



TALLEBUDGERA CREEK, GOLD COAST, QLD

# RIVER WARRIORS PHASE II REPORT



POSITIVE CHANGE  
FOR MARINE LIFE

2019

RIVER WARRIORS

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## ACKNOWLEDGEMENTS

Positive Change for Marine Life gratefully acknowledges the support of the Queensland Government through their *Community Sustainability Action Grants* program for the Tallebudgera Creek *River Warriors* initiative and associated Reportcard.



**Queensland  
Government**

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# EXECUTIVE SUMMARY



Phase II of our River Warriors initiative saw our team engage with a variety of stakeholders from across the region to share the findings from our Phase I Report and Report Card. We reached out to local businesses, organisations, schools and community members to highlight the high accumulation of debris in Tallebudgera Creek, whilst connecting them directly to the issue, in order to address it at its source.

We ran 12 successful community education and outreach programs, engaging 6 local and international schools. Our team also doorknocked local residents and businesses and ran a local Action event (aimed at empowering local 'River Champions' to take ownership of the program in future). We also led 5 successful community surveys, as well as 1 PCFML volunteer-led survey to connect stakeholders directly to the issue, so that they could experience the problem first-hand.

Due to the public nature of this Phase of the program, there were limitations on the quality of data that we could collect (due to variability with survey numbers, participant numbers, survey dates and survey times). As a result, this report is not designed to act as a scientific study of the river or our transect areas, rather, it is intended to highlight the successes of the program in terms of public engagement and the milestones that our team achieved in terms of shifting behaviour, which will hopefully assist in the reduction of debris found across the waterway.

We hope to extend the River Warriors Tallebudgera Creek initiative into a 3rd Phase, aimed at mitigating the issue at its source. This will however, be based on our ability to obtain the additional funds needed to continue the project.

For more information on our River Warriors initiative or to get in touch regarding sponsorship of the program, please contact Karl Goodsell (Project Manager) via [k.goodsell@pcfml.org.au](mailto:k.goodsell@pcfml.org.au)



A local volunteer assisting with the joint *Land and Sea Clean* event as part of Green Week on Tallebudgera Creek.



# INTRODUCTION

Positive Change for Marine Life's (PCFML) *River Warriors* initiative commenced in July 2017 when PCFML sponsor, *The Byron Bay Cookie Shack* drew our attention to a large amount of debris and pollution in the Brunswick River in northern NSW. The business offered us their support to run a kayak-based clean-up in order to collect the debris and find out exactly what was there and where it came from, whilst raising awareness to the issue throughout the broader community.

In just one public-facing clean with project partners *The Byron Bay Cookie Shack*, *Go Sea Kayaks*, *Byron Bay Eco Cruises and Kayaks* and *Mullum Cares* we managed to collect over 1.5 tonnes of debris - with 34 volunteers covering a 12km section of the river. Over the course of the following 6 months we developed a plan of action to address this issue at its source through ongoing surveys and engagement programs. We called the initiative *River Warriors*.

Reaching out to like-minded community groups, organisations and individuals in specific regions across northern NSW and SE QLD (which are both home to diverse species and where debris levels were noticeably high), we commenced Phase I of our first full-time *River Warriors* project on Tallebudgera Creek, QLD in May 2018.

The main focus for our *River Warriors* projects is to:

- 1) Run consistent kayak-based surveys from source to sea (or as close to these areas as accessible) collating and recording data on type, quantity, presence and source of marine debris in order to mitigate it;
- 2) Upload data into our ongoing marine debris database, as well as Tangaroa Blue's *Australian Marine Debris Initiative (AMDI) database* in order to keep a record of findings, as well as to feed into and support ongoing research into debris patterns and solutions;
- 3) Produce a *Marine Debris Report Card*, the first of its kind to not only highlight the issue of debris in waterways, but also to develop realistic and ongoing management solutions and a marine debris rating system for waterways based upon key variables outlined in our findings;
- 4) Utilise the Report Card to assist us in Phase II of the project, which aims to engage

the community in our work through: awareness programs, educational signage, regular on-water clean-ups, as well as the exploration of strategic bins, litter mitigation devices, enforcement and monitoring programs, as well as a flood response plan;

- 5) Produce a subsequent report at the completion of Phase II, highlighting successes and challenges and determining ongoing actions to ensure the creek can continue to move toward or maintain an 'A' rating in the Report Card;
- 6) Obtain further funding for a *Phase III* component of the project, installing mitigation measures, facilitating a local *Action* group to lead the way in moving the waterway towards an "A" rating, and conducting another round of surveys to monitor changes to debris loads since the programs inception.

Since we were awarded with a Queensland Government *Community Sustainability Action Grant* to support the Tallebudgera Creek project in early 2018, we have been awarded subsequent funding to roll the project out across the Brunswick River (Byron Shire) and Terranorra Creek (Tweed Shire) in northern NSW, as well as on Tingalpa Creek in the Redland City region (SE QLD). We hope to continue gathering baseline data from waterways in need across NSW and QLD, whilst engaging local stakeholders in practical, hands-on solutions to address marine debris at its source - creating long-term behavioural change and a culture of stewardship for these places of incredible ecological, recreational and economic importance.



Our Gold Coast team sorting through our findings post-survey.

# RIVER WARRIORS TALLE CREEK PHASE II - OUTREACH



Tallebudgera Creek (Figure 1) is located in south-east Queensland within the Gold Coast City Council region. It is a tidal estuary with salt and brackish water giving way to freshwater in the upper reaches. The creek covers 98km<sup>2</sup> and extends around 25km from source to sea<sup>1</sup>. While the creek faces a number of threats from bank erosion; mangrove degradation; and chemical / fertiliser run-off, marine debris is a known factor that influences the health of the waterway and comes from a variety of land and water-based sources. While some monitoring and collection programs have taken place in the past, including the incredible work undertaken by Healthy Land & Water<sup>2</sup> to our knowledge no consistent weekly surveys have been undertaken to date.

Our team collected baseline data during Phase I of the program, which is available in our *State of Marine Debris Report* and associated *Marine Debris Report Card*. During this Phase of the project, we aimed to engage a broad-cross section of the community in order to shift their behaviour and connect them to the issue first-hand both on the water and in the classroom.

## MILESTONE 1: COMMUNITY EDUCATION AND OUTREACH PROGRAMS

During the course of Phase II, our River Warriors team ran 12 public facing community education and outreach programs, which **engaged 613 total participants** from across local and international schools, businesses, community groups and organisations, as well as from the general public. **In total we ran 5 primary school programs, 1 international school program, 2 programs open to the general public, 3 doorknocks and 1 community Action event.**

The aim of these programs was to engage participants directly to the issue through presentations focused on marine debris, with a specific emphasis on single-use plastic pollution and the environmental and health benefits of reusable alternatives. We also focused on the key threats associated to marine debris, including entanglement, ingestion and bioaccumulation through the food chain.

We had very positive feedback from these programs, particularly amongst the school groups and the local residents and businesses that we doorknocked. We aim to continue these outreach and engagement programs during Phase III of the initiative (pending further funding).



Burleigh Heads State School students learning about the program.



Local students at Palm Beach State School learning more about the impacts of micro-plastics and the threat that they pose to marine life.



Year 5's at Tallebudgera State School learning about the sources of Marine Debris and how it affects the Tallebudgera Creek.



Our team engaging the community through our 12 public-facing education and outreach programs.



Land + Sea Clean w/ our local partners.

# RIVER WARRIORS TALLEBUDGERA CREEK PHASE II - OUTREACH



## MILESTONE 2: COMMUNITY SURVEYS

Our team ran 6 community kayak surveys on Tallebudgera Creek during Phase II of the project, with the biggest survey being organised as part of Gold Coast Green Week and led by one of our fantastic partners at Pure Aloha Yoga, with support from a variety of other local community organisations, NGO's and local businesses.



Connecting kids to nature, whilst shifting behaviour around waste.

In total, our community surveys **engaged 158 participants**, with 151 also taking part in our education and outreach programs as a pre-cursor to the surveys.

We also engaged 6 local and international schools in the program, thanks to our ongoing sponsors at Tallebudgera Beach Outdoor Education School!



Weighing the haul from one of our School surveys.

## OUR FINDINGS

In this section we examine weight and item type found across our 6 public-facing surveys. As mentioned in the *Executive Summary* section of this report, our findings during this Phase of the River Warriors initiative didn't follow consistent transect areas. As a result, we have only broken down our findings into totals and not made comparisons between the datasets.



For more scientifically rigorous results, please refer to our baseline data surveys in our *River Warriors Tallebudgera Creek State of Marine Debris Report*.

## ITEM TYPE AND WEIGHT

**Table 1** highlights the total amount of items found across our six survey areas, whilst **Figure 1** reflects the percentage of items found across all surveys by category.

\*\* NOTE: Due to lack of capacity during the Land + Sea Clean, data from that clean was not included in the "Items of Interest" below (this omitted 3119 items from this breakdown).

Table 1. Total findings by category and items of interest.

ITEM	TOTALS	ITEMS OF INTEREST	TOTALS
Plastic	4348	Foam Insulation & Packaging	347
Polystyrene / Foam	385	Polystyrene Balls	0
Glass	368	Plastic Bits & Pieces (Not Film)	335
Cloth	24	Plastic Film Remnants	118
Metal	96	Cig Butts and Packaging	56
Paper	28	Lightweight Plastic Bags	151
Rubber	92	Heavyweight Plastic Bags	14
Wood	23	Plastic Straws / Confection Sticks	65
Other Items	17	Plastic Drink Bottles	24
		Plastic Food Packaging	315
		Rubber Balloons	4
		Mylar / Foil Plastic Balloons	0
<b>GRAND TOTAL</b>	<b>5381</b>	<b>GRAND TOTAL</b>	<b>1429**</b>

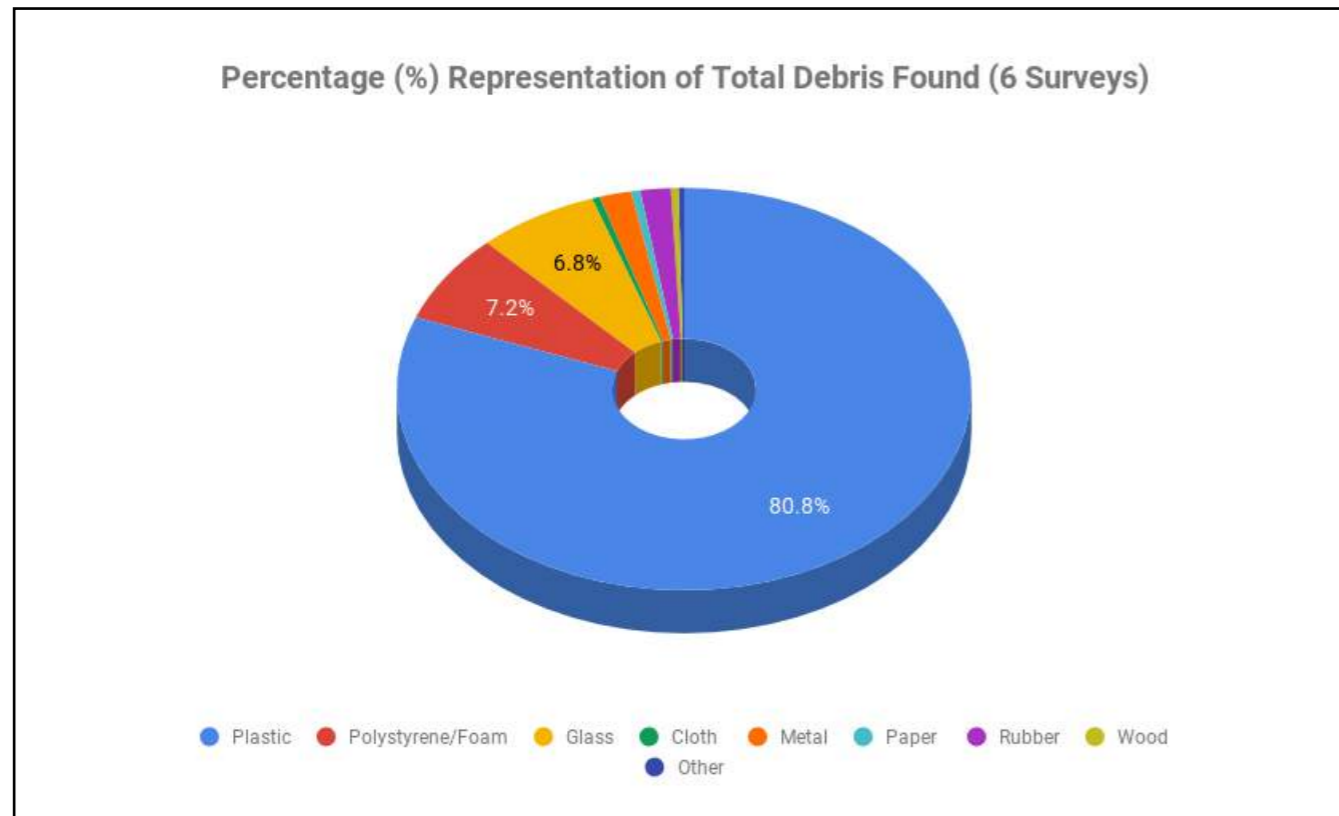


Figure 1. Total debris found across our 6 public surveys - represented as a percentage.

Debris collected from the Land + Sea clean was only categorised into Plastic and Glass. This created some inconsistencies in our data, especially given that we collected the most items from this survey (3,119). Taking this into consideration, we could expect the Polystyrene percentage of our findings to be much higher if both Plastic and Polystyrene were separated into their own categories, rather than included together. For this reason, it's best to categorise Plastic and Polystyrene together. This would give a combined total of **88% Plastic and Polystyrene found across our six surveys.**

In addition to this, the **total weight of debris found across our six surveys was 326.7kg.** Figure 2 outlines a snapshot of our findings, including information on length of the river travelled and number of volunteers and participant hours during Phase II.

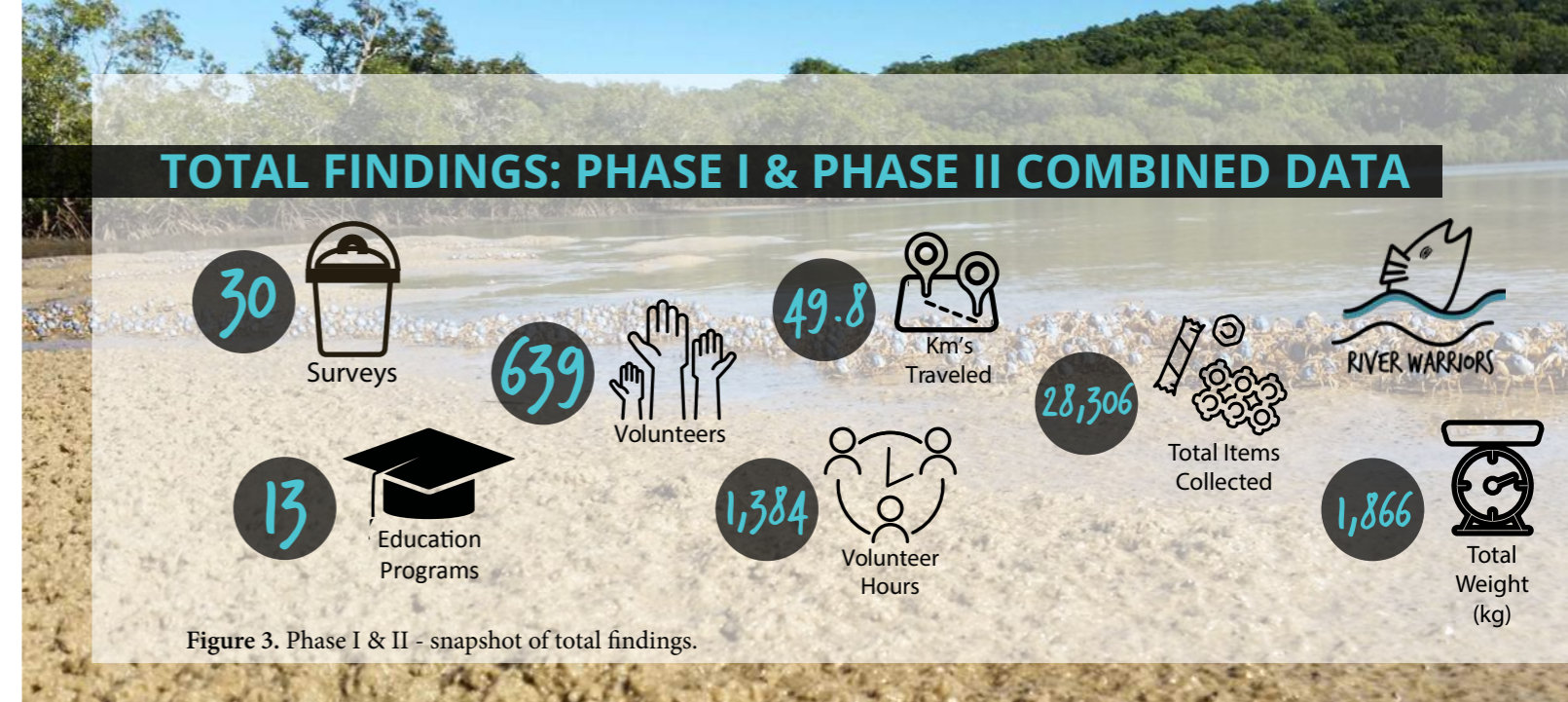


Figure 3. Phase I & II - snapshot of total findings.



Our CEO, Karl Goodsell, presenting our findings to Ingleside Primary School.

## RIVER WARRIORS, TALLE CREEK: PHASE II STATISTICS



Figure 2. Phase II - snapshot of findings.



Categorising our findings contributes to our ongoing datasets, allowing us to identify marine debris hotspots and utilise the data to address the issue at its source.







# MANAGEMENT SOLUTIONS



## WHERE TO FROM HERE?

With the success of our baseline surveys, leading to our State of Marine Debris Report and Report Card (Phase I), as well as the recent wrap-up of our community engagement and outreach programs (Phase II), our team realised the need for a 3rd phase of the program in order to implement long-term mitigation measures across the waterway.

Phase III is beyond the extent of our initial funding. We will be seeking additional funds and support to undertake Phase III with the aim of addressing the following:



## EDUCATION & TRAINING

Education and behavioural change are key to mitigating marine debris in Tallebudgera Creek. Human beings are the source of these issues and therefore we are the only ones who can solve them. Although

Phase II of the program engaged a broad spectrum of stakeholders, we see increased local business and corporate engagement as one of the key facets to addressing marine debris in the waterway. This includes training business staff to engage with customers on the reasons why businesses no longer stock single-use plastic items and the impact that they have on local waterways.

We will also be looking to engage with various businesses and government bodies to fund locally made and strategically placed educational signage. These will target hard to reach demographics including motorists, rough sleepers and tourists in marine debris hotspots such as under the Pacific Motorway overpass and in the various parks, which border the waterway.



Further education and training programs are key to mitigating marine debris and moving the Tallebudgera Creek toward an 'A' rating on our Marine Debris Report Card.

Finally, the formation of our local 'River Champions' group aims to drive locally-led solutions to the issue, engaging an increasing number of participants over time.



## SUPPORTING INFRASTRUCTURE

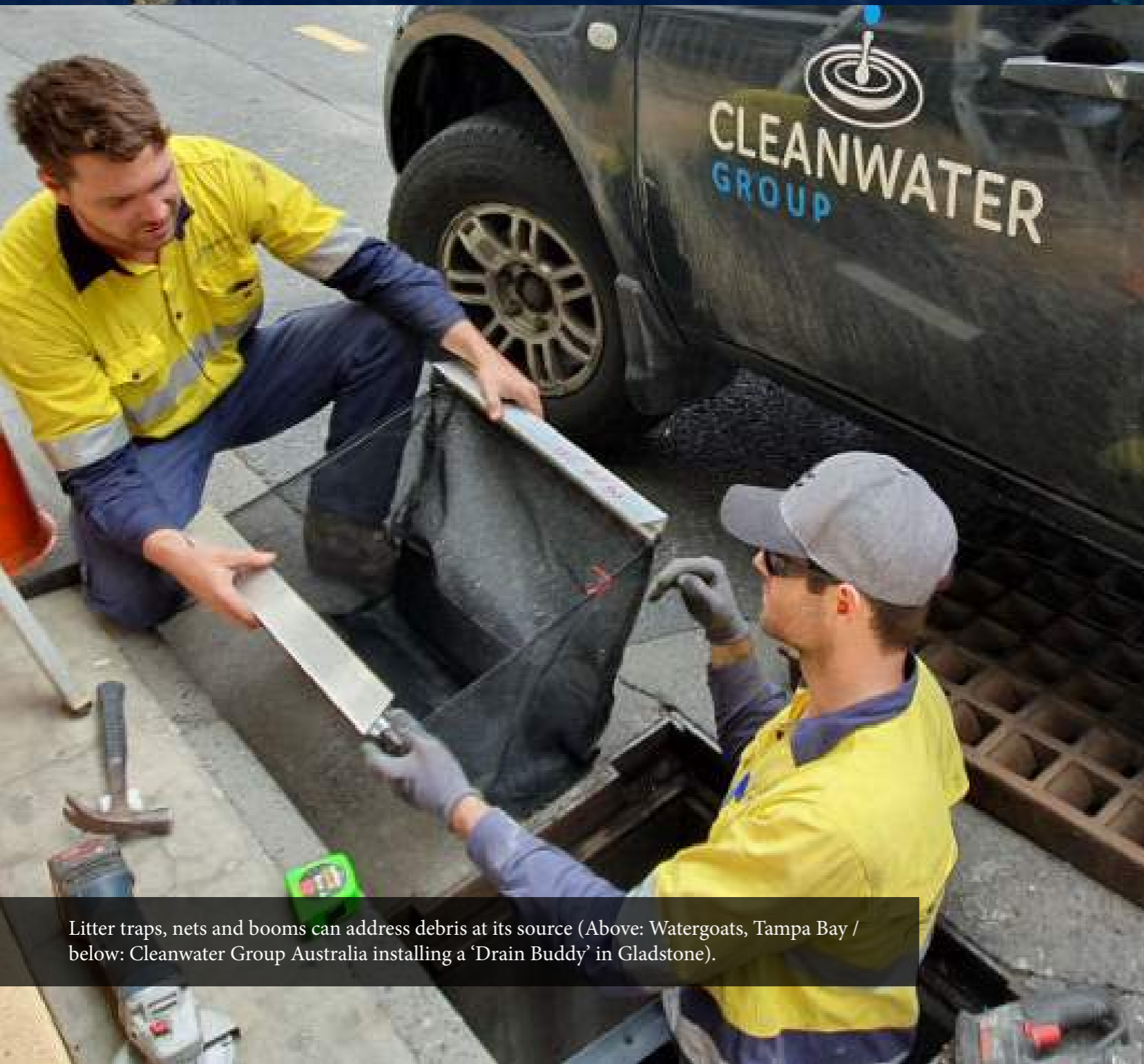
Addressing the issue of marine debris is incredibly challenging without proper supporting infrastructure. Prevention and disposal of litter before it can make its way to a waterway or the ocean is vital to keeping our sea plastic free. That's why we see infrastructure as a core focus area to support our community outreach and education / training programs. As mentioned previously, **educational signage** can be a great way to engage the community in thinking twice before they litter, especially if it has a positive message, rather than an authoritarian one. Humorous signs, like the one pictured right, can also be effective. As part of Phase III of the Tallebudgera Creek River Warriors program, we will be looking to install recycled, locally made educational signage in marine debris hotspots throughout the creek. The concept of graffiti artworks in areas known for rough sleeping that have high-levels of litter will also be explored to appeal to those who frequent them.

Throughout many of the parks, underpasses and sections of road bordering the creek, we noticed a significant lack of bins, including cigarette-butt and recycling bins. While these can be costly for local councils, we believe that they are vital to preventing litter from entering the environment. Our Butt-Free Byron campaign has shown that **ample, easy to use bins** can create significant positive outcomes, alongside adequate community education and outreach. We will be exploring opportunities for these bins to be funded / installed alongside our educational signage in high-accumulation debris areas and hotspots.

Over the past decade, research and development of **booms, nets and traps** to capture litter has significantly improved. We have engaged with a number of businesses who specialise in these areas in order to explore realistic debris capture devices and solutions to trap litter from stormwater drains, high-flow areas and highway overpasses. We aim to engage these businesses to install litter prevention devices across key strategic areas and marine debris hotspots across the creek during Phase III of the project (pending further funding).



Educational signs are a great way to shift awareness, especially unique, positive and/or humorous signs like the one above!



Litter traps, nets and booms can address debris at its source (Above: Watergoats, Tampa Bay / below: Cleanwater Group Australia installing a 'Drain Buddy' in Gladstone).

Through speaking with locals and from our own experience, it's clear that heavy rain and flooding events have a significant impact on debris flows, adding huge amounts of debris from roads, stormwater drains, industrial areas and properties within proximity to the creek. We would like to explore the development of a **marine debris flood plan**, alongside council and the debris mitigation management groups that we have already engaged with. This will include community education prior to and during storm season, as well as specialised litter traps and booms to curve the flow of debris into waterways and the ocean during these events.

## FINAL THOUGHTS AND NEXT STEPS...

Most people associate pollution with developing countries, which lack the infrastructure and resources to manage their waste. Australia is the lucky country - with an incredibly high standard of living, good education, public services and a relatively low population (especially given our size). Despite this, it's clear from our findings that marine debris is an enormous problem that has gotten way out of hand. If we are struggling to tackle this issue now, what will the future hold, especially given our projected population growth? An F+ score on our Report Card isn't good enough for a waterway that was voted 'Australia's Best Swimming Spot' in 2019. We believe that it's everyone's responsibility to do better and become stewards of our natural areas.

We have the knowledge, resources and ability to address marine debris, yet our results on Tallebudgera Creek reflect the low priority that it has been given over the past few decades. The good news is that increasing amounts of people, businesses and government institutions are starting to take notice. A lot of work is still needed to be done, however we believe that projects like our River Warriors initiative can develop a model of 'best practice' to present to governments, industry, the community and other stakeholders in order to identify positive ways to move forward and tackle this issue at its source.

We hope to launch Phase III of this project in the near future to continue to move Tallebudgera Creek toward an 'A' rating in terms of marine debris health.

## REFERENCES

1) City of Gold Coast (2018) Tallebudgera Creek Catchment. Retrieved from: <http://www.goldcoast.qld.gov.au/environment/tallebudgera-creek-catchment.html>

2) Healthy Land and Water (2019) Clean Up Program. Retrieved from: <https://hlw.org.au/project/clean-up-program/>

### PHOTOGRAPHY CREDITS (other than PCFML):

Page 14 - Granville Harbour Community Coast Care.

Page 15 - Watergoats, Tampa Bay (top) / Cleanwater Group Australia (bottom).



# RIVER WARRIORS PHASE II REPORT 2019

TALLEBUDGERA (REEK, GOLD COAST, QLD)

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