

Effect of climate change to wetland environmental sciences essay



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Nowadays, global climate change became a hot issue was discuss not only in Malaysia, but all over the world. There are so many impacts towards environment such as increasing temperature, accelerated sea-level rise, changes in rainfall and freshwater discharge and in the intensity of tropical storms (Day et al 2011). Several study were use multiple regression model such as Drought Index (PDI) and Standardized Precipitation Index (SPI) were conducted the causal effect of climate change on wetlands (Withey & Van Kooten 2011). In his book, Likens (2010), Aquatic ecosystems are very vulnerable to climate change. Alterations in climate pose a serious risk to inland freshwater ecosystems and coastal wetlands and adversely affect numerous services provided to human populations. Impacts on lakes include the increase in nuisance algae and the reduction of fish habitat with the warming of lakes. These impact will be especially severe in shallow lakes. Furthermore there will be changes in runoff increases and decreases-which will in turn affect lake levels. Climate change cause reducing of precipitation. This is will alter the availability and stream flows affecting ecosystem productivity and reducing water quality. Aquatic lives are the most sensitive organism where is any changes occur to wetland and lake ecosystem like floods, droughts and other extreme weather, physical and chemical water properties like temperature and dissolve oxygen as a result of climate change will affect them (Dawson 2003). Recent study at wetland Canada show that increasing temperature of climate change cause a drier climate and this is will reduce wetlands which will have an adverse impact on agricultural ecosystems and the region's ability to produce waterfowl, as seen correlation between wetland and breeding duck population. Beside that, while agriculture can provide environmental benefits, soil erosion and <https://assignbuster.com/effect-of-climate-change-to-wetland-environmental-sciences-essay/>

loss of wetlands constitute major environmental problems associated with agricultural activities. According to previous study by Larson (1995) and Potani and Johnson (1991) showed that changes in wetlands are more sensitive to the changes of temperature more than changes in precipitation (Witney & Van Kooten 2011). In many aquatic ecosystem, increasing nutrient will cause eutrophication. The effects of climate change on the trophic structure on the lake will cause eutrophication. Most studies were found out that climate change will cause decreasing water transparency due to several mechanism (Fragoso et al 2011). The impacts of introduced species, particularly floating plants, increase releasing phosphorus from sediments and fish that might increase pressures on zooplankton and periphyton grazers cause increasing algal crops and in the symptoms and therefore problems of eutrophication. In developing country, which has higher population densities, seem that eutrophication problems will inevitably become very serious irrespective climate change (Moss 2011). Nitrous oxide is one of the greenhouse effect and has been interest in denitrification. Denitrification is the transformation of NO_3^- to molecular nitrogen (N_2) and occurs in anaerobic conditions. Factors influencing the speed of turnover of N are soil temperature, moisture, fertility, availability organic matter and drainage and thus N_2O fluxes vary considerably both spatially and temporally (Adger & Brown 1994). In cycling process, nitrogen enters the freshwater system such as lake and wetland through direct in-situ fixation, through indirect fixation in the terrestrial soils and subsequent leaching, through ammonia and nitrate dissolved in rain and originating from volatilization from manure and fossil fuel burning, respectively, and or through leaching of fertilizer applied to agricultural land and plantation forest (Moss 2011).

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Hopkinson et al (2012) found that climate change is one of the factor will negatively impact C burial of coastal vegetated wetlands. Decreasing global C burial in these systems will ultimately exacerbate CO₂ emissions and further contribute to climate change in the future. With the evidence mounting rapidly for substantial changes to the global climate over the next century as a result of rising levels of atmospheric CO₂. Over the past several result identify the natural carbon (C) sinks within the biosphere, both terrestrial and oceanic. Sinks that actually mitigate anthropogenic emissions of CO₂ are the most important in arresting climate change. One of the major sources for methane emission to the atmosphere is came from natural wetland. Methane emissions from wetlands are difficult to estimate, as they are generally extrapolated across a wetland classification from experimental observation of a small area. CH₄ constitutes 8% to 15% of total greenhouse gas production, depending on how the relative global warming potential of CH₄ to CO₂ determined (Adger & Brown 1994). From the view of impact on the earth's climate, methane despite its low atmospheric concentration. According to Jugsujinda et al (1996), among all the greenhouse gases present in the atmosphere, methane (CH₄) has assumed considerable significance in recent years due to its impact on the earth's climate and stratospheric ozone chemistry (Singh et al 2000).