

Stressors in the marine environment: physiological and ecological responses ; societal implications

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Abstrak

Anthropogenic changes to the marine environment are causing some considerable concern and yet there is very little information on the overall effects of either single or multiple human influences on species, populations, or, indeed, communities. The indication is that anthropogenic stressors have significantly altered the composition and diversity of marine communities at almost every trophic level, which can have profound effects on surviving species and ecosystems, especially when major processes are supported by a limited number of species. Studies investigating the effects of multiple stressors, however, are challenging as ecological changes are underpinned by physiological adjustments and differences in tolerance levels which are highly variable among and within species and populations. To provide a more comprehensive understanding of the effects of multiple stressors, this volume summarizes current understanding of the physiological and ecological responses of marine species to a wide range of potential stressors (salinity, hypoxia, ocean acidification, temperature, chemical pollution, nitrogen deposition, ultraviolet radiation, and noise), before it considers what is currently known about effects of multiple co-occurring stressors in the marine environment. Expertise, ranging from emerging early career researchers to leaders in the field, have been brought together to outline the responses shown by different marine species and habitats at different levels of biological and ecological organization, as well as to provide perspectives on potential future outcomes for some of the most pressing environmental issues facing society today.