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Abstract: The culture, subsistence, and welfare of tropical Pacific Island Nation people are all in some way tied to their proximate fishery resources. Many of these fisheries are already under considerable stress and duress due to human practices such as overfishing, pollution and runoff, habitat destruction and degradation, lack of proper management protocols, and coastal and global population pressures. Other human activities such as fossil fuel use, deforestation and changes in land use and consequent emissions of gases and particulates, such as carbon dioxide, sulfur dioxide, methane, etc., to the atmosphere are contributing to alteration of the global climate by a general overall warming of the planetary atmosphere. The warming of the overlying atmosphere in turn warms the underlying surface ocean. In addition to the surface ocean warming, there is also the problem of ocean acidification owing to absorption of anthropogenic carbon dioxide by the surface waters of the ocean. This input of atmospheric carbon dioxide into the surface ocean reduces the surface water pH, which is detrimental to calcifying organisms such as those that are integral to coral reefs or the planktonic calcareous coccolithophoridae and foraminifera. Climate change and ocean acidification both have the capacity to impact simultaneously all organism trophic levels and so the possible negative ramifications can and should not be underestimated. Because profound changes are needed to scale back greenhouse gas emission levels, such as carbon dioxide, to levels of even a few decades ago, it seems that for the short- and medium-term, the optimal approach to mitigating the harmful impacts of ocean warming and acidification on fisheries is to minimize the other human-related pressures on fishery resources, such as excess nutrient and suspended riverine loads to coastal ecosystems due to human activities on land. This results in the fisheries being as robust, healthy, and resilient as possible allowing them to better withstand the present and impending negative effects of short- and medium-term global change, while solutions for long-term control and reductions in atmospheric carbon dioxide and other greenhouse gas fluxes can be implemented and enforced. We are just beginning to scratch the surface on our understanding of how the impending future warming and acidification of the surface ocean will negatively impact the recruitment, physiology, population dynamics, and ecology of various tropical-

related fisheries along with the larger marine ecosystem. The purpose of this case study is to provide a brief overview of these issues by reviewing a wide range of related topics such as the economics of fisheries, the science of climate change and ocean acidification, how future climate change and ocean acidification may impact tropical marine fisheries, how global and coastal populations and future population growth place pressures on the fishery resource, importance of fisheries as a global food and protein source, etc. While this case study touches on a broad and diverse range of topics at the undergraduate level, it is not meant to be a definitive review of all these topics. At the end of each chapter, a short list of suggested readings is provided for those interested in further exploring the subject material.