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TITLE OF DIPLOMA THESIS:

FLOOD RISK MANAGEMENT IN COASTAL ZONES

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ABSTRACT

Coastal zones are fragile ecosystems and pressures due to human activities can lead to shrinkage and / or loss of beaches. Moreover climate change effects such as Sea Level Rise (SLR), the increase of significant wave height (H_s) and the meteorological tide can cause further coastal change with catastrophic impact on coastal areas along the coast. As a result of the above, is the occurrence of marine floods in the coastal zone. Increasing the intensity and incidence of such phenomena leads many coastal areas with low altitude to extinction. Conventional flood protection measures for coastal zones are threatened by becoming outdated and non-functional. In this context, there is a need for a strategy to address the phenomenon of the sea flood and the development of tools and methodologies for risk management in the coastal zone. Natural hazard prediction is considered a basic stage for a complete hazard management plan. A natural hazard occurs in lower frequency compared to other risks, but it can develop into a major natural disaster with widespread adverse effects on the natural and human environment. Nowadays there is a plethora of tools, methods and techniques for effective assessment, prediction and manipulation of natural hazards. Such a tool is the Coastal Vulnerability Index (CVI) which is the quantification of the vulnerability of a physical, social and economic society-system to natural hazards. In particular, it provides a simple arithmetic basis for classifying coastal sections in terms of their changeover capabilities that can be used by managers to locate areas where the risk is relatively high. The aim and the objective of this diploma thesis is to quantify the Coastal Vulnerability Index by assessing natural, anthropogenic and socio-economic parameters. The index is calculated for selected coasts in Western Halkidiki, which have high tourist and economic interest and high exposure to corrosion. The results of the calculations of both the parameters and the indicator are presented on coastal vulnerability maps where is illustrated the extent of coastal vulnerability relative to some risk. These maps were compiled using Geographical Information Systems (GIS) technology. Coastal vulnerability maps can be used as a tool for crisis managers, as these provide the necessary prioritization of assistance and intervention in areas of immediate need.

KEYWORDS

Flood Risk Management, Coastal Vulnerability Index, Coastal Vulnerability Maps, Management Tool, Geographical Information Systems (GIS)

