

## Economic Valuation of Critical Habitat Closures (529)

Dr. Matthew Berman (U.A.A.), Dr Ussif Fashid Sumaila (U.B.C.)

**What is the Critical Habitat?** Resource managers are increasingly requested to make decisions to restrict commercial fishing for the benefit of protected species. Critical habitat is an area regulated as essential to the conservation of a species, including areas that are not currently occupied by the species. Critical habitat designations for Steller sea lions since 2000 in the Gulf of Alaska and Bering Sea have been economically disruptive to fisheries for pollock, Atka mackerel, and other groundfish. With closures possible for other marine species, and with pending proposals to create marine conservation reserves, there is an urgent need to develop tools that can help managers design critical habitat closures that minimize costs to fisheries while meeting conservation objectives.



J. Mischler

**What is Revenue at Risk?** Revenue at risk represents an estimate of gross revenue that could reasonably be expected from fishing in an area proposed to be closed. The amount is based on historic catches when the area was open to fishing. Although most habitat closures are unlikely to affect total harvests, market value, and gross revenues substantially, the area closures nevertheless impose real costs on the industry. Such costs may include higher travel costs to reach open areas, higher operating costs from lower catch rates and interrupted trawls, search costs and costs of learning how to fish profitably in new areas, etc. These industry costs represent losses to society, but they are not closely related to the so-called revenue at risk.



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**How will this project help balance conservation and economic needs?** This project will design and demonstrate a method to quantify the net cost to the fishing industry of closing area for habitat protection. It improves existing economic models of area fishing closure choice by relaxing unrealistic restrictions on protected area decision making while incorporating detailed and flexible geographic scales. Although the project will use data developed specifically for Steller sea lion habitat, the method could directly apply to potential closures for other marine mammals that also may interact with fisheries, (like seals), as well as to marine protected areas generally.

**Future needs:** Closing marine habitat to fishing may benefit fisheries in the long run by enabling higher future catches outside the boundaries of the closed areas as stocks rebuild. These costs could be significant, but estimating them lies outside the modest scope of this project. It limits its scope to the short-term cost to the fishery of foregone harvesting opportunities—the cost that often poses the main obstacle to creating such reserves.