LENFEST OCEAN PROGRAM

A working group
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Maritza Sepúlveda

NEW RESEARCH TO ASSESS MARINE MAMMAL BYCATCH RISK IN CHILE

INTRODUCTION

In order to reduce marine mammal bycatch in Chile, managers and scientists need to assess existing data to prioritize when and where regulations and monitoring efforts could be most useful. The Lenfest Ocean Program is supporting Dr. Ellen Hines, Estuary & Ocean Science Center, San Francisco State University, and Dr. Maritza Sepúlveda, Universidad de Valparaíso, to bring together a team of experts to work with the Chilean government, fisheries agencies, and local scientists to conduct a bycatch risk assessment for Chilean fisheries.

The team will use the Bycatch Risk Assessment (ByRA) toolbox- a geographic information systems-based toolbox that can generate visualizations of potential bycatch using any amount or type of data- to produce risk maps for bycatch along the Chilean coast. These results can help improve long-term sustainable fishing and reduce marine mammal mortality associated with unintentional catch.

RESEARCH LEADS

- Dr. Ellen Hines, Estuary & Ocean Science Center, San Francisco State University

- Dr. Maritza Sepúlveda, Universidad de Valparaíso

- Dr. Carlos Montenegro, Instituto de Fomento Pesquero

THE NEED TO UNDERSTAND BYCATCH RISK IN CHILE

Fisheries contribute significantly to the Chilean economy, producing 12% of national exports. Over the last decade, the Chilean government has taken steps to understand critical knowledge gaps in marine mammal abundance and bycatch occurrence so that they may redirect resources and build capacity to sustain marine mammal populations. At present, it is critical to address bycatch not only because of the country's conservation goals, but also to comply with the U.S. Marine Mammal Protection Act Import Provisions Rule (MMPA Rule).

According to the MMPA Rule, nations that export fish and fish products to the U.S. must now adhere to bycatch standards comparable to those of the U.S. Currently, the National Oceanic and Atmospheric Administration (NOAA) is working with countries to develop regulatory programs to assess and address bycatch issues and by late 2022, will issue a "comparability finding" reviewing their progress and rendering a decision on whether seafood exports to the U.S. can continue.

In January 2020, Dr. Hines and Dr. Sepúlveda met with government officials at the Subsecretaría de Pesca y Acuicultura - Undersecretary of Fisheries and Aquaculture (SUBPESCA) and Instituto de Fomento Pesquero - Fisheries Development Institute (IFOP) offices in Valparaíso, Chile to discuss research questions that could help fill knowledge gaps and identify bycatch risk in Chilean fisheries. The meeting resulted in a series of questions that would help managers and scientists understand how to:

- Manage and analyze existing data;
- Generate methods for gathering new data; and
- Assess marine mammal bycatch risk at priority sites, by characterizing spatial and seasonal distribution and abundance of fishing boats, gear, and marine mammals.

RESEARCH APPROACH

Using the ByRA Toolkit, the research team will work with scientists, managers, and the fishing community to identify areas with bycatch risk along the Chilean coast and develop recommendations for future data collection and mitigation strategies to decrease bycatch mortality. They will do this in a series of steps:

Step 1: Scope the Work

Drs. Hines and Sepúlveda will convene a group of experts to define roles and set a workplan for the project. In meetings with local scientists, the team will prioritize specific sites and fisheries with bycatch risk and identify feasible methods to assess the risk. The sites will be selected using a wide array of criteria such as critical sites for the MMPA Rule evaluation, a range of representative gear for industrial and artisanal fisheries, and spatial and seasonal overlaps of fisheries.

Step 2: Compile Data

Using the identified sites, the team will undergo an in-depth investigation of sites identifed in step 1 to compile all sources of available data that will help determine bycatch risk for various marine mammal species. Researchers will then evaluate additional data needs, gaps, and options for obtaining this data.

Step 3: Build Scenarios and Analyze Data

Data from step 2 will be used to group specific gears that may result in marine mammal bycatch incidents by season for each field site. Researchers anticipate bycatch risk will vary across a spectrum of criteria, including a species' exposure to a particular gear type and the consequences of that exposure.

Criteria can then be calculated in the ByRA model, using information such as spatial overlap, intensity of the fishing effort, and the likelihood of a species interacting with a gear type. The research team will run various scenarios in the model to understand what could happen to a population under different circumstances like changes in bycatch rate, oceanographic conditions, increases or decreases to observer numbers, or the use of different mitigation strategies. This analysis will result in maps that show bycatch risk for each site and field season.

DEVELOPING RECOMMENDATIONS AND SHARING RESULTS

The research team will work with their Chilean partners to develop recommendations and a strategic communication plan to share the risk assessment results to a diverse range of communities. They will hold workshops and meetings to incorporate feedback from fisheries managers and stakeholders into their initial scenarios and analyses. The research team will then work with IFOP and SUBPESCA to include the risk maps as part of their mitigation planning for the MMPA Rule evaluation. Finally, the research team will create detailed videos and training materials for managers on how to use and interpret the ByRA results.
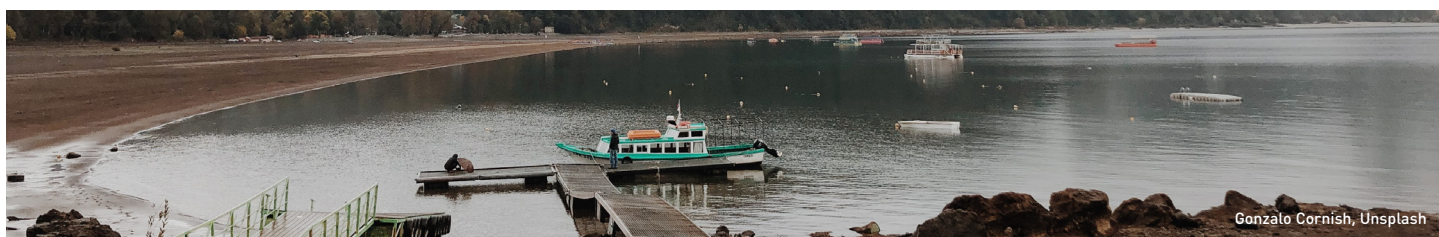
This project began in January 2021 and will run for two years.

CONTACT

For questions, please contact Emily Knight, Lenfest Ocean Program, at eknight@lenfestocean.org. To learn more about this research and stay up to date on our latest projects, follow us on Twitter @lenfestocean or sign up for our newsletter at www.lenfestocean.org.

EXPERT WORKING GROUP MEMBERS

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- Carlos Montenegro, Instituto de Fomento Pesquero

- Luis Cocas Gonzalez, Subsecretaría de Pesca y Acuicultura

- Maria Jose Perez, Escuela de Medicina Veterinaria, Universidad Mayor de Chile

- Daniel Palacios, Marine Mammal Institute, Oregon State University

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