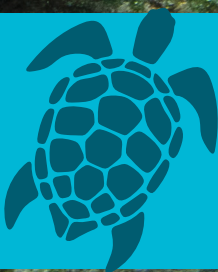




Turtles



YOUR FIELD REPORT
ISSUE 4



Communities in Udu district are exploring beekeeping and other sources of income as they seek to make a living that doesn't rely on marine turtle products

GREAT SEA REEF, FIJI



Hello!

Welcome to your latest turtle update



Karalaini Rereavosa,
assistant turtle project
officer, WWF-Pacific

Since your last update, the WWF team here have been busy sharing ideas on how to protect turtles. We recently got together with other WWF offices and partners involved in turtle conservation to discuss how we

can tackle the issues marine turtles face. I also joined a workshop organised by the University of the South Pacific, where we shared the results of our recent survey on the trade in turtles, along with all the vital work made possible thanks to your donation. A key part of our outreach work is supporting local communities to make a living in ways that don't depend on turtle products. Turn the page to find out more.

Moce! (This means 'goodbye' in Fijian!)



FIELD NOTES

CREATING A BUZZ

In Fiji, we're supporting communities to protect turtles with the help of smaller creatures: bees!

For the communities dotted along Fiji's coastlines, harvesting turtles and their eggs is a traditional way of life.

Turtle meat is a typical centrepiece in Fijian celebrations, while their eggs are considered a delicacy and are believed to have medicinal qualities. Turtle shells can be crafted into ornaments, combs and instruments, and their skin made into leather goods.

There's no doubt that turtle products are a crucial source

of income, often driven by a lack of alternatives, but the exploitation of these marine reptiles is threatening their long-term future.

With your support, we're helping local people find other ways of making a living so they don't have to depend on turtle products. For example, beekeeping is a relatively labour- and time-efficient agricultural practice, so we've been trialling this in five villages in a known



Fresh from the hive!



GENERATION OF HOPE

You're championing the next generation of turtle protectors. Your adoption supports local community-based monitoring teams, known as *Dau ni Vonu*, who watch over the beaches where turtles nest. As part of efforts to expand the network, younger people are joining nest surveys.



"I've learned so much already, such as how to tell the nests of different turtle species apart, how to find nests without damaging eggs, and what data we need to collect," says Sefanaia Tavaivunileba, a youth representative for his village.

Thanks to you, people like Sefanaia will be formally trained to become the future guardians of Fiji's marine turtles.

turtle-harvesting hotspot. The people involved had already received some practical training, but we wanted to see how we could support each village to turn beekeeping into a fully fledged business. After talking to those taking part, we organised a refresher workshop for 23 participants, which included hands-on training in honey harvesting and managing finances.

Since then, we've been back to see how it's going, and check that these communities are supported with everything they need to make sure the initiative is sustainable, including equipment, further training and help promoting their products.

A hive of activity

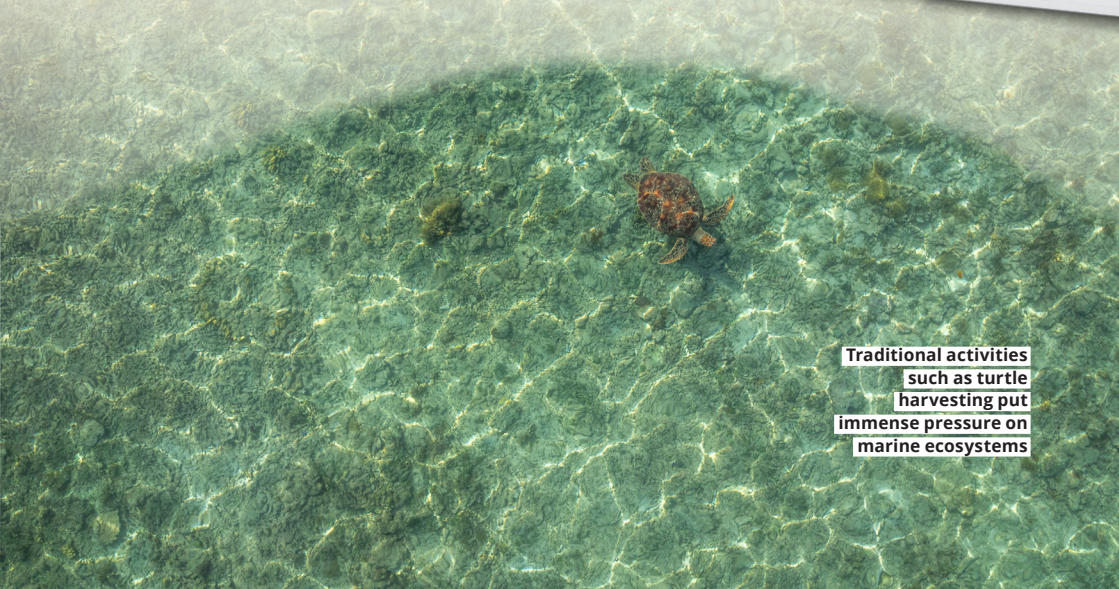
Another fantastic thing about beekeeping is that it's easily accessible for both men and women. In fact, one village's beekeeping business is run solely by the Women's Club. Marica Mocevakura, a club representative, is excited by the opportunity. "Beekeeping is less labour-intensive, but gives us the potential to earn just as much as before – if not more!" she explains. "And it benefits not only Veilomani Women's Club, but the entire village."

The future of turtles can't be separated from that of the coastal communities who share their home. With your support, we'll keep working to help them thrive together.

Karalaini

Sefanaia
is a turtle
hero

Traditional activities
such as turtle
harvesting put
immense pressure on
marine ecosystems



Female leatherbacks stay close to shore for three to four months before nesting, then make repeated visits to the beach, at 10-day intervals, to lay eggs

AGAINST ALL ODDS

Of all the epic journeys made by marine turtles, none compares in danger and jeopardy to their very first... on land

Perhaps the most remarkable fact about an adult marine turtle is that it survived its first week of life. Turtle parenting is non-existent; once the female lays her eggs in the sand and covers them up, she'll play no further part in the lives of her numerous offspring. And 'numerous' is key – turtles rely on producing hundreds of eggs in the expectation that very few will reach adulthood. The strategy has worked for millions of years but, increasingly, humans are lengthening their odds against survival.

The pregnant female that hauls her heavy body up a beach has been here before. Her highly evolved sensitivity to the Earth's gravitational fields has brought her back to the exact spot she first left decades before. The tiny hatchling that raced for the sea returns to lay her eggs where the mother she never knew laid hers all that time ago.

Since turtles spend most of their lives at sea, why don't they just complete the whole cycle in water? The answer is down to breathing. The embryos in the egg take in

air through a membrane. If the nest is flooded, they drown before they hatch. Choosing exactly where to lay requires some instinctive skills from the female. Too close to the waterline and a high tide will flood the nest and destroy the clutch. Equally, laying too far up the beach can increase the chances of the hatchlings being eaten by gulls, crabs or other predators on a longer dash to the sea.

Egg machines

Marine turtles are excellent diggers. Those broad, powerful hind flippers act as shovels, excavating a hole that can be up to 80cm deep. And there they deposit their eggs – lots of eggs, each about the size of a table-tennis ball. A hawksbill produces a clutch of 130 to 160 eggs, three to five times a year. Speedy as well as prolific, they can complete the whole egg-laying process, and bury the clutch in the sand, in under 45 minutes.

Her parental duties complete, the female crawls back to the ocean.

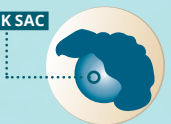
Climate change is disrupting many aspects of life for marine turtles, ►



CLIMB TO THE TOP

Tiny marine turtles have no parental help when it's time to hatch and leave the nest. So how does an embryo in an egg become a hatchling running to the sea?

YOLK SAC



GROW AN EGG TOOTH

The embryo grows a hard spur, called a caruncle, on the end of its snout, a bit like a bird's egg tooth.

1



2

CHIP A WAY OUT

The caruncle enables the hatchling to chip a hole in the eggshell, then tear away pieces of shell to climb out.



3

DIG TO THE SURFACE

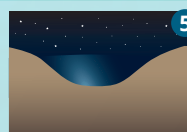
The hatchling uncurls its body and begins to dig. A host of 'tiny miners' loosen the sand above as the group digs.



4

DIG FOR DAYS

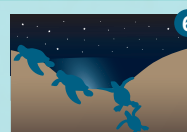
Digging out of the nest can take several days. They usually reach the surface four or five days after they hatch.



5

WAIT FOR COOLNESS

The young usually emerge at night or during a rainstorm when the sand and air are cooler.



6

FOLLOW THE LEADERS

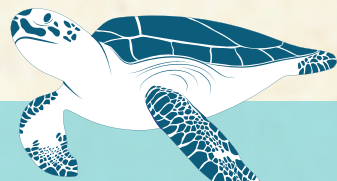
Once they decide to surface, one or two hatchlings lead the way and then they all burst out of the nest.



7

HEAD TOWARDS THE LIGHT

Confused, the turtles take time to orient themselves to the brightest horizon, then dash towards the sea.



but now it's even affecting them before they're born. The temperature of the sand determines the sex of the hatchlings inside the eggs. Warmer conditions, particularly near the surface, will result in more females; in the colder depths of the nest, or in cooler weather, males predominate.

In such extremes, nests may produce an all-male or all-female cohort of turtles. Not surprisingly, in some parts of the world, climate change is causing damaging distortions to the male-female ratio. In Fiji, our turtle monitors check sand temperatures in case fluctuations cause a gender shift.

The eggs hatch about two months after they're laid. It takes four or five days

for the hatchlings to reach the surface and in the great group-dig for the top, they inadvertently help each other, though hatchlings at the very bottom will struggle more. On some beaches, human volunteers reach into the sand to give stuck turtles a lifesaving hand. Regardless of when they break free of the nest, the hatchlings usually wait until nightfall before scrabbling off towards the ocean – there are fewer predators in the dark, and the baking sand that might cause them to overheat has cooled.

Dash then splash

The first challenge the newly emerged hatchlings face is knowing which way to

go. Turtles are phototactic – drawn towards light. Normally they'd head towards the moonlit sea, but the bright lights of beachfront developments play havoc with their sense of direction.

Hundreds or thousands of little bodies, frantically paddling through the sand, 'swimming' with their front flippers, soon attract the attention of hunters – gulls and crows, dogs, raccoons and crabs, all keen to pick them off.

Even when the hatchlings dive under the waves their ordeal isn't

DID YOU KNOW?

Scientists tracking turtle hatchlings on their journeys are able to attach satellite tags to them that weigh as little as five paper clips.

over. Sharks, sea catfish and other opportunists are waiting in the shallows, while seabirds swoop down to snatch them from above.

What happens to the hatchlings that make it to the open ocean? Scientists call the period in which they grow to sexual maturity 'the lost years'. We simply don't know where they go. Male turtles will never touch land again, but people who care for turtles celebrate the females' return, keeping the hopes for their species alive. ■

The hatchlings that make it to the ocean face new challenges, while those lost on the beach die of dehydration in the sun or are taken by birds and crabs

MELTING POINT

Sea ice supports incredible wildlife at both poles, but it's disappearing before our eyes

Our planet's north pole is surrounded by a vast frozen sea. Life in the Arctic depends on this sea ice. Caribou migrate across it. Polar bears

use it as a platform from which to hunt seals. The algae that forms beneath its surface supports an ecosystem teeming with wildlife, including beluga whales and narwhals.

At the opposite pole, in Antarctica, emperor penguins need 'fast' (stable) sea ice to raise their chicks on, while beneath the surface, under the ice, krill breed in enormous numbers. These tiny, shrimp-like creatures are a cornerstone of the Southern Ocean's food web, providing food for everything from fish and seals to Adélie penguins and blue whales.

Sea ice also helps cool the planet as it reflects the sun's rays back into space. But greenhouse gases caused by human activities have raised temperatures globally,

which is having a huge impact in polar regions. Sea ice is forming later, breaking up sooner and becoming thinner – with devastating consequences for wildlife and for humankind.

In the Arctic, shrinking ice means polar bears are forced to spend more time on land, where hunting opportunities are limited. In Antarctica, four of the five known emperor penguin colonies in one area experienced breeding failure in 2022 when thousands of chicks died – the ice broke up before they'd grown their waterproof feathers. These and other polar species are facing an uncertain future.

It's vital that the average global temperature rise is kept below 1.5°C, otherwise the Arctic could be ice-free every summer by the middle of this century.

What happens next depends on the actions we take today to reduce carbon emissions. With your support, we're pushing for urgent global climate policies to keep warming in check.

DO ONE THING!

Cut your carbon

Try to increase the proportion of delicious plant-based foods in your diet



Antarctic sea ice is vitally important for all the wildlife living on, under and around it. From tiny krill to vast whales, their survival depends on keeping global warming under 1.5°C

MAKE A CHANGE

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As well as helping to safeguard turtles, you support our other vital work to help protect our beautiful planet and its wildlife. Thank you.