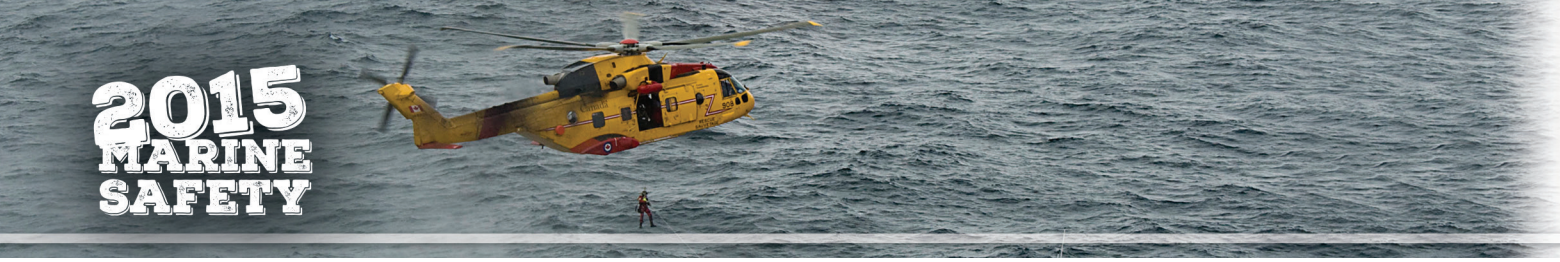

ADVERTORIAL

Reducing Marine Risks


Ronald Pelot

Mulling over an uncertain future is the kind of thing that keeps most people awake at night. For Ronald Pelot, it's his day job.

Pelot, an Industrial Engineering professor at Dalhousie University, has spent nearly 25 years wading through the murky waters of risk management, where dealing with uncertainty is goal number one. "Risk modeling asks what's the probability of something happening, and what's the consequence. It's the 'so what' from the human point of view," says Pelot. "With risk mitigation — response or prevention — you look at reducing that risk."

Understanding and reducing the complex risks in industries like fishing can mean saving livelihoods, and even lives. Pelot has explored many aspects of marine risk in the past with partners like the Coast Guard, Transport Canada, and the Department of National Defence. When the Marine Environmental Observation Prediction and Response Network (MEOPAR) formed and found a home at Dalhousie, Pelot welcomed the chance to get involved and revisit fishing safety. "I like applied problems. If you can figure them out, eventually it helps reduce losses — whether that's property damage or lives."

Pelot wanted to understand the relationships between extreme weather and fishing accidents. And with uncertainty in how storm tracks may shift as climate changes, Pelot and his colleagues recognized the need to address the issue now. "If storm patterns change in the future based on what climate scientists are telling us, how does that affect the fishing fleets? Does it become riskier or less risky? We want to say here's how it affects accidents now, how might it affect accidents later?"

Armed with sophisticated forecasts and information on past storm tracks from the MEOPAR team, Pelot and PhD student Sara Rezaee set out to understand how safety fits into the equation. They combed through five years of fishing traffic data and thousands of incident reports in the Canadian Coast Guard's Search and Rescue database. From this information, Rezaee teased out fishing incidents related to storms from other factors.

After their analysis, Pelot and Rezaee found there were actually fewer incidents during storm events. Pelot says this simply comes down to traffic. "If there's a storm warning, some will not go out, or they'll take shelter." For the vessels caught out in storms, however, their key findings show significant increases in accident rates and accident severity.

MEOPAR

Overall, Pelot feels the industry is safer than in the past, with better training, forecasts, communication technology, and safety equipment. But even the most experienced can make decisions that have unintended consequences. "It's difficult to get a handle on risk until something big happens, like a storm. It's hard to appreciate it. But our findings show how much higher the risk and severity is during extreme events."

Pelot and Rezaee's work will inform upcoming MEOPAR studies on the decision-making of fish harvesters around extreme weather. Pelot has also connected Rezaee with a student studying Coast Guard response and resource allocation. He hopes together their team can inform safety policy and address key gaps in the research to make the uncertain future a safer one. ⚓