



Snapshot

Community photo-monitoring in Western Australia

Summary

Capturing landscape change over time by taking a series of photographs—known as photo-monitoring—is a useful tool for decision makers.

An NRM organisation in Geraldton has teamed up with coastal councils and community volunteers to monitor more than 90 coastal sites between Guilderton and Kalbarri on the Mid West Coast region of Australia. At these sites, volunteers regularly take photos that are then uploaded to an online database. More than 10,000 photos have been added to date allowing decision makers to better understand coastal erosion as well as weed control.

A specially developed smartphone app, Photomon, makes field photo-monitoring easier for volunteers and citizen scientists, and also reduces the administrative burden usually associated with photo-monitoring programs.

The app includes immediate photo-labelling and upload. Its design helps ensure that all photos have a consistent field of view; this allows for more accurate measurement of environmental change over time.

It starts with the community

Community concerns about coastal erosion throughout the region led the Northern Agricultural Catchment Council (NACC) to develop a Community Photo-Monitoring Program to assist in coastal adaptation planning.

NACC's Coastal and Marine Program Coordinator, Dr Mic Payne, knows that a Photo-Monitoring Program can be a great way for community members to contribute to citizen-science projects in the NACC Natural Resource Management (NRM) region.

"Photo-monitoring is an effective way to document environmental change over time, thereby providing historical information to aid decision-making by resource managers," Dr Payne Said.

"This program was born out of community concerns for coastal erosion and provided a platform to get more of our local community members/volunteers, and environmental groups involved with a citizen-science monitoring program, to assist in this coastal adaptation planning."

Keywords

Photo-monitoring, community, citizen science, coastal adaptation planning, coastal erosion, weed control, smartphone app

Erosion is a huge issue in the region. It's an issue for all stakeholders, particularly the coastal land managers or local government authorities who are charged with the task of managing for sea-level rise, coastal erosion and inundation." (Dr Mic Payne).



Figure 1: Community member using Photomon in Kalbarri. Source: © NACC.

On the move for better monitoring

Previously, an aerial survey of the state's coastline had been conducted by the WA Department of Transport once every five years. Plus, several local shires had started their own photo-monitoring programs.

However, Dr Payne and his team recognised the shortcomings. "As a team, we found receiving data every five years wasn't providing us a lot of resolution toward coastal adaptation planning. So much changes in the coastal environment in that time frame, and aerial photography relies on the vegetation which isn't the same as the coast line", he said.

Through this fusion of technology, innovation and on-ground action, volunteers from along the coast take photos regularly at their selected sites, either on their mobile phones or digital cameras. These are then uploaded to an online database.

An exciting innovation to the Community Photo-monitoring Program is the smartphone app 'Photomon' that was developed by NACC to make field photo-monitoring easier. This is especially important for volunteers and citizen scientists as it reduces the time and effort usually associated with photo-monitoring programs.

To date, more than 10,000 photos have been added to the Photomon database.

The app is designed specifically so that all community members can get involved, regardless of their technological ability, and includes immediate photo labelling and uploading options. It also has a site-specific guide photo to ensure all photos have a consistent field of view, which allows more accurate measurement of environmental change for each location.

Photomon for the future

Photomon is already having a tangible impact on coastal management. Photos from around Point Moore have been used by WA's Department of Transport to improve coastal adaptation planning in the City of Greater Geraldton. In addition, the Department will use the monitoring data from the Shires of Gingin and Dandaragan to inform current and future plans for these regions.

NACC also uses Photomon to assess its revegetation and weed control programs and makes changes based on what the photos show. In fact, all recent revegetation projects funded by WA's State NRM Program are required to use Photomon. Seedlings planted last winter are now being monitored and the resulting data will be used to evaluate the success of revegetation projects.



Figure 2: Some of the towns participating in NACC's Photo-Monitoring Project. Source: © NCCARF 2016.



Figure 3: NACC Coastal & Marine Project Officer Hamish Longbottom showing a community member how to use the Photomon App. Source: © NACC.

As a result of the photo-monitoring program and Photomon app, more community members are getting involved in helping their local coastal environment. To date, more than 10 000 photos have been added to the database, from locations within the NACC NRM region.

NACC was recently awarded additional funding through the Western Australian Government's State NRM Program to expand Photomon Services even further. This expansion will improve the range and uptake of the service. More NRM practitioners with environmental monitoring projects will be able to use this resource (combined app and online database system) to effectively document environmental changes over time.

Further reading

All links accessed 15 June 2017:

Photomon: Community photo-monitoring information and links to app: www.nacc.com.au/project/beach-photo-monitoring

Photomon Services Flyer: <http://www.nacc.com.au/wp-content/uploads/2016/11/32935-Photomon-Env-Monitoring-v2.pdf>

Photomon Services Article: <http://www.nacc.com.au/photomon-services-improving-way-monitor-change/>

YouTube video of changes seen using Photomon across the Northern Agricultural Region (NAR): A year of change in 2 minutes: <https://www.youtube.com/watch?v=rL8i5gbSnwo>.

This snapshot was prepared by NACC Coastal and Marine Project Officer Vanessa McGuinness.

Please cite as: McGuinness, V., 2017: Community Photo-Monitoring in Western Australia. Snapshot for CoastAdapt, National Climate Change Adaptation Research Facility, Gold Coast.



natural resource management program



Australian Government

Department of the Environment and Energy