

VICTORIAN COASTAL MONITORING PROGRAM NEWSLETTER

July 2021

WELCOME

Hello VCMP Citizen Scientists, and welcome to the VCMP newsletter. It's been a while since the last newsletter, and in that time, we've seen many changes to the VCMP program. The five COVID-19 lockdowns experienced in Victoria have caused numerous issues, but despite these setbacks we have managed to keep the program running, and even extended it past the December 2020 end date and into 2021! The VCMP Science Team would like to thank you all for your continued support in the VCMP during some very challenging times.

We had some staffing changes at the beginning of 2021. Karina Sorrell finished up as the field researcher on the VCMP at the start of June, and moved to Hobart with her partner Ben, who also briefly worked for us. Karina was an amazing team member and was instrumental in the success of the VCMP to date. We wish her all the best in her pursuit to work on seabirds in the Antarctic Circle. While we are sad to see Karina go, we have been very fortunate in welcoming Jesse Sago to our team. Jesse commenced work with the VCMP in February, learning from myself and Karina, and took over the field researcher role when Karina moved to Hobart. Jesse has a background in landscape architecture, and has over 5 years of experience working as a commercial UAV operator and trainer. Jesse is based near Wonthaggi and has always had a passion for the environment and conservation. Given his geographic position, he will be the contact and assisting groups in greater Melbourne and eastern Victoria.

The 2021 expansion has also introduced new mapping sites in Port Phillip Bay. We are now mapping in Sandringham, Patterson River, Dromana/McCrae, and Blairgowrie, and will soon be introducing a location at Altona. These 5 sites have been strategically placed to understand the sediment movement in Port Phillip Bay, and at locations of high importance to the government. The addition of these sites also brought a new DELWP team member to the VCMP: Dr Jak McCarroll. Jak is a Marine Data Scientist, and is featured in the "Meet the Researcher" section of this newsletter, so please read it to learn more about him. Welcome Jak!

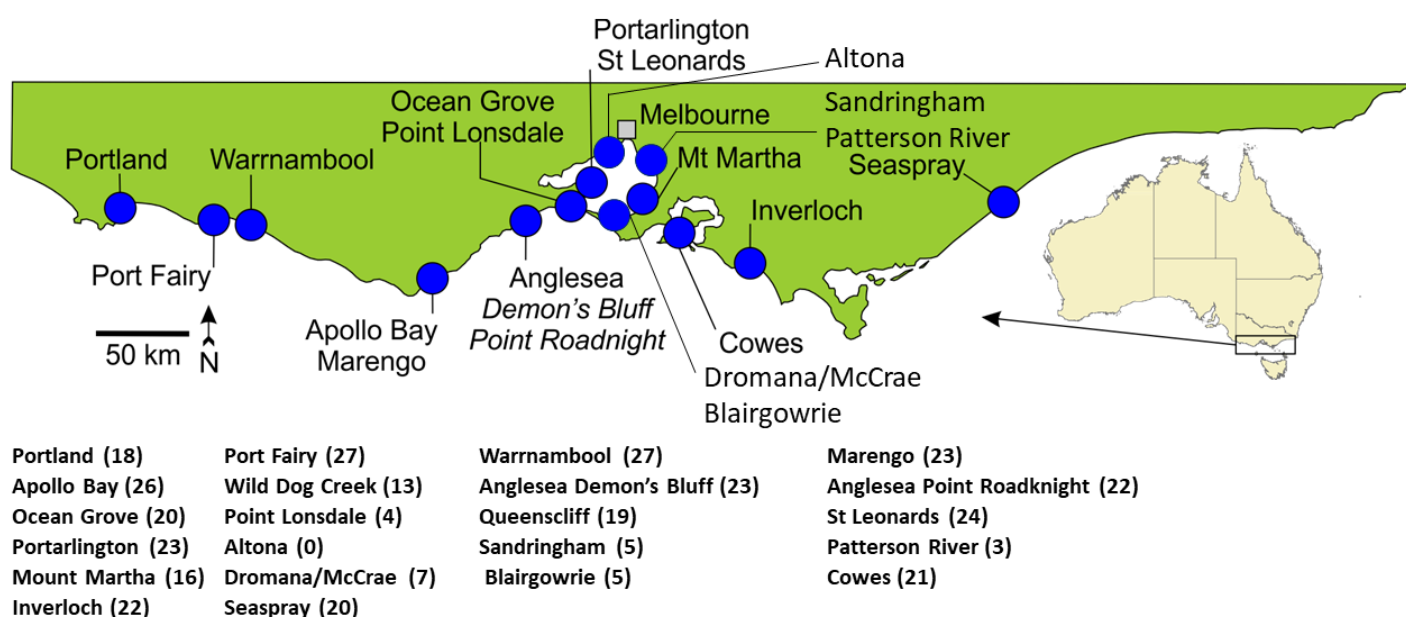
Finally, there have been some additional changes to the CASA regulations regarding the registration of UAVs. All UAVs used commercially in Australia now need to be registered with CASA, as well as pilots holding the Operator Accreditation. While you each need to obtain your own free operator accreditation, the VCMP will be registering all the UAVs, so you do not need to register them.

Thank you all for your continued support in the VCMP during some very challenging times. If you have any questions or concerns about resuming mapping, please don't hesitate to contact me on b.allan@deakin.edu.au

- Dr Blake Allan
UAV Citizen Science Co-ordinator

PROGRESS

The data collection continues to grow despite all the current challenges! We have hit an amazing milestone of 368 datasets (372 datasets if we include Skenes Creek). This is a huge accomplishment for the program, and well beyond the 300 datasets we initially aimed for. The image below lists the VCMP sites and the number of datasets collected.



Map depicting all VCMP Citizen Science sites in Victoria. The table indicates the number of datasets collected. Sites marked with *Sci* are also mapped by the Science Team. Wild Dog Creek and Skenes Creek are collected sporadically. Point Lonsdale is only mapped by the Science Team.

At some of these sites, we have interspersed your Citizen Science collection with Science Team surveys. Science Team surveys often cover a longer distance, or in the case of Point Lonsdale, locations not mapped by Citizen Science Groups. Wild Dog Creek and Skenes Creek are beach renourishment sand sites for Apollo Bay, and are mapped when requested by the Department of Environment, Land, Water and Planning (DELWP).

UPCOMING MAPPING DATES

We've had several interruptions to the VCMP mapping schedule over the past months due to the snap lockdowns. As such, I'm sure many of you are not sure when the next mapping will be at your location. We've put together the below. Please note that these are only tentative dates, are subject to the weather. The VCMP team will be in touch with you to organise the specific time.

Location	Proposed Date	Location	Proposed Date
Portland	23/09/2021	Sandringham	2/09/2021
Port Fairy	22/09/2021	Patterson River	20/09/2021
Warrnambool	6/09/2021	Mount Martha	24/08/2021
Apollo Bay	13/08/2021	Dromana/McCrae	23/08/2021
Anglesea	13/08/2021	Blairgowrie	23/08/2021
Ocean Gove/Queenscliff	10/09/2021	Cowes	26/08/2021
St Leonards/Portarlington	10/09/2021	Inverloch	24/09/2021
Altona	16/08/2021	Seaspray	10/09/2021

MEET A VCMP RESEARCHER

Jak McCarroll, Marine Data Scientist, Department of Environment, Land, Water and Planning (DELWP)

Jak McCarroll started his scientific career in 2009 as a hard-rock geologist, exploring epithermal gold deposits in Sumatra, Indonesia. It became clear during this time, while spending many hours staring at drill core, that it would be more fun to be surfing. As a result, Jak opted in 2014 for a PhD in coastal processes, joining the team of 'Dr. Rip' at UNSW on a project involving the strapping of GPS units to the heads of volunteers (i.e., citizen scientists), and tracking them as they attempted to escape from rip currents, in waves up to 2 m high. By comparison, it could be said that citizen scientists these days have it relatively easy.



Figure 1: Jak at Start Bay, UK in 2018 after a storm, during a single-beam echosounder survey. If you look closely, you can see the remains of a road sitting on the beach in the background.

After completing his PhD, Jak became a lecturer at Sydney University, including field trips to Heron Island, exploring coastal processes on coral reefs. In 2016 Jak moved to the UK for a postdoc, joining the Coastal Processes Research Group at Plymouth University, a team renowned for conducting beach surveys and wave measurements during extreme storms, the coastal science equivalent of 'storm chasing'. The aim of the UK project was to determine 'total sediment budgets' for coastal cells, attempting to observe, and then model, all the sources of sand that can enter and leave a beach system, including fluxes with the sub-tidal shoreface, wind transport to the dunes and bypassing of sand around headlands. Understanding total sediment budgets is critical to comprehending how coasts have changed in the past, and how they are likely to change in the future, in particular under accelerating sea level rise and changing wave climates. One of the sites Jak studied during his time at Plymouth was



Figure 2: Hallsands, UK, before the storm hit. A bit colder than typical working conditions for beach scientists in Australia. Jak took the photo.

Start Bay, where a 3-month 'storm survey' was conducted including wave buoys, boat surveys (Fig. 1), topographic surveys, drone surveys, current meters, pressure sensors drilled into rock platforms, 5-m waves collapsing on to gravel beaches, and plenty of snow (Fig. 2). In 2019, Jak travelled to South Africa to investigate how Abalone spawn are transported around high-energy rocky reefs by waves and currents.

Jak returned with his family to Australia in 2020 (via airport quarantine), and joined the Victorian Coastal Monitoring Program (VCMP) last December as a Marine Data Scientist with DELWP. He is now focussed on bringing his understanding of sediment budgets to shed light on the dynamics of the Victorian coastline, acting as a conduit between university researchers and government to ensure that data from the VCMP are used to inform coastal management. Jak has authored over 50 articles on coastal processes and coastal hazards.

SITE SNAPSHOT - ANGLESEA: DEMONS BLUFF

This issue's Site Snapshot is Demons Bluff in Anglesea. This is one of two locations we map in Anglesea, but is particularly interesting as it's the only site where we monitor cliff collapse. The cliffs at Anglesea are composed of layers of soft siltstones and sandstones, deposited up to 45 million years ago then uplifted and slowly eroded landward. Due to the softness of the rock, these cliffs are easily eroded, and have experienced several slips and collapses. On high tides, the water reaches the base of the cliffs, and wave action erodes the base, causing fractures in the cliff face and eventually collapse. These cliffs get as high as 50 m, so cliff collapses can pose a significant risk to people on the beach.



We're not going to talk about volumes of sand for this beach, instead we're going to look at which sections have collapsed over time. We began mapping the Anglesea cliffs on June 20th, 2018, and the most recent mapping run is almost exactly 3 years later, on June 21st, 2021. In the image below, we have highlighted all the locations of cliff collapse with a semi-transparent red shading to highlight the locations. As the images show, there have been

several different cliff collapses over the past 3 years, and by using the time series data, we can identify approximately when each happened. We intend to analyse the cliff collapse, and compare them to storm surges to look for patterns.

Shortly after the VCMP mapping began, the cliff-top walk at the eastern end of the mapping zone was closed due to risk of cliff collapse, and as the images show, sections of the cliff over 30 meters tall in this region have indeed fallen in the past few years. The debris can be seen at the base of the cliff. At the beginning of 2021 the Demons Bluff beach was closed indefinitely to the public, as the



number of people sitting against the cliff for shade, or walking along the base was deemed too dangerous. We will continue to monitor the cliff for fracturing and collapse.

INVITATION TO VCMP ONLINE FORUM - TUESDAY AUGUST 31st

We would like to invite all the VCMP Citizen Scientists to an online forum, to be held on Tuesday, 31st August, from 5:30 to 7:30 pm. A calendar invite will go out to all recipients of this newsletter shortly.

The purpose of the meeting is for researchers to thank the citizen scientists, and to celebrate some of the great science that has been produced as part of the VCMP, with so much of that valuable data being collected by our citizen groups. The meeting will include informal presentations by some of the VCMP researchers. We will then open up the floor to questions and open discussion.

We will also update you on some of the challenges the VCMP has faced, and how the program may evolve over the coming months. COVID-19 has brought challenges to all aspects of life, including our beach monitoring program. In addition, our equipment is ageing, and the program is reaching the end of the initial phase of government funding. What remains certain is that citizen science volunteers are vital to the project, and we want you to remain committed and keep participating!

RPA OPERATOR ACCREDITATION

CASA have introduced a new < 2 kg accreditation called the “RPA Operator Accreditation”. The accreditation is an online test of 18 multiple-choice questions regarding the rules and regulations surrounding the < 2 kg Excluded Category. You must get 16/18 correct to pass (85%). If you fail, you can re-sit the test. The time limit for the test is unlimited, but 30 minutes is recommended. CASA have developed both a video and a pdf document which cover the regulations. We recommend using a computer to do the test if possible (not a phone or tablet/iPad). Further information about the accreditation can be found here: <https://www.casa.gov.au/drones/accreditation>

This new accreditation is live now, and must be obtained by all Citizen Scientists who wish to fly the UAVs. You are not required to complete the RPA Operator Accreditation if you have an RePL drone license. Once you complete the accreditation, you must carry a copy of your certificate (or RePL) on you while flying. Please also submit a copy of your accreditation/RePL certificate to Blake and Kimberley (b.allan@deakin.edu.au kimberley.macdonald@delwp.vic.gov.au) for our records.

ASK A RESEARCHER

In future editions of the VCMP Newsletter, we would like to provide an opportunity for you to engage with our research team and ask any questions you may have. If you have a question, please email it to vcmp@deakin.edu.au with the subject line “Ask a Researcher” and we’ll do our best to answer them and include them in the next issue. Please indicate in the email if you would like to remain anonymous.

SHARE YOUR STORY

From the Apollo Bay VCMP group - Using Safety Vests

Whilst the use of safety vests makes you very conspicuous on the beach, we have found they do help. They identify you as doing some form of responsible approved work not just 'flying an annoying drone taking pictures of people on the beach'. Some people then respect that you're working and give you space to carry on with your job.



Apart from the obvious, that the members of the group are visible along the beach, the vests also invoke a sense of safety and standards. We have also found that the public feel comfortable to approach you and ask more about the programme and what are you doing which is a great chance to recruit volunteers.

The vests were purchased from a 'dollar' shop for \$3, a stencil saying 'COASTAL SURVEY' made using a computer and then simply placed under the vests and traced on with a black felt pen. Cheap, but also, we have found very effective when worn.



The VCMP team believe that safety vests identifying our team members are a wonderful idea, and we will be organising for each community group to receive safety vests in the upcoming weeks.

If you, or your Citizen Science group would like to share your story or an article or photos about your group, we would love to include them in our next edition. Send your ideas and photos to vcmp@deakin.edu.au with the subject line "Content for VCMP newsletter" and we'll be in touch to include your content in the next newsletter.

OTHER MARINE AND COASTAL NEWS

Interested in hearing more about the work being undertaken in marine and coastal management in Victoria? The quarterly 'DELWP marine and coasts newsletter' shares news about DELWP's work across the marine and coastal space, from policy and strategy to coastal protection projects. The newsletter also includes Coastcare Victoria's 'Coastline' publication.

For the latest issue and to subscribe visit marineandcoasts.vic.gov.au/newsletter.

CHALLENGES AND UPDATES

The equipment for the VCMP was originally meant to last 3 years, and as we enter the 4th year of operation, we're seeing significant wear and tear and issues with the UAVs and AeroPoints. The batteries in both in the AeroPoints and in the UAVs will have suffered from inactivity, and may not turn on. If any of your equipment isn't working correctly, please let Blake know ASAP and he will organise to have it repaired or replaced. Before your next mapping run, please ensure that you have at least 9 AeroPoints which turn on (SOLID RED LIGHT), and that all your UAV batteries are charged (4 GREEN LIGHTS).

We are also aware that UAVs are starting to become unreliable in their flying. Since resuming operations after the long 2020 lockdown, we have identified issues with the DJI Phantom 4 at Bellarine, Portland, ANglesea and Mount Martha. We have either replaced these drones or will replace them before the next flight operation. In most cases, the Phantom 4 needed a firmware reset and update, as well as the software on the iPad. If you are experiencing any difficulties with your equipment, please contact the us at vcmp@deakin.edu.au

If you have experienced any other difficulties or challenges you would like to share, please contact us at vcmp@deakin.edu.au.

