Journal of Wildlife and Ecology. (2018). 2(1):30-36

Review Paper **Open Access**

Anthropogenic impacts on the coastal wetland and wildlife-A review

Muhammad Umair[1, 2*]

1. Department of Plant Sciences, Quaid-i-Azam University, Islamabad-Pakistan
2. School of Agriculture and biology and Research Center for Low-Carbon Agriculture Shanghai Jiao Tong University, Shanghai-China

***Corresponding Author**: umair.bot@gmail.com

Peer Reviewed

Citation: Umair, M. 2018. Anthropogenic impacts on the coastal wetland and wildlife-A review. Journal of Wildlife and Ecology. 2(1): 30-36.

Received: 20, 11, 2017
Accepted: 29, 01, 2018
Published: 01, 03, 2018

Competing interests: The authors have declared that no competing interests exist.

Funding: Authors have no source of funding for this work.

ABSTRACT

The human population has doubled in the last five decades and is the major reason of landscape degradation and habitat change. Same time, anthropogenic impacts on earth is severely changing weather patterns and landscapes. While 4 billion people present within sixty kilometer (km) of the global coastal land; out of total only seventeen percent global human population lives within costal land. Once mangrove forests were covered more than 0.2 million km^2 of coastlines; disappearing global by one percent per year. More than 80% of the original mangrove forest has been lost unevenly in every country and converted into patches, due to human activities i.e. agriculture, aquaculture and urbanization. Oil spill and ecotourism are also negatively impact on the coast and wildlife of marine. Mass tourism is a modern trend; coastal resorts became highly popular as tourist purposes; the benefits of the sea water, air, sun, seafood and scenic views were the primary attraction. Coastal resorts still magnetize the highest number of tourists every year; 63% of the European people prefer the coast. It is concluded that anthropogenic impacts (i.e. deforestation, agriculture intensification, urbanization, oil spill and ecotourism) are the main threats to coastal wetland and wildlife.

Key words: Coastal, Wildlife, Ecotourism, Mangroves, Marine

INTRODUCTION

Human Population: The human population has doubled in the past half century in earth (Cohen, 2003); while human is main reason of landscape degradation (Wilkie and Fortuna, 2003; Duke *et al.*, 2007; Altaf, 2016). At the same time, human impacts on the climate of earth are drastically changing weather patterns (Rosenzweig *et al.*, 2008) and landscapes (Keohane and Olmstead, 2016; WWF, 2017).

The coastal land consists of less than 5% of the globe, while out of total only seventeen percent global human population lives within costal land. Additionally, almost 4 billion people live within sixty km of the global coastal land (Kennish, 2002). Particularly, twenty seven percent global human population lives within fifty kilometer of an estuary. 0.01 (people/km^2) population density lives in coastal; while only 0.026 (people/km^2) population density lives inland (Agardy *et al.*, 2005).

Deforestation: Once mangrove forests covered more than 200,000 km^2 of coastlines (Spalding *et al.*, 1997); disappearing global by one percent per year (Wilkie and Fortuna, 2003). Mangrove forest losses are occurring unevenly in every country (Duke *et al.*, 2007; Polidoro *et al.*, 2010). Survival of the mangrove forests is at high risk; due to deforestation of mangrove forests, which are converted into patches for the purposes of agriculture, aquaculture and urbanization (Valiela *et al.*, 2001). Numbers of species are declined (Duke *et al.*, 2007) and directly correlated with mangrove forest size (Ellison, 2002). Mangroves are included as; critically endangered (Platt *et al.*, 2008; Polidoro *et al.*, 2010) in 26 countries out of 120 countries (Duke *et al.*, 2007). The maintenance of mangrove forest provides food chain and webs; adversely affecting fisheries (Barbier, 2007). The decline further risks mangrove-dependent animal species (Skilleter and Warren, 2000; Nagelkerken *et al.*, 2008) with their complex landscape connection (McLeod and

Salm, 2006). Human communities living near mangroves forest landscape would lose access to source of essential fibers, food, chemicals, timber and medicines (Ewel *et al.*, 1998).

Agricultural intensification and urbanization impacts: Mangroves are rapidly converted into agriculture and urban at an average rate of 1% per year (Ong, 1995); greater than 80% of the original mangrove forest has been lost due to deforestation in some countries (Spalding *et al.*, 1997). Changes in land use patterns e.g. agricultural intensification and urbanization have resulted in enhanced nutrient and sediment loadings that are dumped into seas through coastal areas (Nixon, 1995; Howarth *et al.*, 1996; Rabalais *et al.*, 2002). Human activities have increased sediment (20%) which is dumped into the rivers. Out of the total only 30% sediment reached in seas (Agardy *et al.*, 2005; AME, 2005). Other pollutants such as fertilization, heavy metals and herbicides are also dumped in the rivers which are reached in seas, have been shown to restrain photosynthesis in sea grasses, and corals (Agardy *et al.*, 2005).

Oil impacts: During 2010, the largest marine oil discharge in US, US government estimated 4900 thousand barrels of oil exposed (NCD, 2011). Moreover, the US fishery production dependent on these wetlands is approximate 30%. However, major coastal wetlands are badly affected by large spills that happen occasionally. There are note of the first two global spills; one almost 4400 barrels of oil from Buzzards Bay, Massachusetts, and other exuded 1600 thousand barrels of oil from Brittany city, France. Both global spills badly impacts on wetland marshes as well as fauna and flora (Baca *et al.*, 1987). Oil impacts are still known (Culbertson *et al.*, 2008) on wetland vegetation, benthic biota; and impacts on ecosystem on which humans dependent (Culbertson *et al.*, 2008).

Ecotourism impacts: Mass tourism is a modern trend; resorts on coastal areas became highly familiar for tourist purposes; the advantages of the coastal water, fresh air, sun bathing, sea-food

and attractive views are the primary attraction. Coastal resorts magnetize the highest number of visitors every year; sixty three percent of British peoples prefer the coastal areas (EC, 1998). Primarily tourism was short-term reality tourism is now worldwide with tourists from all developed countries visiting almost whole world. Global the number of international tourists has shown a continuously increase from 25 million in 1950; 700 million in 2002, average annual growth rate of 6.6 percent and it is estimated that 350 million tourists will be visiting the Mediterranean coastal region in 2020 (WTO, 2004); tourism is dominant in the USA (United States of America) (Burger, 2003).

The major ecological threats that mass tourism poses certainly stretch out in the infrastructure and transport planning necessary to maintain it, mainly in situations where the tourist's numbers are subject to slight control. Development of coastal resorts, utilization of fuel by aircraft, trains, buildings, taxis, buses and cars, excess usage of water resources, toxic waste by sewage, litter and motor vehicle emissions all participate to irretrievable ecological degradation. However, in the development and progress of all more economically developed countries has also produced a global requirement for human being leisure transport, from simple swimming and walking to modern phenomena e.g. use of motor vehicles, personal watercraft (PWCs), self-contained underwater breathing apparatus (SCUBA) and kite-buggies. A lot of these human being actions have significant ecological effects in and around coastal areas (Davenport and Davenport, 2006).

Conclusion: It is concluded that anthropogenic impacts i.e. deforestation, agriculture intensification, urbanization, oil spill and ecotourism are main threats to coast wetland and wildlife.

REFERENCES

Agardy, T., J. Alder, P. Dayton, S. Curran, A. Kitchingman, M. Wilson, A. Catenazzi, J. Restrepo, C. Birkeland, S. Blaber. 2005. Coastal systems.

Altaf, M. 2016. Assessment of Avian and Mammalian Diversity at Selected Sites along river Chenab University of Veterinary and Animal Sciences, Lahore-Pakistan.

AME. 2005. Ecosystems and human well-being: wetlands and water. World resources institute, Washington, DC. 5.

Baca, B., T. Lankford, G. ER. 1987. Recovery of Brittany coastal marshes in the eight years following the Amoco Cadiz incident. Pages 459–464 in the Proceedings of the 1987 Oil Spill Conference. American Petroleum Institute. USA.

Barbier, E.B. 2007. Valuing ecosystem services as productive inputs. Economic Policy. 22: 178-229.

Burger, J. 2003. Personal watercraft and boats: Coastal conflicts with common terns. Lake and Reservoir Management. 19: 26-34.

Cohen, J.E. 2003. Human population: the next half century. Science. 302: 1172-1175.

Culbertson, J., I. Valiela, M. Pickart, E. Peacock, C. Reddy. 2008. Longterm consequences of residual petroleum on salt marsh grass. Journal of Applied Ecology. 45: 1284–1292.

Davenport, J., J.L. Davenport. 2006. The impact of tourism and personal leisure transport on coastal environments: a review. Estuarine, Coastal and Shelf Science. 67: 280-292.

Duke, N.C., J.-O. Meynecke, S. Dittmann, A.M. Ellison, K. Anger, U. Berger, S. Cannicci, K. Diele, K.C. Ewel, C.D. Field. 2007. A world without mangroves? Science. 317: 41-42.

EC. 1998. European Commission, DG XXIII. 1998. Fact and figures on the Europeans on holiday 1997e98.

Ellison, A.M. 2002. Macroecology of mangroves: large-scale patterns and processes in tropical coastal forests. Trees. 16: 181-194.

Ewel, K., R. TWILLEY, J. Ong. 1998. Different kinds of mangrove forests provide different goods and services. Global Ecology & Biogeography Letters. 7: 83-94.

Howarth, R.W., G. Billen, D. Swaney, A. Townsend, N. Jaworski, K. Lajtha, J.A. Downing, R. Elmgren, N. Caraco, T. Jordan. 1996. Regional nitrogen budgets and riverine N & P fluxes for the drainages to the North Atlantic Ocean: Natural and human influences Nitrogen cycling in the North Atlantic Ocean and its watersheds. p 75-139. Springer.

Kennish, M.J. 2002. Environmental threats and environmental future of estuaries. Environmental Conservation. 29: 78-107.

Keohane, N.O., S.M. Olmstead. 2016. Introduction Markets and the Environment. p 1-10. Springer.

McLeod, E., R.V. Salm. 2006. Managing mangroves for resilience to climate change. World Conservation Union (IUCN).

Nagelkerken, I., S. Blaber, S. Bouillon, P. Green, M. Haywood, L. Kirton, J.-O. Meynecke, J. Pawlik, H. Penrose, A. Sasekumar. 2008. The habitat function of mangroves for terrestrial and marine fauna: a review. Aquatic botany. 89: 155-185.

NCD. 2011. Deep Water: The Gulf Oil Disaster and the Future of Offshore Drilling.

Nixon, S.W. 1995. Coastal marine eutrophication: a definition, social causes, and future concerns. Ophelia. 41: 199-219.

Ong, J.E. 1995. The ecology of mangrove conservation and management. Hydrobiologia,. 295: 342–351.

Platt, K., S.G. Platt, K. Thirakhupt, T.R. Rainwater. 2008. Recent records and conservation status of the critically endangered mangrove terrapin, Batagur baska, in Myanmar. Chelonian Conservation and Biology. 7: 261-265.

Polidoro, B.A., K.E. Carpenter, L. Collins, N.C. Duke, A.M. Ellison, J.C. Ellison, E.J. Farnsworth, E.S. Fernando, K. Kathiresan, N.E. Koedam. 2010. The loss of species: mangrove extinction risk and geographic areas of global concern. PloS one. 5: e10095.

Rabalais, N.N., R.E. Turner, D. Scavia. 2002. Beyond Science into Policy: Gulf of Mexico Hypoxia and the Mississippi River: Nutrient policy development for the Mississippi River watershed reflects the accumulated scientific evidence that the increase in nitrogen loading is the primary factor in the worsening of hypoxia in the northern Gulf of Mexico. AIBS Bulletin. 52: 129-142.

Rosenzweig, C., D. Karoly, M. Vicarelli, P. Neofotis, Q. Wu, G. Casassa, A. Menzel, T.L. Root, N. Estrella, B. Seguin. 2008. Attributing physical and biological impacts to anthropogenic climate change. Nature. 453: 353.

Skilleter, G., S. Warren. 2000. Effects of habitat modification in mangroves on the structure of mollusc and crab assemblages. Journal of Experimental Marine Biology and Ecology. 244: 107-129.

Spalding, M., F. Blasco, C. Field. 1997. World mangrove atlas.

Valiela, I., J.L. Bowen, J.K. York. 2001. Mangrove Forests: One of the World's Threatened Major Tropical Environments: At least 35% of the area of mangrove forests has been lost in the past two decades, losses that exceed those for tropical rain forests and coral reefs, two other well-known threatened environments. BioScience. 51: 807-815.

Wilkie, M.L., S. Fortuna. 2003. Status and trends in mangrove area extent worldwide.

WWF. 2017. What impacts do human activities have on habitats and wildlife. WWF. .