

What social media can teach us about human-environment relationships

August 26 2020, by Aastha Uprety



A boat ride at Glacier Bay National Park and Preserve. Credit: [Ram Seshan](#) via Unsplash

Recent ecological research used Instagram posts to analyze the preferences of visitors to natural areas around the world. Researchers

deduced the activities and feelings that people associated with different environments, including Glacier Bay National Park and Preserve. The study explores the potential of using social media data to understand cultural ecosystem services—the intangible benefits that people receive from nature—and interactions between people and their environments.

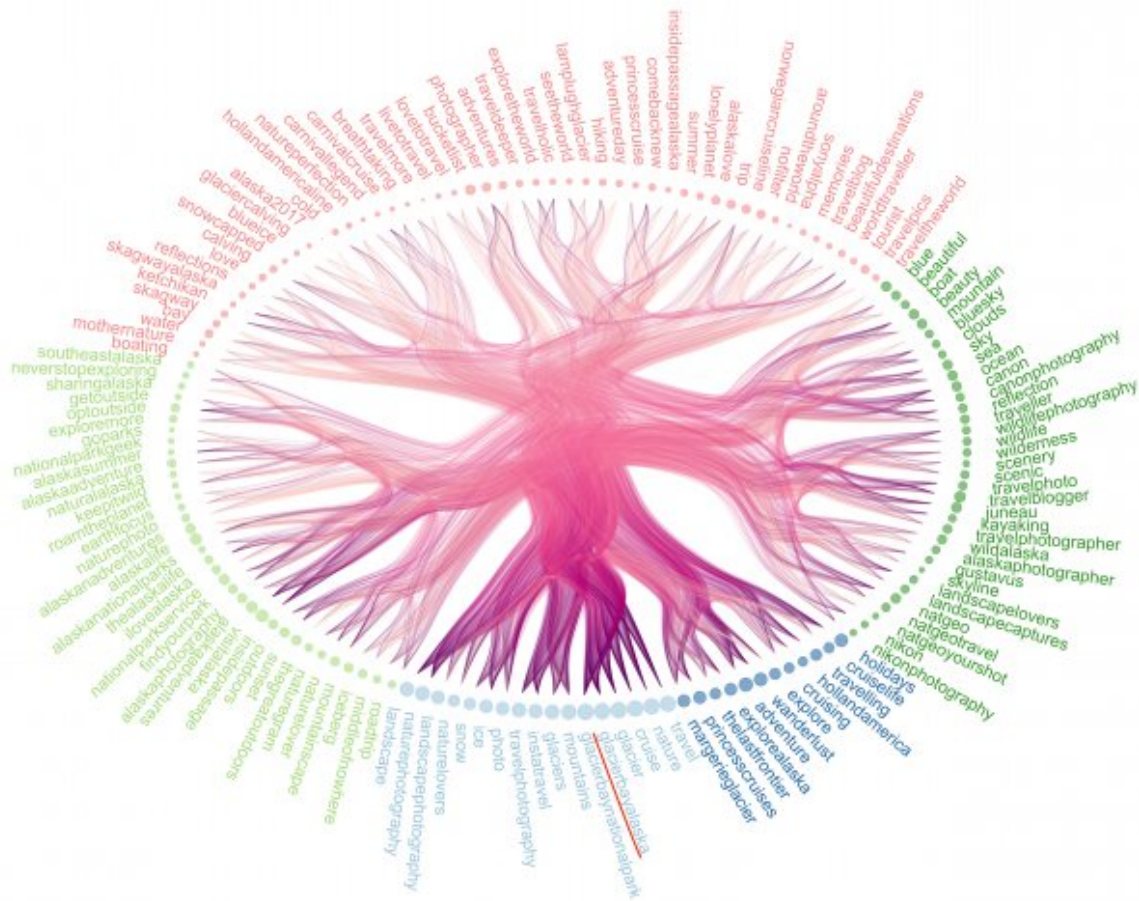
A team of marine ecologists based in Spain downloaded public Instagram posts from 14 ecologically diverse coastal locations, from Easter Island to the Great Barrier Reef, with the goal of analyzing the hashtags on each post. The study, a preprint that has not yet been peer-reviewed and has been submitted to the journal *Ecosystem Services*, uses graph theory, which analyzes the relationships among elements in a system. The researchers grouped hashtags from the posts' captions into similar categories and mapped out the connections between them, such as the frequency with which different hashtags were included in the same post. By doing so, they were able to understand what values drew people to each place, what visitors enjoyed doing there, and what feelings they commonly associated with the spaces.

Silvia de Juan Mohan, the lead author of the study, told [GlacierHub](#) that the team wanted to understand how people feel about [natural areas](#) and why they choose to interact with them. They framed their analysis through the lens of [cultural ecosystem services](#) (CES), one of the four types of [ecosystem services](#). These include provisioning services—for example, supplying food and water; regulatory services, such as purifying water or pollinating plants; and supporting services, such as soil formation. CES are the non-material benefits that people receive from nature. These can include cultural identity, esthetic appreciation, recreation, and even spirituality. In this study, hashtags were grouped into CES categories including, but not limited to, wildlife appreciation, land-based recreation, underwater recreation, cultural heritage, and esthetic appreciation.

The use of [social media](#) data to assess CES is a method that has emerged over the last several years, according to Spencer Wood, an environmental scientist at the University of Washington, who has worked on similar research. He told GlacierHub that the use of crowdsourced data started off with primarily studying [recreational habits](#), and has grown into analyzing [esthetics](#) and other CES. Social media research focused on location data in the early years, but has since progressed to interpreting the content of posts as well.

Content analysis in this field is often done by assessing photos. In this study, researchers chose to explore text data instead, which they believe can provide more nuanced insights into users' feelings. For example, the team was able to draw conclusions not only about what activities people engaged in, like #hiking, #cycling, and #diving, but also about what feelings they associated with each place—like #happiness, #relaxation, or even #wanderlust. Relying on text also helped minimize researcher subjectivity, since interpretations of photos can vary from researcher to researcher.

The network analysis of hashtags revealed insight into what activities and ideas visitors primarily associated with a destination. In some places, visitor preferences lined up with researchers' expectations—for example, at Glacier Bay, many visitors enjoyed hiking and tagged their posts as such. Some patterns, however, were more unexpected. At Easter Island, where de Juan and the team expected to see an abundance of posts related to cultural heritage, given the island's iconic statues, they were surprised to see that hashtags about activities like hiking and cycling, or even vacationing with family, were more prevalent than those about cultural identity. This may have been because Easter Island is such a popular tourist destination.



This circle graph maps the 150 most frequent hashtags on posts from Glacier Bay, divided into five different-colored categories. The size of the circles represents the hashtag's frequency, and the central lines reflect the links between them. The greater the strength of the line, the greater the relationship between hashtags and groups of hashtags. Credit: [Andres Ospina-Alvarez](#)

While researchers did not have access to the demographics of the Instagram users studied, they were able to infer that popular, remote areas were mostly visited by tourists, based on revealing hashtags such as #travel. On the other hand, smaller, less-renowned parks were mostly frequented by locals. "An area does not need to be an iconic destination

to provide essential services to society," the study noted. Well-being and positive feelings were recorded at famous landmarks and lesser-known places alike.

Posts also showed appreciation for the local habitat by hashtagging aspects like specific animal species, such as penguins at Australia's MacQuarie Island, or natural attributes, like glaciers at Glacier Bay. The major CES categories identified at Glacier Bay were esthetic and nature appreciation, recreation, and a miscellaneous category that included national park and glacier appreciation. While hashtags across locations were mostly neutral or positive, some did express concern for sustainability issues and climate change, particularly at the Great Barrier Reef. De Juan noted that this kind of content might be even more prevalent on other platforms, such as Twitter, where discussion of global issues is more common.

Knowing about tourist and visitor preferences, and the types of CES that people obtain at a location, can be useful for park and natural resource managers, conservationists, and policymakers. Cultural ecosystem services are often not as obvious as the processes offered by other ecosystem services, but the sphere of non-physical benefits is important for ecologists to understand. "If we're not studying these things, there's a danger that voices which are marginalized or lacking in power are not included," Rachelle Gould, an environmental scientist at the University of Vermont, told GlacierHub. "Things that are really important to some people may not be considered in decision making."

Gould explained that one of the many challenges with studying CES is the difficulty articulating what non-material benefits mean to people, especially in non-quantitative terms. The dominance of economic perspectives in environmental studies has traditionally pressured researchers into assigning quantitative values to the benefits of nature, or studying environmental issues with methods like cost-benefit analysis.

But concepts like spirituality, mental health, Indigenous and local connections to nature, and the happiness people draw from the outdoors, don't always fit into the traditional framework of understanding. "What we're able to accurately represent economically is pretty limited," Gould told GlacierHub. "[However,] we can make decisions without dollar values."

But Gould concedes that doing so can be difficult. The abstract nature of CES means that creative methods are necessary to justify its importance, she says. Researchers have used a variety of methods, from traditional one-on-one, in-depth interviews, to participatory GIS mapping to even studying creative writing about nature. "These values are so important, but they're really hard to talk about and characterize," said Gould. "We need more methods, and we need people to try things." She agrees that social media data is one exciting way to learn more.

Social media data has a variety of benefits. Firstly, analyzing it is inexpensive and requires minimal effort, especially compared to traditional methods like interviewing. Social media is also a huge source of information that allows researchers to go beyond time and space constraints. Additionally, social media analysis can capture new audiences that might not participate in traditional research methods.

But there are also numerous limitations to using social media, many of which the study made clear. Instagram and other social media platforms are primarily used by young people. What's more, their use may not be as widespread in some places, such as areas with limited internet access or countries where sites are restricted or banned.

Wood also pointed out that some platforms may have their own internal algorithms that limit what data researchers are actually presented and have access to. "[The data] may not be representative even of all Instagram users," Wood told GlacierHub. "Let alone all people who visit

a place or hold value about a place."

De Juan added that in the future, this type of research may face complications as social media sites increase restrictions on the use of data.

In addition, social media might not fully capture how people genuinely interact with their environments, especially on a platform like Instagram where displaying positivity is emphasized. Social media research is a novel field, and according to Wood, many of the assumptions researchers have about the meanings of social media posts need to be tested further. "We have a lot to learn," Wood told GlacierHub. "These data show a lot of promise, but should generally be used with cautious optimism."

Whether it is based on analyzing [social media data](#) or utilizing other methodologies, CES research provides invaluable insight into what people gain from interacting with nature. "Traditionally, ecologists and social scientists work apart," de Juan told GlacierHub, but she thinks that shouldn't be the case. "Ecosystems are not understood without humans anymore, and humans are not understood without ecosystems. The benefit is mutual."

The connection between the online world of social media and natural environments across the globe may not be obvious, but the intersection between them is a valuable place to learn more about human-environment relationships. Despite its limitations, social [media](#) research, as utilized by this study, is a rapidly developing approach that justifies why nature is important to people. Cultural ecosystem services go beyond what is typically valued by scientists and economists, and challenges society to think more deeply about the benefits of nature.

For Gould, environmentalists are missing out if they only focus on the

material benefits of ecosystems. "For a lot of people, connecting to ecosystems is grander than [just the physical benefits]," she told GlacierHub. "They're bigger than that. They're about the meaning of life, what it means to be human, and what it means to relate to the rest of the world."

More information: Bonnie L Keeler et al., Recreational demand for clean water: evidence from geotagged photographs by visitors to lakes, *Frontiers in Ecology and the Environment* (2015). [DOI: 10.1890/140124](https://doi.org/10.1890/140124)

Juan et al., Wide-scale assessment of cultural ecosystem services in coastal areas using graph theory on social media data. (2020). [www.researchgate.net/publicati... on social media data](https://www.researchgate.net/publication/354111111)

This story is republished courtesy of Earth Institute, Columbia University
<http://blogs.ei.columbia.edu>.

Provided by Earth Institute at Columbia University

Citation: What social media can teach us about human-environment relationships (2020, August 26) retrieved 25 April 2024 from <https://phys.org/news/2020-08-social-media-human-environment-relationships.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--