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Marshall, C. Tara; Audzijonyte, Asta; Baudron, Alan; Champion, Curtis; Fallon, Niall; Haynie, Alan C.; Haltuch, Melissa; Townhill, Bryony; van Denderen, Pieter Daniël; Pecl, Gretta

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Monday 22 to Friday 26 July 2019, Skukuza Rest Camp, Kruger National Park, South Africa

Theme 1**. Detection, attribution & prediction of changes in species distributions**

Challenges in quantifying, interpreting and predicting distributional shifts of marine species

Tara Marshall, University of Aberdeen, UK
Asta Audzijonyte, University of Tasmania, Australia
Alan Baudron, University of Aberdeen, UK
Curtis Champion, University of Tasmania, Australia
Niall Fallon, University of Aberdeen, UK
Alan Haynie, Alaska Fisheries Science Centre, USA
Melissa Haltuch, Northwest Fisheries Science Centre, USA
Bryony Townhill, Centre for Environment, Fisheries and Aquaculture Science, UK
Pieter Daniël van Denderen, National Institute of Aquatic Resources, Denmark
Gretta Pecl, University of Tasmania, Australia
John Pinnegar, Centre for Environment, Fisheries and Aquaculture Science, UK
Malin Pinsky, Rutgers University, USA
Paul Spencer, Alaska Fisheries Science Centre, USA
Christine Stawitz, University of Washington, USA
Jim Thorsen, Alaska Fisheries Science Centre, USA

Abstract submitted:

Oceans are absorbing approximately 80% of the extra heat and 50% of additional CO_2 trapped in the atmosphere and, as a result, have undergone rapid changes in temperature and acidity. The evidence for climate-driven global re-distribution of marine species is growing but often based on the distribution of fish species, many of which are mobile and able to rapidly shift their ranges in response to changing environmental conditions. Standardised surveys are commonly used for inferring spatial distribution, however, there are many examples of species moving beyond the bounds of a survey which then limits our understanding. Additionally, there are often non-climate factors that confound the interpretation of range shifts, e.g. fishing or habitat changes. Quantifying the magnitude and rates of distributional shifts is further complicated by the variety of metrics that are used to describe historical species distributions and then contemporary changes in these distributions. Accurately specifying both the suite of drivers underpinning range shifts and the magnitude of range shifts is essential due to the societal importance of marine species for food, local economies and future projections of commercial fish species. Here, based on a cross-comparison of methodological approaches from a range of globally important marine ecosystems, we make recommendations for appropriate approaches to the collection, analysis and interpretation of data describing the abundance and location of marine species.