

Climate Change On Seawater Column: physical And Biological Consequences

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The Mediterranean has been referenced as one of the most responsive regions to climate change and Corsica is a marine model to study it. Like the work done by the IUCN (International Union for Conservation of Nature), with support from the French Agency for Biodiversity, based on temporal data series, on field observations and via expert opinion, the aim of this talk is (i) to describe the variation and evolution of physical parameters (sea level, sea water temperature, winds, currents) and biological parameters (biomass and population of phyto and zooplankton) of the marine column water around Corsica island; (ii) to provide scenari and to give, with a degree of confidence (weak, middle and high), the most probable forecasts and developments ; (iii) to propose recommendations and strategies of management and highlight potential gaps across the island. For example, (a) The measured decrease of wind intensity in winter, significantly affect the upwelling of nutrient-rich deep waters that allow for phytoplankton spring production blooms (Medium confidence), this is suspected to reduce the nutrients availability during this season. These nutrient limitations should result to a reduction in phytoplankton abundance, biomass, to a modification of the phytoplankton populations and start a chain reaction in benthos assemblages and ichthyofauna (Medium confidence). (b) Since the 80s, even though measurements show hotter periods followed by colder periods, the average temperature of surface water is rising. The warming of the water favors deeper thermoclines. These past five years, the depth of the thermocline has tended to drop by over 40 m (Medium confidence). Evolution in seawater temperature will probably affect marine habitats and encourage the naturalization of exotic species (High confidence). A focus on physical and biological consequences of climate change on seawater column around Corsica will be presented.

Keywords: Climate change, Corsica, Column water, Plankton, Temperature, Sea level, Curenents, Winds.