



Myrtle's battle against climate change

By Mariana Fuentes
Illustrated by Fernando Pinillos

© Copyright Mariana Fuentes, 2010

The Copyright Act 1968 permits fair dealing for study, research, information or educational purposes subject to the inclusion of a sufficient acknowledgement of the source.

Fuentes, M. (2010) *Myrtle's battle against climate change*. Reef & Rainforest Research Centre Limited, Cairns, Australia (22pp.).

ISBN 978-1-921359-43-9 (pdf)

Published by the Reef & Rainforest Research Centre Limited
PO Box 1762, Cairns QLD 4870, Australia
<http://www.rrrc.org.au/>

The Reef & Rainforest Research Centre Limited (RRRC) manages and delivers one of the world's most comprehensive tropical environment research portfolios. Through a consortium of fifteen research agencies involving the work of more than three hundred leading tropical scientists, the RRRC aims to deliver useful and timely solution-based science to address the management and needs of North Queensland's key environmental assets – the Great Barrier Reef and its catchments, tropical rainforests including the Wet Tropics World Heritage Area, and the Torres Strait.

Book design and layout by Shannon Hogan, Reef & Rainforest Research Centre Limited
Illustrations by Fernando Pinillos, <http://www.bichosdepapel.blogspot.com/>
Printed and bound in Australia by Lotsa Printing, <http://www.lotsaprinting.com.au/>

Acknowledgements

Funding to support book design and print production was provided by the Reef & Rainforest Research Centre Limited, the Torres Strait Regional Authority and the Norman Wettenhall Foundation. The author is grateful for the editorial and technical help and support provided by Shannon Hogan.

Mariana Fuentes' PhD research was supported by James Cook University, the Australian Government's Marine and Tropical Sciences Research Facility (MTSRF), implemented in North Queensland by the Reef & Rainforest Research Centre Limited, the Great Barrier Reef Marine Park Authority, National Geographic, the Professional Association of Diving Instructors (PADI) Foundation, Torres Strait Regional Authority and the Wentworth Group of Concerned Scientists.



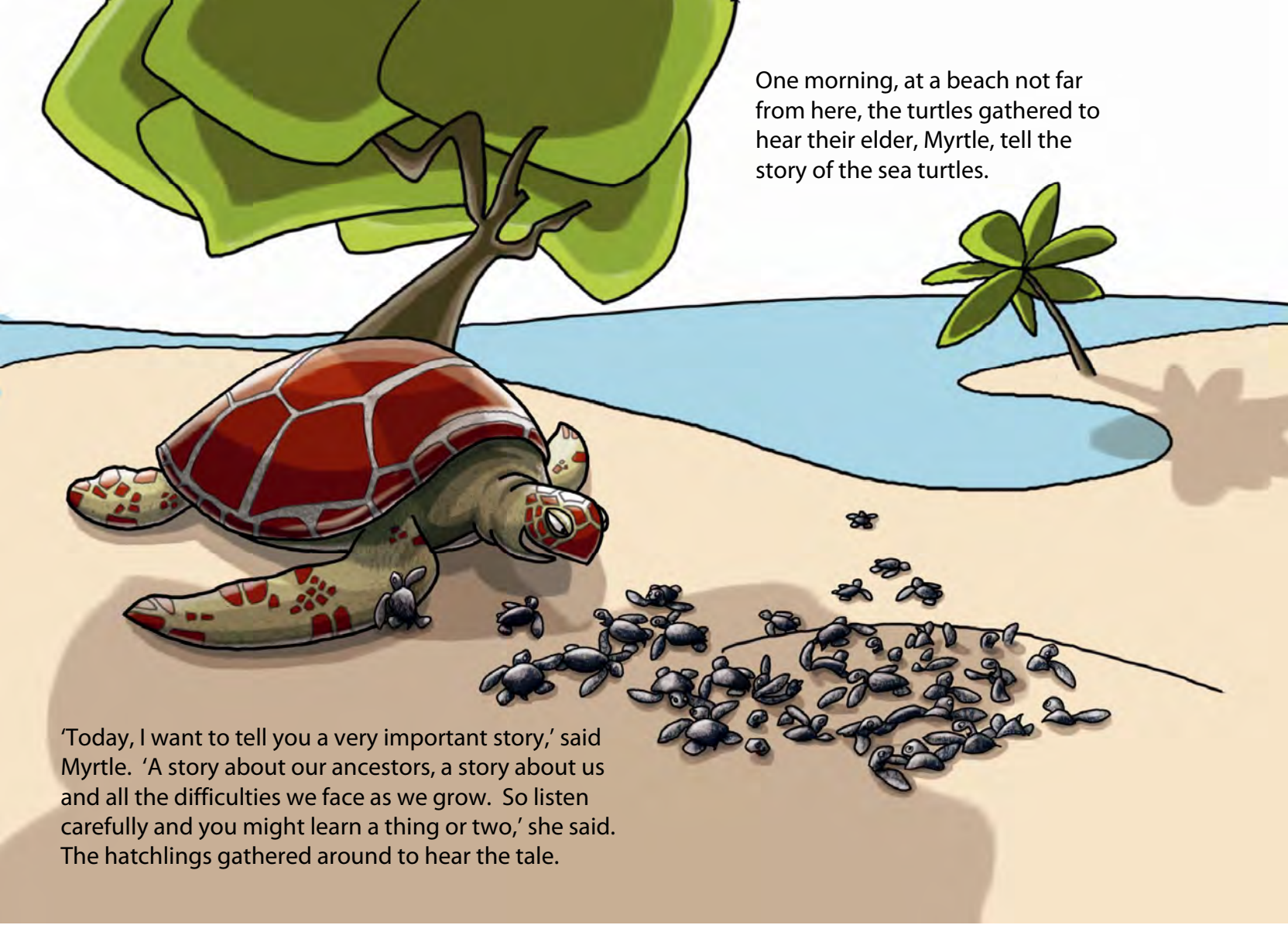
Introduction

This book is based on findings from the PhD research conducted by Mariana Fuentes on the impacts of climate change on the northern Great Barrier Reef green sea turtle population. The main character of the book, 'Myrtle', is based on a real turtle that was satellite-tagged in 2008 at Mer Island, Torres Strait. Myrtle was named by students from the local Tagai State College. This book is dedicated to the children of the Torres Strait islands with the hope that they learn about the effects of climate change on sea turtles and find a way to make a difference.

About the Author

Originally from Brazil, Mariana Fuentes moved to Australia almost a decade ago to become a marine biologist. She has been working on sea turtle conservation and management programs for the last eight years and has conducted research on many aspects of sea turtle biology and ecology. In addition to Australia, Mariana's work has taken her to Madagascar, Vanuatu, Kenya, the United States and Barbados, and more recently to the unique tropical islands of the Torres Strait where she has been studying the impacts of climate change on the northern Great Barrier Reef sea turtle population. Sea turtles have an important role to play both ecologically and, for the people of Torres Strait, culturally. Mariana's commitment to building the capacity of local communities to address the impacts of climate change led to the development of this book, which aims to educate Torres Strait children about the perils faced by sea turtles in the face of climate change, and what these challenges mean to the Torres Strait communities.





One morning, at a beach not far from here, the turtles gathered to hear their elder, Myrtle, tell the story of the sea turtles.

‘Today, I want to tell you a very important story,’ said Myrtle. ‘A story about our ancestors, a story about us and all the difficulties we face as we grow. So listen carefully and you might learn a thing or two,’ she said. The hatchlings gathered around to hear the tale.

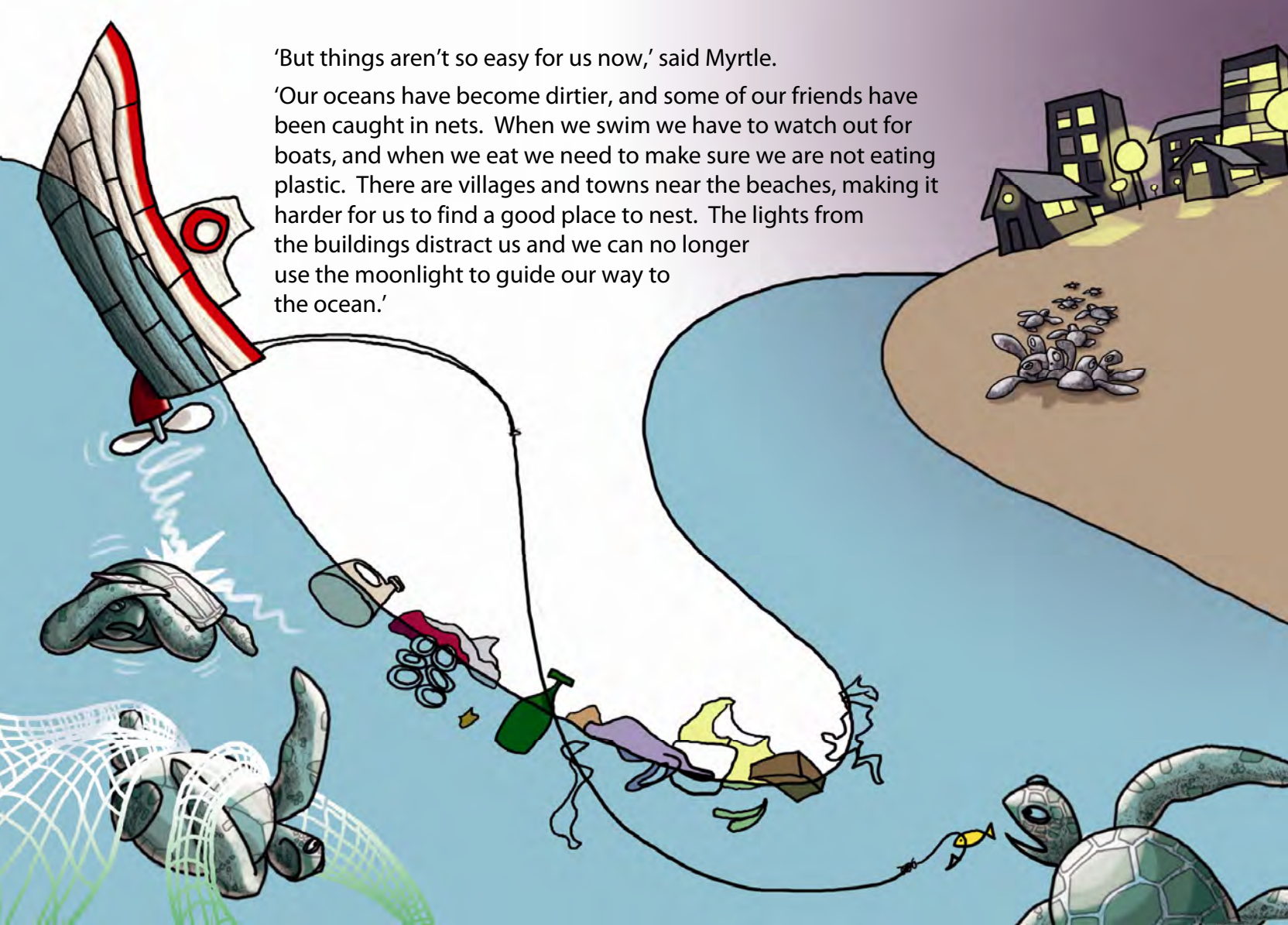
'Sea turtles have existed for a long time. Back in the days, hundreds of years ago, there were many of us, so many that you wouldn't believe.'

'Life was very different then. There were lots of nice nesting beaches for us to lay our eggs, the oceans were clean, and we didn't have to worry about being hit by boats or being entangled in nets.'



'But things aren't so easy for us now,' said Myrtle.

'Our oceans have become dirtier, and some of our friends have been caught in nets. When we swim we have to watch out for boats, and when we eat we need to make sure we are not eating plastic. There are villages and towns near the beaches, making it harder for us to find a good place to nest. The lights from the buildings distract us and we can no longer use the moonlight to guide our way to the ocean.'



'Because of all these changes to our habitat, many of our friends and family have died. There are less of us now than in the past and we are more sensitive to new threats such as *climate change*.'



'Climate change is the result of an increase in the Earth's temperature across the world,' said Myrtle.

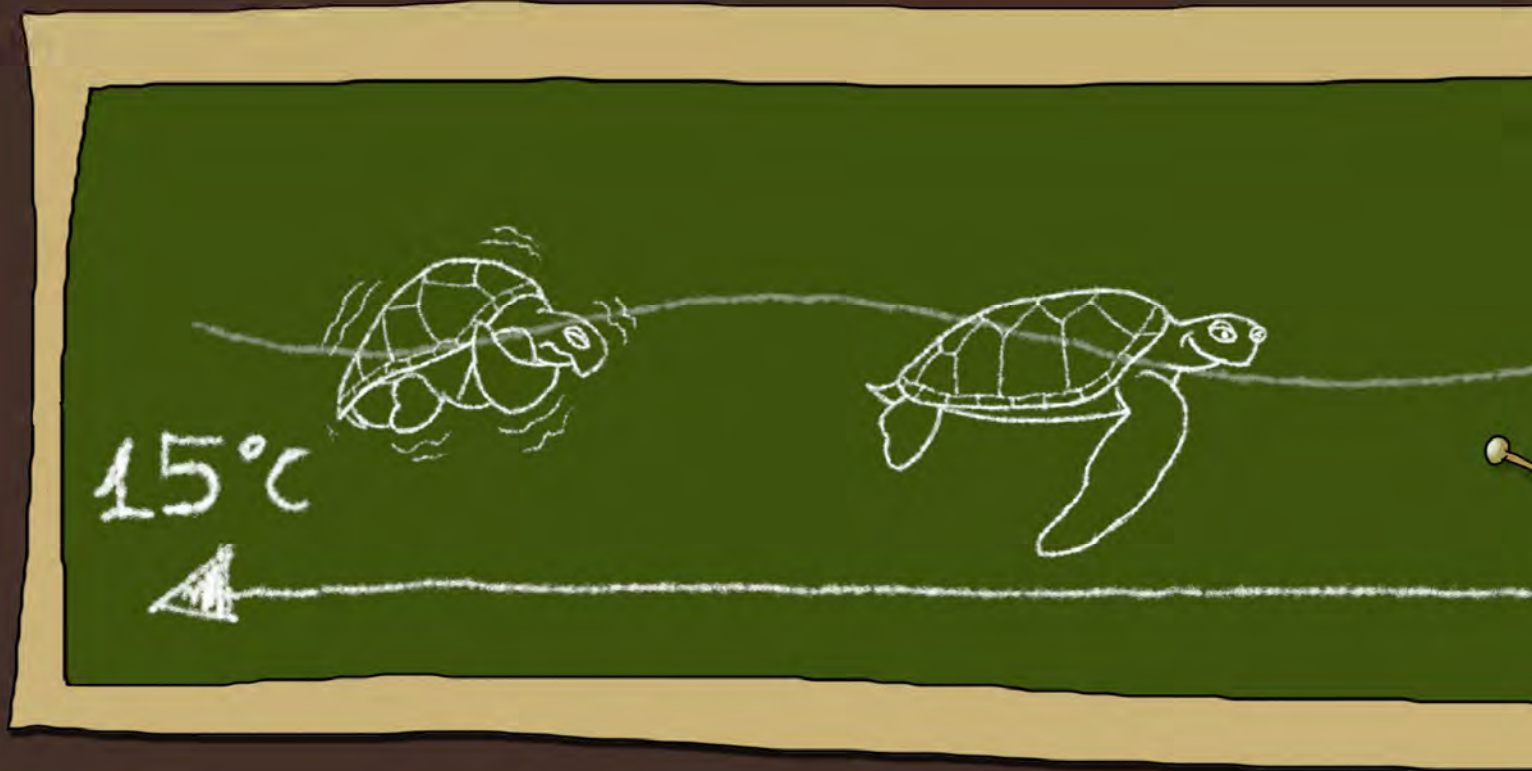
'It is believed that the increase in temperature is caused by human activities, such as burning of fossil fuels like oil and coal to make electricity for our homes and fuel for our cars.'



'Burning of fossil fuels creates greenhouse gases, which escape into the air.
The gases cause most of the warming. A warmer Earth may lead to
changes in rainfall patterns and a rise in the sea level.
This may affect plants, animals and humans.'



'An increase in Earth's temperature will have a big impact on sea turtles,' said Myrtle.

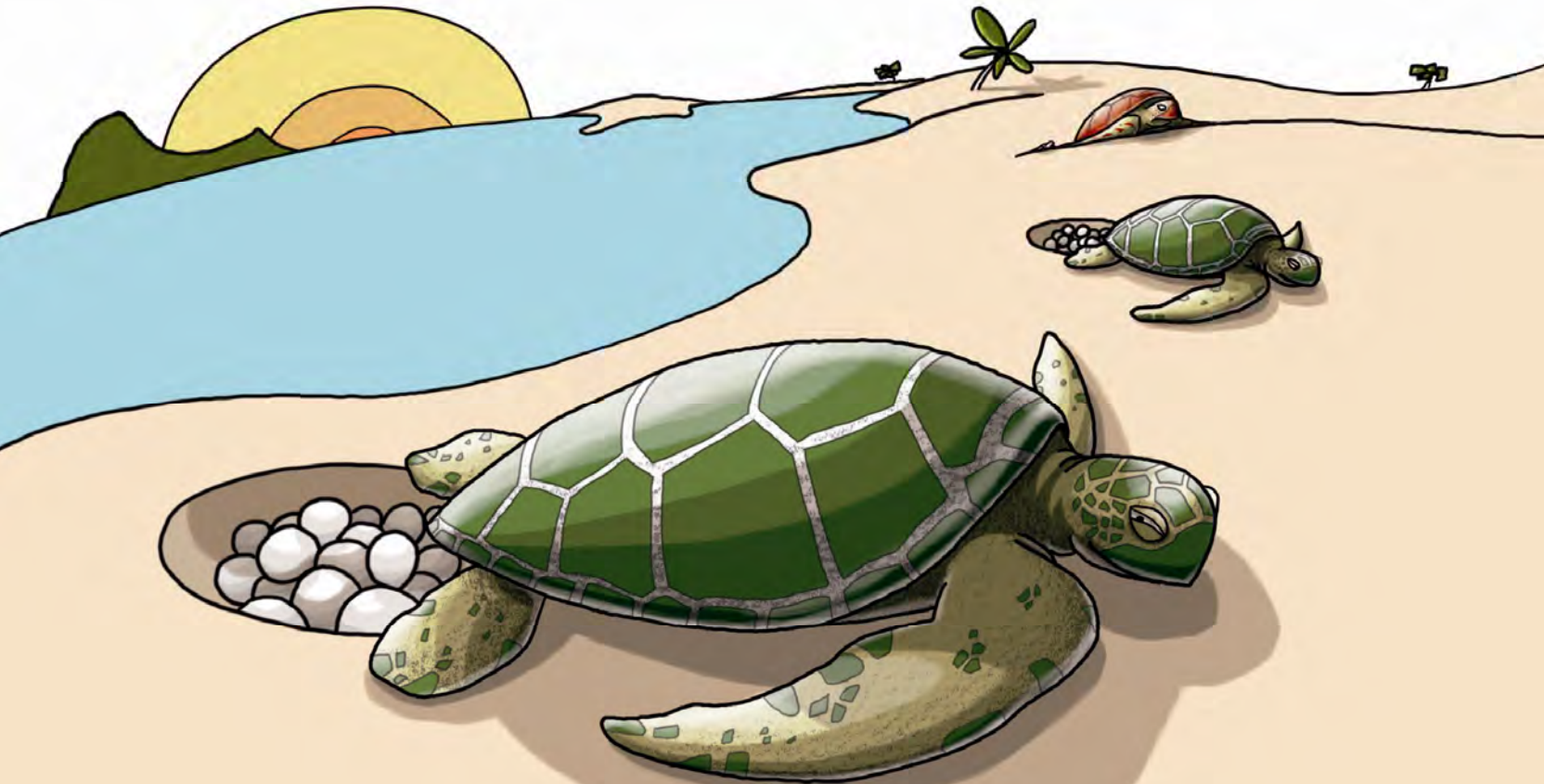


'We are sensitive creatures. We can only tolerate ocean temperatures of between 15 and 35 degrees Celsius. When the water is too cold, it is hard for us to swim. If the water becomes too hot, we become stressed.'

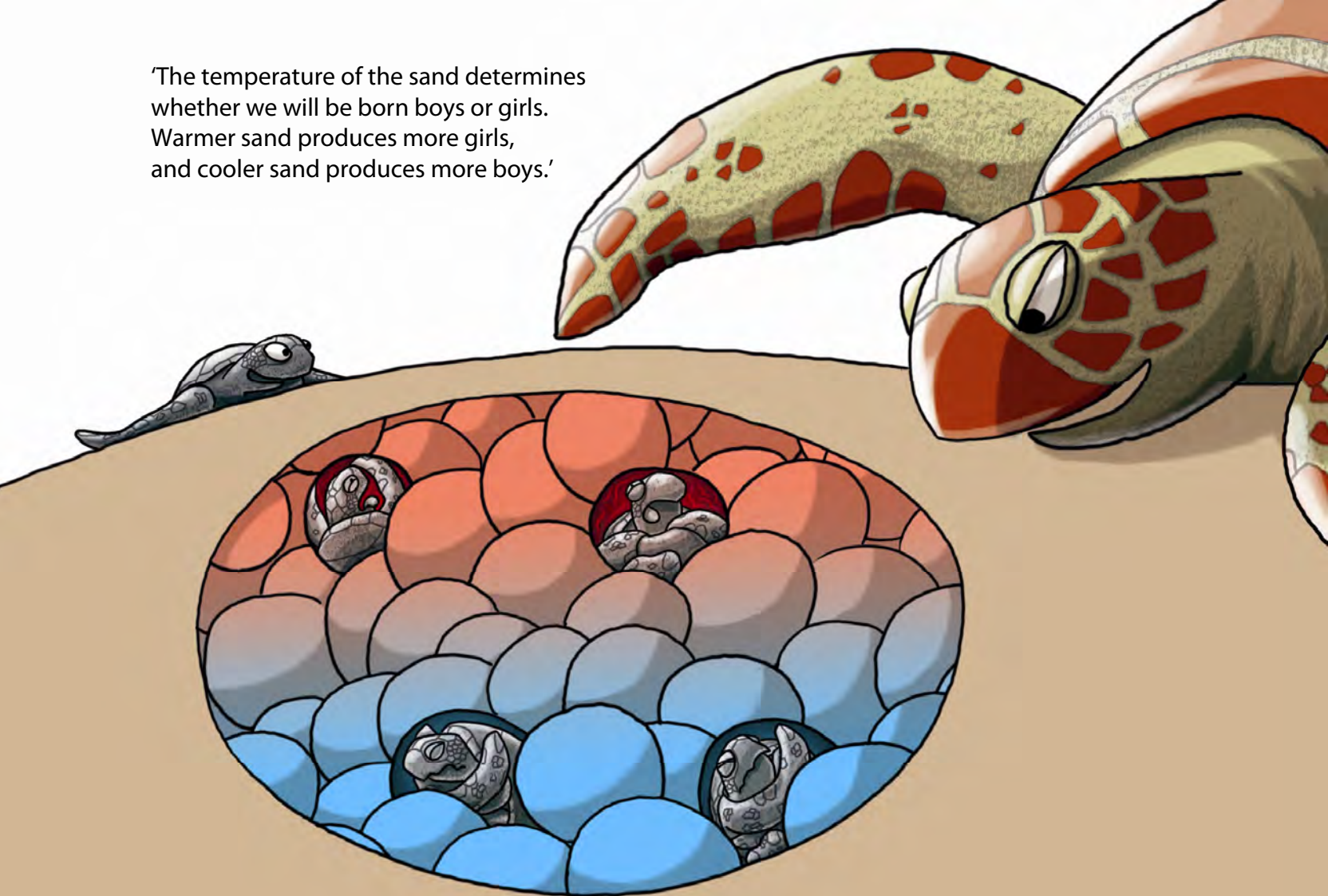


'If the temperature changes too much on our islands and in the oceans, we will have to move to other areas. But these new areas might not be the best place for us to nest.'

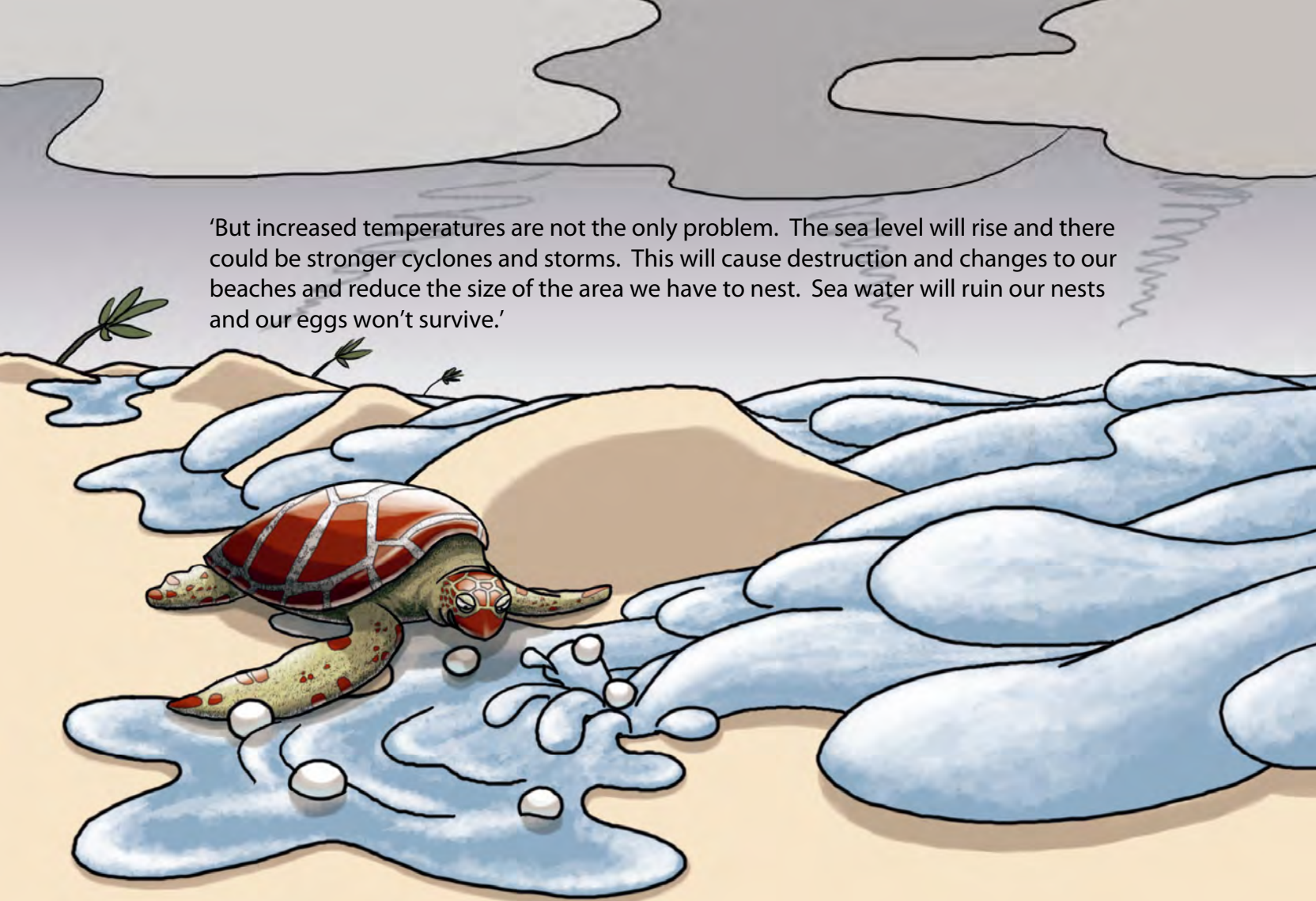
'If the temperature on our beaches becomes too hot, the development of our eggs and babies can be affected. For turtle eggs to incubate properly, sand temperatures need to be between 25 and 33 degrees Celsius. Temperatures above and below this may affect the development of baby turtles, causing them to die before they hatch. If sand temperatures become warmer, fewer eggs will develop into hatchlings.'



'The temperature of the sand determines whether we will be born boys or girls. Warmer sand produces more girls, and cooler sand produces more boys.'



'But increased temperatures are not the only problem. The sea level will rise and there could be stronger cyclones and storms. This will cause destruction and changes to our beaches and reduce the size of the area we have to nest. Sea water will ruin our nests and our eggs won't survive.'



'These threats will reduce the number of babies being born, and our numbers will eventually reduce. If our numbers are reduced, it will affect other animal species, as well as humans.'

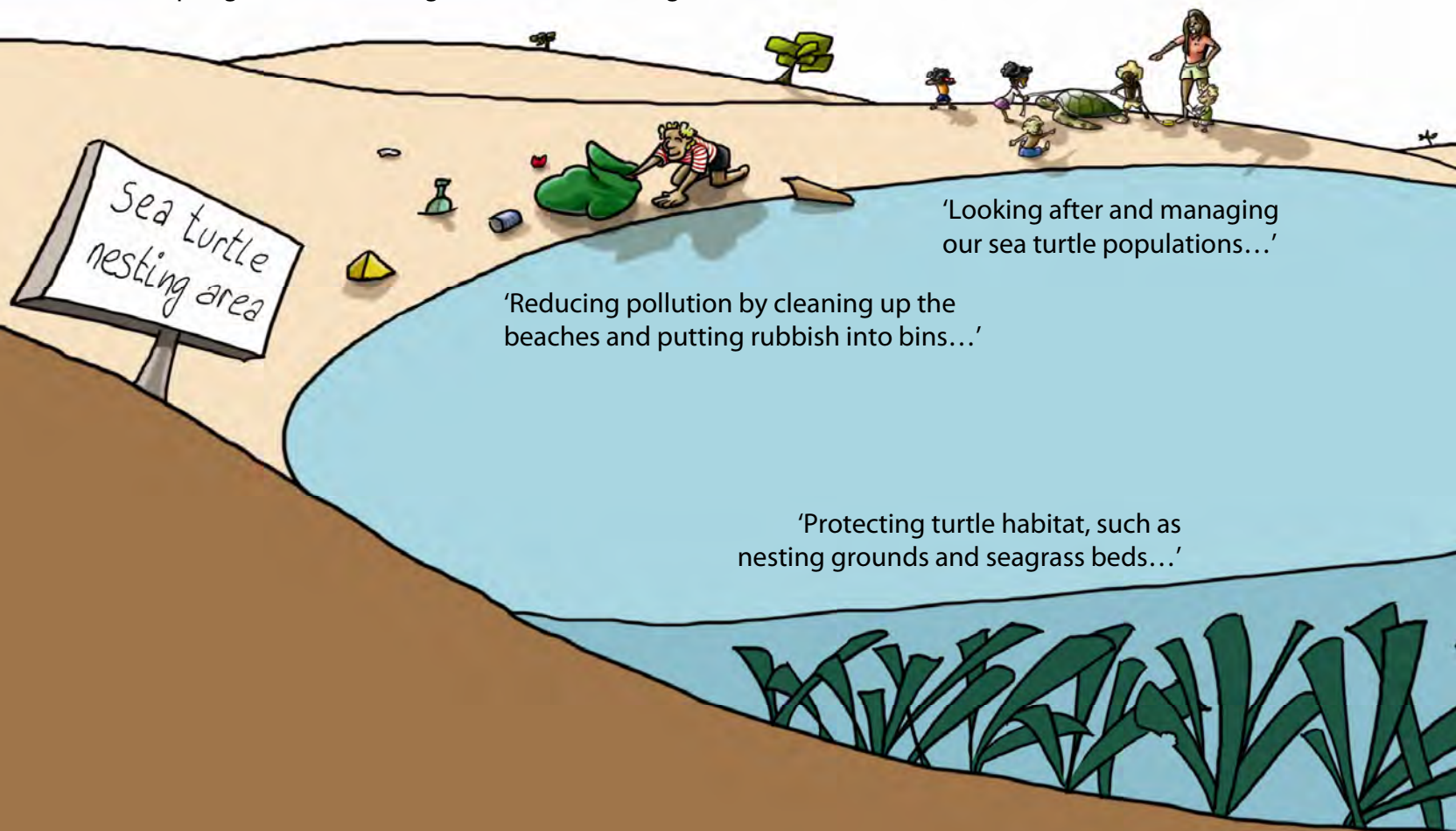


'That was a scary story, Myrtle! Is there anything that can be done to help our situation?'



'Yes! There are some simple things that humans can do to help us.'

'If the types of threats we face are reduced, we will have a better chance of coping with and adapting to climate change. Some of the things that can be done include...'

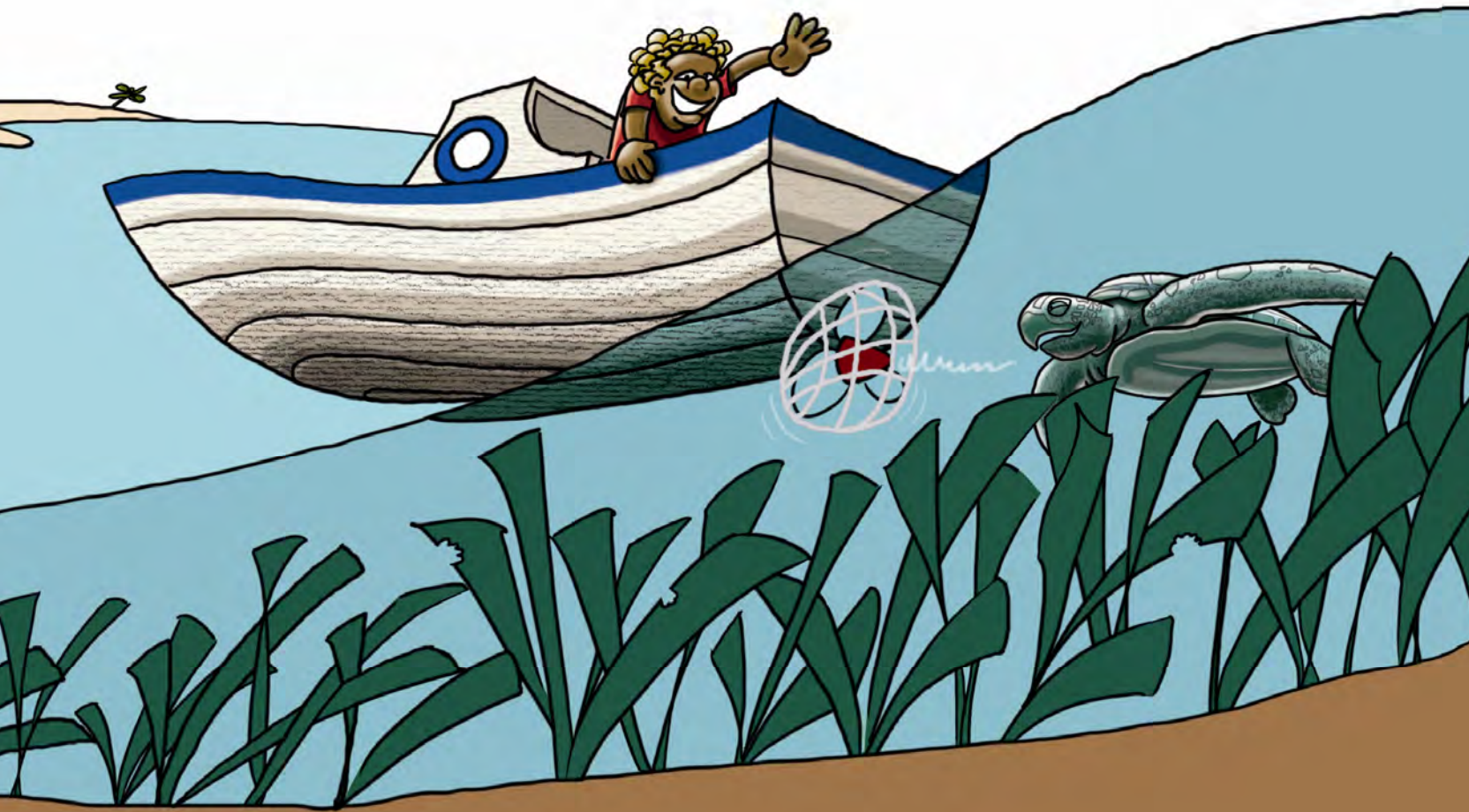


'Looking after and managing our sea turtle populations...'

'Reducing pollution by cleaning up the beaches and putting rubbish into bins...'

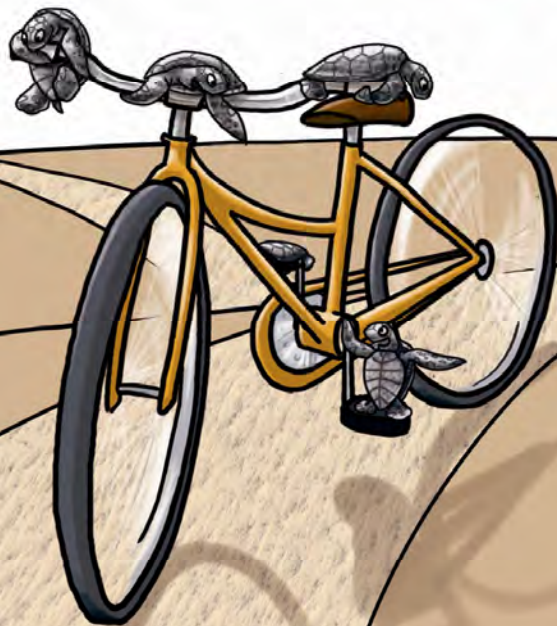
'Protecting turtle habitat, such as nesting grounds and seagrass beds...'

'...and using turtle-friendly boating gear.'



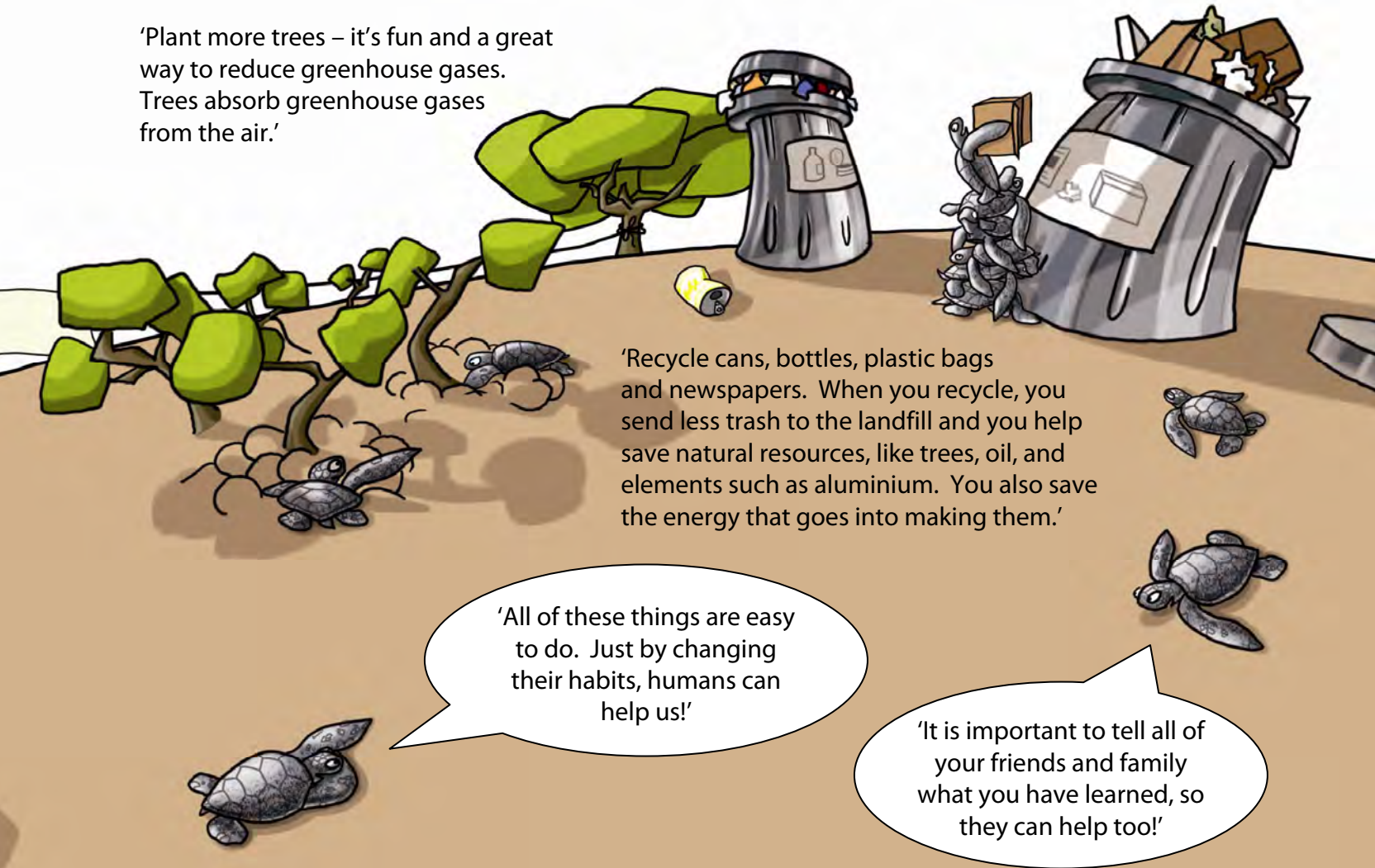
'Another way to help sea turtles is to reduce the amount of energy humans use. By reducing energy use, the amount of greenhouse gases being put into the air is reduced.'

'Save electricity. Turn off the TV and computer when you're not using them. Hang your clothes out to dry in the sun rather than using the dryer. Take shorter showers and turn the lights off when leaving your room.'



'Walk or ride short distances, instead of taking the car. Use the bus or 'car pool' for longer trips.'

'Plant more trees – it's fun and a great way to reduce greenhouse gases. Trees absorb greenhouse gases from the air.'



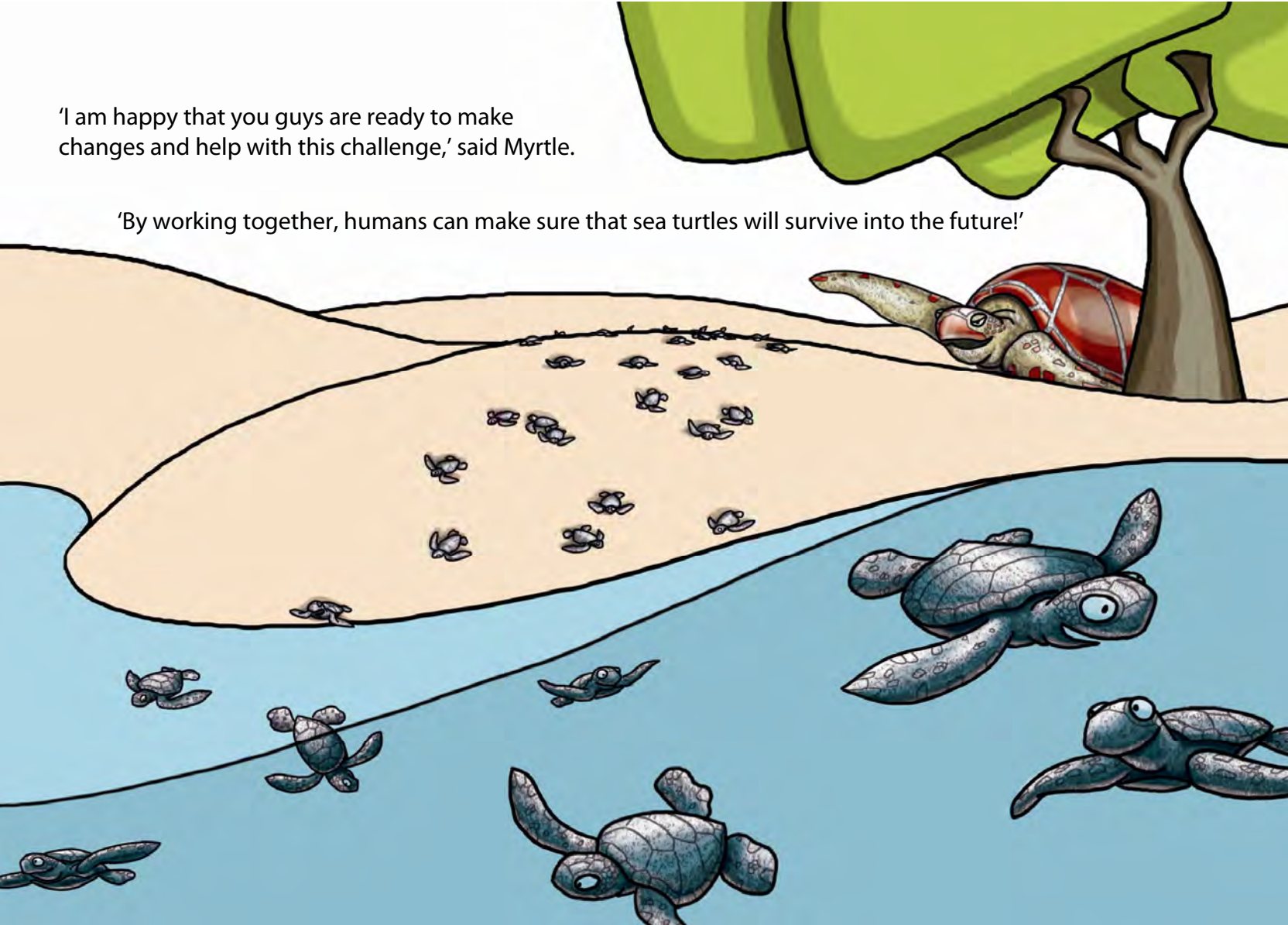
'Recycle cans, bottles, plastic bags and newspapers. When you recycle, you send less trash to the landfill and you help save natural resources, like trees, oil, and elements such as aluminium. You also save the energy that goes into making them.'

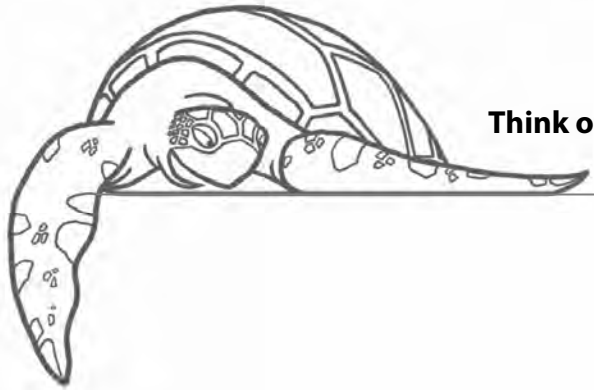
'All of these things are easy to do. Just by changing their habits, humans can help us!'

'It is important to tell all of your friends and family what you have learned, so they can help too!'

'I am happy that you guys are ready to make changes and help with this challenge,' said Myrtle.

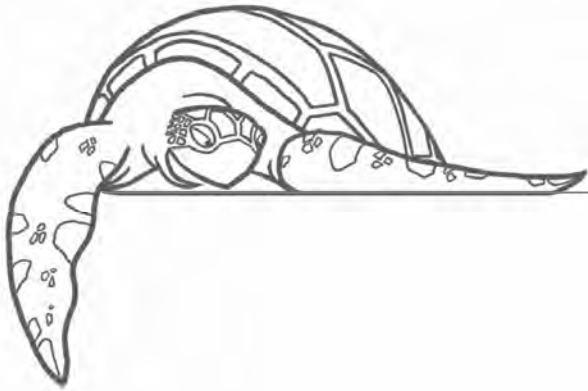
'By working together, humans can make sure that sea turtles will survive into the future!'





How can you help sea turtles to survive climate change?

**Think of the ways you can work together to reduce the threats faced
by sea turtles in your local community and write them here:**



GLOSSARY

Adapt

To make suitable or fit for a specific use or situation

Development

The process of growing, progressing or developing

Habitat

A natural place where a plant or animal lives. For example, a fish lives in the ocean – the ocean is its *habitat*

Threat

Something that is a source of danger

