



THE COLD HARVESTER

NEWFOUNDLAND AQUACULTURE

SPRING
2024



Port of Argentia

SPOTLIGHT ON POOL'S COVE

MI Celebrates 60 Years!

Couturier on Kelps

COMMUNITY OUTREACH INITIATIVES

29TH ANNUAL CONFERENCE AND TRADE SHOW

Sheraton Hotel, St. John's, Newfoundland, Canada

October 8-10, 2024

On behalf of the Newfoundland and Labrador aquaculture industry, we invite you to join us for our 29th Annual Cold Harvest Conference and Trade Show.

Cold Harvest is a premier Canadian aquaculture conference, focused on promoting and developing the business of aquaculture for the prosperity of our sector and our communities. It brings farm management and service sector professionals together to build their knowledge and foster new business connections. The conference offers exciting and informative discussions related to aquaculture and its potential in our province. With world class keynote speakers and guests, and themed sessions related to aquaculture innovation, technology, science and service sector advancements, this event should not be missed.

KEYNOTE SPEAKER ANNOUNCEMENT



Dr. George Chamberlain started his career as a researcher, instructor, and Extension Aquaculture Specialist at Texas A&M University. He went on to direct aquaculture programs at Ralston Purina International and Monsanto. He founded and managed several shrimp breeding, nutrition, and farming companies operating in Malaysia, Brunei, and Hawaii. Chamberlain served as a Board member and President of the World Aquaculture Society and later helped found both the Global Seafood Alliance (GSA) and The Center for Responsible Seafood (TCRS). He served for 25 years as President of GSA and now leads TCRS.



Visit www.coldharvest.ca to learn more.



For enquiries, please contact:

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Message from President and Chair of the Board

Sheldon George

Hello Cold Harvester readers and welcome to the spring 2024 edition. For all our farming members I hope the winter was kind to your crops and you all have great products available throughout the spring and summer. In addition, spring for farmers is associated with new crops, and new beginnings.

However, as I prepare this message, employee appreciation day just passed. Therefore, I am going to dedicate this edition of the president's message to the employees of the Newfoundland and Labrador aquaculture industry.

I would like to take this opportunity to thank the many employees in our province's aquaculture industry for everything you do day in and day out. Not only our direct farming staff, but also the workers in our supply sector, research institutions and government organizations. Without the hard work of all staff, whether direct or indirect, our industry would not be what it is today. We have many people working on the farms in windy, stormy weather, driving trucks on snow covered roads and repairing our equipment in less-than-ideal conditions. People talk about having an ambassador for the provinces aquaculture industry, in my view we have hundreds of ambassadors.

Our farming staff in Newfoundland work every day in some of the harshest environmental conditions in the world to produce top quality, sustainable seafood. Researchers ensure we are farming the waters in the most sustainable manner we can, and government staffers ensure we are doing it in a manner that pleases the public interest and concerns. Nothing brings more of a sense of satisfaction to a farmer than walking by a seafood counter in a store and seeing the products on display. Farming staff get to see the fruits of their labor in the seafood showcases, they see what they helped grow in the last 18 to 24 months, and finally realize how important their daily activity is to everyone looking for healthy and environmentally

friendly protein.

Another way employees show their enthusiasm for their work is when giving tours to visitors and educating people on what is involved in their daily work. Farm workers are more than glad to let people know how they look after the fish every day, whether it is finfish or shellfish. It is these people who regulators and non-supporters of the aquaculture industry should listen to. When someone says they do not use farmed products for various reasons, they should make sure they have taken every opportunity to understand what occurs on our farms.

The Newfoundland and Labrador aquaculture industry is one of the most heavily regulated forms of food production provincially, nationally, and even worldwide. Traceability is one of the pillars of our food production. Seafood farmers know the exact water quality that the fish are in every hour of every day it is growing, exactly what it eats and where the ingredients come from, and ensure it is sustainably sourced. I recently heard someone say, "We don't know what farmed fish have been fed". I would like to end off by challenging people with this view to reach out, learn what goes on in the aquaculture industry and talk to people who work in this rewarding industry daily. I expect many of the people questioning this industry have never been on a shellfish or finfish farm. I also equally challenge the industry's employees to tell their stories, don't be shy to say what daily monitoring is done, what checks and balances are in place and how you make our products some of the safest and tastiest one will ever consume.

Keep up the great work Newfoundland Aquaculture workers (directly and indirectly), your work is greatly appreciated, and your contribution to your towns and province is noticed and is valuable.



Message from Executive Director

Jamie Baker

Amidst the public focus on protests at Confederation Building and the release of the provincial budget, you could be forgiven if you missed it.

But there it was, sitting amongst the province's numbers clear as day: In a year (2023) when nearly everything that Newfoundland and Labrador exports was down, farmed seafood from the province was one of the few significant things to see actual export growth.

Oil and gas? Down. Minerals? Down. Newsprint? Down. Wild fisheries, most notably crab (largely due to price decreases)? Down.

Farmed seafood? Up.

Again, this speaks to the importance of our farmed seafood sector in this province as being one of the very few sectors we have that has real growth potential. The early numbers show we nearly doubled production on farmed seafood in 2023 compared to 2022.

In fact, numbers recently produced by the Canadian Agricultural Human Resource Council (CAHRC) show that farmed seafood is officially Newfoundland and Labrador's largest agricultural industry, period.

Producing about 20,000 tonnes of farmed seafood again near the quarter billion-dollar mark on the wharf for 2023, we are finally starting to see the sustainable growth everyone had been working towards prior to the pandemic.

In the years ahead, the aim is to continue that growth trend, sensibly and sustainably. With eco-friendly advances on fish health and welfare, climate change mitigation, pest control, containment and carbon reduction coming almost daily, the operations side of the sector is in a great place to push that growth.

Of course, markets are harder to control and anybody who has been around the seafood business any length of time knows those markets can be volatile. But when it comes to farmed product, year-round production, and

consistent demand, farmers are in an envious position of relative consistency.

There will be challenges. That's a constant working in a harsh marine environment.

But at the end of the day, we have the people and the tools to have an amazing, world class farmed seafood sector for many years to come.

Stock Assessment Paints Clear Picture

For many years interest groups based outside the province have done everything they can to scapegoat our hard-working folks, while attempting to cover for their own massive conservation failures when it comes to the declines in wild Atlantic salmon.

The latest CSAS stock assessment for wild Atlantic salmon, however, shows those anti campaigns to be based in fantasy.

The assessment certainly paints a troubling picture for wild salmon everywhere, but the biggest declines are coming where there's absolutely no farming present (it should be noted some key rivers near farming operations have seen increased returns in recent years) on the west and northeast coasts of Newfoundland and in Labrador. The critical, clear reason for this decline, posited by even the most skeptical-minded of scientist is simple: Aside from predation, fishing pressures, etc., it is mostly due to the conditions we are seeing in our marine environment due to climate change, and increasing water temperatures.

Warming oceans is a huge issue for anyone and everyone working in or enjoying the marine environment whether it be farmers, fishers, anglers, you name it.

My inner common-sense voice tells me, now is the time for everyone to come to the table with all their expertise, resources, tools, and abilities to build a cohesive plan for all

CONTINUED ON PAGE 6

the players that can look at adapting to what we are seeing. Imagine what could be accomplished if we were all singularly focused on attacking this massive issue?

Our sector stands ready to assist wherever and however we can to address climate change issues facing us all. Whether or not that comes to pass, we shall see.

In the meantime, the sector will focus on continuing to strive for innovative, environmentally friendly approaches

to growing food, protecting the environment, and feeding people – just as we always have.

Cold Harvest 2024

NAIA is thrilled to be in the full planning process for Cold Harvest 2024 at the Sheraton Hotel in St. John's, Oct. 8-10, 2024.

It's shaping up to be a great event as we continue to work past all the trials and tribulations the pandemic put in front of everyone trying to organize events between 2020 and 2022.

Our folks are hard at work organizing events, presentations and speakers that will bring a lot of interesting discussions and innovations to the tables at the event. It will be a great chance to grow business opportunities, network with new and old friends, and continue to demonstrate the positive impacts our shellfish and finfish farmers and service-supply folks continue to bring to the table.

Get registered early and prepare for a great show in October! Visit coldharvest.ca for more information.



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COMMUNITY OUTREACH



NAIA education and outreach activities, aimed at informing the public and attracting new workers to our sector, are continuing in 2024. In March, NAIA's Research and Development Coordinator, Darrell Green, visited with students in the Orientation to Trades and Technology program at the College of the North Atlantic campus in St. John's. In the morning Darrell gave a presentation on aquaculture in Newfoundland and Labrador and careers opportunities in the sector, followed by Virtual Reality mussel and salmon farm tours. That afternoon Leah Pumphrey, Head Instructor for the Orientation to Trades and Technology program, followed up on this by going through the Aquaculture 101 online course with the students.

We would like to thank Leah for inviting us to present at the College!

NAIA's Visit with the St. Alban's Girl Guides

By: Roberta Collier, NAIA Community Outreach Coordinator

It was a pleasure hanging out with the 1st St. Alban's Girl Guide Unit, which included Sparks, Embers, Guides, and Pathfinders in St. Alban's this past fall. Youth, ages 5 – 12 years, enjoyed a presentation on marine debris followed by a fun game with a toy salmon, followed by a yummy snack provided by NAIA.

Out of the mouth of babes!

Question: What is marine debris?

Answer: Things that end up in the water that do not belong there.

Question: Why is it important to keep our waters free of marine debris?

Answer: So the fish won't get tangled in it and suffer.

Question: What can we do to help?

Answers:

- If you see marine debris, pick it up and throw it in the garbage.
- Participate in shoreline clean ups.



• If you bring it to the beach, bring it home with you.

• Use reusable water bottles.

Question: Who has done a shoreline clean up in the past?



Answer: All hands go up!

We must all be doing something right! Special thanks to the leaders and Girl Guide unit for inviting us to join them. It truly was a pleasure!

École Rocher-du-Nord Visit

In December, Cyr Couturier from the Marine Institute, and Darrell Green from NAIA, visited École Rocher-du-Nord in St. John's to give presentations on aquaculture to the grade 8 classes. The students were very interested in the topics, asked several questions, and did very well on the quiz at the end. As is usual with this age group, the Virtual Reality salmon and mussel farm tours were very popular.

We would like to thank John Boutot, Enseignant Titulaire de 8e Année; Sciences, Chimie et Technologie (Grade 8, Science, Chemistry and Technology Teacher) for inviting us to present and for his kind hospitality!

Thanks to Cyr and Marine Institute for the prizes for quiz winners!



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OUT & ABOUT with Chef Watson

McCarthy's Party Tours Ltd. a family-owned business located in St. John's NL since the early eighties, offers an experienced team of tour guides and a wide variety of shuttles and vehicles for visitors to the province. During their single or multi-day tours across the province from May to October, the guides promote the culture and way of life of Newfoundland and Labrador.

Each month, management of McCarthy's arranges presentations for the team to learn about the many industries and attractions that Newfoundland has to offer.

AQUACULTURE IN NEWFOUNDLAND & LABRADOR

Aquaculture is among the fastest growing food sector around the world accounting for over 50 percent of the world's seafood production. As part of their all-inclusive tours, McCarthy's serves more than 4,000 meals of Atlantic salmon per year.

On February 27, Darrell Green, NAIA R&D Coordinator, did a presentation about aquaculture in Newfoundland and Labrador for twenty-eight of McCarthy's tour guides. Tour guides frequently get asked about aquaculture, so they were interested to know more about the industry. There was plenty of time set aside for questions and answers on some of the common misconceptions around the growing industry and how people can make informed decisions with respect to sustainability in their food choices.

Along with the presentation, Chef Steve Watson, who is also a



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Servicing the Aquaculture Industry

tour guide with McCarthy's Party, demonstrated the preparation of his recipe for stuffed Bay d'Espoir steelhead trout. This was then served on a rainbow of peppers, along with NL blue mussels. The oven-ready trout from the demo was won by Ellis Coles, who was the first to answer the question from the presentation; "How many people are involved in aquaculture in Canada?" (17,000). Special thanks to Norlantic Processors for providing the mussels and Ocean Trout Canada for the steelhead trout. For more information on McCarthy's Party, visit: www.mccarthyparty.com



Stuffed Newfoundland Steelhead Trout with a Rainbow of Peppers

By: Chef Steve Watson

Ingredients:

4 lb. Steelhead Trout, whole, deboned, head-on
 2 Lemons, sliced
 1 Red onion, peeled and sliced
 1 Red and 1 yellow pepper, sliced into strips
 Fresh dill
 Montreal steak spice
 8 oz. Sea salt
 Butter sliced into 8 pieces
 Balsami Vinegar Reduction

Method:

Place a large sheet of foil wrap on a cookie sheet. Place half of the sliced lemons, red onion, butter and fresh dill on the foil wrap. Lay the full deboned steelhead trout over the mixture. In the center/body of the trout, add sliced peppers and season with Montreal steak spice. Repeat the bottom mixture again over the top of the trout. Being careful as to not lose the mixture, wrap the fully stuffed fish in foil very tightly. Then wrap the whole thing with saran wrap, again nice and tight, then again with foil wrap. This will help seal in all the flavors. This may be barbecued or baked in the oven for approximately 45 minutes at 400 degrees. Serve with a drizzle of balsamic vinegar reduction. Enjoy!



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The Marine Institute Celebrates Applied Research in the Maritime



The Marine Institute is celebrating 60 years of guiding the province to the world through global leadership in applied ocean sciences and research.

Opening in 1964 as the College of Fisheries, the institute initially offered courses specific to the industry needs in Newfoundland and Labrador, with programs focusing on fish processing and care for fishing gear and nets.

By September 1964, the college had expanded its offerings to diploma of technology and short courses. Many of these programs: nautical science, marine engineering, naval architecture and watchkeeping, remain popular programs at the institute today.

The Marine Institute remains dedicated to evolving its course offerings to keep up with the ever-changing maritime and ocean industries. Today, the institute offers courses at the undergraduate, master's, and doctoral levels.

Since 1987, the Marine Institute has been engaged in the aquaculture industry through applied research

and education opportunities at various levels.

Aquaculture has long been a staple program at the Marine Institute. The institute's first graduate diploma was in aquaculture.

This program has since evolved into the Marine Studies [Aquaculture], Graduate Diploma. Additionally, MI also offers the Master of Marine Studies [Aquaculture]. Thirty students are currently enrolled in the Master of Marine Studies program, with more expected in Fall 2024.

Through partnerships with several provincial and national farming companies, the Marine Institute provides students with valuable educational and practical experiences. Students in graduate-level aquaculture programs take part in a 12-week internship placement that provides them with hands on experience to apply their industry-ready skills with national and international employers.

Over 300 students have successfully graduated from these aquaculture programs and are



60 Years of Training and the Land, Ocean and Fishery Sectors



now leaders in aquaculture and related industries.

The institute's extensive history with aquaculture-based programs also extends to short training courses and community-based learning opportunities.

Currently, in partnership with the Canadian Agricultural Human Resources Council (CAHRC), the Marine Institute has developed a fully funded training program for new entrants, career changers and current aquaculture professionals.

This program gives students the chance to complete a single course as a certificate of achievement, or all courses to receive a program certificate.

Many of the farming companies in Newfoundland and Labrador continue

to take graduates of various programs from Marine Institute, including Cold Ocean Salmon, MOWI Canada, Thimble Bay Farms, Grieg Seafood NL, Skretting North America, and Newfoundland Aquaculture Industry Association. Dozens of other companies around the globe have benefitted from internships with graduate students from across Canada, Europe, Australia, and Asia.

Over the past three decades, the School of Fisheries and its Centre for Aquaculture and Seafood Development has conducted applied research on a variety of subjects for the Newfoundland and Labrador industry, including seed supply, feed formulations, fish health treatments, and technological solutions to produce mussels, oysters, scallops,

seaweeds, salmon, trout, cod, wolffish, eels and tilapia.

The Marine Institute is proud of its longstanding history within the seafood farming industry. The institute is dedicated to promoting and engaging with the industry and industry partners. The Marine Institute will continue to look to its educational and research opportunities to prepare its students to be the future of the ever-evolving seafood farming industry.

For more information:

FISHERIES AND MARINE INSTITUTE
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www.mi.mun.ca

A large graphic with a background of blue, turbulent water. The text 'Cultivate. Nourish. Provide.' is written in large, white, bold, sans-serif font. At the bottom left, the 'Cooke' logo is in white on a dark blue rectangular background. To the right of the logo, the website 'cookeseafood.com' is written in white, followed by a vertical line and three social media icons: LinkedIn, Facebook, and Twitter.

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Community Profile

Pool's Cove



Photo credit: Kerri Williams

All across Newfoundland and Labrador the aquaculture industry contributes to local rural economies by providing employment for residents and supporting infrastructure investments and service sector companies. Our towns support our sustainable industry by providing a positive and supportive environment for aquaculture development. With this in mind, the Community Profile Column, in each edition of the Cold Harvester magazine, will celebrate a community where the aquaculture industry is active and is boosting rural economic activity.

Mayor: Darlene Dominie | Population: 175

Pool's Cove, one of 22 communities in the Coast of Bays region, is a charming community nestled on the northwest side of Fortune Bay, along the South Coast of Newfoundland. With a population of 175, this picturesque coastal community offers a glimpse into Newfoundland's rugged beauty and maritime heritage. Traditionally a fishing village, aquaculture now plays a significant role in the local economy.

The town, accessible from Route 362, branches from the Bay d'Espoir Highway. The MV Terra Nova, a passenger and freight ferry, also serves as a vital link connecting Pool's Cove to the isolated outpost of Rencontre East and to Bay L'Argent on the Burin Peninsula.

Despite the town's small size, there is lots of activity in Pool's Cove and its marine infrastructure is quite heavily used. The public wharf is used by commercial fisherpersons, the provincial ferry and aquaculture vessels. Because it is utilized by numerous operators from these marine industries, the wharf is classified as an outflow wharf from an aquaculture biosecurity perspective. To accommodate the biosecurity needs of an expanding aquaculture sector, a new inflow wharf, feed storage facility and upland laydown area, was constructed in Back Cove in 2010.

The main aquaculture operator in Pool's Cove is Mowi Canada East. The town is their base of operations for access to salmon cage sites in the areas around Pool's Cove and Rencontre East.



High School Graduating Students 12th Annual Scholarship

The Newfoundland Aquaculture Industry Association (NAIA) is pleased to announce its 12th Annual Scholarship for graduating students from high schools in Newfoundland and Labrador. Two scholarships, valued at \$500 each, will be awarded to students pursuing a post-secondary education in marine or aquatic related studies. (Sustainable aquaculture, marine biology, marine environment technology, ecology, nautical science, engineering, etc.)

Eligibility:

To be eligible, you must be graduating in 2024 and entering your first year of University or College.

Evaluation Criteria:

Based on academic achievement, references, level of community involvement and volunteerism.

To Apply, Please Submit the Following:

1. Completed Application www.naia.ca
2. Resume and Cover Letter outlining the rationale why you should be the successful recipient.
3. Three Reference Letters: Academic (1), Professional (1), and Personal (1)
4. Recent Transcript

Review Process:

Applications will be reviewed by the NAIA scholarship committee. Deadline for submissions: July 1, 2024. Only those applicants who are successful in their application will be notified.

Please submit application, resume, cover letter and 3 reference letters to:

Jamie Baker, c/o NAIA Scholarship Committee, 10 Austin Street, Suite 201, St. John's, NL A1B 4C2

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Elanco aqua business purchased by Merck Animal Health

PEI fish health assets a key part of the transaction

Charlottetown, PE – Elanco Animal Health has announced it has entered into an agreement to sell its aqua business to Merck Animal Health for approximately \$1.3 billion in cash. Elanco’s aqua business includes products across both warm-water and cold-water species, generating an estimated \$175 million in annual revenue. The divestiture includes the transfer of manufacturing sites in Charlottetown, Prince Edward Island and Dong Nai, Vietnam, as well as approximately 280 commercial and manufacturing employees.

In Prince Edward Island, Elanco currently employs 140 skilled workers, producing some of the leading fish health vaccines in the world. The PEI business began in the late 1980’s as a startup called AquaHealth, a spinout

of Connaught Labs, with support from the Province of PEI. AquaHealth was one of the founding companies of the PEI BioAlliance when the company employed only 20 people, and later went on to be purchased by Novartis Animal Health in 2000. As a result of solid global sales and investment, Novartis grew the business to over 120 employees and in 2015, Elanco purchased all Novartis Animal Health assets.

“Merck’s purchase of the Elanco aqua assets is a very positive sign for the growth and development of the fish health product business here in PEI and globally,” said Rory Francis, CEO, Prince Edward Island BioAlliance. “Elanco has been a great partner, and we look forward to working with the Merck team to ensure their investment in PEI is a benefit to all.”

The BioAlliance has an existing close relationship with Merck Animal Health, with CEO Rick DeLuca serving as Honourary Chair of the VetHealth Global Animal Health and Nutrition Conference in Charlottetown in 2017.

“We are excited for the acquisition of Elanco’s aqua products, solutions as well as the capabilities and expertise the team brings to our business,” said DeLuca. “We believe this acquisition, coupled with our commercial and scientific prowess, will deliver enhanced benefits for our aqua customers.”

Aquaculture is the fastest growing source of animal protein in the world. Prince Edward Island has established itself as a global centre of expertise in fish health product development and commercialization with nine companies involved in developing fish health

technologies, as well as the Atlantic Veterinary College's fish health programs.

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About the PEI BioAlliance

Since 2005, the PEI BioAlliance has coordinated the development and growth of the province's bioscience cluster and established the conditions for business success. The cluster creates high-quality, Island-based jobs in the areas of human, animal, and fish health and nutrition. The PEI BioAlliance is a partnership of 60 businesses, academic and research institutions, and federal and provincial government agencies, dedicated to establishing the bioscience sector as a key pillar in the economic foundation of the province and Atlantic Canada.

www.peibioalliance.com

About Elanco

Elanco Animal Health is a global leader in animal health dedicated to innovating and delivering products and services to prevent and treat disease in farm animals and pets, creating value for farmers, pet owners, veterinarians, stakeholders, and society as a whole. With nearly 70 years of animal health heritage, they are committed to helping customers improve the health of animals in their care, while also making a meaningful impact on local and global communities. At Elanco, they are driven by their vision of Food and Companionship Enriching Life and Elanco Healthy Purpose™ Sustainability

Initiatives – all to advance the health of animals, people, and the planet.

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Merck Animal Health, known as MSD Animal Health outside the United States and Canada, is the global animal health business of Merck. Through their commitment to The Science of Healthier

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Be Prepared: Solar Eclipse on April 8th!

On April 8, 2024, a total solar eclipse will be experienced for a few locations in Canada, the United States and Mexico. A total solar eclipse happens when the moon completely covers our view of the Sun. The path of totality (darkness) will pass directly over some areas of Atlantic Canada including Newfoundland and Labrador.

The eclipse and the sudden darkness it will create can present several occupational health and safety risks including accidents and injuries caused by working in the low light environment. As well, while the eclipse may be captivating to some, enticing them to look directly at the sun, this can cause eye damage and even blindness and must be avoided.

Companies can mitigate these risks by educating workers on eclipse timing and special safety procedures, ensuring work environments are cleared of hazards, providing supplemental lighting and encouraging employees to plan work activities appropriately (e.g. work stoppages during the total eclipse period), particularly for staff in outdoor locations. In some cases, companies may need to develop a special emergency response plan for incidents or injuries that could occur

SOLAR ECLIPSE
EASTERN CANADA
APRIL 8, 2024

2024
04.08

Timetable for sample cities on the path of totality:

CITY	START	DURATION
Hamilton, ON	3:18 p.m. ET	1 min 50 s
Belleville, ON	3:21 p.m. ET	2 min 4 s
Montreal, QC	3:26 p.m. ET	1 min 27 s
Sherbrooke, QC	3:27 p.m. ET	3 min 26 s
Fredericton, NB	4:33 p.m. AT	2 min 17 s
Miramichi, NB	4:34 p.m. AT	3 min 8 s
Alberton, PEI	4:35 p.m. AT	3 min 3 s
Summerside, PEI	4:37 p.m. AT	1 min 2 s
Meat Cove, NS	4:39 p.m. AT	1 min 30 s
Gander, NL	5:12 p.m. NT	2 min 13 s

Canada Space Agency / Agence spatiale canadienne

Credit: Canadian Space Agency

during the eclipse. Employees should be told to avoid looking directly at the sun with the naked eye. The eclipse should only be viewed through certified solar eclipse glasses or welding helmets equipped with shade 14 lenses.

Eclipse timing for some locations in Atlantic Canada.

Source: <https://eclipse2024.org/>

LOCATION	PARTIAL BEGINS	TOTALITY BEGINS	TOTALITY ENDS	PARTIAL ENDS
Fredericton, NB	3:23 pm (ADT)	4:33 pm (ADT)	4:36 pm (ADT)	5:43 pm (ADT)
Port aux Basques, NL	4:02 pm (NDT)	5:09 pm (NDT)	5:12 pm (NDT)	6:16 pm (NDT)
Head of Bay d'Espoir, NL	4:09 pm (NDT)	5:12 pm (NDT)	5:15 pm (NDT)	6:18 pm (NDT)

More information, including the path of totality of the solar eclipse can be found here: <https://www.asc-csa.gc.ca/eng/astronomy/eclipses/>



David Ernst from the Bigelow Laboratory for Ocean Sciences in Maine gave a presentation on new environmental RNA (eRNA) tools that can be used to optimize blue mussel seed collection.



Mark Crandall of Sæplast Americas Inc speaking about Sæplast multipurpose containers for the storage and purification of live oysters, clams & mussels.



Dr. Mike Pietrak from the United States Department of Agriculture in Maine speaking on the establishment of captive lumpfish broodstock programs in Maine.

In early January Darrell Green from NAIA attended the Northeast Aquaculture Conference & Exposition (NACE), in Providence, Rhode Island, USA. This biennial three-day conference, jointly organized by the Maine Aquaculture Innovation Center and the NOAA Fisheries Milford Laboratory, started 1998, and much like NAIA's Cold Harvest Conference and Tradeshow, aims to bring together farming companies, supply and service providers, researchers, and other industry stakeholders from their region, for presentations, discussions and networking. The conference attracted over 600 attendees, most from the new England states, who had the opportunity to attend talks by over 150 presenters and visit with 34 trade show exhibitors, over the three days. Presentations covered topics such as on-farm production protocols, hatchery techniques, selective breeding and genetics, pathogens and predator mitigation, and research, related to cultured species such as oysters, mussels, quahogs, sea urchins, kelps, scallops, and clams. There were also talks on small business development, workforce development and public education and outreach.

On the last day of the conference Darrell presented on lumpfish production and use from the Newfoundland and Labrador perspective in the Cleanerfish session. Other talks in this session included lumpfish hatchery development by Cooke Aquaculture, lumpfish research at the University of New Hampshire, lumpfish broodstock development by the US Dept. of Agriculture and the University of Maine and endocrine research for controlled reproduction of lumpfish by the US Dept. of Agriculture.

Besides the learning opportunity, Darrell also had a chance to catch up with several NAIA member companies who were at the conference, such as Skretting North America, Sæplast Americas, OysterGro and Cooke Aquaculture.



QUINLAN BROTHERS LTD.

Robin Quinlan, President

St. John's NL

www.quinlanbros.ca

With President & CEO Robin Quinlan at the helm, the company is navigated by a third generation of Quinlan's. While methods and technologies in harvesting and processing have changed, the company's mission and values never will. It has always been, and will always be, about providing the highest quality seafood products to our valued customers and maintaining solid relationships with all stakeholders from harvester to buyer, and everyone between.

In 1954, brothers Maurice and Patrick Quinlan of Bay de Verde created a fish buying station, selling fish landed on the nearby shores to other processing companies. Over the next seven decades, Quinlan Brothers Ltd. evolved into one of the largest seafood producers in Newfoundland & Labrador. A major player on the global fishing stage, Quinlan exports multi-species products to more than 20 countries worldwide.

In 2016, a fire destroyed the Snow Crab processing facility in Bay de Verde. This proved to be a pivotal moment for the company as the leadership team was faced with the decision to rebuild and continue to employ and support hundreds of people or shut down operations. Ultimately, the leadership team decided to rebuild and, just 12 months from the date of the fire, Quinlan was processing crab in the largest and most technologically advanced Snow Crab processing facility in the world.

In 2023, Quinlan's secured a new partnership with Grieg Seafood NL to process and package salmon harvested from the Grieg operations in Placentia Bay at the Bay de Verde plant.



YDRA AS

Jan Rune Haukvik

www.ydra.no/

www.hatteland.com

Ydra produces quality pumps and tailor-made pumping systems. They focus on technological development and want to be a catalyst for innovation in the industry. Companies, vessels and industries in and around the ocean space have trusted their pumps and pump systems for 40 years. They are clear that their products must live up to the very highest standard in order for them to retain that trust.

Ydra provides proven high-quality pumps and accessories including: Silage and grinder pumps, Inline pumps, Eccentric screw pumps, Twin and triple screw pumps, Gear pumps. Multistage pumps, Mud pumps and slurry pumps, Self-priming pumps, Submersible pumps, Centrifugal pumps

TERMINATOR is a new, highly efficient grinder pump for salmon and white fish. The blade system and pumping system of the Terminator pump make it the most efficient silage/grinder pump on the market.

A selection of their standard pumps are manufactured by the Italian pump manufacturer Saer. These include both surface pumps and world-class submersible pumps. The pumps are manufactured in Italy to exacting standards and distributed exclusively in Norway by Ydra.

Ydra is part of Hatteland. Since 1971, Hatteland has given ideas room to grow, develop and spread. Hatteland Group consists of more than 200 employees who develop innovative solutions in various business areas.

**For more information on NAIA Membership Benefits,
please contact Roberta Collier roberta@naia.ca • visit www.naia.ca**



Port of Argentia is an international seaport providing support to key industry sectors such as aquaculture, offshore and renewable energy, marine transportation, and mining for more than 30 years.

The Port's marine terminal features over 430 metres of docking facilities, with up to 11 metres draft at three berths. Over forty businesses operate at Argentia providing key economic activity and local employment and support services to our province's major industries.

Argentia is positioned to support the aquaculture industry in Placentia Bay as a feed distribution center and currently serves as a landing port for market ready Atlantic salmon harvest.

The Port has established North America's first monopile marshalling port in support of US offshore wind development.

We recently partnered with Pattern Energy to develop Argentia Renewables, a proposed 1.3 Gigawatt renewable energy project to establish a wind-powered, green fuel production facility that will see carbon-zero green ammonia exported to European markets.

Argentia is also the construction site of the Cenovus Energy concrete gravity structure for West White Rose Project.

The Cooper Cove Marine Terminal Expansion Project at Argentia, scheduled for completion by Q2 2027, will see capital

infrastructure investment exceeding \$100M, including a concrete caisson dock with a minimum 13 metre draft featuring the latest innovations in decarbonization and port electrification.





Seafood Storage and Cargo Facility at Gander International Airport

In 2023 the Federal Government, the Province of Newfoundland and Labrador, and Gander International Airport announced funding of a \$9 million project to build a specialized seafood storage and cargo facility at Gander International Airport.

The facility will be equipped with water treatment systems and sea water storage tanks capable of holding live seafood, blast freezers and cold/chilled storage facilities capable of storing over 75 tonnes of fresh or live seafood for shipment.

The Project addresses the lack of adequate short-term and long-term storage facilities for live and fresh seafood products by facilitating dedicated air shipments to higher margin European and Asian markets.

The Project has garnered support from the Seafood Processors of Newfoundland and Labrador and has the potential to attract investments in the future from several seafood producers and shippers due to the access it provides to higher margin international destinations. The holding technologies

involved, and the speed of air shipping may also facilitate the introduction of new seafood species to the export market.

The project was made possible with the assistance of Transport Canada, Atlantic Canadian Opportunities Agency, and the Atlantic Fisheries Fund.

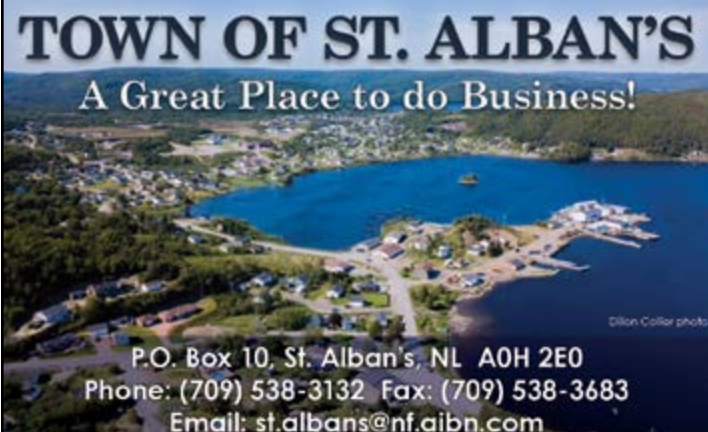
The Gander International Airport Authority recently issued a Request for Proposals for project management assistance to facilitate the engineering work and construction of the facility.



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Daniel J. Mahoney photo



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Dillon Collar photo



Feature story: Steinar Wasmuth, Bioretur



Future-Proofing Fish Farms:

How Drying Technology Revolutionizes Sludge Management

In the world of land-based aquaculture, every component plays a crucial role in ensuring sustainability and efficiency. A vital aspect, often overlooked in the initial planning stages, is sludge management. Procrastinating on this decision can lead to more expensive and less effective solutions. Early incorporation of sludge treatment, in collaboration with Recirculating Aquaculture System (RAS) providers, is key for effective space utilization, building design, ventilation, and electrical installations.

Traditional methods of handling wet fish sludge are increasingly seen as environmentally unsustainable and logistically challenging. In contrast, the adoption of sludge drying and hygienization technologies offers a practical, sustainable solution.

3. Sustainability Edge: Embracing drying technology for sludge management aligns with the global imperative for sustainable aquaculture practices. By reducing the volume of waste and associated transport emissions, this method significantly diminishes the environmental footprint of aquaculture operations. It is a step forward in transforming the industry into an even more sustainable food production.

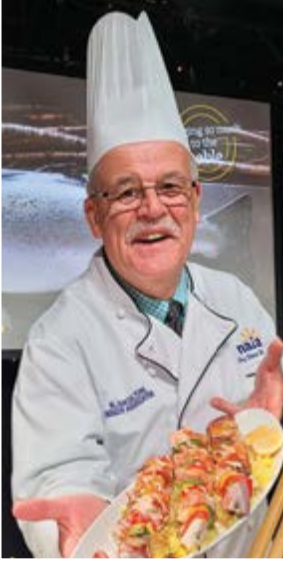
Conclusion: The shift towards innovative sludge treatment technologies like drying is not just an environmental necessity but a practical one for the aquaculture industry. This approach reduces environmental impacts, lowers transportation costs, and provides greater handling flexibility. Bioretur stands at the forefront of resolving sludge

“Procrastinating on the decision of sludge treatment can lead to more expensive and less effective solutions.”

- 1. Stability in Storage:** Dried and hygienized sludge is stable and can be stored on-site, unlike mechanically dewatered wet sludge, which is prone to rapid degradation and odor issues. This stability allows for more strategic and cost-effective disposal or usage plans.
- 2. Economical Transportation:** The process of drying significantly reduces sludge weight and volume, leading to decreased transportation costs. Additionally, the need for specialized transport vehicles is eliminated, further cutting down on logistical expenses.

management challenges with The Bioretur Agreement. This unique offering includes the financing of equipment, 24/7 operation, maintenance, and sustainable handling of sludge, all covered under a monthly fee. As the aquaculture sector, particularly in regions like Newfoundland, continues to evolve, integrating such forward-thinking practices will be crucial for sustainable growth and environmental stewardship.





COOKING WITH **Chef Steve Watson**

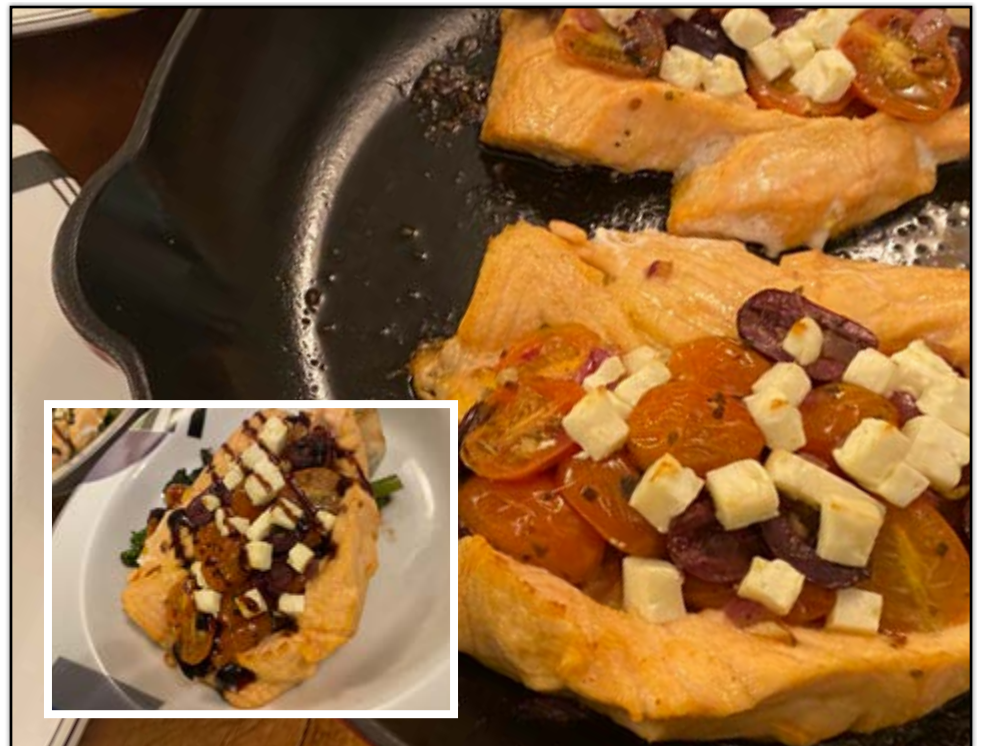
Atlantic Salmon Bruschetta with Sautéed Broccoli and Bok Choy

Ingredients:

4 x 6 oz. Atlantic salmon fillets (butterflied)
2 tsp. Dried Italian seasoning
Kosher salt
Freshly ground black pepper
2 tbsp. Extra Virgin olive oil
3 cloves garlic, finely chopped
1 Red onion
½ cup Kalamata black olives, halved
1 Lemon, halved
3 c. Cherry tomatoes, halved
Balsamic glaze
1 cup Feta cheese
2 baby Bok choy
Kalamata olives
Broccoli

Method:

Season the butterflied Atlantic salmon with salt and pepper and place in skillet. Add a tablespoon of olive oil and stir in garlic and chopped red onion. Cook until garlic is fragrant, about one minute. Add tomatoes, Italian seasoning and olives, and season with salt and pepper. Cook,



stirring frequently, until tomatoes begin to burst.

Remove from heat and squeeze lemon juice over the top. Place the bruschetta mixture over the center of the Atlantic salmon. Top with the diced feta cheese and drizzle with remaining olive oil. Place

under the heated broiler for 6 minutes being careful not to overcook. Sauté broccoli and bok-choy. Place salmon with the mixture over the top.

Garnish each serving with a drizzle of balsamic glaze. Enjoy

Seafood Tips:

- Butterflied salmon is a popular method that involves cutting the fish open along its spine, removing the bones, and spreading it out flat like a butterfly. This technique has several benefits, including faster cooking times, even heat distribution, and easier seasoning.
- If you have leftover uncooked salmon, place it in vacuum bag or freezer bag. Place current date on it and store in freezer for up to 3 months.

Safety Culture: The Heart of a Healthy Workplace

Safety is not just a set of rules; it's a mindset, a culture - "the way we do things around here." At Made Safe NL, we understand that integrating safety into your corporate culture is crucial. When health and safety best practices become second nature to everyone in your organization, from the workers to the supervisors and managers, you create an environment where safety is paramount.

Why is this important?

An organization that shares common health and safety values demonstrates that it prioritizes its workers' well-being. Remember, an unsafe work environment can significantly affect employee morale and productivity. By embedding a strong safety culture, you can prevent accidents and enhance your workforce's overall well-being.

How do you build such a culture?

It starts with anticipation and action. Your organization can strengthen its safety culture by anticipating and correcting unsafe acts and conditions before they cause harm. This proactive approach should be an integral part of your day-to-day activities, making safety a natural aspect of your work environment.

How Made Safe NL Can Help?

Made Safe NL is here to guide you through this process. Our safety advisors offer education, training, coaching, and mentoring to teach you the best practices and techniques for enhancing your workplace's safety culture. We provide hands-on training tailored to your needs, helping you to instill these values within your organization's fabric.

Remember, a strong safety culture is the foundation of a

thriving, productive, and safe workplace. We can help.

For more information on enhancing your organization's safety culture, visit www.madesafenl.ca or email info@mafesafenl.ca.

You can also contact us to join the Made Safe NL Safety Consortium - a learning network of manufacturing and processing safety professionals, business owners, and stakeholders working towards improving health & safety in our sectors by sharing and exchanging ideas and expertise.

Safety Culture 101

This introductory-level course focuses on the basics of a safety culture. It is an essential building block for anyone who wants to play a role in making their workplace healthy and safe.

GOALS AND OBJECTIVES

Define safety culture

Explain how safety culture is a product of an organization's broader culture and values

Describe the key ingredients of a strong safety culture

Explain benefits of a strong safety culture

Plan the steps required to strengthen or maintain your organization's safety culture

TOPICS

Define safety culture and why it matters?

Describe the key ingredients of a strong safety culture

Explain the benefits of a strong safety culture

Learn how to strengthen your safety culture at levels

Who Should Attend

Front-line employees

OHS professionals

Members of OHS committees

Supervisors

Managers



Seaweed Advances and Opportunities – Part 2

Cyr Couturier is marine biologist, aquaculture scientist and chair of the MSc Sustainable Aquaculture program at the Fisheries and Marine Institute of Memorial University. He has 35+ years of experience in applied research and development, training and education in aquaculture and fisheries (seaweed, finfish, shellfish). He is a Board and Executive member of several farming & development associations, including CAIA, CFA, CAHRC, HORIZON TNL, and is a past president of AAC, CAIA, and NAIA. He has worked in aquaculture and fisheries development in over 18 countries. The views expressed herein are his own. Contact: cyr@mi.mun.ca or follow on Twitter [@aquacanada](https://twitter.com/aquacanada)

In the fall of 2023 folks were introduced to advances and opportunities in seaweed farming. This is a follow up on that status in NA and elsewhere, and a commentary on carbon credits and sequestration.

Seaweed Farming Globally

It is no secret that there is considerable hype and hoopla about seaweed farming globally. Ninety-six percent of seaweeds harvested globally are of the farmed varieties, typically in tropical and subtropical areas of the world. These are used primarily for nutraceuticals, pharmaceuticals, food additives, cosmetics, biofuel, and more recently for human and animal foods. Some estimates put the total farmed tonnage at about 35 million tonnes globally in 2020 (FAO 2022, Figure 1 below), but it is likely above 36 million tonnes now with recent efforts to increase production. There are

still many challenges to advancing, some of which are innovative methods of cultivation, seedling supply, market access, pollution and climate impacts on production.

Seaweed Farming in the Northern Hemisphere

As noted in the Cold-Harvester Fall 2023 edition, farming seaweeds is a nascent industry in North America with efforts starting about 40 years ago in British Columbia, Alaska and the eastern seaboard of North America. Much of the development since the early 1980s were undertaken by Canadian companies such as Acadian Seaplants, for land-based seaweed farming in particular. More recently kelp farming has been expanding in Alaska, Maine, Quebec, New Brunswick and British Columbia, principally, but at a fairly slow pace of development, this over a 20 year period. It is noteworthy, perhaps, that a half dozen or more indigenous nations are engaged in some fashion in Canada with seaweed farming. Seaweed farming has taken a little longer to develop than finfish or shellfish farming in North America, as skills, technology and seed supply tools have had to be developed with significant public investment to share the risk, and the return on investment from the private sector is yet to be achieved to date, to encourage further development and investment.

In Europe and Northern reaches of the subarctic (e.g., Norway) great interest in seaweed cultivation has also emerged over the past decade or more, prognosticating the benefits of consumption and environmental benefits and ecosystem services such as carbon sequestration or carbon credits. While it certainly something to be interested in, it turns out that the best markets to date for the global North seaweeds seem to be in plant biostimulants, nutraceuticals, pharmaceuticals, as well as animal feeds or pet foods,

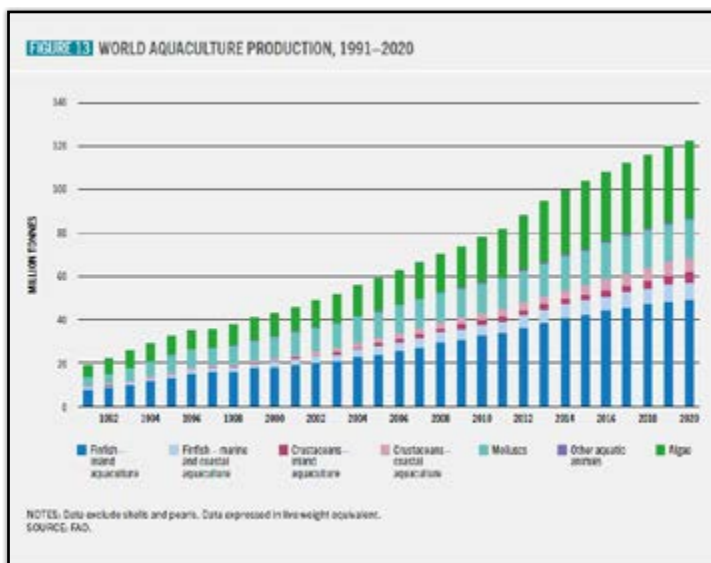


Fig. 1 – Global seaweed farming production in 2020. Roughly 35 million tonnes wet weight. Source: United Nations FAO 2022.

much less than on the human food side of the equation, although you can always have your seaweed pie and eat it too! Much of the seaweeds now produced in colder waters are going into commercial pet foods, farm animal feeds and plant biostimulants using the biorefinery principles developed many years ago by Indian and Indonesian interests, such as Sea6 Energy. The biorefinery process employs aqueous extracts and the like taking all molecules out of primary red seaweeds and putting them to good use without leaving negative residues behind, and is certainly worth considering for newer companies, particularly in North America. A short visit to the company website (www.sea6energy.com) will give you an appreciation for their advances in this space (Fig. 2).



Fig. 2 – Sea6Energy innovative automated seaweed farming and bioprocessing. Sources: Sea6Energy.com and YouTube “Inauguration of the world’s first 1 square kilometer mechanized tropical seaweed farm”.

In the Fall Edition of this magazine, I noted our Northern produced “weeds” may contain better or different biostimulants or components that make life better for animals, plants, and humans. So, these are worth exploring as commercially valuable seaweed products. Constraints still exist in production, including adapting on-farm production technologies to local conditions, infrastructure gaps, market access and financial viability. One of the main hurdles however, at least in North America, are the regulatory barriers that exist – most jurisdictions, whether federal, state, or provincial just don’t know, or understand how to regulate seaweed farming.

The obvious solutions to the above conundrums are for the seaweed sector to get together with their regulatory counterparts and develop a plan to commercialize the various species. This is being done at the national levels in Norway and has been done previously in Canada for finfish and shellfish. So, one should argue for the creation of a network of Canadian seaweed farming interests to detail development constraints and build a national consensus on moving forward. The network really must be formalized, with regulators and farmers exchanging information, and not just a one-of meeting of the minds (Mark Smith, PSIA, personal communication 2023).

A Commentary on Carbon Sequestration and Carbon Credits

It has become evident in the past few years that carbon credits or sequestration with seaweeds, or blue carbon credits as referred to sometimes, is not really practical or useful to consider, at least not at scale. For the sequestration portion, huge swaths of the ocean would need to be covered with seaweed and then dumped at sea to have any effect on carbon sequestration, not to mention of course the impacts on coastal and deep water habitats in our oceans; besides who is going to pay for this in the first place, certainly not big oil and gas!

The idea of carbon sequestration with seaweeds has been promoted for almost a decade now, in various fora yet the actual scientific findings are that there is very little promise there, since the carbon will be released once the weeds are harvested and used for other things. So, forget that, it is still a lot of greenwashing of the blue economy in reality.

Carbon credits are something else some have been promoting for seaweed farmers, but this too is difficult to rationalize to a large extent. A recent study entitled “Deep-ocean seaweed dumping for carbon sequestration: Questionable, risky, and not the best use of valuable biomass” from world leading seaweed farmers and scientists argue ocean dumping is unethical for sequestration. In addition, on the carbon credit side of the equation, it is estimated that carbon alone may result in \$0.0145 “credit” to the farmer per kg dry weight of seaweed. Carbon taxes and credits were discussed at COP 28 recently and the range, for seaweed farming in general is very low. Hardly an Earth shattering amount adding little to the bottom line, or removing carbon from our atmosphere. Rather, nutrient credits are favoured in terms of nitrogen or phosphorous and to incorporate these in the environmental benefit schemes, where they may have much more value, in financial and ecosystem remediation.

Recently carbon credit trading schemes have come under scrutiny for poor management and indeed inflating credits, or not able to confirm actual carbon sequestration or removals in many instances. Some have even fallen apart over integrity issues such as measuring accurately the credit system as noted before in COP 28: <https://www.climatechangenews.com/2023/12/13/carbon-credits-talks-collapse-at-cop28-over-integrity-concerns/>. Lastly, some investment carbon credit schemes, so called green investment funds, have also come and gone, and the United Nations University has recently stated “Global Carbon Trading System Has ‘Essentially Collapsed.’” This doesn’t mean it can not work, however there is still ‘greenwashing’ of the blue economy to say the least.



Photo Credit: Cooke Aquaculture

IN MEMORY OF GIFFORD COOKE: CANADIAN SALMON AQUACULTURE PIONEER

It is with deep condolences that the Newfoundland Aquaculture Industry Association mourns the loss of Canadian salmon aquaculture pioneer Gifford Cooke of New Brunswick. Mr. Cooke passed away on March 3, 2024, at the age of 85 years old. Those close to Gifford remember him as a personable, outgoing and friendly gentleman with a robust work ethic and a good sense of humour.

Cooke Aquaculture, the family salmon farming company that Gifford and his sons Glenn and Michael started in 1985, is a true Canadian success story, growing from a single farm site into what has become one of the world's leaders in seafood. Today Cooke Seafood has nearly 13,000 employees in 15 countries and produces salmon (wild and farmed), sea bass, sea bream, scallops, oysters, shrimp, crab, and other seafood products. Commenting on Gifford Cooke's success, New Brunswick

Premier Blaine Higgs said "Over the past 39 years [Cooke Aquaculture] has made a significant contribution to our province's economy as well as to that of Atlantic Canada, the rest of the country and internationally."

Joel Richardson, Vice President of Public Relations for Cooke Inc. said, "On behalf of the Cooke family and our employees, I would like to express our gratitude for the immense contributions Gifford has made to rural coastal communities in Eastern Charlotte, New Brunswick, and throughout Atlantic Canada and the globe."



In Memory of Minister Derrick Bragg



Honourable Derrick Bragg, Cabinet Minister and Member of the House of Assembly for Fogo Island-Cape Freels, NL and former Minister of Fisheries, Forestry, and Agriculture lost his battle with cancer in January 2024. He entered into politics in 2015, and became Minister of Fisheries, Forestry and Agriculture in 2021. In the summer of 2023, he took a leave of absence after being diagnosed with cancer. On behalf of the Newfoundland Aquaculture Industry Association and its members, we would like to offer condolences to his family and friends at this difficult time.

Photo: Former Minister Derrick Bragg on an oyster site at Salt Water Pond, NL with Allister Blake and Michael Butler of Notre Dame Mussel Farms Inc.

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WHY CHOOSE US?

We strive to be the partner you can rely on to help your business grow and succeed, and we're dedicated to making that happen every step of the way. We're committed to serving you for the long term.

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Harbour Breton, NL
A0H 1P0

3

WHO WE ARE

We are a locally owned and operated service provider for the marine and aquaculture industry in Atlantic Canada. Our main office is located in Harbour Breton, NL. We offer a wide range of products and services to suit all our clients' needs.

6

OUR VISION

We want to be there for you through every step of your project. Our vision is to be your go-to destination for all of your needs, whether it's through our wide range of products and services, our highly experienced and professional staff, or our commitment to excellence in everything we do.

0

OUR MISSION

At 360 Marine Ltd., we are passionate about the aquaculture and marine industry, and we are committed to providing the highest level of service to our clients.



(709) 885-2141



admin@360marine.ca