The R/V Alaskan Gyre

Written and Illustrated by Lia Ferguson

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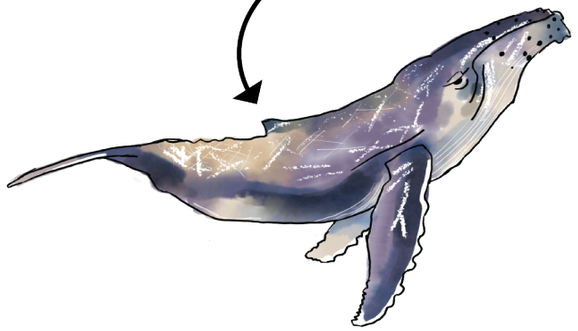
Common Murre

Humpback Whale



Sea Otter

Invitation

Fellow curious beings, a story of adventure awaits you, the story of the Research Vessel *Alaskan Gyre*, a fifty foot seiner retrofitted with cutting-edge scientific equipment and operated by the USGS Alaska Science Center. *The Gyre*, as it's called for short, operates within the nearshore waters of the Gulf of Alaska, such as Glacier Bay, Prince William Sound, and Cook Inlet.

The following story aims to tell you about some of the science that this vessel has made possible through the ongoing research of the USGS and its partners, focusing on the long-term monitoring of common murres, sea otters, and humpback whales. This story was written in conjunction with scientists and experts, but characters and situations presented are fictional and not based on real people or events. If you want to know more about the scientists and their work, check out the links in the back of the book.

I invite you to join *The Gyre* in its travels far and wide and learn from friends made along the way.

Hello there, I'm the R/V Alaskan Gyre!

"R/V?" you say. "What's that?" you might inquire.

Research Vessel, that's my job. I find it meaningful,

and I'm not to be confused with ol' recreational vehicles.

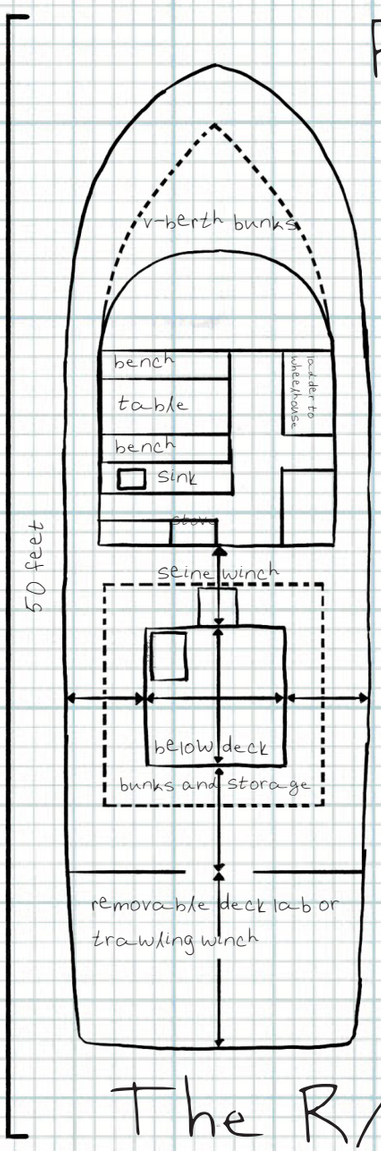
I'm a working boat. I explore in the name of science.
The scientists and I have a sort of alliance.
I take them across the waters of the Gulf of Alaska,
And in return they graciously let me ask a...

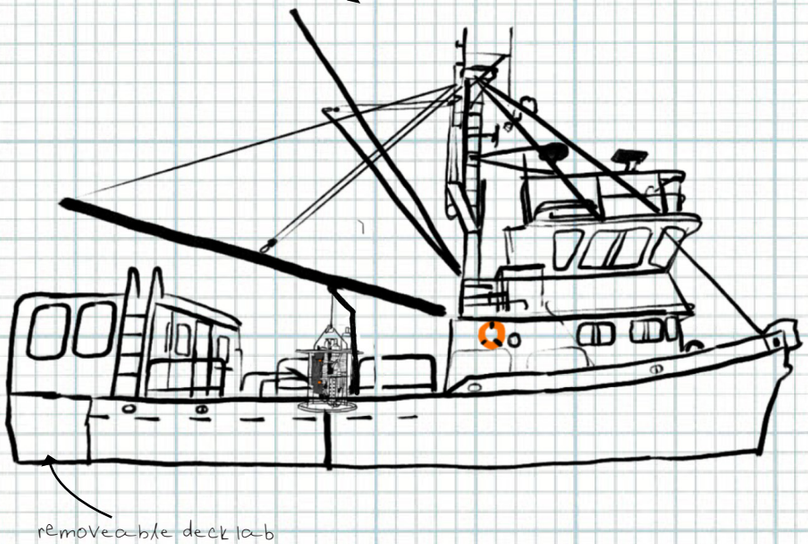
question or two or one hundred and four,
and slowly I begin to understand more and more.

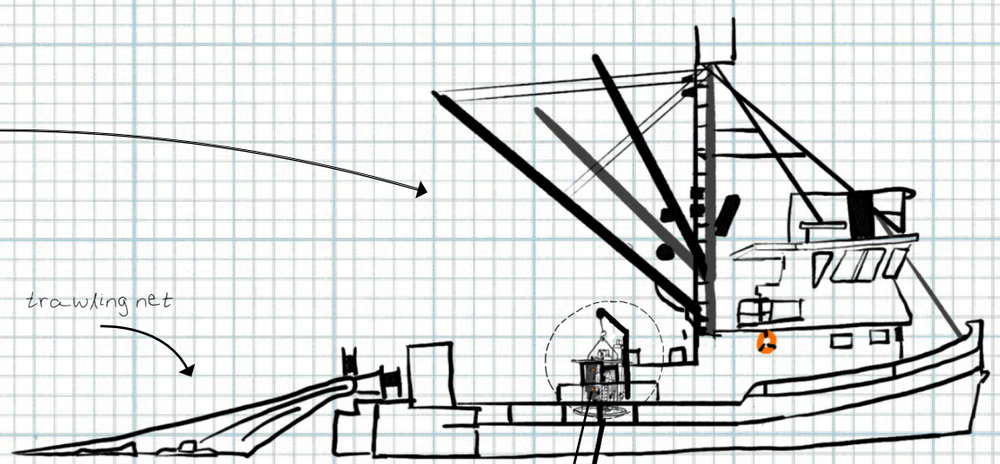
Up here in the North, things are changing quickly.
I worry some animals are looking sickly.
And I wonder, as do the scientists, is it because it's getting hotter?
Can I feel it on my hull? Can I feel it in the water?

Wondering and worrying makes me feel wobbly,
and that's why what happened happened that day, probably.

Field Notes

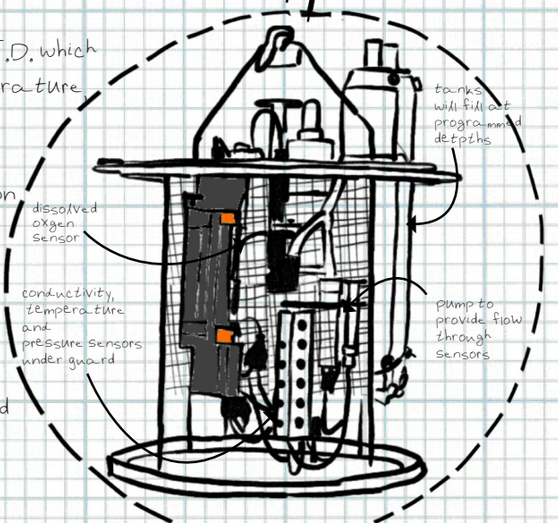






CTD

This instrument is called a C.T.D. which stands for conductivity, temperature adn depth because those are the measurements it records. Scientists send this contraption down into the water. It can take measurements all the way through the water column. It can also collect water samples at any depth. Other sensors can be added or removed depending on what needs to be measured.



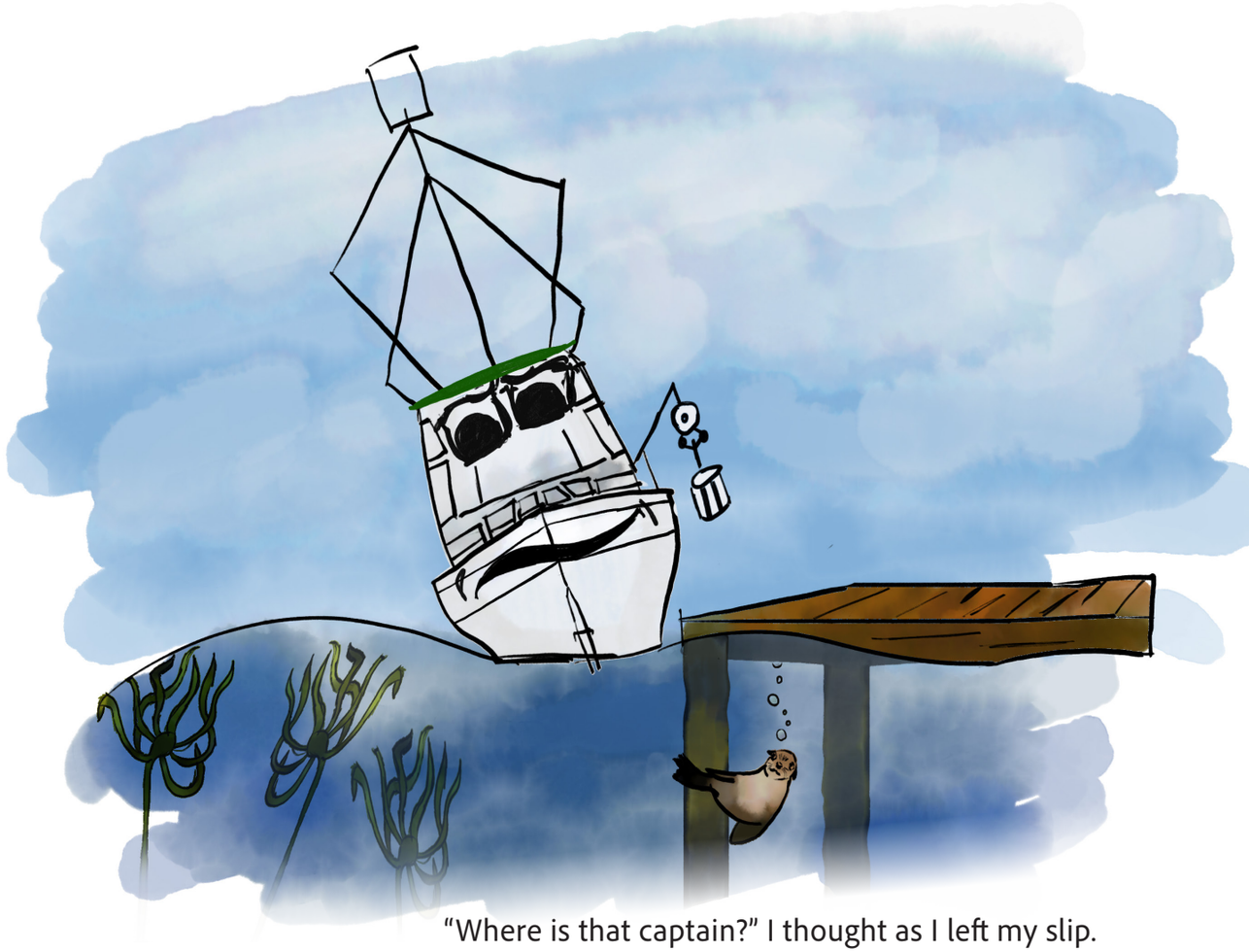
The R/V Alaskan Gyre

We were loading up for a research expedition,
and some heavy gear slid into the wrong position.

When a boat leans to the side, they call it a list.
"O Captain! My Captain! You must help, I insist!"

"O Gyre," he said, "you're always worrying,
I'll get to your gear, there's no need to be hurrying."

Wondering, worrying, wobbling, and listing,
I pulled away from port with the trouble persisting.



"Where is that captain?" I thought as I left my slip.
And that's when I realized no one was driving this ship.

Dear me! I thought as I drifted toward the ocean.
I tried to go straight, but with my list, my motion
seemed just barely and ever so slightly to the left,
and that realization left me bereft.

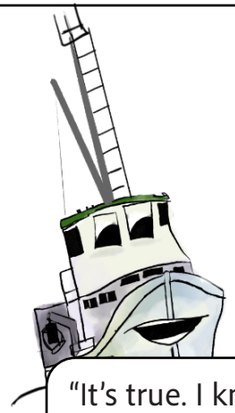
"Sweet slippery seaweed! Bull kelp! Barnacles!" I exclaimed,
"Nothing is going right in this day and age."

...said a voice. "Why are you yelling?
You've disturbed my barnacles, and now there's no telling
when they'll stop chattering about plankton to each other.
By the time they quiet down I'll be as old as my mother.

"Wow," I said, "a real-life humpback calf,
A calf and his mother who's double his size and a half.
How are you doing?" I asked in my best earnest tone,
"with the heatwaves and shortages?" The mother let out a groan.

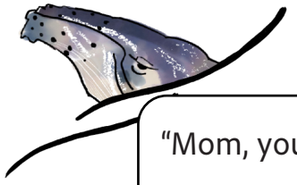
"These last few years have been harder than most
to find herring, capelin, or krill along this long coast.
You see, us whales need to eat lots every day
during the summer months in places like Glacier Bay."

"Yes, the scientists told me about something scary and grave.
They called it–what was it?–The North Pacific Marine Heatwave,
a big blob of warm water, and with the extra heat,
the food chain collapsed, and there wasn't enough to eat."



"I don't know about that,
because I'm just a calf."

"It's true. I know because
I saw it in a graph."

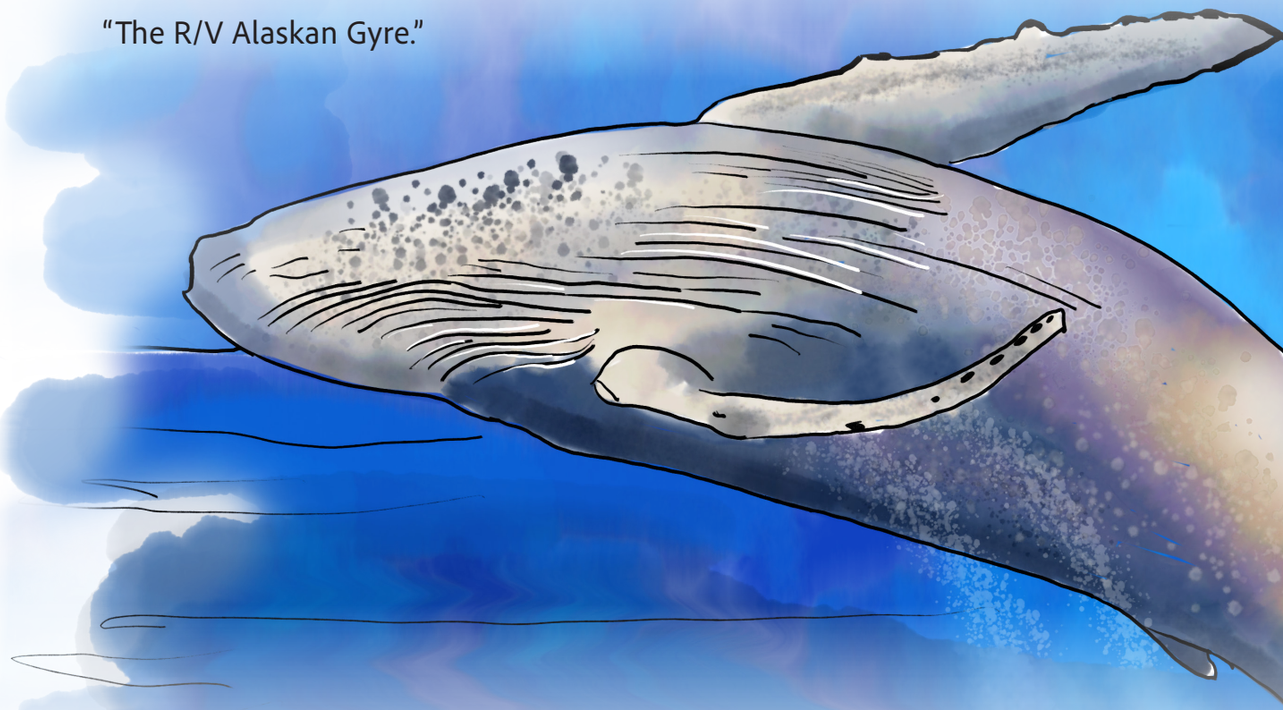


"Mom, you're old.
Tell me, is it true?"

"If I'm certain of truth, then I know the ocean's blue."

"She says things like that. I don't know what they mean.
Let's ask that bird, 'cause she, too, needs to eat.
Mom, let's go with this lopsided inquirer.
What was your name?"

"The R/V Alaskan Gyre."



"He is quite lopsided," said the mother whale.
"Maybe I can fix that with one flip of my tail."
Suddenly, she breached then landed back down
And made a wave so big, I thought I might drown.

50 foot humpback whale

Field Notes

Humpback whales are often identified by the markings on their tails, also called flukes. Like a human fingerprint, these markings are unique to each individual. Unlike fingerprints, the whales aren't born with their markings. They develop over time.

Calves stick close to their mother for a year. They are often seen cuddling up against them like this one here.

Humpback whales were affected by the heatwave and forage fish shortage from 2014-2016.

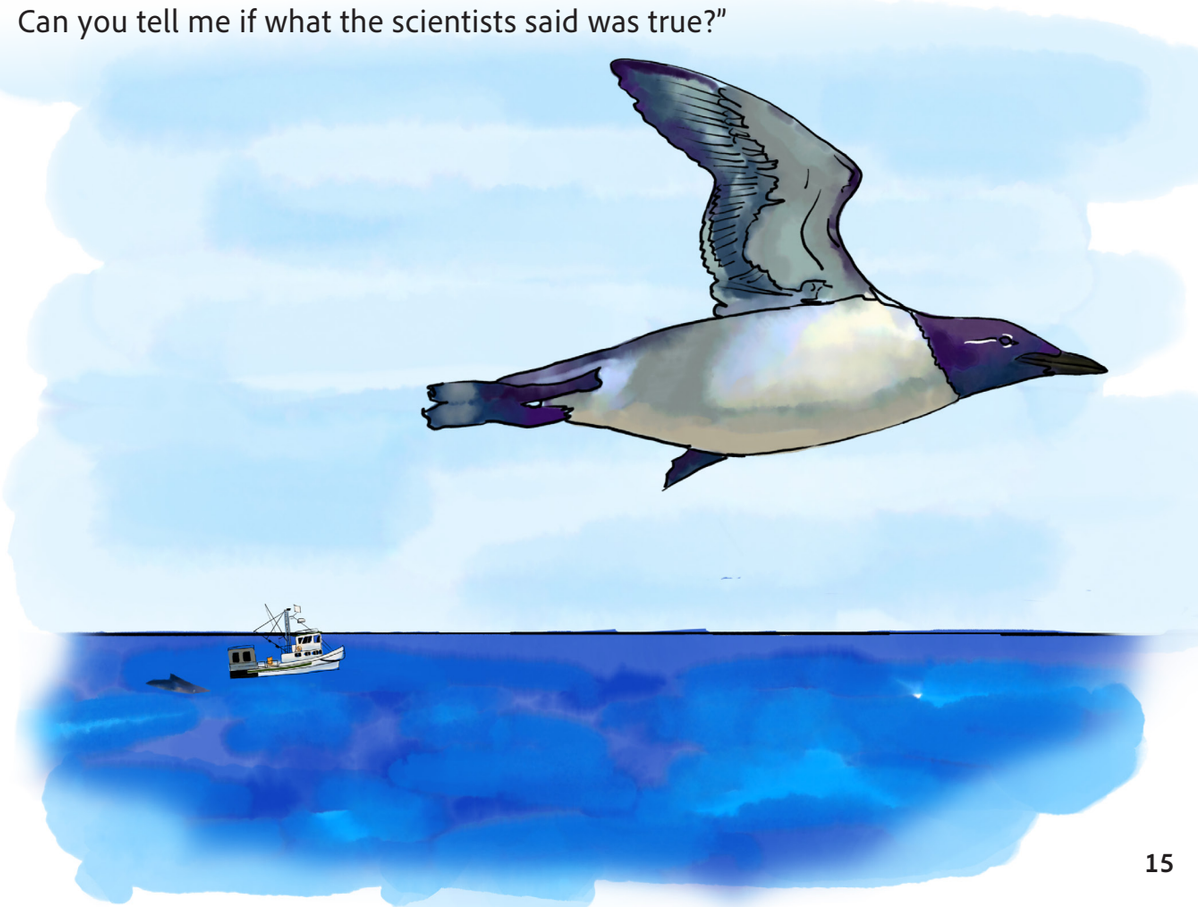
-In the last few years, more calves have survived, but the shift has changed whale behavior.

-since the heatwave, humpback numvbers have remained low in Prince William Sound, where the biologists do their surveys aboard the Gyre.

But the wave rocked me sideways, and soon I did learn
that my heavy gear had moved part way across my stern.
"Thank you," I said. "You helped fix my gear.
I'm still listing a little, but that's less of a fear."

"And whale calf, now that I'm feeling much better,
We should go find that bird. Come on, let's go get her!"

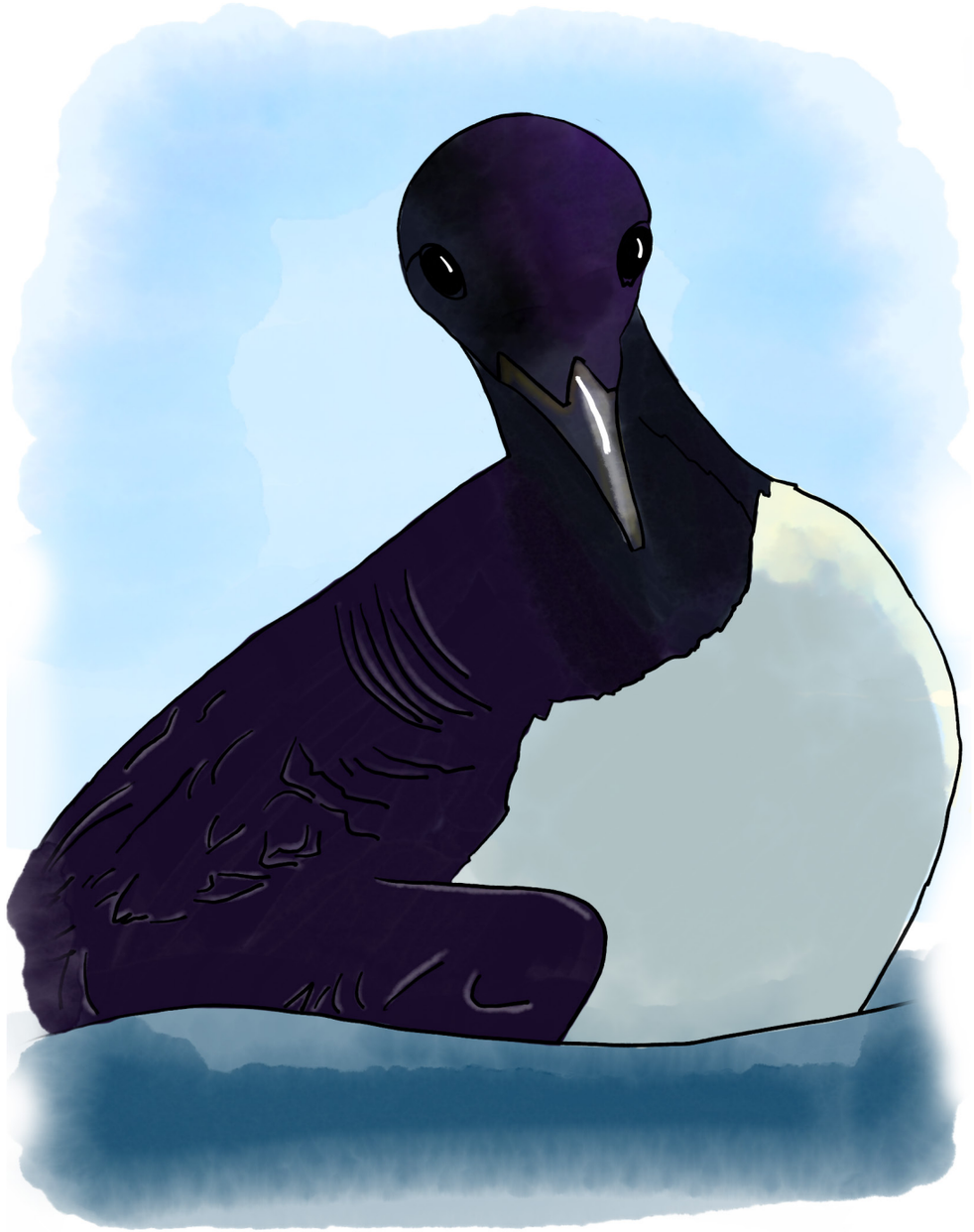
"Bird! Over here!" we called out to her.
"Are you calling for me? I'm just a common murre."
"Yes," I said, "we're looking for you.
Can you tell me if what the scientists said was true?"



"They told me about a time when the fish went away,
and starving birds showed up on the shores of the bay."

"Hush, it's true, but you ask me so flippant,
as though it weren't a hard time and as though I didn't
lose some of my friends who had to work hard for food,
and diving deeper and longer, there was no time to brood."

"I'm so sorry," I said. "You sound very brave.
I ask because I'd like to know about the heatwave–
Is it passing? Is it better? Is it still a threat?–
but I'd never want to make you more upset.



“Sweet, slippery seaweed! Bull kelp! Barnacles!” I exclaimed.
“Nothing is going right in this day and age.”

“It’s okay,” said the murre. “It can look bad from down low
when you’re close to the water and must bob with each swell,

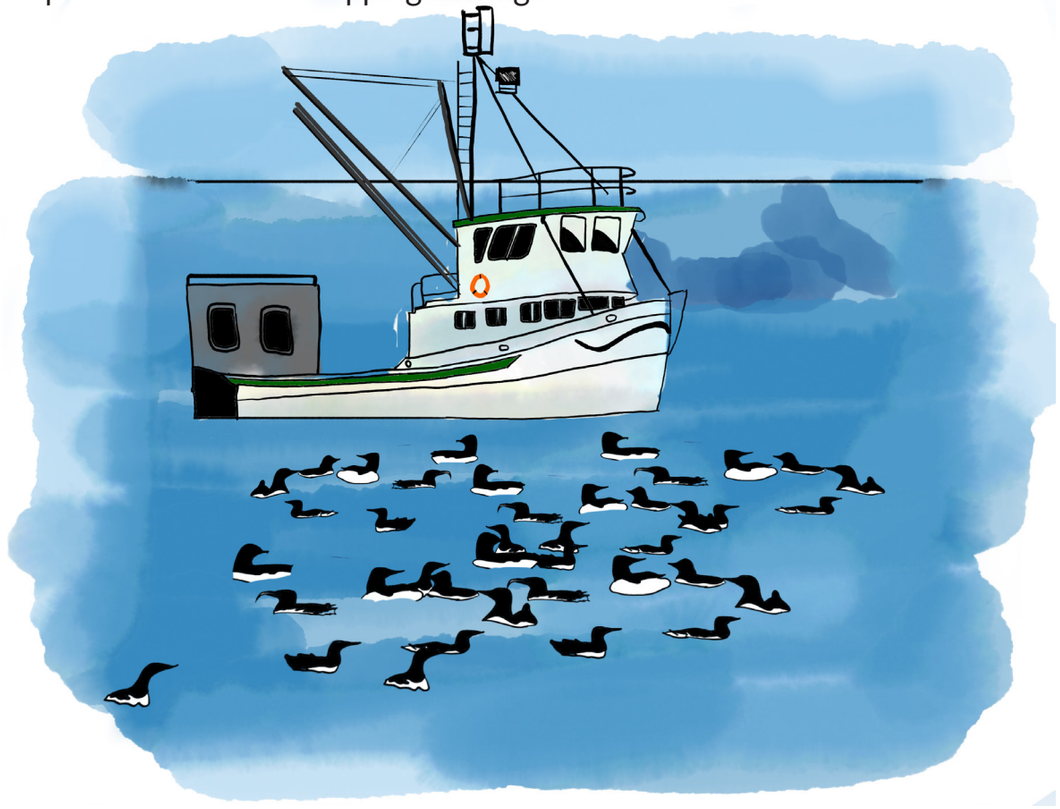
“but when you soar above the clouds and glimpse the green and blue,
the world, ever changing, seems simple to you.

“I can tell you’ve a curious mind,” said the murre,
and asking questions freely is important to be sure.
Just be mindful of feelings, others and your own,
‘cause - I hope you don’t mind me saying - you seem worry prone.

“For we have stories to tell and we hope others listen,
and if you feel overwhelmed, focus on the light’s glisten
on the surface of the water, look at how the light plays,
and the beauty in the world’s ever-changing ways.

"Whenever you're ready, my friends will want to talk
I'll call them all over with one loud squawk."

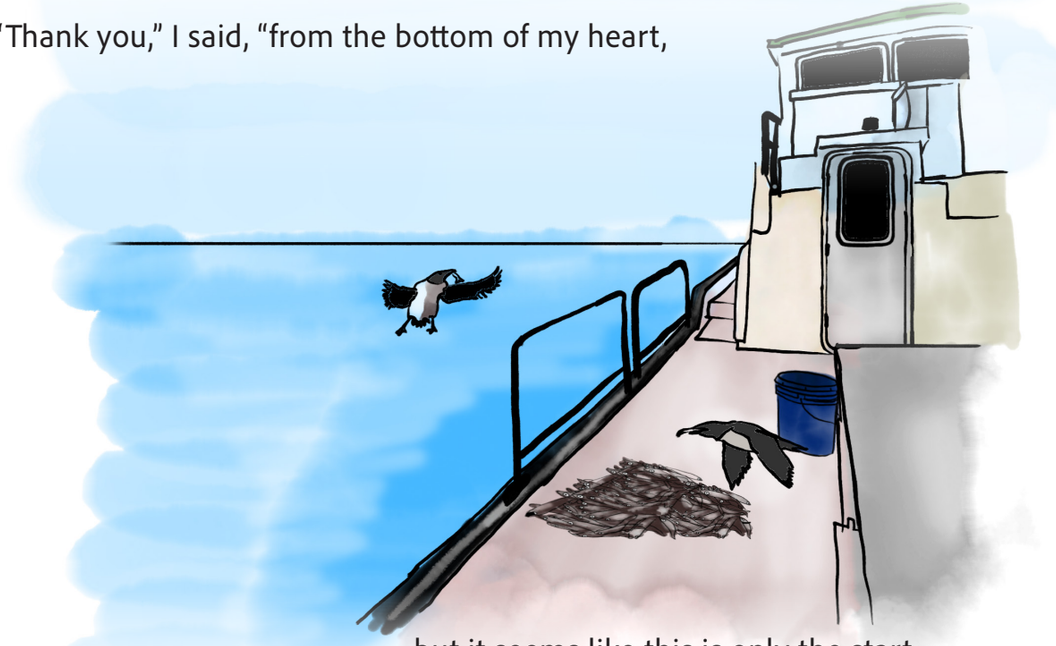
"I'm ready!" I said. "I want to hear all things marine."
Soon I perceived a distant flapping of wings.



The common murres floated just off my starboard.
How glorious it was to hear from so many a seabird.

They showed me the forage fish they'd caught on their hunt,
And told me they could find them, but they looked like the runts.
The fish were small; they needed food for their chicks,
and their stories of struggle left me transfixed.

I listened to them and was too preoccupied
that I almost didn't realize I now leaned less to one side.
"Thank you," I said, "from the bottom of my heart,



but it seems like this is only the start.
Are there others to whom I could lend an ear,
so what once was murky may soon be clear?"

Field Notes

-To stay warm in a cold environment, common murres have a very high metabolism. They have to eat around 50% of their body mass each day. For a human, that's over 500 servings of spaghetti per day.

- It only takes a common murre 3-5 days without food to die of starvation. To stay at their same weight, murres need to catch about 60-120 forage fish each day.

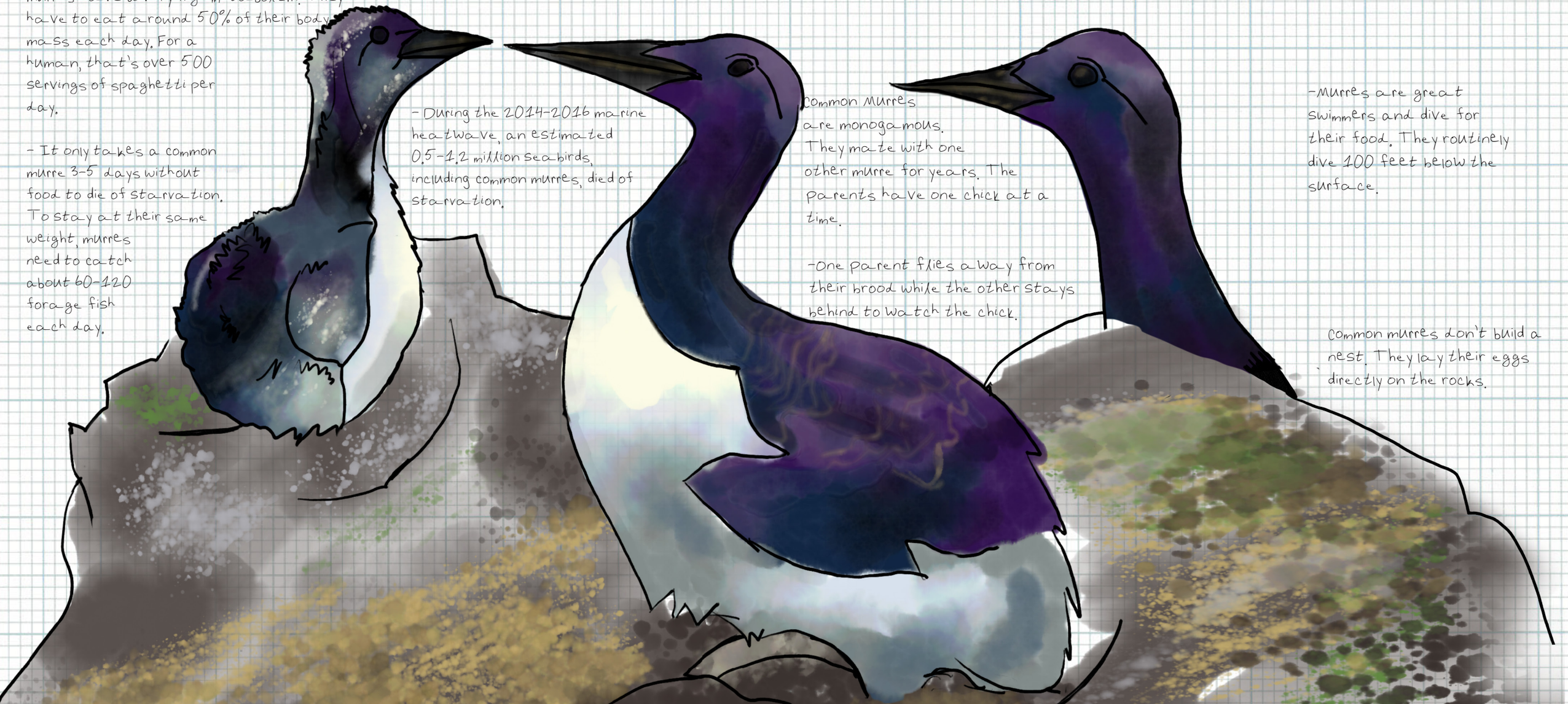
- During the 2014-2016 marine heatwave, an estimated 0.5-1.2 million seabirds, including common murres, died of starvation.

Common murres are monogamous. They mate with one other murre for years. The parents have one chick at a time.

-One parent flies away from their brood while the other stays behind to watch the chick.

-Murres are great swimmers and dive for their food. They routinely dive 100 feet below the surface.

Common murres don't build a nest. They lay their eggs directly on the rocks.



"Help, help!" I heard, then a scrambling of claws, and up
jumped a sea otter, narrowly escaping the jaws
of an orca whale, who was close behind.
He circled twice. "But I'm hungry," he whined.
"Go on, shoo," said the otter from the safety of the deck.
Then he patted my railing and said, "You saved my neck."

"Wow," I said, "I can't believe my eyes.
It's a keystone species, what a surprise!
"It's nice to meet someone as important as you.
Not many can do the things that you do."

"Why thank you, its true" he said with a look of surprise.
"It seems like just yesterday we nearly met our demise,
when us otters were hunted by people on boats,
for our beautifully thick, chocolate brown coats."

People? On Boats? I felt something scary and strange.
It was as if the way I saw the world suddenly changed.
The humans (and boats) weren't all researchers anymore.
It seemed much more complicated than that to be sure.

"Sweet slippery seaweed! Bull Kelp! Barnacles!" I exclaimed.
"Nothing is going right in this day and age!"

"In this day and age?" said the otter. "O give me a break.
We've always had struggles, make no mistake."
But, you're right, I'll say, things are out of balance.
Take me for example and my many talents.

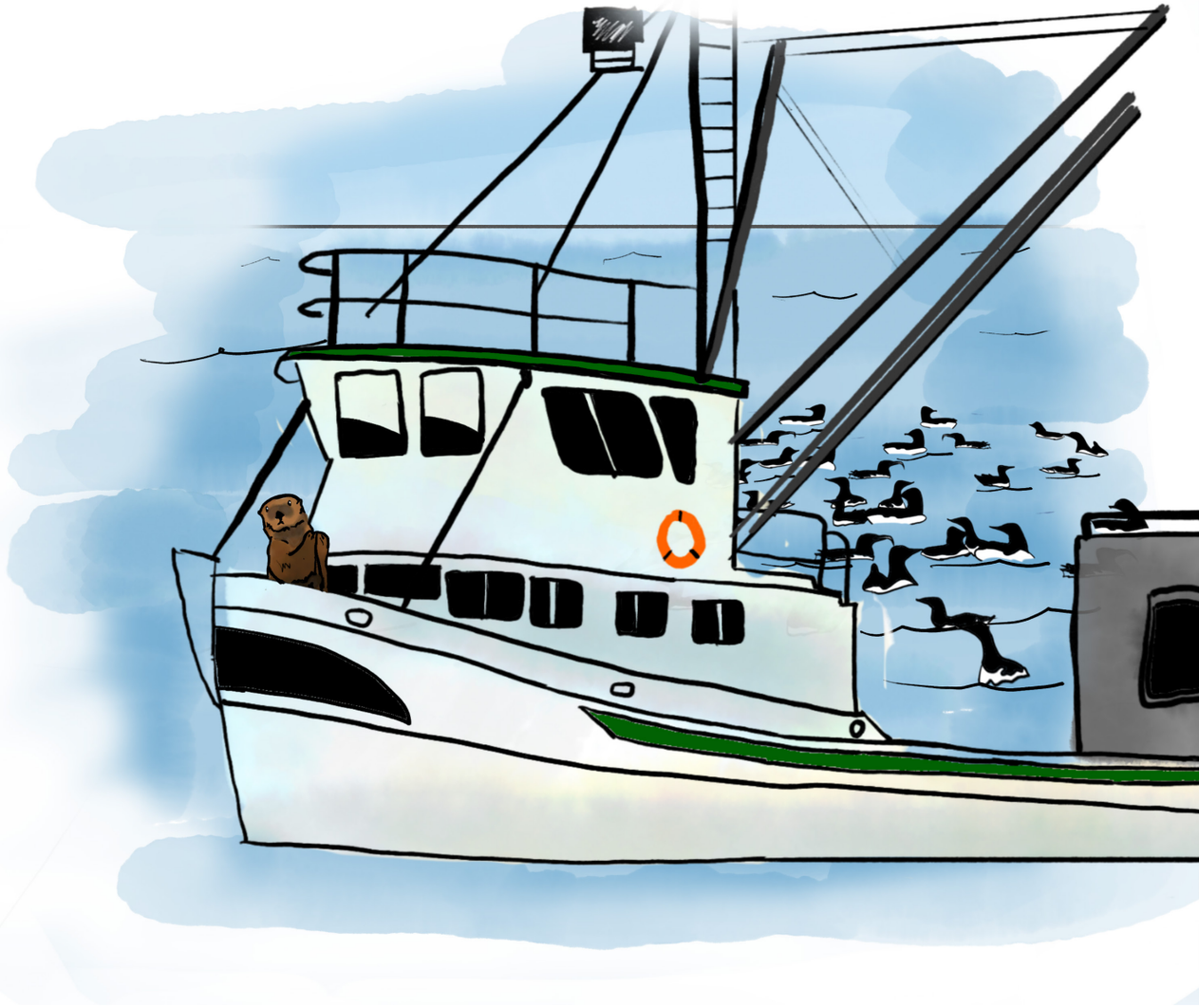
"I spend my days in the rocks searchin'
for a delectable, purple, spiny urchin.
Not everyone can do that, and if I don't,
the urchins take over this side of the coast.

"They eat all the kelp, and the beds become barren,
and the home and life that we are all sharin'
becomes a home to only one,
and one is so much closer to none.

"And here's the thing, you might think it's just kelp,
but we are all connected, so we need your help.
People rely on the ocean like the rest of us,
for their food and weather, and by their estimates,
things are not going according to plan.
In fact, it's all getting rather out of hand."

"Wait, I said, "that's not how this goes.
You're supposed to make me feel better about all that I know."

"I already have a job. I just told you about it.
I do what I do," said the otter, "and I never doubt it.
How can you help? What do you do?
Can you be you and make a difference, too?"



Field Notes

The northern sea otter is a subspecies of sea otter. They are bigger than their southern counterparts. A southern female sea otter can grow to around 50 pounds, and a northern female sea otter can weigh up to 70 pounds.

-In 2022, the USGS and partners surveyed northern sea otter populations and estimated there were 22,359 sea otters in Southeast Alaska.

- An increasing population still below carrying capacity.

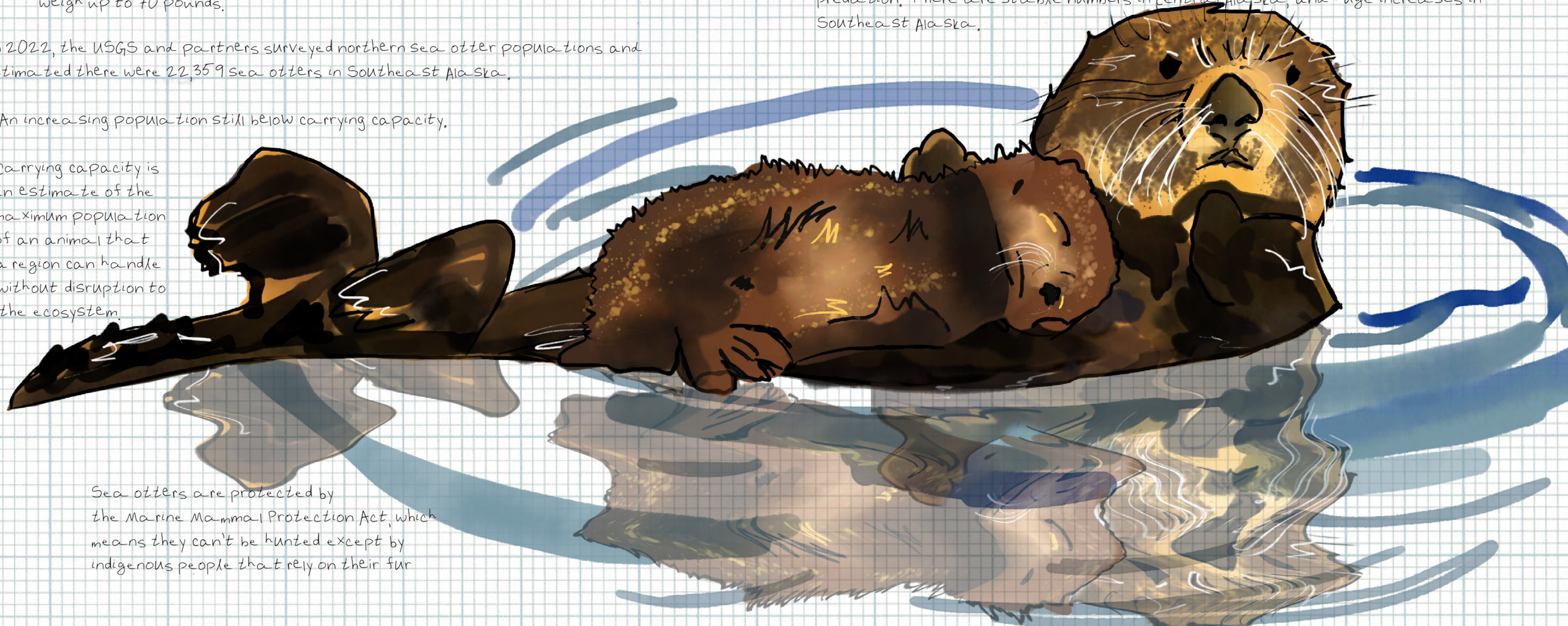
-Carrying capacity is an estimate of the maximum population of an animal that a region can handle without disruption to the ecosystem.

Sea otters are protected by the Marine Mammal Protection Act, which means they can't be hunted except by indigenous people that rely on their fur

Sea otters have such luxuriously thick fur that they were hunted almost to extinction about 100 years ago. Since then, their population has recovered.

- In Alaska, that recovery has taken place at different speeds.

-There have been population declines in the Aleutian Islands due to orca whale predation. There are stable numbers in Central Alaska, and huge increases in Southeast Alaska.



Just then the wind quickened and flurried about.
"Don't go that way," I heard the whale calf shout.

"He's right," said the otter. "There's nothing over there.
No rocks or coves, just the water and air."

I tried to motor back, but the wind was strong,
and my list made it hard to move along
because the sloshing had sent the murres with their fish in flight,
and my gear unfortunately slid back from the right.

“Here’s where I say goodbye,” said the otter,
and I felt myself drifting into open water.
When the otter jumped off and headed toward shore,
I seemed to list even more.

The whales surfaced for one last goodbye,
and when they left, too, I wanted to cry.
I was alone and adrift, and I couldn’t see the land.
It did not feel good to be a vessel unmanned.

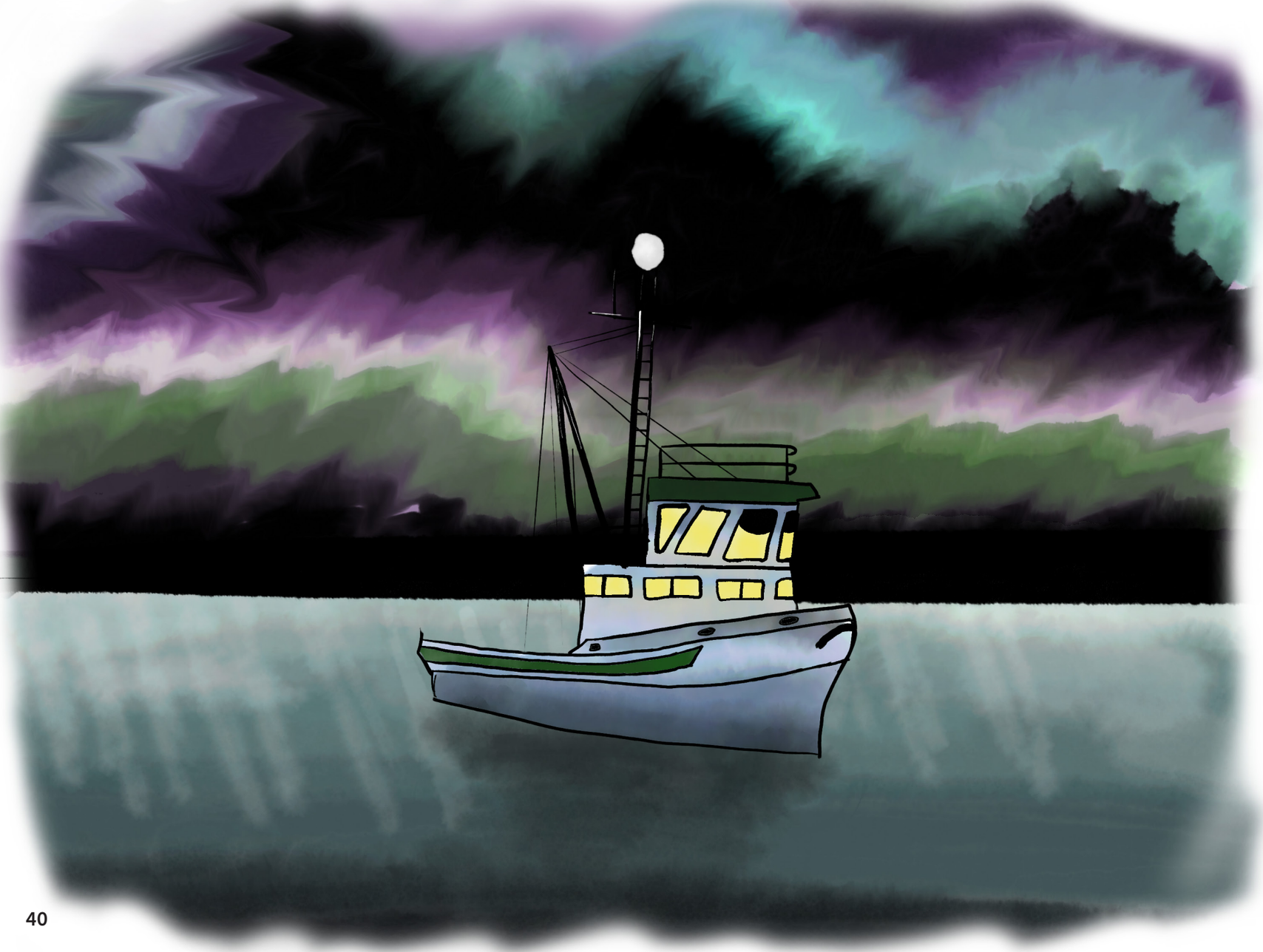
“Sweet slippery seaweed! Bull-kelp! Barnacles!” I exclaimed.

“Nothing is going right in this day and age.”

Then I waited. Maybe someone would come along,
like a whale, murre, or otter to help right this wrong,
but nobody came. I was all by myself,
and I was drifting away from the continental shelf.

The only other being was a bird way up high.
It looked like a falcon soaring in the sky,
but it was so far away, I could only admire
it turning and turning in the widening…gyre!

Of course, the Alaska Gyre! The very same
circular current from which I got my name.
It would take awhile, I thought–bare horizon I scanned–
but eventually the gyre would take me back toward land.



And now that I thought of it, it seemed so clear,
that all along a part of me had been so near.
And maybe veering left and so on and so on
had made me a part of this natural phenomenon.

So I waited and drifted and thought and thought,
and I found my worrying had lessened a lot
because even though I knew more about their troubles,
the animals had taught me how to be adaptable.

I'm lucky because there is life in the world with me,
There are others to learn from, and that makes my eyes misty.
And also, the otter asked a very good question.
He asked how I can help, and it served an important lesson.
Because I'm very lucky, and I help every day
by taking the scientists out into the bay.

And sometimes it's hard to find a way to make a difference
because it all depends on your skills and interests,
but we should all keep looking for more ways to help.
Can we build homes for more animals, just like the kelp?

And it was around this time I was getting excited
to get back to the service that I once provided.
That's when I heard a strange buzzing thingy,
and I saw that it was an approaching rescue dinghy.

So it is with the otter's questions that I bid you adieu.

How can you help? What can you do?

And it's fine if you don't know exactly what to pursue.

Perhaps you need only to be you.

Glossary

Bereft: Very sad, usually caused by the absence of something or someone.

Breach: In this case, breach refers to a whale breaking the surface of the water.

Brood: In the case of birds, to have young, or it may refer to the group of eggs or chicks themselves.

Continental shelf: The part of a continent that is covered by the ocean. Where the continental shelf ends, the ocean goes from shallow to very deep quickly, causing a large dropoff.

Earnest: Sincere or passionate conviction.

Extinct: When there are no more living members of a species.

Flippant: Dismissive or unserious.

Food chain: the transfer of energy from one organism to another by way of eating and being eaten.

Forage fish: Small fish, such as capelin, sardines, anchovies, or herring, often eaten by larger fish or animals.

Frail: Weak

Inquire: Ask about.

Keystone species: a species that has a large impact on their ecosystem, such that without that species, the ecosystem couldn't function in the same way.

Lopsided: When one side is heavier or larger than the other.

Pacific Marine Heatwave (2014-2016): An intense and long-lasting mass of warm water in the North Pacific.

Persisting: To keep going, usually firmly or in spite of an obstacle.

Runt: An animal that is smaller than usual.

Slip: A parking spot for a boat in a marina.

Stern: The back of a boat.

Swell: The rolling waves of the sea.

Starboard: The right side of a boat.

Transfixed: To become still and focused by fear, awe, surprise, or other strong emotions.

Worry-prone: Likely to interpret a situation in a negative or anxious manner.

Acknowledgments

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USGS and Partners' Science

Below are the scientific studies that have all contributed to discovering and documenting the information used to inform this story.

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Read More about The Gyre and its Scientists!

The R/V Alaskan Gyre

Gulf of Alaska Nearshore Ecosystems

Seabird and Forage Fish Monitoring

Gulf Watch Alaska