FOREWORD

Accounts of overfishing have become so common that concerns about bottom fishing on seamounts—underwater mountains in the deep sea — and other vulnerable deep-sea habitats could easily be lost in the noise. That would be a tragedy of proportions surpassed only by the dramatic events now unfolding on seamounts themselves.

Scientists have sampled few of the world's many seamounts, but these explorations have revealed thrilling discoveries: new and endemic species on virtually every seamount, including the deepest dwelling known plants; tree-like corals and sponges as elaborate and diverse as anything in the tropics; centuries-old coral formations; and several living fossils–life forms thought extinct since the time of dinosaurs. Seamounts and other deep-sea features serve as magnets in the open ocean for migratory creatures that gather to feed on their bounty, and many support abundant populations of long-lived bottom-dwelling fish such as Orange roughy.

These extraordinarily rich environments are also being targeted for intensive fishing. Advanced technology allows bottom trawlers to go deeper, fish steeper slopes, and access even more remote locations in a discover-and-deplete syndrome that can exhaust whole populations in a few years. Few deep-sea fisheries have recovered from bottom trawling even two or three decades after fishing ceased and the impacts of trawling on rare and diverse species go unrecorded.

The motivation for this report is the urgent need to make sense of the incomplete but growing body of data on seamounts, extracting the kinds of insights and patterns that can help guide management decisions. The authors use innovative tools for that purpose, performing the most comprehensive assessment ever of seamounts and their species—including corals, sponges, other invertebrates and fish; estimating the temporal and spatial structure of fisheries landings; and examining conservation options in international law and policy.

They find that about half of the world's seamounts occur in international waters, underscoring the importance of international action to conserve their species. Analysis of seamount fishes reveals that they are far more vulnerable than marine fishes in general, so much so that even moderate levels of fishing deplete them. Explorations of a small percentage of seamounts have uncovered habitats so diverse, so fragile and so rich in unique species that it is clear we have only scratched the surface of what is there. Yet bottom trawling can destroy the creatures that make up these habitats before we have documented their existence, much less understood their ecological function or their possible uses for humanity. These varied lines of inquiry point to two conclusions: seamount ecosystems are a significant and highly vulnerable portion of the world's biodiversity, and they are being fished with little regard to sustainability or protection of the richness of life they support.

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