



The impact of acid sulfate soils on wetland: a case study in Southern Sweden, Kristianstad vattenrike

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Wetlands have attracted scientific attention in recent years, due to their environmental and economic functions. Lately, wetlands in southern Sweden (Kristianstad County) have been reported to be covered by a thick layer of brownish Fe-rich precipitates, leading to a loss of flora and fauna within the protected natural wetland “Kristianstad vattenrike”. The Fe is assumed to originate from drained acid sulfate soils (ASS) in the north of the wetlands. Our primary data has shown soil pH of 2.8 which are drained from the ASS, exhibiting a strong variation of Fe concentrations (5-70 mg/L) and pH (3-8), with the lowest pH values (down to 3.2) in the west branch and highest pH (up to 8) values in the east branch. In addition, west, east and central branches of the drainage system have shown independent pH variations as recorded by deployed sonds. Before reaching the wetland, the Fe load is partly removed and deposited within the ditch (total Fe concentrations in the sediments 2-35%). The factors controlling the transportation, transformation and deposition of Fe within the cropped ASS and its associated ditch system is of great importance and will be further explored. Studying the ditch sediments and the transported water will initiate the potential metal remediation option by humic acid proposed for this study site. The results will provide useful information for the management of the ASS-impacted wetland ecosystems.