IJIRR

International Journal of Information Research and Review
Vol. 04, Issue, 08, pp.4390-4392, August, 2017

REVIEW ARTICLE

A REVIEW ON THEIMPACT OF CLIMATE CHANGE IN ENVIRONMENT, COASTAL AND MARINE ECOSYSTEM

Dr. Revathy K. and *Josephine Adeline. A

PG and Research Department of Zoology, Ethiraj College for Women, Chennai, 600008

ARTICLE INFO

Article History:

Received 28th May, 2017
Received in revised form
09th June, 2017
Accepted 22nd July, 2017
Published online 30th August, 2017

Keywords:

Ecosystem enhances,
Concentration,
Temperatures.

ABSTRACT

Ecosystem enhances and benefits human folk fore in several ways ever since. In recent years the green house effect concentration leads to various disorders in our environment. This review paper summarizes about the impact of our environment in the coastal and marine ecosystem affecting the shorelines, estuaries, coastal wetlands, and the coral reefs and also affecting the coastal margin ecosystem. The sea level concentration, alternate in precipitate patterns in the fresh water nutrients and sediment increase in oceanic *temperatures* and hence leads to the change in the coastal storms. This paper explains the intertidal waves and reefs with its hazards by sediment capture, wave alternation, erosion reduction storm surges and debris movements. Furthermore it emphasizes on the current status of marine and coastal ecosystem. Moreover this paper explains about the eutrophification of estuaries in the coastal and marine estuaries. Finally this paper even summarizes about the basic problems faced by both marine and coastal ecosystems which is based from the literature reviews. Explicate analysis will ensure the management plans successfully and thus it balances the range of society goals for an ecosystem.

INTRODUCTION

Ecosystem services has grown exponentially over the last decades.Most of the ecosystem studies have focused on mapping its terrestrial ecosystem and highlighting its knowledge on marine and coastal ecosystem.(Leigh Gurney 2001)Ecosystem enhances and benefits human folks in several ways. They are the gift from our nature.Inthe present scenario there is a great increase in theglobal air and in ocean temperatures (Mark A Harwell, *et al.* 2002). The national assessment of potential consequences of climate viability leads to the environmental change and it was based on the series of regional and sector assessment (NASI 2001). This research paper summarizes about the coastal and marine resources and its impacts on shoreline, estuaries coastal wetlands, coral reefs and ocean marginecosystems. This assessment explains the impact and changers in the climatic conditions of the environment. Moreover it drives the change in the sea level concentration, alternation in precipitation patterns in the fresh water ecosystem, nutrients and sediments, increase in ocean temperature, frequency and change in the coastal storms (Daniel R xcayan 2002).

Corresponding author: Josephine Adeline. A
PG and Research Department of Zoology, Ethiraj College for Women, Chennai, 600008

Thus the increasing rise in the sea level and its increasing frequency of coastal storms and hurricanes will exhibit an adverse effect to the shorelines, wetlands and to the coastal developments over the next decades (Donald Scavia 2002). Changes in the freshwater and in higher water temperature will alter estuary stratification, residence time and eutrophication. Although these potential impacts of climate change and variability will vary from system to system it is important to recognize that they will superimpose upon many cases intensity and other ecosystem stressed such as polluting, harvesting, habitat destruction, invasive species land and resource usage and thus these may lead to more significant consequences (Denise 2002). Healthy ecosystem provides human with a wide range of ecosystemservice (Mea 2005). The maintenance of the healthy ecosystem is vital for human folk in the region. The coastal regions of south Asia including Bangladesh, India, PakistanandSrilanka has the world's most significant coastal and marine ecosystem such as coral reefs, mangroves, sea grass meadows river deltas and estuaries.

Highlights of ecosystem in the coastal areas

- Coastal communities are vulnerable to the impacts of the hazards in the climatic change of the environment (Mark D Spalding *et al.,* 2014)

- Intertidal wetlands and coral reefs protect the coastal line in several ways.
- The existing researchers can bring out the drives of variance in protecting levels.
- Coastal ecosystem can provide adaptation and protective tools for the ecosystem (Christine C Shepherds *et al.,* 2014).

The intertidal waves and reefs (coral and shell fishes) play a vital role in reducing the vulnerable along the coastal ecosystem .They reduce the communities to rising seas and coastal hazards by the wave alternation, sediment capture, verticalaccretion, erosion reduction, storm surge and debris movements. Advance understanding and application of knowledge will form a critical part in coastal planning (Susan Ruffo 2014). Thus this technique will reduce the expensive engineering option and would provide a complementary tool in the hybrid engineering design. (Michael W. Beck). Maintenance and enhancing coastal system will always provide a safety measure to the coastal service which includes provision of food and maintenance of coastal service which dependent on livelihood (Lynne Zeitlin 2014).

Current status of coastal and marine system

Ecosystem benefits people in various ways. They play a vital role in human survival and therefore serve the best management of the ecosystem. According to (Costanza *et, al.,* 2007) and (Matlinez *et al.,* 2007) coastal zone contribute more than 60% of the economic value of the biosphere still data and methods asses the provision of marine and the coastal ecosystem services(MCES)and they are compared to the terrestrial assessments .(Barbier *et al.* 2012) (Costanza R *et al.,*1999). Few studies deals with the assessment of marine and ecosystem service they mainly focus on the food production such as fisheries (Alcarno j. *et al.,* 2007). The gap between the terrestrial and marine assessment was found much greater when compared to ecosystem mapping services (Baddaet *al.,* 2010). The present and the existing ecosystem has created particularities to the marine ecosystem environment (Austen*et al.,* 2007). This further generates inconsistencies in the used terminologies and conceptual mismatches (Hicks *et al.,* 2011).

Intergrated management of marine and coastal ecosystem

This integrated scheme is not a classification but an adaptative of exisisting services using the outcome in the ecosystem (Fletcher *et al.,* 2011). A single classification scheme is not applicable for all habitats in the ecosystem. (Turner *et al.,* 2009) (Fisher, 2009). A Biotic raw materials and renewable a biotic energy where the availability quantity and quality is not enhanced by living organism or ecological processes (eg. Sand salt, wind, wave and energy) are considered as natural resources but not as ecosystem services (Haines –young *et al.,* 2011). The ecosystem services, depends on the ecological structures and processes (soil characteristics, evaporation, denitrification and microbial activity etc (Kremen Ostfeld 2005). Coastal protection has paved way in hazard prevention and in erosion prevention.

Marine Systems: In marine systems all the processes acts over a narrow coastal strip and these carries (waves,storm surge)protection against resistant geomorphology presence of biotic structures are similar for hazards and erosion prevention.(Zulian, Delgado 2013) and thus for these reasons the coastal and marine ecosystem environment are grouped together in the classification system. Ocean nourishment is proposed as marine counterpart of terrestrial soil formation, structure and quality. Similarly it supports the soil. Hence soil helps in agriculture. Nutrients rich sea waterhelps and maintains the fish supplements and thus includes ecosystem service of nutrient cycling (Burdon Degracs *et al.,* 2007). According to de groot *et al*., 2002) both the marine and coastal ecosystem captures a vital position in ecological processes and ecosystem service principles (Beaumont *et al.,* 2007).

Eutrophication of estuaries in coastal and marine ecosystem

Large fraction of nutrients gets exported from the land to the streams and rivers and finally makes their destination to the sea. As a result estuaries move nutrients than to any other type of ecosystem (Howarth 1993). More than 90% of the world's fisheries depend on estuaries and near shore habitat (Hobbie *et al.,* 2000). Increased nutrient loading results in wide variety of changes in structural and functional changes in the coastal and marine ecosystem (Schramm 1999).

Climatic changes and its changesin coastal and marine ecosystem

Climatic changes increases adversely and its one of the dominant feature which forms the drivers in the environmental changes such as mangroves, coral reefs coastal wetlands which are the risk factors from the resulting sea level rise and in the increasing storm events. It is estimated that all current coral reefs could disappear by 2040 due to global warming of sea temperatures (Clarie brown 2006). Number of indirect drivers of change in coastal and marine ecosystems has been identified. Technology change contributes to over exploitation of fish stock. Demographic developments in the coastal zone drive changes in the ecosystem with the coastal population densities being nearly three times of inland areas. Moreover several health problems are caused by pollution of sea shore waters where people consume fish or other marine products contaminated by heavy metals, PCBs and other toxins which causes a barrier to the natural ecosystem (William Thonel l 2006).

Conclusion

This review paper summarizes the information related to coastal and marine ecosystem. In order to maintain a sustainable developmentin marine and coastal ecosystem it is important that every individual must be well versed in integrated ecological information. Moreover marine biological variation maps are available with biological and ecological values for study areas. This paper provides the basic problems faced by both the coastal and marine ecosystem which is based from the literature review. Examining cumulative impacts makes it possible to assess the problems and the conditioninvaliding in coastal ecosystem to maintain desired services. Explicit analysis will ensure the management plans realistically and balance the full range of society goals for an ecosystem.

REFERENCES

Costanza R, De Groot R, 1997 The value of world's ecosystem service 16 – 25

Martinez, Vazquez et al 2008. The economics of Ecosystem and biodiversity.

Barbier E B 2012 .Review of environmental economics and policy 6. 1-9

Hicks c 2011 how do we value our reefs? Coastal management 39:358-376

Beaumont N, Austen M ET AL 2007 Defutron and qualification of goods and services provided by marine biodiversity. Marine pollution bulletin 54. 253-265

Futcher S. Herbert RJH 2011. Review of the ecosystem services provided by broad scale marine habitat. *Journal of coastal research* 378-383

De Groot RS, Wilson MA 2002. A typology for the classification, description and valuation of ecosystem fuctions and services. Ecological economics 41. 393- 408

Haines –Young R, Polschin M, 2012. Indication of ecosystem services potential at European scale. Ecological indicators 21; 39- 53

Farber S, Costanza R, Gross R, et al., 2006. Linking of ecology and economics for ecosystem management. Biosciences 56; 121- 133.

Gosain AK, Sandhya Rao and Anamika Arora, 2011. Climate Change Impact Assessment of Water Resources of India, *Current Science* 101(3), 356-371

Micheal AM and Ojha TP, 2011. "Principles of Agricultural Engineering Vol. II," Jain Brothers, New Delhi: pp 509

****