CONTRIBUTIONS REGARDING THE WATER QUALITY FROM SIRET HYDROGRAPHICAL BASIN

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Abstract: **The research program that was carried on emphasized the pollution degree of Siret River in Vrancea County zone, pollution mostly determined with the help of the industrial waste water overflow, with a polluting qualitative level overtaking the accepted standard limits.**

Kewords*:* Siret River, quality index

1. INTRODUCTION

The right to live in a healthy environment is endangered by the ecological crisis, created by the economic development – natural environment contradiction. The process of development is the only living answer of the people to the ecological crisis, ensuring the necessity of the present without spoiling the future of the young generations, of the future generations.

The evaluation of the surface water quality in Roman depends on the techniques of the European legislation; specifically transposed and implemented; European Council Directives, Water Frame Directive, December 2000/60, transposed in the law 310/2004.

The evolution of the quality management system essentially depends on getting information, the monitoring programs and their result evaluation. The method follows the information need, the strategy evaluations, monitoring programs, data collecting, that are submitted to validation operations, to evaluation through reports and information use.

The official current evaluation method of the surface water quality is based on NORCAS – 02, norm that is concerned with the reference objectives for the classification of the surface water quality.

For the water quality evaluation it can be utilized also the global pollution index method, as a report result between the ideal surface Si and real state surface Sr: IPG = Si/Sr, with the following observations: the value 1 indicate the unspoiled environment without anthropic influence; the value bigger than 1 indicate a powerfully polluted environment. In the table 1 is presented the environment health state varying with the pollution index values.

Table 1. Environment health state

IPG pollution index value	Environment health state
IPG = 1	Natural environment unaffected by the anthropic activity
1< IPG <2	Environment submitted to the human activities
2< IPG < 3	Environment submitted to the human activities with the discomfort state generation
3< IPG <4	Affected environment by the human activities
4< IPG <5	Hardly affected environment
IPG>6	Hardly affected environment inadequate to the life

This evaluation system has some advantages to the county global image evidence.

2. MATERIALS AND METHODS

For the research program realization was done some Siret River quality pursuits in the Vrancea county limits, at the county entrance and way out control points, for a period of 360 days. Those two quality levels are caracterised by the quality index determination and for the identification are used the standardized methods.

The pollution index for the determined sections at the Siret River entrance and way out from Vrancea County, take into account the ideal section establishment, who correspond to the maxim value for reliability.

3. RESULTS AND DISCUSSIONS

In the figure 1 is observed the pollution index analysis on analyzed river lengths sections.

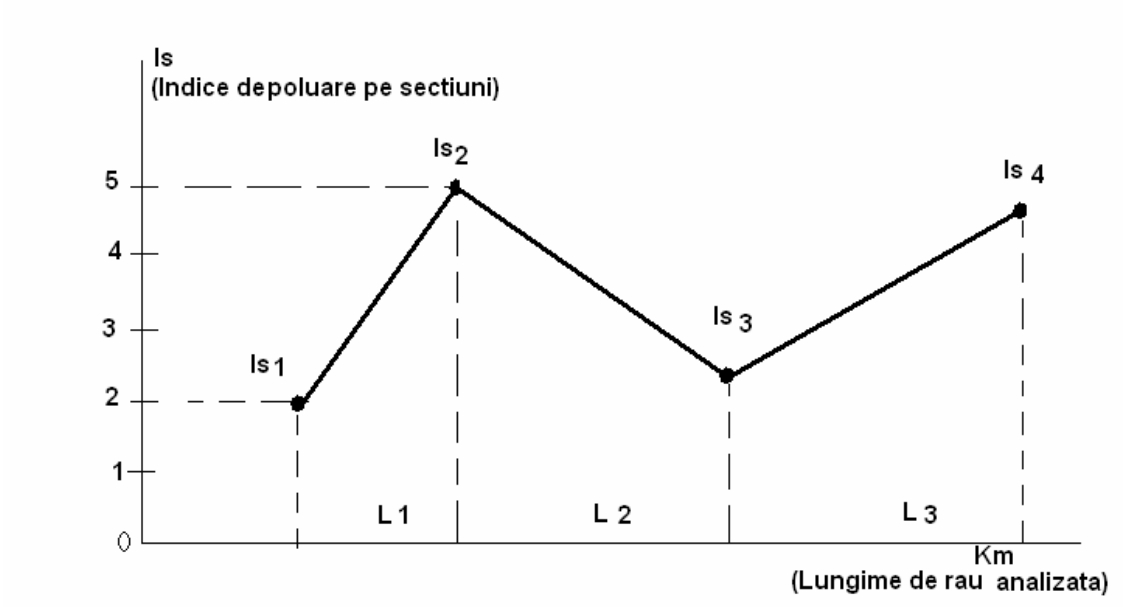

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Fig. 1. Pollution index value analyzed on sections

In the table 2 is the quality class calculation model and reliability note in function of the balanced concentration values for the section indicator.

Table2. The quality class calculation model and reliability note in function of the balanced concentration values

No. crt.	Index name	Measurements units	Quality classes I	II	III	IV	V	Reliability note
1	pH	Mg/L	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	B1
2	O_2	Mg/L	7	6	5	4	<4	B2
3	CBO_5	Mg/L	3	5	10	25	>25	B3
4	CCOMn	Mg/L	5	10	20	50	>50	B4
5	Fix residue at 105 C	Mg/L	300	500	1000	1300	>1300	B5
6	Ca^{+2}	Mg/L	75	150	200	300	>300	B6
7	Na^{+}	Mg/L	25	50	100	200	>200	B7
8	Total phosphorus	Mg/L	0.1	0.2	0.4	1	>1	B8
9	Chlorines	Mg/L	50	100	250	300	>300	B9

In the table 2 we can see sub-unitary values for the best quality water and reliability 90 for with an important pollution water degree. The relation determination between Siret River medium debit and the pollution concentration is showed in the figure 2.

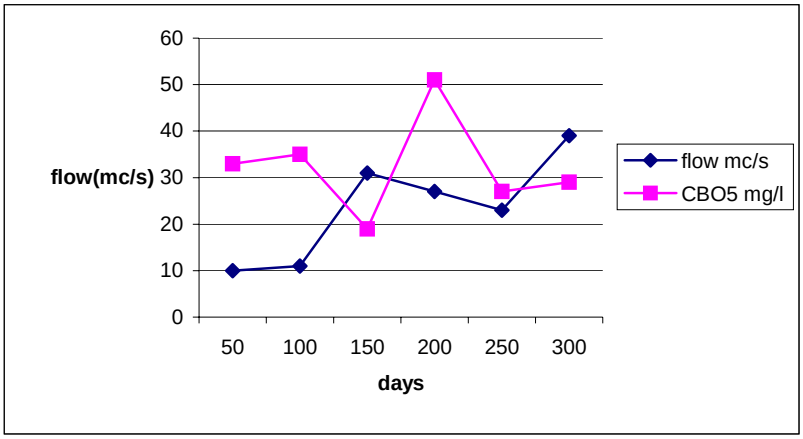

Fig.2. Medium debit and pollution concentration of Siret River

The conclusions from the realized determinations are: the pollution is produced aleatory but generally in the same sense at low debits, and the high concentrations of CBO_5 if the source is constant. The appreciably evaluation it was possible in the polluting loading conditions like product between the polluting medium concentration from the point of view of gathering debits.

Because the cleansing installations are incapable to function in the technological limits, the quality of the used waters overflowed in Siret River contribute at the river general pollution, the pollution increased over the standard limits established for the years 1999 and 2000, situation explained by the decreasing of the production program.
The cleansing installation malfunction from the above-mentioned unity increased the indicators: CBO_5, suspensions and ammoniac nitrates. In the following chart are presented the values differences in comparison with the standard admitted limits:

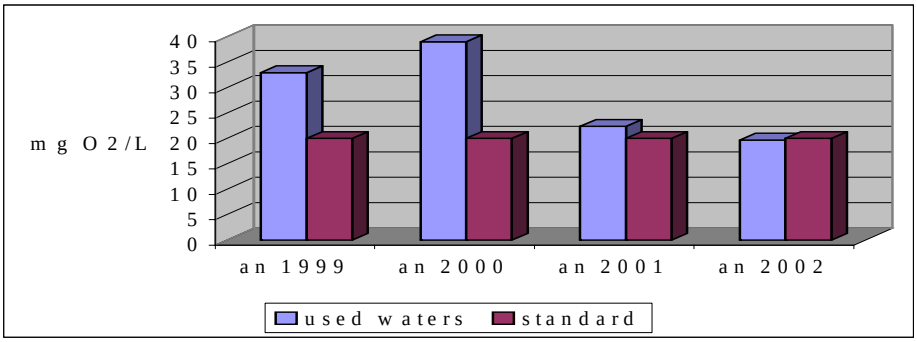

Fig. 3. Values of the oxygen biochemical consume

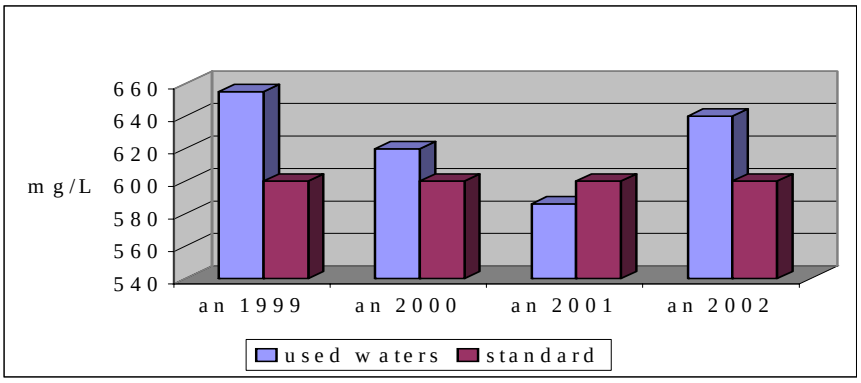

Fig. 4. Suspensions content values

For the CBO_5 content and suspensions content the results from the figures 3 and 4 can be considered eloquent.

4. CONCLUSIONS

The research work emphasizes from the applied methods the general state of Siret River pollution, with the dominant influence of the overflowed used waters quality. The pollution index with values bugger than 4 was determined in the sections IS2 and IS4, because in this sections are overflowed the industrial used waters. From the report medium debit and polluting concentration expressed in CBO_5 mg/L resulted: during the analyzed period (360 days) Siret River was polluted over the admitted limit.

5. BIBLIOGRAPHY

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