LENFEST OCEAN PROGRAM

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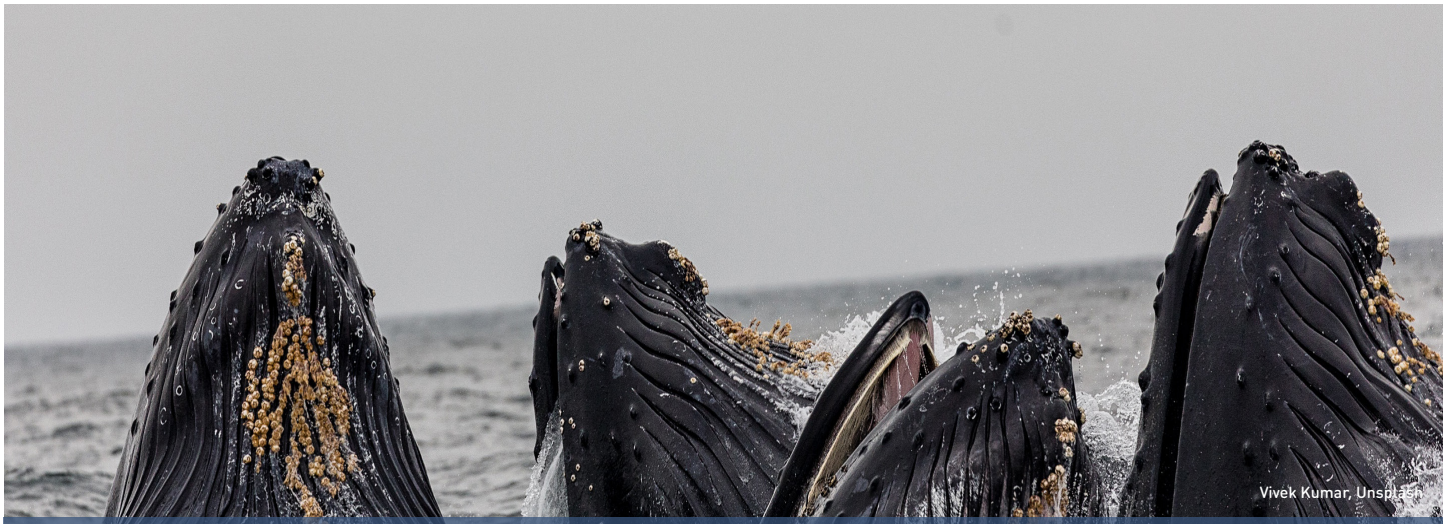

PROJECT PLAN FOR THE OCEAN MODELING FORUM'S WORKING GROUP ON MARINE MAMMAL BYCATCH

The Ocean Modeling Forum has convened a working group in response to the Marine Mammal Protection Act (MMPA) Import Provisions, issued in 2016 by the U.S. National Oceanic and Atmospheric Administration (NOAA). The rule requires nations that wish to continue exporting fish or fish products to the United States to adhere to bycatch standards comparable to those of the United States.

The working group, which will develop scientific tools to help nations comply with the rule, is an international team of scientists led by Drs. André Punt and Tessa Francis of the University of Washington and the UW Ocean Modeling Forum and Dr. Rob Williams of Oceans Initiative. In addition, representatives from the NOAA Office of International Affairs and Seafood Inspection and the Office of Protected Resources are participating as invited experts. The working group is funded by the Lenfest Ocean Program.

This document describes the working group's four planned projects. The first two will address important steps in setting and applying bycatch standards: estimating abundance and assessing bycatch rates. The third will develop an online tool to synthesize data and evaluate potential management strategies. The fourth will further evaluate the applicability of the potential biological removal (PBR) method, the primary U.S. bycatch standard.

The group plans to issue final products in 2019 and 2020.

PROJECT 1: ESTIMATING ABUNDANCE

Lead: Dr. Philip Hammond

This project will produce a comprehensive guide to methods and best practices for estimating marine mammal abundance, including extrapolation, line-transect sampling, mark-recapture analysis, static and towed acoustic surveys, opportunistic data, and model-based estimation. The guide will discuss strengths and weaknesses of each method, including logistics and cost, and detail the minimum information needed to support abundance estimates. It will also lay out a decision tree for selecting the best method for a given combination of species, data availability, and other circumstances.

PROJECT 2: ASSESSING BYCATCH RATES

Lead: Dr. Andrew Read

This project will create a guide to common methods for estimating rates and levels of marine mammal bycatch in fisheries, along with best practices for method selection. The guide will review methods for collecting the necessary observational data, including on-board observer programs, logbook records, and structured interviews with fishers. It will also address certain challenging situations, such as bycatch that commonly goes unobserved (e.g., entanglement in lines attached to pot gear) and encounters in which marine mammals are injured but not necessarily killed. In addition, the guide will summarize techniques to analyze bycatch data, evaluate the strengths and weaknesses of each technique, and provide a decision tree to help users reduce statistical bias and cost while ensuring accuracy and completeness.

PROJECT 3: HELPING MANAGERS EXPLORE OPTIONS

Lead: Dr. Margaret Siple

This project will develop a user-friendly, interactive web application for exploring the impacts of different bycatch management strategies on marine mammal abundance. Users will enter information on abundance and bycatch rates, and the application will return forecasts of abundance trajectories under alternative strategies. It will also project the performance of potential bycatch strategies with respect to various management objectives.

The application will work with various levels of data availability. For example, users will have a choice of a range of life history parameters, which can be as specific as "humpback whale," or as general as "seal." To account for uncertainty, users will be able to enter ranges for abundance and bycatch rates, rather than point estimates.

PROJECT 4: EXTENDED EVALUATION OF THE PBR PROCESS

Lead: Dr. André Punt

The primary bycatch standard in the United States is the PBR level, defined as the maximum number of mammals that humans may remove from a stock while allowing it to reach or maintain its optimum sustainable population. The PBR standard has proven robust under uncertainty, but it has not been evaluated for some situations that may be relevant in exporting nations, such as when environmental conditions fluctuate, carrying capacity changes, populations have spatial structure, or fisheries impact multiple stocks. This project will result in an academic publication that puts forth a framework to evaluate the robustness and applicability of PBR in such situations. The framework will accommodate various life histories, as well as a range of data quality and quantity.

Contact

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Working group members

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