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基于RS和GIS技术的松花江哈尔滨段流域面源污染特

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Title: Characteristic analysis of surface source pollution in Harbin section of Songhua River based on RS and GIS technology

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摘要: 随着松花江流域的点源污染得到了有效的控制和管理,该流域哈尔滨段的面源污染日益突出,已成为主要污染物来源.为了考察不同用地类型面源污染物产出量,应用RS和GIS技术对该区域的TM影像和DEM数据进行了处理分析.结果表明:该流域的土地利用类型主要有:耕地面积为14 918.29 km^2,占44.37%;盐碱地和草地面积为13 886.12 km^2,占41.3%;建筑用地面积为2 868.8 km^2,占8.52%.该流域流经松嫩平原,坡度平缓,坡度小于25°的面积占93.42%,其中坡度小于15°的面积占77.56%.农业面源污染物比重最大,其次是建筑用地和盐碱地面源污染物,它们是该流域主要的面源污染源.主要的污染物来源有:化肥、农药、作物生长调节剂、畜禽便液、生活污水、生活垃圾固体废弃物、人粪尿等.通过计算模型和监测数据,估算了该流域面源污染物的总量.

Abstract: With effective control and management of point source pollution in Songhua River Basin, the surface source pollution is increasingly outstanding and has become the primary pollution source in Harbin section of the Songhua River Basin. To investigate output capacity of surface source pollution in different land use types, TM images and DEM data of the region were processed and analyzed by RS and GIS technology. Results show that, the areas of cultivated land, saline-

alkaline land, GIS grassland area and construction used land are 14 918.29 km^2,13 886.12 km^2 and 2 868.8 km^2 respectively, which occupy 44.37%,41.3% and 8.52% of the total basin area. The basin flow through Song-Nen Plain and the slope is gentle. The area with slope of less than 25° occupies 93.42%, and the area with slope of less than 15° occupies 77.56%. The largest part of pollution source is agricultural surface source pollutant, followed by saline-alkaline land and construction used land. These are main surface source pollutions. Principle sources of pollutants includes chemical fertilizer, pesticide, crop growth regulator, domestic animals and fowls manure wastewater, domestic sewage, domestic solid wastes and human wastes. The total quantity of surface source pollution of the basin were estimated by calculation model and monitor data.

参考文献/REFERENCES

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更新日期/Last Update: 1900-01-01