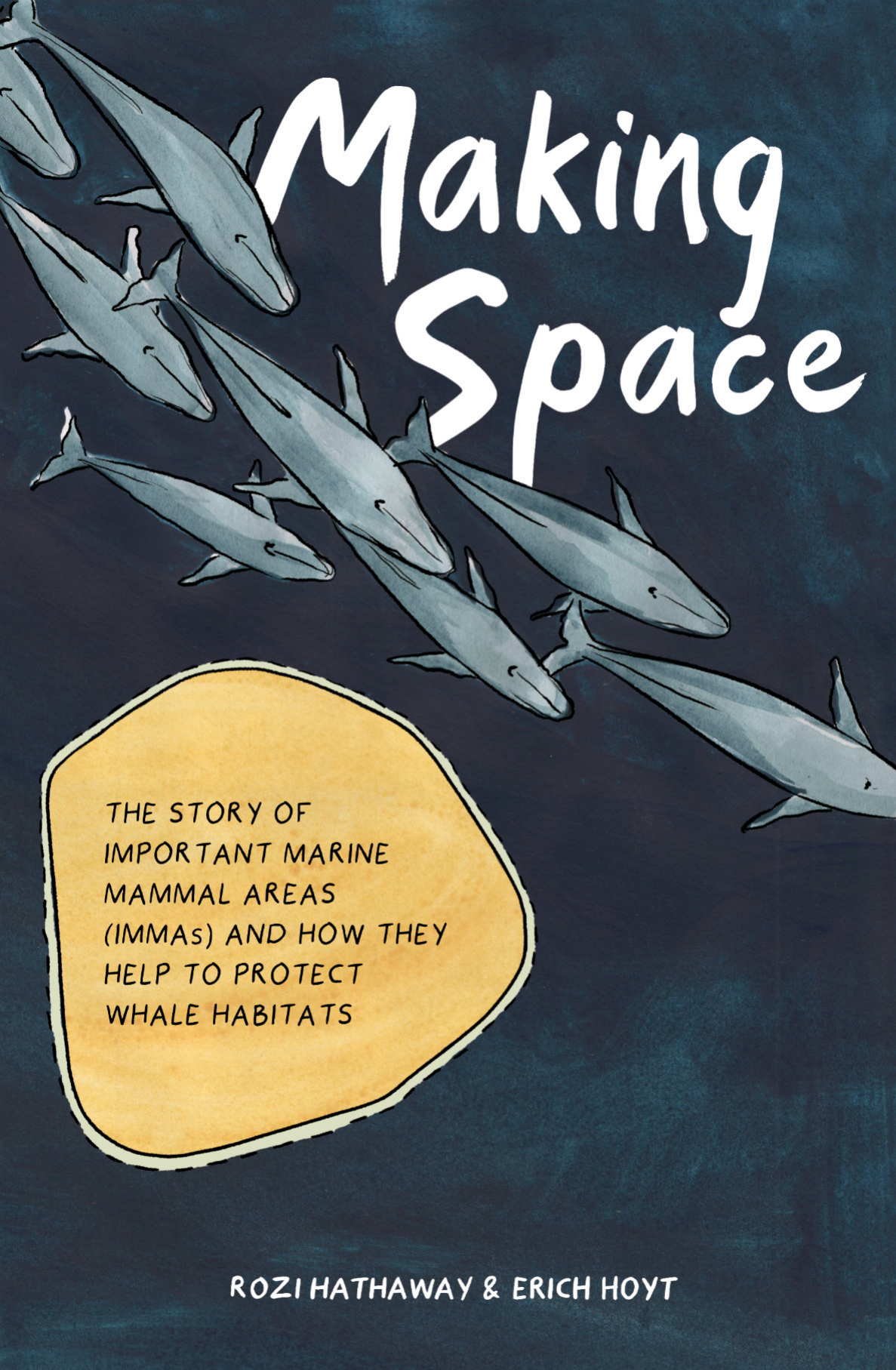
Making Space
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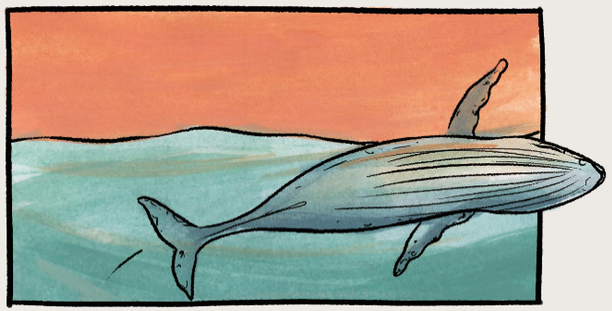
ROZI HATHAWAY & ERICH HOYT



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Making Space

THE STORY OF IMPORTANT MARINE MAMMAL AREAS (IMMAs) AND HOW THEY HELP TO PROTECT WHALE HABITATS

ROZI HATHAWAY & ERICH HOYT

PEOPLE USED TO THINK THAT WHALES SWAM AROUND THE WHOLE OCEAN, FREE TO ROAM WHEREVER THEY PLEASED.

BUT NOW WE KNOW THIS ISN'T TRUE.

WHALES HAVE A SENSE OF PLACE.

THEY TRAVEL BETWEEN FAMILIAR LOCATIONS,

YEAR AFTER YEAR,

FOR THEIR WHOLE LIVES.

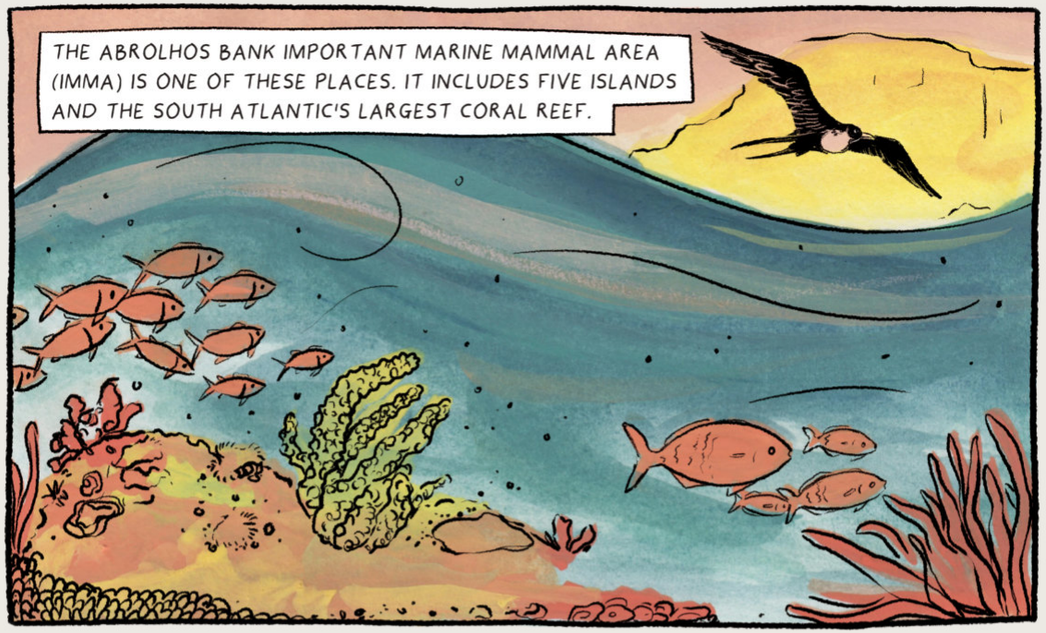
WE CAN'T FULLY UNDERSTAND HOW THEY NAVIGATE TO THEIR FAVOURITE SPOTS. BUT THEY DO – AND THESE INCREDIBLE JOURNEYS SPAN THOUSANDS OF MILES.

"HUMPBACK WHALES ARE LOYAL TO WHERE THEY CAN FIND GOOD FOOD, MATE, AND RAISE THEIR CALVES", SAYS WHALE RESEARCHER ERICH HOYT. "WHEN MOTHER WHALES MIGRATE, THEY BRING THEIR CALVES WITH THEM."

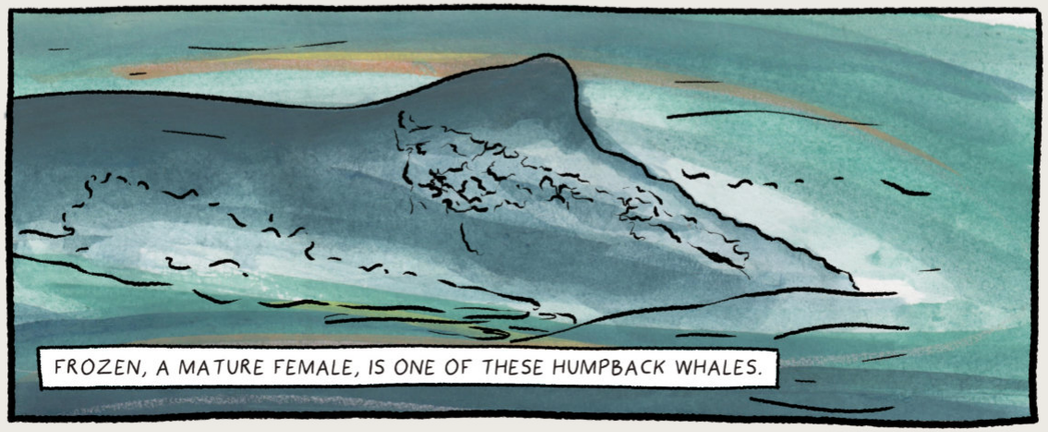
RIO DE JANEIRO STATE, BRAZIL

SW ATLANTIC HUMPBACK MIGRATORY CORRIDOR IMMA

"AND WHEN THE CALVES GROW UP, THEY RETURN TO THE SAME PLACES"



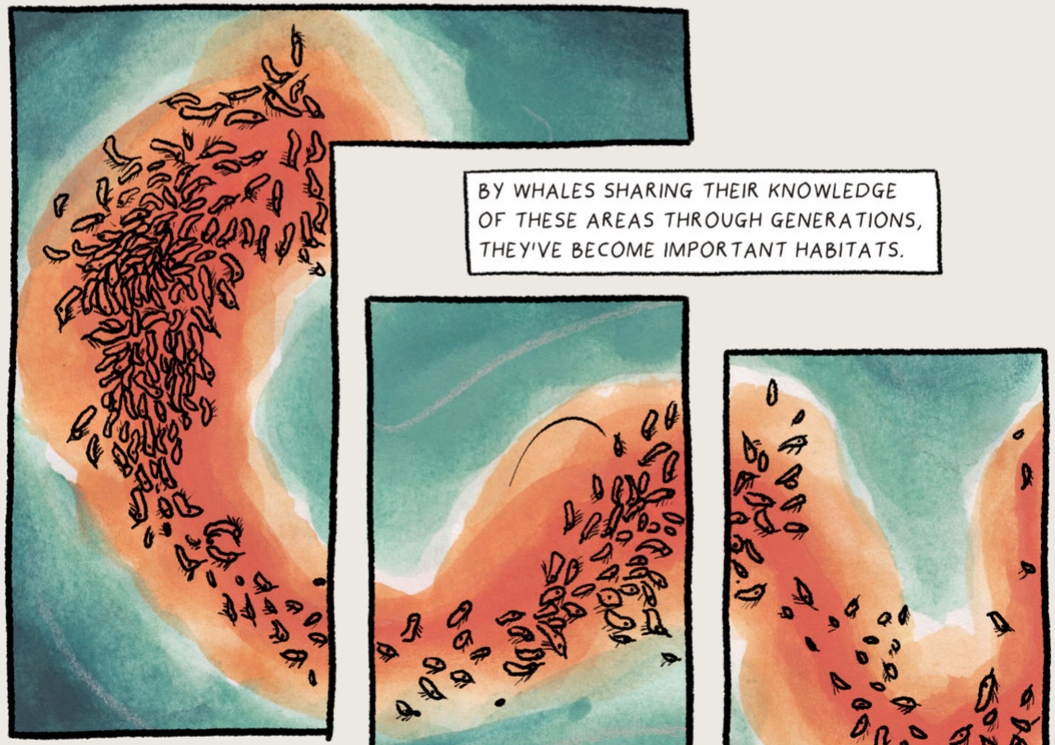
"BRAZILIAN RESEARCHERS HAVE STUDIED THE HUMPBACK WHALES HERE FOR 40 YEARS," SAYS CONSERVATIONIST JOSÉ TRUDA PALAZZO, JR.



SHE'S AN ADULT, BUT THERE IS NO CALF WITH HER. HER INJURY MAY BE PAINFUL OR MAKE BREEDING DIFFICULT.

IN SPRING, HUMPBACK MOTHERS AND THEIR NEWBORNS JOURNEY FROM THE TROPICAL BREEDING GROUNDS, EITHER ON ABROLHOS BANK OR OTHER AREAS, TO THE SUMMER FEEDING GROUNDS OF THE ANTARCTIC.

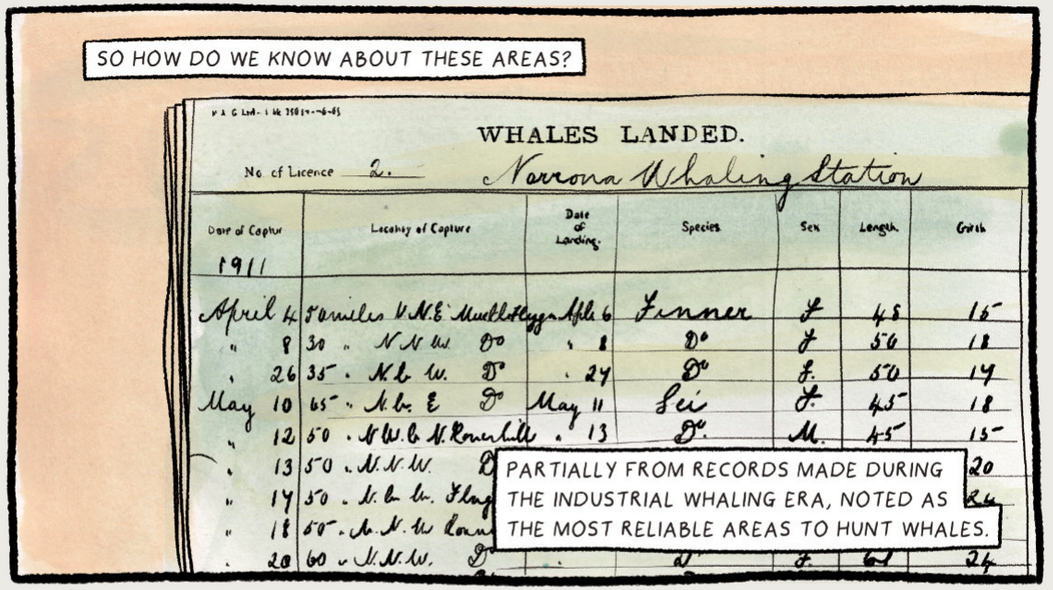
HERE, THE MOTHER WILL SHOW HER YOUNG SPECIAL TECHNIQUES FOR CATCHING PLANKTON AND SMALL FISH – AND THE BEST SPOTS TO FIND THEM. THEN, SHE WILL RETURN TO THE TROPICS FOR THE WINTER, WITH THE NEW CALF FOLLOWING ON THE 5,000 KM ROUTE.



BY WHALES SHARING THEIR KNOWLEDGE OF THESE AREAS THROUGH GENERATIONS, THEY'VE BECOME IMPORTANT HABITATS.

JOSÉ, ERICH, AND OTHER RESEARCHERS CALL THIS "SITE FIDELITY".

SO HOW DO WE KNOW ABOUT THESE AREAS?



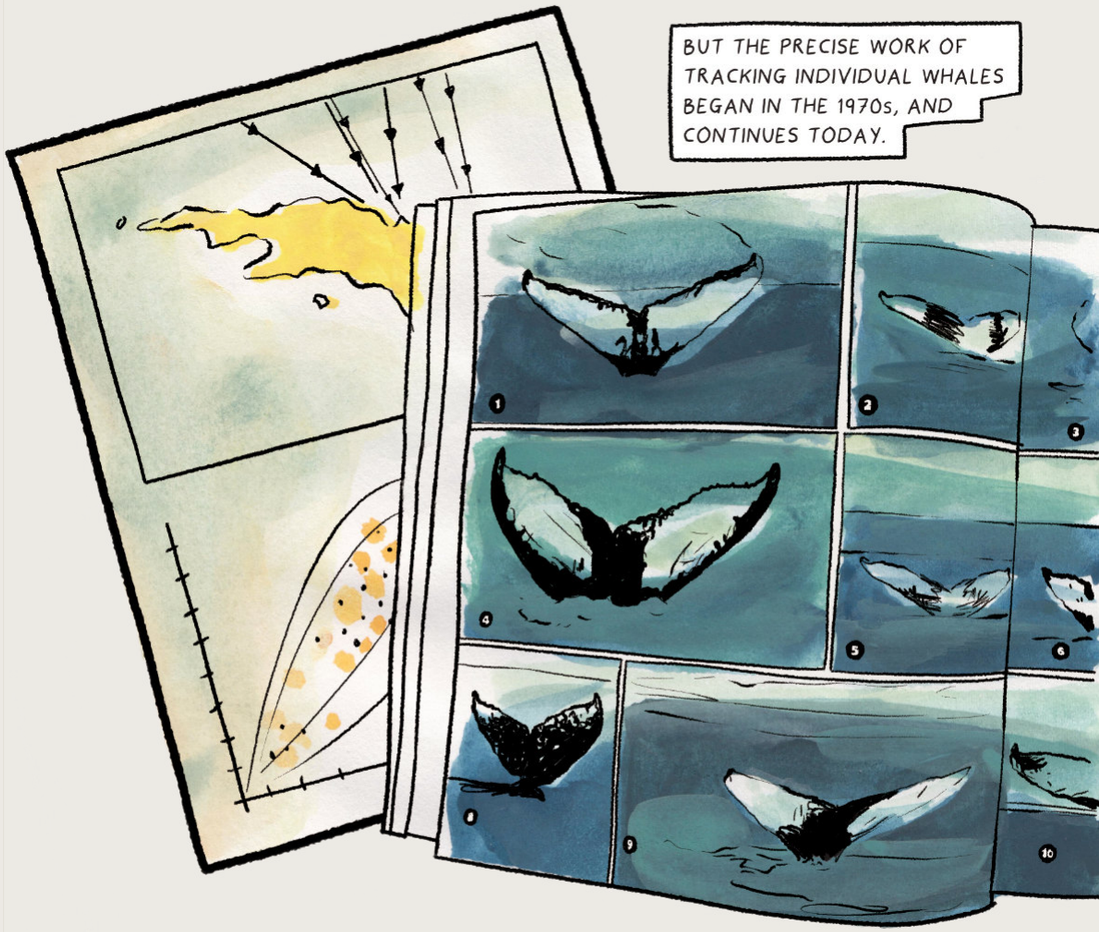
WHALES LANDED.

No. of Licence 2. Norvona Whaling Station

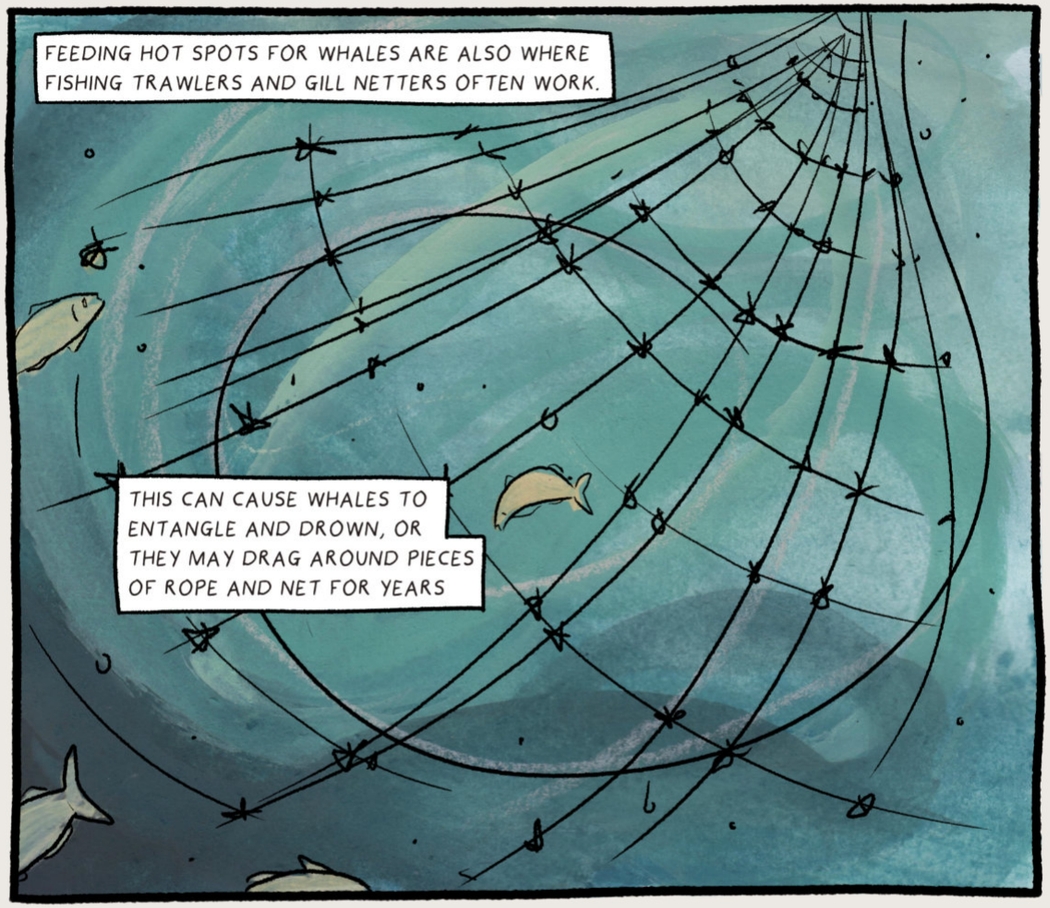
Date of Capture 1911	Locality of Capture	Date of Landing	Species	Sex	Length	Girth
April 4	5 miles N.E. Muckle Flugga	April 6	Finner	♂	45	16
" 8	30 " N.N.W.	Do " 8	Do	♂	56	18
" 26	35 " N.b.W.	Do " 27	Do	♂	50	17
May 10	65 " N.b.E.	Do May 11	Sei	♂	45	18
" 12	50 " N.W.b.N. Rona's Hill	" 13	Do	M.	45	15
" 13	50 " N.N.W.	Do				20
" 17	50 " N.b.W.	Flug				24
" 18	50 " N.N.W.	Roun				
" 20	60 " N.N.W.	Do		♂	♀	24

PARTIALLY FROM RECORDS MADE DURING THE INDUSTRIAL WHALING ERA, NOTED AS THE MOST RELIABLE AREAS TO HUNT WHALES.

BUT THE PRECISE WORK OF TRACKING INDIVIDUAL WHALES BEGAN IN THE 1970s, AND CONTINUES TODAY.



DESPITE KNOWING MANY OF THE AREAS WHERE WHALES HANG OUT, THERE ARE DANGERS.



SOME SHIPPING ROUTES PASS THROUGH WHALE HABITATS, RISKING SHIP STRIKES – LIKE THE ACCIDENT FROZEN EXPERIENCED.

OTHER DANGERS COME FROM HUGE AREAS OF THE OCEAN UNDERGOING HUMAN DISRUPTION IN THE SEARCH FOR OIL, GAS AND DEEP-SEA MINING.

WHALING STILL PERSISTS IN JAPANESE, NORWEGIAN AND ICELANDIC WATERS.

CLIMATE CHANGE MAY ALSO FORCE PREY TO MOVE OR DIE, AND WHALES THEN TOO MUST TRY TO FOLLOW THEIR PREY.

AND ALL MARINE LIFE IS A CASUALTY OF ONGOING WARS AND CONFLICTS.

WITH SO MUCH HABITAT DESTRUCTION AND LOSS OF MARINE LIFE, RESEARCHERS AND CONSERVATION GROUPS HAVE KNOWN FOR A WHILE THAT SOMETHING HAS TO CHANGE.

WHALES, AND THEIR HOMES, NEED MORE PROTECTION.

IN 2013, ERICH HOYT AND MARINE ECOLOGIST GIUSEPPE NOTARBARTOLO DI SCIARA FORMED THE IUCN* MARINE MAMMAL PROTECTED AREAS TASK FORCE.

Marine Mammal Protected Areas Task Force

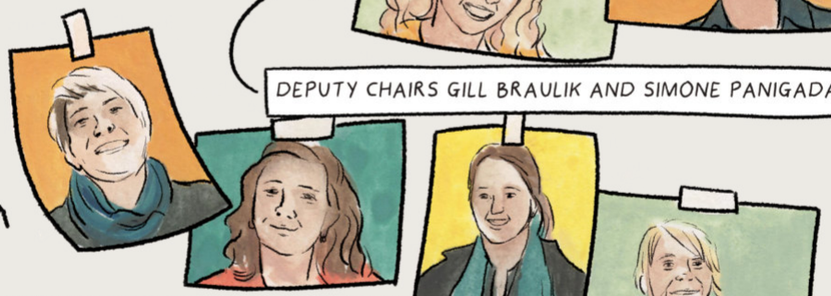
*INTERNATIONAL UNION FOR CONSERVATION OF NATURE

THEY ORIGINALLY WORKED TOGETHER IN THE 1990s, INVESTIGATING THE BENEFITS OF WHALE WATCHING AND MARINE PROTECTED AREAS ON ALL MARINE MAMMALS.

THE CORE TASK FORCE TEAM IS MADE UP OF:

CO-CHAIRS ERICH AND GIUSEPPE,

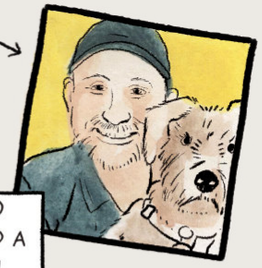
DEPUTY CHAIRS GILL BRAULIK AND SIMONE PANIGADA,



AND MEMBERS CATERINA LANFREDI, GIANNA MINTON, MARGHERITA ZANARDELLI AND ELENA POLITI.

THEIR MAIN GOAL IS AMBITIOUS. BRING TOGETHER THE WORLD'S OCEAN SCIENTISTS TO IDENTIFY THE MOST IMPORTANT HABITATS FOR WHALES AND OTHER ANIMALS.

WITH MICHAEL J. TETLEY'S HELP, THEY CREATED A NEW ONLINE TOOL CALLED IMPORTANT MARINE MAMMAL AREAS – OR, FOR SHORT, IMMAs.



"HUNDREDS OF PEOPLE GAVE US THEIR EXPERTISE TO WORK OUT THE CRITERIA FOR IMMAs. WE DEVELOPED A STANDARDIZED WAY TO CREATE THEM," SAYS ERICH.

STARTING IN 2016, AFTER MANY MEETINGS AND A FUNDRAISING MARATHON, THEY SET UP A SERIES OF WORKSHOPS TO COVER THE WORLD'S OCEANS. THESE WORKSHOPS WERE PLANNED REGION BY REGION, EVERY 10–12 MONTHS FOR THE NEXT DECADE.

IN EACH REGION, SCIENTISTS, CITIZEN SCIENTISTS, AND WHALE WATCHERS SUGGEST IMPORTANT AREAS. IN THE WEEK-LONG WORKSHOPS, THEY MAY EXAMINE UP TO 400 POSSIBLE AREAS.

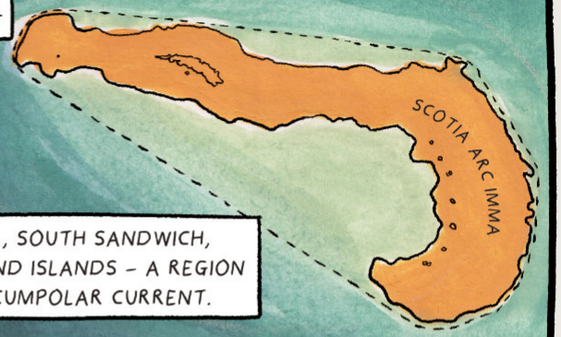
BY THE END OF THE WORKSHOPS, THEY CREATE 30–50 CANDIDATE IMMAs FOR THAT REGION, READY TO SEND TO OTHER EXPERTS FOR REVIEW.

AFTER SEVERAL WEEKS OF TRAVEL, FROZEN ARRIVES ON THE SOUTH GEORGIA FEEDING GROUNDS –

THE SCOTIA ARC IMPORTANT MARINE MAMMAL AREA (IMMA)

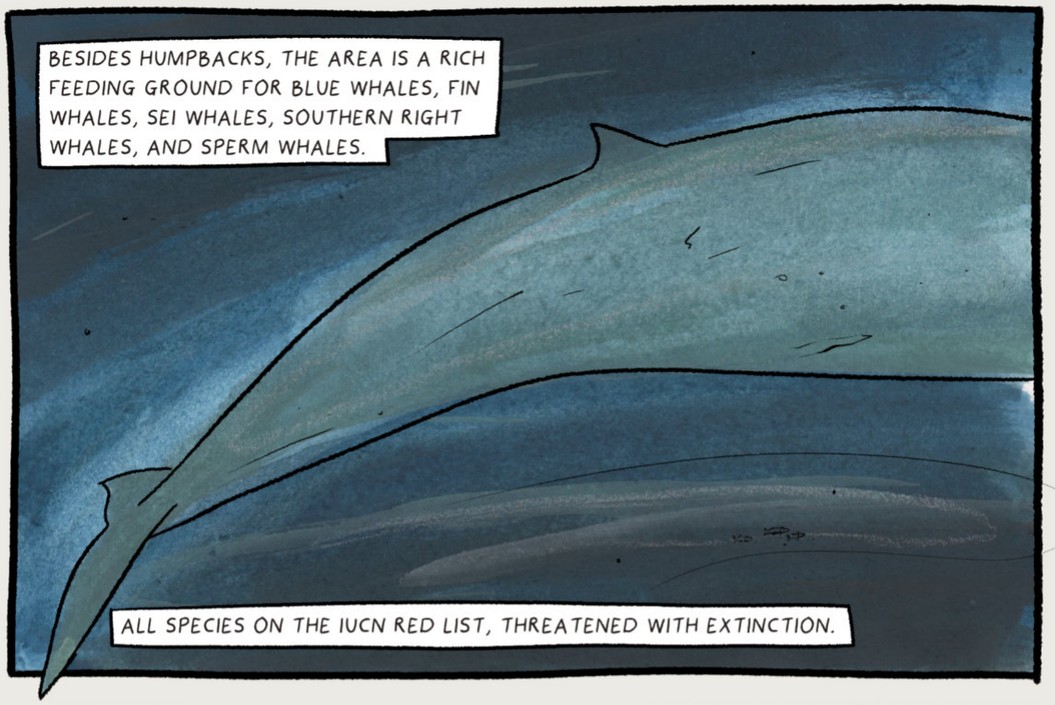
WHERE HER MOTHER MOST LIKELY FIRST TOOK HER TO FEED SEVERAL YEARS EARLIER, WHEN SHE WAS A CALF.

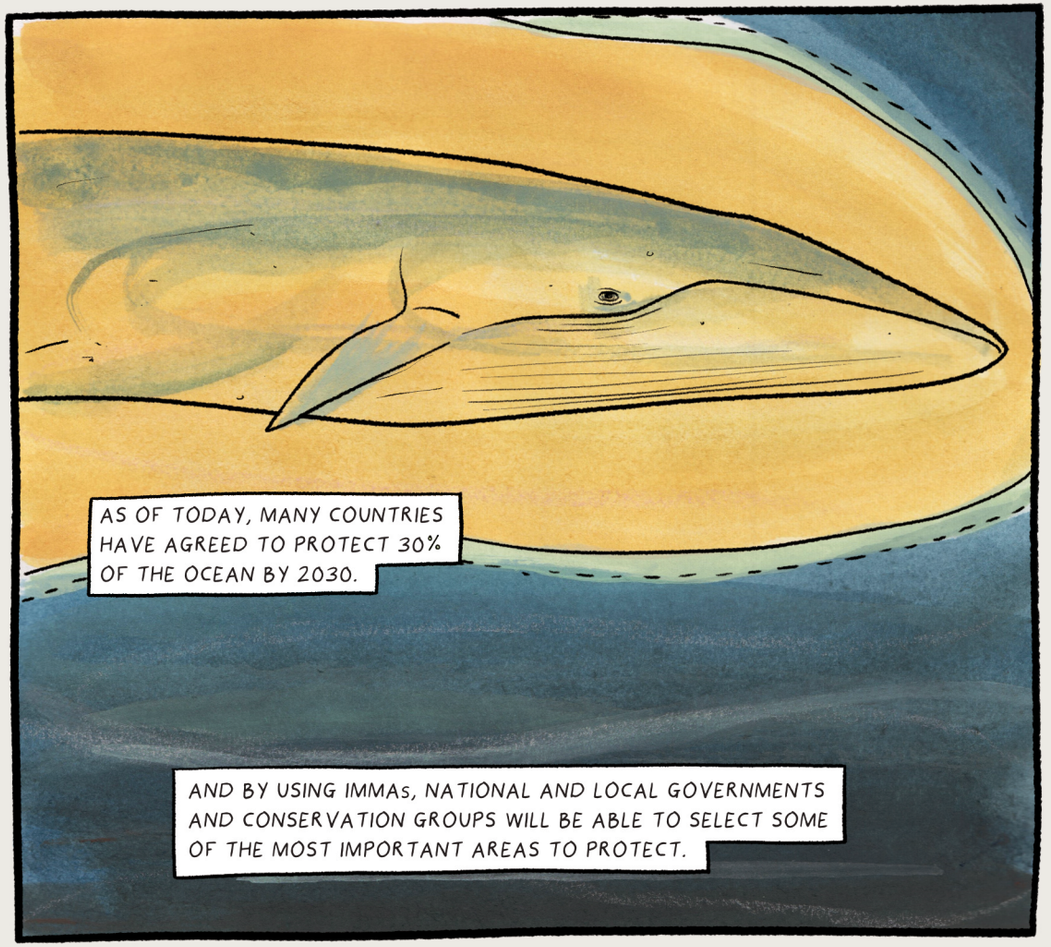
THE SCOTIA ARC IMMA FEEDING SITE IS PART OF ONE OF THE WORLD'S LARGEST MARINE PROTECTED AREAS WITH RECENTLY EXPANDED PROTECTIONS.



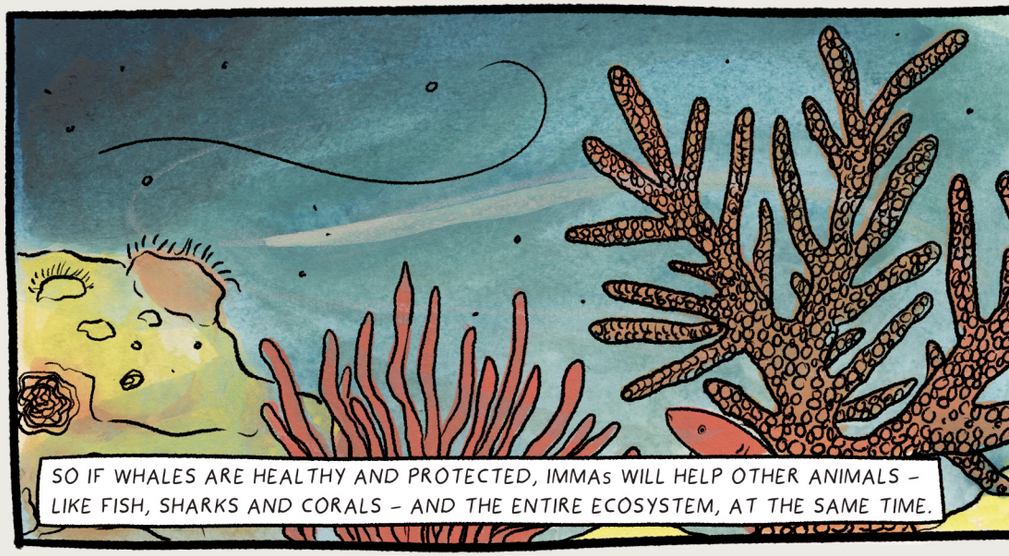
THE AREA INCLUDES SOUTH GEORGIA, SOUTH SANDWICH, SOUTH ORKNEY AND SOUTH SHETLAND ISLANDS – A REGION DOMINATED BY THE ANTARCTIC CIRCUMPOLAR CURRENT.

THE CURRENT TRANSPORTS NUTRIENTS AND FOOD FROM THE ANTARCTIC PENINSULA ACROSS THE SCOTIA SEA.

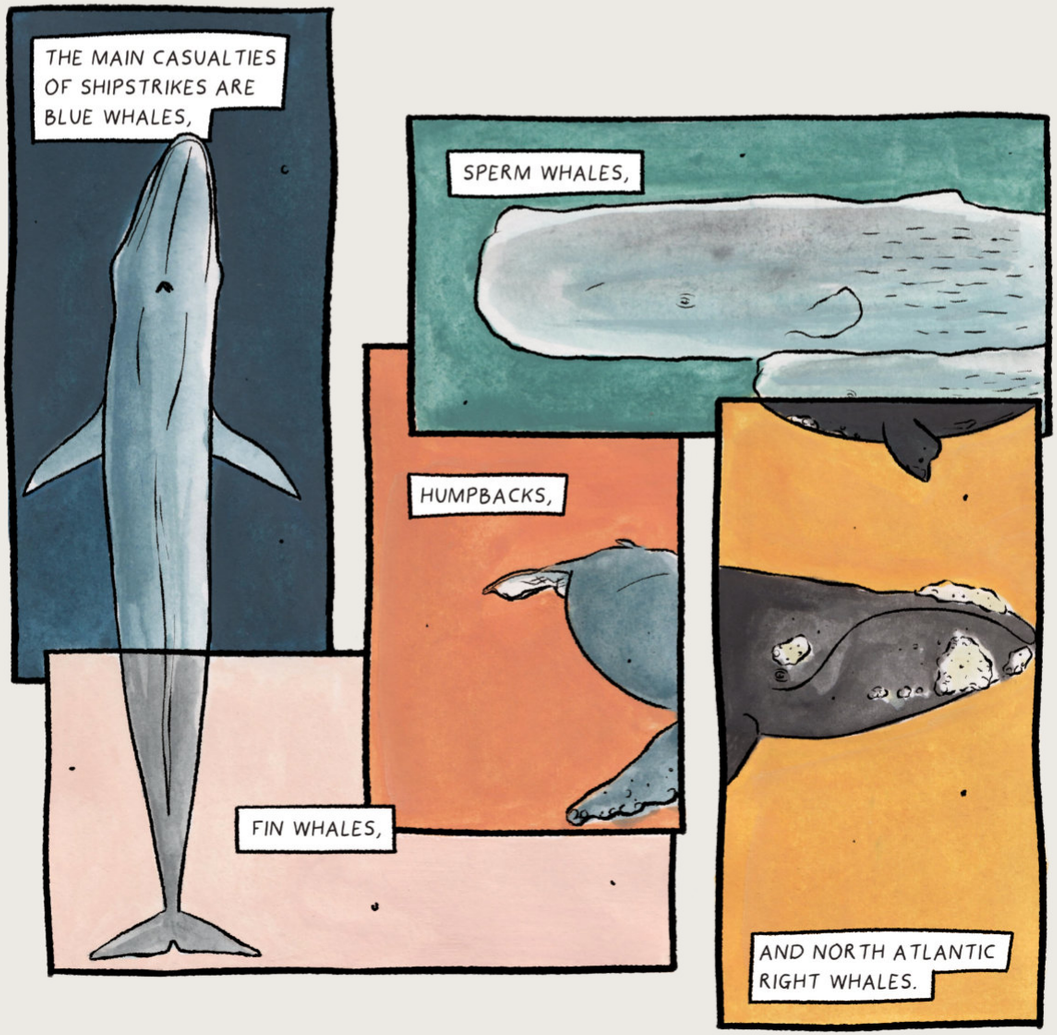




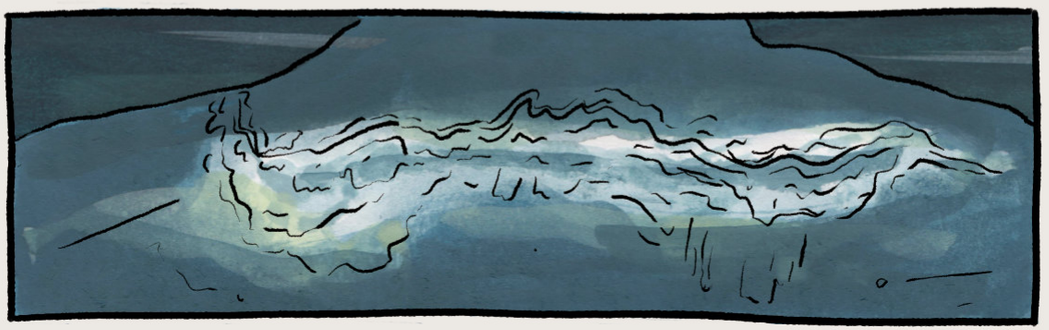
IMMAs TELL US ABOUT IMPORTANT PLACES FOR WHALES, BUT THEY ALSO SHOW HEALTHY ECOSYSTEMS FOR MANY OTHER SPECIES. AS INDICATOR SPECIES, WHALES REVEAL THE HEALTH OF THE OCEAN.



BUT WE DO KNOW THAT EVERY YEAR SHIPS STRIKE MANY WHALES.



AND AS WE'VE SEEN, EVEN FROZEN COULDN'T ESCAPE BEING ANOTHER SHIPSTRIKE STATISTIC.



SO, WHAT MORE CAN BE DONE?

GOVERNMENTS CAN WORK WITH...

...THE INTERNATIONAL MARITIME ORGANISATION (IMO) TO REDUCE SHIP SPEEDS AND CHANGE SHIPPING ROUTES, ...

...LOCAL AND COMMERCIAL FISHERS TO REGULATE WHALE-SAFE FISHING GEAR, ...

...AND COMMUNITIES, TO SET UP EFFECTIVE MARINE PROTECTED AREAS, FEATURING KNOWN WHALE HABITATS.

THE OPEN OCEAN NEEDS PROTECTING, TOO –

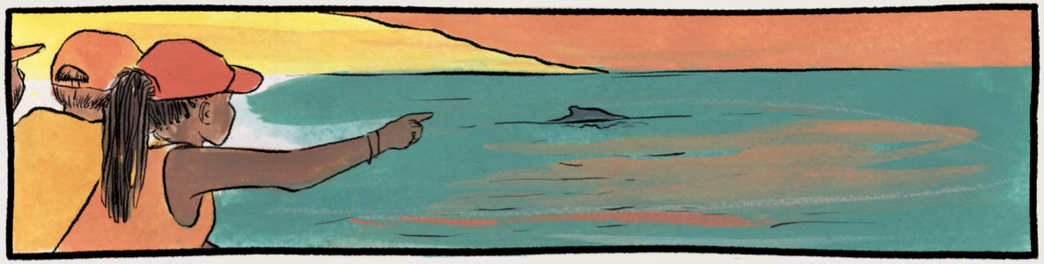
THE 60% THAT DOESN'T 'BELONG' TO ANY COUNTRY. ALSO KNOWN AS THE HIGH SEAS.

SOON, IT'S HOPED COUNTRIES WILL FOLLOW THE HIGH SEAS AGREEMENT, SO CONSERVATION EFFORTS CAN FORMALLY BEGIN.

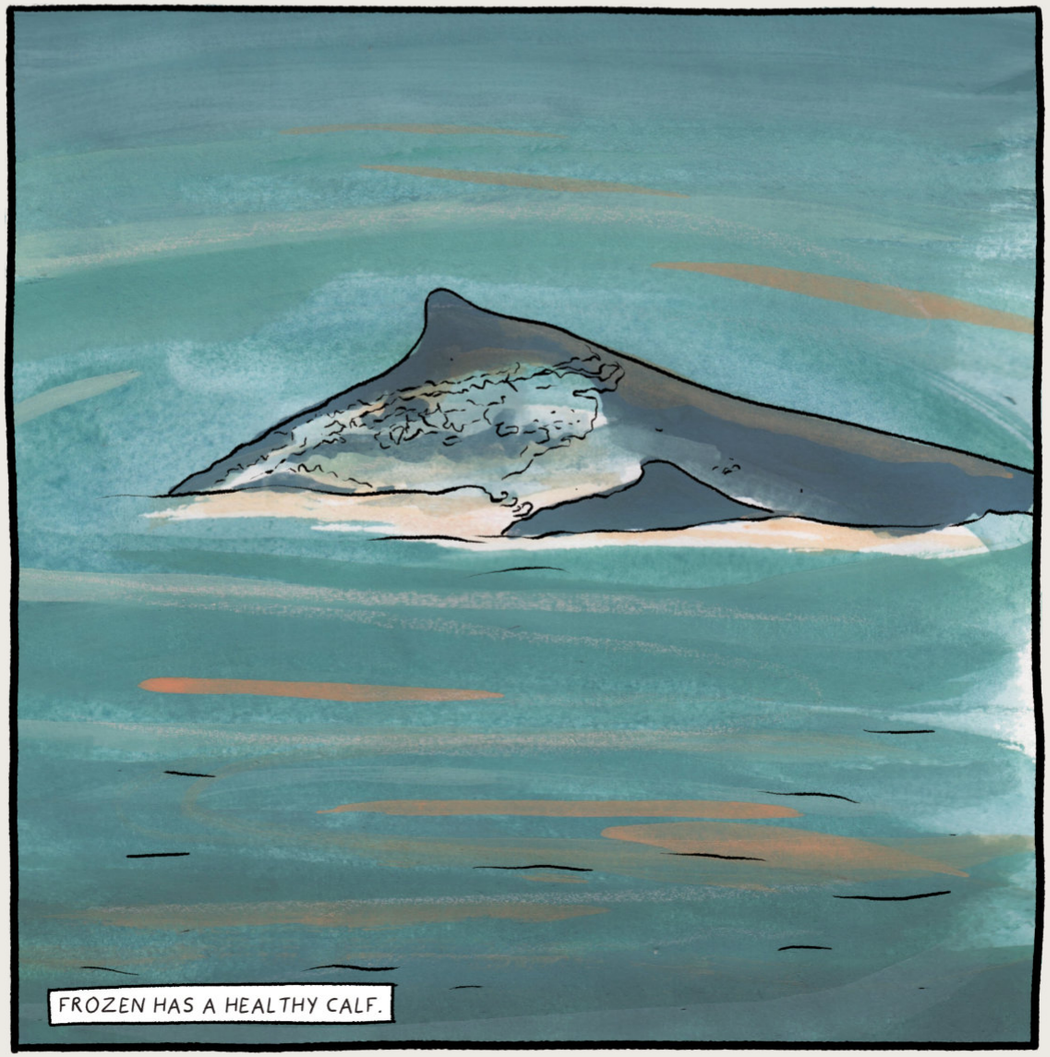
WE'RE RELIANT ON THE OCEAN TO KEEP OUR PLANET HABITABLE,

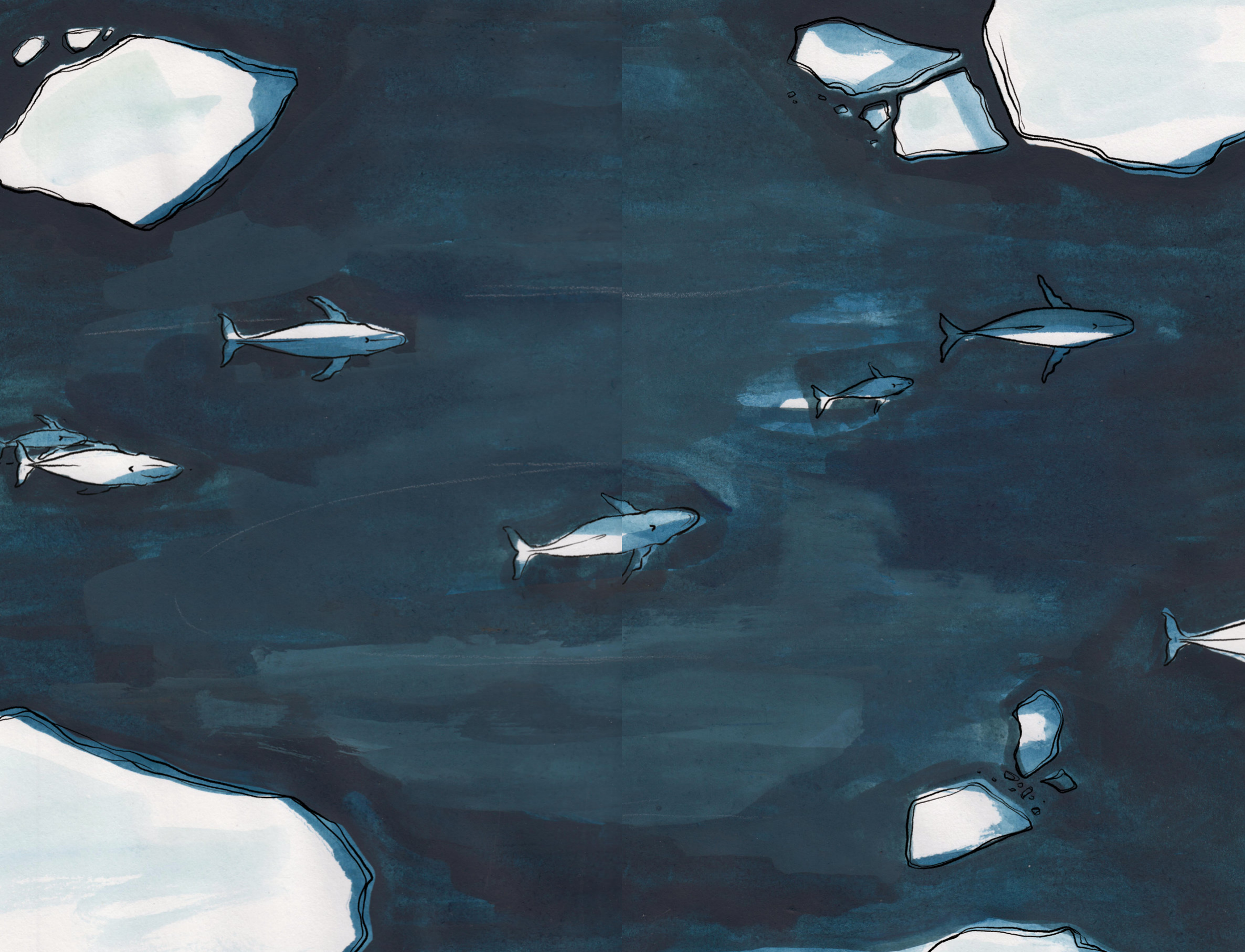
AND IT'S UP TO US TO MAKE SURE IT WORKS.

IN 2023, RESEARCHERS FROM THE HUMPBACK WHALE INSTITUTE WORKING ON THE BREEDING GROUNDS AROUND BRAZIL SEE FROZEN, STILL CLEARLY IDENTIFIABLE FROM HER SCARS.



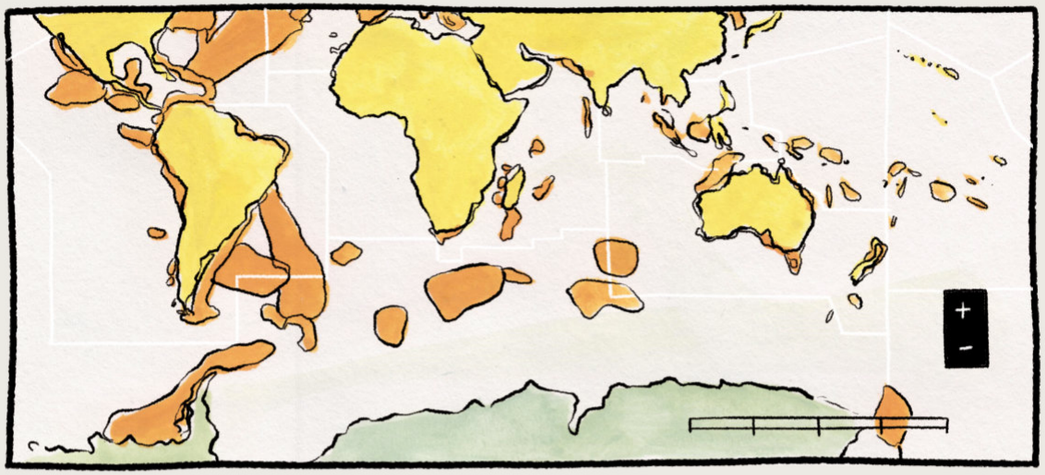
BUT THIS TIME, THERE'S A SURPRISE.





IT'S NOW 2025.

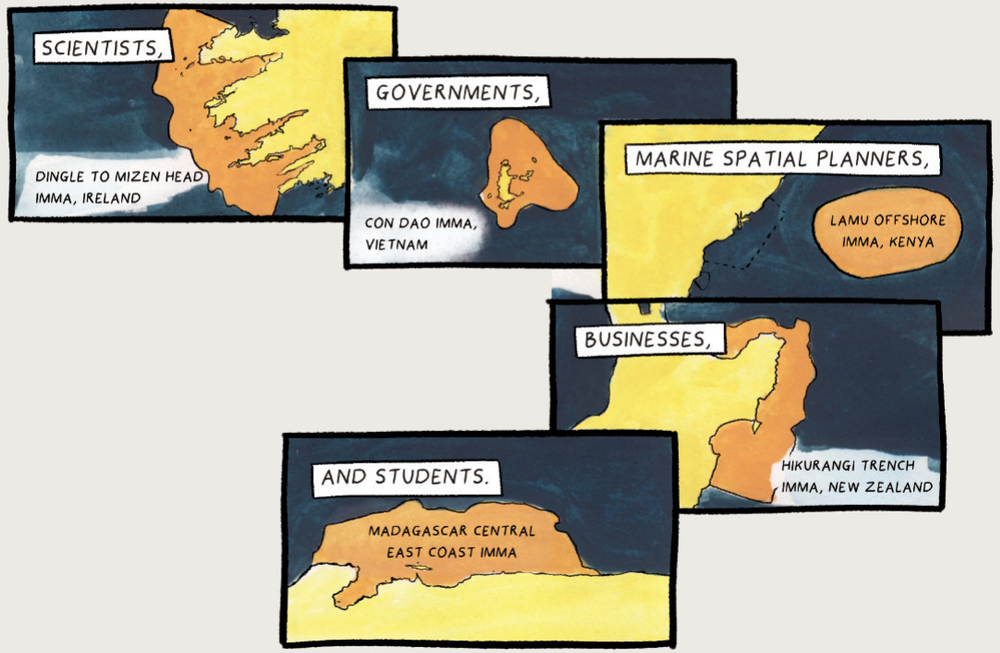
AFTER EXAMINING AROUND 80% OF THE GLOBAL OCEAN, THE TASK FORCE PUT 323 IMMAs ONTO THE GLOBAL IMMA E-ATLAS AVAILABLE FOR ANYONE TO DOWNLOAD AND USE.



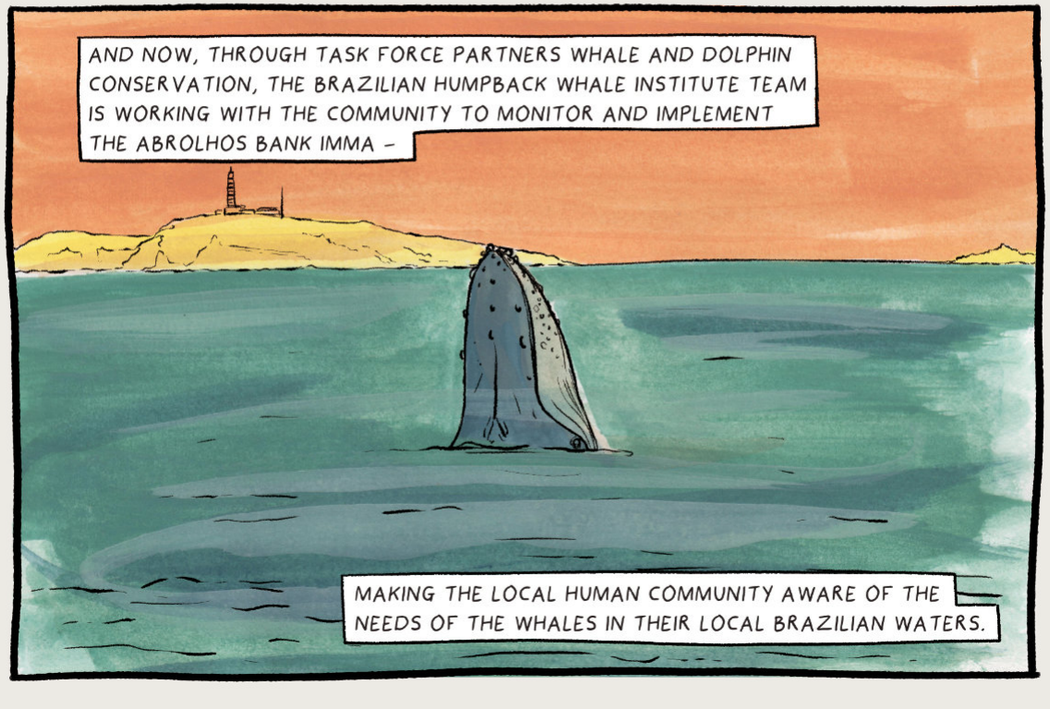
THE E-ATLAS INCLUDES MAPS, PHOTOGRAPHS, AND DETAILS ABOUT WHAT MAKES EACH OF THESE IMMAs SPECIAL.

SPECIAL AS A HOME FOR WHALES, DOLPHINS AND OTHER ANIMALS.

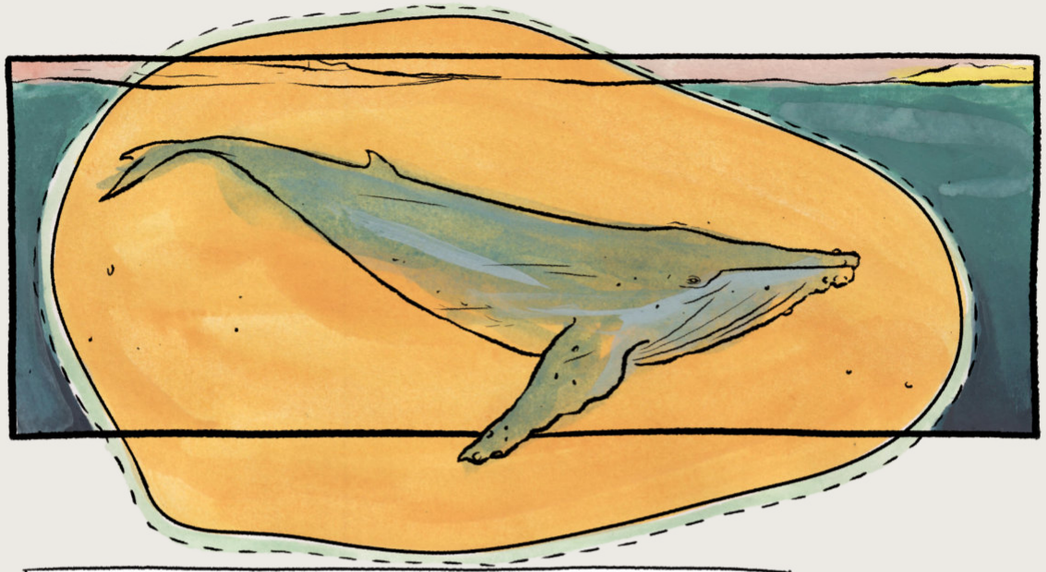
BY CHECKING THE IMMA E-ATLAS, ANYONE CAN SEE AND DOWNLOAD THE WORLD MAP OF IMMAs AND THE INFORMATION ABOUT THEM.



THEY CAN ALL USE THESE MAPS TO GAIN INSIGHTS, ASSESS IMPACTS AND DRIVE CHANGE.

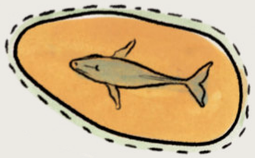


ALL OF THE WORK THE IMMA TASK FORCE HAS BEEN INVOLVED WITH HAS BEEN DONE TO PROTECT WHALES LIKE FROZEN AND THEIR FUTURE GENERATIONS.

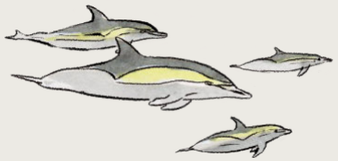


FROZEN'S CALF IS INDEPENDENT NOW, MAKING HER OWN WAY IN LIFE.

AND HOPEFULLY, IN A FEW YEARS, SHE'LL HAVE HER OWN CALF, BETTER PROTECTED, WITH A LONG LIFE AHEAD.



Afterword



TELLING OUR STORY AND HOPING THE WHALES WILL ONE DAY NOTICE

IN THE EARLY 2000s, SOME OF US WORKING WITH WHALES STARTED REALIZING THAT WHALES AND DOLPHINS WERE BEING MISSED OUT WHEN IT CAME TO PROTECTING THEIR HABITAT.

WHAT WOULD HAPPEN, WE WONDERED, IF WE COULD ASK THE 135 SPECIES OF MARINE MAMMALS – THE WHALES, DOLPHINS, PORPOISES, SEALS, MANATEES, DUGONG, SEA OTTERS AND THE POLAR BEAR – TO GIVE US DETAILS ABOUT WHERE THEY LIVED IN THE OCEAN AND WHAT THEY NEEDED TO SURVIVE?

WE HAD TO DO THE NEXT BEST THING: ASK THE SCIENTISTS WHO HAVE SPENT YEARS IN THE FIELD. UNCOVERING PUBLISHED AND UNPUBLISHED DATA SOURCES, THESE FIELD SCIENTISTS HAVE MADE A START TOWARD UNDERSTANDING HABITAT NEEDS. WE WANTED TO PUT THESE HABITATS ON THE MAP TO GIVE WHALES AND DOLPHINS A FAIR SHOT WHEN IT CAME TO LOOKING AFTER THEIR HOMES IN THE SEA. WE NEEDED TO CREATE A TOOL THAT COULD INFORM ALL OCEAN USERS – FISHERS, SHIP OWNERS, TOURISM COMPANIES, COASTAL COMMUNITIES – TO BE CAREFUL IN THESE SPECIAL PLACES, IN EFFECT TO MAKE SPACE FOR MARINE MAMMALS.

TWO OF US WORKING ON THIS QUICKLY BECAME THREE AND THEN IT BECAME EIGHT WITH A SUPPORTING CAST OF HUNDREDS OF SCIENTISTS. AND NOW WE HAVE BEEN WORKING SOLIDLY FOR ABOUT 10 YEARS, AND THE GLOBAL OCEAN IS ACCUMULATING THESE EVIDENCE-BASED, PEER-REVIEWED TOOLS WE CALL IMPORTANT MARINE MAMMAL AREAS, OR IMMAs. THERE ARE MORE THAN 300 OF THESE IMMAs AROUND THE WORLD, COVERING ALMOST ONE FIFTH OF THE OCEAN SURFACE.

NO MATTER THE GROWING OCEAN-SPANNING EXTENT OF IMMAs, MANY PEOPLE STILL DON'T KNOW ABOUT THEM. WITH THIS IN MIND, IN EARLY 2024, I TOLD OUR STORY TO COMICS ARTIST ROZI HATHAWAY, AND SHE SAW THE POSSIBILITIES. SHE PUT IT INTO HER OWN IMAGES AND WORDS AND MADE WHAT YOU HOLD HERE IN YOUR HANDS. THINK OF IT AS THE STORYBOARD OF A NARRATIVE DOCUMENTARY FILM TELLING HOW WE GOT HERE AND WHAT WE NEED TO DO NEXT TO PROTECT THESE SPECIAL PLACES.

WILL THE WHALES AND OTHER MARINE MAMMALS REALIZE RESULTS FROM OUR EFFORTS? WILL THEY NOTICE THAT THEIR FAVOURITE HABITATS ARE CLEANER, QUIETER, WITH FEWER ENTANGLING NETS AND FAST-MOVING SHIPS, AND THAT THEY HAVE MORE PREY ON OFFER? THE ANSWERS TO THESE QUESTIONS COULD TELL US WHETHER WE AND OTHERS HAVE BEEN SUCCESSFUL. PROTECTING HABITAT IS NOT THE WHOLE STORY, BUT IT COULD HINT AT WHETHER WHALES, AS WELL AS HUMANS, WILL IN FUTURE HAVE A CHANCE TO ENJOY THE LIFE-GIVING OCEAN ON OUR SHARED PLANET.

ERICH HOYT
ERICH.HOYT@ME.COM
ERICHHOYTBOOKS.COM

Afterword

I'VE ALWAYS LOVED DRAWING AND WRITING STORIES. IF YOU'D HAVE TOLD 10-YEAR-OLD ME THAT I'D GROW UP TO BE MAKING COMICS ABOUT WHALES, I WOULD'VE LOST MY TINY MIND. ADULTS HAD NORMAL, SENSIBLE JOBS, RIGHT..?

FOR THE PAST FIVE YEARS, I'VE DEDICATED MY FREE TIME TO WRITING COMICS ABOUT WHALES, AND HOW INCREDIBLE THEY ARE. I FIRST MET ERICH IN 2022 WHEN I WAS WORKING ON A SHORT COMIC ABOUT SATO'S BEAKED WHALES. HE OFFERED HIS HELP IMMEDIATELY, AND SINCE THEN WE'VE STAYED IN TOUCH TALKING WHALES, RESEARCH PAPERS, BASEBALL AND LIFE. I CHERISH OUR FRIENDSHIP, SO WHEN ERICH ASKED IF I'D WORK WITH HIM ON A PIECE ABOUT IMMAs, I IMMEDIATELY SAID YES.

COMICS ARE THE PERFECT MEDIUM FOR TALKING THROUGH COMPLEX, SCIENTIFIC IDEAS. THEY'RE ACCESSIBLE FOR ANYONE WHO CAN'T READ WALLS OF TEXT, THEY OFFER IMMEDIATE VISUAL SURROUNDINGS, AND CAN TRANSPORT YOU INTO A WORLD YOU MAY NOT KNOW EXISTED. COMICS CAN REACH MORE PEOPLE - PEOPLE WHO WOULDN'T TYPICALLY PICK UP A SCIENCE JOURNAL. AND WE NEED EVERYONE ON BOARD TO GIVE THESE INCREDIBLE ANIMALS A CHANCE.

IMMAs ARE CRUCIAL FOR WHALES. BUT THIS ISN'T THE END.

MARINE MAMMALS - AND ALL LIFE ON EARTH - NEED OUR HELP. AND THIS IS WHY WE DO WHAT WE DO. THE LATE NIGHTS, THE RESEARCH, THE ROUNDS OF EDITS. WE DO IT TO SHOW THAT EVERY SINGLE PERSON CAN MAKE A DIFFERENCE. WE CAN ALL PUSH THOSE IN POWER TO MAKE CRUCIAL CHANGE - YOU DON'T HAVE TO BE A SCIENTIST OR A RESEARCHER. YOU CAN JUST BE A BIG KID WHO LOVES DRAWING.

SELF-PORTRAIT, 2022

ROZI HATHAWAY
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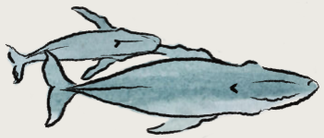
ROZIHATHAWAY.COM

Acknowledgements

WE WOULD LIKE TO THANK THE IMMA SECRETARIAT OF THE IUCN MARINE MAMMAL PROTECTED AREAS TASK FORCE FOR THEIR INSPIRATION AND IDEAS.

THE IMMA SECRETARIAT IS THE CORE TEAM RESPONSIBLE FOR:

- ORGANISING AND RUNNING THE IMMA WORKSHOPS
- PREPARING THE CANDIDATE IMMAs FOR REVIEW
- PUTTING THE FINAL IMMAs ON THE E-ATLAS
- ORGANIZING THE SUMMARIES AND BROCHURES FOR EACH IMMA
- HANDLING THE REQUESTS FOR THE SHAPEFILES
- FOLLOWING UP TO ANSWER THE MANY QUESTIONS THAT ARISE

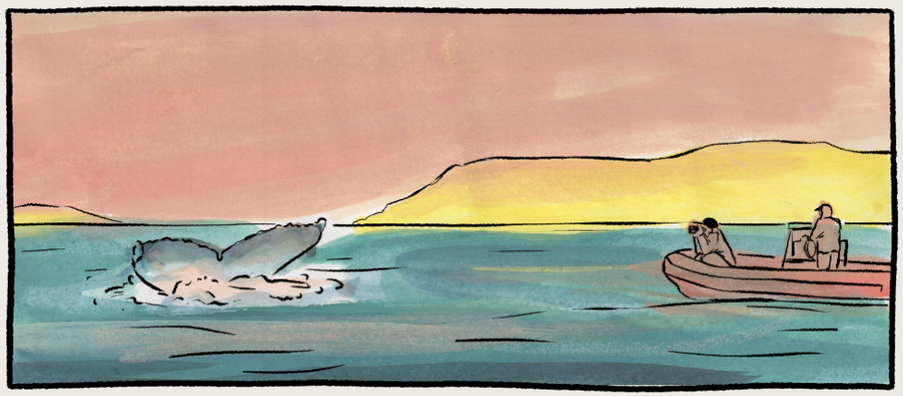


A SPECIAL THANKS GO TO TASK FORCE MEMBER JOSÉ TRUDA PALAZZO JR. AND COLLEAGUES VICTOR LIBARDI AND BIANCA RIGHI FROM THE BRAZILIAN HUMPBACK WHALE INSTITUTE – INSTITUTO BALEIA JUBARTE. BRAZILIAN RESEARCHER MILTON MARCONDES HELPED US WITH THE STORY OF THE HUMPBACK WHALE, FROZEN.

THANKS TO MILTON, JOSÉ AND GIUSEPPE NOTARBARTOLO DI SCIARA FOR READING AND HELPING TO CORRECT THE FINAL TEXT. THANKS ALSO TO SAM WILLIAMS FOR HIS COMICS EXPERTISE AND INPUT THROUGHOUT.

FUNDING FOR THE PRINTING OF THIS WORK COMES FROM THE LITOWITZ FAMILY FOUNDATION THROUGH WHALE AND DOLPHIN CONSERVATION.

SHORTLY BEFORE WE WENT TO PRESS, JOSÉ OFFERED TO HELP PRODUCE A PORTUGUESE VERSION FOR DISTRIBUTION IN THE VARIOUS WHALE WATCHING AND OTHER COASTAL COMMUNITIES WATCHING OVER THE IMMAs IN BRAZILIAN WATERS.



MARINE MAMMAL PROTECTED AREAS TASK FORCE

IMMA

TETHYS since 1986

WHALE AND DOLPHIN CONSERVATION

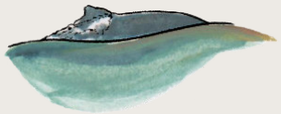
WDC

Further details

YOU CAN ACCESS THE IMMA E-ATLAS BY SCANNING THE QR CODE BELOW:

OR, VISIT HTTPS://MARINEMAMMALHABITAT.ORG/IMMA-EATLAS

FOR MORE INFORMATION ABOUT IMMAs:
HTTPS://MARINEMAMMALHABITAT.ORG/



FUTURE MOVEMENTS AND SIGHTINGS OF FROZEN CAN BE FOLLOWED HERE: HAPPYWHALE.COM/INDIVIDUAL/74366

WHALES AND THEIR HOMES NEED MORE PROTECTION. LIKE FROZEN – A HUMPBACK LEFT PERMANENTLY SCARRED AFTER SURVIVING A SHIP STRIKE.

BUT WHERE IN THE OCEAN NEEDS PROTECTING? HOW CAN WE MAKE LASTING, EFFECTIVE CHANGE?

IN 2013, A SPECIAL TASK FORCE WAS SET UP TO ADDRESS THIS PROBLEM. BEFORE LONG, HUNDREDS OF SCIENTISTS AND RESEARCHERS JOINED TO HELP.

IN AN INCREDIBLE FEAT OF TEAMWORK, THE IMPORTANT MARINE MAMMAL AREA (IMMA) E-ATLAS WAS CREATED TO DRIVE CHANGE.

HERE IS THE STORY OF HOW THIS CAME TO BE – AND HOW WE CAN ALL USE IT TO MAKE A HEALTHIER OCEAN FOR WHALES AND HUMANS.