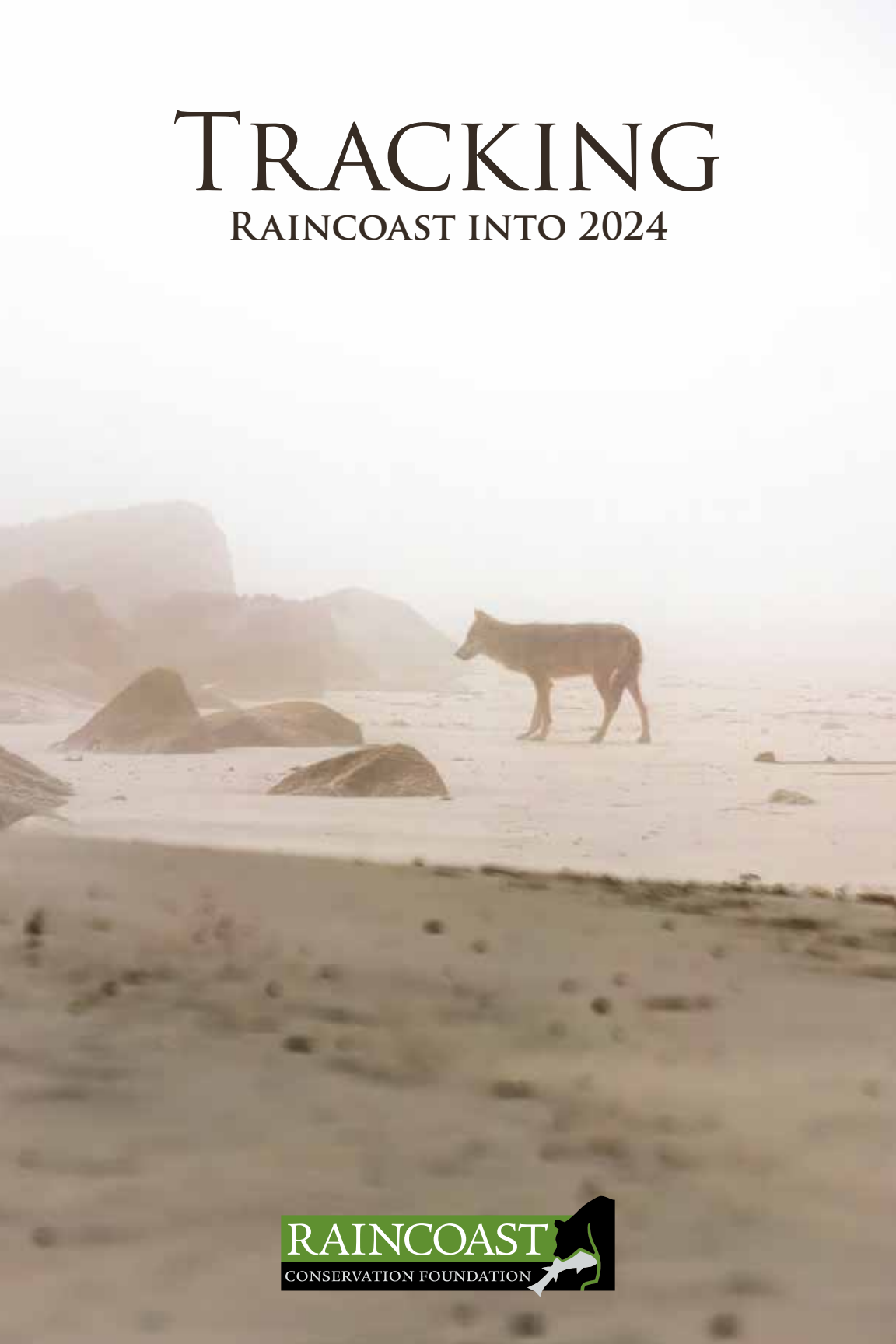
Tracking

Raincoast into 2024



RAINCOAST
CONSERVATION FOUNDATION

Investigate. Inform. Inspire.

Raincoast Conservation Foundation is a team of scientists and conservationists dedicated to safeguarding the lands, waters, and wildlife of coastal British Columbia.

Our vision for coastal British Columbia is to protect the habitats and resources of umbrella species. We believe this approach will help safeguard all species, including people, and ecological processes that exist at different scales. To further this goal, we operate a research lab at the University of Victoria, a conservation genetics lab, and run a 68-foot Transport Canada certified research/sailing vessel, *Achiever*. Central to our efforts are long-standing relationships with Indigenous communities.

Our mandate

We investigate to understand coastal species and processes.

We inform by bringing science to decision makers and communities.

We inspire action to protect wildlife and their habitats.

Cover photo by Simon Ager.

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Our shared future

FROM THEIR POSITION at the apex of the natural world, large carnivores, such as wolves, bears, and cougars, play important and unique roles. Relative to their abundance, these predators have a disproportionate influence on the environments they inhabit. Changes or fluctuations in their populations can cascade and reverberate through the landscape, affecting other species and the resilience of entire ecosystems.

Consequently, the widespread decline in numbers and distribution of large carnivores has triggered the loss and reconfiguration of biological diversity in habitats around the world.

The future of large carnivores and the integrity of landscapes they embody depend on science-informed management and policy decisions. Because large carnivores must be conserved in an increasingly human dominated world, a systematic and rigorous approach to their conservation must integrate their necessities for food and habitat with the social and economic aspirations of humans. Spanning geographies, governments, and the science-policy gap, Raincoast's research programs deliver on our commitment and passion of consequential outcomes for large carnivores, people, and places.

Accordingly, in new work with the Heiltsuk Nation, Raincoast Lab researchers are assessing the response of predators and their prey to industrial clearcut logging. Supported by an array of remote cameras, our new research evaluates how logging has affected grizzly and black bears, wolves, cougars, and deer, all species that are culturally and ecologically important to the Heiltsuk. The information will inform long-term and landscape scale planning by First Nations, provincial, and federal governments as it relates to logging and habitat protection.

Emphasizing wolf recovery in the Lower Mainland of British Columbia and US Pacific Northwest, we have also extended our work on predators to a tributary of the Fraser River. In collaboration with the local First Nation, we are using cameras and acoustic recorders to understand human/wolf interactions, including ongoing effects of commercial forestry.

In addition to our research, we also advance greater protection for large carnivores through active conservation measures such as our novel commercial trophy hunting tenure acquisition program. Take a look at the Safeguarding Coastal Carnivores feature and please consider investing in this transformative initiative on the BC coast.

Paul C. Paquet, PhD
Senior Scientist, Carnivore Specialist

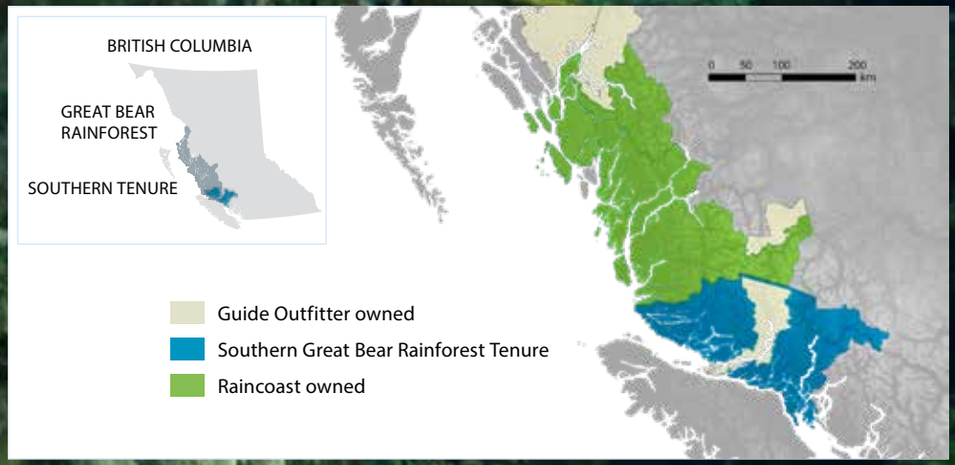
Permanent protection for carnivores in the Southern Great Bear Rainforest

MOVING FROM a coastal economy centred around resource extraction to one based on conservation, we started acquiring commercial trophy hunting tenures in 2005. Through our Safeguarding Coastal Carnivores program, we have been purchasing commercial trophy hunting tenures with the support of local First Nations and coastal ecotourism operators.

The five tenures we have already purchased cover more than 38,000 km², an area the size of Belgium, and have effectively ended commercial trophy hunting within those regions in perpetuity.

We are in the process of completing our sixth acquisition, the Southern Great Bear Rainforest tenure. At 18,239 km², it comprises a quarter of the Great Bear Rainforest and contains significant populations of grizzlies, cougars, black bears, wolves, and Roosevelt elk. Its spectacular geography includes six major coastal inlets, over ten major river systems with vital estuaries, and countless smaller named and unnamed watersheds that support salmon ecosystems. This purchase also strengthens the new conservation economy, as there are more than 19 ecotourism companies who rely on thoughtful and informed wildlife viewing.

It's one of our biggest tenures to date and our largest financial goal thus far; with your help we can complete this acquisition by the end of 2023.



Bridging science and ethics

SINCE 2022, WE HAVE been documenting the recolonization and recovery of wolves in a tributary of the Fraser River. Our focus is on the movements and behaviour of both individuals and packs in relation to the presence of other large carnivores, the abundance of their prey, and human influences such as roads and industrial forestry. Looking to 2024 and beyond, the data collected will be used to inform an Indigenous-led, holistic watershed approach to habitat restoration and conservation.

Information generated from long-term research and monitoring will also contribute to a broader study of wolves that is using minimally invasive research methods. This includes the use of fecal analyses to assess the genetic history, food choices, and seasonal diets of the wolves.

Using cameras, we have been able to identify and monitor individual wolves from their unique facial and pelage markings. In 2024, we will assess the responses of wolves (and other detected wildlife) to various market versions of commonly used motion-activated cameras. While we might assume that trail cameras don't have an effect on wildlife, this is an assumption. Our observations indicate that wolves are aware of the presence of cameras. The results from this study will provide insights into potential welfare implications of the tested camera models, particularly for field researchers and hobbyists who aim to adopt humane approaches for monitoring wildlife.

Beyond research, we have long recognized the need to bridge science and ethics in the work we do on behalf of wolves. In the spring of 2023, we launched the second season of *Wolf School*. In partnership with the US-based Wolf Conservation Center, we hosted a range of experts to explore the inextricable link between science and ethics in wolf research, policy, and conservation. We also kicked off a new series called *Wolf Stories* that aims to stimulate conversation and improve public understanding about the lives of wolves, and how environmental ethics should inform wolf management and conservation. We continue to expand this platform by including and valuing a diversity of perspectives on these issues.

The next generation of conservation scientists

WHERE WILL THE conservation scientists, managers, and informed advocates of tomorrow come from?

That's a question we've been considering since the early days at Raincoast. The future of life on the coast will depend on their important work.

We understand that our own careers and contributions to conservation are – let's face it – finite. And we know that there are generations after us who are keen to continue what we shaped from those before us. Accordingly, we have built into our work a major investment in the conservationists of tomorrow.

One way Raincoast commits to the next generation of conservationists is through the Applied Conservation Science Lab. It's a one-of-a-kind university laboratory that provides mentorship in conservation science and policy. Based at the University of Victoria, and supported by a Chaired Professorship in Raincoast's name, the lab's team is comprised of undergraduate to postdoctoral trainees.

Our graduate students ('Raincoast Fellows') are a driving force behind much of Raincoast's applied research programs. They confront important and urgent conservation problems and opportunities in coastal BC. Often working in support of Indigenous governments, their research generates key evidence on which policy-makers draw. In a complementary way, our students also engage in education and outreach, technical processes at policy tables, and more. Such a comprehensive learning-by-doing model demands more of our graduate students compared to the typical experience of graduate school. But, in return, they receive an extraordinary education at the intersection of academia and the real world.

Raincoast also benefits enormously from the lab; the university environment provides tremendous resources. Our investments into student researchers, for example, are often matched or exceeded by federal fellowships. Also, Raincoast Fellows are embedded in an institution that offers significant intellectual and logistical support to allow them to conduct the highly ambitious projects for which we are known. Perhaps most importantly, Raincoast Fellows have one another; our highly collegial team, united by the dedication and passion of its members, assist, empower, and inspire one another towards extraordinary work.

As they graduate with MSc or PhD degrees, Raincoast alumni continue to make a difference. They tend to be highly sought by employers and secure meaningful work. Several serve Indigenous governments; others are hired by federal and provincial governments. Some engage their skills as environmental consultants; yet others become professors themselves. Many stay involved with Raincoast in their new capacity, weaving new connections across the extended Raincoast team and our ever-growing influence.

Conservation in the coast's most at-risk forest type

AFTER TWO SUCCESSFUL forest acquisition campaigns in two years, Raincoast became a land trust in 2023. We currently co-own and manage two conservation properties on S,DÁYES, Pender Island, in W̱SÁNEĆ Territory, in partnership with the Pender Islands Conservancy (the 13 acre S,DÁYES Flycatcher Forest and 45 acre KELÁ_EKE Kingfisher Forest).

Because land protection and ecological restoration are not static endeavors and require ongoing monitoring and adaptation, we are developing restoration and management plans for both forests. Our goal is to enhance ecological integrity, increase climate resilience, reduce wildfire risk, and integrate Indigenous Knowledge.

To support this work, we established the Raincoast Restoration Fund in 2023. We also have been granted the ability to write and hold conservation covenants. This means in the year ahead we will be working to expand our land protection purview to privately held lands in other vulnerable areas of the Coastal Douglas-fir biogeoclimatic (CDF) zone.

We continue collaborating with the W̱SÁNEĆ Leadership Council on the ȻENEN̓ITEL (Working together to restore our lands and culture) project. This initiative aims to apply Indigenous-led climate solutions to improve biodiversity, carbon sequestration capacity, and ecosystem resilience.

Valuable resources to aid individuals, fellow organizations, and governments in participating in forest protection work within the CDF zone were also produced this year. The *Project TEACH Report*, published in April 2023, identifies gaps between knowledge and action in environmental decision-making. The collaborative report between Raincoast and Transition Salt Spring, *Fire risk reduction in the Coastal Douglas-fir biogeoclimatic zone: A practitioner's report*, was published in September 2023 as a living document, intended to evolve alongside the best available science and provide guidance on how to manage wildfire risk in the CDF zone. The *Story of the CDF* series continues to grow, with new expert perspectives being added regularly.

Gathering with W̱SÁNEĆ community at KELÁ_EKE Kingfisher Forest.

Our wild dream: Wild salmon in wild rivers

Illustrations are from Raincoast's animated video series on wild salmon recovery.

OUR WILD SALMON Program works to ensure self-sustaining populations of wild salmon returning to wild rivers. By working towards ecosystem-based management goals for wild salmon, we ensure that all who depend on healthy wild salmon populations–local communities, wildlife, ecosystems–thrive into the future.

Fisheries

Raincoast's fisheries work takes place within scientific, political, and public arenas to advance salmon management and fisheries decisions that consider wildlife and ecosystems. Each year begins with assessing fishery impacts in the previous season; this requires technical analysis of catches, exploitation rates, hatchery initiatives, harvest models, and proposals for new management approaches. Where these activities are deemed not sustainable, we advance better approaches for the upcoming year. We work in collaboration with our First Nations partners and fellow Marine Conservation Caucus member organizations. We also engage federal and provincial governments on multiple issues relating to salmon recovery, hatchery reform, and fisheries management.

Policy and governance

Our policy work focuses on restoring ecological governance to the Lower Fraser River. This means moving away from viewing wild salmon purely through an economic lens and towards a decision-making framework that prioritizes the value wild salmon bring to ecosystems.

This year, we authored a report outlining pathways towards ecological governance in the Lower Fraser River, submitted expert briefings to federal panels on salmon management, and published an open letter in the journal *Science* opposing more salmon habitat destruction at Roberts Bank through the Terminal 2 expansion project.

Going to court

Over the last five years, Raincoast has participated as an intervenor in the review of the proposed Roberts Bank Terminal 2 shipping terminal expansion. Despite the conclusion by the Canadian Environmental Assessment Agency that constructing the project would harm Southern Resident killer whales, populations of Fraser Chinook salmon, and many other at-risk species, the federal government approved the project in April of 2023. In May, Raincoast and our co-petitioners, represented by Ecojustice, filed an application for a judicial review in the Federal Court, challenging the decision to approve the project.

Public outreach

Our team published numerous opinion pieces, and did interviews with media outlets and for documentaries. We also gave webinars and conference presentations, and led media events, all aimed to help the public understand the importance of restoring wild salmon to ecosystems and communities.

Restoring habitat, restoring connectivity in the Fraser River Estuary

IN 2023, RAINCOAST continued to restore connectivity in the Fraser River Estuary by placing our second breach into the jetty on the Fraser River's North Arm. Our work here builds on the three breaches that we previously constructed on the Steveston Jetty. These openings provide juvenile salmon with access routes to important rearing habitat on Sturgeon Bank, originally cut off about a century ago by jetty construction.

We also continued to monitor our breach locations to assess their effectiveness for fish passage. We found high rates of passage through the breaches by juvenile Chinook and chum salmon, with peak rates of over 700 juvenile chum per hour in April. Juvenile Chinook passage peaked in May when we observed over 100 juvenile Chinook per hour passing through the breach. We also captured a small number of juvenile sockeye moving through the breach in May. Overall, this was a large increase in passage rates and demonstrates the effectiveness of this multi-year project, which we are looking forward to adding to with a second breach location in the North Arm Jetty in 2024.

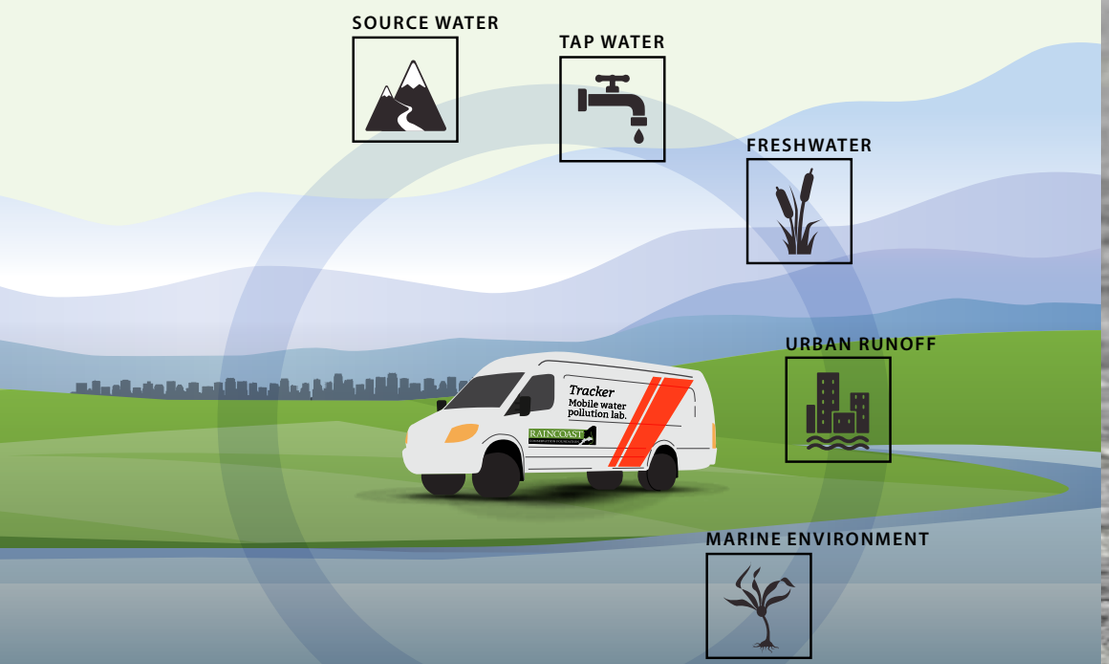
We also began a partnership with Ducks Unlimited and the Lower Fraser Fisheries Alliance to conduct research and restoration at artificially created marshes in the Lower Fraser. We have been investigating juvenile salmon usage and assessing other ecological indicators to identify ways to improve the usefulness of these sites for juvenile salmon.

Our mobile lab, *Tracker*

A NOTABLE DEVELOPMENT in our Healthy Waters Program is the acquisition of a cargo van in late 2023, which will serve as a platform for our community-oriented, mobile water pollution monitoring lab. The interior design and build will take place in early 2024 with the goal for *Tracker* to be sampling in watersheds in summer 2024, once funding is fully secured.

In BC there is currently no standardized, high quality water monitoring across jurisdictions, limiting our understanding of emerging pollution concerns, and curtailing our ability to protect water and fish habitat. *Tracker* will fill this gap and will be available for regular onsite water quality assessments. It will also be available to act quickly in events and emergencies like oil and chemical spills.

This unique mobile lab capacity will serve as the cornerstone of the Healthy Waters Program, and will work alongside First Nations and other communities to deliver capacity, learning, and training. It will be equipped with laboratory instrumentation so the *Tracker* team can deliver insight into pollutants of concern in local watersheds, and contribute to solution-oriented practices within watersheds.



Support what you love

Your tax-deductible donations power our research and advocacy. To support our work, you can:

- Become a monthly donor
- Send an electronic fund transfer (EFT)
- Send an e-transfer
- Donate stocks
- Add Raincoast to your legacy giving plans
- Mail a cheque

Please reach out to our Development Director with questions.

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Building capacity to better protect water

OUR HEALTHY WATERS Program is transitioning from an idea into an exciting community-oriented water pollution monitoring initiative. We have been developing sampling protocols, acquiring field instruments, and working with our new watershed partners. During the summer, the Healthy Waters team conducted its first in-depth field study, in partnership with the Whistler Lakes Conservation Foundation, as part of our two-season approach ('dry' and 'wet' seasons) to characterize contaminants of concern in the waters draining into the Cheakamus River and Howe Sound. Over 200 water samples were collected for analysis by partnering service labs.

Several other watershed partnerships are in development, offering communities and organizations the opportunity to not only learn about local water quality conditions, but also learn from the experiences of those in other watersheds. We are committed to generating water quality data that enables a ranking of pollutant types and sources, and empowers solution-oriented stewardship actions.

Conversations with First Nations and other communities have highlighted the concerns about the health of local watersheds. We look forward to building relationships, improving community stewardship, and answering questions about how we can better protect water.

Place-based, youth centred learning

THE SALISH SEA EMERGING Stewards Program is an innovative science and leadership initiative delivering hands-on environmental education to Indigenous and underserved youth. Combining outdoor and online learning through the lens of "Two-Eyed Seeing," the program aims to inspire and empower the next generation of conservation leaders.

This year, we guided several multi-day expeditions aboard SV *Achiever* through the Gulf Islands with Indigenous youth. These experiences are an opportunity for participants to explore their territories, immerse themselves in coastal ecosystems, learn about stewardship, and participate in cultural activities such as drumming and singing.

We delivered land-based learning for Tsawwassen First Nation youth, which culminated in the fourth year of our summer stewardship program, and weekly spring activities with our new partner, the Red Fox Healthy Living Society in Vancouver. We also partnered with other organizations, as well as Raincoast's Healthy Waters, Wolf Conservation, and Forest Conservation programs, to provide learning on a wide range of topics that connected youth with scientists.

We look forward to growing our program in the coming year by providing new learning opportunities, offering *Achiever* expeditions to new partners, and developing and publishing new online learning resources.

Science and education on the water

ACHIEVER IS RAINCOAST'S magic carpet to remote working environments. While it ensures our safe and comfortable passage, *Achiever* needs ongoing care to provide this service. In the winter of 2023, *Achiever* spent a month in the shipyard having some internal tanks recoated and a new desalination system (water maker) installed before diving back into seabird surveys with Environment and Climate Change Canada. This has been the busiest year for *Achiever* to date. In the spring, we hosted various youth trips in the Salish Sea, and then sailed to the central coast to continue our long time support for the Qqs Projects Society's Koeye Camp.

After more seabird surveys in the summer, *Achiever* supported Raincoast's Cetacean Conservation Research Program to conduct photogrammetry research on Northern Resident killer whales and humpback whales. In the fall, additional youth expeditions, "hunts" (using only cameras!), and engagement trips were organized.

Overall, *Achiever* covered over 15,000 nautical miles in 2023!

In 2024, *Achiever* will keep up the pace set in 2023 with more seabird surveys, cetacean research, and the monitoring of our hunting tenures. As *Achiever* nears its 20 year anniversary as Raincoast's research vessel, the marine operations team is planning improvements to the vessel's systems to power it into 20 more years of leading edge research and conservation on the BC coast.

Flying drones below 1000m over whales without a permit is illegal. Raincoast's whale research is conducted under SARA Research License XMMS-2-2022.

SV *Achiever*: 20 years of conservation, research, and outreach

1989

Achiever was built in New Zealand and worked in the Arctic supporting wildlife conservation.

2003

Raincoast purchases *Achiever* and begins sea lice research, wolf research, and a scoping expedition with National Geographic for the documentary film, *Last Stand of the Great Bear*.

2004

Achiever embarks on five years of Raincoast's seminal coast wide marine surveys for mammals and birds.

2005

Led by captain Brian Falconer, *Achiever* refit begins – a massive project and a small miracle. Raincoast charters *Gwaii Haanas* for continuing marine mammal surveys.

2006

After an 18 month refit, *Achiever* is relaunched in July. The boat heads north to the Koeye River for the opening of the Big House and youth camp, and then on to continuing marine mammal surveys and monitoring our first commercial hunting tenure.

2006

Achiever assists with BBC's Planet Earth documentary.

2007-2008

Achiever supports BBC's Earth's Great Events documentary and their episode the Great Salmon Run.

2009

Achiever chartered by Fisheries and Oceans Canada for ongoing cetacean surveys focussed on endangered fin whales.

2009-2010

Achiever supports NHK (Japan's national public broadcaster) to film documentaries on humpback whales and coastal wolves.

2010

Achiever begins joint study with the Institute of Ocean Sciences to understand currents using bottles and drift card drops.

2012

Achiever hits the waves on the *Groundswell* film project with Patagonia, uniting conservationists, surfers, and communities opposing the proposed Northern Gateway pipeline and tanker project.

2013

Achiever is the backbone of the Art for an Oil free Coast expedition that brought 50 artists to the Great Bear Rainforest to draw attention to the Northern Gateway project. National and international outreach included a film, book, art shows, and events.

2016

Raincoast establishes Salish Sea Emerging Stewards Program, expanding our at-sea youth education expeditions with local Indigenous communities.

2016

Achiever marks ten years of service and undergoes major refit led by captain Nick Sinclair.

2020

Drew Grav-Graham joins Raincoast as Marine Operations manager and *Achiever* captain, expanding an amazing crew complement and beginning seabird surveys with Environment and Climate Change Canada.

2022

Overhaul of the onboard water storage/desalination system to expand *Achiever*'s range trip.

2023

Achiever hosts Raincoast's first season of whale photogrammetry research with the Cetacean Conservation Research program.

2006-2023

Achiever monitors our five commercial hunting tenures that protect large carnivores.

2024

We are planning *Achiever*'s 20 year refit to make it quieter and more energy efficient.

The lives and language of whales

THE CETACEAN CONSERVATION Research Program studies the biology, ecology, and behavior of whales and dolphins. As scientists, the questions we ask are designed to improve our efforts to ensure good living conditions for these mammals (their habitat) and improve their resilience in the face of a growing list of anthropogenic threats.

Ears below and eyes above the water: Livestream from Pender Island

In 2023, we installed a permanent monitoring station that hosts an underwater hydrophone and above water video camera on the southwest shore of Pender Island. This area of the Salish Sea was chosen because of its importance to members of the endangered Southern Resident killer whale population as a frequently used place to forage for salmon. Because of its value to the Southern Residents, the area has been designated as a seasonal Interim Sanctuary Zone (ISZ) by Fisheries and Oceans Canada.

This station will allow us to identify the presence of whales in real time by listening for their characteristic vocalizations (calls, clicks, squeaks, and whistles), save the recordings to analyze the calls, and evaluate underwater noise levels over time. It will also allow us to monitor vessel violations, increase incident reporting and compliance, and to livestream both whale vocalizations and videos to the public through our Raincoast Whale Sanctuary Livestream.

Eyes in the sky: Aerial photogrammetry

We completed another year of our annual monitoring program to assess the health of whales. Each year, we take aerial photos of individual Resident killer whales with minimally invasive drones. We then use photogrammetry to accurately measure the whales' body condition and growth rates, and to determine whether they are pregnant. Our measurements, compared with data available since 2014, provide a direct indication of the whales' nutritional status, and allow us to draw reliable inferences about their overall health. This research has become invaluable in allowing us to link salmon abundance with the whales' reproduction and survival.

NoiseTracker

NoiseTracker is a collaborative acoustic monitoring initiative that aims to tackle one of the most pervasive threats to our oceans: noise pollution. NoiseTracker participant organizations include non-profits, First Nations stewardship associations, government agencies, and private companies. We plan to launch NoiseTracker's online platform in 2024 to inform the public about underwater noise generated by boats, ships, and other human activities, and secondly to empower governments, industry, communities, and organizations to make decisions and enact policies to reduce its impacts on marine animals.

The songs of humpback whales

Humpback whales sing elaborate songs that are learned socially, are culturally transmitted, and gradually evolve year to year. Little is known about the extent to which song practice is shaped by habitat use, social interactions, and vessel noise. This gap will be addressed through a collaborative study with the North Coast Cetacean Society that will use historical and current recordings of humpbacks from a network of hydrophones across North Pacific feeding grounds. Our goal is to investigate song development, and to measure the impacts of underwater noise on seasonal song development.

Secrets from DNA: Our new Conservation Genetics Laboratory

2023 SAW US LAUNCH our Conservation Genetics Lab, an integral part of Raincoast's efforts to protect the land, waters, and wildlife of coastal BC. The DNA and RNA analysis we perform provides our scientists with reliable insights into the population structure, health, diets, resilience, and genetic isolation of coastal species. The lab works closely with our Cetacean Conservation Research Program and also helps answer important questions for our other conservation initiatives.

Sequencing genomes of species has become increasingly possible. We recently sequenced the entire genomes of 141 Northern Resident killer whales to get a wide range of information on their levels of inbreeding, genetic diversity, and immune system strength. We are comparing the information in this dataset to a similar one for Southern Resident killer whales compiled by NOAA in the United States. The findings will give us insight into the comparative health of these important fish-eating populations of killer whales. We are also finalizing a study on the level of inbreeding in Bigg's killer whales, which will inform our understanding of similarities and differences between North Pacific killer whale populations.

In the coming year, we will be using DNA found in killer whale fecal matter to uncover new insights about their prey, including identifying the specific stocks of salmon they feed on. To date, we have already found evidence of some interesting non-salmon fish in their diet. We will also be using genetics to find the links between stressors and contaminants, and genetic changes that occur in response.

Science publishing

TOGETHER, MEMBERS of the Raincoast team have authored hundreds of peer reviewed papers. This year, we published four reports and six peer reviewed articles.

Shukla I, Gaynor KM, Worm B, Darimont CT. The diversity of animals identified as keystone species. Ecology and Evolution. 2023;13(10). doi:10.1002/ece3.10561

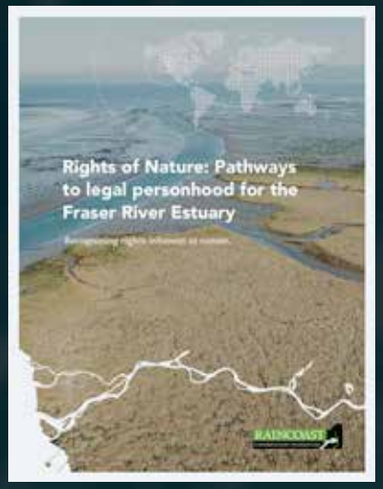
MacDuffee M, Barrett-Lennard L, Chhor A, Dennert AM, Ross PS, Scott DC, Vergara V, Walters K. Will Canada permit killer whale extinction? Science. 2023;380(6652):1330. doi:10.1126/science.adi5984

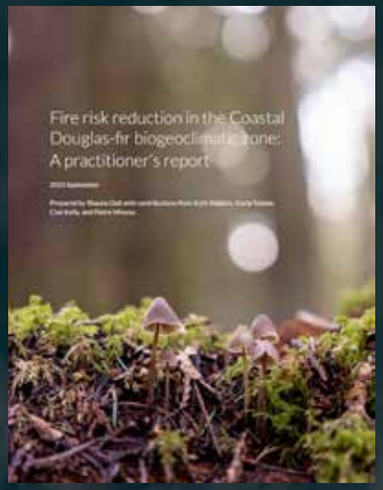
Darimont CT, Cooke R, Bourbonnais ML, Bryan HM, Carlson SM, Estes JA, Galetti M, Levi T, MacLean JL, McKechnie I, et al. Humanity's diverse predatory niche and its ecological consequences. Communications Biology. 2023;6(1). doi:10.1038/s42003-023-04940-w

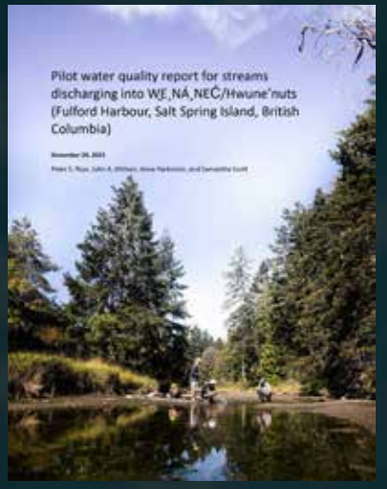
Couture F, Oldford G, Christensen V, Barrett-Lennard L, Walters C. Requirements and availability of prey for northeastern pacific southern resident killer whales. PLOS ONE. 2022;17(6). doi:10.1371/journal.pone.0270523

Dennert AM, Elle E, Reynolds JD. Experimental addition of marine-derived nutrients affects wildflower traits in a coastal meta-ecosystem. Royal Society Open Science. 2023;10(1). doi:10.1098/rsos.221008

Aubin JA, Mikus M, Michaud R, Mennill D, Vergara V. Fly with care: belugas show evasive responses to low altitude drone flights. Marine Mammal Science. 2023;39(3):718-739. doi:10.1111/mms.12997







Tracking Raincoast artists and photographers

Simon Ager
Cover (wolf)

Nathan deBruyn
15 (Pacific white-sided dolphins)

Taylor Green
6-7 (grizzly bear)

Alex Harris
4 (scientists checking trail cameras), 8-9 (Red-legged frog), 9 (scientists walking through forest; salmon cooking on fire), 13 (Chelsea Greer and Dave Scott), 16-17 (Peter Ross), 18-19 (*Achiever*), 19 (drone taking off), 24-25 (Adam Warner), 30-31 (mushrooms)

John Kelsey
i-iii (killer whales) 18 (youth on zodiac), 20-21 (*Achiever*)

Persia Khan
6 (scientists checking trail cameras)

Jeremy Koreski
28 (Brian Falconer), 29 (surfer)

Michael A. Mann
10-11 (salmon scene), 12 (estuary scene)

Raincoast Conservation Foundation
iv (cougars), 4 (wolves), 22-23 (humpback, taken under SARA Research License XMMS-2-2022), 26-27 (killer whales, taken under SARA Research License XMMS-2-2022), back cover (killer whales, taken under SARA Research License XMMS-2-2022)

Jeff Reynolds
2-3 (wolves)

Dene Rossouw
5 (wolf)

Connor Stefanison
iv-1 (grizzly bear)

Thanking Patagonia

WE WOULD LIKE to celebrate one of our longest-standing and most stalwart supporters, Patagonia. From yearly granting assistance, to gear donations, to filmmaking collaborations, Patagonia's contribution to making Raincoast's work possible has been extraordinary.

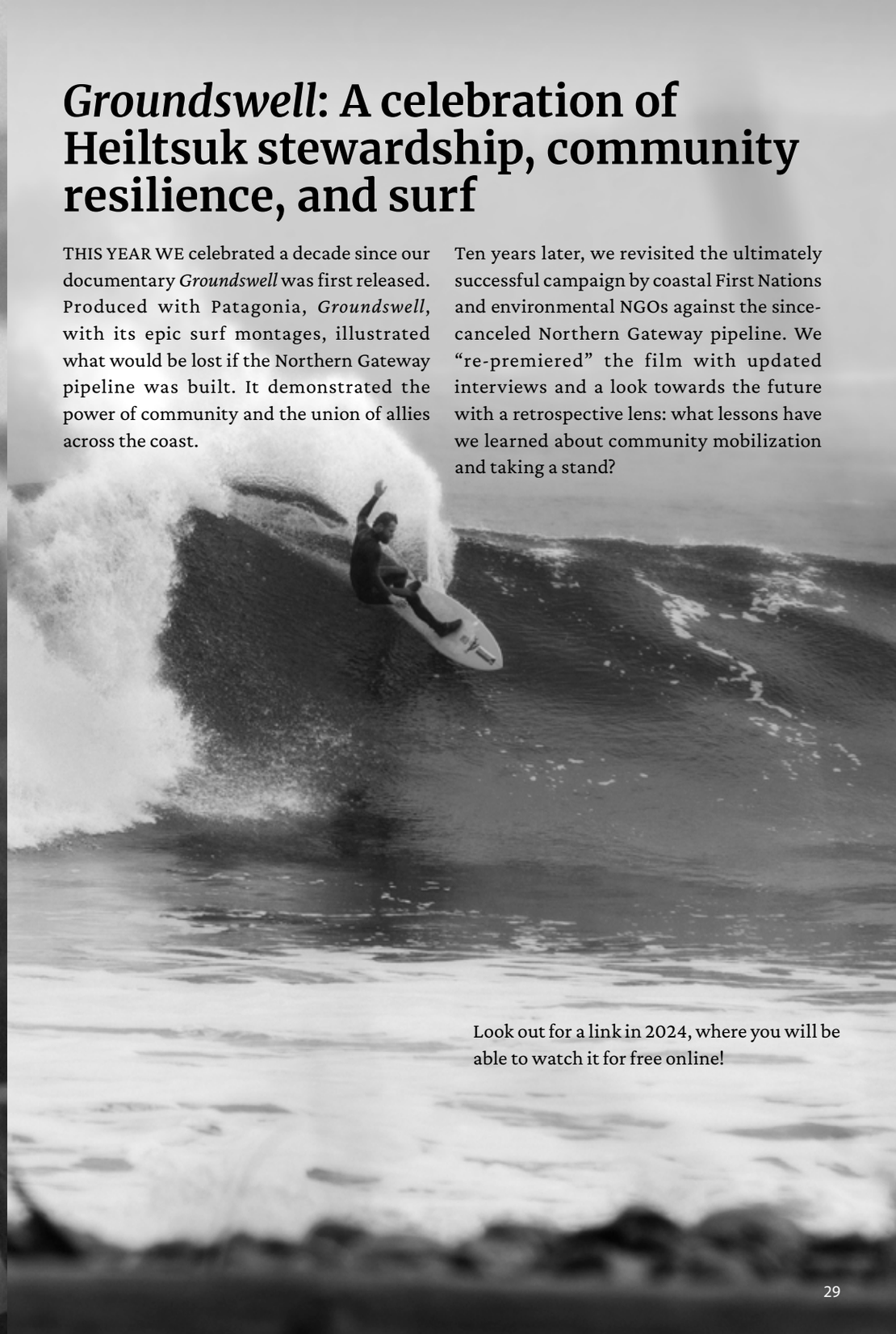
We are inspired by the principles by which they operate and are immensely grateful for their support and commitment to "saving our home planet."

patagonia®

Groundswell: A celebration of Heiltsuk stewardship, community resilience, and surf

THIS YEAR WE celebrated a decade since our documentary *Groundswell* was first released. Produced with Patagonia, *Groundswell*, with its epic surf montages, illustrated what would be lost if the Northern Gateway pipeline was built. It demonstrated the power of community and the union of allies across the coast.

Ten years later, we revisited the ultimately successful campaign by coastal First Nations and environmental NGOs against the since-canceled Northern Gateway pipeline. We "re-premiered" the film with updated interviews and a look towards the future with a retrospective lens: what lessons have we learned about community mobilization and taking a stand?



Look out for a link in 2024, where you will be able to watch it for free online!

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RAINCOAST
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