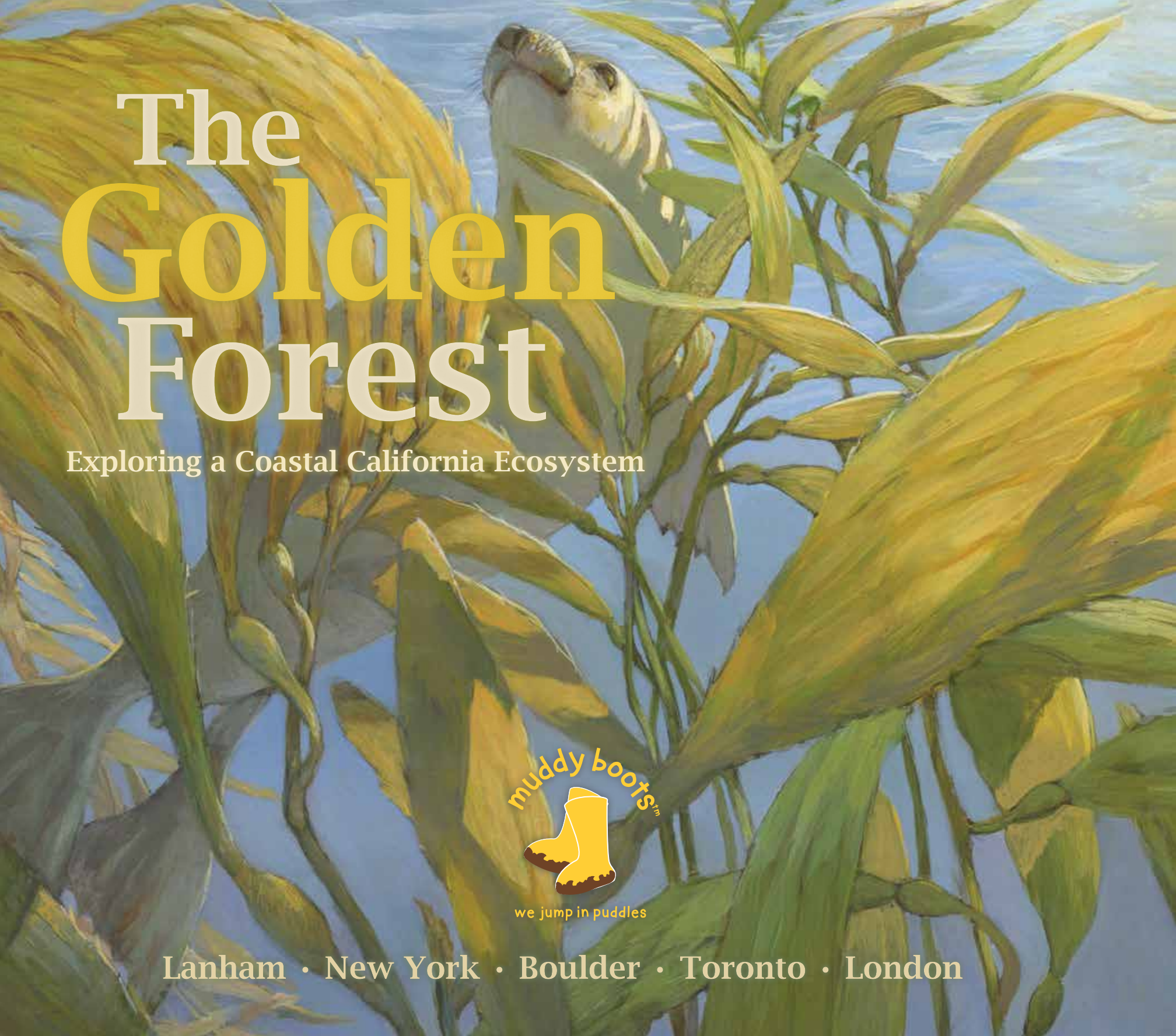
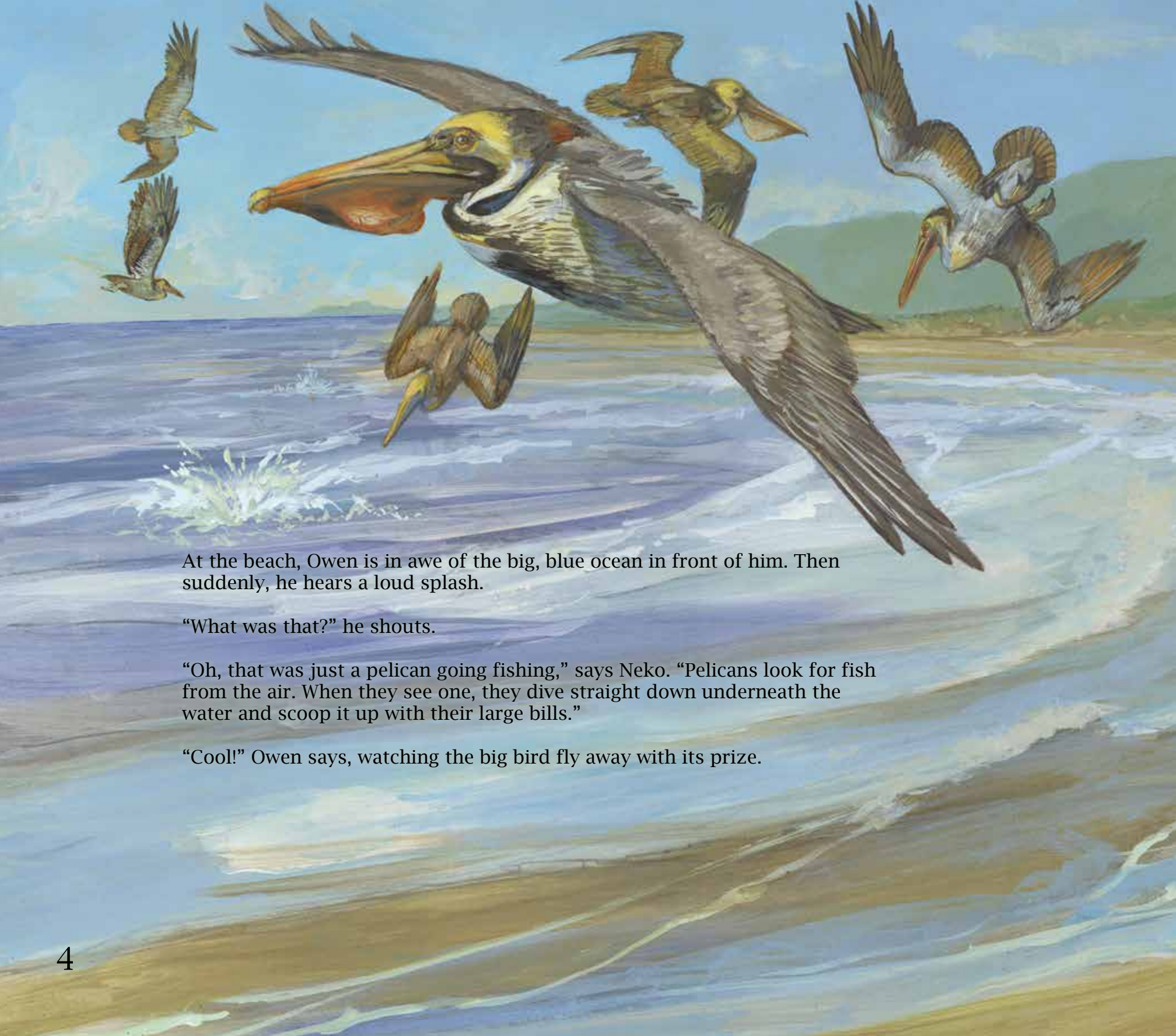


The Golden Forest

Exploring a Coastal California Ecosystem

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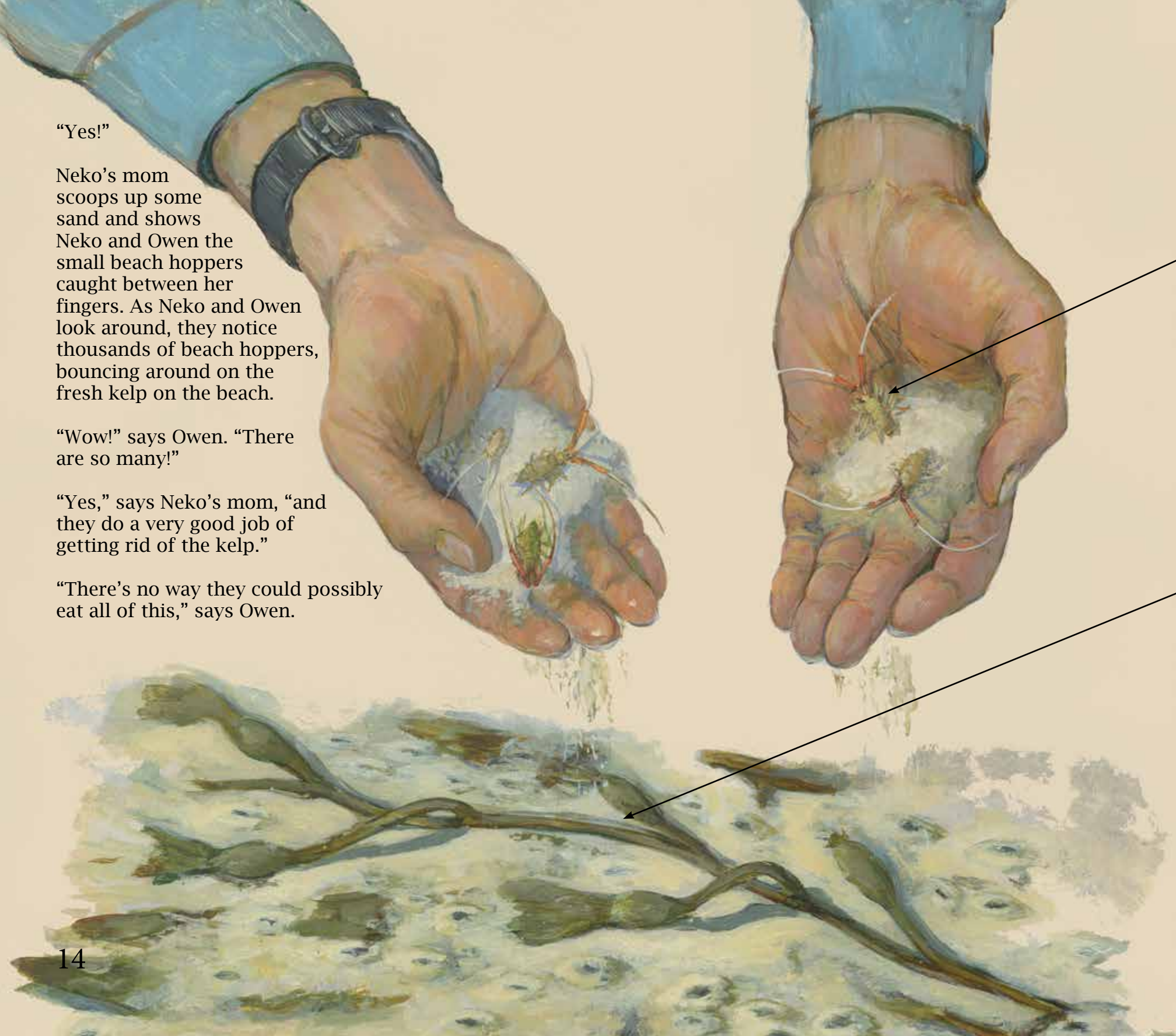
At the beach, Owen is in awe of the big, blue ocean in front of him. Then suddenly, he hears a loud splash.

“What was that?” he shouts.

“Oh, that was just a pelican going fishing,” says Neko. “Pelicans look for fish from the air. When they see one, they dive straight down underneath the water and scoop it up with their large bills.”

“Cool!” Owen says, watching the big bird fly away with its prize.





"Yes!"

Neko's mom scoops up some sand and shows Neko and Owen the small beach hoppers caught between her fingers. As Neko and Owen look around, they notice thousands of beach hoppers, bouncing around on the fresh kelp on the beach.

"Wow!" says Owen. "There are so many!"

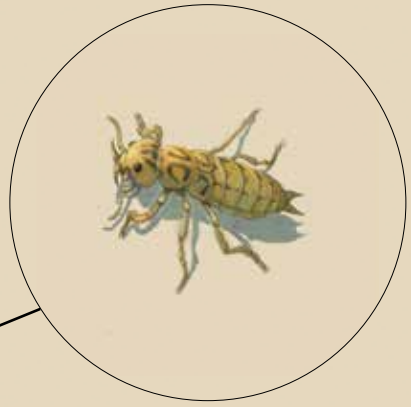
"Yes," says Neko's mom, "and they do a very good job of getting rid of the kelp."

"There's no way they could possibly eat all of this," says Owen.

Piles of Kelp at High Tide Mark



Beach hopper *(Megalorchestia californiana).*
These small crustaceans look like little jumping shrimp. During the day, they burrow in damp sand (ideally the consistency of brown sugar) often clustered around kelp piles well above the reach of the waves. At night, they come out of their burrows to find their favorite food, fresh kelp. To follow the tides and kelp they have to make a new burrow every day.



Pictured rove beetle *(Thinopinus pictus).*
This colorful beetle lives on the sandy beach and has lost the ability to fly. Pictured rove beetles hide in the kelp wrack all day and come out from under the kelp wrack at night to catch the beach hoppers.

Semi-Wet Sand

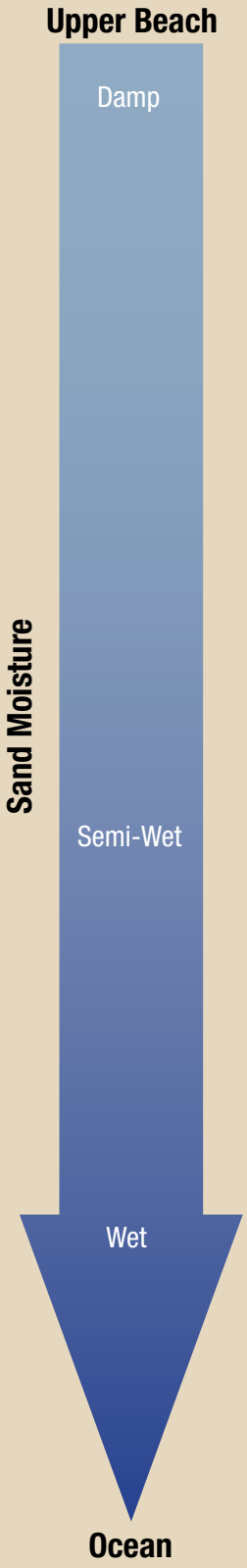


Opheliid worm *(Thoracophelia mucronata).*
This bright red worm lives in the middle zone of the beach where it eats the sand as it burrows, a lot like the way an earthworm eats dirt in your garden. The worm then feeds on the many small particles of kelp and ocean plankton that are trapped in the beach sand.

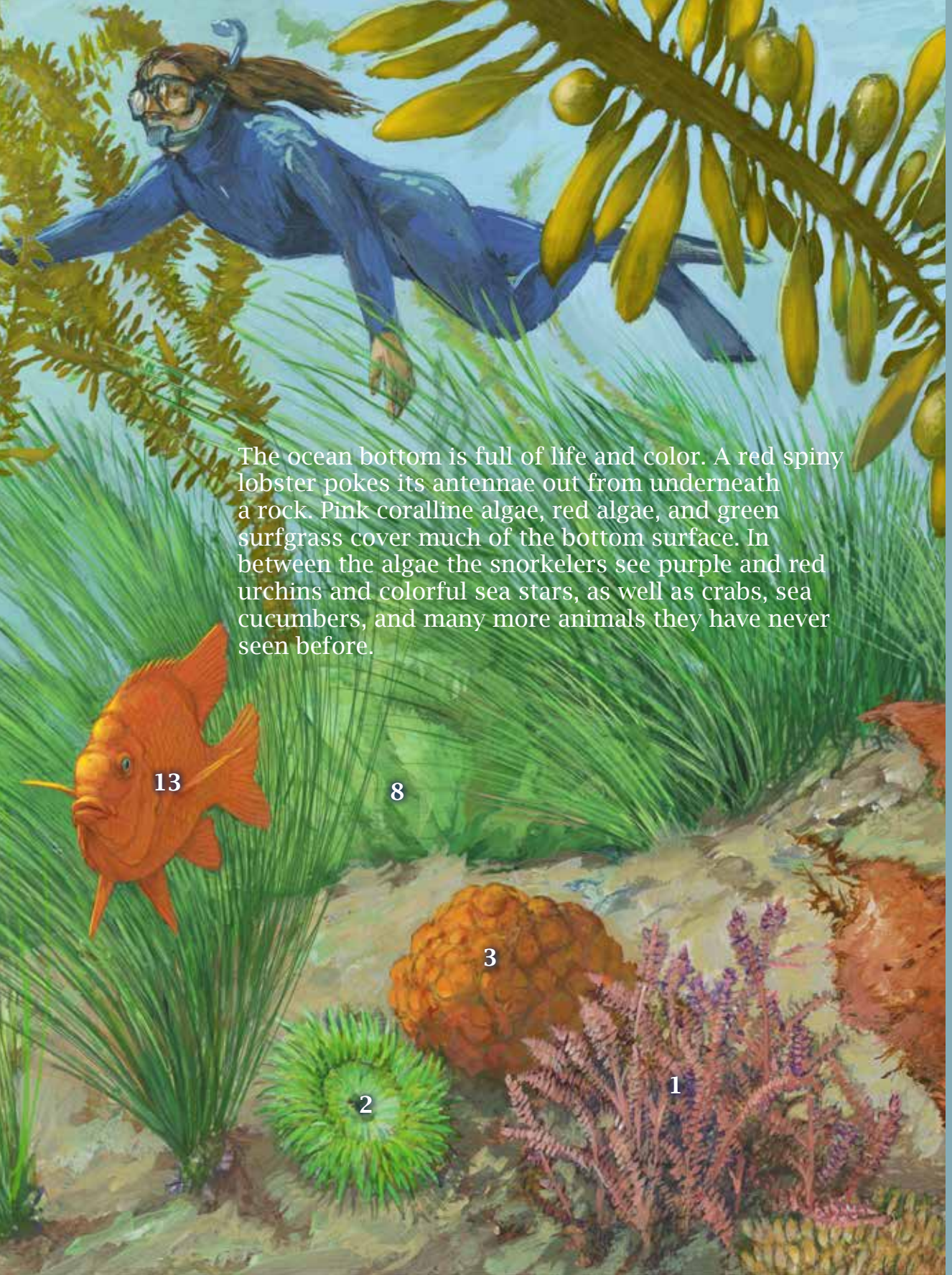
Wet Sand



Sand crab *(Emerita analoga).*
These egg-shaped crabs have no claws and don't eat kelp. Instead, they gather in groups in the wave wash where they use their feathery antennae to sieve microscopic food, like plankton, from the waves. To find them look for the little "V" marks of their antennae in the wet sand. Sand crabs can quickly burrow backwards into the wet sand to avoid hungry birds and fish.




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The ocean bottom is full of life and color. A red spiny lobster pokes its antennae out from underneath a rock. Pink coralline algae, red algae, and green surfgrass cover much of the bottom surface. In between the algae the snorkelers see purple and red urchins and colorful sea stars, as well as crabs, sea cucumbers, and many more animals they have never seen before.

SPECIES KEY

1. Coralline algae *(Calliarthron cheilosporioides)*
2. Giant green anemone *(Anthopleura xanthanogrammica)*
3. Orange puff sponge *(Tethya californiana)*
4. Giant spined sea star *(Pisaster giganteus)*
5. Black surf perch *(Embiotica jacksoni)*
6. Surf grass *(Phyllospadix torreyi)*
7. Feather boa kelp *(Egregia menziesii)*
8. Green sea lettuce *(Ulva lactuca)*
9. Red algae *(Chrondracanthus corymbiferus)*
10. Purple sea urchin *(Stronglyocentrotus pupuratus)*
11. Red sea urchin *(Mesocentrotus franciscanus)*
12. California spiny lobster *(Panulirus interruptus)*
13. Garibaldi *(Hypsypops rubicundus)*
14. Crustose coralline algae (multiple species)
15. Colonial tunicates *(Botrylloides diegensis)*