

Free  
Facts & Fun  
from the  
Ocean  
with stickers!



**I LOVE  
MESEKIU.  
DO YOU?**



**Dugong**  
Activity Book



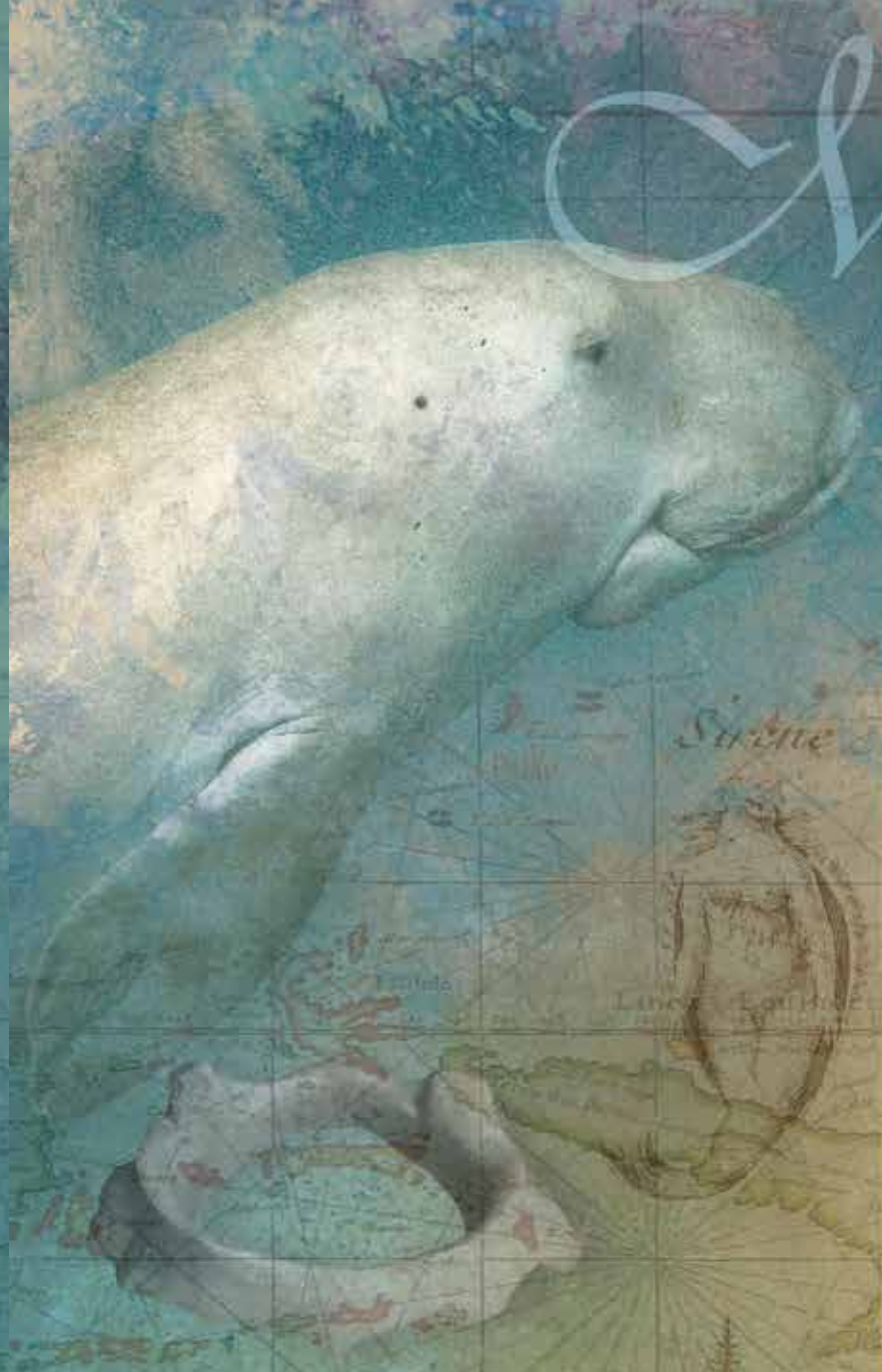
*Sirens*

*Sirene*  
**Dugongs**



*Momekereu  
e  
Mengeluolu  
a  
Mesekiu*

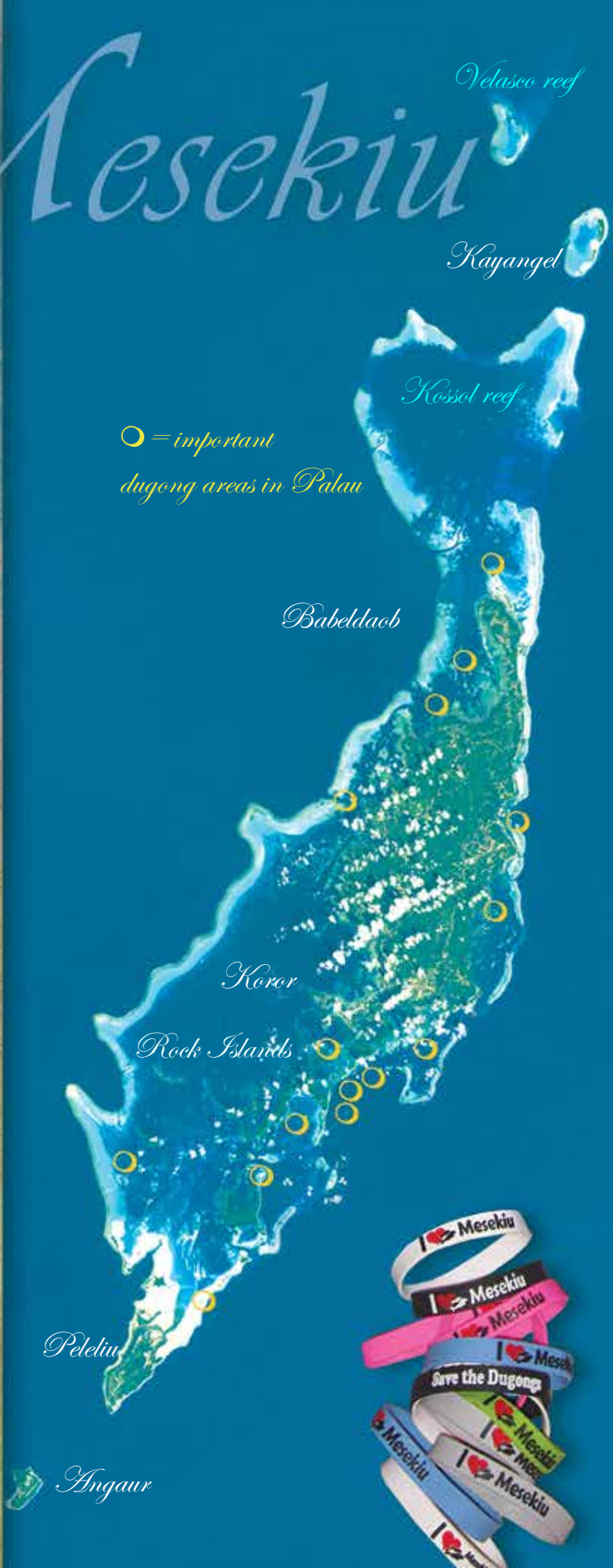
[www.etpisonmuseum.org](http://www.etpisonmuseum.org)



**Mesekiu**



the campaign to save Palau's dugongs



○ = important dugong areas in Palau

*Velaseo reef*  
*Kayangel*  
*Kossil reef*  
*Babeldach*  
*Korer*  
*Rock Islands*  
*Peleliu*  
*Angaur*



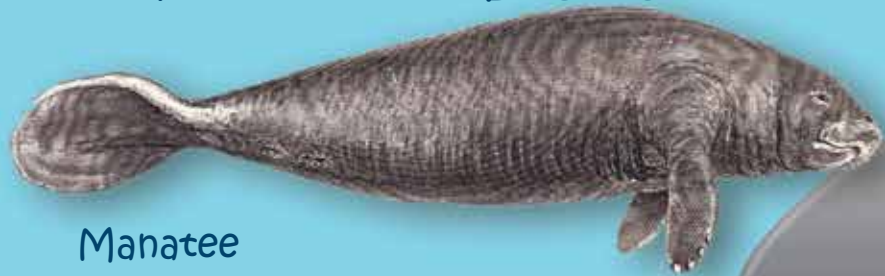


# Sirens, Mermaids, and Dugongs

In Greek mythology, sirens were sea nymphs who lured sailors to their rocky island with their irresistible songs. Legends about half human, half fish creatures called Mermaids were enforced by early encounters with surfacing Dugongs. Sailors who had been at sea too long mistook the Dugongs for Sirens/ Mermaids. Even the famous explorer Christopher Columbus reported seeing Mermaids in the year 1403.

When Dugongs were officially named by scientists, they called the family Sirenians, after the Greek mythical creatures. The family now includes three species of Manatees, and only one species of Dugong. The largest family member, Steller's sea cow, three times the size of a dugong, died out within 30 years of its discovery in the 1700s due to overhunting.

What are the differences between a Manatee and a Dugong ?



Manatee



Dugong

**DID YOU KNOW...**  
 "The Little Mermaid" fairy tale, used by the 1989 Disney cartoon, was first written in Denmark in 1836 by Hans Christian Andersen.

# Palau Legend

Palauans have their own traditional legends about people and Dugongs:

A poor girl from Ngerieleb hamlet became pregnant without any formal marriage arrangement, and she and her old mother were careful to follow all the traditional taboos on food to avoid further disgrace. She gave birth to a baby girl but failed to follow the traditional taboo about not eating the Keam nut right after giving birth. Her mother walked in on her eating the nut, and the girl ran into the ocean and swam far out, changing into a Dugong.

Come see our Dugong carvings and displays at the Etpison Museum. Entry is free for all Palauans and local schools !



What's that?  
Sea Cows?!



Hi, I am Missy Q.  
I would like to tell  
you about Dugongs  
in Palau



We are called Mesekiu in Palau, and although there are also Dugongs nearby in Indonesia, Philippines and New Guinea, the only Dugongs in Micronesia live in Palau.

The Malaysian word Dugong means "Lady of the Sea". We are also called sea cows, because we spend most of our time chewing sea grasses, like cows eat grass on land. Our baby is called a calf.

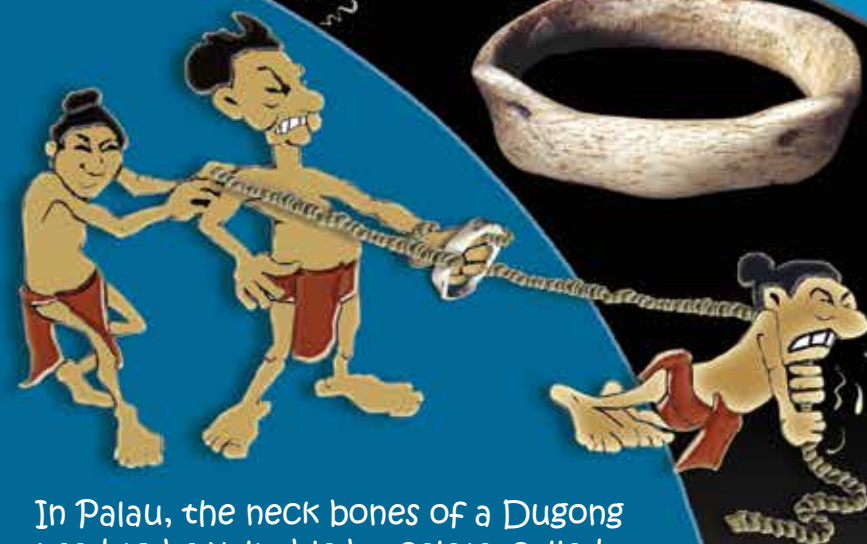
**You can win \$100, a T-shirt, and be in our next booklet if you:**

- Write down how you think the Palau government and the State Rangers can better protect the Dugongs from illegal hunting, or...
- Make a drawing or cartoon about protecting Dugongs in Palau, in the past and today, or...
- Write about your personal experience seeing a live or dead Dugong.

Pls submit to the Etpison Museum, or [etpison@palaunet.com](mailto:etpison@palaunet.com) with your name, age, and Tel #.



When a new Chief is selected, a traditional Dugong-shaped dessert is served, made from the local Miich nut and cooked with syrup, ~3 feet long!



In Palau, the neck bones of a Dugong used to be valuable bracelets, called Olecholl. To become a high ranking Rubak and wear this bone, the hand was oiled and pulled through the bone with strings and force, sometimes even breaking a finger bone to get the bracelet on!

Before 1900, Dugong meat was served at special traditional feasts when a new Chief was Chosen. But by 1900, the Dugong meat and bracelets were ordered in from the Philippines and sold by traders to Palauans, and lost its traditional value. During the Japanese time in Palau (1914-1945) Palauans learned how to use dynamite to kill Sleeping Dugongs for the Japanese to eat.

Today, only a few hundred of these rare marine mammals are left in Palau, and they are protected by law. But there are still Palauan poachers who kill dugongs, about 5-15 animals each year. If Palau wants to keep its Dugongs, we need to work together to stop illegal poaching!

Palau's traditional High Chiefs Ibedul and Reklai support the Dugong Conservation efforts. There is no traditional use for killing Dugongs anymore today, when beef, pork and chicken can be substituted for these endangered creatures.

This Olecholl Dugong bracelet was given to the British Captain Wilson by Chief Ibedul in 1783. Today, over 200 years later, it is still kept at the British Museum in England.



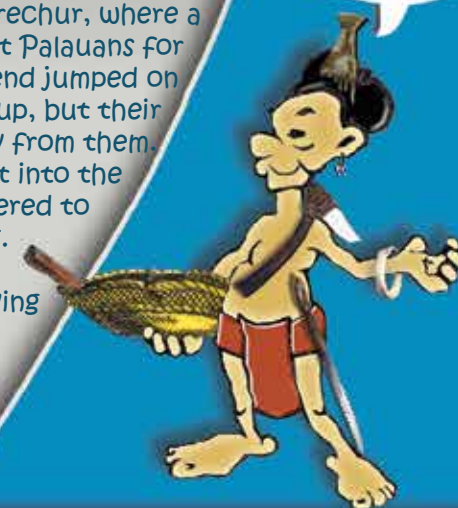
Palauan Dugong hunters in the 1920s



This Bai story tells about a dead Dugong found and brought to Ngarechur, where a British trader tried to fight Palauans for the bones. His Yapese friend jumped on top of the Dugong to cut it up, but their knife and gun were taken away from them. The Yapese was thrown far out into the ocean, and the Dugong was offered to the spirits in Ngarchelong.

Below is a story about Palauans trying to catch Dugongs with a net. They saw a Dugong and jumped in the water on top of it, but it turned out to be a stone, so they hurt themselves badly, and came home without any Dugong.

All dressed up....





## Conservation areas

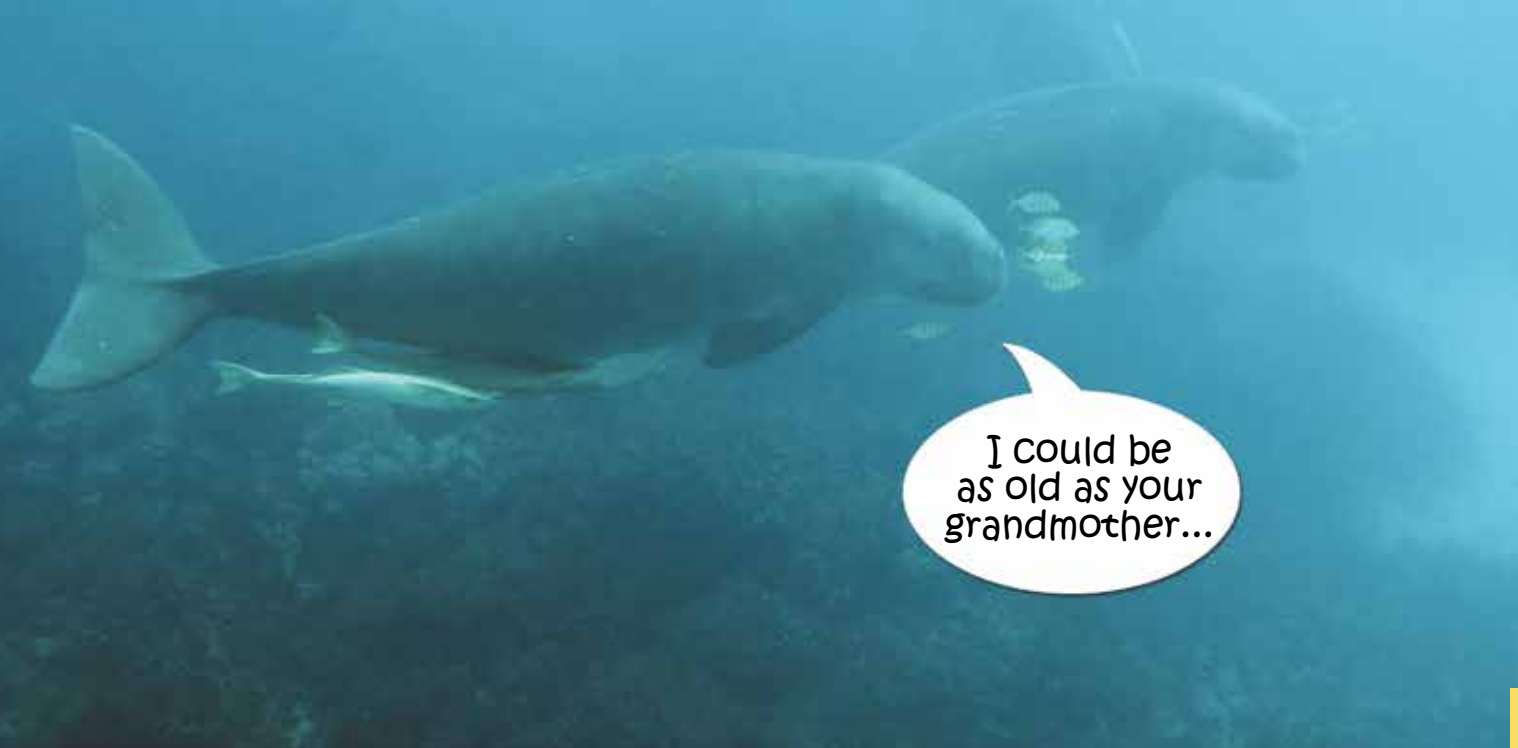
like Koror's Ngederrak Reef are important to ensure animals like Dugongs have places to eat and rest without being chased by boats & people.

Boat entry and fishing are not allowed here. The dark green patches on top of the reef are sea grass beds where Dugongs like to feed. When they are not eating, Dugongs rest on sandy bottoms inside the lagoon, but are also seen swimming in deep water away from the reefs. Below a whole family of Dugongs, with a calf riding on its mom's back.



## Dugongs:

- \* Can live to be over 70 years old, like people !
- \* are harmless and only eat sea grasses
- \* have one baby every 3-4 years & take care of it for years
- \* have really good hearing, but not very good eyesight
- \* are the most endangered marine species in Palau

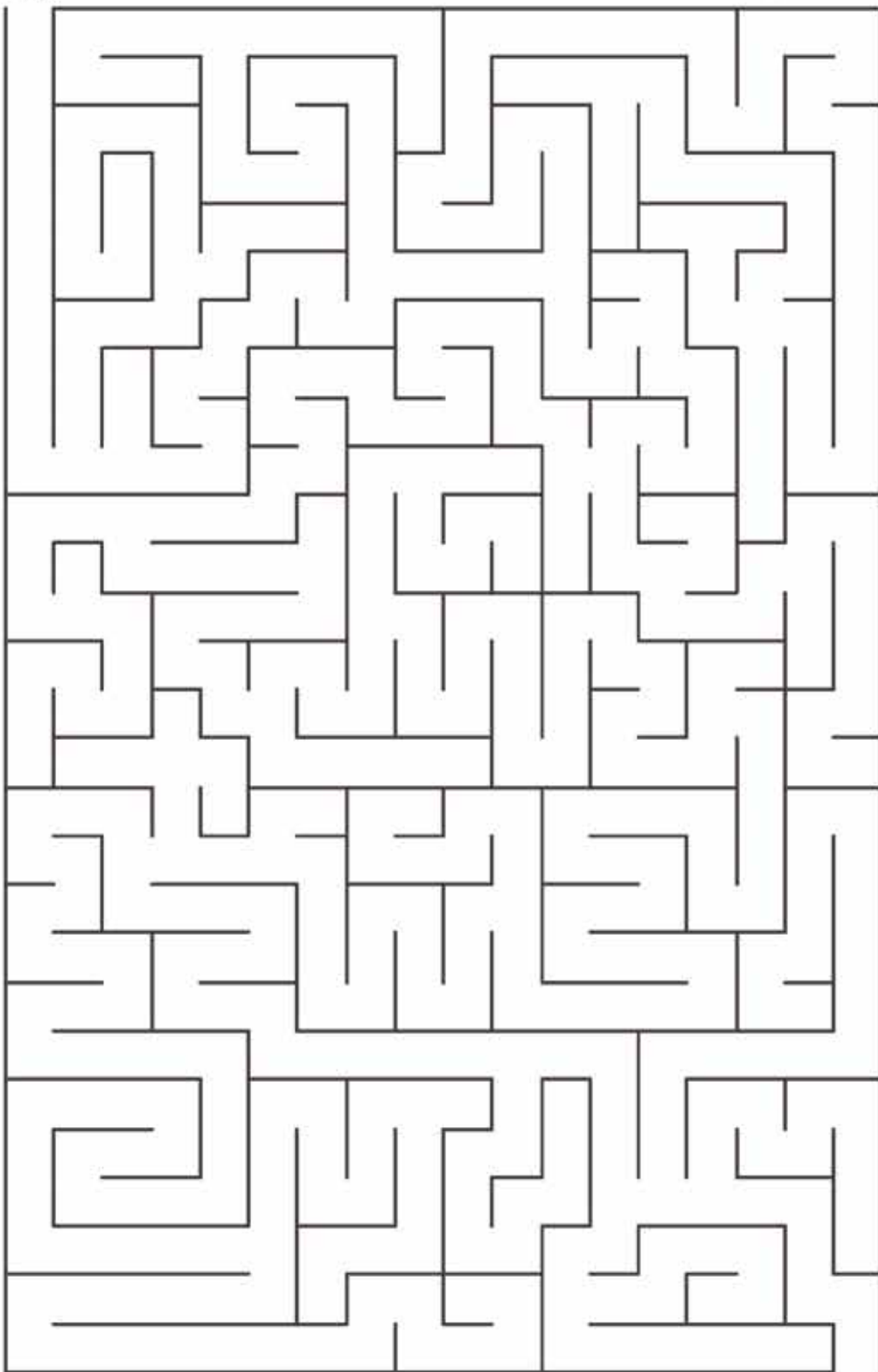


I could be as old as your grandmother...

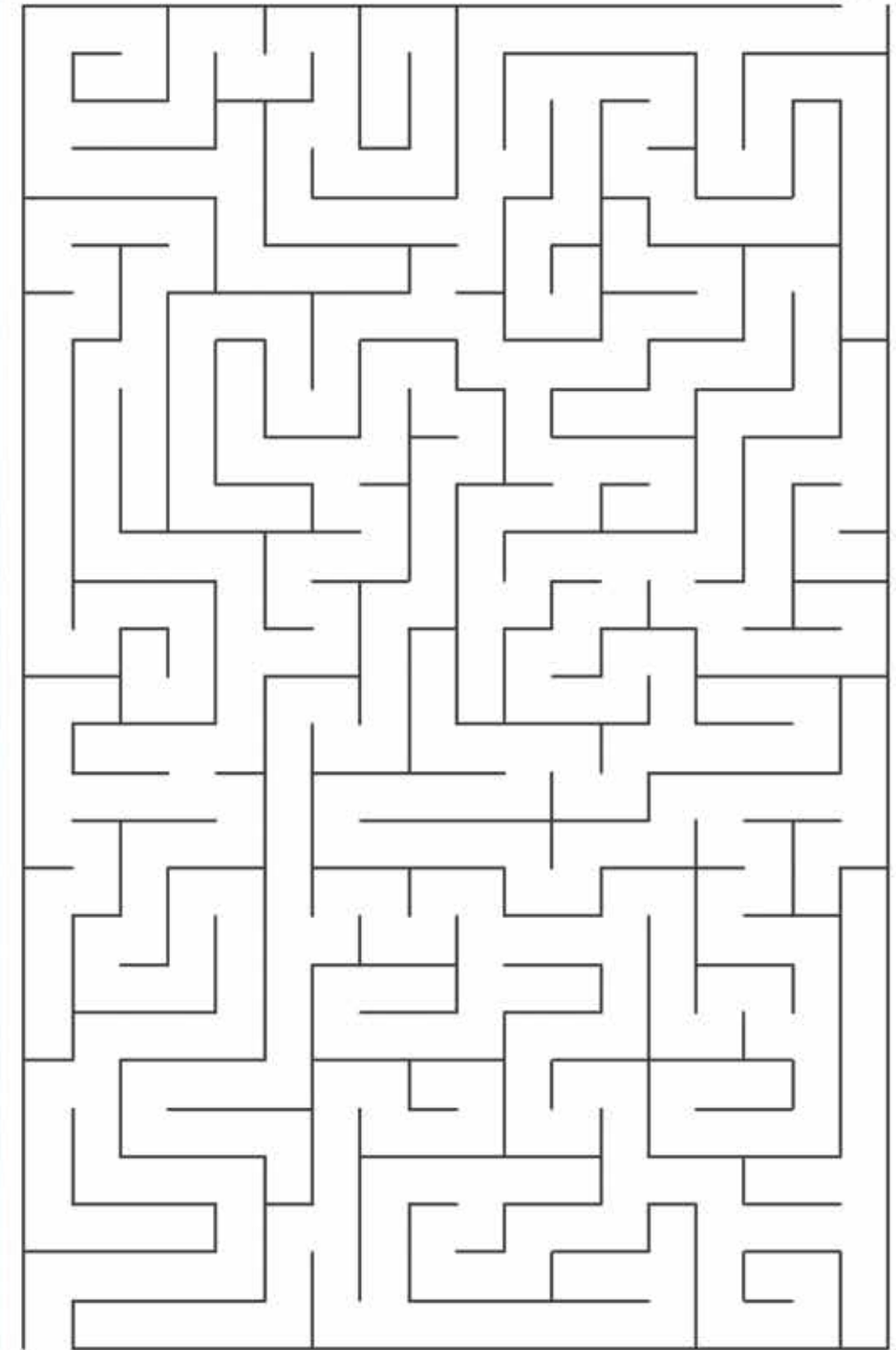
Dugongs eat sea grasses.  
By digging and pulling  
like a bulldozer,  
they leave feeding trails  
that look like a maze.



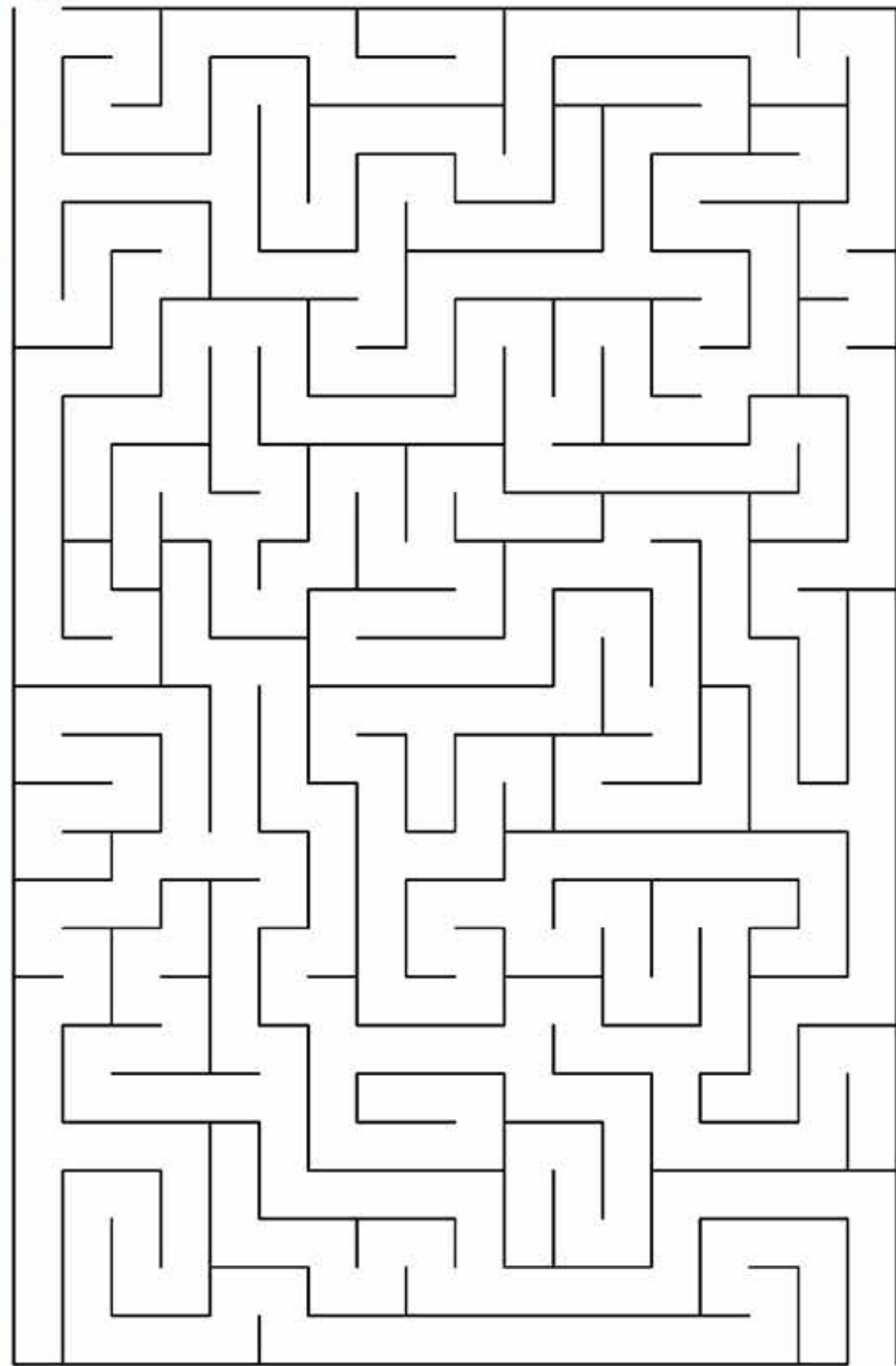
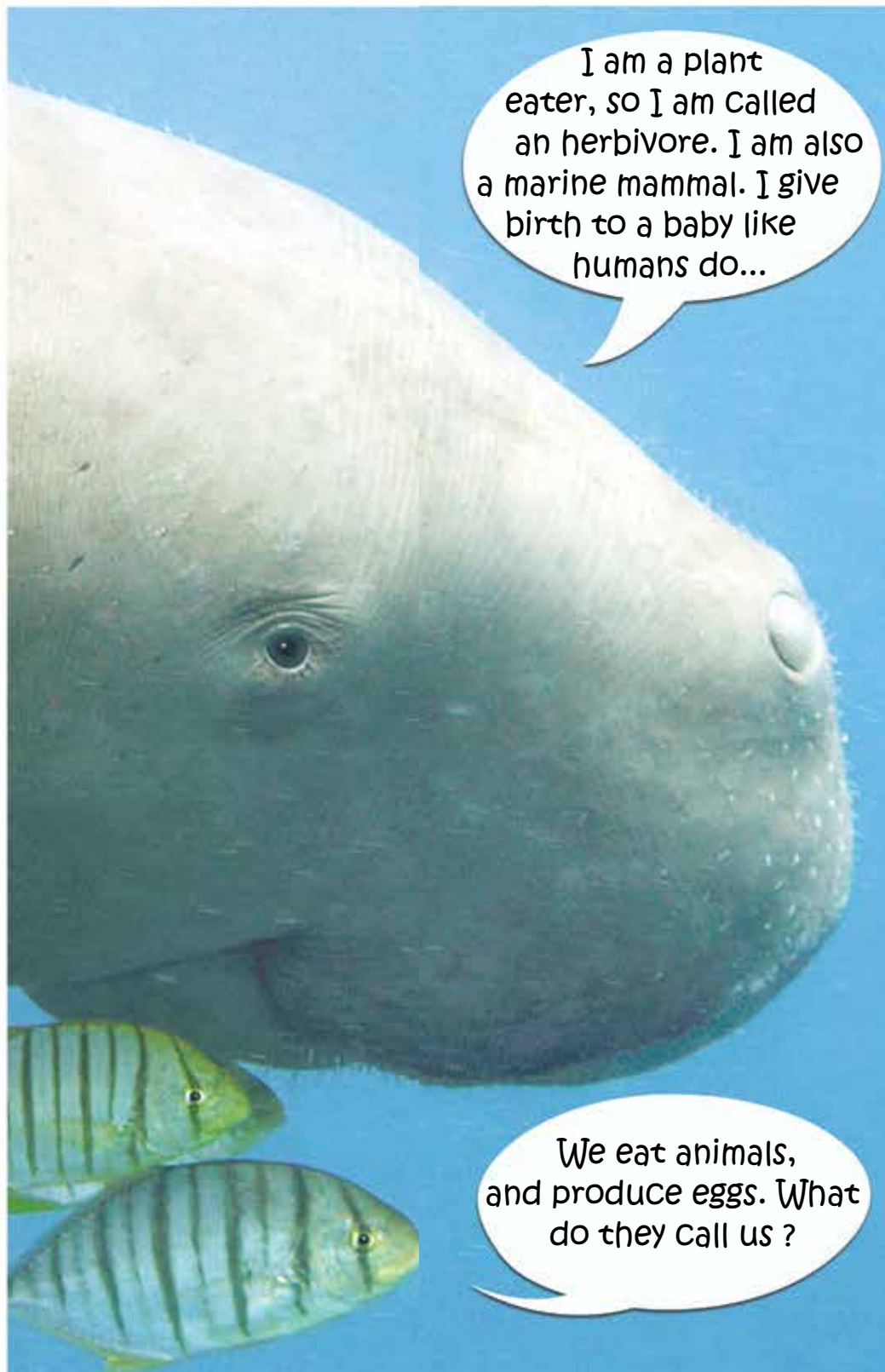
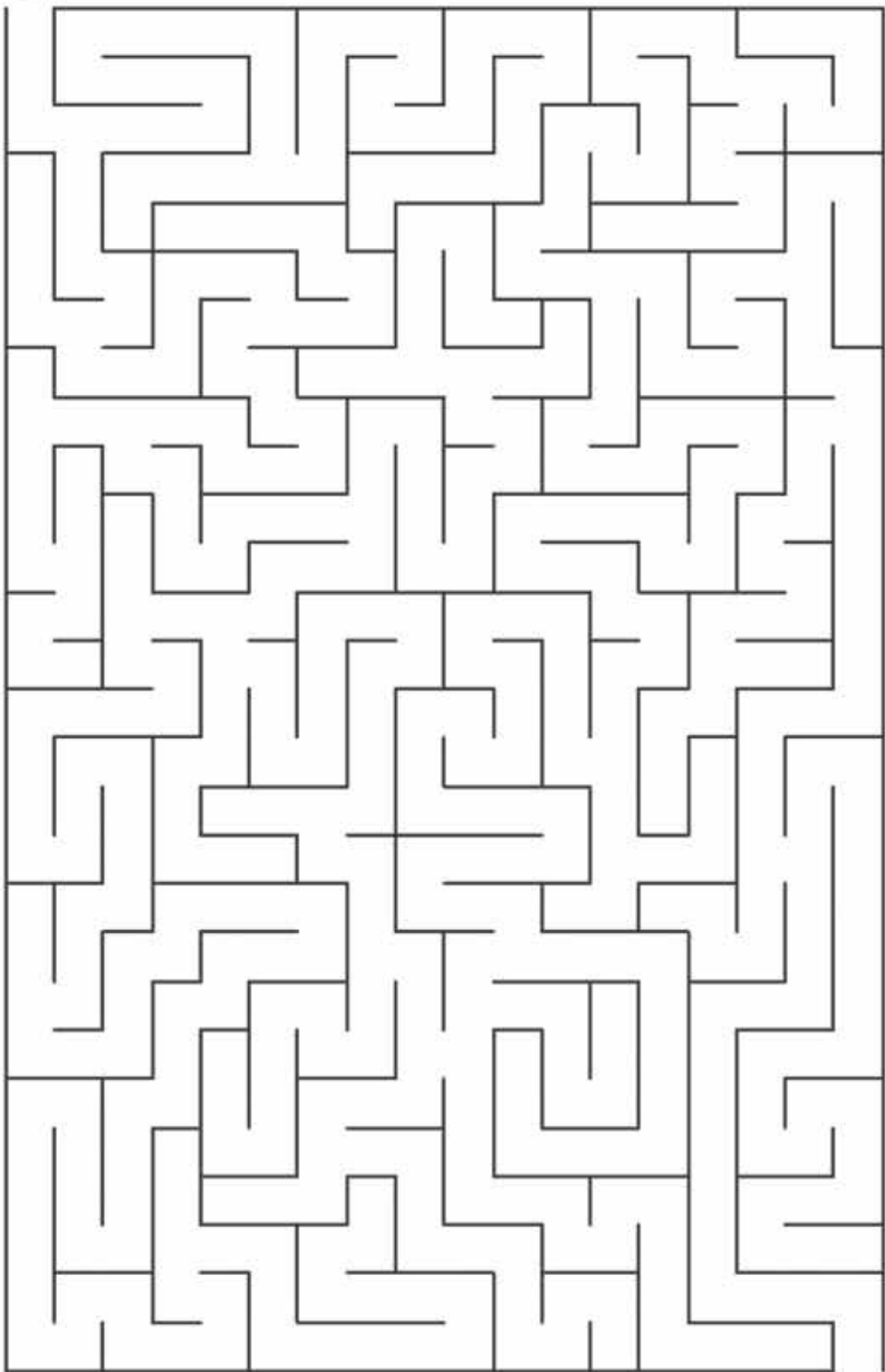
Like farmers  
they manage their fields  
leaving the seagrass beds  
to recover & grow back  
before they return to feed.



Can you help Missy Q,  
the Dugong, eat her  
way through  
the mazes?



When you finish all  
4 mazes, you will see  
each maze leaves a  
trail in the form of a  
letter. What word do  
the 4 mazes form?



# Sudoku

Sudoku is played in a grid with 4 subgrids or "regions". Some boxes are already filled with animal numbers that cannot be changed. You fill in the rest of the boxes, but remember:

The numbers, from 1 to 4, can only be used once in each horizontal & vertical row & region.



1



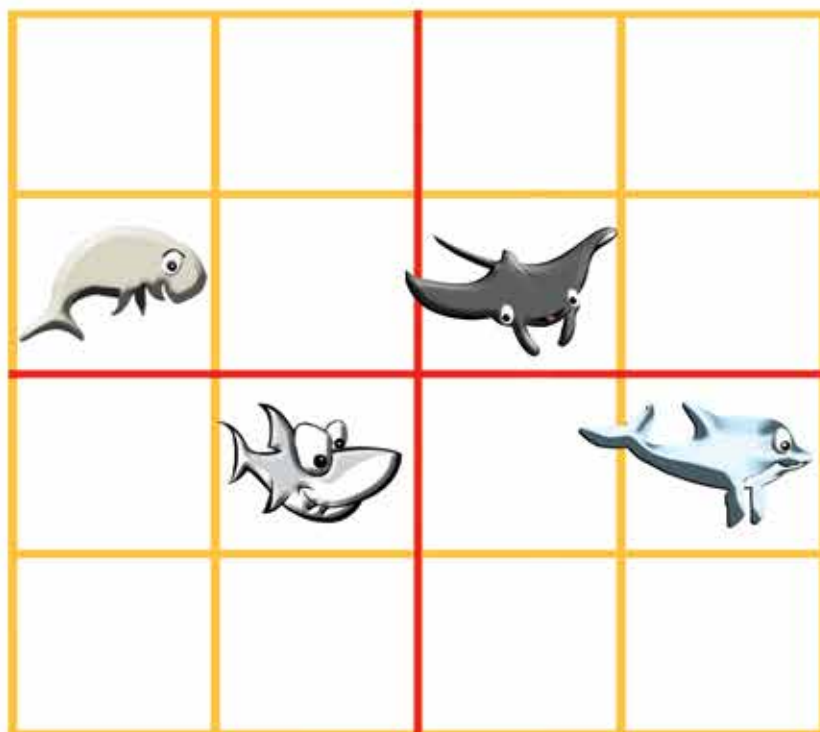
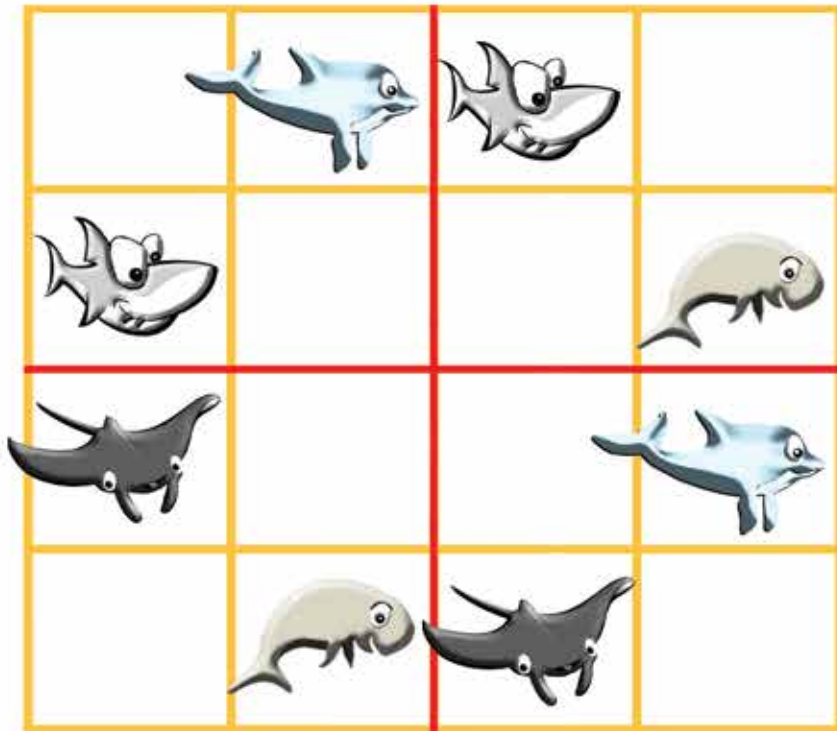
2



3



4



# Word Search Puzzle

Circle these Palauan manta names horizontally, vertically and diagonally in this alphabetic soup:

1. BLADE
2. OBAMA
3. ARETHA
4. CAMY
5. ROMANA
6. MECHAS
7. ALII
8. PUMPKIN
9. TIKI
10. GYPSY
11. SILVERBACK
12. CHICO



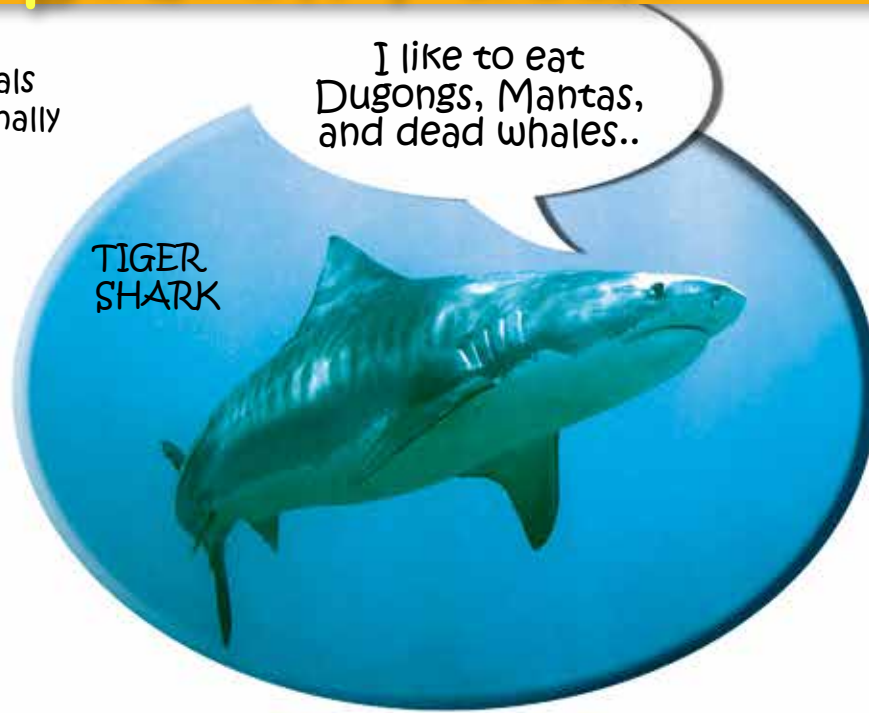
R	A	C	A	M	Y	S	F	N	E	Y	U	G	F
O	E	D	G	F	D	H	I	S	M	N	D	G	R
M	S	K	J	L	E	K	W	E	T	R	T	Y	B
A	Q	D	Y	S	P	Z	M	Z	M	I	O	T	Q
N	W	F	I	M	L	X	L	Q	N	S	K	F	A
A	E	G	U	D	A	R	E	T	H	A	G	I	B
S	R	P	O	F	K	C	K	Z	B	T	H	E	D
D	Y	H	P	G	K	V	J	W	V	H	L	D	A
R	T	S	I	L	V	E	R	B	A	C	K	Y	L
G	U	J	E	H	H	B	G	E	C	N	M	U	I
H	I	O	F	Z	G	N	Z	R	M	B	D	I	I
U	O	I	B	J	F	M	V	T	E	V	C	O	E
G	P	U	H	A	D	G	D	U	C	D	H	P	T
K	Y	T	Z	K	M	Z	E	O	H	R	I	K	U
L	W	P	S	D	F	A	H	G	A	T	C	G	Y
Z	X	V	S	N	M	K	G	S	S	G	O	R	O
A	S	D	F	Y	R	Y	I	P	H	J	I	W	P
E	R	T	Y	U	I	B	L	A	D	E	R	S	Q



# Word Search Puzzle

Circle the following marine animals horizontally, vertically and diagonally in this alphabetic soup:

1. DUGONG
2. MANTA
3. SHARK
4. REMORA
5. TRAVELLY
6. CALF
7. PUP
8. MERMAID
9. SEAGRASS
10. WHALESHARK
11. WRASSE
12. MACKEREL



T	A	S	E	H	R	N	Z	P	J	S	F	P	L
S	D	C	H	A	B	X	I	C	A	L	F	D	M
D	T	Z	P	A	T	W	F	K	T	D	F	R	Z
M	R	R	S	D	R	F	E	D	F	S	D	G	M
T	A	Y	W	C	Q	K	D	R	E	E	A	R	E
M	V	O	J	V	A	Y	U	E	D	R	W	S	R
L	E	D	U	G	O	N	G	W	O	F	W	X	M
P	L	S	G	K	D	S	S	M	W	G	H	S	A
T	L	D	H	L	G	F	E	D	K	Y	A	W	I
C	Y	S	K	Y	L	R	R	F	M	D	L	E	D
G	E	F	E	T	P	Z	E	G	A	K	E	R	H
P	U	P	L	A	F	V	W	J	N	L	S	J	G
G	D	L	S	R	G	N	T	Y	T	H	H	O	F
R	Z	J	E	E	K	R	U	Y	A	Y	A	L	D
S	A	I	U	O	R	V	A	C	X	D	R	K	R
V	G	T	E	A	Q	L	S	S	D	G	K	O	Y
D	W	R	A	S	S	E	O	P	S	E	S	E	U
S	S	R	Y	I	M	A	C	K	E	R	E	L	I



# Oddball Out



Three of these are sharks, one is not.



Three of these are starfish, one is not.



Three of these are crabs, one is not.



Three of these are jacks, one is not.

## How big are dugongs ?



Scientific name:  
Dugong dugon  
Size: ~11 feet  
Weight:  
~2,000 lbs. (As heavy as a car !)  
Age:  
over 70 years  
Speed:  
10-25 Km/hr.  
Where found:  
over 40 countries in the  
Indian and Pacific ocean  
Most endangered in:  
Japan + Palau  
Largest population: Australia

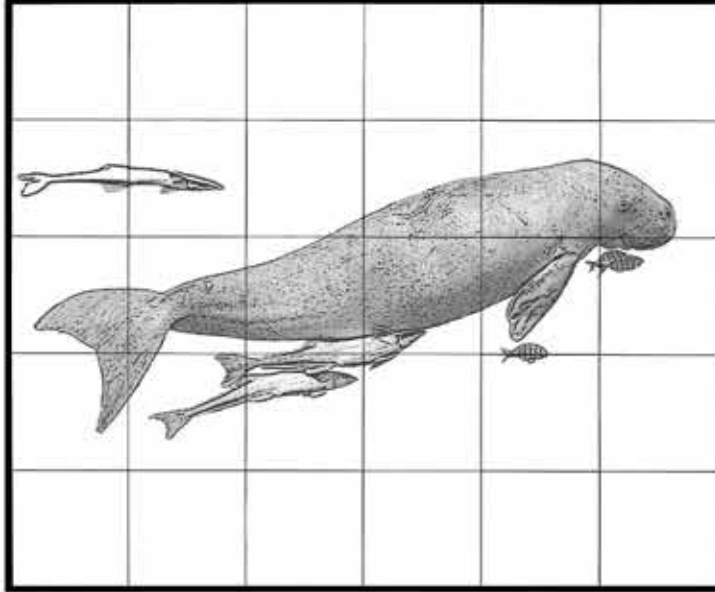
# Where am I in Palau ?

This is Manta and Dugong art you can see right here in Palau, do you know where these are located at ?



# Be an Artist

Draw this Dugong by copying it one square at a time.



Make your own Dugong or Manta drawing & bring it to the Etpison Museum with your name and telephone #. You may win \$100 !



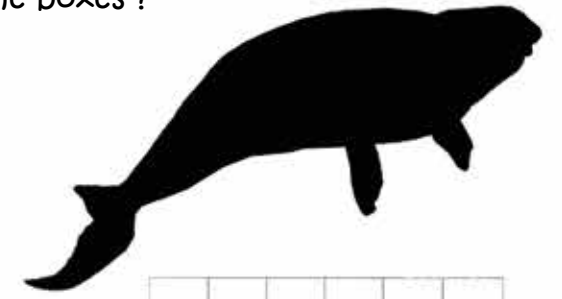

# Shadow ID

Can you identify these marine creatures and write their names in the boxes ?



--	--	--	--	--	--	--	--

--	--	--	--



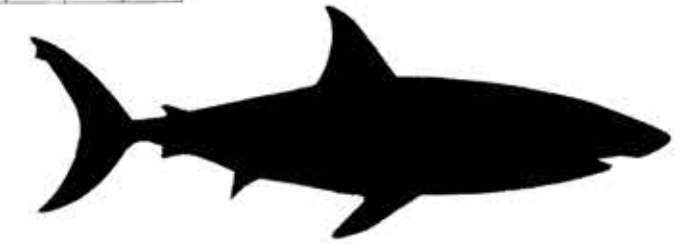
--	--	--	--	--	--	--	--



--	--	--	--	--	--	--	--



--	--	--	--	--	--	--	--



--	--	--	--	--	--

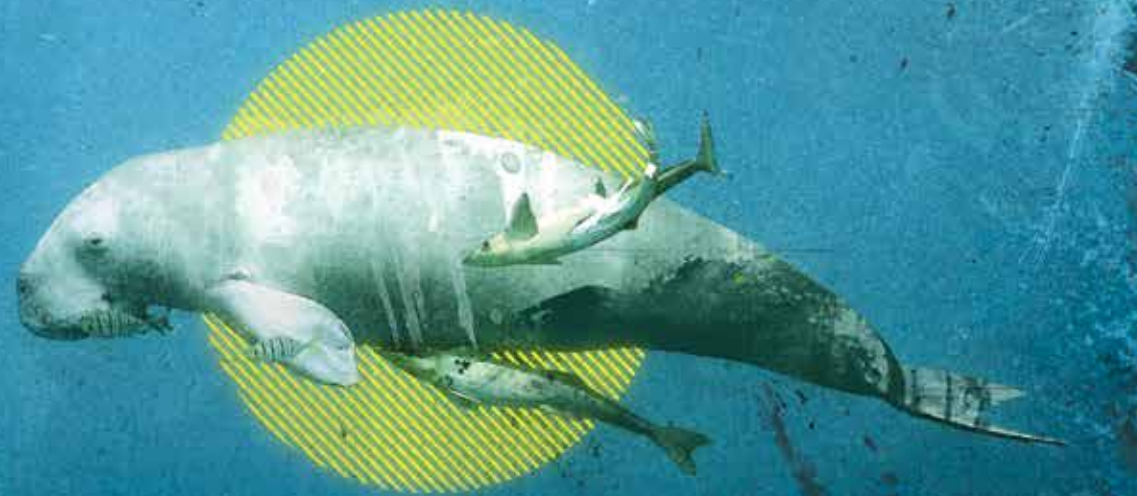
# Picture Scramble

Place the numbers 1 through 9 in the boxes on the right to create the image shown on the left.



○	○	○
○	○	○
2	○	○

I LOVE  
MESEKIU.  
DO YOU?



DEAD DUGONGS ARE STILL FLOATING UP  
SPEARED, OR INSIDES TORN BY DYNAMITE  
YOU CAN MAKE THIS STOP  
DON'T EAT IT, NOT ANOTHER BITE

MARINE MAMMAL SANCTUARY?  
NO, WE'RE NOT YET THERE  
TO MAKE IT WORK  
WE ALL HAVE TO ACT AND CARE

PRESERVE OUR NATURE  
PRESERVE OUR PRIDE  
CONVICT DUGONG KILLERS  
WHO THINK THEY CAN HIDE

THERE'S BEEF, THERE'S SPAM  
LEAVE THE MESEKIU ALONE  
LET'S SAVE THE ANIMAL  
NOT JUST THE BRACELET BONE

IKED ETPISON  
PMA GRADUATE 2012

## Fieldwork and data collecting

Photographs of Manta rays and Dugongs in the wild are important because scientists still know little about the lives of these mysterious creatures, and a picture is worth a thousand words...Inexpensive digital cameras with housings, and even waterproof cell phones now make it possible for everyone to take underwater photos while snorkeling.



You need a telephoto zoom lens and fast shutter speed to get a sharp photograph from the air.

Aerial surveys by helicopter are very important to locate animals and monitor their movements around Palau. Unlike a plane, a helicopter can hover and take time to observe the animals. Unfortunately it is expensive to go up in a helicopter, and you need a special lens on your camera to take good photographs from far away. With help from our sponsors we were able to do regular aerial surveys from 2009-2011, and learned a lot of new information about dugongs and manta rays.



This year, we will start using GoPro cameras to take time-lapse pictures. Our partners at Coral Reef Research Foundation rigged these cameras with special battery packs that can last for about 5 days underwater, while taking a photo every 10 to 60 seconds.

Without being there, we can capture unusual behaviour with these inexpensive little cameras. The challenge is finding the right spot to put the cameras, and going through the thousands of photos after retrieving the cameras, hoping there is something on them! But this is a way for us to survey the soft-skinned Mantas and Dugongs without hurting them or shooting painful metal tags into their skin.

## Underwater diving, snorkeling



## By Helicopter



## Time lapse Cameras



Send us a photo of a Dugong or Manta taken by you in Palau, and get a free Dugong T-shirt!  
[www.etpisonmuseum.org](http://www.etpisonmuseum.org)  
[www.manta1Dpalau.org](http://www.manta1Dpalau.org)

# Thank you!

to the sponsors & local partners of the 2013 Palau Dugong and Manta programs:



# What is this ?



Palau Dugong  
CNN video



Palau Manta ray  
video



This is called a "QR Code".

To see what it hides, you need:

- a mobile phone with camera
- internet access on your mobile
- a QR reader app that you can download from your Mobile App store

Scan the code with your camera and wait for the QR code reader App to link it to these cool YouTube videos !



Activity booklet design, photography & artwork:  
Tkel, Iked and Mandy Etpison, Ivan Ruiz  
Consultants: Dylan and Oreng Tellei,  
CRRF, Leticia Sanchis

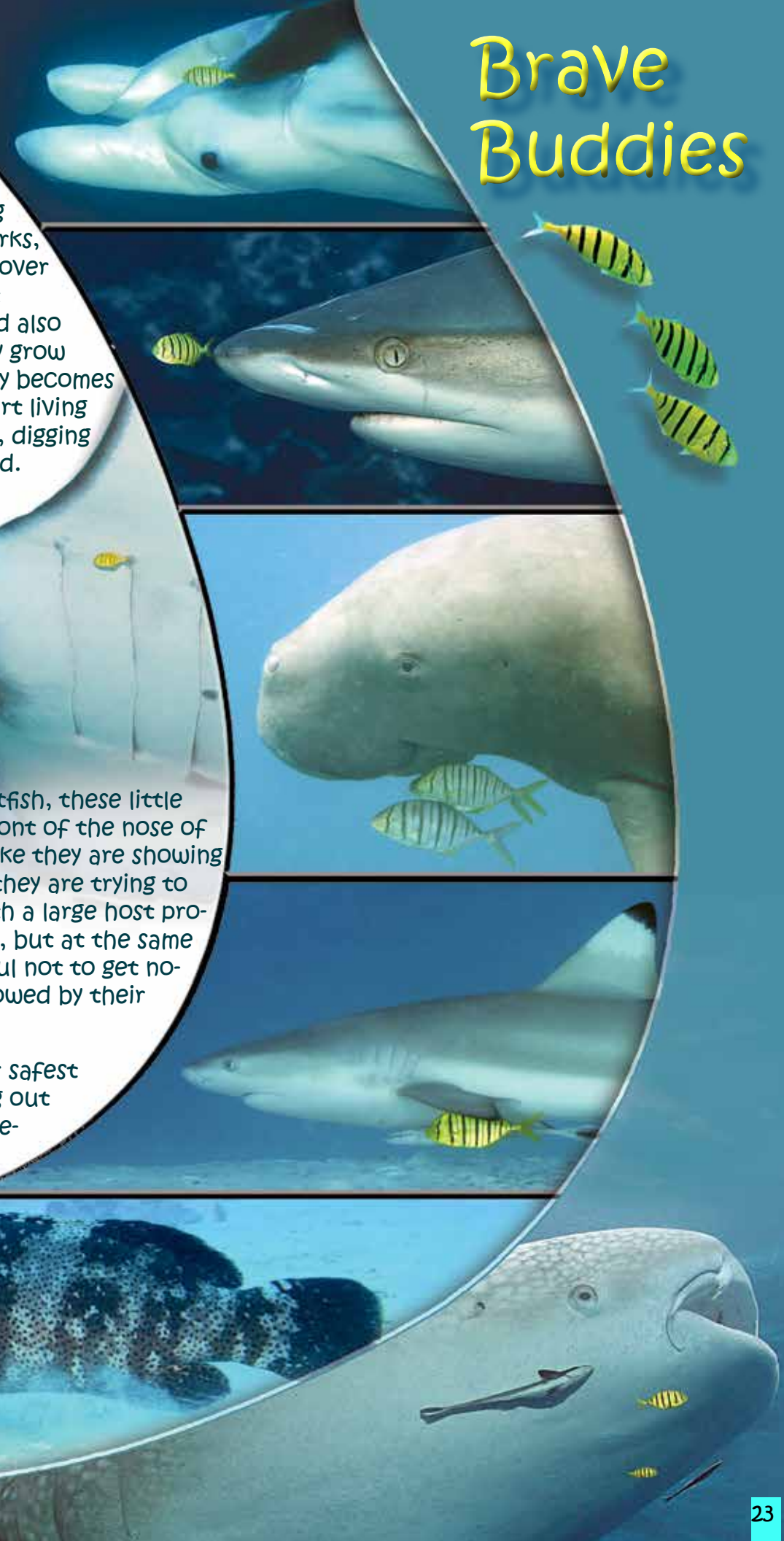
[www.etpisonmuseum.org](http://www.etpisonmuseum.org)  
[www.mantaIDpalau.org](http://www.mantaIDpalau.org)

# Brave Buddies

Baby Golden trevally jacks are fearless little fish, spending their first year amongst the tentacles of stinging jellyfish, or teaming up with groupers, rays, sharks, and dugongs. They eat leftover scraps from their host, eat parasites off their skin, and also forage in the sand. As they grow larger (to 3 feet), their body becomes silver in color, and they start living alone on deep sandy slopes, digging invertebrates from the sand.

Like their cousins the Pilotfish, these little fish usually swim right in front of the nose of their host, making it look like they are showing them the way, but in fact they are trying to stay out of sight. Being with a large host protects them from predators, but at the same time they have to be careful not to get noticed or accidentally swallowed by their own "buddy" !

A Dugong is probably their safest host, and when it is digging out seagrass roots, small invertebrates are exposed for the trevally to feed on.



Ouch, my eye!

# Nobody likes these Suckers!

Remoras are also called Suckerfish, or shark suckers, because they attach themselves to larger creatures with the sucker disk on top of their head. These slimy hitchhikers travel the ocean on reluctant hosts, eating their left-overs, the parasites from their skin, and sometimes even their poo!

They lay in wait to catch a ride on large rays, dugongs, sharks or turtles, but will try to suck onto other fish too, or even onto the fins of a scuba diver...

Sharks and Mantas get very irritated by Remoras, and will try anything to get rid of them, from rubbing themselves on sand to jumping out of the water, or sneaking up behind others in the hope the Remoras will move onto someone else.

The ultimate free ride for a Remora must be the huge Whaleshark. This shark has a belly full of them! How many Remoras can you count on this shark?

Sometimes Remoras lie on the ocean bottom just waiting for a large fish to swim by that they can latch on to.

We look alike, are we related?

Get off me, you are ruining my disguise...

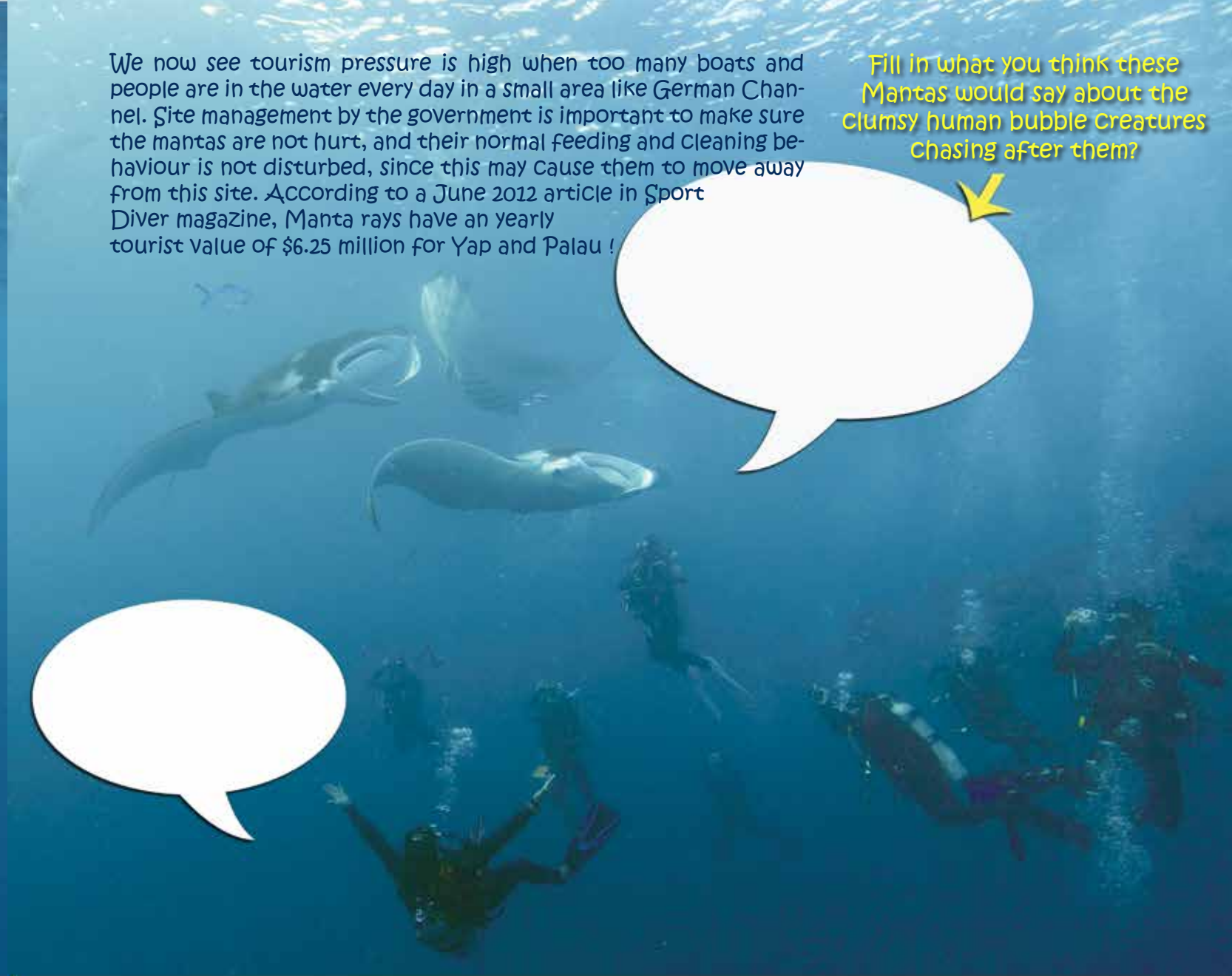
# Tourists AND Manta Rays



Tourist divers and snorkelers from all over the world pay a lot of money to come to Palau to see its natural beauty above and under water. Palau has always been known for its many reef sharks and large schools of fish, but in recent years the Manta rays have become a popular tourist attraction too, making them important to the economy in Palau. The best time in Palau to see Manta rays is between November and May each year. German Channel in Ngemelis area is the most reliable site to see Manta rays, but Mantas can be found around most reef passes and channels in Palau depending on the time of year, moon and weather.

We now see tourism pressure is high when too many boats and people are in the water every day in a small area like German Channel. Site management by the government is important to make sure the mantas are not hurt, and their normal feeding and cleaning behaviour is not disturbed, since this may cause them to move away from this site. According to a June 2012 article in Sport Diver magazine, Manta rays have an yearly tourist value of \$6.25 million for Yap and Palau !

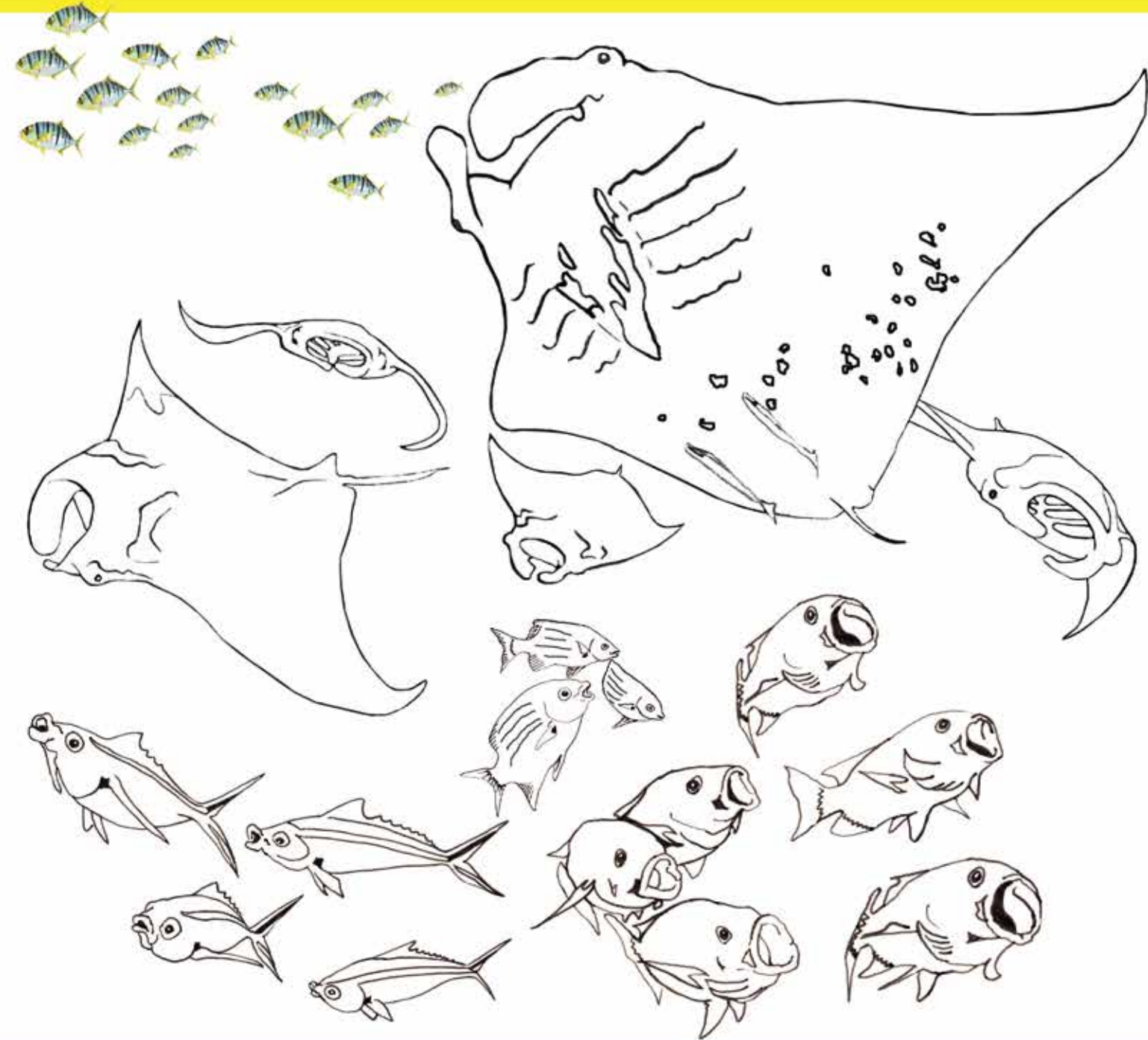
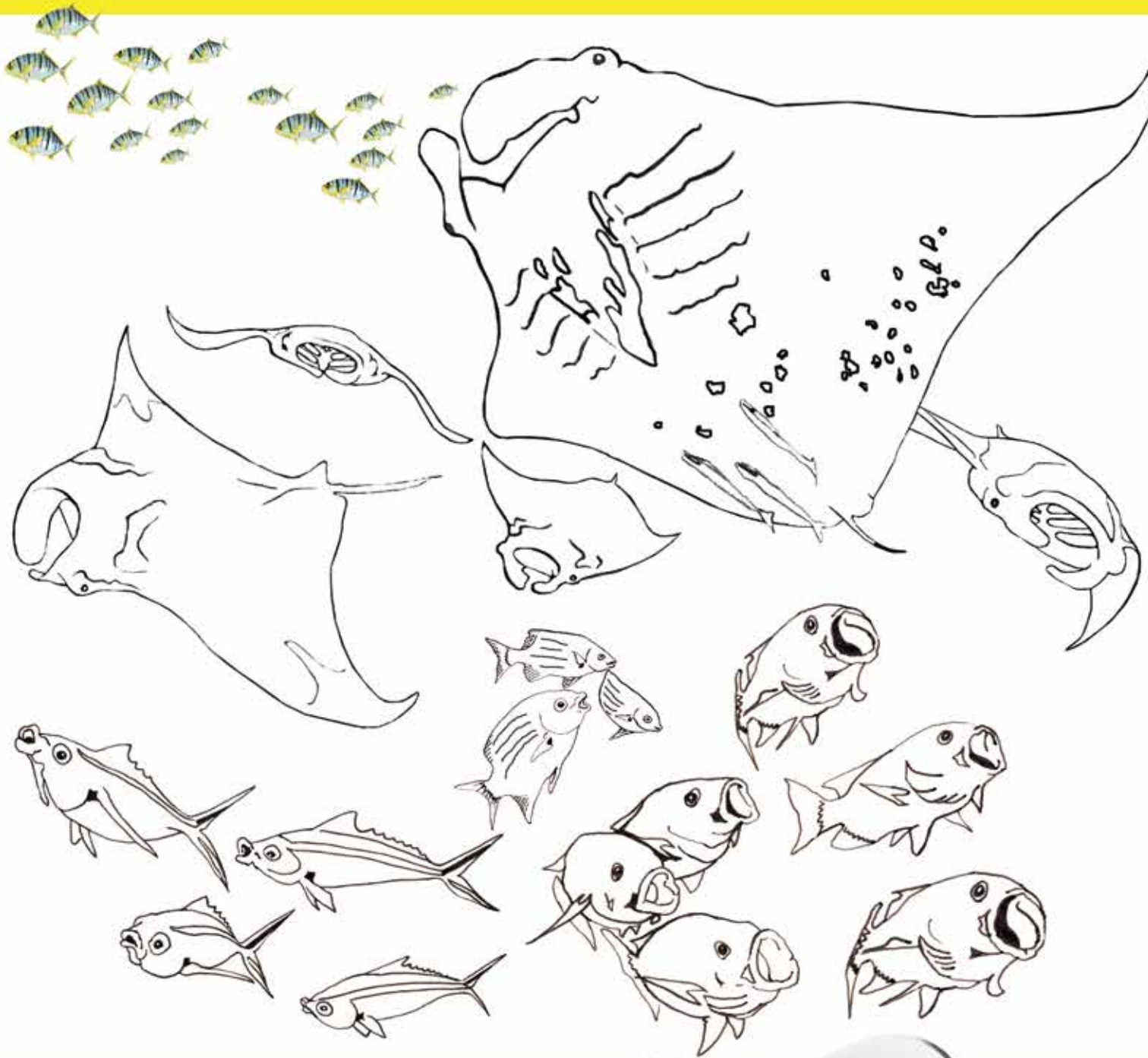
Fill in what you think these Mantas would say about the clumsy human bubble creatures chasing after them?



A few times a year, when the moon and the tides are just right, Mantas come together to feed and to find a boy/ girlfriend. Only on rare occasions can you see so many Manta rays together. When they follow each other closely, it is called a Manta TRAIN.

# What's the difference?

Look closely, can you find all 10 differences?



**Did you know..**  
 Adult female Reef Mantas are larger than males, they can grow to 16 feet wide in Palau! Oceanic Mantas get even bigger, but have not been seen in Palau so far.

Match these names with the fishes you see here with the Mantas:  
 Black snappers, Fusiliers, Rudderfish, Golden trevally jacks.

What is the Palauan name of the funny Mouth Mackerel fish that are sometimes seen feeding together with the Mantas?





# Dangers to

## Commercial fishing: Gill raking

Asian commercial fishing boats are now targeting Mantas and Devil rays in the Pacific. They combine the gill rakers of these large rays with shark fins for their favorite soup, and also for medicine. A lot of countries now have laws against shark finning, but not yet for rays, so fishermen are taking advantage of this at the moment.



Manta and Devil rays, like sharks, dolphins and turtles, are often killed by nets from purse seiner fishing ships, longline boats and by gill nets used for catching other fishes.

# Manta rays

- Accidental:**  
 Mooring line entanglement  
 Fishing nets  
 Fishing line/hooks  
 Boat strikes/ propellers  
 Tourism pressure

A Manta's skin is like soft rubber, and thin fishing lines, hooks and propellers will slice right through it, causing terrible wounds. Boats should not fish or drive fast around German Channel, where Mantas feed and swim close to the surface. Each year Mantas get hurt there by careless boat drivers and fishermen.

## Predators: Large Sharks

Stingrays are a favorite snack for Tiger and Hammerhead sharks. From the nasty bite marks on some of the Manta rays' backs you can tell that even these rays often get attacked by large sharks, probably at night.



Shark bite wounds like these take several years to heal over with a new layer of skin.



photo:Yoko Hidashide

Blue Corner, 2010. Dead Manta entangled in boat mooring line.



F17 Gypsy  
Feb 2012



Nov 2012

Torn mouth flap- most likely from a boat propellor or a rope/ line.



Fishing net wounds



Boat propellor wounds-

cut wingtip -



back scars

When wounded, mantas will sometimes swim up to divers and seem to be asking for help to remove the painful hooks and/or lines.



Mooring rope wounds



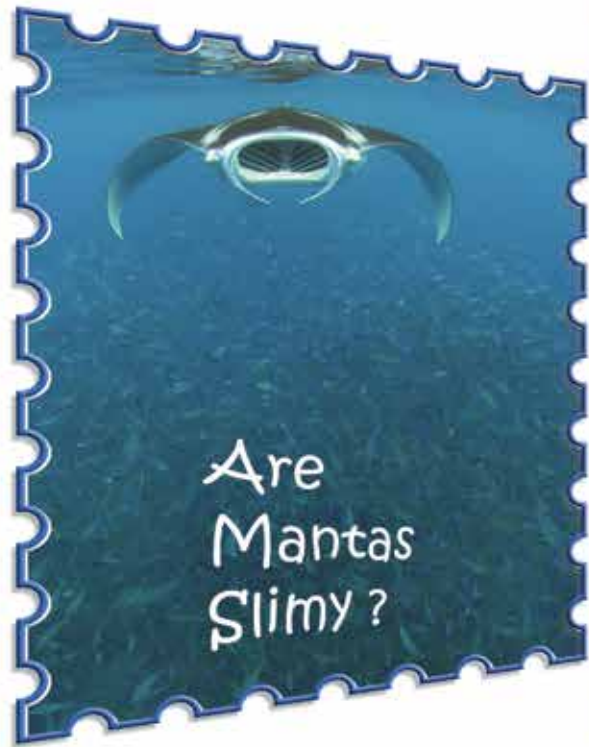
Fishing line cut



Fish hook/line cuts



Help me !?



Are Mantas Slimy?

Yes! Their skin is covered with a thick coating of mucus which protects it from infections, and helps heal their skin from cuts and bites!



How big is a Manta?

Scientific name: Manta alfredi, reef Manta  
 Size: ~15 feet wingspan  
 Largest Manta ever: 23 feet wingspan  
 Speed: up to 10 knots  
 Weight: ~1,500 lbs.

## Picture Scramble

Place the numbers 1 through 9 in the boxes on the right to create the image shown on the left.



			<input type="text" value="2"/>	<input type="text"/>	<input type="text"/>
			<input type="text"/>	<input type="text"/>	<input type="text"/>
			<input type="text"/>	<input type="text"/>	<input type="text"/>

## Oddball Out

In each row, circle the animal that is different from the others.



Three of these are Angelfishes, one is not.



Three of these are related, one is not.



Three of these are safe to eat, but one can be poisonous.



Three of these are fishes, one is not.

## Picture Scramble

Place the numbers 1 through 9 in the boxes on the right to create the image shown on the left.



			<input type="text"/>	<input type="text" value="8"/>	<input type="text"/>
			<input type="text"/>	<input type="text"/>	<input type="text"/>
			<input type="text"/>	<input type="text"/>	<input type="text"/>

# Do Mantas take care of their babies?

No, they don't. As soon as they are born, baby Manta rays have to look after themselves, find their own food and hide from sharks that try to eat them. They stay around reef channels until they are large enough to go out into open ocean. On these photos you see the difference in size between a newborn and an adult Manta.

Newborn Manta ray

Young Manta rays

Adult female Manta ray- F1 Mechas

Baby Mantas are called pups

Mommy ?!

# FLIPPING GYMNASTS

When there is little current, Mantas start doing backflips to scoop plankton into their mouths. This looks like an underwater ballet.

## Did you know..

Mantas eat by filtering tiny plankton from the water. Mantas feed close to the reef when plankton is pushed in by currents at incoming tide. Manta poo is an orange powder, and fish like these Black snappers like to eat the Manta's poo !

## Did you know..

Plankton are eggs and small marine creatures- so small you need a microscope to see them. It is amazing a huge animal like a Manta can survive on that...

I don't use teeth to eat my food, I just...



An aquarium in Okinawa, Japan has had Mantas in captivity since 1988, and four babies have been born there. That is how we know Manta rays are pregnant for a year, and give birth to one folded up pup.

No one has ever seen a Manta ray give birth yet in the wild, but we do see the pregnant Mantas and newborn pups each year around Palau's reef channels from November till March.

...open wide !



Mantas feed with their mouth flaps, fins shaped like a funnel to guide as much food into their mouth as possible while they swim. Water runs through their gills (above) which have rakers like hair combs, where food gets filtered from the water and swallowed.



The **Cleaning Crew** are usually members of the wrasse fish family

There are small fishes that specialize in cleaning parasites, skin and food scraps off of larger fishes, sharks, and rays. They set up shop around a large coral head, and advertise their services by moving up and down in a certain way, then wait for fish to stop by and signal with their body language that they are ready to get cleaned. These brave little cleaners will even go into the gills and mouths of large sharks and clean their teeth!

Scuba divers can sit near a cleaning station and watch Manta rays circle around to get their skin checked by these cleaner fish. If you get too close they will often leave, but if you stay still on the bottom and give them space, they will sometimes come to check you out while circling the cleaning station.

## Do Mantas have teeth?

Yes! They have thousands of tiny velcro-like teeth along their bottom jaw, but as far as we know, these are not used for eating, only for grabbing the fins of other Manta rays.

Can you think of at least 3 marine creatures that do not have any teeth at all?

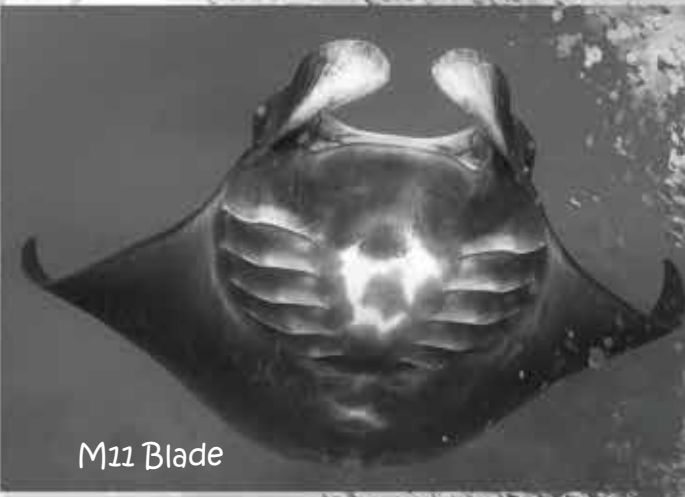


# BLACK

# & WHITE



M10 Darth Vader



M11 Blade



M46 Obama



F11 Aretha

Reef Manta rays are black on top with some white grey markings, and white underneath with some dark spots and blotches.

There are also black Mantas, totally dark on top and dark underneath, with some white-black markings on their chest and belly. This is a rare black color morph, like a black panther. They seem sleeker, like a stealth fighter jet when you see them swim, but are the same species.

Manta rays and some other animals have natural patterns (pigmentation) or acquired markings (scars, cuts) unique to each individual, like human fingerprints.

Manta can be identified by these chest and belly markings. The black mantas can also be identified and are all different, as you can see from the ones shown here.

These markings can be filmed or photographed as a way to identify individual animals without hurting them. Tagging animals can stress them, affect their behavior, and cause tissue damage and pain. Wearing a tag can alter the animal's appearance, social interaction, and ultimately its survival chances.

Photo identification is safe and also works on the dorsal and tail fins of some shark species, dolphins and whales.



F4 Camy

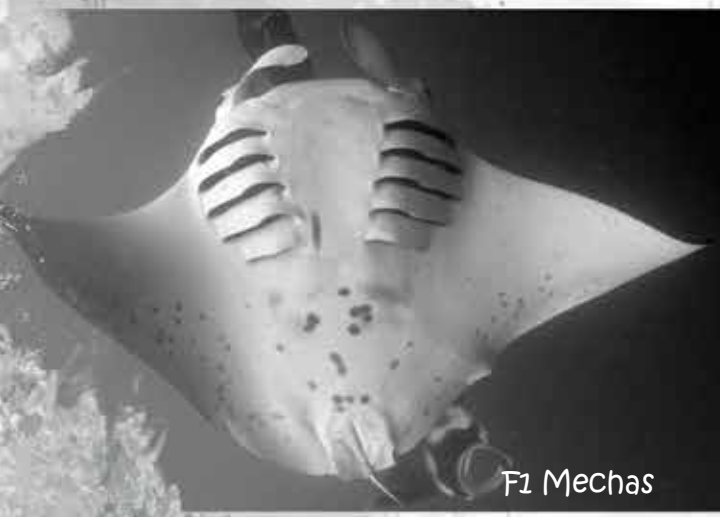
There is even a software developed now to match animal spots and keep easier track of all the photographs in a database, called I3S, or Interactive Individual Identification Software.

In Palau, we have identified over 200 manta rays from photographs of their bellies alone ! We have given all of them numbers and an initial to show if they are male or female, and the regularly seen Mantas have names too. Every season we are looking to see which Mantas return, and for new Mantas to add to our database.

Check all Palauan Mantas on our website:  
[www.mantaIDpalau.org](http://www.mantaIDpalau.org)



M6 Aiii



F1 Mechas



F4 Camy

# Palauans meeting



Iked



Edwin



# Mantas

Mantas are friendly, curious creatures, but do not like to be touched or chased. They have a soft, rubber-like skin.



You do not have to be a scuba diver to see them. When they are feeding, they swim close to the surface with their mouth open, and you can see them snorkeling from the surface. Would you like to see one yourself in the water?



Keriik

If they are getting cleaned or are feeding, they will often stay around for several hours if you give them space.



Ngiraikelau & Dylan

Although big and powerful, Mantas will never hurt you intentionally as long as you do not try to touch them or get in their way. When they are not feeding, they sometimes swim up to you to check you out. When feeding, they swim with their mouth wide open sucking in food, like a big vacuum cleaner!



Dylan

Never chase a Manta by boat, because the engine propellers can hurt the Mantas badly. If you see one on the surface from a boat, drive around and way ahead of it slowly, and stop the engine. That way you have time to get in the water or get a good look from the boat as it swims by without scaring it.



Dylan

Two Feathertail stingrays covered by sand, with only their eyes sticking out.

# the Ray Family

Stingrays like to hide under the sand, while Mantas and Devil rays need to keep swimming to survive. Sharks and rays are related, but these "cousins" like to eat the rays!

The Reef Manta rays are the largest rays you can see in Palau. Most rays eat snails and clams they dig up from the sand, but Mantas and Devil rays just open their mouth and filter tiny creatures brought in by ocean currents.

Whiprays seen from a helicopter



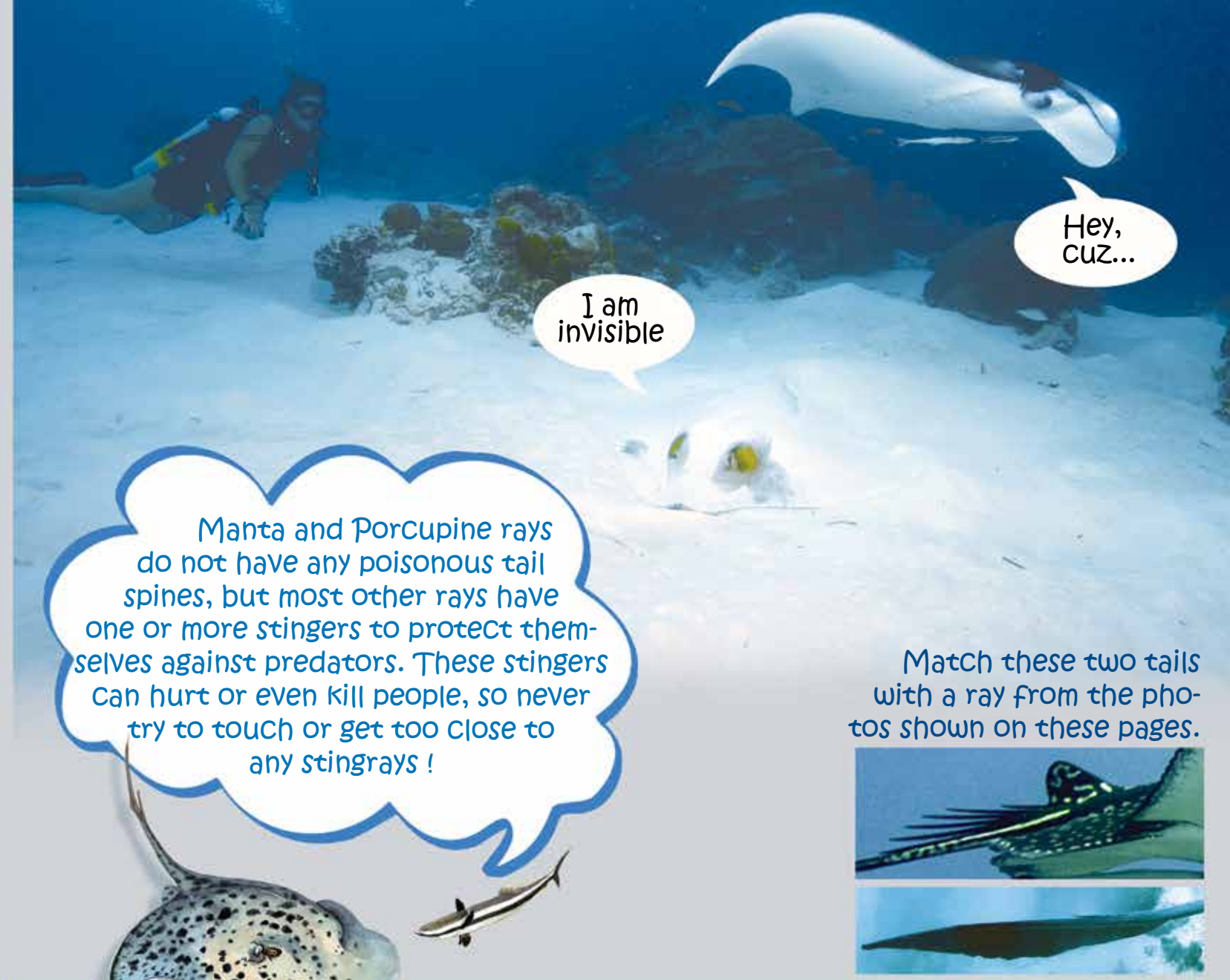
Going...



Going...

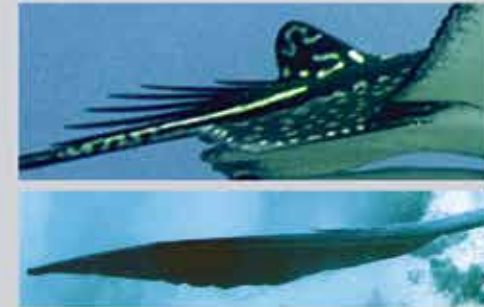


Gone...

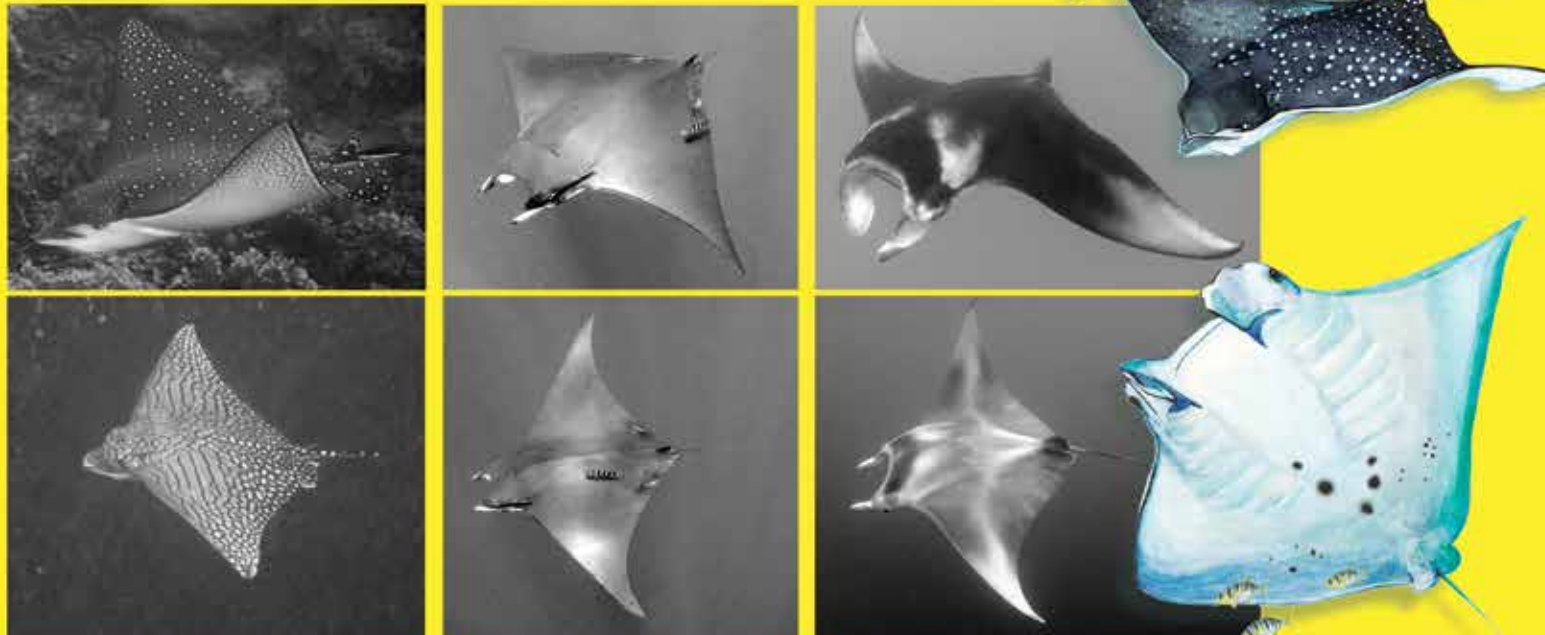


Manta and Porcupine rays do not have any poisonous tail spines, but most other rays have one or more stingers to protect themselves against predators. These stingers can hurt or even kill people, so never try to touch or get too close to any stingrays!

Match these two tails with a ray from the photos shown on these pages.



## Ray species found in Palau:



Eagle rays

Devil rays/ Mobula

reef Manta rays

## Ray species found in Palau:



Marbled ray

Feathertail stingray

Mangrove whipray

Pink whipray

Porcupine ray

Bluespotted stingray

# Did you know..

Mantas live over 30 years, and have a larger brain than any other rays or sharks!

## Sea DEVIL

The first drawings of rays from over 200 years ago look funny, but you have to remember that these artists did not have computers or cameras! Most of them had never even seen the animal, and had to draw it based on stories they were told by sailors and fishermen, or from dried collected animal skins.

Sailors then did not know that Manta rays are harmless, and they believed them to be dangerous sea monsters. They named them Sea Devils or Devilfish because when they swim with their mouth flaps rolled up, these look like horns on top of their head.

The name Manta comes from the Spanish word "Mantilla", which means cape, or scarf. Manta rays sometimes jump clear out of the water, this may be just to dislodge remora suckerfish clinging to them, or to send signals to other Mantas in the area.

Around the world, there are dozens of species of stingrays, at least nine different types of Devil rays, and so far two different Manta rays. Scientists have a hard time studying Mantas and Devil rays because they live most of their lives out in the open ocean so we still know little about them. In Palau we can see Reef Manta rays when they come close to the reef channels to feed and get cleaned.

## Sea EAGLE

In Palau, Eagle rays are called **Ochaieu**, and traditionally were believed to be Gods. Some Palauans still believe that if you hurt an Eagle ray, someone in your family will get sick or may even die!

Draw what you think a real Sea Monster should look like!

The old Palauan stories and legends were carved and painted onto the Bai buildings. Most Bais were destroyed around a hundred years ago by typhoons, and during WWII, so it is lucky that the German researcher Augustin Kraemer copied all of the stories in 1910, so Palauans today can see & remember them.

Palauans hunt and eat sting-rays, and used to make daggers from the sharp stingers on the ray tails. Like a fish hook, the barbs on these stingers get stuck in your skin and cause bad wounds.







# Manta Rays

Ouklemedaol



Free  
Activity Book  
Facts & Fun  
from the  
Ocean  
with stickers!