



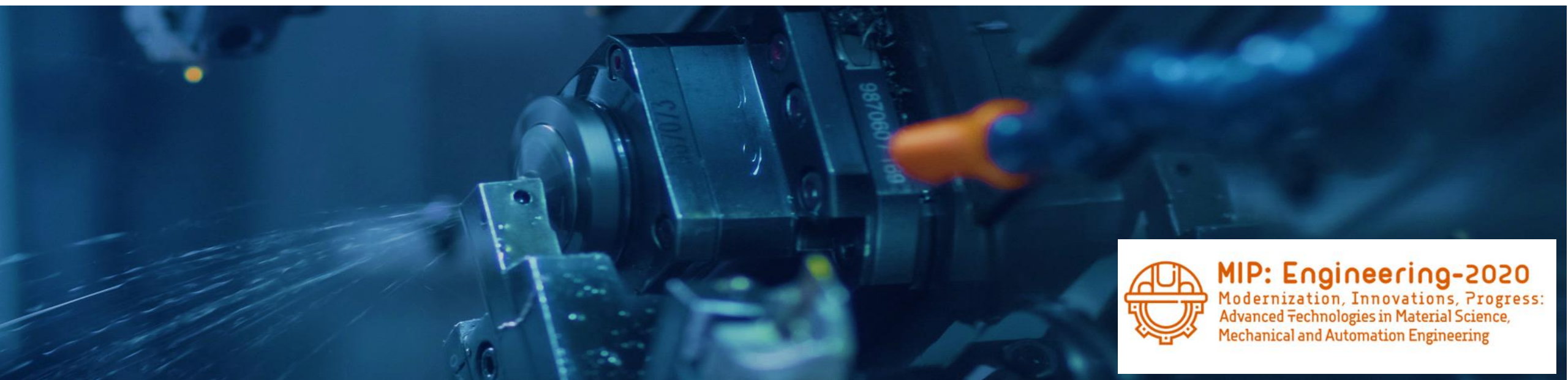
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«MIP: Engineering-2020: Modernization, Innovations,
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«Investigation of a small river ecosystem to calculate the risk of
quantitative and qualitative depletion of watercourse»

E V Nafikova, A A Ismagilov, and D V Alexandrov

Problem statement

- Approbation of the method of complex assessment of watercourse pollution on hydrochemical indicators.
- Identify quantitative and qualitative risks of depletion of a small river over a long-term period.
- Draw up a hydrological scheme of zoning based on the value of geoecological risk of water resources depletion of small rivers.



Solution methods

- Methodology of complex assessment of watercourse pollution by hydrochemical indicators.
- $Risk_{poll} = 1 - \varepsilon\{\ln(0,84) \times SCWPI \times K_1 \times K_2\}$

Alignments	SCWPI	K_{poll}	$Risk_{poll}$
1 alignment – 5 km below tech. pond	8,88	2	0,99
2 alignment – the inflow mouth of a small river	9,25	2	0,99
3 alignment – above the mouth of the inflow	5,59	1,5	0,99
4 alignment – below the mouth of the inflow	8,00	2	0,99





Conclusions

Results, implementation

- The methodology of determining the risk of water resources depletion has been improved by integrating available initial spatial information on water flow characteristics.
- Integrated assessment of the quality of small rivers over a long-term period showed that in all the seasons of the year under consideration, the average of the summer concentrations of pollutants exceed limit values of fishery concentrations in all control points.

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