



**Wildlife Preservation Society of Qld  
Coastal Citizen Science**

**2014 Summary Report:  
Seagrass and Mangrove Monitoring**

**in Moreton Bay - South-East Queensland**





January 2015

## *Colleagues in Conservation*

The Moreton Bay Community Seagrass & Mangrove Monitoring Project is conducted by Wildlife Preservation Society Qld (WQ) Coastal Citizen Science (CCS). It is made possible by a dedicated network of individuals, organisations, academics and corporations.

We thank the Brisbane Airport Corporation for their sponsorship; SEQ Catchments, Healthy Waterways, Port of Brisbane Pty Ltd and Logan City Council for their funding; and James Cook University – TropWater - Scientists, Moreton Bay Environmental Education Centre, Jacobs Well Environmental Education Centre and Tangalooma Resort for their in-kind support.

We especially acknowledge the generosity of the 'citizen scientists' as well as the interest and support of teachers and students from Whites Hill and Kimberley Colleges, Windaroo Valley, Browns Plains, Park Ridge and Beenleigh High Schools who have volunteered their time to enable a better understanding and management of these valuable ecosystems.

*Thank you for helping us to 'keep the wild alive'.*

Wildlife Queensland Coastal Citizen Science Team



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Photo courtesy Robert Ashdown



## 1.0 Introduction

Wildlife Preservation Society of Qld (WQ) and its project partners are aiming to increase community awareness about the value of seagrass and mangrove habitats; to improve the community's capacity to monitor these habitats in a scientifically robust way, and to compile a regional database of citizen science-sourced seagrass and mangrove data to contribute to managing these valuable resources.

This report presents a summary of the surveys and educational activities coordinated by WQ in South East Queensland (SEQ) during 2014. Details of data and analyses, including seagrass monitoring on the Gold Coast is available in the [June 2014 Report](#).

### 1.1 The role of Wildlife (Preservation Society) Queensland

The Moreton Bay Community Seagrass & Mangrove Monitoring Program is a project of the Wildlife Preservation Society of Qld (WQ) and is supported by the Brisbane Airport Corporation Department of National Parks, Recreation, Sport and Racing, the Wildlife Preservation Society of Queensland, Bayside and Logan Branches, Healthy Waterways Ecosystem Health Monitoring Program (EHMP), SEQ Catchments and Tangalooma Resort.

The majority of funding is received from the Brisbane Airport Corporation with valuable funds from WQ Bayside Branch, SEQ Catchments and Healthy Waterways. Throughout 2014 additional funding was received through the Port of Brisbane Pty Ltd Community Grants and Logan City Council's EnviroGrant.

WQ is the oldest, largest, wildlife-focused conservation group in Queensland. Now in its 51st year, it has long supported and participated in scientific research. Although a state-wide organisation WQ retains a strong grass-roots approach made possible by the dedication of members from various branches. This enables the management-support and participation of volunteers in nine citizen science projects including Seagrass-Watch and Mangrove Watch which are the focus of this Report.

Given the ongoing pressures on coastal zones, particularly on the east coast of Queensland, monitoring seagrass and mangroves is increasingly important because participants are filling the gaps in research that governments can't or won't fund. Analysis of the data can detect early signs of change which is necessary for good coastal management.

WQ is a not-for-profit organisation and funds its Citizen Science activities with sponsorship, grants and in-kind support from other NGO's, business, corporations and government departments. Underlying this and making it all possible, is the generous input of volunteers of all ages and from all walks of life.

Indicative of the importance of monitoring our marine environment WQ adopted a new branding for its coastal monitoring activities -"Coastal Citizen Science" (CCS) during 2014.○



## 1.2 Citizen Science in Moreton Bay

Mangroves and seagrass are indicators of aquatic health, they provide early warning signs of change and stress in the coastal environment, so much so that they've been dubbed 'the coastal canaries'. These ecosystems provide a myriad of benefits and need to be carefully managed.

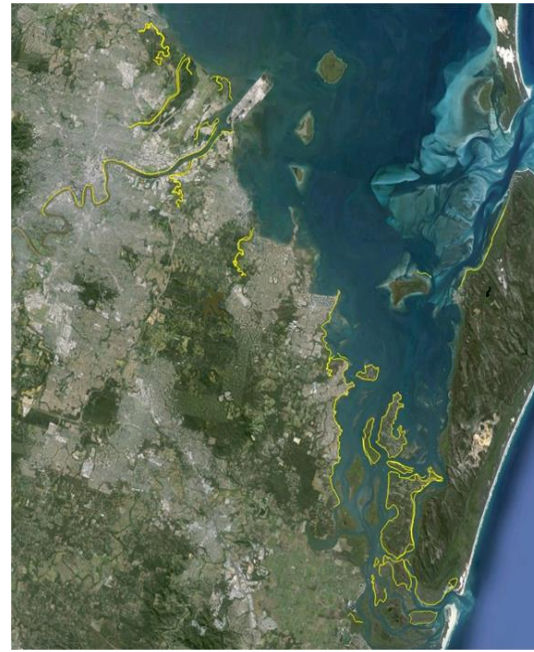
But to manage we need to monitor, and professional science especially field-based data collection, is expensive. So in South-East Queensland (SEQ) and around the world, amateur researchers who collect data for scientific purposes – citizen scientists - are volunteering to fill the knowledge gaps

WQ has been supporting seagrass and mangrove monitoring projects in SEQ since 1999 and 2009 respectively. This monitoring has been undertaken by volunteers trained in the scientifically robust methodologies i.e. Seagrass-Watch and MangroveWatch.

Over the past decade, in SEQ and around the world, citizen science has grown rapidly and is increasingly recognised as an important and credible tool for managing our natural capital and for empowering local communities.



Seagrass monitoring locations



Mangrove monitoring locations






**FAST FACTS** During 2014, 91 Citizen Scientists volunteered 565 hours to monitor seagrass and mangroves. Seagrass data was collected from 20 sites covering 50,000m<sup>2</sup> (5 ha); 5,000m<sup>2</sup> mangroves were monitored using transect lines and quadrats; and, 150 kilometres of mangrove shoreline was monitored by SVAM crews.

## 2.0 Monitoring Moreton Bay

There are three, two-month monitoring periods per year for monitoring seagrass in Moreton Bay: March-April, July-August and November-December.

Mangrove monitoring using transects and quadrats is conducted at similar durations and times to seagrass monitoring, while MangroveWatch' s Shoreline Video Assessment Methodology (SVAM) ideally takes place at the end of seasons i.e. March-April-May and September-October-November.

**Mangrove and seagrass monitoring months in Moreton Bay**  
SGW=Seagrass-Watch; MWT=MangroveWatch (Transect methodology); MW SVAM= MW Shoreline Video Assessment Methodology

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SGW												
MWT												
MW SVAM												

- ◆ Depending where you are and whether you want to capture seasonal variances, monitoring seagrass can take place one, three or four times per year. Mangroves can be monitored using the SVAM once or twice per year, generally at the 'end of seasons' while transect monitoring can be conducted three times per year.
- ◆ Monitoring seagrass and mangroves even just once a year can provide good data for comparative analyses. The important thing is to be consistent with the timings and monitor as closely as possible to the established quarterly, half-year or annual dates.
- ◆ And, take care when in these habitats to avoid damage to the sea grass and mangroves, and to avoid injury to you and members of your team. Always check weather, wear protective clothing and advise others of your location and the estimated duration of your monitoring.

<b>MangroveWatch (SVAM – Shoreline Video Assessment Method)</b>	<b>Mangrove Watch Transects</b>	<b>Seagrass Watch Transects</b>
		
		
<b>Devised by Marine Scientists at James Cook University, NQ</b>	<b>Devised by WPSQBB with Dr Norm Duke</b>	<b>Devised by Scientists at Seagrass Watch Headquarters, NQ</b>





## 2.1 Seagrass



Moreton Bay supports eight seagrass species totaling about 25,000 hectares which occur in intertidal and sub-tidal areas.

Six Seagrass-Watch (SGW) monitoring sites were established in Moreton Bay in 2001; there are now 20 locations, some with multiple sites.

Citizen Scientists surveying seagrass in Moreton Bay use the Seagrass-Watch methodology. This entails a team of three-four who use a compass, tape measure, quadrat, camera and ruler. Teams assess and record species composition, the substrate, height and other variables.

During 2014 WQ provided seagrass monitoring resources and support to the Quandamooka Yoolooburrabee Aboriginal Corporation (QYAC), to the Noosa Integrated Catchment Association (NICA), the Moreton Island Protection Association (MIPA), and Coochiemudlo Island Coast Care Group.

Due to unfavourable weather conditions and/or a lack of resources (i.e. vessels are required to monitor off-shore locations) several of the seagrass monitoring locations were not monitored during the 2014 monitoring seasons.

Knowledge of seagrass has been enhanced during 2014 with the use of ArcGIS which provides another perspective to compliment on-ground monitoring. An example can be found at a webpage entitled [Wildlife Queensland Coastal Citizen Science Moreton Bay Seagrass sites](#).



## 2.2 Mangroves



The Moreton Bay Marine Park has about 13,500 ha of mangroves consisting of seven species and two methods of monitoring are utilised by WQ's Citizen Scientists:

The MangroveWatch transect-quadrat methodology is a hands-on, feet-in-the mud methodology involving the use of quadrats and transects devised by WPSQBB with assistance from world-renown Dr Norm Duke. It's a close up observation providing insights that couldn't be gained any other way. There are three monitoring periods per year: June-July; October-November; and March-April. MangroveWatch TQ (transect-quadrat) monitoring was conducted at Coochiemudlo Island and Cleveland.



The MangroveWatch Shoreline Video Assessment Methodology (SVAM) was devised by mangrove scientists Dr Norm Duke and Jock Mackenzie. It involves monitoring using video cameras, GPS and commentary while onboard a vessel travelling between 5 – 10 knots per hour. Ideally the vessel should be 25-50 metres from the shoreline on the mid-tide to enable data capture of both the canopy and the root systems.





### 3.0 Education and outreach



“Monitoring environmental conditions is fundamentally important . . . children are our best hope. We need to show them the difference between high and low quality environments because what humans have never known they never miss, not enough to fight for anyway. If we can do this, they will do the rest”.

Doug Cocks, Senior Ecologist, CSIRO Wildlife & Ecology Division



**FAST FACT** During 2014, 15 students contributed 65 hours to mangrove monitoring on-board the MBEEC’s vessel *Janjari* alongside their monitoring mentors, WQ Citizen Scientists.

## 3.1 Moreton Bay Environmental Education Centre

WQCCS has continued to work closely with the Moreton Bay Environmental Education Centre (MBEEC) during 2014, providing opportunities for students to have first-hand experience in the MangroveWatch (MW) program. Students have joined with mentoring partners onboard MBEEC's vessel 'Janjari' and experienced the various roles associated with the MangroveWatch MW Shoreline Video Assessment Methodology (SVAM). The students' mentors are citizen scientists from all walks of life and all ages and this provides an additional, valuable lesson: that learning is a life-long experience and that it can be fun.

The authenticity of working scientifically with the citizen scientists on-board Janjari in the Brisbane River, in various creeks, and in the waterways of Moreton Bay provide the students with a unique opportunity to learn the importance of mangrove habitats and to understand the pressures that Moreton Bay mangroves face.

The partnership also involves in-class activities, analyses and discussion with MW scientists from James Cook University and this classroom component has also proven to be beneficial. MW scientists have commended the students for 'their great interest and capacity to analyse the data. The Principal of White's Hill State College considers the "MangroveWatch program and the partnerships that deliver it are just brilliant".

This indicates that there is potential for schools to adopt a creek or shoreline and complete the data collection and assessment process from start to end.

The WHSC-MBEEC program is supported by WPSQ which provides funding for the vessel, coordinates the citizen scientists, and commissions the analyses and reports. The support WQ provides the program is made possible through sponsorship from the Brisbane Airport Corporation and support from SEQ Catchments and Healthy Waterways.

This partnership program was a Finalist in the Sustainable Education category of the 2014 Healthy Waterways Award.



## 3.2 Jacobs Well Environmental Education Centre

The Logan River is now part of a mangrove monitoring project involving students from Windaroo Valley, Browns Plains, Park Ridge and Beenleigh State High Schools, Kimberley College and some Logan residents.

After undertaking MangroveWatch training conducted by James Cook University scientists, and armed with equipment provided by WQCCS the students and residents took to the waters onboard vessels skippered by Jacobs Well Environmental Education Centre (JWEEC) staff. They then put their new-found skills to work gathering data which can be used to inform decision-making about natural resource management.

The Logan River MangroveWatch program was initiated, and is being coordinated by, WQCCS with participation from WQ Logan Branch. It has been made possible with funds from Logan City Council's (LCC) EnviroGrant, WQCCS supported by BAC, JWEEC and MangroveWatch.

WQ consider it the type of partnership project that will deliver multiple, positive benefits and are pleased to have received funding from LCC and valuable in-king support from the other stakeholders. More monitoring will take place in the 2015 as well as an event at which the data analysis will be presented by JCU MangroveWatch scientists.





## 4.0 Partnerships and support

During 2014 WQCCS provided seagrass and mangrove monitoring resources and support to:

- Oxley Creek Catchment Association
- Quandamooka Yoolooburrabee Aboriginal Corporation
- Currumundi Catchment Care Group
- Night Eyes Water & Land Care Group Inc
- Redcliffe Environmental Forum
- Coochiemudlo Island Coast Care Group
- Moreton Island Protection Association
- Jacobs Well Environmental Education Centre



## 5.0 Awareness raising

WQCCS currently has a database of over 400 persons who receive quarterly newsletters and intermittent news updates on seagrass and mangrove-related matters.

In addition to newsletters, webpage and email communication, WQCCS continue to provide face-to-face, hands-on, personal approach to engaging with the community.

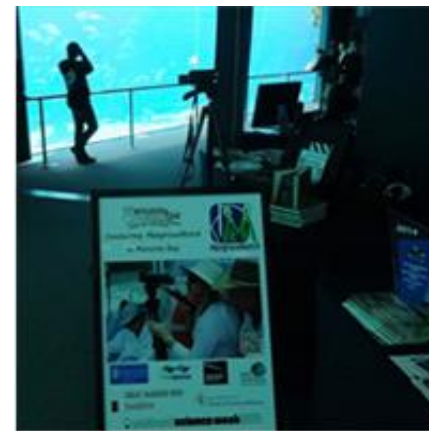
A number of events and activities were undertaken and participated in so as to increase the community's awareness, to engage support and to improve capacity for participation:

- February: World Wetlands Day Training and Art Display in collaboration with Healthy Waterways and the Oxley Creek Catchment Association
- May: Healthy Waterways Connect to Creek Week "Community Film Night" event in collaboration with Redland Centre for Women
- May: Healthy Waterways Connect to Creek Week event "Meet your Mangroves" in collaboration with Wynnum-Redland Canoe Club
- June: WQ MangroveWatch Citizen Scientist Geoffrey Redman awarded the Healthy Waterways Volunteer of the Year Award
- June: WQ-JWEEC-Whites Hill College Mangrove Monitoring-Mentoring Project a Finalist in Sustainable Education category of Healthy Waterways Awards
- June: Presentation at Redland City Council BushCare Groups Social Day
- July: World Mangrove Day event "Managing Moreton's Mangroves" in collaboration with Brisbane Airport Corporation and MangroveWatch
- July: World Mangrove Action Day at the PoB as part of the Peaks to Points Festival with support from Port of Brisbane Pty Ltd, OCCA and MangroveWatch





- August: “D’art’a” a mangrove-themed art exhibition and presentation at the Commissariat Store as part of National Science Week in collaboration with MangroveWatch
- August: “Care for our Coast Community Science Day” as part of National Science Week hosted by Reef Check Australia with support from SeaWorld
- August: “Corals at your Doorstep” hosted by CoralWatch as part of National Science Week
- August: MangroveWatch Training in collaboration with Jacobs Well Environmental Education Centre and MangroveWatch with support from Logan City Council
- November: “Moreton Bay Research Station Open Day” hosted by University of Queensland Moreton Bay Research Station



In addition to the aforementioned, throughout the year WQCCS representatives have:

- attended numerous meetings and events including the MBEEC’s Bunya to Bay Event; the inaugural Citizen Science Network Australia meeting, a Citizen Science Alliance meeting, and met with Queensland Herbarium scientists
- participated in the CSIRO ‘Scientists and Mathematicians in Schools’ program and the Australian Marine Sciences Association Qld Branch’s ‘Science in the Pub’
- liaised with Nudgee Beach Environmental Education Centre, Tony Auden, meteorologist and Channel 7 Weather Presenter, SMBI Coast Care and various organisations and individuals.








## 6.0 Planning for 2015



- ✓ continue to engage with Quandamooka Yoolooburrabee Aboriginal Corporation, educators, representatives of commercial and recreational fishers, other groups, individuals, sponsors, supporters and our existing Citizen Scientists
- ✓ provide support to the Bribie Island Environmental Protection Association, Eprapah Creek Catchment & Land Care Group and the newly-established SMBI Coastcare, to undertake mangrove and /or seagrass monitoring
- ✓ introduce a workplace-staff community service day
- ✓ reintroduce the Moreton Bay Community Dugong Watch an initiative of WQ Bayside Branch
- ✓ lobby elected representatives and government bureaucrats to act on recommendations in the *2012 Moreton Bay Data Summary Report* and subsequent reports
- ✓ complete the Logan City Council's *EnviroGrant* Logan River mangrove monitoring program
- ✓ conduct events and participate in commemorative days to raise awareness- amongst the broader community.



  and  
...the QUIRKIEST MOMENT to date...  
a fish leaping onboard as *Janjari*  
motored along during a MW session



**What will 2015 bring?**

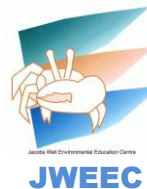


## 7.0 Acknowledgements

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THANK YOU  
ONE AND ALL!

