A Gama tool to study the Senegalese artisanal fisheries dynamics

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Abstract

The “Lolly Simulator”, implemented in Gama, is a tool for artisanal fishery management decision support including the climate and socio-economic parameters that may impact the fishery. The impact of climate change on fisheries is not straightforward, thus the purpose here was to make it emerge from the impact of spatially explicit climate change scenarios on the distribution of fish habitat. In turn, the distribution of fish habitat impacted artisanal fishing trips distance and duration. Artisanal fisheries in low governance areas, such as developing countries, are weakly impacted by regulation, thus the purpose was to relate the fishing effort to market demand, itself controlled by processing capacities infrastructures. Social behaviors and financial mechanism constrained the onset of fishing operations and migrations, the purpose of the model was to assess the impact of these processes through migrations probability and duration parameters.