

Canyonlands International Dark Sky Park - 2018 Annual Report

General

Current information for the site IDA contacts:

- Terry Fisk - Acting Chief, Resource Stewardship & Science
terry_fisk@nps.gov, 435-719-2130
- Matt Van Scoyoc – Ecologist, Resource Stewardship & Science
matthew_vanscoyoc@nps.gov, 435-719-2135
- Nate Ament – Biological Science Technician, Resource Stewardship & Science
nathan_ament@nps.gov, 435-719-2227

Visitation and Night Sky Programming

Canyonlands 2017 Visitation: **742,271**

Astronomy Program Visitor Contacts since Oct 1, 2017: **1,170** (up from 727 in 2017)

Canyonlands National Park, in conjunction with its partnering sites, Arches National Park and Dead Horse Point State Park provided a series of astronomy events. The collaborative effort brought visitors to all three sites for night sky programs, constellation tours, and telescope viewing parties. There were eight events hosted between the three parks. Program topics included stellar evolutions, Astronomer Guillermo Haro, light pollution, archaeoastronomy, Mars, and the Voyager mission. Astronomy themed evening programs and full-moon hikes were also offered throughout the season. Through these collaborative events, the three parks have helped hundreds, if not thousands of visitors connect to the night sky on a deeper, more meaningful level.

Canyonlands staff also participated in astronomy programming as part of the [2017 Moab Festival of Science](#), hosted by USGS. These events featured constellation tours, light pollution demos, and a star party on BLM land near Canyonlands.

Lighting

No new lighting was installed in any district of Canyonlands.

As of September 2018, Canyonlands has 108 out of 113 outdoor lights (95.5%) compliant with the Canyonlands NP Lightscape Management Plan. The remaining lights in non-compliance are at Maze District housing.

Community Outreach

Staff from Canyonlands are among the founding members of the new Moab Dark Skies community group started in September 2016 (www.facebook.com/moabdarksbies/). The group includes NPS staff, Friends of Arches and Canyonlands Parks' staff, Dead Horse Point State Park staff, local guides and

outfitters, city and county government officials, the Colorado Plateau Dark Skies Cooperative Coordinator, University of Utah graduate students, and other community members.

To date, Moab Dark Skies has:

- Organized presentations to Moab City and Grand County councils about light pollution, lighting solutions, and astrotourism opportunities.
- Hosted a night sky-themed art walk and contest.
- Collaborated on an upcoming 'Lights Out Moab' educational and astronomy event.
- Facilitated a comprehensive lighting inventory of city and county properties conducted by two University of Utah graduate students.
- Supported city and county officials in pursuing an enhanced lighting code.
- Hosted an invitational astronomy event in Moab for local government officials.

Moab Giants Dinosaur Museum (on Hwy 191 between Moab and Island in the Sky) consulted Canyonlands and Dead Horse Point State Park staff to help design night sky-friendly lighting for their new facility. The lighting design has ensured very minimal night sky quality disturbance to both parks from the nearby Moab Giants facility.

Conservation and Research

The NPS Air Resources Division has been monitoring air quality in Canyonlands National Park, a Clean Air Act Class I area, near the Island in the Sky Visitor Center since 1988. Participating air quality networks include the EPA's Clean Air Status and Trends Network (CASTNET), the Interagency Monitoring of Protected Visual Environments Network (IMPROVE), and the National Atmospheric Deposition Program (NADP) National Trends Network, additionally there is a webcam hosted by the US Geological Survey (<http://eldesierto.org/lsky.jpg>). Air quality data collected in Canyonlands play a critical role in understanding regional air quality trends and identifying sources of air pollutants. For instance, IMPROVE data from Canyonlands were used to define visual effects standards for oil and gas development in proximity to the Park in the Moab Master Leasing Plan (2016, <https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=renderDefaultPlanOrProjectSite&projectId=68430>)

Sky Quality

The data below indicate that measured sky brightness has slightly increased since Canyonlands IDSP application in March 2015. However, on the nights of September 11 and 12, 2018, much of the sky was covered with a high, thin haze from numerous wildfires in the western U.S. We speculate that this factor, rather than any substantial increases in nearby light pollution, caused our sky quality meter (SQM) measurements to be on average higher than 2015. SQM data was collected under 0-5% peripheral cloud cover, low humidity, and no moon.

Needles District

Location	Date	SQM
1 - Needles Visitor Center	9/12/18	21.60
2 - Needles Housing	9/12/18	21.54
3 - Cave Spring Trailhead	9/12/18	21.55
4 - Squaw Flat Campground	9/12/18	21.63
5 - Pothole Point	9/12/18	21.62
6 - Wooden Shoe Arch Overlook	9/12/18	21.62
7 - Wooden Shoe Group Campsite	9/12/18	21.61

Needles SQM Average: 21.60



Night sky photo (2017) from Pothole Point showing natural gas drilling operation (bright white point on left), the Intrepid Potash Plant (orange dome left of center), and the Moab sky glow (large orange dome in center). Photo courtesy of Matthew Van Scoyoc (NPS).

Island in the Sky District

Location	Date	SQM
1 - Grand View Point	9/11/18	21.71
2 - ISKY Visitor Center	9/11/18	21.63
3 - ISKY Housing	9/11/18	21.59
4 - Green River Overlook	9/11/18	21.67
5 - Upheaval Dome Overlook	9/11/18	21.66
6 - Candlestick Tower Overlook	9/11/18	21.70

Island in the Sky SQM Average: 21.66



Photo of the night sky (2017) from the Island in the Sky residence area showing lighting from a residence on the left with the Milky Way in the center. Photo courtesy of Matthew Van Scoyoc (NPS).