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George Watters is the Director of NOAA's U.S. Antarctic Marine Living Resources (AMLR) Program and is the U.S. Representative to the Scientific Committee for the Conservation of Antarctic Marine Living Resources (SC-CAMLR). George started working on Antarctic fisheries issues in 1991, when he first participated in the SC-CAMLR's Working Group on Fish Stock Assessment. George's research centers on the using quantitative tools, particularly ecosystem and population models, to evaluate hypotheses describing alternative views about the production of living marine resources and advise on strategies for their sustainable management. He is particularly interested in ecosystem-based management of the Antarctic krill fishery and the design and evaluation of marine protected areas in the Southern Ocean.

State of play (state of the art) on status and trends of Southern Ocean ecosystems

To my knowledge and given my personal views about what constitutes an ecosystem assessment, a marine ecosystem assessment of the Southern Ocean (a MEASO) does not currently exist. The absence of a MEASO both represents a challenge (there is much to synthesize and communicate) and provides an opportunity (a MEASO could potentially be very useful). In my opinion, a MEASO should explicitly link an up-to-date understanding of status and trends in the Antarctic marine ecosystem, an attribution of change to key drivers, and an accounting of how we expect those changes to affect the ecosystem services that humankind values or needs. I envision a MEASO that facilitates coordinated decision making within and beyond the Antarctic Treaty System. To achieve such an outcome in the near term, I believe the MEASO must be concise, starting from the ecosystem services that decision makers care about the most and then backward developing only those bits of synthesis that are needed to assess changes in and threats to those services. Much as the Intergovernmental Panel on Climate Change has commissioned multiple Assessment Reports, I imagine increasing detail and further synthesis after the first MEASO is complete. The Southern Ocean science community must consider several topics that are relevant to operationalizing a MEASO. These include defining an objective for the ecosystem assessment, identifying indicators that usefully reflect change, defining reference points from which to estimate change and attribute it to causative factors, determining the scales over which to condition inference about change, and developing a convincing method of communication. Other ecosystem assessments likely provide some useful lessons.

