

Using Flickr images to assess how visitors value and use natural areas: lessons from a popular natural area on the Gold Coast, Australia

*Catherine Pickering, Griffith University, Australia, c.pickering@griffith.edu.au
Montannia Chabau-Gibson and Jesse Raneng*

Introduction

Social media is big including in terms of the amount and type of data available and the number of people posting. For example, the image sharing platform, Flickr, has >75 million users and >6.5 billion publically available images. The metadata associated with these images includes who posted them (user names), when (time and date), text describing the images and geographical information either as geodata and/or text. Metadata from platforms including Flickr have been used to assess total visitation to parks globally (Woods et al. 2013), nationally (Henrikki et al. 2017), and within parks (Walden-Schreiner et al. 2018). These studies found that, although Flickr users represent a small subsample of visitors, their patterns of use can reflect those of the broader visitor community (Henrikki et al. 2017; Walden-Schreiner et al. 2018).

Most previous studies of Flickr analysed metadata and not the content of the images. But the images provide an additional rich source of information including which aspects of the areas visitors value enough to record and share, and how those images are valued by a broader community on the website itself (Richards and Friess 2015). The images can also reflect the sociocultural values of the area such as aesthetics, existences, recreation use, culture and history, as well as the personal history of people in the images. While data on these types of cultural ecosystem services have been hard to collect in the past, they are critical for management including when seeking social licences for changes in use (Chen et al. 2018).

To evaluate the benefits and limitations of using Flickr images to assess visitor use and sociocultural values we are conducting research in a range of popular natural areas. This includes the Spit, an area of beaches, dunes and forest separating the ocean from a major estuary, in the rapidly growing urban city of the Gold Coast, Australia.

Methods

Metadata of images tagged “The Spit” and “Gold Coast” on Flickr was downloaded including user name, title, tags, description, date and time taken, geodata, number of views and a link to the image. After capping the number of images per user to 10, to ensure we did not over represent prolific posters, the metadata for the 493 images was used to determine when people visited including time of day, week day, month and years. Where geodata was available, we also mapped where the images were taken using ARC-GIS.

The content of the images was analysed using 74 categories relating to: (1) where it was taken; (2) when taken; (3) what natural features were in the images; (4) type(s) of recreation activities shown; (5) details of people in image including group size and age; and (6) what built features were shown. The text in the tags was also coded into similar categories, and the number of views compared among images differing in content.

Results

The images show a range of sociocultural values for the Spit, predominantly aesthetics with natural open landscapes including the ocean (70%) and beach (62%) dominating images. Images of recreation activities were also common (58%), but despite the southern section of the Spit containing a range of hotels, a theme park and restaurants, the images self-identified by Flickr users as from the Spit, Gold Coast, focused on nature based recreation. This included water based activities (40%), such as boating including motor craft (17%) and sailing (10%), along with surfing, fishing and swimming. Images of land-based recreation included walking, sightseeing and walking dogs, among others. Sunrise and sunset as well as mid-afternoon were the most common times to take images, with the area popular year round reflecting the suitability of a subtropical climate for nature based recreation.

There were few or no images for some other activities known to occur on the Spit. This included mountain biking and running despite their popularity on the Spit, and no images of activities such as gay cruising or illegal camping. There were also very few images of individual animals or plants indicating that these were not as highly valued among Flickr users of this area.

Discussion

The results highlight the importance of the Spit, Gold Coast for its sociocultural values including aesthetics and recreational use. They also demonstrate some of the benefits of social media platforms for managers including that data has already been collected, is often publically available and covers a range of locations and activities. There are limitations, however, as data may be sparse for some locations, particularly less popular parks and/or activities. The data only represent a subsample of visitors, and hence the patterns of use and values represented in the images are shaped by both the type of visitor posting them and the focus of the website. Finally there can be privacy and ethical issues highlighted recently in public debate about the use of data from Facebook and Strava.

References

- Chen, Y., Parkins, J.R. and Sherren, K. (2018). Using geo-tagged Instagram posts to reveal landscape values around current and proposed hydroelectric dams and their reservoirs. *Landscape and Urban Planning*, 170: 283-292.
- Henrikki, T, DiMinin, E., Heikinheimo, V., Hausmann, A., Herbst, M., Kajala, L., and Toivonen, T. (2017). Instagram, Flickr, or Twitter: Assessing the usability of social media data for visitor monitoring in protected areas. *Scientific Reports*, 7: 17615.
- Richards, D.R. and Friess, D.A. (2015). A rapid indicator of cultural ecosystem service usage at a fine spatial scale: Content analysis of social media photographs. *Ecological Indicators*, 53: 187–195.
- Walden-Schreiner, C., Rossi, S.D., Barros, A., Pickering, C. and Leung, Y-F. (2018). Using crowd sourced photos to assess seasonal patterns of visitor use in mountain protected area. *Ambio*. DOI 10.1007/s13280-018-1020-4.
- Wood, S.A., Guerry, A., Silver, J. and Lacayo M. (2013). Using social media to quantify nature-based tourism and recreation. *Scientific Reports*, 3: 2976.