total
Hogro OGR			95	95
Indal 2000	42	30	19	91
Indal 2050		55	23	78
Indal 2310	17		42	59
Indal 2551	65		63	128
Indal 2566	14		67	81
Indal 2600		79		79
Indal 2696		66	15	81
Philips FGS 224	19			19
Schreder Sintra	58			58

Indal 2000 and 2050

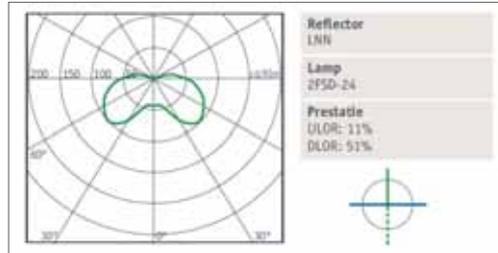


Indal 2000

Indal 2000 is a circle symmetric fixture, often used in Holland for residential areas with low pressure mercury lamps. The used fixtures are definitively not flat and has a lot of light above the horizon. The lampposts are standing in between the houses and use only 24 or 36 Watt, so the total share of the upward light will not be very much. The Indal 2050 is hardly different.

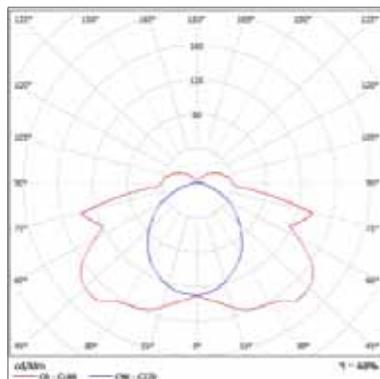
Indal 2310

Indal 2310 Osiris fixtures line some streets in Zoutkamp. They have a symmetrical design with the long vertical so called PLL fluorescent low pressure mercury lamps, giving a lot of light in the vertical direction. There are 'lamella' in the fixture but they don't prevent light from escaping in all directions. Ulor 11%.



Indal 2551

This fixture is used a lot in the Netherlands with low pressure mercury lamps of 36 watts mostly. The fixtures are definitely not flat and have a substantially big upwards part.

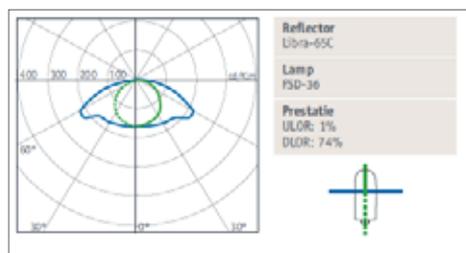


Indal 2551

Indal 2566 Libra

The Indal 2566 are the first fixtures in the Netherlands, special made for reducing light pollution and were the best ever introduction of Indal of a new fixture and used a lot especially in the north of Holland.

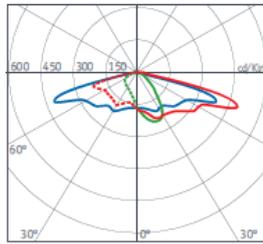
They have 24 and 36 Watt lamps and the I table shows hardly any light goes above the horizon (Ulor 1%). Philips which owns Indal now, has also a led version with different output characteristics.



Indal 2566 Libra

Indal 2600

This is a little older fixture, with mostly 70 watt high pressure sodium lamps. The Ulor is 2%.



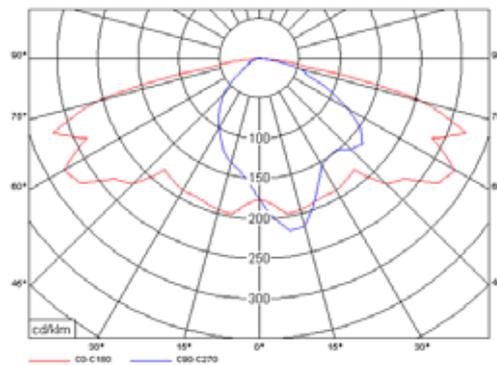
Reflector	SRN
Lamp	ST-70
Prestatie	
ULOR:	2%
DLOR:	81%



Indal 2600

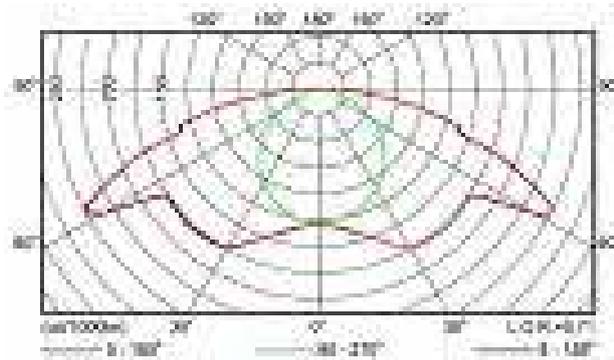
Indal 2696 Arc

A modern armature with hardly any light above the horizon (ULOR 0,37%).



Philips FGS224 Residium

First of the more modern Philips armature, but still with some light above the horizon especially when the carbonate is dirty, around 3%.



Schreder Syntra

An old fixture, where no ULOR could be found anymore. The light distribution found expect around an ULOR of around 5%.



Appendix 3 Town of Groningen

The town of Groningen at 30 kilometers distance with nearly 200.000 inhabitants is important for the quality of the nights in Lauwersmeer.

There has been a meeting with the responsible official of the town about the dark sky plans and how Groningen can contribute.

The policy of Groningen is since 2006 clear: darkness and preventing light pollution is one of the key considerations of its lighting.

The main measure the city management has taken is to dim more or less the whole arsenal of the city lights. The original plan would take 5 years to completion but the city management realized the potential and impact of this measure and the whole plan was completed within 2 years.

The town received a reward for this measure from the "Taskforce lighting" which was created in The Netherlands when the climate change issue became evident. The energy consumption of public lighting in The Netherlands must decline substantially and Groningen is one of the frontrunners in it. Groningen does a good job to improve the night above a big part of the province and also in improving the Lauwersmeer nights.



Colophon

Application for the Dark Sky
Places Program of the
International Dark Sky
Association

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Staatsbosbeheer Lauwersmeer
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