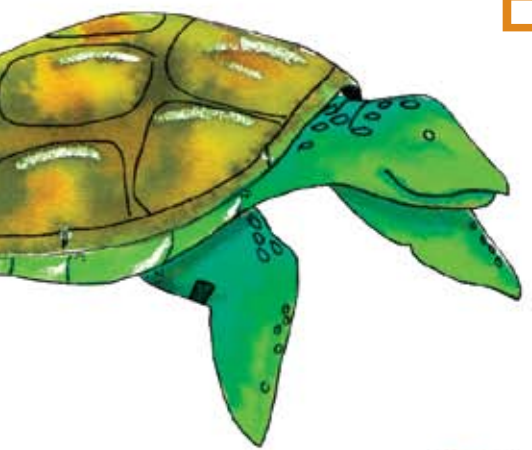


PACIFIC SEA TURTLE EDUCATION KIT



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For more information please contact:

Secretariat of the Pacific Regional Environment Programme (SPREP)

PO Box 240

Apia, Samoa

Ph: (685) 21929 F: (685) 20231

www.sprep.org

WWF South Pacific Programme

4 Ma'afu Street

PMB, GPO

Suva, Fiji Islands

Ph: (679) 3315533 F: (679) 3315410

www.wwfpacific.org.fj

Written by: Tamara Logan, SPREP

Reviewed and tested by: Lui Bell, SPREP

Megan Krolik, SPREP

Penina Solomon, WWF

Seema Deo, SPREP

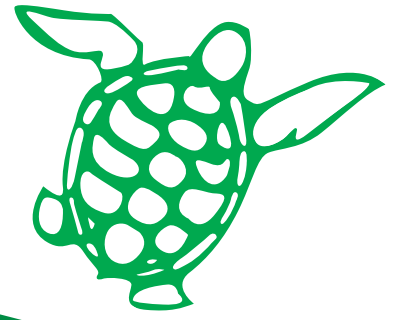
Esther Richards, SPREP

Ilisapeci Masivesi, SPREP

Editing by: Jaap Jasperse, SPREP

Revised in 2012 by: Seema Deo, Lui Bell Catherine Siota and Penina Solomon (SPREP)





Pacific Sea Turtle Education Kit

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2006 Pacific Year of the
Sea Turtle campaign.
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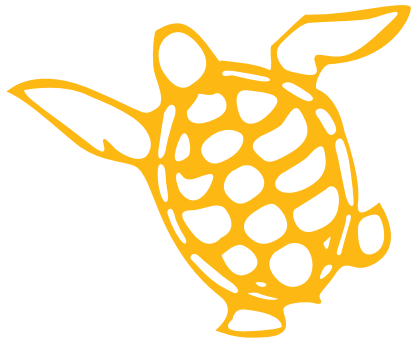


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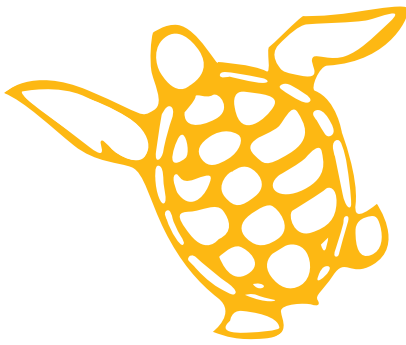
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Message to the teacher

- ★ The Pacific Sea Turtle Education Kit was first produced for schools and communities as part of the 2006 Pacific Year of the Sea Turtle campaign. The positive feedback from schools and NGOs has prompted us to produce a revised edition. The new edition revisits some of the activities and has been updated with newer images and information. It also highlights some of the successes in turtle conservation since 2006.
- ★ The Year of the Sea Turtle was a regional initiative that aimed to increase the number of turtles in the Pacific. Sea turtles have been on this earth for millions of years, yet their future continues to be threatened by a number of human-induced threats. Their survival is dependent on a joint commitment by communities, governments and other key partners to reduce these threats. As we prepared this revised version of the toolkit, we were pleased to note that despite some setbacks to turtle conservation in our region, there has been significant awareness and education on the issue. National policies and community programmes are ensuring that these age-old creatures are being given the protection status they so badly need.
- ★ The challenge is to learn: about the value of turtles to Pacific culture, heritage and tradition, about their role in the unique Pacific environment and economies, and how we can ensure that turtles are cherished by future generations.
- ★ We need to continue to engage young people to take up the challenge to save these ancient creatures from extinction. As the Pacific's future leaders, young people play a crucial role in protecting the unique and rich natural heritage of our beautiful islands. As a teacher, you have one of the Pacific's most challenging tasks – to teach the young how to make decisions that will have a positive impact on their future.
- ★ We hope this Education Kit will provide fun, creative, and above all, educational activities that will teach and empower young people to conserve sea turtles.
- ★ Sea turtles are a key part of Pacific life: if we protect them, we also protect our heritage.

David Sheppard
Director General
Secretariat of the Pacific Regional Environment Programme (SPREP)



2006 Pacific Year of the Sea Turtle

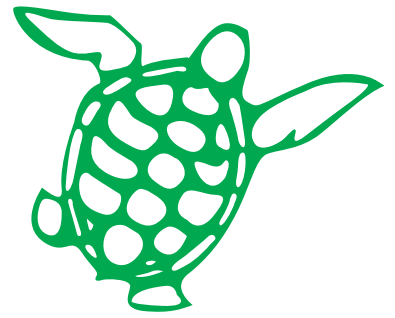
- ★ The 2006 Pacific YOST provided a platform for Pacific Island countries and territories to engage in the conservation of sea turtles and their habitats as a region. Some key achievements of the YOST included:
 - development of Fiji's Sea Turtle Recovery Plan;
 - launch of the TREDIS tagging database;
 - Papua New Guinea, Solomon Islands and Indonesia signed an MoU to further protect the western Pacific leatherback turtle;
 - at least 50 turtles were flipper tagged while 10 were satellite tagged across the region as part of the YOST.

Community Management

- ★ For centuries, sea turtles have been an integral part of Pacific diet, culture and history. In some Pacific countries, turtle meat and eggs are a traditional food source, turtle bones are used to make tools, and turtle shells are used for decorative and ceremonial purposes. However, the numbers of turtles found in our waters are decreasing as turtles and their eggs are over-harvested, their nesting beaches and feeding grounds used for other purposes such as tourism development, or they are accidentally caught in fishing gear not meant for them.
 - ★ Many of the areas where sea turtles feed and nest are on customary lands owned or managed by communities.
 - ★ Nesting success is critical to sea turtle survival. To save turtles we have to ensure that nests hatch and hatchlings reach the water.
 - ★ Pacific islanders play a key role in managing the numbers of sea turtles and protecting turtle feeding and nesting sites.



Education for Sustainable Development




- ★ Sustainable development means meeting the needs of the present generation without compromising the needs of the future.*
- ★ This means making decisions that consider the social, environmental and economic impacts on today and tomorrow.
- ★ Pacific island governments, along with other world leaders and civil society, have pledged their commitment to take action to change and move society towards sustainable development. Along with this commitment is the recognition that a sustainable future is dependent upon a considerable shift in attitudes, value, lifestyles and behaviour.
- ★ 2005 marked the start of the UN Decade of Education for Sustainable Development (ESD), a global initiative to showcase, promote and encourage the critical role of education and communication as a basis for a more sustainable society.

ESD has four key focus areas:

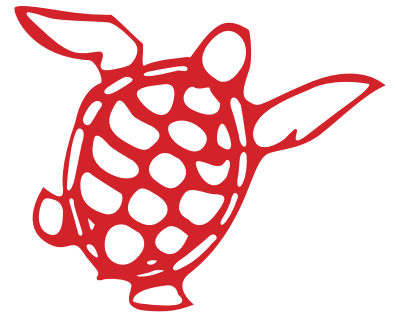
1. Improving access to quality basic education
 2. Reorienting existing education to address sustainable development
 3. Developing awareness and understanding of sustainable development issues
 4. Providing training programmes for all sectors including civil society, and the private sector.
- ★ These four areas focus on building the capacity of people to act for a sustainable future. Most of the world's environmental problems are caused by human behaviour.
 - ★ One thing we can do is think about the effects we might have on the environment; remember why it is important to protect our environment; and take action to help keep our "Pacific forever".

* The 1987 report of the World Commission on Environment and Development (WCED), better known as the Brundtland Report, defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs".

	<h2>Education for Sustainable Development principles</h2>	<h2>Think – Feel – Act to save sea turtles in the Pacific!!</h2>
<h3>Think</h3>	<ul style="list-style-type: none"> • Think critically about the decisions we make, thinking about tomorrow not just today • Use our traditional knowledge to sustain our livelihoods • Education as a human right • Make decisions that have a positive impact on our future 	<p>Learn about the importance of sea turtles to our environment, culture, heritage and economy. Share this knowledge with your family and friends. Understand the importance of conservation of turtles, and other species, to sustainable development in the Pacific. Learn about the national laws protecting turtles.</p>
<h3>Feel</h3>	<p>Respect values, history, tradition and culture; understand and appreciate cultural differences.</p>	<p>Understand the connection between sea turtles and Pacific heritage. Respect traditional practices of using turtles. Learn and share Pacific myths and legends about turtles and other sea animals. Promote the knowledge passed down from our ancestors.</p>
<h3>Act</h3>	<p>Take action, take responsibility for our actions, integrate cultural values into our decision-making processes.</p>	<p>Take action to reduce deaths of sea turtles. Be responsible and do not disturb them when they are feeding or nesting; do not overharvest them or their eggs. The next time you go shopping, take your own bag and help to keep plastic out of the ocean. Share this information with as many people as you can!</p>

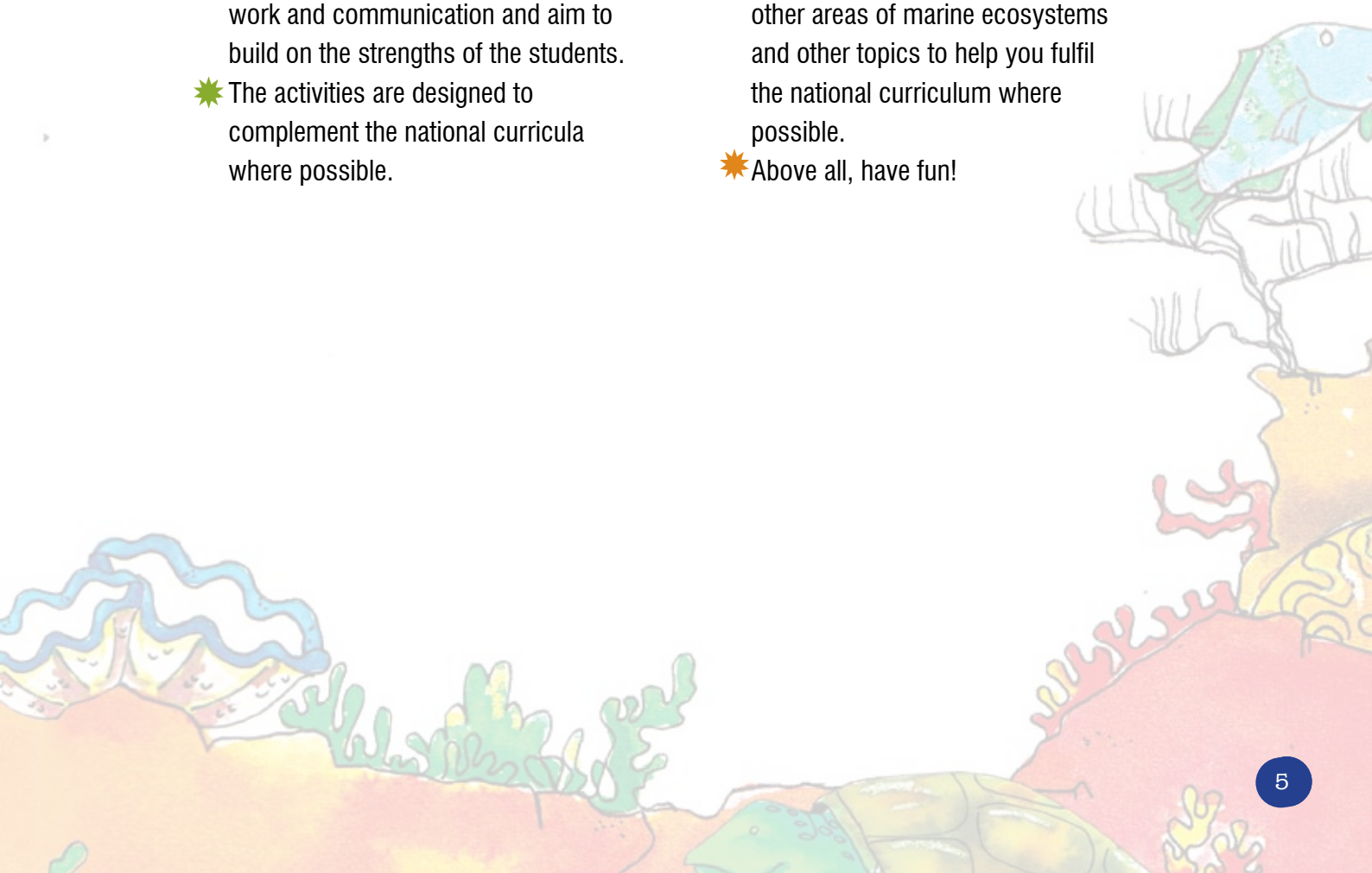
We hope this education kit will increase your students' awareness and understanding of the need to conserve sea turtles, and provide them with the skills and the ability to conserve the rich and unique Pacific environment.

How to use this workbook




There are two sections in this workbook:

- ★ The first section provides information about sea turtles found in the Pacific.
 - ★ The second section provides fun and educational activities that can be used in your teaching plans or lessons. Each activity also outlines the aims, relevant levels, subjects, and materials.
 - ★ This workbook has been designed to support lessons in a range of subjects and encourages new ways of teaching subject matter.
 - ★ The activities allow development of skills such as literacy, numeracy, group-work and communication and aim to build on the strengths of the students.
 - ★ The activities are designed to complement the national curricula where possible.
- ★ The activities are divided into thematic areas for easy integration into lesson plans, and the Chart of Topics and Activity Guide (page 53) can help you link the activities to curriculum requirements. This allows you to work out what activities are relevant to your lesson plans.
 - ★ Sea turtles are considered an “iconic” species, meaning that their charismatic nature and intriguing life cycle make them ideal mascots to support broader marine education activities.
 - ★ You can use these activities to introduce other areas of marine ecosystems and other topics to help you fulfil the national curriculum where possible.
 - ★ Above all, have fun!

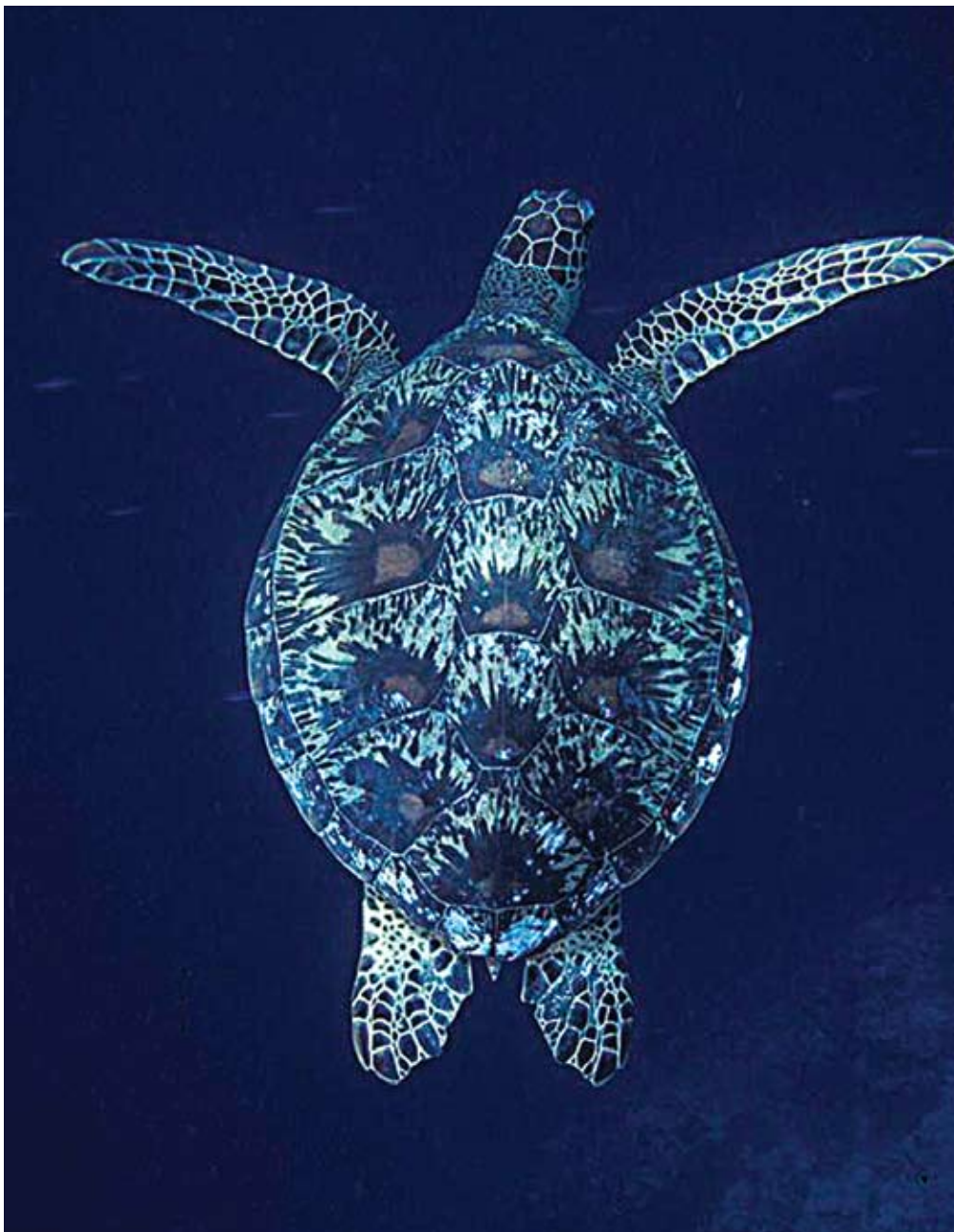




A large sea turtle is swimming from the left side of the frame towards the right. The turtle's shell is a mix of brown and tan with distinct scutes. Its head is visible, showing a patterned snout. The background is a vibrant blue underwater scene with a coral reef. The coral is a mix of red, purple, and white, creating a textured backdrop. The lighting is bright, suggesting a shallow depth.

SECTION 1: SEA TURTLES

Sea turtles have lived in the ocean for millions of years dating back to long before the age of the dinosaurs. Back then, land-based turtles (or tortoises) started living in the sea, and over millions of years, evolved to what they are today. While dinosaurs are no longer around, turtles survived and are some of the world's oldest and most fascinating creatures.



- Sea turtles are both slow-growing, and long-living, and are found in tropical and sub-tropical waters around the world. Turtles are reptiles; even though they live in the water, they have lungs and not gills so they have to come up for air regularly. Sea turtles are largely *migratory*, meaning they can travel vast distances in their lifetime, and across waters that come under the jurisdictions of many countries. Turtles in the Pacific have been known to travel up to 3,000 kilometres between various Pacific island countries and territories! Due to their *migratory* nature, they are considered a shared resource, and it

is therefore a shared responsibility to protect them.

- Sea turtles have a large shell called a *carapace*, and four strong flippers which are used for swimming and steering them through the water. They have no teeth, but the shape of their jaws determines what they eat.
- It is impossible to tell the sex of a small sea turtle just by looking at it. Once a turtle becomes an adult, a male can be identified by a long tail as well as long claws on the front flippers. It is thought that a female turtle must be 30 - 50 years old before she can lay eggs (depending on species).

A symbol of Pacific culture and heritage

- The sea turtle is a powerful and mysterious creature in many cultures of the world. In the Pacific, it is a key figure in many traditions and cultures: it symbolizes longevity, stamina, tranquility and strength. The turtle represents our history, our heritage and our future. Its migratory nature echoes the navigational spirit and paths of our ancestors. Sea turtles are ocean ambassadors, connecting Pacific islands through their lifelong journeys. They are survivors: from the moment they are born, turtles are faced with many natural and human-induced threats.
- For centuries, sea turtles have been an integral part of Pacific diet, culture and history. In some Pacific countries, turtle meat is a traditional food source,



turtle bones are used to make tools, and shells are used for decorative and ceremonial purposes.

- Sea turtles being an important element of Pacific identity, their survival is now dependent on communities, governments and other partners working together to reduce the number of threats to them.

Sea turtles found

Most scientists agree that there are seven *species* of sea turtles in the world – six of which are found in the Pacific.*

Six turtle species are considered *endangered* which means that they may not be around in the near future if we do not work together to conserve them.



- The leatherback is the largest living species of sea turtle, growing up to 180cm long and weighing up to 500 kilograms! It has a soft, leathery skin (which is black with light spots)

Leatherback Turtle
(*Dermochelys coriacea*)

with seven ridges on its back. The leatherback is the only sea turtle that does not have a hard shell.

- The leatherback's favourite food is the venomous Portuguese man-o-war jellyfish, which most other sea animals avoid. Like all sea turtles, the leatherback has no teeth and uses its strong, sharp beak to catch food.
- Unlike other species, leatherbacks live in the open ocean, traveling thousands of kilometres throughout their lifetime. They are found in cooler waters such as those off the west coast of Canada and the United States, but return to tropical beaches to lay their eggs. Nesting occurs in several areas including the Huon Coast in Papua New Guinea, Santa Isabel in the Solomon Islands and Vanuatu.

* Some sources mention another species, the Black Turtle, but most scientists agree that this is a sub-species of the Green Turtle.



- The green turtle is the second largest *species* of sea turtle in the world growing to 120cm in length and weighing up to 230 kilograms. It has a small head and an oval *carapace* or shell that is generally brown.

Green Turtle
(*Chelonia mydas*)

- Green turtles are *herbivores*, eating mostly seagrass and algae, although young green turtles feed on *crustaceans* and molluscs. The fat inside the sea turtle's body is green from the grass it eats – this is how it gets its name. Green turtles can be found grazing close to the shore, making them the most commonly hunted turtles in the Pacific.
- This *species* of sea turtle is found throughout the Pacific in feeding grounds and *rookeries* or nesting areas such as Surprise Island in New Caledonia, Gielop Atoll in Yap, Scilly Atoll in French Polynesia, as well as in American Samoa, Fiji, Tonga and Vanuatu. These turtles travel vast distances in the Pacific between feeding and nesting grounds (and vice versa).

in the Pacific



- The hawksbill turtle gets its name from its beak because the top of it hooks down like the bill of a hawk. The hawksbill is considered the most beautiful of sea turtles

**Hawksbill
Turtle
(*Eretmochelys
imbricata*)**

as its *carapace* usually has dark brown or amber scales (used to make crafts and ornaments). The hawksbill can grow to 100cm long and weigh between 60 and 80 kilograms. Hawksbills swim near rocky and coral reefs, using their sharp beaks to search among the coral for sponges, squid, octopus and other food.

- Although many people in Pacific countries eat this type of sea turtle, their meat is sometimes poisonous which may be from the food that hawksbills consume.
- Hawksbills nest and feed in many areas in the Pacific. Nesting occurs in the Arnavon Islands in the Solomon Islands, the Rock Islands of Palau and Samoa. Rookeries are also found on islands in the Torres Strait and the northern Great Barrier Reef in Australia. These turtles are also largely *migratory*, traveling vast distances between Pacific island countries and territories.

- The loggerhead turtle has a large head, thick neck and a reddish brown *carapace* shaped like a heart.

**Loggerhead
Turtle
(*Caretta
caretta*)**

Loggerheads can grow between 90cm and 105cm in length and weigh between 100 and 180 kilograms. They hunt for food near coral reefs and rocks, eating snails, clams, crabs and other sea animals.

- A small number of loggerhead turtles nest in New Caledonia, and *rookeries* also exist on Wreck Island and Mon Repos in Queensland, Australia.

Sea turtles found in the Pacific



- The olive ridley is the smallest of all sea turtles growing to 72cm long and weighing between 35 and 50 kilograms. Its *carapace* is domed from the front and is shaped like a heart. Olive ridleys eat *crustaceans*, molluscs, jellyfish and plants. They are found mostly in Australia, in southern Queensland, around northern Australia to Joseph Bonaparte Gulf in Western Australia, as well as Palau and the Solomon Islands. However, they are only found to nest in Australia.

Olive Ridley Turtle
(*Lepidochelys olivacea*)



- The flatback turtle is olive grey and has soft skin covering a flat *carapace*. It can grow to 1m long and weigh up to 90 kilograms. The flatback turtle is found in waters of northern Australia (where they also nest), southern Indonesia and southern Papua New Guinea thus having the smallest geographic range of sea turtles. It eats *crustaceans*, jellyfish and is one of the few species that eat sea cucumbers.

Flatback Turtle (*Natador depressus*)

Sea turtle ^{not} found in the Pacific



- This species is small like the olive ridley but nests on the beaches of the cool waters of the Atlantic off the coast of the south-east United States and Central America. These sea turtles mainly eat crabs.

Kemp's Ridley Turtle
(*Lepidochelys kempii*)

Life Cycle

- Adult sea turtles spend most of their adult lives in foraging or feeding grounds, usually away from the nesting beach.
- During the reproductive season, adult sea turtles travel to the area surrounding the nesting beach, where they remain for several months.
- After mating, the males return to the feeding grounds, while the females get together in areas beside the nesting beaches.
- Nesting occurs at night, about four weeks after the sea turtles have mated. The female turtle makes her way to the beach, dragging her heavy weight over the sand above the high tide mark where she chooses a place to nest. It is very important not to disturb a turtle when she is nesting as any movement of light can scare her back into the water. Faithfully, adult female turtles always return to or near the beach where they were born to lay their eggs. It is important not to disturb them or take their eggs from the nest.
- The sea turtle digs a hole called a *body pit* around herself by scooping away the dry sand with her front flippers. She uses her back flippers to dig into the damp sand below to create a nest or *egg chamber*, a vertical tunnel with a round base.
- Females of most *species* of sea turtle lay a *clutch* of round, white eggs in the *egg chamber*. Each *clutch* contains around 120 eggs. The turtle then fills in the nest with damp sand, using her back flippers to pack the eggs in tightly. Once the nest is covered, the turtle moves forward, throwing sand over the nest with her front flippers. This protects the eggs from drying out in the sun. She crawls back to the water and will return to lay another *clutch* of eggs about two weeks later.
- Apart from the sand covering them, the eggs are completely unprotected once the mother returns to the sea.
- Female sea turtles lay more than one *clutch* in a season and they usually come back to the same beach to nest. However, sea turtles do not lay eggs every year, returning between two and eight years after their last breeding season.
- The eggs incubate in the sand for seven to twelve weeks before hatching. Incubation time and sex of the hatchlings depends on the temperature of the sand. A warm nest results in mostly female hatchlings in a short time. A cool nest results in mostly male hatchlings more slowly. Once the hatchlings break out of the eggs they take a few days to dig their way up to the surface as a group.
- When the temperature is cooler, usually at night, the hatchlings come out of the nest and head for the sea. Hatchlings are known to use light reflected from the ocean's surface as a cue to help them navigate their way to the ocean.

The value of sea turtles

Ecological/ environmental value

- Sea turtles serve important roles in coastal and marine habitats by contributing to the health and maintenance of coral reefs, seagrass meadows, estuaries, and sandy beaches. Because they migrate thousands of kilometres and take decades to mature, turtles are important indicators of the health of coastal and marine environments on both local and global scales.

Social/cultural

- Sea turtles and humans have been linked for centuries. Once they were only hunted in the Pacific as part of

subsistence living. Increasing human populations, the introduction of new fishing technology, pollution and loss of feeding and nesting habitats in the Pacific have resulted in reduced turtle numbers.

Economic value

- Millions of people visit the Pacific each year to enjoy the natural environment and large diversity of marine animals, birds and other animals. This presents opportunities to generate revenue from tourism, which can support the local economy, and promote the conservation of the Pacific's unique environment.

Myths and legends in the Pacific

- For centuries, the sea turtle has been a key figure and symbol of Pacific island cultures and traditions. Its antiquity symbolizes the durability of Pacific island customs and traditions; its spirit is the subject of many myths and legends, and part of Pacific history passed down through generations.
- In Samoa and Tahiti, sea turtles are considered “sacred fish” (i’a sa) and were only hunted in the past for special traditional ceremonies such as matai title bestowals and other important cultural events.
- In Fiji, the “turtle calling of Kadavu” is a legend about an ancient ancestor spirit who transformed herself into a turtle so that she could swim and fly through the waters forever.
- On the island of Satawal in the Federated States of Micronesia, the hawksbill turtle was treated like a god and could not be caught or eaten.
- In Vanuatu, sea turtle meat is an important part of the Yam Festival.
- Other Pacific islands may have their own tales and legends about sea turtles. What tales exist in your country?

The IUCN Red List of Threatened Species & turtles

- The World Conservation Union (IUCN) is an international organization that monitors the state of the world's *species* and determines their risk of extinction or the risk of disappearing forever and is reflected in the IUCN Red List of Threatened Species.
- All six species of sea turtles found in the Pacific are listed on the IUCN Red List of Threatened Species. A *threatened* species is one that has so few of its kind left that it is in danger of becoming extinct.

Leatherback Turtle	Critically endangered
Hawksbill Turtle	Critically endangered
Olive Ridley Turtle	Vulnerable
Loggerhead Turtle	Endangered
Green Turtle	Endangered
Flatback Turtle	Data deficient

NOT FOUND IN THE PACIFIC:

Kemp's Ridley Turtle	Critically endangered
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Global agreements protecting sea turtles

- A convention is an international agreement developed, and supported, by countries around a common concern. Many Pacific island countries support conventions that protect sea turtles found in this region.

Convention on the Conservation of Migratory Species (CMS)

- CMS encourages the protection of turtles at the national level and encourages regional cooperation. Countries who are Parties to CMS (those countries who have signed up to the Convention) are obliged to conserve the habitat, to manage factors that might affect migration and to control other factors that might endanger sea turtles. Above all, Parties are obliged to prohibit the taking of animals of these species with few exceptions.

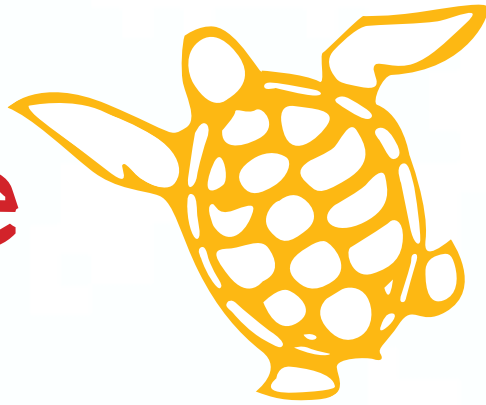
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

- CITES was established to regulate international trade in a wide range of wild animals and plants through a system of export and import permits. Under CITES, the commercial trade in live or dead turtles, or any products derived from turtles (such as turtleshell jewelry) between parties is prohibited.

Convention on Biological Diversity (CBD)

- The objectives of CBD are "the conservation of biological diversity, the sustainable use of its components, and equitable sharing of the benefits of biodiversity". Under the CBD, Parties are expected to develop plans to promote conservation and sustainable use of *biodiversity*, including sea turtles.

10 sea turtle facts



Sea turtles have survived for millions of years; their ancestors shared the world with dinosaurs.

Most scientists agree that there are seven species or types of sea turtle found in the world. Six of these are found in the Pacific.

The survival of sea turtles is dependent on communities, governments and the private sector working together to reduce the threats facing them.

Sea turtles can travel up to 3,000 kilometres across the sea.

Only 1 in 1,000 hatched sea turtles survives long enough to breed.

Sea turtles are slow-growing creatures taking as long as 30-50 years to reach maturity.

Sea turtles are threatened, meaning that if we don't look after them, they will become extinct.

The sex of a sea turtle is dependent on the temperature of the sand surrounding the nest in which it hatched.

Sea turtles will always try to return to where they are born to nest.

Sea turtles can live up to 60 - 80 years!



Island biodiversity

- *Biodiversity* is the variety of life on earth. This life includes plants, animals, humans and *microorganisms* (living organisms that are too small to be seen with the human eye). The Pacific is a unique area in the world, containing many *species* that occur only in this region. Pacific island *biodiversity* is extremely diverse, globally revered, and also highly threatened.
- The Pacific region supports the world's largest remaining populations of green, hawksbill, loggerhead and leatherback turtles and also of dugongs.

The value of island biodiversity

Livelihoods: The livelihoods of Pacific islanders are inextricably linked to their environment. We depend on *biodiversity* for food, shelter, protection from storms, medicinal purposes, practical purposes, etc.



heritage, and identity. *Biodiversity* provides inspiration and provokes curiosity and imagination. **Protecting the world for future generations:** No generation has the right to destroy the environment and resources on which

Medical and economic reasons: plants and animals could provide us with additional food, medicines, and other products that will save lives and benefit society.

Ecological processes: *Biodiversity* helps maintain important ecological processes such as oxygen production, pollination, and flood control that in turn help support all life on earth.

Richer lives: We benefit from the rich diversity found in the Pacific and other parts of the world. It has a strong role in culture,

future generations will depend. It is our responsibility to take care of the diversity of life.

Rights: All *species* of plants and animals have a right to exist.

Recreational: We all enjoy activities such as hiking, snorkeling, fishing and so on as do the millions of visitors coming to the Pacific each year!

Adapted from "Why care about biodiversity?", Exploring Biodiversity: A Guide for Educators Around the World, Conservation International and World Wildlife Fund.

Why do we need to worry about grass that grows in the sea?

Seagrass is important to all Pacific islanders and to the world. Plants make the oxygen we breathe. Seagrass provides food for green turtles and other animals, whilst providing shelter for many plants and animals. Research has found that 400 square metres of seagrass (10 metres long and 40 metres wide, or 20 metres long and wide) can support 2,000 tonnes of fish a year.



Pacific marine environment

- The Pacific Islands region covers 32 million square km and is situated in the middle of the largest continuous marine habitat on the planet, the Pacific Ocean.
- The Pacific is home to a diverse range of large marine fauna including sea turtles. This area supports the world's largest remaining populations of green, hawksbill, loggerhead and leatherback turtles.
- Sea turtles and dugongs are recognized as playing a fundamental ecological role in the functioning of coastal marine habitats, particularly seagrass systems. Whales and dolphins are widely regarded as flagship *species* for Pacific marine ecosystems and feature prominently in promotional tourist material for many Pacific countries.

- Sea turtles and dugongs have been hunted extensively in the region both for traditional and subsistence purposes and more recently for commercial gain. They are now considered *endangered* throughout their range: many small and isolated populations are vulnerable to extinction. Dolphins have also been used as sources of food and other resources, often through local drive hunts. Meat and oil of these species remain highly valued for food and medicine; the shells, skin and bones are often used for jewellery and ornaments. Dugong and the teeth of small *cetaceans* are used in certain ceremonies such as marriages and funerals in New

Caledonia, Manus Province, Papua New Guinea, and Malaita in the Solomon Islands.

- Subsistence hunting of dugongs and sea turtles may have been sustainable in the past. But the combination of increasing human populations and the introduction of new technologies, such as outboard motors and gill nets, has impacted severely on several species, reducing their numbers.
- Fortunately, there is a growing awareness of the increasingly threatened status of many of these iconic species; and of the need for a concerted and coordinated approach among Pacific island nations to arrest and reverse declining population trends.



Pacific goal for sea turtles

"To conserve marine turtles and their habitats, in keeping with the traditions of the people of the Pacific Islands region."

Marine Turtle Action Plan Goal (2013-2017), developed by SPREP and members prioritising actions for turtle conservation.

Tracking sea turtles in the Pacific



- By attaching a plastic or metal tag to a turtle's flipper, we are able to track the movements of turtles to help us understand more about them. These tags have a sequence number and a phone number to call or address to write to. By reporting the sequence number on the flipper tag, you are helping to gather valuable information about the movements and behaviour of sea turtles. Tagging does not harm them – it's like having your ears pierced.
- Tagging is considered one of the most effective ways to learn about sea turtles' behaviour. By tagging turtles, and monitoring their movements, we can gain a greater understanding about their habits, migration routes and growth rates.
- This information can be shared between countries and can be used to support research and conservation activities.

Do not remove the tags!

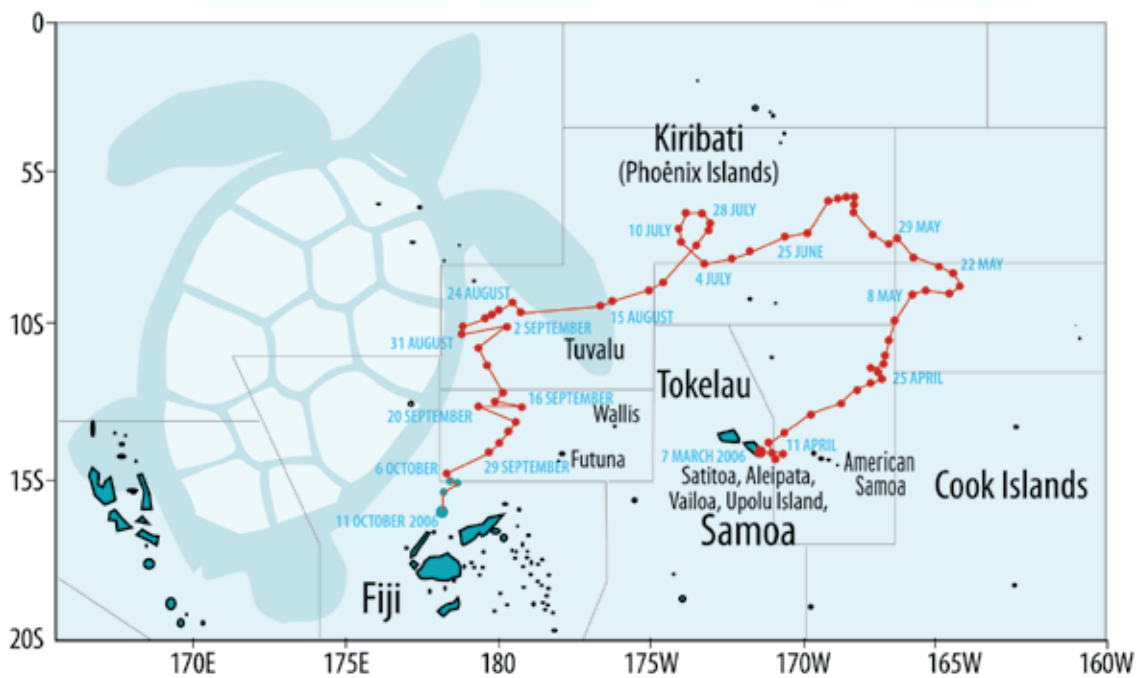
- If you find a turtle with a flipper tag, you should never try to remove it (unless the turtle is dead). Simply copy the information from the tag and give it to your local fisheries office or a conservation organization such as WWF, or contact SPREP.

Satellite tag

- Another way of tracking sea turtles is by attaching a satellite tag to its shell. This tag sends out a signal when the turtle comes up to breathe. Researchers can then collect information about the route of the turtle by recording this data. Satellite tagging does not hurt the turtles; it is an important way of learning about the turtles' migration routes.



Following Lady Vini's journey



- As part of the 2006 Pacific Year of the Sea Turtle campaign, SPREP with its key partners tracked the movements of six sea turtles throughout the Pacific.
- Lady Vini, a hawksbill turtle, was tagged and released on 6 March 2006 from Satitua, Aleipata, Samoa by SPREP and the Ministry of Natural Resources and Environment of the Government of Samoa, and the National Oceanic and Atmospheric Administration's (NOAA) Marine Turtle Research Programme. In her journey through the Pacific, Lady Vini travelled through the waters of Samoa, American Samoa, Cook Islands, Tokelau, Kiribati, Tuvalu and Fiji, covering almost 4,500 kilometres in seven months!



- The satellite tag attached to Lady Vini's *carapace* transmitted regular signals that showed her location. This data was plotted on a map to show her path through the Pacific. Regular maps were updated onto the SPREP website (www.sprep.org).
- Passing through the waters of many countries has highlighted the *migratory* nature of sea turtles, and the need for the Pacific region to work together to strengthen conservation initiatives.

Threats to sea turtles

- It is estimated that only one out of 1,000 hatchlings survives long enough to reach breeding age. Along with the natural threats that face hatchlings,

there are many human-induced threats that are reducing the numbers of sea turtles in the Pacific.

Natural threats

- Crabs, birds, dogs, monitor lizards and other land predators may eat young sea turtles, and once they reach the reef flat many hatchlings are then eaten by fish and sharks. Those that survive to cross the reef flat swim until they reach deep water. Green turtle, loggerhead, and hawksbill hatchlings then begin a *pelagic* (open ocean) phase in which the turtles mostly drift along with the ocean currents.
- Flatback hatchlings remain in coastal waters and apparently lack a pelagic phase. Scientists do not know the post-hatchling habits of leatherbacks and ridleys.
- Sea turtles are not usually seen again for several years when they move to live and feed in shallow waters.



Human-induced threats

Overharvesting

- For centuries, sea turtles have played an integral role in Pacific culture and tradition. Adult turtles are a fresh source of protein, and in many countries the meat and eggs are eaten at traditional feasts and sold in local markets. They are caught in nets and killed with spears and harpoons. Female turtles that come ashore are sometimes captured and killed before they can lay their eggs. The eggs themselves are used as a source of food. However, turtles and their eggs are now being harvested in *unsustainable* numbers.
- For years, this practice had little effect on the number of sea turtles in our waters. However, with more people living in the Pacific, and with money to be made from harvesting turtles, more and more were taken from the sea.
- Many countries now have laws about how many sea turtles can be taken for Pacific island cultures and traditions. These laws are not always obeyed, and turtles are at risk of disappearing from our oceans forever.

Habitat destruction

- Increased urbanization is disturbing nesting grounds. Increasing development on coastlines is affecting the nesting sites of sea turtles. The human activity and lights on these places can deter turtles from using a nesting beach.

Plastic rubbish

- Plastic rubbish can be mistaken by sea turtles for food and can kill them as well as fish, birds and marine mammals. Animals can get strangled in nets, ropes and other plastic waste and die from becoming caught in, or through consuming, plastic debris. Debris on beaches has the potential to entrap, entangle, and impede nesting turtles and their hatchlings.

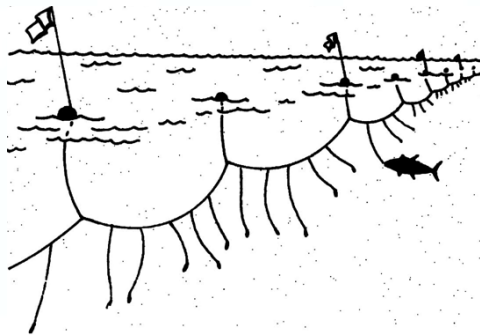


Pollution

- Marine pollution is a big threat to sea turtles. Oil which has been spilled from ships can block the throats and jaws of small turtles, and other poisonous chemicals released into the sea may also cause death. Many turtles have been caught in Hawaii, Australia and the Federated States of Micronesia with wart-like growths, known as *fibropapillomas*. These can kill the turtle if they grow over its eyes or into its internal organs. Research is being carried out to discover what causes this disease.

By-catch

- Accidental killing of sea turtles occurs in fishing where the trapped turtles drown as they become entangled in the nets or get hooked on longlines underwater. Organisations like the Secretariat of the Pacific Community and Forum Fisheries Agency are working with longline fishermen to reduce turtle by-catch by supporting the use of special hooks.



Turtle Excluder Devices (TEDs) are special nets designed to automatically release trapped sea turtles, but they are not widely used.



Sea turtle products



- The hawksbill is prized for its shell to make jewelry. The export of these items means that more sea turtles are being hunted. In many Pacific countries and territories, the sale of items made of turtle shell is illegal. Hawksbill and green turtles are killed so they can be displayed as wall hangings. The skin from the neck and flippers of greens and olive ridleys is made into leather for purses and shoes.

Climate change

- The impacts of changing climates on marine turtles are varied. It may alter sex ratios as the sand temperature determines the sex of a hatchling. Higher temperatures, a likely scenario with climate change, results in a female hatchling. The increased storm frequency and intensity resulting from climate change will also impact turtle nesting beaches and feeding grounds and may result in a disruption to their migrating patterns.

What can we do to protect sea turtles?

- Once they were hunted in the Pacific only as part of subsistence living. Increase in human populations, the introduction of new fishing technology, pollution and loss of feeding and nesting habitats in the Pacific have reduced sea turtle numbers dramatically.

What can we do?

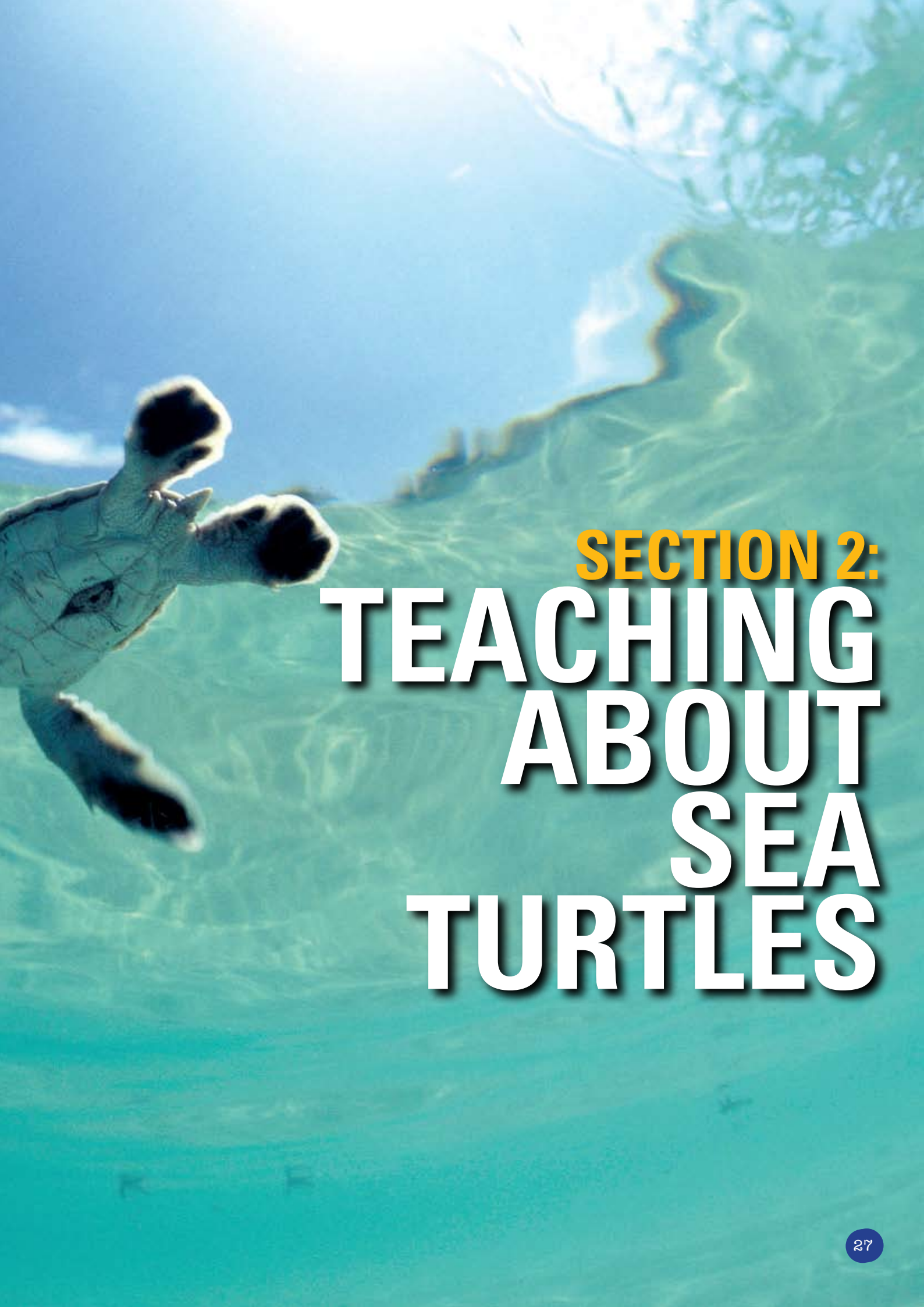
1. Learn about sea turtles and share your knowledge. Understand the cultural, economic, and environmental significance of turtles in the Pacific. Learn to appreciate their longevity and their status within Pacific culture and history.
2. If you find a sea turtle with a tag, do not remove the tag. Write down the details and send these to your local fisheries office or a conservation organization, or contact SPREP.
3. Respect sea turtle nesting sites and turtles nesting. Do not remove turtle eggs.
4. Do not disturb sea turtles in the water or on land.
5. Do not overharvest. Some laws in the Pacific only allow sea turtles to be killed for traditional reasons. Learn about these laws in your country and spread the word within your community.
6. Dispose of your rubbish properly! Never throw old fishing lines, plastic or other rubbish into the ocean or dispose of near beaches. Pick up any rubbish you see in the water or on the beach and put it in the bin, or take it home to dispose of.
7. Say no to plastic bags! Take your own reusable bag when you go shopping. Plastic bags make unsightly and dangerous rubbish. Turtles and other marine animals can also die from consuming plastic bags and getting trapped in other plastic items. Say no to plastic bags and keep rubbish out of the ocean.
8. Find out more about the best way to recycle, reuse or dispose of tin cans, batteries, petrol, oil or chemicals. Don't just dump them into the sea or rivers.
9. Do not buy items made of turtle shell.
10. Set up a conservation group in your community to raise awareness and understanding of the national laws that protect sea turtles, and promote what people can do to protect turtles.



Protect turtles


PROTECT OUR HERITAGE!






SECTION 2:
**TEACHING
ABOUT
SEA
TURTLES**


Infusion model – working with national curricula

 This workbook aims to provide activities that can support the national curricula. The infusion teaching philosophy aims to maximize

opportunities within existing curricula, and to support teachers delivering the key messages through using a certain theme.


Teaching by building on students' strengths

 It is important to recognize that students have different strengths, and the levels of success of the activities you implement in the classroom depends on how receptive the students are.


 Some students may be better at using words in reading, speaking or writing (linguistic); some may learn easier by interacting with their classmates (intrapersonal).

Learning styles


Learn from feeling

 Learners in this group tend to be more sensitive to feelings and people, learn by talking about issues with their classmates or peers, discussing experiences and exchanging feedback. In learning situations they are open-minded, intuitive and adaptive. This group learns best from specific experiences.


Learn by thinking

 This group learns through logical thinking and rational evaluation. This group learns best in an environment driven by authority, reliant on theory, and analysis. Learners in this group prefer to learn through critical thinking and planning.

Learn by watching and listening

 These learners listen and observe carefully before making judgments. They work best in situations that allow them to be objective observers. Generally, this group relies on patience, objectivity, and is often hesitant to take action. Learners in this group enjoy lectures and demonstrations.

Learn by doing

 This group relies heavily on experimentation, engaging in group discussions, and undertaking projects. They prefer active learning activities. Learners in this group like to get things done and do not mind taking risks.



Teaching Tips

Awaken curiosity. Try to inspire. Spend a moment writing/thinking about what you can achieve through teaching people about the importance of sea turtles.

Integrate activities into existing curricula.

Seize opportunities to highlight the links to everyday activities.

Encourage your students to think critically.

Create a sense of connection to the environment, heritage and culture, and the future of your Pacific island.

Empower your students to make decisions that will have a positive impact on their future.

Use positive examples of what they can do to help.

20 sea turtle activities

There are many learning/teaching activities that can be used in schools. Each teaching environment is also dependent on a range of factors such as resources, teaching approaches, personal styles, school atmosphere or ethics, and others. Here are 20 activities that you can implement in your lesson plans to raise awareness of sea turtles and the marine environment they live in. The activities have been divided into categories around learning/teaching styles most commonly used in schools:

Creating

- Activity 1: Underwater World - Create an underwater world in your classroom!
- Activity 2: Make your own loggerhead turtle
- Activity 3: Sea Turtle Awareness Campaign

Playing/Drama

- Activity 4: Sea Turtle Role Play
- Activity 5: Write a radio

Writing & Reading

- Activity 6: Letter to the Editor

Discussion/Essay topics

- Activity 7: Think and learn

Research and Guest Speakers

- Activity 8: Guest speakers
- Activity 9: Sea Turtle Tales

Songs and Music

- Activity 10: Wan Smolbag chorus: Where have all the turtles gone?
- Activity 11: Chants
- Activity 12: Write your own rhyming song/rap!

Competitions

- Activity 13: Sea turtle quiz

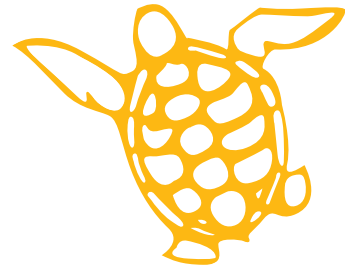
Systems and Connecting

- Activity 14: Sea turtles as part of an ecosystem
- Activity 15: Protecting island biodiversity

Taking Action

- Activity 16: Coastal clean-up
- Activity 17: Say no to plastic!
- Activity 18: Make a sea turtle pledge
- Activity 19: Follow the sea turtle's journey
- Activity 20: Become a Pacific sea turtle school

Creating



Activity 1: Underwater World - Create an underwater world in your classroom!

Aims: Promote the diversity of the Pacific coral reef; highlight how the sea turtle is part of a broader *ecosystem*

Level: Primary level

Subjects: Art, Science

Materials: Coloured paper, string, scissors, glue, cellophane

Ever wondered what it would be like to live under water? The Pacific is one of the most unique marine *ecosystems* in the world! A reef in the Pacific could contain up to 3,000 *species*!

Although you may not be able to fully reflect the rich diversity of the Pacific reef, you can still portray the colours, light and feel of an underwater world.

Ask your students to create or draw animals that live on and around a coral reef. Loggerhead turtles live on the coral shelves. You can make loggerhead turtles

in the next activity. Draw and colour bright colourful fish. Hang the fish from the ceiling with string. Stick strips of blue paper from the ceiling to act as water. Put blue cellophane over the lights to give the classroom a blue watery feel (but watch out for the cellophane getting hot: fire risk!). Stick starfish on the floor of your classroom.

You may choose to reflect the feeding areas of green turtles by putting green grass on the floor of the classroom.

This activity raises awareness and understanding about life on the reef, and highlights the environment that sea turtles can live, in harmony with other *species* of plants and animals. This activity provides a positive teaching environment where children are stimulated by colour and light, and can visualize the diversity of life on a coral reef.

Activity 2: Make your own loggerhead turtle

Aims: Become familiar with the anatomy of a turtle.

Level: Primary

Subject: Art, Mathematics

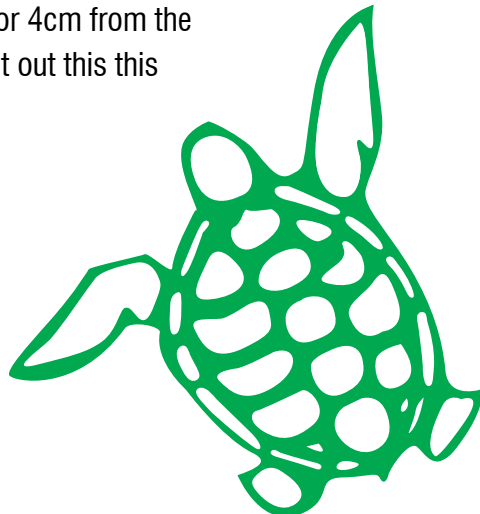
Materials: Large pieces of card (an opened out laundry powder or cereal box, for example), a compass to draw circles or two circular objects, one a bit smaller than the other, scissors, paint, paintbrushes, pen, paints, string, sticky-tape, stapler

You can make a loggerhead turtle from some leftover cardboard boxes. Encourage children to look around the home for "rubbish" such as empty laundry powder or cereal boxes. Show them how to open them out so you have big piece of cardboard to work with. You can use this loggerhead as a decoration, wear it as a hat, or use it to create your underwater world!

1. Make sure the cardboard is clean and dry.
2. Draw a circle as big as you can on the card. Cut it out so you have a big circle.
3. Draw another circle 3 or 4cm from the edge of your circle. Cut out this this

circle so you end up with a long curved strip of paper.

4. Make a cut from the edge of the circle to the centre. Overlap and staple or sticky-tape the two edges together to make the turtle's shell.
5. Cut the curved strip of paper into four equal lengths. Then cut one of the strips in half. You should now have three equal sized long strips and two equal sized shorter strips. three 8cm-long pieces and two 3.5cm pieces from the rim.
6. Trim the pieces to make two front flippers and a head and two back flippers. Draw some scales on them. Draw some eyes and nostrils.
7. Staple the head and flippers to the edges of the shell.
8. Paint the shell a greenish-brown colour, and the flippers and head brown.
9. To hang it up, make a knot in one end of a piece of string. Thread it through the centre of the shell from underneath and tie a small loop in the top end. Hang it from your ceiling and watch it fly through the classroom!



Activity 3: Sea Turtle Awareness Campaign

Aims: Educate, engage and encourage young people to participate in a fun and interesting activity

Level: Primary/lower secondary

Subjects: Language, Art

Materials: Paper (any size that's available), paints, pens or colouring pencils

Posters are a great way to engage young people in a certain topic. They provide an opportunity for young people to explore their thoughts and ideas, and also reinforces their knowledge. This is also a great way to increase awareness by producing bright and colourful posters that will brighten up a room and provide positive feedback to students for their engagement in this topic.

Divide the class into groups to create an information poster on the following topics:

- Types of sea turtles found in the Pacific
- The life of a sea turtle
- Threats to sea turtles

- Our turtles, our culture: the cultural value of sea turtles
- Take action: what can we do to save sea turtles?

Outline what the prizes could be – maybe donated gifts from local businesses, or even just recognition within the school.

Once the theme is decided, encourage the students to be as creative as possible. They can draw pictures as well as write text on their posters.

Give the students the opportunity to explain their posters to their school or classmates.

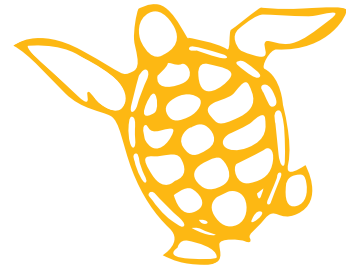
Display the posters and use the pictures as visual aids throughout the rest of your sea turtle activities.

Organise other classrooms to visit your classroom to view the posters. Use this opportunity to give a small talk about sea turtles, and other sea animals.

Invite the local media to feature your students' posters in the local newspaper.



Playing/Drama



Activity 4: Sea Turtle Role Play

Aims: Encourage students to play an active role in learning in a fun and interactive way. Explore different viewpoints through role-playing, and focus on exploring issues, and finding solutions.

Levels: Primary level/secondary

Subjects: Language, Drama, Civic education

Materials: Nil

Instructions:

- Divide class into groups
- Each group is given a story, or is asked to design their own role-play
- Read the story carefully
- Students can add further information about the characters as long as it fits the story
- The objective of the role-play is to resolve the problem through a compromise that makes both sides happy

Role Play 1: Persuade a boy to stop collecting sea turtle eggs

While walking along the beach with your friends you come across a young boy digging and collecting sea turtle eggs.

You are concerned that the egg collecting is against the law and the boy is taking turtles that would potentially return to lay on the same beach in the future.

The boy likes eating turtle eggs and the community has always collected turtle eggs and sees nothing wrong with it.

Explain why it's important to conserve sea turtles for future generations.

Role Play 2: A young mother tries to convince her community to conserve sea turtles

The young mother has noticed that there are fewer sea turtles coming to her community's beach than when she was a small child.

The young mother's grandparents tell her there were even more turtles coming to their beaches in earlier times.

The young mother's sister has learned from her teacher at school that sea turtles are disappearing from other parts of the world.

The chief of the community needs convincing that sea turtle conservation is a good idea and is concerned that the community might not want to stop eating turtles and eggs.

Adapted from WWF Solomon Islands "People & Turtles: Conservation of Marine Turtles in Solomon Islands. Information & activities for Solomon Island schools"

Activity 5: Write a radio play

Aims: Encourage students to promote sea turtle conservation to their communities through the production of small “plays” for radio

Levels: Primary level/secondary

Subjects: Language

Materials: Nil

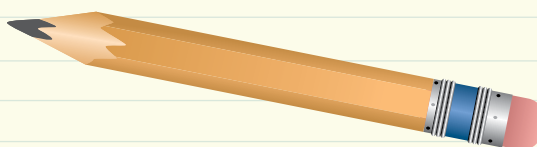
If possible, hook up with a local radio station and discuss whether they would be interested in supporting this initiative. This could be a series of 15-minute segments, or even just a once off.

Radio is a fun and entertaining way to teach the community about important issues such as looking after sea turtles. Radio is also one of the best ways to reach communities throughout the Pacific.

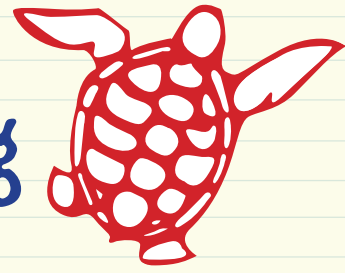
You can write on any subject. Your play can be set in the past, present or future. Try to keep it simple.

Work with your students to develop radio plays based on the following guidelines:

- Think about the key topics you want to share with the audience.
- Draw in the listener immediately.
- Write the play around a number of scenes. Vary the pace and length of scenes, as well as their background acoustics and “location”.
- Do not have more than six characters in a half-hour play. There is a risk of confusion if you do.
- The listener only knows a character exists if that character speaks, or if another character refers to him or her by name.
- Get to know your characters. Each will have their own individual speech mannerisms. Don’t have them all speaking in your tone of voice.
- Use a number of sounds to support your play, and to hold the listener’s interest.
- Above all, have fun!!



Writing & Reading



Activity 6: Letter to the Editor

Aims: Educate students about the role of the media

Levels: Primary level/secondary

Subjects: Language

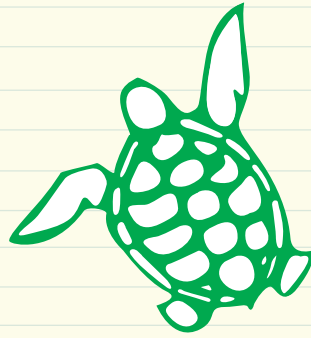
Materials: Nil

The media plays an important role in raising awareness of issues facing our communities and countries. Write a Letter to the Editor of your local newspaper, explaining why it is important to save sea turtles. Highlight the role of turtles in Pacific culture, heritage, economy and environment. Highlight what people can do to conserve turtles. Maybe you can also send in some drawings of turtles prepared by the students.

Depending on children's age and interest, you may want to take this further and encourage a monthly or quarterly school newsletter on conservation and environment. Other students could be invited to write their own letters to the editor on how the school can contribute to improved environmental conservation.



Discussion/ Essay topics



Activity 7: Think and learn

Aims: Encourage critical thinking

Level: Secondary

Subjects: Language, Civic education

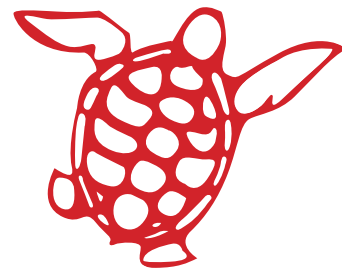
Materials: Nil

Here are some topics for discussion in your classroom or encourage your students to write essays:

1. Many countries now have laws about how many sea turtles can be taken for Pacific island cultures and traditions. However, these laws are not always obeyed, and turtles are at risk from disappearing from our oceans forever. What are the benefits or disadvantages of these laws?
2. More than 80% of the Pacific is held in customary *tenure*, which means that the land and sea is managed by communities. What role can communities play in protecting sea turtles?
3. In the past 20-30 years the amount of plastic has grown in our communities. Plastic can harm turtles and other sea animals when it gets into the ocean. How can we ensure that we keep plastic out of the ocean?
4. Sea turtles are a strong feature in Pacific culture and heritage. All the world's turtles are threatened which means that we need to start protecting them NOW. What would happen if turtles no longer swam in our seas?



Research and Guest Speakers



Activity 8: Guest speakers - Learn from people working to conserve sea turtles

Aims: Provide an opportunity for students to learn from people working in a selected area; reinforces classroom teachings

Levels: Primary/secondary

Subjects: All

Materials: Paper and pens

Invite a guest from the local conservation ministry or department to speak about sea turtles and the marine environment. Prepare a list of questions for the person regarding national laws protecting turtles,

fishing practices that might be affecting turtle numbers, and existing community conservation initiatives that encourage turtle conservation.

Give students a list of questions to answer after the talk from the guest speaker, to encourage them to remain engaged in the discussion and to encourage further questions.

Select one student to thank the speaker at the end of the discussion.



Activity 9: Sea Turtle Tales - Learning local stories or customs

Aims: Encourage communities to play a role in the local school, promote local stories and customs in the classroom

Levels: Primary/secondary

Subjects: Language, History

Materials: Paper and pens

Interviewing elders

Sea turtles are a key element of Pacific life, culture and heritage. What is your community's relationship with turtles? Interview an elder from your family or community about your country's myths and legends about turtles.

Traditional knowledge

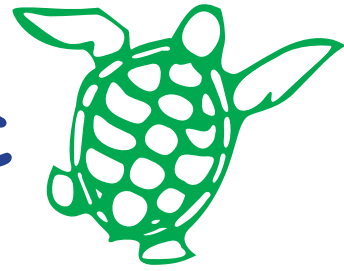
Traditional knowledge is what our ancestors have passed down to us: by word of mouth, through experience and observation, and sometimes through formal instruction. This knowledge can be important for understanding ecological relationships. It expresses the values of communities and is also a crucial component of developing and implementing community-based conservation initiatives.

Post your country's stories to: Turtle Tales, c/o-SPREP, PO Box 240, Apia, Samoa or email sprep@sprep.org. We will share these stories on the SPREP web site (www.sprep.org)

Tips for interviewing elders

- Carefully prepare your questions in advance. Limit the number of questions to about ten.
- Before you begin asking questions, explain how you will use the information.
- Remember to listen. The person you are talking to, may not need you to ask them questions. Only ask your questions when you need to.
- Ask your questions clearly and give the interviewee time to think and respond.
- Before you end the interview, thank the interviewee for taking time to help you with your project.
- Send the interviewee a copy of your tale or report when completed.

Songs and Music



Activity 10: Wan Smolbag chorus: Where have all the turtles gone?

Aims: Introduce the topic of sea turtles in a fun and light manner

Levels: Primary

Subjects: Music, Language, Science

Materials: Nil

This chorus was developed by Wan Smolbag, a theatre group in Vanuatu using drama to raise awareness about conservation issues. Wan Smolbag has been very active in conserving sea turtles through working with local communities. This chorus looks at the survival of sea turtle hatchlings as they are going from their nest site into the sea. First the birds are waiting, then the big fish in the sea and then the people.

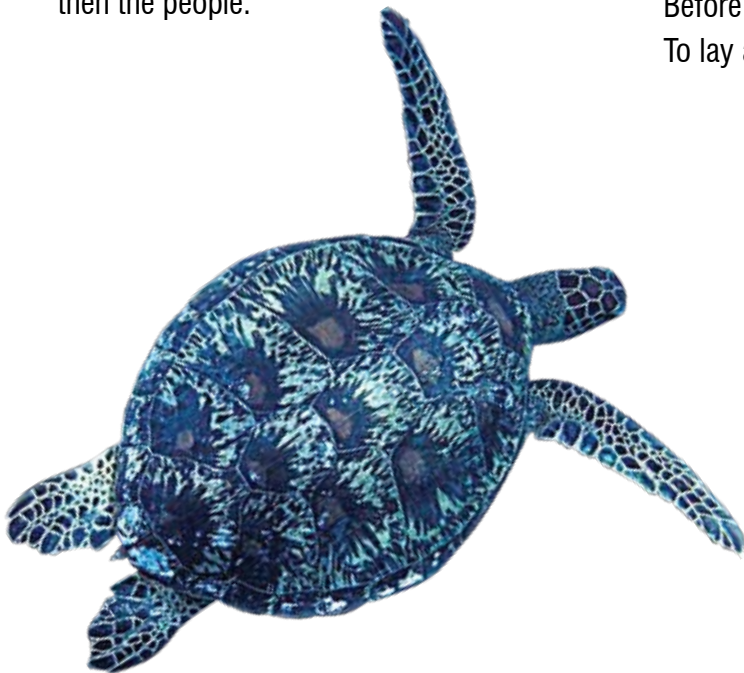
Where have all the turtles gone?
chorus

When all the turtles
Come out of their eggs
All the sea birds are waiting

If the little turtles
Get to the sea
All the living fish are waiting

If the little turtles
Get to be bigger
All the people are waiting

They eat all the little turtles
Before they have a chance
Before they have a chance
To lay a single egg



Activity 11: Chants

Aims: Teach messages about threats to sea turtles in a fun and engaging way

Levels: Primary

Subjects: Music, Language, Science

Materials: Nil

These rhymes are fun to teach. First, slowly teach the vocabulary and pronunciation for each line. Second, snap your fingers or clap your hands in rhythm as you perform the chant. Third, slow down and teach the chant in rhythm. You can divide the class into the two sections and have them take alternating lines. In that case, still teach the whole chant to both sections, they just have to focus on half when they perform.



Rubbish is slimy when it gets wet!

Don't throw your rubbish on the ground
Or soon it will be all over town!
It smells real bad if you leave it lay
It will scare your friends all away
Scare friends away, scare friends away
When it rains it gets all slimy and wet
You'll slip and fall and break your neck!
Break your neck, break your neck
Don't throw your rubbish on the ground
Or soon it will be all over town!



No more plastic!!

No more plastic it's so bad!
It makes plants and turtles sad!
It hurts rivers and hurts us too!
I wouldn't eat it if I were you!
If you were me and you knew
Would you stop using plastic too?
Do I have to moan, do I have to beg?

NO MORE PLASTIC!
USE YOUR OWN BAG!

Activity 12: Write your own rhyming song/rap!

Aims: Teach messages about threats to sea turtles in a fun and engaging way

Levels: Primary

Subjects: Music, Language

Materials: Nil



Ask students to write their own rhyming song/rap to perform to their classmates.

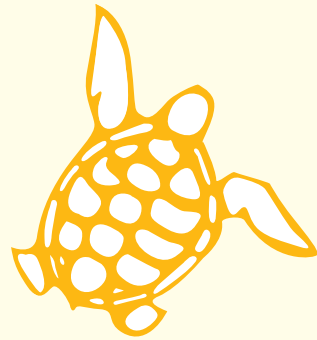
The theme could be the role of sea turtles in Pacific life. This could be about the turtles found in the Pacific, what they eat, where they live, their life cycles, and what we can do to conserve them.

Ask the students to pretend that they are a local band/singing group who are teaching their local communities to spread the message about saving sea turtles. Their songs need to be between 30seconds – 1 minute. You can invite the local radio station to record these songs to play on the radio. Invite other classrooms and parents and friends to attend a singing day to listen to the songs. Maybe you can organize a community day and invite family and friends to attend this special turtle concert!





Competitions



Activity 13: Sea turtle quiz

Aims: Fun and active way to reinforce knowledge

Ages: Secondary

Subjects: Language

Materials: Nil

How does the green turtle get its name?

How does the hawksbill get its name?

Which is the most commonly hunted sea turtle in the Pacific for food?

Where do sea turtles live?

What do sea turtles eat?


How many different types of sea turtles are there?

How can you identify the different types of sea turtles?

How long do sea turtles live for?

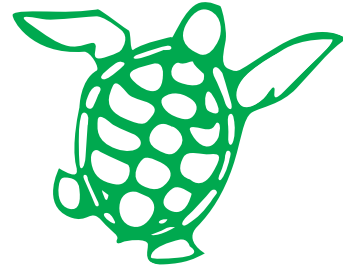
What are some of the natural threats and human threats facing turtles?

In what ways can we reduce sea turtle deaths?





Systems and Connecting



Activity 14: Sea turtles as part of an ecosystem

Aims: Show the connections in an *ecosystem*; increase awareness of *ecosystems*; highlight the role of humans in *ecosystems*

Ages: Secondary

Subjects: English, Science

Materials: String, paper, pen

An *ecosystem* is a community of plants, animals, and *micro-organisms* that interact with each other and their physical environment. An important activity is to teach how different parts of an *ecosystem* are connected, and the effect that humans can have on affecting various *ecosystems*.

Hand out cards with pictures or drawings of animals found in the ocean and their common name written under the pictures. Ask the students to colour in and learn the names of their animals. Each picture should have a string on it so that the student can put it around his/her neck.

For this example, use the following members to create a coral reef ecosystem:

- Sea turtle
- Sea grass
- Coral
- Water
- Humans
- Fish
- Air
- Beach

Give each of the students a five-foot length of string. Each student gives one end of the string to a thing that he/she “connects” to.

For example, seagrass to sea turtle, turtle to beach, beach to small turtles etc.

Ask the students to explain what their connections are. For example, a green turtle is connected to the seagrass, as it that is its food main source.

Two students cannot hold each other’s strings only – there must be one single connection between any two students. Now “pull” on one of the living animals – you cut it down or shoot it or step on it or burn it – and that living thing then pulls all the strings it is holding; and crouches down; everybody who is affected by the “pull” does the same.

This activity shows how everything is connected, often in ways that we don’t always understand. You can explain later that, for example, if you take the eggs from the beach, then the sea turtles will die out.

Talk about the connections, and how everything within an *ecosystem* is somehow connected. Introduce situations that might happen if the sea turtles could not nest on the beach. Pull on the string once and ask how many students can feel it through their string.

Adapted from Exploring Biodiversity A Guide for Educators Around the World, Conservation International and World Wildlife Fund.



Activity 15: Protecting island biodiversity

Aims: Explore personal beliefs and values about protecting *biodiversity*

Ages: Secondary

Subjects: English, Science, Language, Social science

Materials: Paper, pen

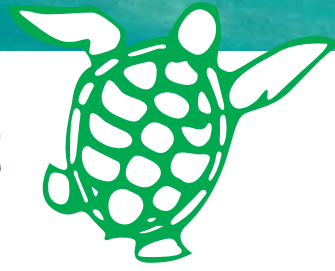
- This is a good activity to explore people's feeling about *biodiversity*, including the importance people place on the plants and animals in their environment. It reinforces the environmental, social/cultural and economic values of sea turtles and other animals.
- Many of our judgments about what is important in our lives comes from our beliefs and values. By reflection, students can start to understand their personal beliefs about *biodiversity* issues.

1. Review the definition of *biodiversity*
2. Ask your students why protecting *biodiversity* is important and why they feel the way they do about it
3. Place their statements on a board and discuss the importance of each statement
4. Ask the students to select a statement they agree with the most
5. Ask the students to forms groups with the people who agree with the same statement
6. Ask the students to discuss the statement and come up with reasons why they selected that statement
7. Open the discussions up to the entire class

Adapted from Exploring Biodiversity: A Guide for Educators Around the World, Conservation International and World Wildlife Fund.



Taking Action



Activity 16: Coastal clean-up

Aims: This is an important opportunity to apply some of the knowledge that the students have learnt in the classroom. This is a good way to teach students about waste reduction.

Ages: Primary/Secondary

Subjects: Language, Science

Materials: String, paper, pens, rubbish bags

- Organise a trip to the local beach or shore. Ensure that all the necessary arrangements are made before the field trip.

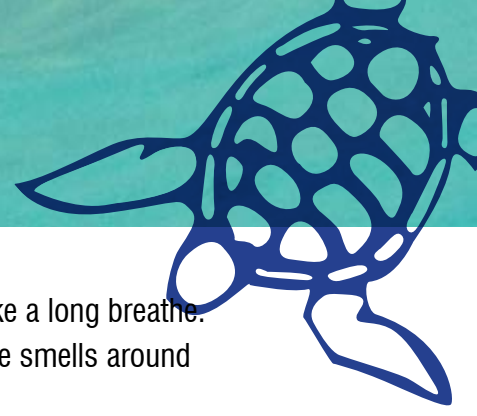
Before you leave on the field trip

- Outline what you plan to achieve on the field trip. This is a good opportunity to pre-teach the important points that you will be observing, or information about the activities you will be undertaking.
- Divide the class into working groups.
- Emphasize the importance of minimum disturbance.
- Check the weather forecast prior to departure, don't take unnecessary risks.

On the field trip

- Divide the class into groups and get the students to record the types of rubbish they find.
- If possible, provide bags for the students to pick up rubbish as they go.
- Be a good model for the students – walk slowly and quietly, don't take anything from the ocean, beach, or off the reef (unless it's rubbish!).
- Ensure that each group is supervised.
- Clean the area of any litter at the end of the field trip.





Sense awareness

Teach the students about the different senses before you leave on the field trip.

How to listen:

Ask your students to close their eyes. Ask them to take a few big breaths. Listen for the soft sounds and loud sounds. Try to identify five sounds around you.

How to see:

We don't always see what's in front of us. Teach the students to really see the colours in front of them. Point out the different shades of colours. Get up close to rocks, the water, the reef and count the different fish you see. Ask them to describe what they see. Look at movement and stillness. Is the wind blowing? Look at the shapes or patterns made by the wind, water or sun on the surroundings.

How to smell:

Ask your students to take a long breathe. Ask them to describe the smells around them.

How to feel:

Close your eyes. Ask the students to work in pairs. Each person is to hand another person one item found on the beach. With their eyes closed, the students should describe what they feel.

How to taste:

Compare the taste of sea water with drinking water, and chew some seagrass or seaweed. Don't try anything potentially poisonous though!

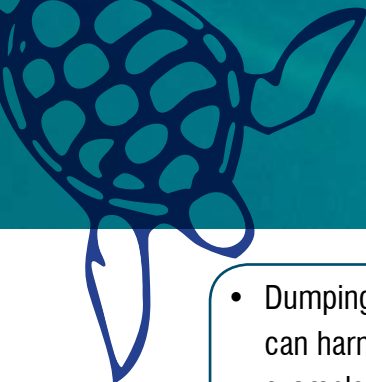
Back in the classroom

Divide the students into groups of four or five and give each team the following questions to discuss:

- What types of rubbish were found on the beach? What's the most common material? (If they haven't been to a beach, ask them to list things they think might wash up onto the beaches).
- How do they think the rubbish got on the beach?
- How do they think their community disposes of rubbish?
- What are some ways ocean dumping harms people and wildlife?

After the teams have had a chance to discuss these questions, have each team present their answers to the class. Then lead a discussion about waste, using the following information:

- Waste occurs when materials are not or cannot be used again. As we all make waste we all have a responsibility in our communities to minimize waste.
- Waste is disposed of in several different ways. Some waste is burned, some buried, some taken to landfills or dumps.



- Dumping rubbish in the ocean can harm wildlife in many ways. For example, dumping plastic waste can cut, tangle, poison, and strangle sea turtles, seabirds, sea mammals, and other marine life.
- More than half of the rubbish that washes up on beaches is plastic. Many plastics float and many don't break down for hundreds of years or longer.
- People, animals and plants have always produced waste, but humans are the worst at managing it.
- Most of the waste we throw away can be re-used or recycled.

Here are some small steps you can take to reduce your waste:

Refuse – Say NO, thank you

- Say no to plastic bags – take your own shopping bag and reduce the amount of plastic bags ending up in our oceans. Plastic bags cost us money and are a threat to thousands of animals around the world.
- If you have to use a plastic bag, use it as many times as you can before throwing it away. Dispose of it thoughtfully.

Reduce – Use less

- Compost your green waste to grow food and plants (more than 50% of the waste in the Pacific is organic, meaning that we can throw it into our garden to make rich fertiliser).
- Don't buy too many disposable products such as tissues, disposable plates, disposable nappies.
- Buy products that will last a long time.

Reuse – Use again

- Reuse empty jars as storage containers.
- Reuse both sides of paper as drawing paper, study notes, lists.
- Reuse small empty drink bottles for school or outings.
- Buy items that can be used more than once (like plates and cups) to cut down on disposable items.

Recycle – recycle materials where you can

- Recycling is a good way of reusing valuable resources and avoiding them ending up as waste. Find out what can be recycled in your country.



Activity 17: Say no to plastic!

Aims: Encourage students to reduce the amount of plastic bags in their environment; encourage innovation through the creation of alternatives to plastic bags

Ages: Primary/Secondary

Subjects: Language/Science

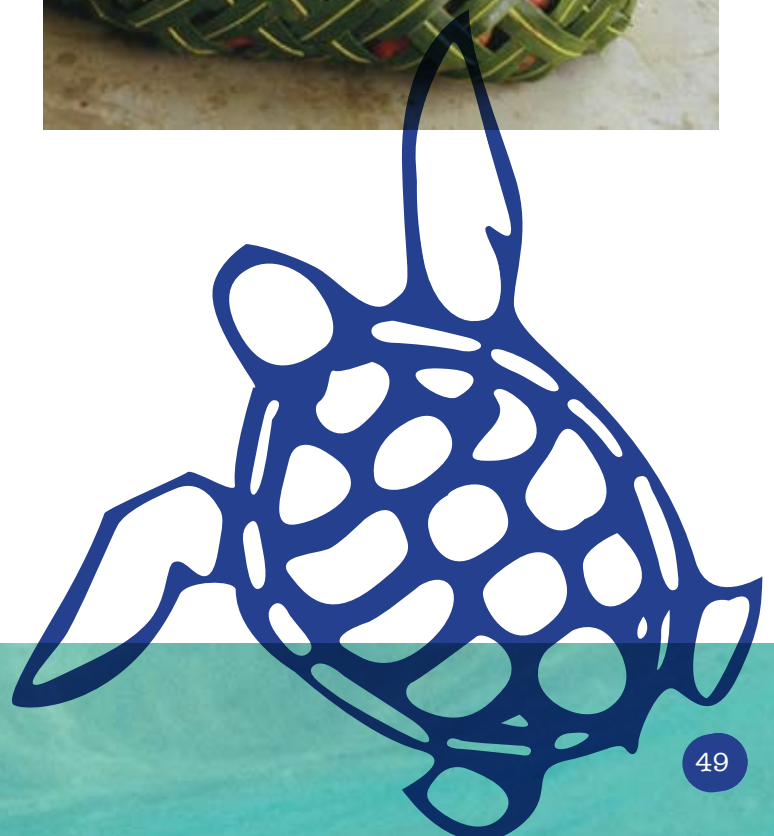
Materials: Various materials

Plastic bags not only harm marine animals such as sea turtles, they can also clog drains, make areas look messy, and can cost money to clean up! The challenge is to reduce the number of plastic bags ending up in our environment.

One way to do this is to take your own bags when you go shopping.

Ask the students to design bags/baskets that can help with their shopping. This may include using old t-shirts to make bags, re-using rice bags, using backpacks, making baskets etc.

Display their ideas and designs. Ask them to reduce the number of plastic bags by taking their own bags or baskets the next time they go shopping.



Activity 18: Make a sea turtle pledge

Aims: Give students a sense of commitment and responsibility to protect their environment.

Ages: Primary/Secondary

Subjects: Language/Science

Materials: Paper/pen

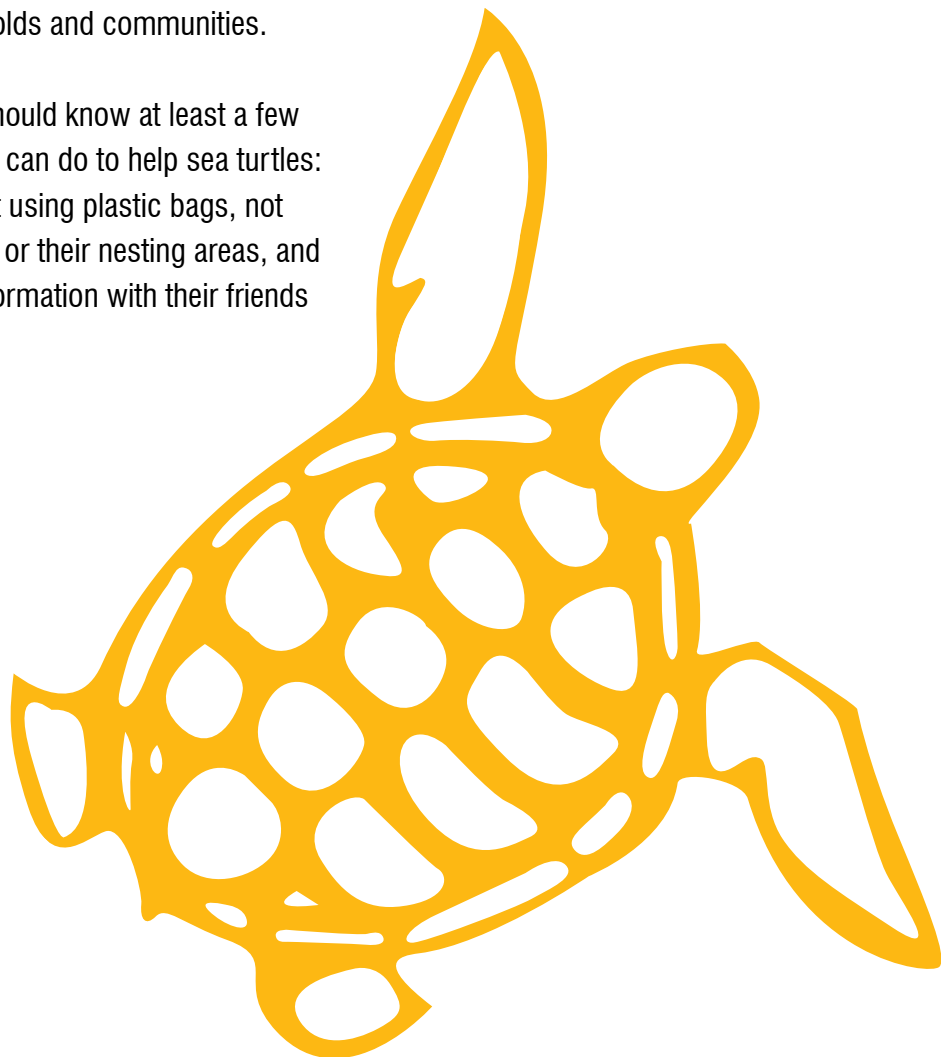
This could be one of the most important activities you can do. It gives students something to take home, with a sense of commitment and connection to their environment. As they must earn this certificate, it gives them a sense of accomplishment. This is also a good opportunity to promote positive messages in their households and communities.

The students should know at least a few things that they can do to help sea turtles: not littering, not using plastic bags, not harming turtles or their nesting areas, and sharing this information with their friends and family.

You can write your own pledge or you can use the following pledge:

"I promise to help keep the environment clean by keeping plastic out of the ocean. I promise to share this information about sea turtles with my friends and family".

Make copies of the certificates for all the students and have them write their names on the top. Revisit their pledges every couple of months.



Activity 19: Follow the sea turtle's journey

Aims: Engage students in a fun and accessible way by tracking sea turtles on the internet; strengthen computer skills

Ages: Primary/Secondary

Subjects: Language/Science

Materials: Access to the internet

As part of the 2006 Pacific Year of the Sea Turtle, SPREP tracked, via satellite, the movements of 10 sea turtles across the Pacific to learn more about their behaviour. Turtles are fitted with a satellite tag that provides regular information about their location. Using this information, we track their journey using maps. This highlights the migratory nature of turtles, and reinforces the need to share responsibility to protect and conserve turtles.

In order to follow their journey, you will need access to the internet. If you do not have access at your school, you may need to make contact with an organization that does, and who will also support your school activity. Once you have a community partner, you may need to negotiate how often your school can access the internet.

Once you have coordinated your internet, visit the turtle tracking page at www.sprep.org/marine-turtles/marine-turtle-satellite-tracking. From there, you will be able to follow the turtle's journey and track its movements as it travels across the Pacific. Updates may be once a month or even more regularly.



Activity 20: Become a Pacific sea turtle school

Aims: Give students a sense of commitment and responsibility to protect their environment

Ages: Primary/Secondary

Subjects: Language, Science

Materials: Paper/pen

- Sea turtle identification card
- Membership certificate for your school
- Penpal activity (where you can write to other Pacific Sea Turtle Schools in other Pacific countries)

Send in your school's pledge in a letter to become a Pacific Sea Turtle School as part of ongoing turtle education initiatives.

Include the full name of your school, your address, and the contact person, maybe yourself or another teacher. Also highlight what class took the Turtle Pledge.

If you become a Turtle School, you will receive:

- A resource kit for your classrooms
- A mention in the Pacific Sea Turtle Schools newsletter
- Information about competitions and prizes to be won

Please send your pledge to: Pacific Sea Turtle School, c/-SPREP, PO Box 240, Apia, Samoa



Chart of topics and Activity Guide

Activity	Concepts	Subject area
CREATING		
1. Underwater World - Create an underwater world in your classroom	<ul style="list-style-type: none"> Exploring ecosystems Learning through creativity 	Art, Science
2. Make your own loggerhead turtle	<ul style="list-style-type: none"> Reusing household waste Minimising waste 	Art, Maths
3. Sea Turtle Awareness Campaign	<ul style="list-style-type: none"> Community action Community education 	English, Art
PLAYING/DRAMA		
4. Sea turtle role-play	<ul style="list-style-type: none"> Values education Negotiation/reasoning 	English, Drama, Civic education
5. Write a radio play	<ul style="list-style-type: none"> Creative thinking 	English
WRITING AND READING		
6. Letter to the Editor	<ul style="list-style-type: none"> Role of the media Community action Dialogue 	English
DISCUSSION/ESSAY TOPICS		
7. Think and learn	<ul style="list-style-type: none"> Critical thinking Dialogue Values thinking 	English, Civic education
RESEARCH AND GUEST SPEAKERS		
8. Guest speakers – learn from people working to conserve sea turtles	<ul style="list-style-type: none"> Listening Traditional knowledge History and culture 	All English, History
9. Sea Turtle Tales – learning local stories and customs	<ul style="list-style-type: none"> Traditional knowledge History and culture 	English, History
SONGS AND MUSIC		
10. Wan Smolbag chorus: Where have all the turtles gone?	<ul style="list-style-type: none"> Pollution Threats to sea turtles 	Music, English, Science
11. Chants	<ul style="list-style-type: none"> Pollution Threats to sea turtles 	Music, English, Science
12. Write your own rhyming song/rap!	<ul style="list-style-type: none"> Conserving sea turtles 	Music, English
COMPETITIONS		
13. Sea turtle quiz	<ul style="list-style-type: none"> Knowledge about sea turtles 	Music, English
SYSTEMS AND CONNECTING		
14. Sea turtles as part of an ecosystem	<ul style="list-style-type: none"> Understanding ecosystems Systems thinking 	English
15. Protecting island biodiversity	<ul style="list-style-type: none"> Island biodiversity Systems thinking Values thinking 	English, Science
TAKING ACTION		
16. Organise a beach clean-up!	<ul style="list-style-type: none"> Waste reduction Anti-littering Systems thinking 	Language, Social Science
17. Say no to plastic! Just bag it!	<ul style="list-style-type: none"> Innovative ideas and solutions Waste reduction The threats of waste to marine life 	English, Science
18. Make a turtle pledge	<ul style="list-style-type: none"> Environmental stewardship Community responsibility Community action 	English, Science
19. Follow the sea turtle's journey	<ul style="list-style-type: none"> Migratory patterns of sea turtles Regional responsibility of turtle conservation 	English
20. Become a Pacific Sea Turtle School	<ul style="list-style-type: none"> Environmental stewardship Community responsibility Community action 	English, Science

Reference documents

The value of biodiversity

Adapted from “Why care about biodiversity?”, Exploring Biodiversity: A Guide for Educators Around the World, Conservation International and World Wildlife Fund.

Activity 2: How to make a loggerhead turtle

Adapted from: Roberta Griffiths, Enviro Kids.

Activity 2: Sea turtles as part of an ecosystem and Activity 4: Protecting the spice of life

Adapted from: The Web of Life, Exploring Biodiversity: A Guide for Educators Around the World, Conservation International and World Wildlife Fund.

Environmental Education: Teachers’ Manual, Editors, Mairead Dunne and Neva M. Wendt, Apia, Western Samoa, 1997. SPREP/ Institute of Education, USP, Fiji.

People and Turtles: Conservation of Marine Turtles in the Solomon Islands, Tetepare Descendant’s Association/WWF, Solomon Islands, 2005.

2006 Pacific Year of the Sea Turtle Campaign Plan

Marine Turtle Action Plan 2003-2007

Photo credits

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SPREP

Stuart Chape

Te Moana o Moana

WWF-SPP Solomon Islands

WWF Pacific

Cover and watermark, turtle icon
throughout, 4, 9, 19, 36, 37, 41, 46, 48,
51; YOST logo

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21 (track from NOAA, Pacific Islands
Fisheries Center)

6-7, 8, 22, 26-27, 30, 40

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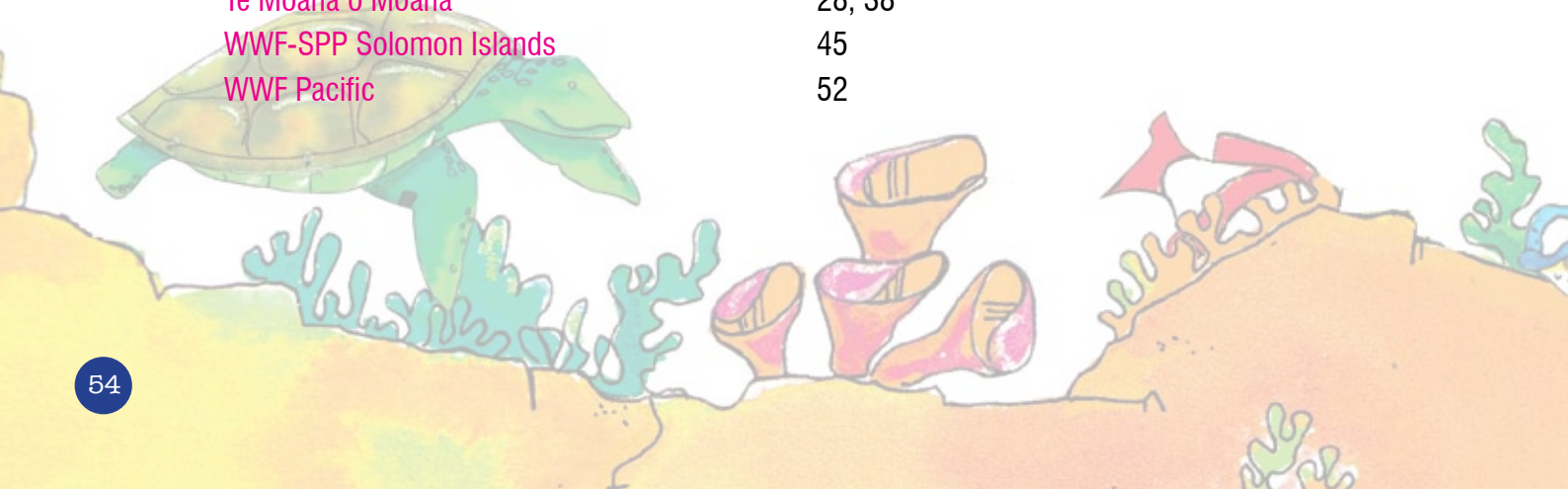
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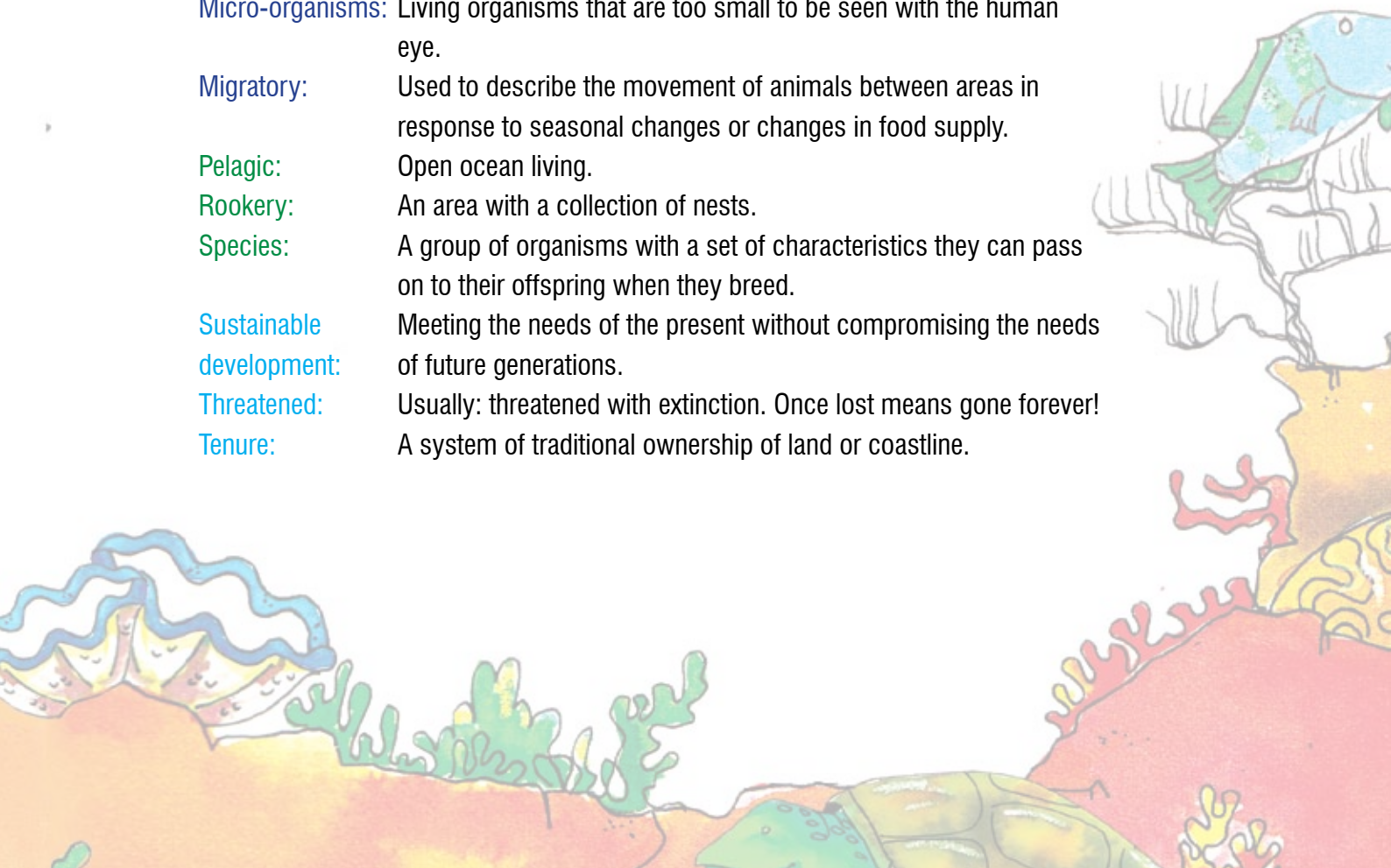
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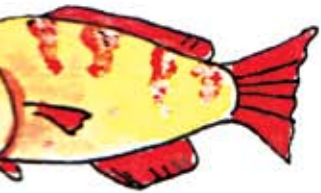
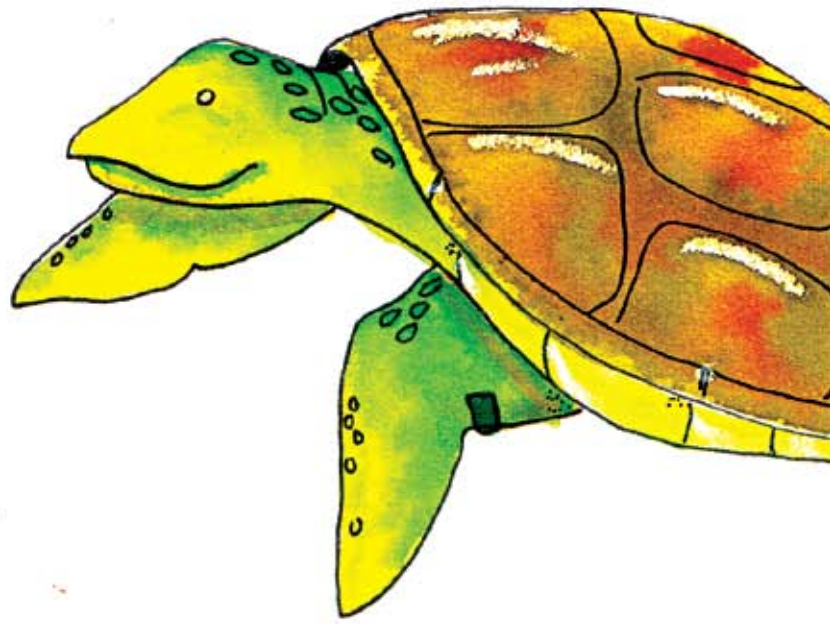
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Glossary

Biodiversity:	The variety of life on Earth.
Body pit:	Nest dug by turtle when laying eggs.
Carapace:	Shell of the turtle.
Cetaceans:	Scientific classification for sea mammals including whales, dolphins and porpoises.
Clutch:	Eggs produced by a turtle at a single time.
Crustaceans:	One of two main classifications of shellfish (the other being molluscs), crustaceans have usually longer bodies and always jointed, crustlike shells. They include barnacles, crab, crayfish, lobster, prawn and shrimp.
Ecosystem:	A community of plants, animals, and micro-organisms that interact with each other and their physical environment.
Endangered:	When a species' population is so small it is in danger of dying out forever or becoming extinct.
Egg chamber:	A nest the turtle lays eggs in; mostly a vertical tunnel with a round base.
Fauna:	The animals of a particular region, country or time period.
Herbivore:	An animal that gets its energy from eating only plants.
Invertebrate:	An organism that does not have a backbone; such as an insect or snail.
Fibropapillomas:	Wartlike external or internal growths.
Overharvest:	To take more than is needed.
Micro-organisms:	Living organisms that are too small to be seen with the human eye.
Migratory:	Used to describe the movement of animals between areas in response to seasonal changes or changes in food supply.
Pelagic:	Open ocean living.
Rookery:	An area with a collection of nests.
Species:	A group of organisms with a set of characteristics they can pass on to their offspring when they breed.
Sustainable development:	Meeting the needs of the present without compromising the needs of future generations.
Threatened:	Usually: threatened with extinction. Once lost means gone forever!
Tenure:	A system of traditional ownership of land or coastline.

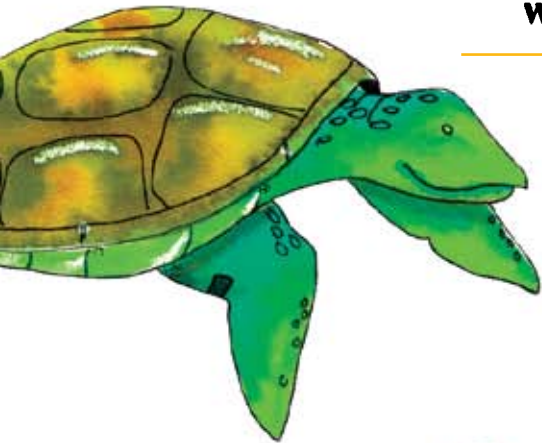




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