

How This Place Has Changed!



海洋委員會海洋保育署

OCEAN CONSERVATION ADMINISTRATION,
OCEAN AFFAIRS COUNCIL

Marine Conservation Picture Book Teaching Plan



02 Concept of the Picture Book

This story is about Little Terns, commonly found in Taiwan during the summer, raising their young. Through this story, children can learn about the ecology of Little Terns and explore the beauty of , including its fisheries and the biodiversity in intertidal zones and marine areas. This aims is to instill correct concepts of ecological and habitat conservation, deeply cultivate ecological conservation and environmental education, and guide children towards sustainable development goals.



03 Story Overview

Two Little Terns, Xiao-Ou and Xiao-Yan, migrate from cold Australia to Taiwan for wintering, settling in the Qingluo Wetlands in Penghu, where they form a family and raise their chicks together.

Under the protection of conservation volunteers like Azhi and Xiao-Qing, along with the attentive care of Xiao-Ou and Xiao-Yan, the chicks grow up happy and robustly.

When the north wind blows, the Little Tern family rides the wind along with other Little Terns to return to Australia.

How This Place
Has Changed!



04

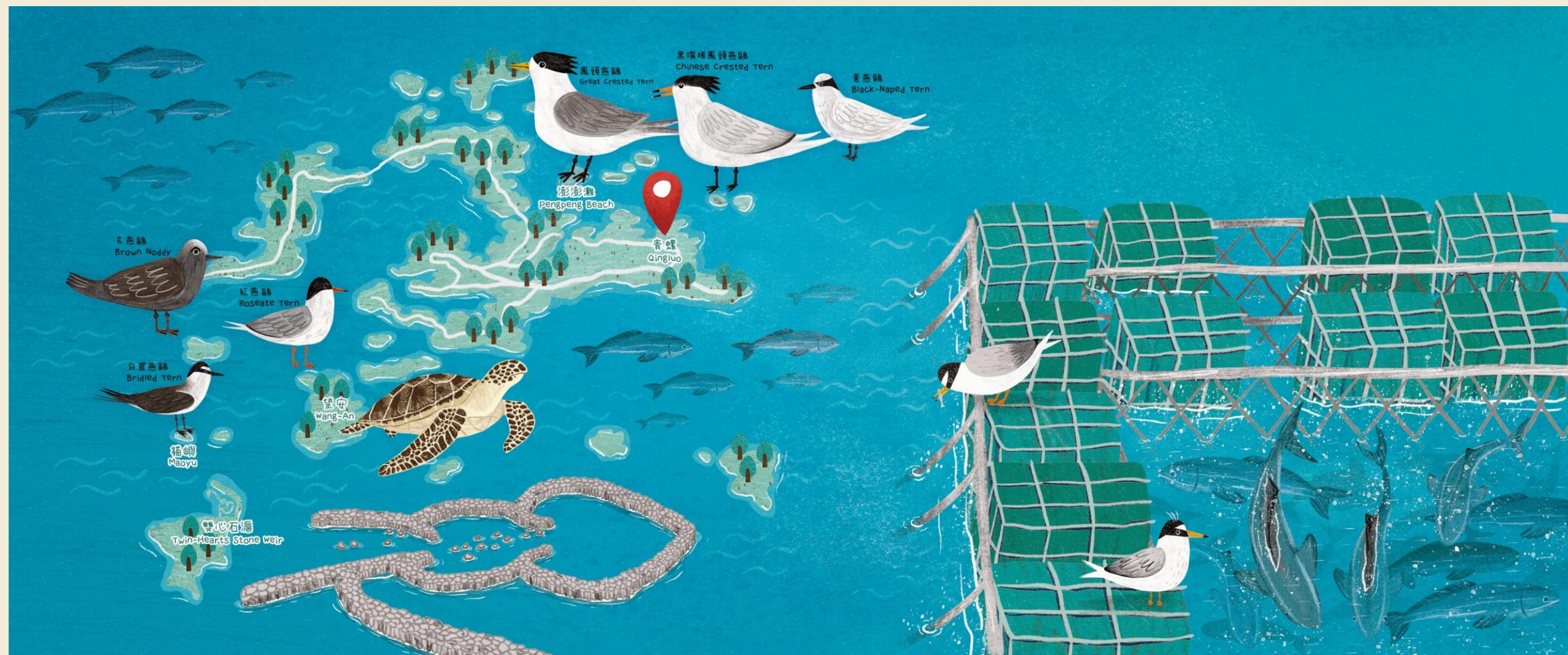
Story Text



Through the warm south wind , Xiao-Ou follows his parents to Qingluo in Penghu, where he was born the previous year. Although it is a difficult journey, their friends cheer them on along the way to help them soar in the sky!



Xiao-Ou remembers Qingluo, a place with flat sandy beaches and long stretches of intertidal zones. However, it was also full of litter and with nowhere to hide from the blazing sun. His parents often had to go to distant places in order to find food. His dad says that if the environment is still the same as last year, they will look for another place to live.



Passing by the sea next to the stone weirs, Xiao-Ou and his parents see fishermen casting nets to catch fish. They are greeted by green sea turtles in Wang-An, while bridled terns and brown noddies nest on Maoyu, and Pengpeng Beach serves as the Chinese crested tern's nesting ground. Xiao-Ou and his family take a breather in the net cage area, where there are plenty of small fish and plankton.



Qingluo is different from what Xiao-Ou remembers because there is less litter and more vegetation. When he dives into the water to catch fish, he is astonished.

"Wow! How clean the water has become."


Many little terns have already nested here. They are quiet neighbors and it would be easy to get along with them.

Additionally, there are more shaded areas on the beaches of Qingluo.

"It's a comfortable place."

Xiao-Ou often follows the fishing vessels for the bycatch discarded by the fishermen. It's a big feast for him. The sea near Qingluo teems with Xiao-Ou's favorite food, anchovies, so he eagerly dives into the sea. Xiao-Ou enjoys the tranquility beneath the sea, where sunlight penetrates the surface and illuminates the underwater world like a crystal palace. Of course, he also enjoys hearing people cheer when he surfaces with a mouthful of fish.



A vibrant illustration of a beach scene at sunset. A large, smiling sun with a face is in the sky. Several terns are flying and on the sand. One tern is offering a fish to another. In the foreground, a person's hands are holding two spiral notebooks. The left notebook has a drawing of two terns and the text: "When male little terns are courting, they will offer fish to the female." The right notebook has a drawing of two terns and the text: "The birds are getting married, congratulations!" A green folder is also visible.

Xiao-Ou performs a courtship dance and Xiao-Yan accepts his advances.


Standing on Qingluo Beach, Xiao-Ou says, "We will have a happy family." Together, they dig a shallow pit on the beach and furnish it with some coral sand.

Xiao-Ou says to Xiao-Yan, "We shall wait for our babies to arrive!"

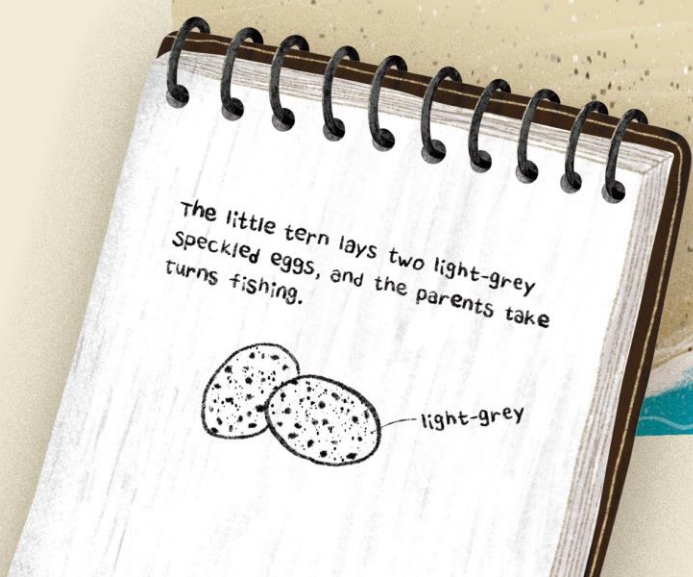
Xiao-Ou's father reminds him that he should look for a suitable mate to carry on the family line. But who should he choose? Xiao-Yan seems pretty nice because she is tender and very good at taking care of her siblings.

When he brings fish to Xiao-Yan, he sees other little terns also bringing her fish.

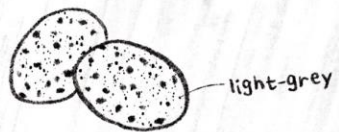
But Xiao-Yan decides to accept only Xiao-Ou's fish! He is over the moon.



Xiao-Yan lays two eggs, and Xiao-Ou says to her,
"You focus on hatching the eggs, and 'Xiao-Ou
Express' will deliver whatever you want."
"I want to eat small fish."
Xiao-Ou nods and takes off immediately.



The little tern lays two light-grey
speckled eggs, and the parents take
turns fishing.





One day, the extreme heat from the glaring sun becomes almost unbearable, and Xiao-Yan realizes that their egg babies are way too hot.

"Hang on, I have a solution." Xiao-Ou flies to the ocean immediately to immerse his belly in water so that he can help cool down the egg babies in the nest.



The competent authority
of the conservation area,
What do we do? There is a
stray dog!

"Woof, woof! "

Oh no, a black dog trespasses into the area
where the little terns' nests are, and everyone is
really upset.

Eager to protect their young, the parents take
off right away, circling the black dog in the air
while screaming.

"Shoo! Shoo! Shoo! "

"Woof, okay, I'm leaving! " The black dog leaves
reluctantly.

The next day, the black dog returns and approaches Xiao-Ou and his family.

Xiao-Yan flaps her wings and makes noises while Xiao-Ou pecks at the dog to no avail.

When they are about to abandon their nest, several volunteers rush over to drive the dog away.

Xiao-Ou recognizes them because they often hang around the beach.





The fiery sky and hot wind at dusk are indicative of an impending typhoon, notes Xiao-Ou's dad. To no surprise, the storm ravages them throughout the night after dark. That night, Xiao-Ou and Xiao-Yan ride out the storm together, trying to protect their babies. However, the powerful storm nearly sweeps them away on several occasions.



Early the next morning, the bustling beach is buried in sand and rocks, and many little terns have flown away. Xiao-Ou quickly finds their nest and removes the sand with his feet. To their relief, their eggs are unscathed and their silent buddies are also intact.

After a long wait, Xiao-Ou's babies are born.
The parents name them Xiao-Hei and Xiao-Yuan.
Both could stand up shortly after birth and their feathers dried quickly in the breeze.
They have ravenous appetites, so Xiao-Ou is constantly foraging for food to feed them.



Xiao-Hei and Xiao-Yuan are active and restless chicks.
Sometimes they hide under Xiao-Yan's belly, and other times they chase
after crabs on the beach.
However, with dogs and eagles around, Xiao-Ou does his fatherly duty and
fetches them back, so they can stay safely under their mom's belly.



Tasked with feeding the entire family, Xiao-Ou is busy throughout the day.

Xiao-Ou is a master fisherman. Despite anchovies trying to conceal their whereabouts under the light, Xiao-Ou always manages to catch them by diving into the water.

When he is exhausted, Xiao-Yan takes over. With her help, the couple is unstoppable.

Xiao-Ou remembers that food was relatively scarce last year. Now, he can easily catch shrimp to offer his children more variety besides anchovies.





As the chicks grow up, Xiao-Ou and Xiao-Yan must teach them how to fly by tossing their fish far away so that they can fly farther and farther.

Xiao-Yan always encourages them to eat as much as they can because the day of returning to the south is drawing near, and they can only cross the mighty ocean once they are fully prepared!



When the first north wind starts to blow, Xiao-Ou glances over at his family. Xiao-Yan nods gently while Xiao-Hei and Xiao-Yuan chirp in excitement. They are ready to head home, and although the young ones do not yet appreciate the hardships of their homeward journey, Xiao-Ou firmly believes that they will arrive home safe and sound!



Riding the north wind, Xiao-Ou takes flight first, leading everyone in a circle around Qingluo, hoping his babies will remember the place well.

How it has changed! Next year, they will be back, and hopefully, by then, their home in Qingluo will be even better!



05

Journey of the Little Tern

Little Tern Facts

Your distant friend—the Little Tern

Also known as: White-fronted Tern, Little Tern

Name: Little Tern

Scientific name: *Sternula albifrons*

- Measuring approximately 22-28 cm in length, it is Taiwan's smallest tern species.
- Has a yellow bill with a black tip.
- Sports a pair of gray wings.
- Black cap extends from head to nape, with a distinctive black eye line.
- Boasts bright orange legs.



Little Tern Migration

From April to July each year, Little Terns migrate to Taiwan from the cold southern hemisphere and other regions. They require waters abundant in fish for feeding and sandy or gravelly areas for resting. Hence, they prefer spacious seaside environments or riverbanks with sand and gravel mixtures. In Taiwan, they can be spotted in places like Taoyuan, Hsinchu, Miaoli, Changhua, Yunlin, Chiayi, Tainan, Yilan, Taitung, and Penghu, showcasing their charming and adorable presence.

The Little Tern breeds and raises its young generation in Taiwan until July-August, when they migrate south with their fledglings, embarking on a journey home spanning nearly 6,000 kilometers.





Their Foraging Behavior

The Little Tern primarily feeds on small fish and small crustaceans.

When foraging on the water surface, the Little Tern first identifies its prey, then makes a shallow dive (approximately 50 cm deep) to securely grasp its prey with its sharp bill.

And Diet

Anchovies, sardines, as well as small shrimp and crabs, are among the Little Tern's favorite delicacies.



06

The Breeding habitat of the Little Tern

In summer, the Little Terns arrive in Taiwan, and depending on the geographic environment, their habitats vary.

They nest on flat and slightly elevated sandy or pebbles areas near river mouths; on beaches, they rest on sandy areas mixed with gravel. In Qingluo Bay, Penghu, their habitat mainly consists of shells, fine sand, and coral debris.

Habitat Protection of the Little Tern

In summer, efforts from both public and private sectors converge to rehabilitate habitats and conserve ecosystems.



01

Habitat creation and restoration before the arrival of Little Terns.

02

Deploying decoy birds to attract Little Terns.

03

Setting up shade structures like tiles and wooden boards for wind protection and to shield against intense sunlight for Little Terns and their chicks.

04

Constructing fences and erecting signs to deter stray cats, dogs, or human disturbances.

05

Conducting guided tours to allow the public bird-watching opportunities while maintaining a respectful distance from the Little Terns.

"Four No's and One Must" – I'm Also a Good Friend of the Little Tern

During their holiday visit, Little Terns are often harassed by stray dogs or cats, their hard-built nests are destroyed, and even their eggs are stolen! We can remember the secrets of "Four No's and One Must" and work together to help the Little Terns, so that their chicks can grow up peacefully!

01

Must be cautious near the beach and avoid stepping on their nests and eggs.



02

No feeding stray animals nearby.



03

No approaching their nests casually.



04

No feeding the birds casually.



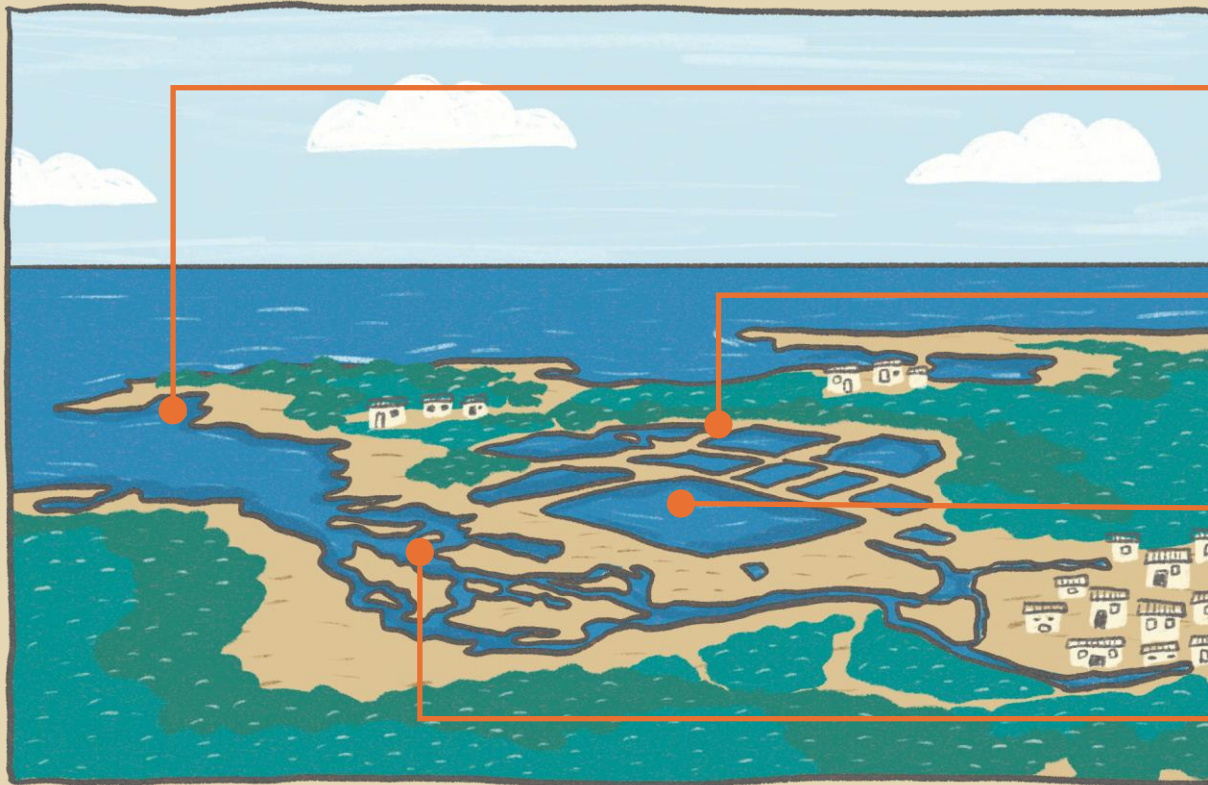
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No driving through their habitat.



Qingluo Wetlands in Penghu

《How This Place Has Changed!》 In the story, the Little Terns, Xiaoou and Xiaoyan, and their chicks live in the Qingluo Wetlands in Penghu. Located in Huxi Township, Penghu County, Qingluo Wetlands is the largest wetland in Penghu and is a nationally important wetland. The wetlands can be roughly divided into four zones from north to south:



01

Qingluo Sand Spit Coastal Area

This area features unique coastal formations such as sand spits, basalt lava, and marine erosion.

02

Mangrove Restoration Area

Home to precious mangroves. This is the largest mangrove wetland in Penghu.

03

Qingluo Fishpond Habitat

04

Hongluowan Intertidal Zone



Marine Conservation Observer

Write about your visit to the Little Tern habitat, observe the terrain, topography, and draw what you see of the Little Tern.

1. The location of Little Tern habitat I visited : _____ (County/City)
2. The Little Terns I observed:



07

The Good Neighbors of the Little Terns

The habitats where Little Terns live often have rich ecosystems. On sandy beaches, you can often see Stimpson's ghost crabs and horn-eyed ghost crabs, as well as Black-naped Terns and Roseate Terns, all good neighbors of the Little Tern.

Other Terns

Brown Noddy, Birdled Tern, Roseate Tern, Black-naped Tern, Great Crested Tern, and Chinese Crested Tern also come to Taiwan for wintering.



Brown Noddy



Birdled Tern



Roseate Tern



Black-naped Tern



Great Crested Tern



Chinese Crested Tern

Crabs on the Sand



Ocypode stimpsoni

It has a square-shaped body, with a variable body color including tan, brown, dark brown, and red, etc. The crab babies have colors similar to the color of the sand.



Ocypode ceratophthalmus

The width of the cephalothorax is approximately 5 cm. The body is square-shaped, and the carapace surface is covered with small granules, with colors ranging from dark gray to brown. A carnivorous crab that sometimes preys on Little Tern chicks, posing a threat to them.



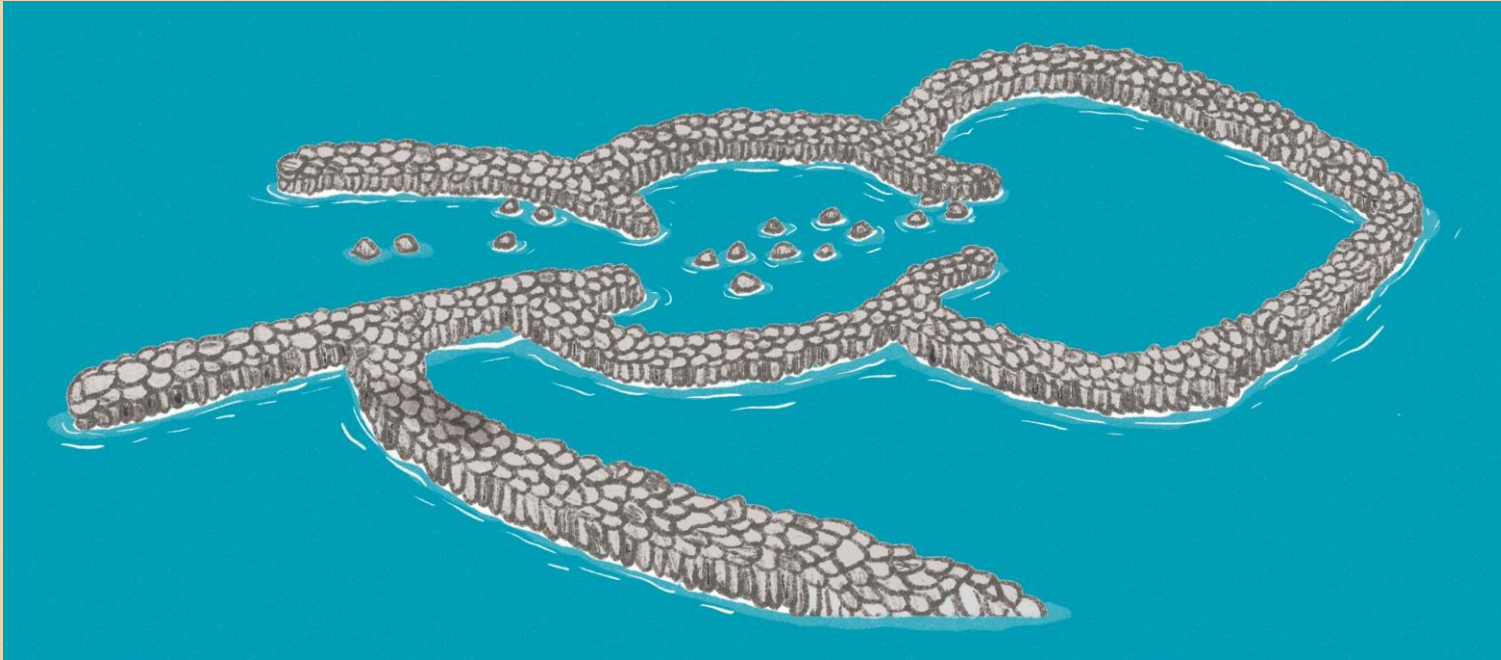
Cardisoma carnifex

The width of the cephalothorax reaches 12 cm. The body is oval-shaped, with one large and one small claw, both claws are tan, and the other step feet are red-brown. It is omnivorous.

Penghu's Fisheries

In Penghu, as depicted in the story, there are diverse fishing activities.

Traditional methods such as drag nets, stone weirs, line fishing, and modern methods like cage aquaculture, are all common fishing methods in Penghu.



Stone Weirs



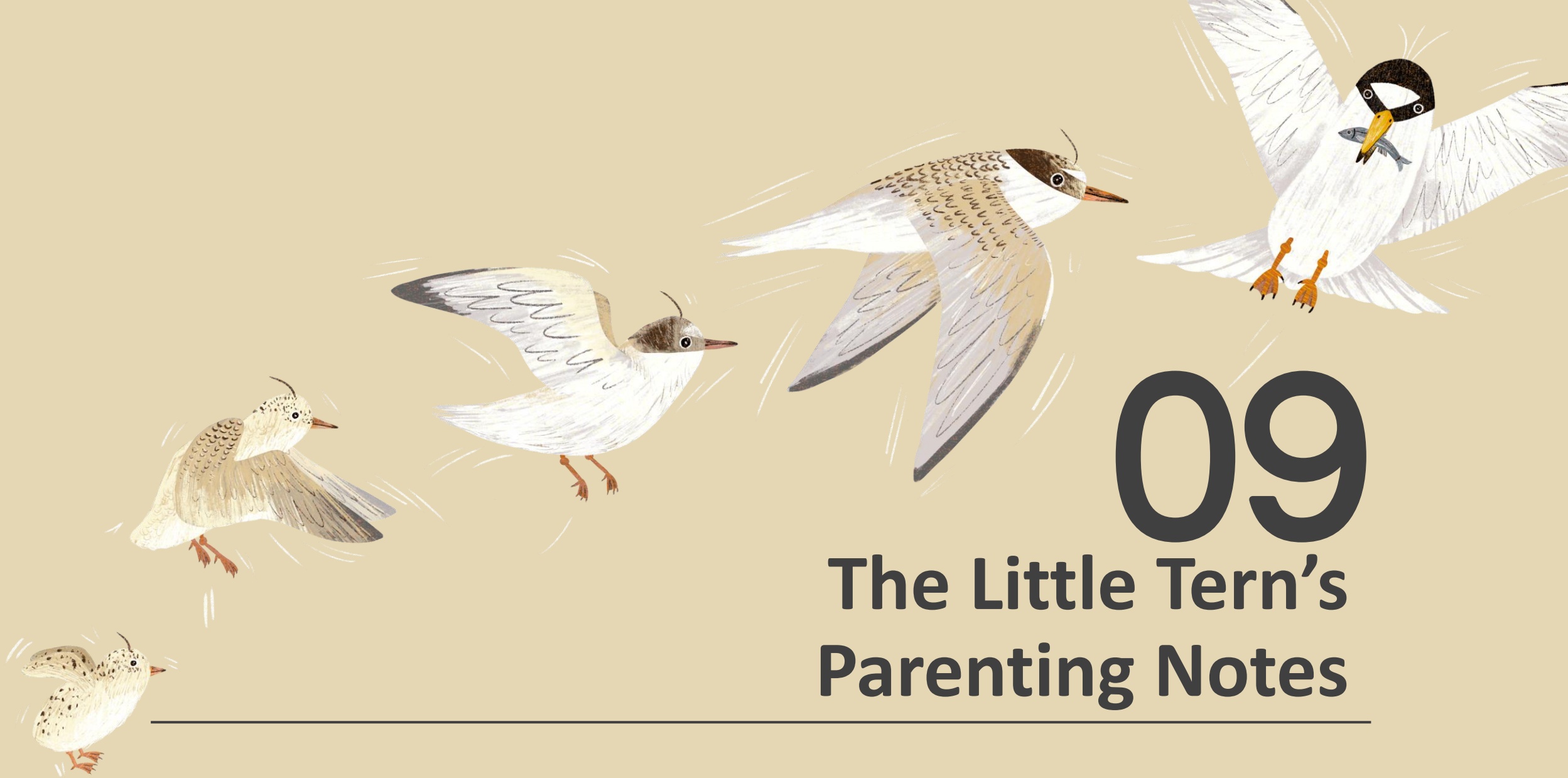
Cage Aquaculture



08

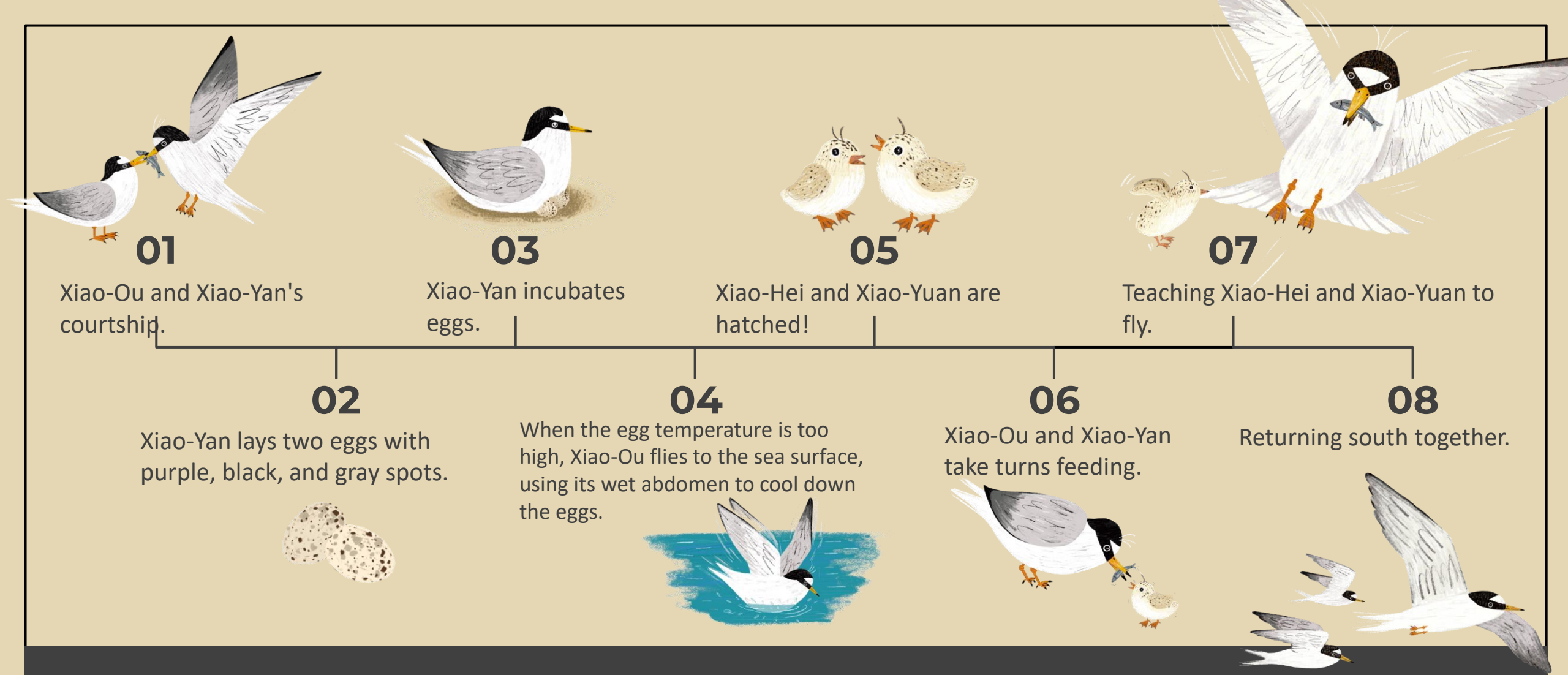
Daily Scenes of the Little Tern

In the Penghu waters where Xiao-Ou and Xiao-Yan live, there is a rich marine ecology, with colorful coral gardens resembling an underwater paradise.



09

The Little Tern's Parenting Notes



The Little Tern's Parenting Notes

Xiao-Ou and Xiao-Yan laid two eggs and worked hard to raise them. Within five months, they must nurture Xiao-Hei and Xiao-Yuan to maturity and teach them to fly before returning together to their home in the southern hemisphere.



10

My Little Tern Observation Notes

My Little Tern Observation Notes

Class: _____ Seat Number: _____ Name: _____
Date: _____ Weather: _____
Location: _____

- Record of the Little Tern's life:

- Draw the life of the Little Tern that I have observed :