Marine Life 2030: Building Global Knowledge Of Marine Life For Local Action

Marine Life 2030: Construyendo Conocimiento Global Sobre La Vida Marina Para Habilitar La Acción Local

Marine Life 2030: Construire Une Connaissance Globale De La Vie Marine Pour Action Locale

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EXTENDED ABSTRACT

Marine life supports many ecosystem services including food and nutrition, natural products, and biodiversity critical for human livelihoods (Estes et al., 2021). Managing these marine resources, evaluating conservation programs, and enabling sustainable coastal and ocean development requires information about marine life. Standardized information is needed for national and regional assessments, to meet ambitious UN Sustainable Development Goals (SDG) and targets of the Convention on Biological Diversity, inform the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), and to make significant new scientific advances to understand life and how it changes. An important goal is to model and forecast marine life in order to evaluate scenarios of ocean uses, management options, and potential impacts of climate change on marine biodiversity in all its dimensions. Yet, at present, management of marine living resources often relies on proxy variables like temperature, salinity, chlorophyll, and topography, often without

Figure 1. Marine Life 2030 is the most recent evolution of partnerships that seek to facilitate and implement best practices for monitoring biodiversity by integrating biology and ecology Essential Ocean Variables (EOV) into operational ocean observing frameworks. It is a program endorsed in 2021 by the UN Decade of Ocean Science for Sustainable Develop-

observations of the type and abundance of organisms. Great swaths of the ocean remain unstudied for marine life (Satterthwaite et al., 2021). We need to fill these gaps strategically if we want to follow the model of meteorology and weather services around the world which provide routine and reliable forecasts on which we all depend for daily activities.

Marine Life 2030 is a program endorsed in 2021 by the UN Decade of Ocean Science for Sustainable Development (the Ocean Decade, 2021-2030). It is the most recent evolution of partnerships that seek to integrate biology into operational ocean observing frameworks. The partnerships facilitate the development and documentation of best practices for monitoring of biology and ecology Essential Ocean Variables (EOV; Miloslavich et al., 2018), use of standard data formats, and sharing data via open databases to develop metrics of biodiversity (Figure 1). Over 60 private, government, academic and civil society organizations teamed up to change the way that we network society to understand and forecast marine life and proposed the Marine Life 2030 program to the Ocean Decade. An additional 21 projects had been endorsed by the Ocean Decade to be affiliated with Marine Life 2030 as of 2023 (see http://marinelife2030.org). Among the endorsed projects is a key process proposed by the Gulf and Caribbean Fisheries Institute (GCFI) to advance Ocean Decade initiatives in the region. The GCFI process consists of facilitating an opportunity for project leads and collaborators of Ocean Decade endorsed actions to meet and discuss all project developments and progress at the annual GCFI meeting, enabling stakeholders in the region to understand and contribute to the Ocean Decade's goals.

Marine Life 2030 is an open network that welcomes multi-sector collaborators. The goal of the program is a global marine life monitoring and forecasting service that functions like a weather service and that contributes to Sustainable Development Goal 14 and to the Kunming-Montreal Global Biodiversity Framework. Developing trust and relationships is essential to address local problems associated with changing marine life. One innovation of Marine Life 2030 is the goal of developing a novel, bottom-up networking structure to engage diverse parties of the ocean community–scientists, resource users, and decision-makers at all levels. Partners in Marine Life 2030 from around the world are linking local groups of citizens, users

of information, and researchers in conversations about their issues. Discussions include Indigenous Peoples and Local Communities and their needs. The program engages the US Integrated Ocean Observing System and the Global Ocean Observing System (GOOS), the Group on Earth Observations (GEO) and its Marine Biodiversity Observation Network (MBON), the Ocean Biodiversity Information System (OBIS), the Ocean Best Practices System (OBPS), the Ocean Knowledge Action Network (Ocean KAN), POGO; the Smithsonian Institution, and over 60 other partners.

Marine Life 2030 leverages innovation in 'omics, acoustics, imaging, remote sensing, and artificial intelligence to capture biodiversity information more efficiently. The goal is to integrate missing pieces into a global ocean observing system to align biodiversity data with other ocean data and other disciplines and co-deliver solutions. An emphasis on EOVs helps promote interoperability of biological observations. Observations are made by a wide range of contributors worldwide and compatibility between measurements helps to compare observations between different places and over time. An important effort that engages everyone in the community is that of the co-design of data mobilization and workflows to develop products of use to stakeholders (Figure 2; Benson et al., 2021).

LITERATURE CITED

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Figure 2. Data Flow Strategy: for geographic/temporal coverage, develop baselines, evaluate changes (diversity, abundances, ranges, connectivity, and other biodiversity metrics and indicators). (From Benson et al., 2021.)

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