



RESEARCH | MONITORING | EDUCATION

# ANNUAL REPORT

2021



2020-2021 ANNUAL REPORT

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**IN 2021 SIMRS  
CELEBRATED OUR 30  
YEAR ANNIVERSARY**

Of Research, Education and  
Response in Clayoquot and  
Barkley Sounds

 Karyssa Arnett

## A Message from Karyssa Arnett

Executive Director

It has been an honour and a truly humbling experience to bring Strawberry Isle Marine Research Society into its 30th year of operation. My two years of running the society seems like a blip in comparison, but when I look at all that we've accomplished this year despite the adversities and challenges, I am overwhelmed with pride. Pride for our small team of staff, our supportive board of directors, our dedicated volunteers, and for our community as whole. We all worked together (despite a global pandemic) to persevere and make positive impacts in the world around us - well done us!

By "rolling with the punches" so to speak, we were able to maintain, revive, and even expand our research, monitoring, and education initiatives on the West Coast of Vancouver Island in 2021. We completed our 7th consecutive year of sea star wasting monitoring, engaging twice as many volunteers than the year prior, and adding two new survey sites. With SIMRS staff members spending more time on the water,



to expand our focus and range to include other whale species throughout and between Clayoquot and Barkley Sounds. Our dreams of reviving our pelagic transect surveys became a reality thanks to being awarded the Biosphere Research Award by Clayoquot Biosphere Trust. Rod's stories and findings from these initial marine bird and mammal surveys has always been such an inspiration for me. I'm thrilled to have the opportunity to carry on this legacy project, now decades later as our oceans continue to change rapidly.

SIMRS role in marine mammal rescue and response remains strong, as we helped respond to several incidents in our region. In 2021, we assisted in seal and sea lion live rescues, whale disentanglement response, and responding to some unique deceased animals including a rare Risso's dolphin and a baby Gray whale.

Ocean education has always been at the

we were able take an active role in whale monitoring and data collection. Although Bigg's Killer Whales have always been our focus, we were able

heart of SIMRS programs and projects. This year we adapted our education initiatives to be a mixture of our typical hands on, in-person programs and new virtual experiences and learning opportunities. Our new Ocean Literacy program reached hundreds of students in its first year, and we partnered with a variety of organizations to host virtual talks, StoryMaps, and videos to share our research and knowledge to a much wider audience. Build-A-Whale also made it's grand return after some TLC and was shared with hundreds of visitors on the mainland at the Britannia Mine Museum. We also got to spend valuable time in the field with local students from Ucluelet Secondary School, sharing some memorable moments on the coast together.

A highlight for me this year, was our 30th Anniversary Fundraiser. Not only did we raise essential operating funds, but we had a blast cruising the coast with delicious food and drinks, live music, and even sunshine! I cannot express enough my gratitude for everyone who supported this event and our silent auction, it was truly heartwarming to see how many people cared for the work we do. I am excited to see what 2022 has in store for us and what we will continue to learn about our oceans.

## OUR MISSION & PURPOSE

Strawberry Isle Marine Research Society (SIMRS) is a registered charity and non-profit organization based in Tofino, British Columbia. Since 1991, SIMRS has been dedicated to conducting long-term research and monitoring, providing marine mammal emergency response, and educating the public about marine ecosystems in Clayoquot Sound and beyond.

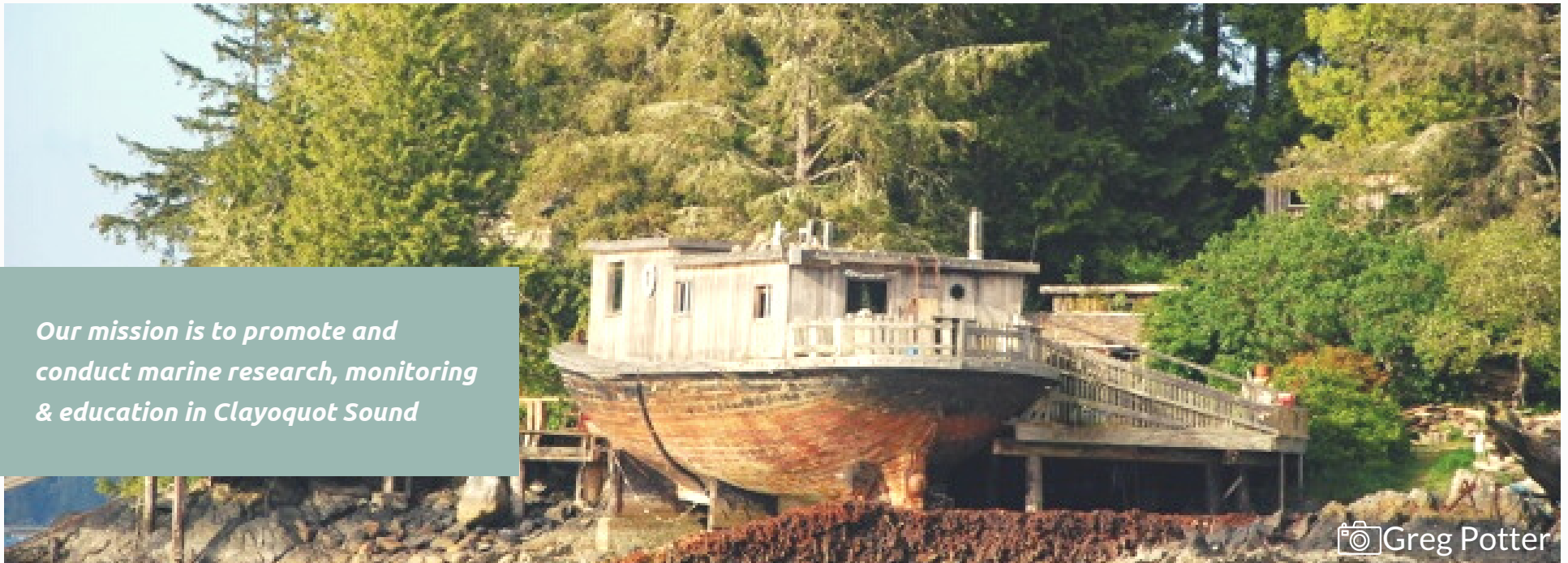
The purposes of the Society are to:

- a. Conduct primary research in local marine ecosystems;
- b. Establish long-term monitoring of the unique marine life in Clayoquot Sound;
- c. Increase regional capacity for marine mammal emergency response;
- d. Promote citizen science and stewardship of marine ecosystems;
- e. Support other researchers and organizations dedicated to ocean conservation.

Registered Charity BN#: 890584543 RR0001

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*Our mission is to promote and conduct marine research, monitoring & education in Clayoquot Sound*



## Sea Star Stewardship Program

### Overview

The Sea Star Stewardship Program (SSSP) is one of our longest running projects, and is continuously evolving. The SSSP is a citizen science project, engaging volunteers in outdoor experiential learning to monitor the health of intertidal ecosystems along the British Columbia coastline. This project is performed with a network of partners, primarily guided by the [Multi-Agency Rocky Intertidal Network \(MARINe\)](#). Together we provide researchers with long-term data of intertidal ecosystems, focusing on the prevalence of Sea Star Wasting Syndrome (SSWS). In recent years, a major focus of the project is to educate and mentor youth, expand regional awareness of SSWS and importance of intertidal ecosystems, and to encourage local stewardship and conservation actions.

### Survey Results & Methodology

SIMRS, partners, and volunteers surveyed a total of 7 site locations between May and August in 2021. These sites included:

Ucluelet Aquarium, He-Tin-Kis Park, Stockholm Island, Stone Island, Frank Island, Tonquin Beach and Rosie Bay.

In 2021 we counted **8,280** sea stars across our 7 sites, of which **3,280** were healthy, **181** were mildly diseased and **133** were severely diseased. Of the total, **4,686** were considered <100% visible, and therefore were removed from disease analysis since their health category could not be noted with confidence.

This year, all 7 of the survey sites had wasting syndrome present, with both mild and severe symptoms observed across almost all sites. Stone Island and He-Tin-Kis had no severe cases present, however higher levels of wasting disease were observed at other sites when compared to previous years. The highest prevalence of the disease for 2021 was seen at Rosie Bay, with **19.12%** of the visible population with symptoms of wasting. Tonquin however had a lower disease rate, with SSWS in **7.62%** of the visible population. **Overall, 8.74% of the total population of visible stars surveyed (across all locations) had Sea Star Wasting Syndrome in 2021.** In contrast, about 5% were seen as wasting across all sites in 2020.



With a higher percent of individuals with signs of wasting within a larger sample size for 2021, it appears there is slightly higher levels of SSSWS present compared to the previous year.

The methods and protocols of this project are based on those of the Multi Agency Rocky Intertidal Network and the Pacific Rocky Intertidal research group at the University of California Santa Cruz (USCS). Designated intertidal sites are surveyed at low tide (<0.7m) once a month between May and August every year.

Each sea star within the site is counted, identified to species, measured, and assigned to a specific disease category. Sea stars are measured from the center of the disk on their top side to the end of their arm to the nearest 10 mm.

Disease categories include: “Healthy”, “Mild” wasting and “Severe” wasting. If the animal isn't fully visible it is categorized as <100%.

Environmental parameters are also recorded including tide height, water temperature, pH, and salinity.

All the recorded data is synthesized at the end of the season and forwarded to the Multi-agency Rocky Intertidal Network, joining the North American database.

## Education & Stewardship


2021 saw SIMRS add more elements to our community stewardship and increase our volunteer participation. Over the field season we had a total of 43 volunteers (17 of which were repeat volunteers)

contributing a total of roughly **107 hours**. The majority of the volunteers were undergraduate university students for whom the SSSP offered them their first introduction to field work, data collection and provided them the opportunity to develop their skills as educators by teaching new volunteers on site. Through the SSSP we provided a variety of mentorship and learning opportunities for children and youth interested in STEM careers. In partnership with Sea Smart





*Our dedicated SSSP volunteers (left to right) Nadja Burkart and Mandy Lawrenz*

 Kadija Ege

School, SIMRS was invited to be a mentor for a virtual Marine Biologist In Training camp designated for indigenous and underrepresented girls aged 8-12. SIMRS also presented two virtual Species At Risk workshops in partnership with the BC SPCA teaching kids about the importance of sea stars to our ecosystems and about wasting disease and its impacts. Additionally, we took part in a [Science Interview Series with Westcoast NEST](#), where local youth Chloe Platenieus spent a

day in the field with SIMRS and interviewed Karyssa about her career in marine science.

In June, SIMRS staff hosted the Ucluelet Secondary School Outdoor Education class to conduct intertidal biodiversity transect surveys adjacent to our He-Tin-Kis survey site. Students examined biodiversity in the intertidal zone and assessed what biotic and abiotic features (like SSWS) may affect species abundance and distribution. After two field sessions we returned to the

classroom to introduce students to some basic statistical calculations and analysis.

Additionally, we further developed public awareness about the SSSP by creating an [ArcGIS Story Map](#) in collaboration with West Coast N.E.S.T. and Royal Roads University. Finally, we partnered with Paddle West Kayaking for two educational charity tours which raised \$900.00 in project funds for the SSSP and helped spread awareness of sea star wasting.

# Pelagic Marine Species Survey

## Overview

Perhaps the most exciting step forward for SIMRS in 2021 has been the return of our highly valued pelagic transect study. From about 1993 to 2004, SIMRS ventured offshore monthly to survey pelagic marine birds and mammals, responding to a lack of current knowledge of open ocean species. Unfortunately there still remains vast gaps in knowledge about these species, many of which are listed as Threatened, Endangered or Data Deficient. Currently, there is no consistent monitoring effort of pelagic species or habitats in British Columbia. This poses a significant problem for assessing the health of these populations, leading us to dust off our 'historical' data and begin developing a modernized version of this project.

Our pelagic surveys have been redesigned to give us a better understanding of marine species diversity, abundances, distribution, seasonality and offshore habitat use, particularly for infrequently documented species. We have been working directly with whale researchers Dr. Dave Duffus (UVic Whale Lab) and Dr. Rianna Burnham (DFO) to develop the research methodology and protocols. Local ornithologist, Mark Maftai (Raincoast Education Society), will be helping guide the pelagic bird research. Additionally, we've partnered with the Maaqutsiis Hahoulthee Stewardship Society's guardians to assist in data collection and providing local context and history to the data.







We will collect a broad spectrum of species and habitat data for pelagic zones near Clayoquot sound, supporting a multitude of researchers with vital information that is difficult to obtain. From this, we can determine the baseline information needed to assess threats to these understudied species and their habitats. Furthermore, we can compare data to our baseline data from the 90s and to provide supporting visual data for ongoing acoustic data being collected in these offshore habitats. In 2021, sightings data collected from our trusted network of citizen scientist observers have confirmed the presence of Fin whales, Risso's dolphins, Northern Pacific Right Whale dolphins, Pacific White Sided dolphins, fur seals and numerous pelagic bird species offshore near our survey area. So far we have received a high-level of community interest with valued support from Clayoquot Biosphere Trust, Ocean Outfitters, Tofino Resort Marina, Shed Restaurant, Shelter Restaurant, and Pizza Moto.

We are currently in the initial stages of this project. To date, we have completed 1 formal trail survey and training session with Dr. Duffus and Dr. Burnham, courtesy of Ocean Outfitters. From our promotional efforts for this project we have already seen an overwhelmingly positive reaction from the local community. Something we are happy to see, as an objective of this project is to educate the public on threats to pelagic species, impact mitigation measures, and best practices and policies for species conservation. The SIMRS team along with Dr. Rianna Burnham presented the project at the Pacific Rim Whale Festival in March reaching 80+ people online. We were also interviewed by Westerly News and CBC Radio "On the Island" and have been publishing educational and promotional content through our various digital platforms. Learn more about our project at [www.simrstofino.org/pelagic](http://www.simrstofino.org/pelagic)

# Whale Monitoring In Clayoquot and Barkley Sounds

## Killer Whales in Clayoquot Sound

One of Clayoquot Sound's most well known gangs spent a significant chunk of time in our waters in 2021, much to everyone's delight. The "Runaways" T109A's were seen nearly everyday for two weeks in July, spending much of their time behind Meares Island, occasionally with their family gang the T109A2's. A joyful sighting came in October in the form of a new calf with in the T046B's, a gang that does not frequent Clayoquot Sound on a regular basis.

There were two confirmed sightings of the Southern Resident killer whales (SRKW) this summer called in by the Tofino whale watching fleet. Members of J-Pod were identified in late June and again in early July alongside potential K-Pod whales. A third report of SRKW presence was called in by a fisherman at Cox Point; however, due to weather conditions no whale watching or research vessels responded to the call to get confirmation. We would like to extend our gratitude to the whale watching fleet for their due diligence to adhere to viewing regulations, in particular with the SRKWs. Upon identification as SRKWs, the majority of tourism vessels departed the scene to give these critically endangered animals their space.

*Pictured is T109A "Runaway" (born 1990)*



## Contributions to Humpback Identification Studies

In partnership with Jamie's Whaling Station, Ucluelet, SIMRS contributed valuable data and photographs to the Pacific Wildlife Foundation (PWF). These data and photographs will be used to assist with PWF's humpback whale catalogue for Clayoquot and Barkley Sounds. There were several cow-calf pairs of humpback whales consistently recorded in Barkley Sound over the spring, summer and fall. Pinky (CS274/BCY0452), Crosscut (BCX1254) and CS669 were all positively identified over several weeks, primarily in Imperial Eagle and Trevor Channel, with calves.

Although Pinky's calf was never photographed lifting its' tail, we gathered lots of images of the animal's port and starboard dorsal fin. CS669's calf only revealed a small portion of its' tail, but it may be enough to identify the animal in future years. The least shy of the trio, Crosscut's calf did lift its' tail and SIMRS staff was able to capture and submit several identification shots for the PWF catalogue.

## Gray & Fin Whales

2021 was an exciting year for gray whales in Clayoquot Sound. The season started with at least 3 cow-calf pairs wowing beachgoers as they milled and nursed in the shallows of the local beaches. The most notable mother was Ditto (CSG349). Ditto and her calf were consistently seen at North Chesterman throughout May. She has been known in Clayoquot since 1992, having been seen with a calf previously in 2004 (CSG796). Two of the calves were seen feeding by themselves later in the season, having successfully weaned. Throughout the summer, Cow Bay had exceptional sightings with the number of feeding animals frequently entering double figures. Lots of local legends were around, Orange Crush (CSG589) was most often encountered by local guides, swimming strong since at least 1977.


Two notable gray whales were seen by guides all the way into December: Admiral (CSG34) a known vessel strike survivor, and Calf of Collage (CSG2), who was a lucky survivor of a Transient Killer Whale harassment event earlier in September.

Fin whale sightings have been steadily increasing in Clayoquot Sound since 2019. Hydro-acoustic data indicates that fin whales are present offshore nearly year-round. In March 2021, a cow-calf pair of fin whales was reported nearshore of Tofino. Later in July, the SIMRS team (with thanks to supporter Willie Mitchell) observed a group of five fin whales near Loudoun Canyon offshore of Clayoquot Sound. This is the notably the highest number of fin whales reported together in one day near Clayoquot Sound in decades.





*"Sandy" awaiting rescue at Green Point, Combers Beach*

 Sydney Dixon

## BC Marine Mammal Response

### Overview

For over 25 years, SIMRS has responded to numerous marine mammal incidents including entanglements, vessel strikes, and necropsies. As a member of the BC Marine Mammal Response Network (BCMMRN) our goals are to respond to marine mammal incidents, to conduct research and monitoring of these incidents, and to promote public awareness of threats to marine mammals. By working with BCMMRN and our partner organizations, we aim to reduce harmful incidents involving marine animals in our region.

### Rescue & Response Efforts

SIMRS received a total of 12 marine mammal incident reports this year, less than half of what we received between October 2019 - October 2020. This number represents the minimum count, often there are a few incidents that remain unreported or undiscovered. Interestingly, while previous years have been nearly exclusively calls about observed mortalities, in 2021 we had the pleasure of assisting with several rescue efforts of injured, stranded and entangled animals.



The body of a male Risso's dolphin (*Grampus griseus*) was discovered washed up on Chesterman Beach on January 13, 2021. Alongside DFO, our staff secured the dolphin to the beach until the tide permitted the District of Tofino Public Works Crew to drive an excavator and large trailer onto the beach to remove the animal's body. Generally, there is a lack of knowledge of open ocean species. As such, the life history of Risso's dolphins is poorly understood as the species has been little studied. This stranding provides us with a rare opportunity to discover more about the Risso's dolphins inhabiting BC waters. After a necropsy, the bones were sent to the Telegraph Cove Whale Museum where they will be displayed for educational purposes.

On October 30, 2021, SIMRS volunteer Alys Hoyland and past board member Ashley Hoyland, discovered the body of a premature gray whale calf floating just outside of Tofino harbour. The initial necropsy results revealed that the male calf was alive at birth but likely only survived 24 hours or less. It had sustained trauma to the right side of its body, indicated by extensive bruising, and also had an umbilical cord infection. At this time, the definitive cause of death is still unknown.

One of the happier outcomes of our 2021 response efforts was the successful rescue, rehabilitation and release of a female Steller sea lion. The sea lion, named "Sandy", was rescued off of Combers beach with probable domoic acid poisoning. With a combined effort by Parks Canada, SIMRS, and the Marine Mammal Rescue Centre (MMRC) she was removed from the beach and spent nearly 6 months recovering at the MMRC before being released back into the wild on August 24, 2021.

# Entangled Humpback Whale in Barkley Sound

## A Rescue Story

On October 7, 2021 SIMRS staff identified an entangled cow-calf pair in Barkley Sound. The mother, Pinky (BCY0452), is a female humpback whale who has been returning consistently to Barkley Sound to feed in the summer since the early 2000's. Initially, it was unclear as to whether Pinky, the calf, or both animals were entangled. Later review of photographs submitted by Subtidal Adventures owner, Brian Congdon, indicated it was likely the calf that was entangled in fishing gear as indicated by

an injury on the calf's peduncle (tail stock). After reporting the incident to DFO, SIMRS staff, DFO Fisheries Officers, RCMP, Jamie's Whaling Station, Subtidal Adventures and local volunteers spent a total of 6 days monitoring the waters of Barkley Sound in attempt to relocate the whales for disentanglement. On October 13, 2021 Pinky and her calf were re-sighted near Mayne Bay and were successfully freed of all ropes and floats.

For DFO staff, this disentanglement was the 15th occurrence in 2021 and one of three incidents called in that week on Vancouver Island. We hope to see Pinky healthy and back in Barkley Sound in the 2022 season.

*Pinky (BCY0452) towing a rope and float in Imperial Eagle Channel, Barkley Sound.*



## Build-A-Whale

### Ore & Orcas Exhibition

Due to the ongoing Covid-19 pandemic, the Build-A-Whale (BAW) program was limited to help ensure the health and safety of SIMRS staff and program participants. In 2021, we launched a virtual BAW program option as a substitute for the in-person program. SIMRS staff also had fun filming a BAW presentation to add to our Ocean Literacy learning resources.

O120 spent 60 days on display at the Britannia Mine Museum as a part of their *Ore & Orcas* exhibition. The *Ore & Orcas* exhibition had a fantastic turn out! There, O120 was made available to 25 in-person and three online school programs, totaling 912 school program participants. Outside of school programs, O120 reached 5199 regular museum attendees.

## Ocean Literacy

### A successful first year

The Ocean Literacy Program was created in response to the challenges presented by Covid-19 that inhibited access to experiential learning in rural, remote, and indigenous communities. In March 2021, SIMRS launched the Ocean Literacy Program as a part of the Pacific Rim Whale Festival. Since its' launch date the Ocean Literacy Program has been accessed online as a free learning resource by nearly 600 children and youth. You can sign-up to access the program at [www.simrstofino.org/oceanliteracy](http://www.simrstofino.org/oceanliteracy)





*Ucluelet Secondary Students from the Outdoor Education Program*

📷 Liam Nelson

## Outreach Events

### Education, Fundraisers and Fun!

In 2021 we hosted several non-program specific educational events for children, youth and adults alike. In the spring, we produced an educational video on the herring spawn, entitled "[Pacific Herring: The Life of the Coast](#)". Additionally, we partnered with Pacific Wild as a guest speaker for their online herring trivia event. During the summer months we hosted the Ucluelet Secondary School outdoor education class on a zodiac trip through Barkley Sound, courtesy of Jamie's Whaling Station. Students were taught basic weather matrix and navigation skills,

marine ecology, how to use photo identification, how to report entangled, distressed or deceased marine mammals and more. We also partnered with [BC SPCA's](#) online camp for kids "Ocean Wonders" to discuss killer whale biology and conservation. SIMRS joined Tofino Resort and Marina this year again for their catch and release [Fish for the Future](#) derby to support salmon conservation and enhancement in the Clayoquot Sound Biosphere Region as a volunteer weigh boat and to set up an educational booth.

SIMRS turned 30 in 2021! To celebrate this anniversary, we hosted a fundraising cruise and online silent auction events. In total, these events helped us raise \$6,250.00 to support our future research, education and response initiatives on the west coast of Vancouver Island.



## Staff

*Executive Director: Karyssa Arnett*

*Research & Education Director: Sydney Dixon*

*Programs Coordinator: Greg Potter*

*Ocean Bridge Direct Action Intern: Jesse Gruneau*

## Board of Directors

*Founder & Advisor: Rod Palm*

*President: Jen Dart*

*Vice President: Jessica Hutchinson*

*Secretary Treasurer: Rebecca Broten*

*Director: Jared Dick*

*Director: Danny O'Farrell*

*Director: Tiffany Olsen*

*Director: Lisa Fletcher*

Special thank you and farewell to Ashley Hoyland for her years of service as SIMRS board member and valued contributions to the society and our community.

## Volunteers

We'd like to give a special thank you to our those volunteers who went above and beyond for SIMRS in 2021: Alys Hoyland, Liam Nelson, Kadija Ege, Mandy Lawrenz, Nadja Burkart, Selby Wilkinson, Janel Saydam, Benni Reckner, Sietske Van Der Heyde and many more! Thank you also to our fundraiser performers Julianna Laine and Michael Jennings.



*Karyssa Arnett, Executive Director (top left)*  
*Greg Potter, Programs Coordinator (top middle)*  
*Sydney Dixon, Research & Education Director (top right)*  
*Jesse Gruneau, Ocean Bridge Direct Action Intern (bottom)*

## Thank you to our supporters

We could not do it without you!

Thank you to all our partners, volunteers, donors, and patrons! Your generosity and support is the foundation for our research, monitoring, and education initiatives. We acknowledge and respect the traditional territories of Hesquiaht First Nation, Tla-o-quiaht First Nations, Toquaht Nation, Ahousaht First Nations, and Yuułu?iŋ?atŋ Nation in whose territory we conduct our work.

Private donors: Darlene Choquette, Kelsie Maas, Donald Ferris, Trevor Inkpen, Peter & Jeneane Becu, Kristen Cool, Leslie Shuparski, Jim Breadon, Nancy Black, Sarah Morbey, and all those who supported our silent auction!

## Make a contribution:

Support SIMRS in 2022 and beyond!

If you would like to support our research, monitoring, and education initiatives by donating or becoming a patron or sponsor please visit: [www.simrstofino.org/donate](http://www.simrstofino.org/donate)



## Patrons, sponsors, granters, & partners:

