# What We Heard Report: Gear Innovation Summit

## First Edition


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**What We Heard Report -** Gear Innovation Summit 2020



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# What We Heard Report: Gear Innovation Summit

February 11 and 12, 2020

## Introduction

The Gear Innovation Summit held in Halifax, Nova Scotia on February 11 and 12, 2020, was a first of its kind in Canada. The purpose? To explore current and emerging whale safe technologies and strategies as well as current and emergent technologies, strategies and programmatic interventions designed to reduce and/or mitigate the risk of abandoned, lost, discarded fishing gear (ALDFG).

Hosted by Fisheries and Oceans Canada (DFO), it brought together approximately 250 harvesters, industry representatives, fishing gear developers and manufacturers, scientists, NGOs, marine mammal responders and government officials, from Canada, the United States, and Europe. The Honourable Bernadette Jordan, Minister of Fisheries, Oceans and the Canadian Coast Guard delivered opening remarks and participated extensively in the two-day event.

By design, the summit revolved around ideas, perspectives and lessons learned from innovation, trials and lived experiences. Just as there are no easy solutions, nor single-purpose answers to the questions at hand, the summit did not attempt to focus on solutions or recommendations. Rather, it was about raising awareness, and exploring the art of the possible at the intersection of robust fisheries, whale safety, and the environment.

Presentations from a diverse group of industry, environment and academic experts set the scene for in-depth panel presentations and dialog, with questions from participants throughout. The summit incorporated a robust Trade Show, providing an in-depth opportunity for participants to see gear demonstrations, talk to developers and manufacturers, and expand their conversations and network building.

Throughout the two days we heard about challenges and opportunities. We also heard about the commitment being made to tackle critical issues, and the interest in coming together to find creative ways forward. Those who attended clearly recognize the collective challenge to evolve and sustain vibrant fisheries, endangered whale populations and the health and future of the ocean waters on which we all depend.

We heard as well that the goals of the summit were achieved. Innovative technologies, experiences and lessons learned were readily shared, while connections, relationships and networks were built and/or strengthened throughout. The result?

- Greater industry-wide awareness, insight and understanding about current and emerging fishing technologies and programs designed to reduce interactions with marine mammals and reduce the frequency and impact of abandoned, lost or otherwise discarded fishing gear (ALDFG).
- Keen stakeholder engagement to continue the dialog needed to identify the relationships, partnerships and governance required for sustainable fisheries.

***"Never underestimate the power of a small group of committed people to change the world. In fact, it is the only thing that ever has."*** *- Margaret Mead*

# About this report

While all present had the opportunity to learn, explore and single out innovative approaches for their own follow-up, this report endeavors to capture highlights of *What We Heard*. It is our hope that it will serve as a useful reference for attendees and those whose interests intersect. It is also our hope that the connections and relationships forged or deepened throughout the summit will lead to useful networks and partnerships as this work continues.

For DFO, this report will serve as the basis for more focussed consultation with industry, as we continue to shape fisheries management strategies and practices for the future. We are deeply appreciative of the time and talents invested by all who presented, attended and engaged in the summit.

Thank You.

# What we heard about whale-safe technology

Three existing, in-trial whale-safe technologies were explored, as well as the emergent technology of ropeless gear. Here's what we heard about each:

## Existing, in-trial whale safe technologies: weak ropes, sleeves, cutters

We heard from a cross-section of experts with experience developing, adapting and trialling **weak ropes**, **sleeves** and the **time tension line cutter (TTLC).** Many industry developers and providers also demonstrated and discussed their gear at the Trade Show.

In considering the main constraints with each of these technologies, we heard:

- Weak ropes and sleeves can present retrieval challenges in depths greater than 300 feet (100 metres).
- Durability of rope is also a factor, including challenges during hauling.
- There are usage differences according to species(crab/lobster), location (near/offshore) and ocean conditions (tides and time of year).

In considering "reasonable time" to implement these gear innovations into a fishery, we heard:

- More extensive trialling is essential to better understand how each technology can be used to best advantage, and in what fisheries and conditions; however, these technologies are viable for implementation in the short (1 Year) to medium-term (2 – 3 Years).
- Cost and time to implement modified gear must be considered to ensure fishers are able to procure, implement gear modifications and minimize gear loss with these innovations.
- Questions still need to be answered about how the production and access to each of these technologies can be scaled to ensure availability as and when needed.
- It is vital to have fishers at the heart of ongoing conversations about how and when to proceed to full implementation.

We also heard that the TTLC is the most likely of the three to lead to self-shedding of gear by an entangled whale. None of the technologies featured is seen to lead to more lost fishing gear.

Though questions about the technology remain, we also heard we cannot wait to act. Threats to endangered North Atlantic Right Whales (NARW) remain; action is needed now. Specifically, the full engagement of fishers and technology experts in continuing to test (including testing at greater scale), evolve and adapt these technologies to each of the unique fisheries and conditions that make up our industry. And for that, we need everyone's concerted engagement and effort.

> ***"Please establish a framework allowing all those involved to participate in the process towards the solution. This creates support amongst the stakeholders and facilitates the process."*** *- Summit participant from follow-up survey*

## Emergent whale safe technology: ropeless gear

We heard about several new and emerging ropeless technologies being explored, as well as industry experiences and lessons learned from recent ropeless gear trials. These include buoy and marking systems, on-demand acoustic release technology and virtual gear mapping.

There have been some successes with ropeless gear to date (most notably in the Acadian crab fishery), as well as real challenges (specifically, in the offshore lobster fishery in South West Nova). In considering the potential, user efficiency, and application of ropeless technologies, we heard:

- Testing to date has found different levels of gear capability, especially when trialled with different species/fisheries or in different conditions. As well, gear use and training requirements can be quite varied.
- Consequently, one size does not fit all with ropeless gear, and each fishery, species, depth and currents must be considered.
- Ropeless technologies represent a more fundamental change for fishers than the other whale-safe technologies discussed, especially for offshore lobster fishers.
- We heard that some applications of ropeless technology are more viable now (e.g. single trap versus trawl); however, there is tremendous value in more field trials to test the technology in different settings and fisheries, and enable the practice of "learning our way forward."
- Detection of remote gear emerged as a significant issue for fishers in some of the trials to date, especially offshore lobster fishing where wireless range is limited. The issue remains: how to communicate with the wireless devices and know the location of gear – for retrieval, mitigation of gear loss and avoidance of gear entanglement with gear being set by other fishers.
- Ropeless gear is expensive. It also requires more training for safe, reliable use, raising questions for fishers about financial support to test it. The possibility of being able to access gear "on loan" for testing purposes as industry continues to address known issues and further evolve the technology was also suggested.
- Use of ropeless gear for offshore lobster fishing also presented challenges related to space needed for the gear, gear arming and retrieval processes as well as safety.

We heard that the most relevant and beneficial applications of ropeless are yet to be fully understood. As a result, there is much to be learned and explored before it can or will be reasonable to consider widespread application; however, we also heard we can't wait to act. Ropeless technologies can provide a means of accessing closed fisheries now, and many urged concerted actions to begin more extensive trialling of these technologies in closed areas now, where interaction with whales can be tested and further understood.

We also heard that developers and gear producers are keen to work with fishers in testing and evolving gear as industry works to develop ropeless technology as a viable and practical whale-safe technology solution in the years to come.

> ***"The summit was an excellent place to bring forward many ideas. In particular, the trade-show exhibits of gear was an important step forward in advancing conversations."*** *- Summit participant from follow-up survey*

# What we heard about abandoned, lost or discarded fishing gear (ALDFG)

The summit offered an opportunity to learn about efforts to address abandoned, lost or discarded fishing gear, known by many as "Ghost Gear," or perhaps more aptly, "Lost Gear." Lost Gear is both deadly and costly, posing entanglement risks for whales and gear, cost to fishers and the environment, and safety concerns with the gear itself; however, there is much that can be done to build upon efforts to date.

We heard encouraging and inspiring examples of successful efforts to reduce, retrieve and recycle lost gear, and the technology solutions and programs being developed to support the work. We also heard about the inherent challenges which must be considered in moving forward, as well as questions still to be answered in tackling the issue effectively. Here's what stood out about ALDFG Technology and Programs.

## Technology

A range of Electronic Monitoring systems and Visualization tools exist, and are being used to enable gear monitoring, loss prevention and retrieval initiatives worldwide. These tools focus on how to increase knowledge and accuracy of gear location, as well as provide a useful means of determining the best retrieval strategy, whether via diving, grappling, trawling, flotation systems for surface removal, or ROVs. Notable examples were showcased from the West Coast/Pacific Region as well as Europe, including Iceland and Norway, and the collaborative efforts being led by the KIMO International collaboration.

**Gear reporting**

In considering the use of gear reporting for the sustainability of fisheries, we heard there are very real benefits to be gained, notably increased traceability of gear, enabling opportunity for gear retrieval and mitigation of entanglement (whales and gear). Further, monitoring represents an opportunity to identify patterns of loss and relevant conditions, to assist in future loss prevention. The durability of current gear, e.g. rope strength was also noted as a dimension of the lost gear issue, leading to the longer-term question of how future gear design and modification options might be developed for more sustainable ocean use and health.

We also heard about the questions and concerns raised by gear tracking and reporting. Specifically, how will lost gear information be used and shared? What are the implications for penalties and/or regulatory changes in response? And what privacy concerns may exist or emerge? We heard there is a strong desire for a meaningful flow of information, as well as an opportunity for fishers to be involved in

designing relevant solutions, including an opportunity to provide input for regulations that may be considered.

**Prevention or retrieval for Canada**

In considering the question of technology investment for Canada in 2020 (prevention or pechnology), views were mixed. However, we heard that both are needed: Retrieval can enhance prevention efforts by removing gear that poses entanglement risk for whales as well as other gear. Prevention is the key to long-term, systemic change and the reduction of lost gear overall. Ultimately, a comprehensive approach that reflects both, and enlists all partners, will be needed to achieve a full solution. In the meantime, existing worldwide reduction and prevention strategies provide excellent insights and proven models upon which to build.

**Use of current electronic monitoring to mitigate ALDFG impacts**

Electronic monitoring of gear, side scan radar to map and identify lost gear, and visualisation tools were among the technology innovations discussed. We heard that effective use of these tools can increase awareness, location and recovery of lost gear, as well as reduce vandalization and theft of gear. We heard that retrieval is only one component of an effective approach.

> ***"DFO can continue to make advances in gear technology through funding mechanisms, and partnerships with industry, engineers and scientists."***
>
> *- Summit participant from follow-up survey*

## Programs

We heard that programs and collaborative efforts are as important as technology and innovation in tackling the complex challenges of ALDFG. Significantly, there are many remarkable and inspiring examples from which to learn. Collaborative projects and models exist in many countries at varying degrees of scale, perhaps most notably throughout European countries. Worldwide, the Global Ghost Gear Initiative (GGGI) initiative focussed on reducing/removing/recycling represents a significant opportunity to work collectively in addressing lost gear. Canada is now a signatory to the GGGI, with active projects underway.

**Requirements for effective partnership**

We heard that trust, transparency, involvement of fishers and local communities, collaboration with relevant industry partners, ongoing education and a "no blame" approach are essential to effective partnership. Fishers, NGOs, government, waste collection facilities, coastal groups and local citizens and communities all have a role to play in effecting lasting change. Engaging all partners to come together to focus on solutions, rather than laying blame, is also critical to success.

**Required resources for recycling**

Effective retrieval, collection, and processing of lost gear is an expensive undertaking, requiring many participants, and appropriate facilities, especially for collection/handling, transportation and processing. It requires capital investments as well as ongoing operating expenses, and access to necessary facilities may entail significant transportation challenges and cost, especially from remote locations to processing

facilities. End-of-life options for old gear is also a challenge, and there are currently no recycling options for mixed plastics.

**Role of education and awareness**

Lost gear is a complex issue that needs a sustained, highly collaborative effort to tackle. As a result, industry education and awareness are vital to successful prevention and retrieval efforts. We also heard that marine pollution from all sources is an even bigger issue than lost gear and it has a strong consumer appeal. However, what doesn't yet exist is widespread awareness that individual consumer behavior regarding waste and plastic disposal is a significant contributing factor. Nonetheless, there is real potential to appeal directly to consumers in supporting the industry's collective efforts to retrieve/remove lost fishing gear and clean up our oceans for the benefit and enjoyment of all.

## What we heard about the summit

We heard very positive feedback about the summit, specifically about the structure and program; participant mix; overall experience; and ultimate takeaways. A few themes stood out:

**Dialog and collaboration are critical**

The issues at the heart of the summit are complex and critical, and everyone has a role to play. The summit was a tremendous opportunity to bring together a diverse group of industry members to share, learn and explore what's possible in enabling the continued growth and success of our fisheries, the health and future of endangered right whales, and the oceans on which both depend. The diverse mix of participants was noted and appreciated: fishers/harvesters, technology developers and producers, scientists, NGOs, marine mammal responders and government.

**Continue (and expand) the conversation**

We heard there is interest in continuing the conversation, with the inclusion of even more fishers in the process, as well as representatives from the aquaculture industry, which has emerged as an important industry member. Harvesters spoke about the importance of more focussed conversations to explore the unique challenges and opportunities associated with each fishery and area, and the location, ocean conditions and seasonality factors for each. Many participants are also keen for DFO officials to have a more prominent role in the formal presentations in future summits and in addressing questions about the regulatory framework as well as management decisions and decision-making processes and timelines.

> ***"Speak with the fishers, they have the best knowledge concerning feasibility of fisheries technology and innovations. Understand that every fishery in every area is different so it is inadvisable to make decisions for multiple areas based on consultation and information from only one or a few limited areas. Maintain trust and be transparent when communicating with fishers, it is much easier to lose trust then gain it, and without trust nothing can be effectively accomplished."***
>
> *- Summit participant from follow-up survey*

**Optimism, determination and hope exists**

We heard all these sentiments, anchored by the deep history of innovation and creativity that lies at the heart of the fishing industry. As one participant summed up with great passion: ”fishers are fundamentally creative problem solvers and know how to devise innovative ways; it’s the nature of their work. There is hope for what’s possible…”(Paraphrased)

**Format worked; Q&A time was short**

The summit format offered a real opportunity to learn, share and explore. High quality presentations and dialog time, and a robust trade show featuring innovative technology and initiatives, added up to time well spent.

Q&A time was a challenge throughout the summit and participants had more questions for presenters than could be answered from the stage. Those questions were captured online through SLIDO and circulated to presenters after the summit.

**Post-summit survey results**

Approximately 20% of participants shared their feedback in the post-summit survey.