A Users' Guide for Managing the Planet Earth in the Anthropocene

Guía del usuario para la gestión del planeta Tierra en el Antropoceno

Guide de l'utilisateur pour la gestion de la planète Terre à l'Anthropocène

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EXTENDED ABSTRACT

"…the new age is begun; and it is your task to order its beginning and to preserve what must be preserved. For though much has been saved, much must now pass away;" Gandalf the White (J.R.R. Tolkien)

There is a growing consensus that we have entered a new geological epoch, the Anthropocene, characterized by the influence of humans on the planet's climate, geology, and biota. This change marks a dramatic shift from the relatively stable previous 10,000 years of the Holocene within which human societies evolved to a much different world (Fig 1). The terrestrial, estuarine, and marine environments in the Anthropocene will be drastically different. Many of these new species/habitat associations will have no previous analogs upon which to base resource management. Extinctions will continue to occur at accelerated rates. Yet, despite these rapid environmental changes, we continue to manage our terrestrial and marine resources focusing on persistence rather than facilitating their change. In fact, the emphasis on 'restoration' itself implies that we are directing our efforts to return to some previous condition. While laudable, this suffers from the illusions that 1) we know what the previous conditions we wish to return to , and 2) the conditions we wish to re-establish are indeed the conditions that will achieve the desired goals. I argue that this focus is, in many cases, misplaced and that we should in fact redirect our energies towards facilitating transformation and to create the conditions that allow species to 1) evolve genetically, and 2) occupy the re-parameterized niches of the Anthropocene. This needs to be done strategically by integrating multiple disciplines including science, management, spatial planning, engineering, social sciences, economics, and others in a well-developed planning process (Fig. 2). If indeed we accept that we are in the Anthropocene, then humans, by definition, must advance pro-active solutions. This requires that we redefine the roles of natural resource management in a changing world.

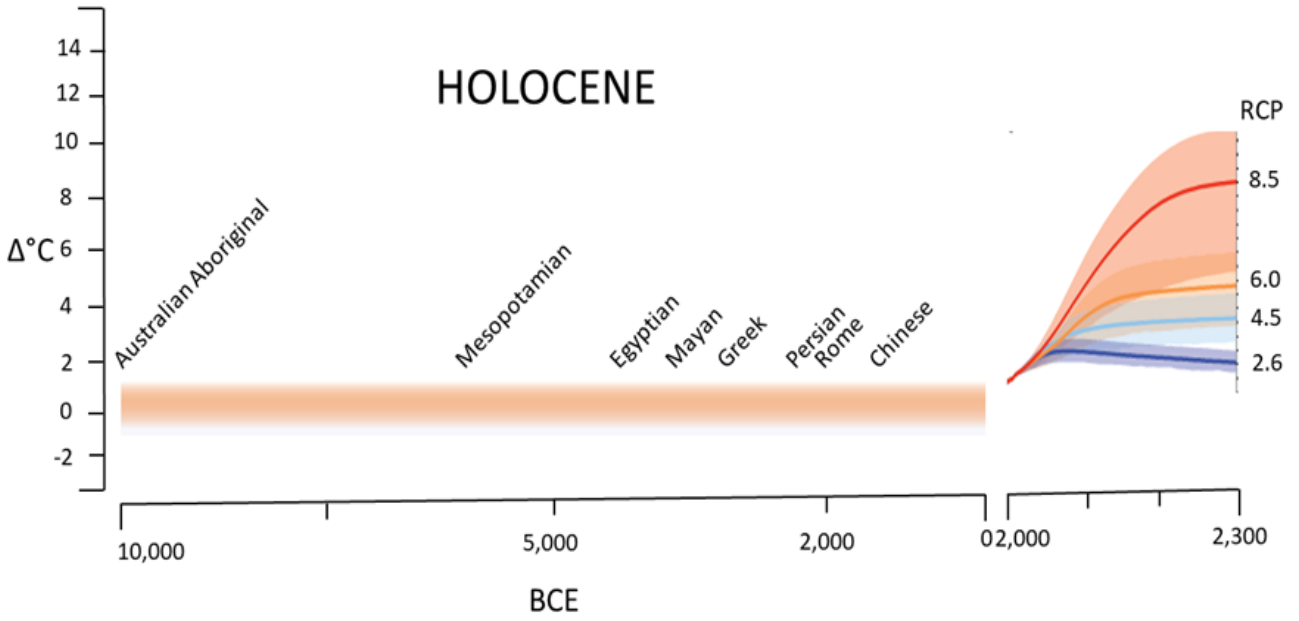

Figure 1. The range of air temperatures in the Holocene experienced during the rise of human civilizations with projections for future air temperature changes. Generally, temperatures were within a 1.3° C to 1.8° C range as human civilizations evolved. However, all future IPCC scenarios except RCP 2.6 predict an increase above 2.0° C, something not experienced globally in the Holocene. Adapted from Marcott et al. 2013, and IPCC 2014 (Figure 12.42)

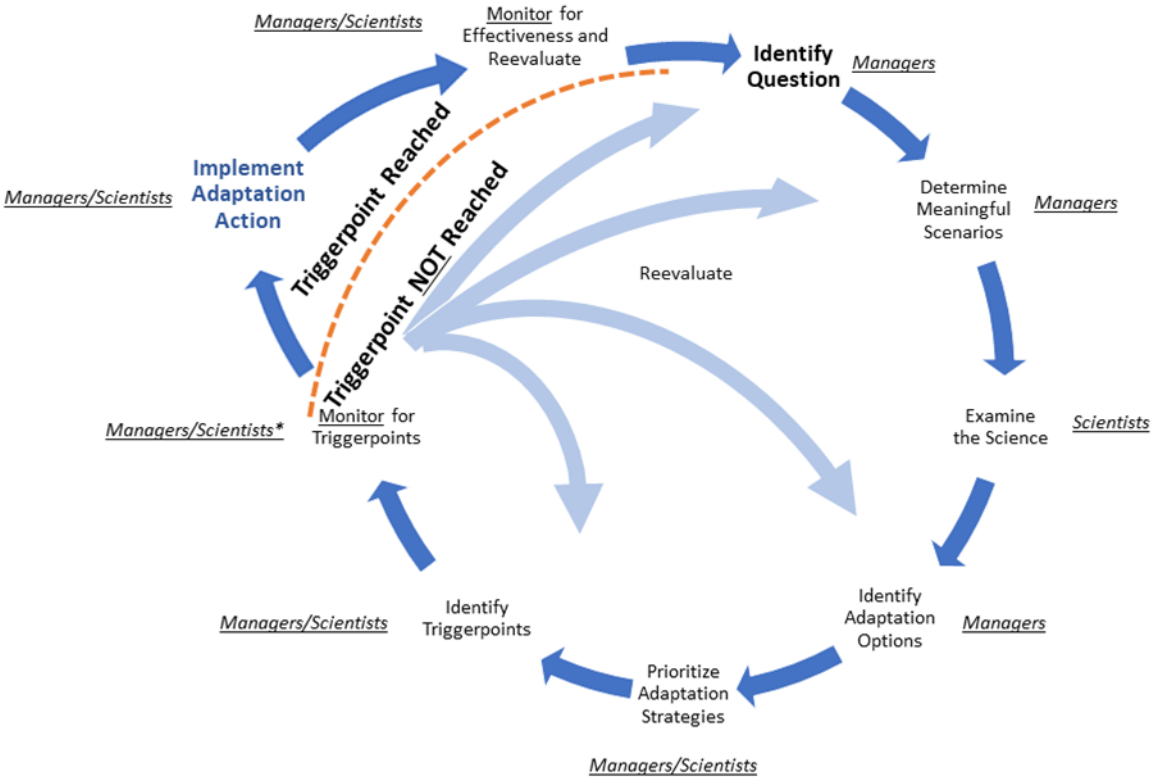

Figure 2. The Climate Smart approach developed by the Florida Fish and Wildlife Conservation Commission for strategic planning in a changing world. The entry point to the cycle is where managers identify the target for management (i.e. Identify Question in the cycle). Future uncertainty is addressed using scenario-planning to create alternative future scenarios. Based on the scenarios selected.a picture of each scenario is developed using the best science. A range of possible adaptation strategies is created for each scenario and these are priortized for implementation based on inputs from a diverse group of experts and stakeholders. Experience has shown that implementing the priority adaptation strategies is likely to be the most difficult step in the entire process.

KEYWORDS: Users' Guide, Managing, Planet Earth, Anthropocene

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