



# SALTY TIMES CITIZEN SCIENCE

Western Australian  
Marine Debris  
Observations



MARINE DEBRIS OBSERVATIONS  
PERTH TO THE MONTEBELLO ISLANDS.  
CONDUCTED BY SALTY TIMES  
MAY TO NOVEMBER, 2016.

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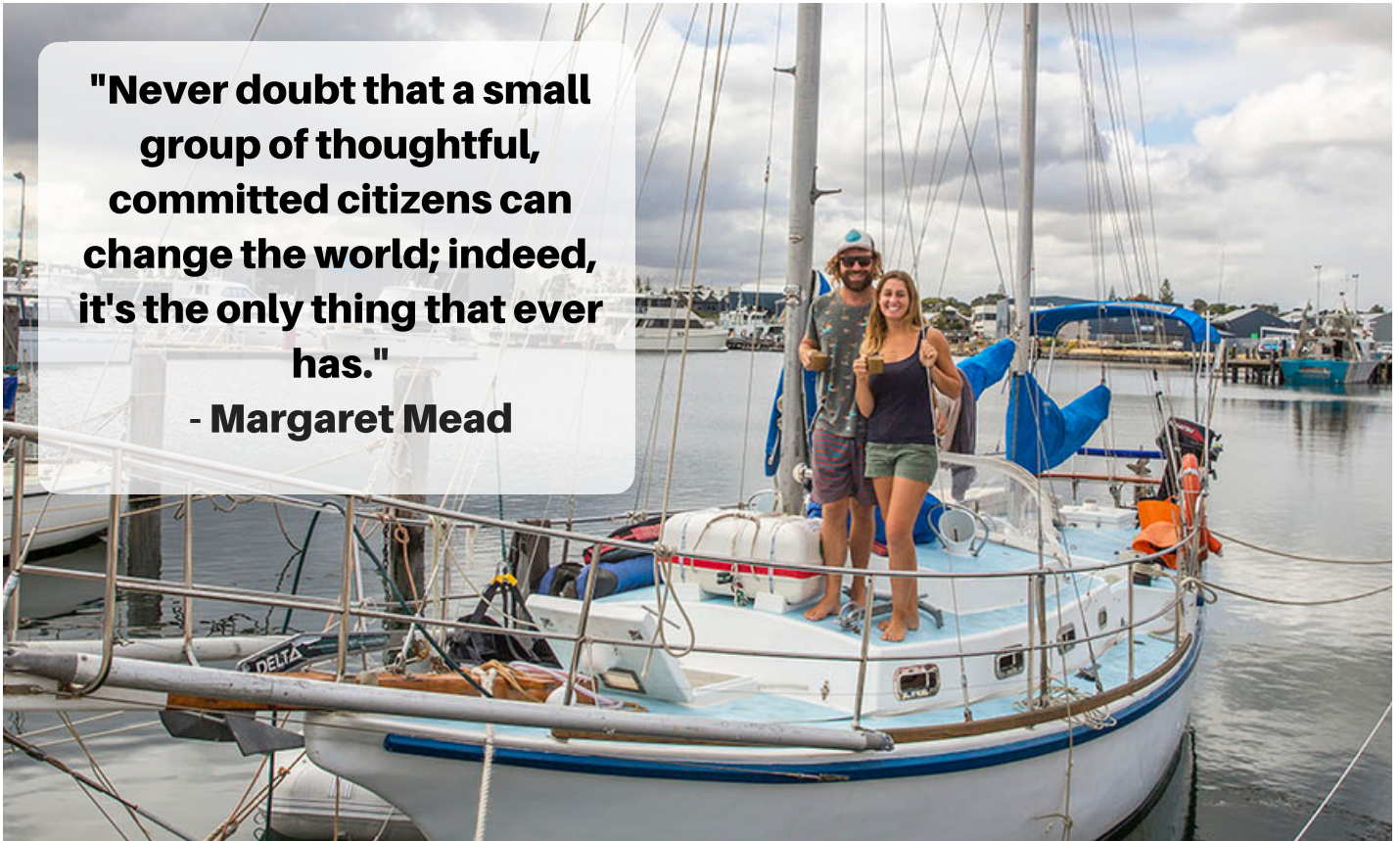




# ABOUT BASE AND JAMIE VAN JONES

**"Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has."**

**- Margaret Mead**



We got married two years ago, sold 80% of our belongings, moved onto a 32 foot sailboat and started making our dreams come true. As surfers, sailors, divers, and ocean lovers we wanted to give back to the Ocean. Base and I (Jamie) decided to take on Citizen Science Projects as we sailed the West Australian Coast. We chose to focus on Marine Debris issues facing our Oceans and started to connect with organisations and researchers in this area.

Our Sailing voyage was a dream that started 7 years ago and we worked hard to make it happen. We decided to do marine debris surveys of every place we visited on our sailing voyage. After 8 months of sailing we completed 31 debris surveys and 5 micro plastics surveys. We want to share our observations, the data we recorded, and some recommendations on what we can do about the problem of Marine Debris.

This was a self funded citizen science trip and it was done out of passion to take action and also raise awareness about the marine debris that is impacting our Oceans. We share our sailing voyage and citizen science through our website and social media channels which reach over 22,000 people. We try to raise awareness about ocean health and living lightly on our planet.

# ABOUT

## OUR VOYAGE AND OUR VALUES

Our dream was to sail so we could explore, surf, and live lightly on our planet. We made our dreams come true.

We sailed over 2500 nautical miles up and back down the West Australian Coast. We did it with the basics, we hand steered, carried jerry cans of water and lived simply. We anchored in remote places and had to hide from some bad storms along the way.

We used the wind to get places, solar power to keep us charged, provisioned our boat plastic free and low waste and cooked with a solar oven all in a 32 foot boat.



This voyage challenged us in many ways as we had to be self sufficient and in tune with nature. Through our journey our appreciation for the ocean and marine life grew even larger.



We decided to use our time on our sailing voyage to see for ourselves the impacts of Marine Debris on the remote places that we visited. That is why we decided to survey every beach that we visited for marine debris. We wanted to know how much debris was on our remote coastline?, where is it coming from? and how can we clean it up and stop more and more from coming?

Base is a Hydro-Geologist and I (Jamie) have a degree in Sustainable Development and a background in Environmental Education. We aren't marine scientists, but we are two passionate citizens of the Ocean that want to learn more and make a difference.

We fund our voyage and citizen science projects by teaching people to sail and running a small sailing charter business half the year out of Fremantle called 'Southern Cross Sailing'. This enables us to spend time working on and learning more about Ocean Conservation Issues. Our main hope is that we can share our voyage and passion for the ocean with others.

**Our website is [www.saltyimes.com](http://www.saltyimes.com) and we have a very exciting citizen science voyage planned for May 2017 - read on for more details.**

## OBJECTIVE:

To observe and record the amounts and types of Marine Debris found on Western Australian beaches and shorelines between Perth and the Montebello Islands. This data has been added to the Australian National Marine Debris Database\*.

## METHOD:

Each shoreline visited was surveyed by walking a minimum of 1 km, first at the low tide line, and then above the high tide line. Any marine debris identified was recorded and photographed. Data amounts and types were recorded on Tangaroa Blue Marine Debris Data Sheets\*

Where high intensity marine debris hotspots were found a micro plastics survey was conducted to identify the presence of micro plastics. The micro plastics surveys were conducted using the 5 Gyres methodology for micro plastic surveys.

## SUMMARY:

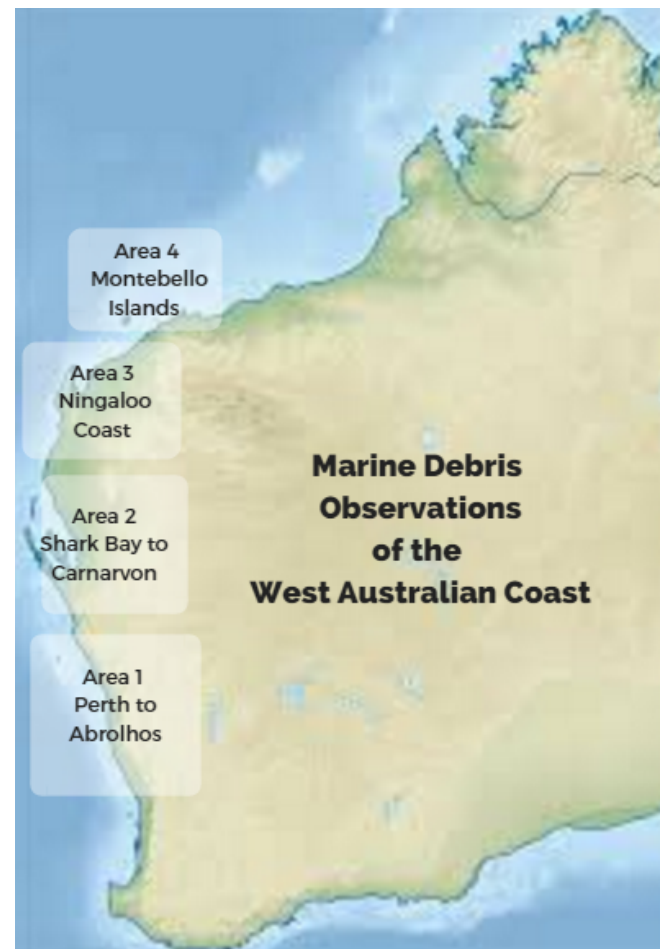
Three marine debris hot spots were identified between Perth and the Montebellos Islands off the Pilbara Coast line.

- Mystery Beach - Dirk Hartog Island West Coast - documented flotsam and jetsam trap.
- Point Cloates and Jane's Bay - Near the Ningaloo Station Homestead.
- Blue Bell Island of the Montebellos Islands

These three areas had significantly more quantities of marine debris compared to other beaches surveyed.

Regular clean up of these areas is needed and documentation of the marine debris found can assist in source identification.

More information about these three hot spot can be found on page 4.





## OBSERVATIONS

Below is a summary of our observations from the marine debris survey that we conducted. 35 marine debris surveys were conducted over 1500 kilometres, including 5 micro plastics surveys.

-> Greater population equates to more pollution found on the shoreline. This was true for towns and tourist areas that we visited, however the three marine hot spots identified above were abnormal, as they were not near populated areas but had significantly larger amounts of debris.

-> The marine debris found on the Abrolhos Islands consisted of 75% of discarded fishing gear. The commercial cray fishing industry which is active in and around the Abrolhos islands is responsible for a large majority of marine debris found among the islands.

-> Post storm marine debris found on shorelines was higher than at other times. This was especially evident in Port Denison where thousands of pieces of marine debris were washed up on the local foreshore after a large winter front passed through.

-> Source identification was a main aim of the marine debris surveys conducted. We found a mix of international debris (identified by labels) and local debris (products bought in and used within Australia). Two of the Marine Debris hot spots had labelled debris from countries such as Malaysia, Indonesia, India and Dubai.

-> Many of the beach surveys we conducted along the West Australian Coast did not produce large amounts of debris. There are many pristine beaches that had very little pollution. Fringing reef, prevailing currents, and predominant wind have a lot to do with where marine debris is depositing along our coastline.

**The lack of pollution found on many regional beaches does not accurately represent the amount of floating or sunken marine debris in Australian waters.**

# MARINE DEBRIS HOT SPOTS

## MYSTERY BEACH - SOUTH

West facing beach on Dirk Hartog Island only accessible by 4 Wheel Drive.

Thought to be the site of a 'mystery wreck', investigations by the WA Maritime Museum revealed Mystery Beach is a 'natural wreck trap', capturing jetsam and flotsam which has been noted by Department of Parks and Wildlife.

Types of Debris found varied - plastic bottles, fishing debris, nylon rope. International Debris from countries: Dubai, India, Malaysia, Philippines, Indonesia and Australia.



## BLUEBELL ISLAND

South West facing bay with mangroves and a 3.5m tide change.

Plastic labels with country of origin found from Indonesia and Malaysia.

Types of Debris: Bottles, Hard Plastic, Light Plastics, Nylon Rope.

3 surveys were conducted on this area and each clean up showed new debris being deposited over the course of two weeks.

Other islands of the Montebellos did not have as much marine debris on the beaches or shorelines.



## POINT CLOATES

Southern facing Bay, Point, and Western facing beach.

Marine Debris in Jane's bay – a mix of hard plastic fragments and synthetic rope.

Marine Debris North side of Point Cloates – light plastics and plastics bags

Micro Plastics Survey Conducted: 1 square meter found 13 pieces of micro plastic below 5mm.

# RECOMMENDATIONS:

- Regular clean ups and surveys of Marine Debris Hot spots need to be carried out.
- Further research on marine debris types, source and impact of micro plastics on plankton feeding marine life needs to be carried out.
- We need public awareness raising to assist people in making positive changes that reduce marine debris and encourage people to clean up rubbish they find on their local beaches.
- The recommendations for The National Marine Debris Abatement Plan produced by Boomerang Alliance\* are supported from our observations along the WA Coast.

The priorities being:

- A government ban on plastics bags, micro beads found in personal care, cosmetic, and cleaning products(including waxes and polishes) and polystyrene packaging for takeaway food and beverage service.
- Drink containers should have a container deposit system in place to reduce their presence in the natural environment and increase recycling.
- All domestic washing machines should be fitted with microfibre filtration systems on the machines outtake; and broader sewerage filtration systems be fitted to all commercial laundry and dry cleaning businesses.





# WHAT'S NEXT...

## USING OUR VOYAGE TO RAISE AWARENESS

Taking Action By:

- School and Community Talks
- Working with Key Organisations
- Using Social Media to inspire action.
- Media Interviews
- Radio, Newspapers and Magazines.
- A Free 'Plastic Free Travel Guide'



## OUR NEXT SALTY VOYAGE

Exploring the Health of Ningaloo Reef  
How Healthy is our Reef?

We plan on Kayak/Sailing the entire (270km) Ningaloo Reef in May 2017. We want to share the magic of this area while exploring and aiming to understand the threats and challenges it faces into the future.

We will be:

- Working with scientists and assisting in communicating their scientific research to a wider audience.
- Raising awareness about climate change, coral bleaching, marine debris, over-fishing and what we need to sustain Ningaloo Reef.
- Recording short informational videos
- Conducting water marine debris surveys, Reef health checks, and organizing volunteer beach clean ups along the way.
- Sharing our trip online through videos, social media and our website - [www.saltytimes.com](http://www.saltytimes.com)



Ningaloo Reef Image - Esther Mac Donald



# APPENDIX

## REFERENCES AND RELEVANT LINKS:

Marine Debris Survey - Data Sheets.

[www.saltytimes.com/marine-debris-results](http://www.saltytimes.com/marine-debris-results)

Tangaroa Blue Marine Debris Data Base

<http://www.tangaroablue.org/database.html>

Boomerang Alliance Marine Debris Abatement Plan

[http://www.boomerangalliance.org.au/the\\_plan](http://www.boomerangalliance.org.au/the_plan)

Sea Shepherd Marine Debris Team

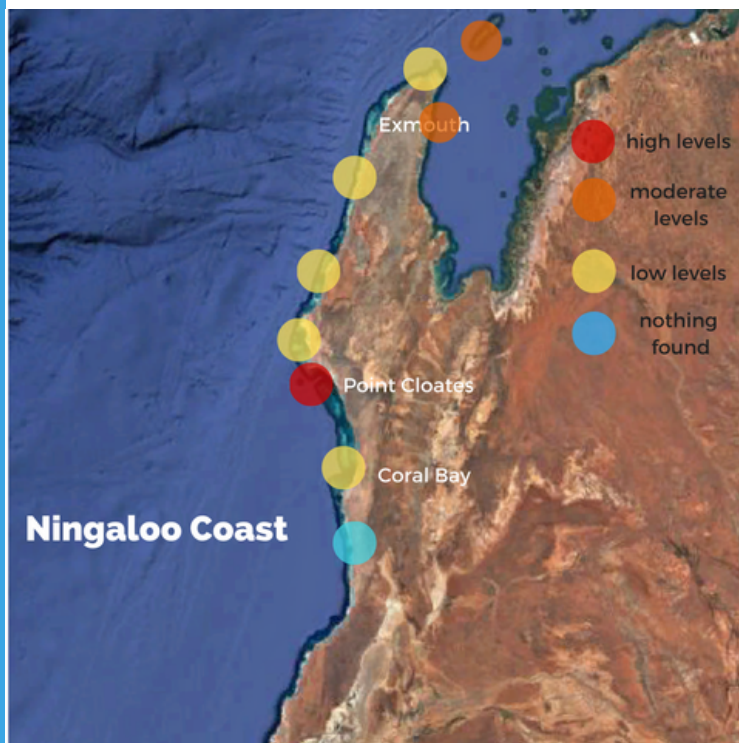
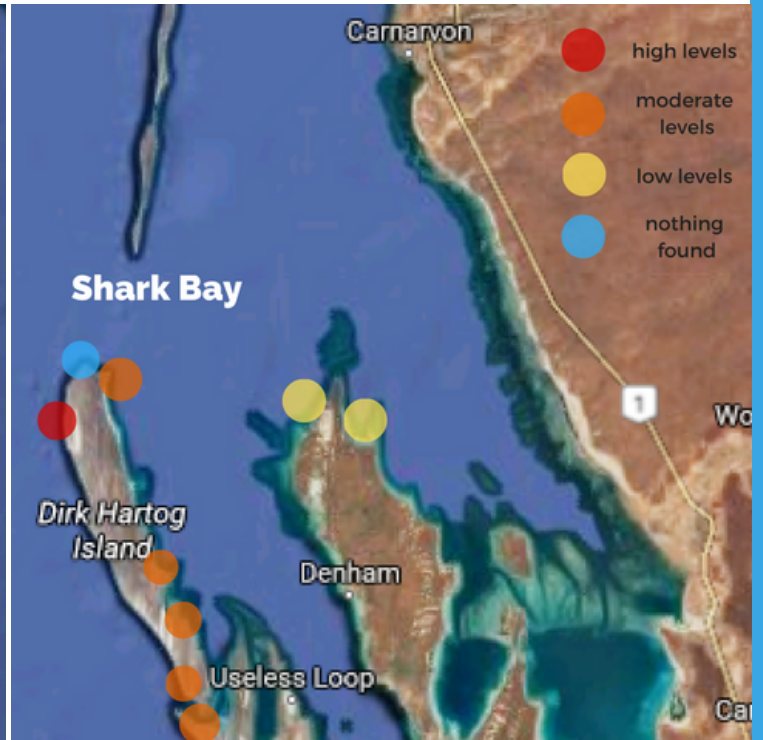
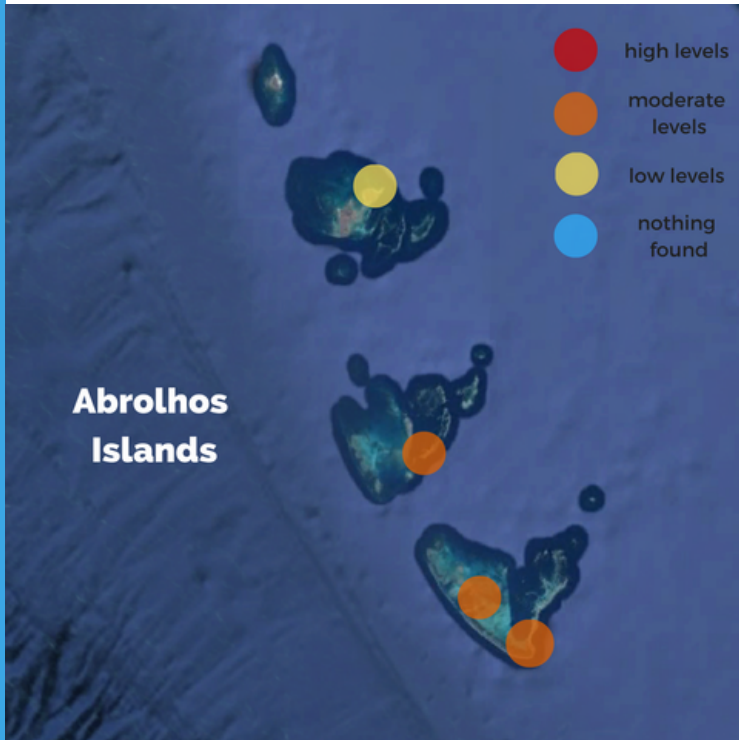
<https://www.seashepherd.org.au/news-and-commentary/news/sea-shepherd-australia-announces-marine-debris-campaign.html>

A Salty Voyage - Exploring the Ningaloo Coast

[www.saltytimes.com/a-salty-voyage](http://www.saltytimes.com/a-salty-voyage)



# OVERVIEW OF MARINE DEBRIS SURVEYS



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**FOR FURTHER INFORMATION:**  
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