**Tropicalization: a powerful engine of ocean change, and a conservation challenge**

Gil Rilov1,2

1 National Institute of Oceanography, Israel Oceanographic & Limnological Research, Haifa, Israel

2 The Leon H. Charney School of Marine Sciences, University of Haifa, Haifa, Israel

Tropicalisation is a marine process arising from contemporary climate change. It is characterised by range expansion or the invasion of tropical/subtropical species and the retraction of temperate species in both tropical/temperate transition zones and temperate regions. Tropicalization thus reshuffles natural communities leading in extreme cases to radically novel ecosystems with altered functions and possibly services. Using trawl data, we assessed shifts in the community temperature index (CTI) of coastal fish assemblages at the global scale. We detected high variability in the degree and direction of community shifts and identified several major hotspots of tropicalization. The Mediterranean is one such hotspot and especially the eastern Mediterranean that is rapidly warming and is also a major hub of tropical bioinvasions due to its proximity to the Suez Canal. Shelf fishery catches in the region are indeed increasingly dominated by tropical invaders, some problematic and others highly commercial. On Levantine coastal reefs, there is also a total domination of tropical aliens in some taxonomic groups (notably molluscs), while many natives have completely disappeared. Using lab and field experiments we demonstrate that tropical reef invaders are more resilient than native species to current summer conditions, and future warming. We also found different ecosystem functionality of tropicalized reef macrophyte communities compared to native-dominated ones. Further, some tropical macroalgae may be able to at least partly compensate for the loss of thermally-sensitive native species. Increasingly tropicalized regions may require new, more adaptive, indicators for good environmental status in European directives to better suit this fast-changing ocean, otherwise, we are bound to fail. Furthermore, extensive shifts in fish communities can increasingly challenge fishery management and conservation efforts.