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TITLE: Global Observational Needs and Resources for Marine Biodiversity

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ABSTRACT:

Living resources in the sea are essential to the economic, nutritional, recreational, and health needs of billions of people. Variation in the biodiversity that characterizes marine systems, and which underlies numerous ecosystem services provided to humans, is being rapidly altered by changing environmental factors and human activity. Understanding the underlying causes of these patterns, and forecasting where future changes are likely to occur, requires monitoring of patterns of organism abundance, diversity, distribution and health; productivity and ecosystem function; and allelic diversity and genetic expression. To achieve this goal it is necessary that these observations are accompanied by metrics of environmental and socio-economic drivers. However, existing global ocean observing activities often do not explicitly consider observations of marine biodiversity and associated processes. Implementing operational programs to observe life in the sea is increasingly critical to understanding responses of species and ecosystems to stressors, and overall impacts on critical natural capital, ecosystem services, and human welfare. Here we describe efforts in the global community to advance broad partnerships, shared approaches and best practices toward a standardized yet flexible, integrated observing system that serves information needs of resource managers and decision-makers, scientists and educators, from local to global scales.

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