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Detecting and projecting climate change effects on marine fisheries

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How climate change affects marine biodiversity and fisheries are important questions for ocean management and conservation. Analyzing major marine fishes and invertebrates stocks in the world with simulation models and landings data, we show that there will be large-scale changes in species composition, pattern of marine biodiversity and redistribution of potential fisheries catch. We also project that marine ecosystems and fisheries will be further impacted through changes in the physiology and life history of fishes and shellfishes, with the level of such impacts. Ocean acidification and reduced oxygen levels in the ocean may substantially increase the rate of distributional shifts and reduce the potential fisheries yield. These findings form the basis for the determination of ways to formulate fisheries policies in the future under climate change.