Geophysical Research Abstracts
Vol. 18, EGU2016-11011, 2016
EGU General Assembly 2016

Priorities and developments of sensors, samplers and methods for key marine biological observations.

Samantha Simmons (1), Francisco Chavez (2), and Jay Pearlman (3)

(1) Marine Mammal Commission, Washington DC United States, (2) MBARI, Watsonville CA United States, (3) IEEE, Seattle, WA United States

Over the last two decades or more, physical oceanography has seen a significant growth in in-situ sensors and platforms including fixed point and cable observatories, Argo floats, gliders and AUVs to supplement satellites for creating a 3-D view of the time-varying global ocean temperature and salinity structures. There are important developments recently for biogeochemists for monitoring nitrate, chemical contaminants, oxygen and pH that can now be added to these autonomous systems. Biologists are still lagging. Given the importance of biology to ocean health and the future earth, and the present reliance on humans and ships for observing species and abundance, it is paramount that new biological sensor systems be developed. Some promising sensor systems based on, but not limited to acoustic, chemical, genomic or imaging techniques, can sense from microbes to whales, are on the horizon. These techniques can be applied in situ with either real time or recorded data and can be captured and returned to the laboratory using the autonomous systems. The number of samples is limiting, requiring adaptive and smart systems. Two steps are envisioned to meeting the challenges. The first is to identify the priority biological variables to focus observation requirements and planning. The second is to address new sensors that can fill the gaps in current capabilities for biological observations. This abstract will review recent efforts to identify core biological variables for the US Integrated Ocean Observing System and address new sensors and innovations for observing these variables, particularly focused on availability and maturity of sensors.