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Change Week



# Sustainability impacts in our region

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**Wednesday, 20 October 2021**



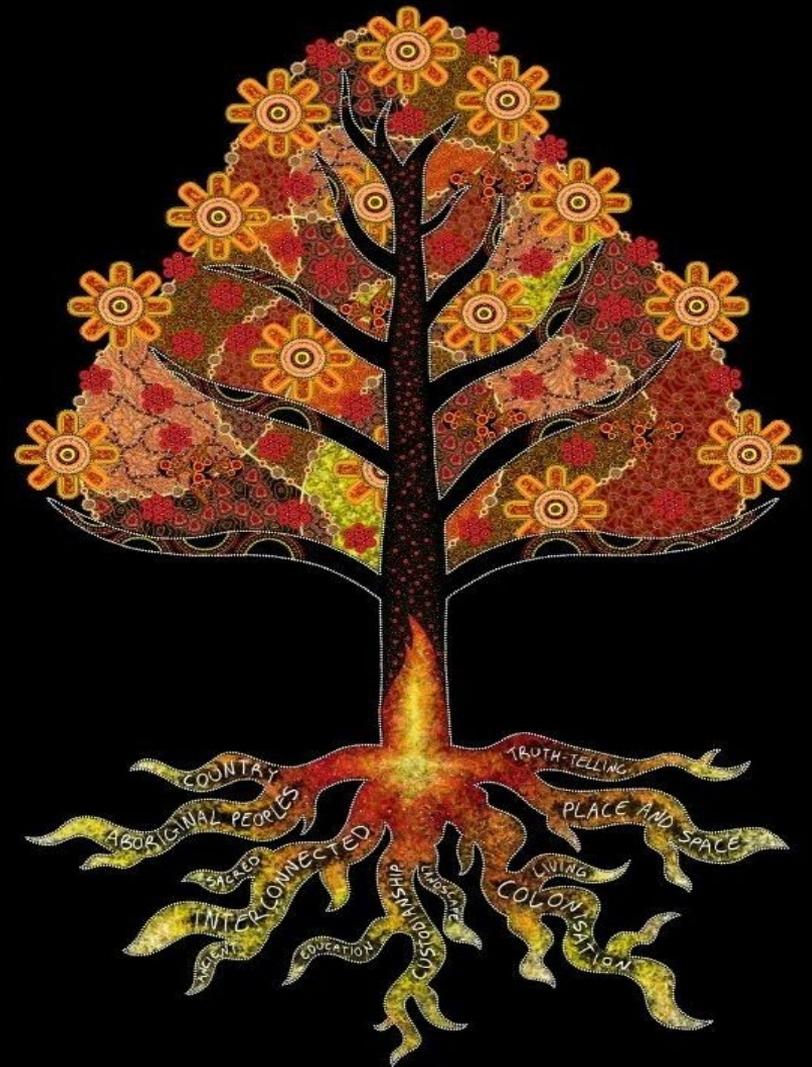
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# Acknowledgement of Country

**CREATED BY INDIGENOUS STAFF AND STUDENTS AT  
UOW**

**Artwork by Samantha Hill**



# Sustainability impacts in our region

## SPEAKERS

- **Josie Atkinson:** Leadership in Ecohealth by First Nations people
- **Prof Thomas Astell-Burt:** Can urban greening strengthen community health and resilience?
- **Jenny Haining:** Wollongong City Council efforts and outcomes
- **Dr Nicholas Deutscher:** Verifying greenhouse gas emissions via atmospheric measurements
- **Jason Graham-Nye:** gDiapers: Can a Circular Economy nappy change the world?
- **Dr Marcella Bernardo Papini:** Selective waste collection – What it is, and why it is important
- **Dr Joshua Lobb:** Stories from the Continental Pool: past, present and imagined futures

# Selective waste collection – what it is, and why it is important

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**Marcella Bernardo – Associate Research Fellow**  
**SMART Infrastructure Facility**



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# What is selective waste collection?

## KERBSIDE RECYCLING

- Collection during which a waste stream is kept separated by type and nature to facilitate waste treatment
- There are different types of selective waste collection
- Interest: operational aspects of selective waste collection



Door-to-door [1]



Voluntary drop-off points [2]



Deposit scheme [3]

[1] [www.australianseniorsnews.com.au/news/no-rubbish-collections-today/](http://www.australianseniorsnews.com.au/news/no-rubbish-collections-today/)

[2] [www.9news.com.au/national/coles-redcycling-northern-territory-initiative/f436eb18-b779-4018-9484-5182496a873e](http://www.9news.com.au/national/coles-redcycling-northern-territory-initiative/f436eb18-b779-4018-9484-5182496a873e)

[3] Figure source: [www.theleader.com.au/story/5173665/menais-new-10-cents-refund-machines/](http://www.theleader.com.au/story/5173665/menais-new-10-cents-refund-machines/)

# Research projects about selective waste collection

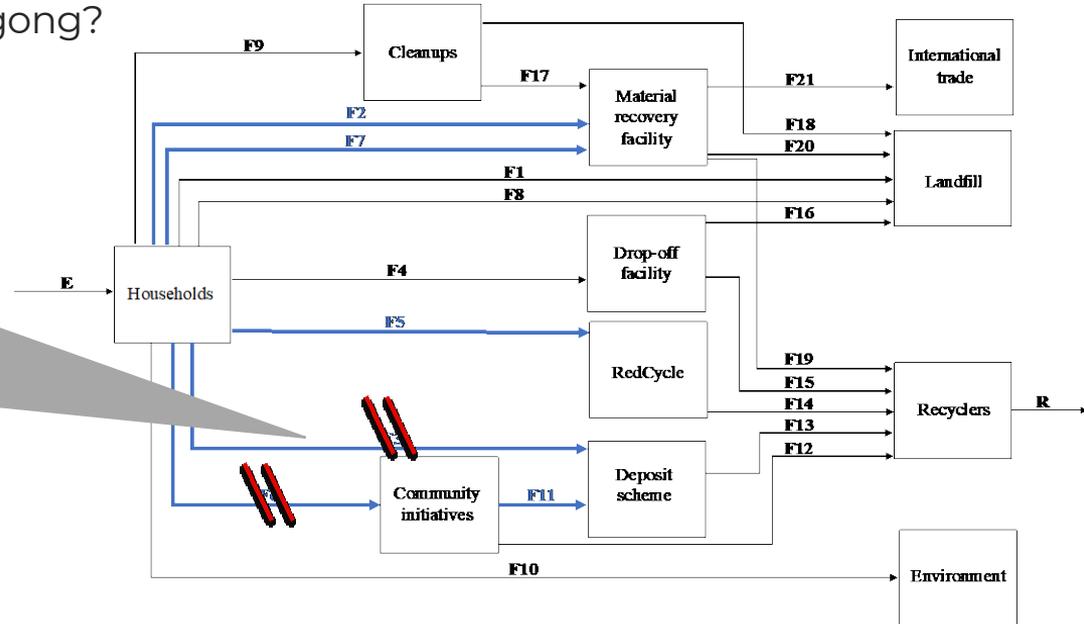


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- How has the pandemic affected selective waste collection systems in Wollongong?



Mapping of the waste management system in Wollongong

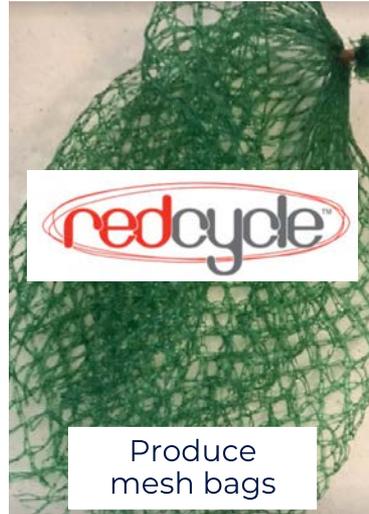
- Proposal submitted with a group of academics from the University of São Paulo to the most renowned Brazilian funding agency

# Why are these studies relevant?

## IMPORTANCE OF SELECTIVE WASTE COLLECTION

- It reduces waste environmental impacts
- It boosts waste recycling and recovery
- It facilitates the creation of a circular economy
- It has a social impact in developing countries

Where does it go?



## How can I do my bit?

Take charge of your waste!



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# Creating a Sustainable and Climate Healthy Wollongong

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## Council actions to date



## Six themes in the CCMP



**Climate Change  
leadership  
and planning**



**Waste**



**Energy efficiency and  
renewable energy**



**Trees and vegetation**



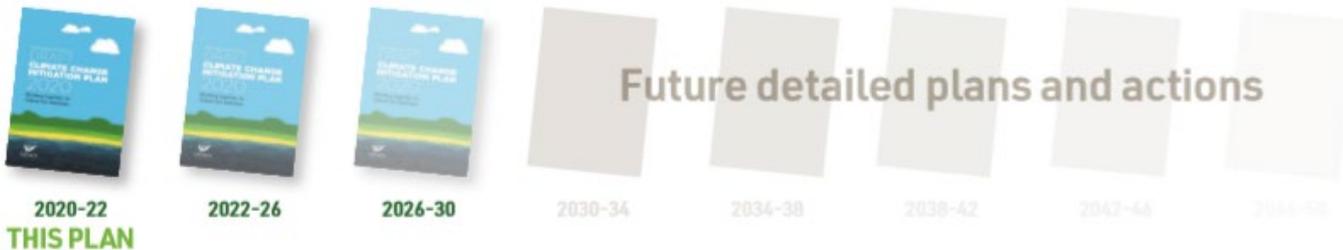
**Transport**



**Working with the  
Community**



## CLIMATE CHANGE MITIGATION PLANS



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## Key Climate Change Hazards

HEAT



STORMS



FLOODING



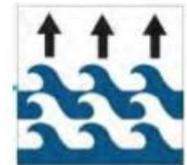
DROUGHT



BUSHFIRES



SEA LEVEL RISE



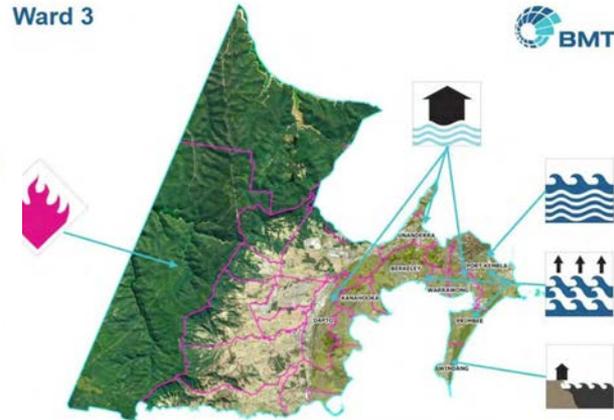
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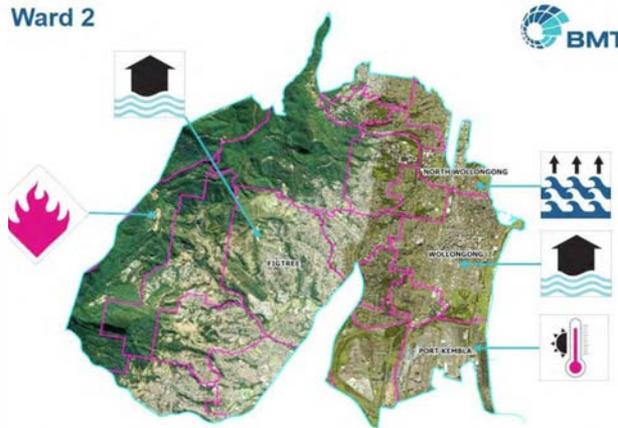
## Climate Risks per ward

Ward 3



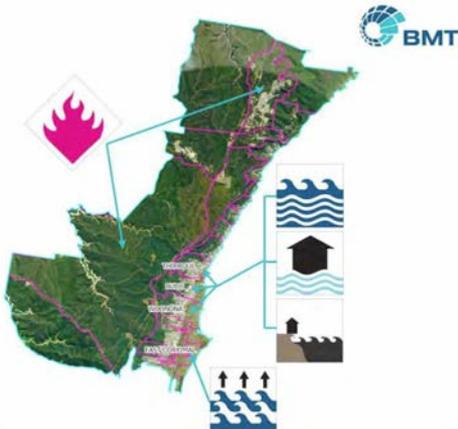
- Sea level rise**  
Primbee: most lots at high risk in 2050 and 2100  
Kanhooka/ Port Kembla/ Berkeley: large number of at risk lots in 2050 and 2100
- Storm tide inundation**  
Port Kembla: medium risk 2050 and 2100
- Erosion**  
Windang: high risk 2050 and 2100
- Flooding**  
Dapto: largest number of high risk lots in current day  
Unanderra/ Warrawang: medium risk in present day, 2050 and 2100
- Bushfire**  
Western parts of the Ward have large number of category-1 bushfire prone areas

Ward 2



- Sea level rise**  
North Wollongong: most high risk lots in present day, 2050 and 2100
- Flooding**  
Figtree: most high risk lots in present day, 2050 and 2100  
Wollongong: 2<sup>nd</sup> most high risk lots in present day, 2050 and 2100
- Bushfire**  
Western parts of the Ward have large number of category-1 bushfire prone areas
- Land surface temperature**  
Port Kembla/Springhill: highest Land Surface Temperature in summer (present day) compared to other areas

Ward 1



- Sea level rise**  
East Corrimal (highest population density): most high risk lots in 2050 and 2100
- Storm tide inundation**  
Thirroul: most high risk lots in present day, 2050 and 2100
- Erosion**  
Thirroul: most high risk lots in present day, 2050 and 2100  
Bulli: 2<sup>nd</sup> largest number of high risk lots in present day, 2050 and 2100 scenarios.
- Flooding**  
Thirroul: high exposure under all timeframes  
Bulli: high exposure under all timeframes
- Bushfire**  
Western parts of the Ward (including Helensburgh) have large number of category-1 bushfire prone areas



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## What is next?

- Adaptation Plan - public exhibition
- New Mitigation Plan under development
- Urban Greening Strategy implementation continues
- FOGO pilot in MUDs
- 100% greenpower PPA
- Landfill gas flaring and power generation scoping
- LED street lighting
- Solar PV installations...

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## Call to action Just do it.....

[www.wollongong.nsw.gov.au/about/environment/climate-change](http://www.wollongong.nsw.gov.au/about/environment/climate-change)

Subscribe to our newsletter

[www.wollongong.nsw.gov.au/my-community/sustainable-living](http://www.wollongong.nsw.gov.au/my-community/sustainable-living)

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# Measuring Atmospheric Greenhouse Gases

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Dr Nicholas Deutscher – ARC Future Fellow  
Centre for Atmospheric Chemistry (CAC)  
School of Earth, Atmospheric and Life Sciences (SEALS)



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# The problem

**How do we know actions to reduce greenhouse gas emissions are working?**

## Monitoring anthropogenic emissions

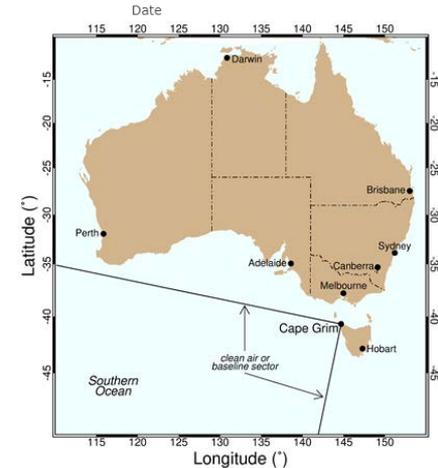
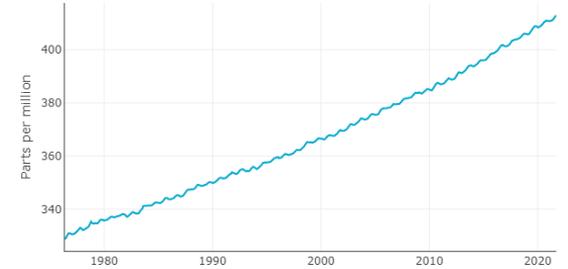
- Bottom-up estimates:
  - Facility/industry level emissions, scaled to country-scale estimates
  - Do we believe these?
  - Many assumptions

**Trust, BUT verify!**

- Top-down estimates
  - Measurements of atmospheric composition
  - Link to emissions (or uptake) information
  - Networks of complementary measurements
  - Local to global scales

Surface air sampling → sensitive to local scales

Satellite measurements → excellent spatial coverage

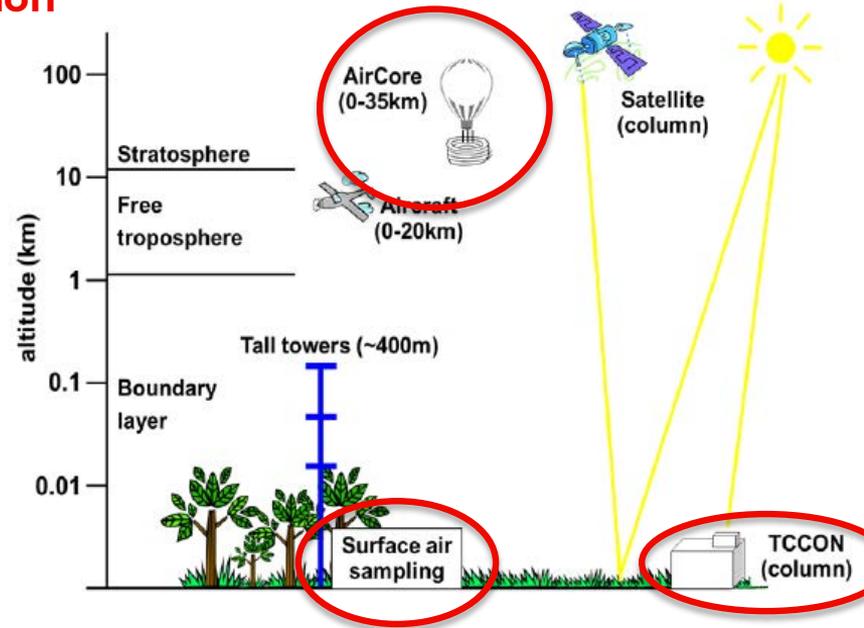




# Our role

## Measuring (and Modeling) Atmospheric Composition

- Focus on high-quality measurement of CO<sub>2</sub> (and many other atmospheric constituents)
- These measurements validate/verify emissions in response to Paris agreement
- We do this via many different measurements





# The Total Carbon Column Observing Network



- Network of ground-based solar remote sensing sites
  - Gold standard for validating satellite measurements
  - UOW/CAC - Darwin, Wollongong, Leaders in network
  - Measures full atmosphere CO<sub>2</sub> - Same quantity as satellites
  - Vital link between *in situ* (best quality, but representative of small region) and satellite (lower quality, but excellent coverage) measurements
  - E.g. measurements by TCCON @ Wollongong detected a bias in satellite measurements of CO<sub>2</sub> in Southern Pacific = Australia's annual fossil fuel emissions

Thanks!



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# Continental Pool Reflections

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**DR JOSHUA LOBB**

**UOW CREATIVE WRITING; BLUE FUTURES**



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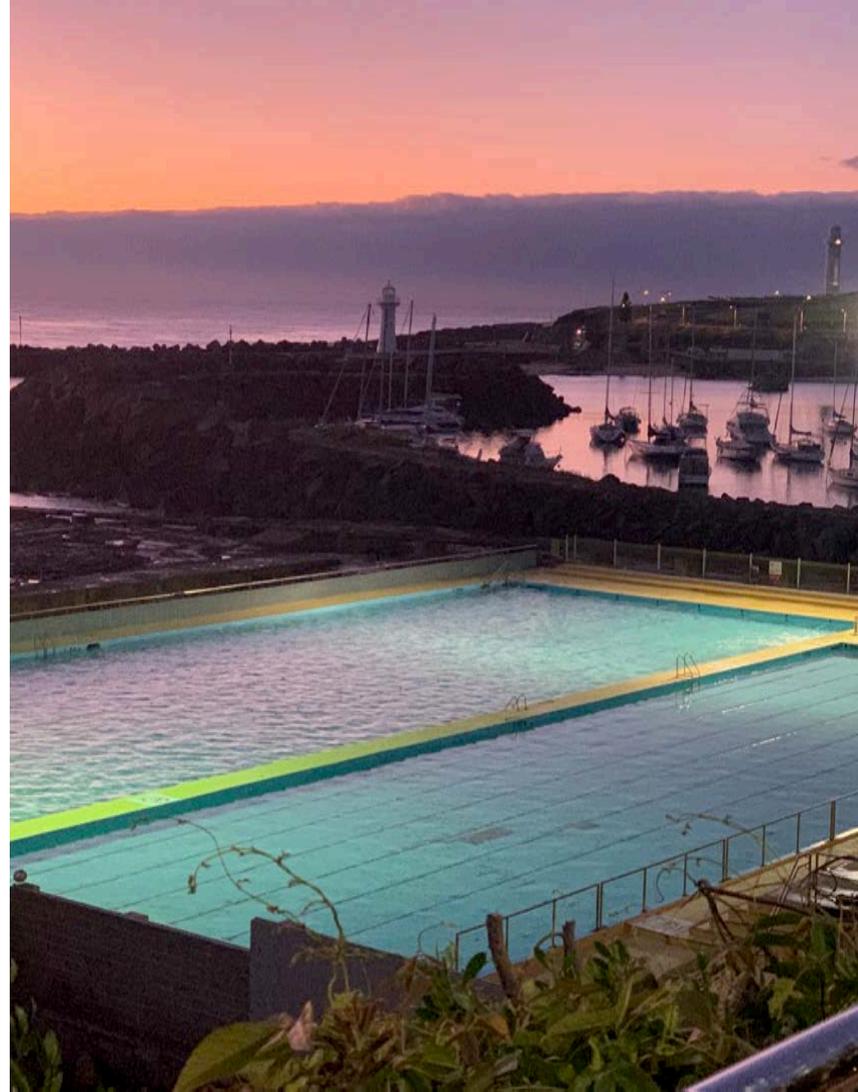
# The Continental Pool

## BLUE FUTURES GLOBAL CHALLENGES

### JADE KENNEDY: “five fingers of Country...”

“Learn from Country... become familiar with your place... you’ve got to be in relationship with the story of your place...and your story within your place” (2019, 156;154)

- Place
- People
- Culture
- Journey
- Inter-relationship



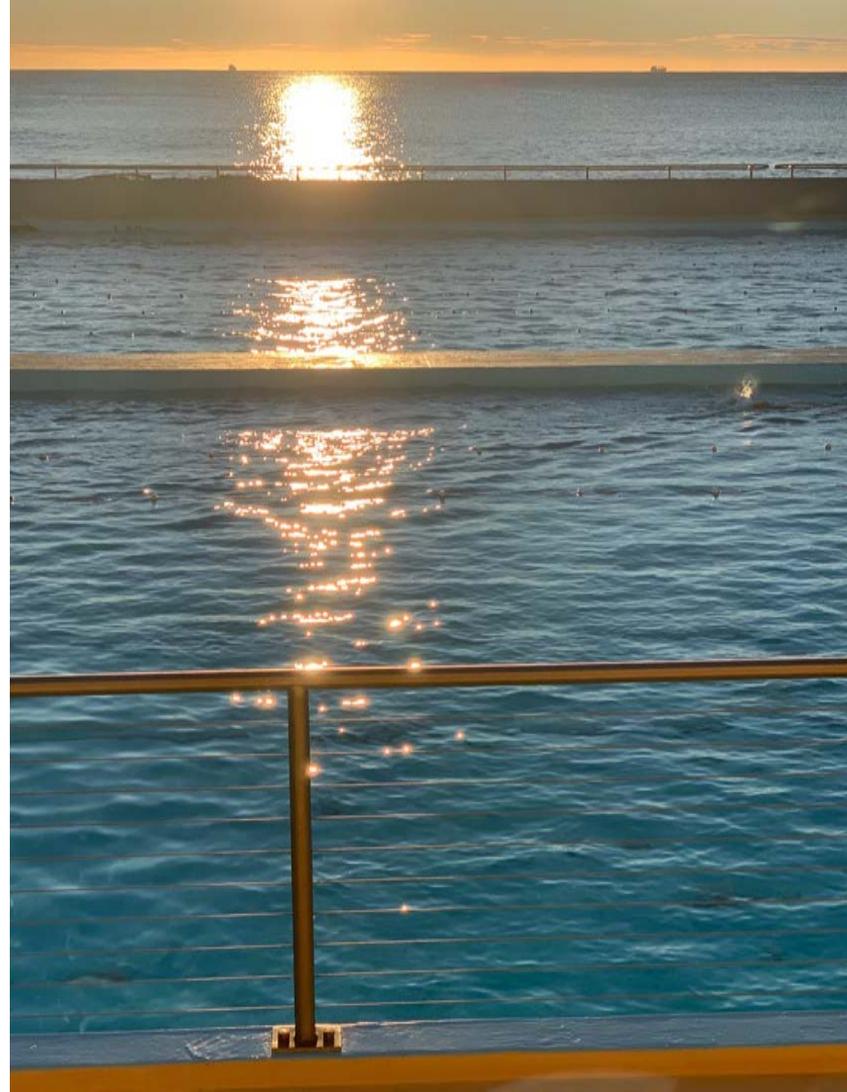
# The Continental Pool

## BLUE FUTURES GLOBAL CHALLENGES

“being in the water is about as spiritual as I feel”  
(Sally)

“the community down there are like an extended family to me. So it’s just like going home every day” (Eva)

“the ocean is embedded into me...because we’re water right?...In motion. And water communicates to itself and so water within us and [ocean] water, talk to each other at a vibrational level” (Wayne)



# The Continental Pool

## BLUE FUTURES GLOBAL CHALLENGES

“you could be swimming... [and] be looking out at the ocean. I have to say I really miss that...I can understand why they built that but that’s been a real disappointment to me” (Sue)

“you can never empty it properly. Years ago you could paint it more regularly, but now with the rising tides and the water levels...” (John)

