International Journal of Science and Research (IJSR)
ISSN (Online): 2319-7064
Index Copernicus Value (2016): 79.57 | Impact Factor (2017): 7.296

A Review on the Effect of Global Climate Change on Biodiversity

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Abstract: ***The maximum of Plants and animals lived in specific climatic conditions, such as temperature and rainfall patterns. Initially, the increasing of Global warming and as well as slowly increasing of temperature, affecting the water cycle. If water gets affected by these causes, obviously severe changes will come to food and agricultural process of the biodiversity. Because, except plant and plankton most of the animal dependent on other animals for their food consumption. Some species are already responds to balmy climate, that's why they were moved to cooler locations. Not only this climate change affects the marine environment, but also including increasing seawater temperatures, ocean acidification, Green house gases, sea level rise, and changes in currents, upwelling and weather patterns, fundamental changes. This impact may not be clear evident, but with in short time we can see that effects in future. Each one plant and animal performance a vital role in the ecosystem (For example as food source, a prey, predator, a pollinator, a source of shelter), uncertainly the loss of one species can affect the countless. Some types of birds are already migrating as the temperature warms. Here, we outline the importance of Biodiversity in the environment and also their affected by this global climate change.***

Keywords: Climate change, Global warming, Green house gases, Ocean acidification and marine environment

1. Introduction

Increasing of water temperatures and higher carbon dioxide concentrations than normal, which can make oceans more acidic, are already having an impact on oceans. The impact of ocean acidification will fall the coral reefs(IPCC, 2007), this reduction of coral reefs will reduce the habitats of many other sea creatures, and it will disrupt the entire food web of the ocean. This climate change, Global warming and ocean acidification influence the major primary producer, like plankton's growth, reproduction, skeleton and pigment concentration etc. Predicting the consequences of global environmental change on biodiversity is a complicated. Dying trees also emitting their stored carbon dioxide, it can add to atmospheric green house gases .Additionally, pollutants can alter habitat quality, reduce nutrient availability and encourage Harmful algae blooms (HAB) along coastlines (Smith 2003; Havens 2008; Paul 2008), all of which can indirectly affect the survival of sensitive species. Because of this big complexity, environmental change is likely to seriously diminish the activity of wildlife. However, the current pace of environmental change is unprecedented (Thomas et al. 2004) and it is unknown whether the capacity of species to adapt to such changes and counteract their harmful and often combined effects may be exceeded. In contrast, reproduction in wildlife is threatened by environmental changes operating at many different physiological process, seasonal distributions, geographic ranges, and patterns of migration, nutritional status, and ultimately the abundance and stock structure of some arctic species (Tynan and DeMaster, 1997). The survey of general circulation models (GCMs) on climate change illustrate that rising levels of greenhouse gases (GHGs) are likely to increase the global average surface temperature by 1.5-4.5°C over the next 100 years, (ManasRanjanSenapati et al., 2013). Here are just a few examples were given this climate change may increase the challenges.

Global warming

Global warming is defined by gradual increasing of temperature by the higher emission of the Green house gases (GHGs) which results Green house effect. The Intergovernmental Panel on Climate shown global temperatures will increase between 1.4 and 5.8 °C by the year 2100, global warming research have now expected that average. This Global warming include as well as increase in occurrence and severity of storms and other severe weather events.

Reduction of Biodiversity

Millennium Ecosystem Assessment (MEA) predict on climate change to be major threat to the biodiversity. Nowadays also many areas facing problem of water shortage. Plants are not having seasonal life cycle for their reproduction by the changing of climate/season. Due to the high temperature, forest fires also increased. In this changing of climate affects the birdlife and animals in a number of ways; birds are lay their eggs in earlier than usual, plants blossom earlier and mammals are come out of dormancy sooner. Animals distribution also affected; with many species moving closer to the poles as a response to the rise in global temperatures.

Anthropogenic activities

The human being is a very big source to increasing of climate change and environmental health hazards in history. Because, of the increasing of industrial revolution, over exploitation of natural resources, high emission of green house gases, using more number of vehicles and burning of fossil fuel to generate the electricity in power plants, cement production, industrialization, deforestation, changing of land

usage, etc,(IPCC, 2002). Ocean pH will be significantly affected and will exert a drastic effect on calcifying marine organisms like Coccolithophores, Foraminiferans, Pteropods, Echinoderms, Molluscs and Coral reefs.

Coral bleaching
Nowadays a lot of drugs are taken from coral reef, animals and plants as suitable treatment for cancer, viruses, and other dreadful diseases. Each coral have a skeleton for itself, and these skeletons build up to create coral reefs, which can be providing habitat for lots of fish and other oceanic organisms. It protects coastlines from the damage by impact of wave action and tropical storms and help with nutrient recycling.

Fish migration
Commonly fishes are migrate to another place for breeding purpose only, but nowadays some fishes are going to survive at suitable conditions better than struggled conditions. Certain fishes can tolerate than others. Present rate of extinction, earth will have vanished 25% of its present number of species by 2050 (Sierra Club, 2008).

Effect on Sea Levels
Climatic changes leads to sea level rise, flood, high storm, high sea surface temperature, ocean acidification, coral reef bleaching in the marine ecosystem. Some sensitive animals are going to extinct by slight climatic changes. Example of Polar bears is affected by reduction of Arctic ice cover. Studies show a decline in the polar bears loses their weight from 325 kg in 1980 to 253 kg in 2004.

Climate Change and Wildlife
Global warming is a major difficulty to the species extinctions of this century. The Intergovernmental Panel reported that 1.5°C average is May rice 20-30% of species will extremely navigate to extinction. If the planet warming condition, continue by more than 3°C, most ecosystems will face severe struggle. In many of the countries threatened species that will be severely affected by climate change. Unavoidably some species only adapted to this climate change.

Overall Effect on Human
Humans are affected by Cancer, skin allergy, Head ache, water borne disease like cholera, typhoid etc; spread of tropical and vector borne diseases like malaria, dengue etc. In Sea shore near living peoples are affected by sea level rise while ice melting.

Prevention: Adaptation strategies
To reduce this effect of climate change and global warming it can be achieved by two aspects Geo-engineering and Carbon sequestration. Geo-engineering is can decrease the impact of global warming from the greenhouse gas emission. Another aspect is carbon sequestration called Carbon Capture and Storage (CCS).On the basis of IPCC, 2005 report major source of CO_2 emission can be collected and stored in underground geological formations. We can use the bio fuels to control the vehicular pollution and reduce the over exploitation (Fishing, land). Much attention should be focused on the effects of climate change on forests, farms, freshwater sources and marine environment. People can help these animals for adaptation by protecting and preserving their habitats.

2. Conclusion

The study of coral reefs is essential for providing a clear, scientifically-demonstrable record of climatic events over the past million of years. The role of Science & Technology cannot be neglected. Suitable actions may be taken to counteract the effects of climate change on agriculture. Innovative agricultural practices and technologies can play a role in climate mitigation and adaptation. Creating the required with innovative agricultural technologies to enable developing countries to adapt their agricultural systems to this changing climate. Public awareness and incentives also needed to solve this problem. Protection and maintenance of environment health is move forward while strategies to reduce the impacts are formulated and debated. This is a critical prediction towards environment health hazards by human induced problem. While more research record is needed, for indicate the strong correlation between the observed physical changes to the environment and the responses from animals. The innumerable of studies and findings regards animal species across the globe show us how animals are being influenced, and expert predictions. We can reduce that climate change effects on biodiversity with sustained and substantial inhibition of green house gas emissions.

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