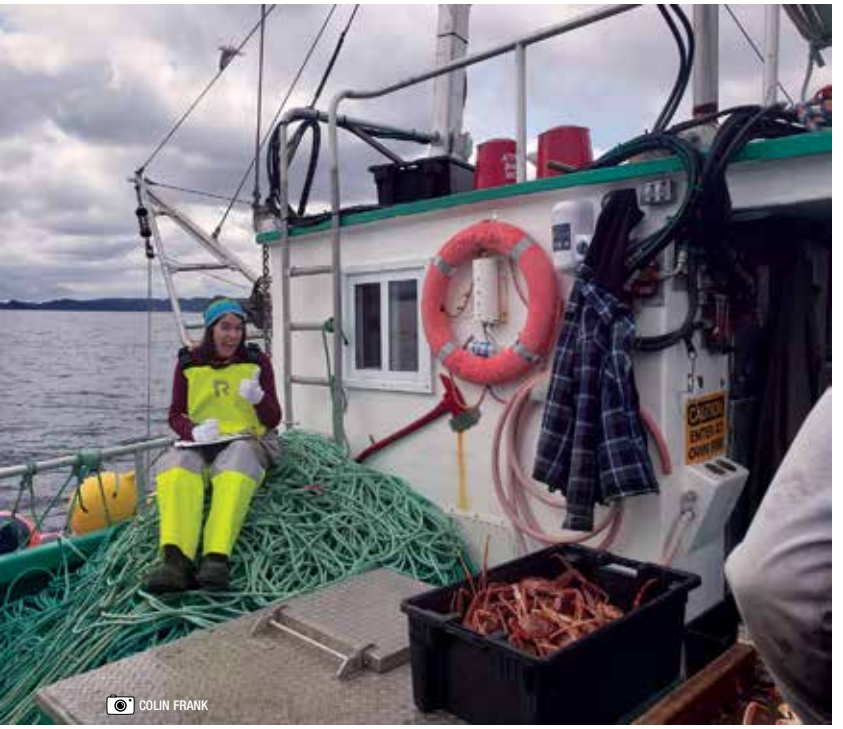
LODE STAR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RIOGHNACH STEINER

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As an M.Sc. candidate in fisheries science and technology, Rioghnach Steiner works to better understand snow crab behaviour during pot capture. Along with the team at the Centre for Sustainable Aquatic Resources, she collects video footage for a variety of different pot designs that were developed for the Norway snow crab fishery. From there, she investigates which pot designs are more efficient in capture by looking at the amount of time it takes for snow crab to approach the pot and enter.

Her aim is to determine whether certain pots will impact the time it takes for snow crab to be captured in comparison to the currently-used traditional pots. Assuming some pots will be more successful than others, Ms. Steiner and the project team tries to determine whether a specific type of pot will help reduce fishing effort. By testing gear, it can be determined what crab are willing to enter and what they are deterred by – providing feedback that can be used in designing future pots for the fishery.

Ms. Steiner's research will help harvesters and members of the industry potentially reduce fishing effort while capturing quotas in a more effective manner. For example, if pots can capture snow crab at faster rates, then there would be less fishing days, less fuel being burned, and less time spent out to sea.

Being able to complete fieldwork on the ocean and work alongside fishers is a welcome treat for Ms. Steiner. Learning from knowledgeable fishers helps her gain insight into her research.

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DR. JULIA CALDERWOOD

POST-DOCTORAL RESEARCHER
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Dr. Julia Calderwood investigates how new technologies and mobile phone apps can be used to share real-time information to help skippers avoid unwanted catches and reduce discards. The Science Foundation Ireland-funded project – Irish Fisheries Information Sharing Network Development (IFISH) – will be developed through close collaboration with stakeholders in the fishing industry to ensure a tool is produced that addresses fishers' needs with regards to unwanted catches.

Discarding in fisheries (unwanted catch, often already dead and returned to sea) is a global concern. As a result, new European legislation, known as the Landing Obligation, prohibits discarding of quota species in European fisheries. The fishing industry has already adopted a number of measures to help reduce unwanted catches, such as using more selective gear types, but knowing exactly when and where to fish to avoid unwanted catches can help to further reduce discards.

Previously, Dr. Calderwood developed hotspot maps to help fishers identify areas where they were most likely to encounter quota limited species that they might want to avoid. The IFISH project adds a new dimension by providing real-time data at finer spatial resolution.

The resultant reduction of bycatch could result in significant economic, environmental, and societal benefits. For the fishers involved, reducing bycatch results in increased efficiency of fishing operations, with less time spent sorting through unwanted catches and less fuel being used for unwanted catches. On a broader scale, all efforts to decrease bycatch and discards result in reduced waste and improved food security as well as ensuring ecosystem health thus protecting a multitude of nationally important marine resources.

Dr. Calderwood learns so much by working alongside the fishing industry and believes it is vitally important to utilize their knowledge in the scientific process.

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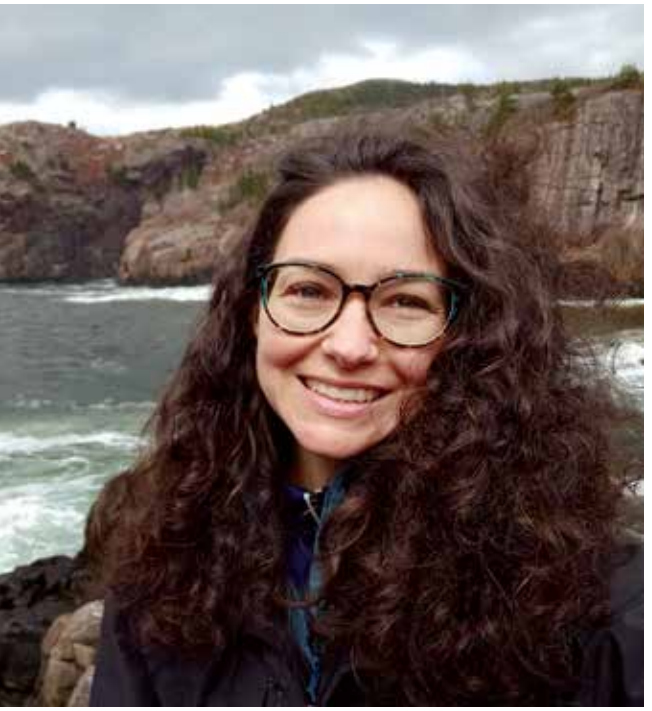

RAQUEL RUIZ DIAZ

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Climate change modifies ocean conditions, including currents, coastal upwellings, and water temperature, affecting primary productivity, species distribution, and abundance at local and global scales. These ongoing changes in marine ecosystems increase uncertainty around stock assessments, which are important fisheries management tools. Alterations of the structure and function of marine ecosystems are likely to have associated socio-economic implications on ecosystem services, marine fisheries, and fishery-dependent communities.

Raquel Ruiz Diaz's research aims to quantify the ecosystem dynamics of the Grand Banks through past and present and make projections of the ecosystem's response to climate change. To do so, she will first develop a dynamic multispecies size spectrum model that will be ensembled with Earth system models coupled with climate change projection scenarios.

This research has enormous implications for fisheries management and policies. It provides the baseline to set a portfolio of climate-smart adaptive strategies to ensure the long-term sustainability of the ecosystem and profitability of the sector. Furthermore, this type of model has not been developed for this region yet, contributing to knowledge generation on Newfoundland and Labrador bioregion, in general; and on the Grand Banks production unit, in particular.

Ms. Ruiz is especially interested in this research because it combines two of the topics she is most passionate about: fisheries and climate change. She is also intrigued about the fishing history of the Grand Banks of Newfoundland, going from being one of the most profitable fishing grounds worldwide to one of the biggest socio-economic crisis ever observed in fisheries.

Her work helps to increase knowledge about ecosystem functioning in the region of Newfoundland and, hopefully, prevent another crisis like the one in the 1990s from occurring again.

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