

# Impact of the measurement uncertainty on the conformity assessment of piscicultural sites

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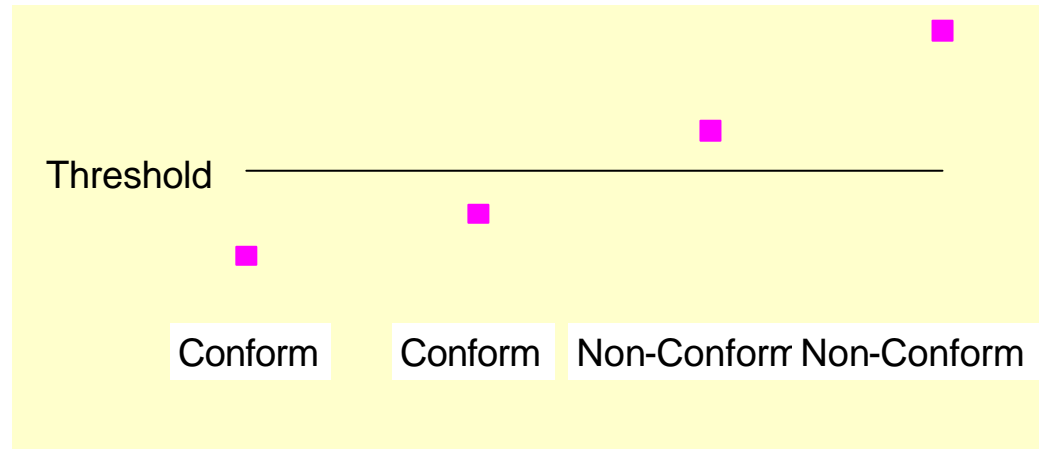
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- Surface water monitoring : 300 control sites, sampling up to 13 times/year)
- Conformity of piscicultural sites (180) to the regulation => eutrophication parameters :  $\text{NH}_4$ ,  $\text{NO}_2$  and P.
- **Impact of uncertainty on the classification of the results or the control sites.**

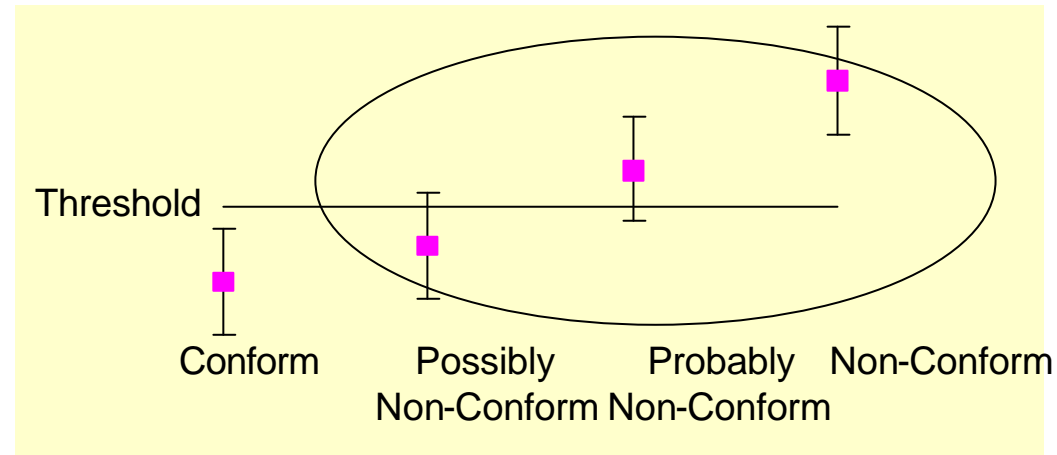
- One year monitoring
  - 180 control sites (6 or 13 results)
  - **2000 Analytical results / parameter**
- Threshold value
  - $\text{NH}_4$  : 0.78 mg N/l,  $\text{NO}_2$  : f([Cl]), P-tot : 0.5 mg P/l
- Uncertainty derived from validation data
  - Sampling contribution not included
  - 95% level of confidence
  - $\text{NH}_4$  : 20 %,  $\text{NO}_2$  : 27 %, P-tot : 8%

## Deterministic approach



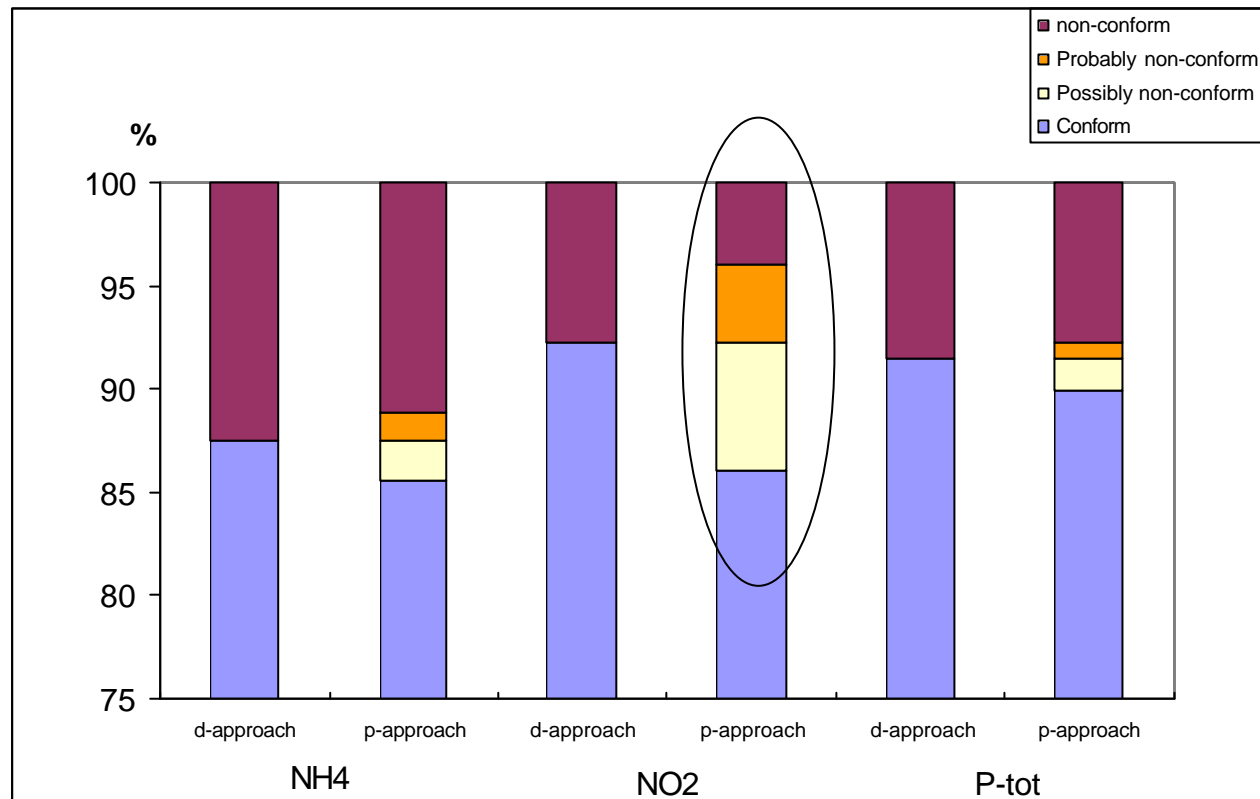
- One non-conform result/year : control site classified as non-conform for the given parameter

## Probabilistic approach



- One result non-conform (either possibly, probably or definitely) / year : control site classified as non-conform for the given parameter

# Results classification



- For nitrite, the number of « non-conform » results is increasing twofold.
- Other parameters => small impact of uncertainty

# Sites classification

	Deterministic classification		Probabilistic classification	
	Nb	%	Nb	%
Salmonicols sites , 132				
NH4	13	10	17	13
NO2	32	24	53	40
P tot	19	14	23	17
Cyprinicols sites, 48				
NH4	34	71	39	81
NO2	24	51	31	83
P tot	29	60	33	69
Total, 180				
NH4	47	26	56	31
NO2	56	31	84	46
P tot	48	27	56	31

- ~~NO2~~ ~~NO3~~ ~~NOx~~ ~~Ammonia~~ ~~significant~~ ~~to~~ ~~15~~ ~~impact~~ in some case

- The analytical uncertainty has a limited impact on the classification, due to the following reasons :
  - the uncertainty doesn't include the sampling contribution
  - Yearly, the number of results is sufficient to avoid a false classification of a given control site.

Thank you  
for your attention