Environmental monitoring of biocides in Europe – from priorisation to measurements
UBA Workshop – November 5-6, 2012 in Berlin

Status of biocides monitoring in France

Alice JAMES-CASAS, Valeria DULIO and Sandrine ANDRES
alice.james@ineris.fr

INERIS
maîtriser le risque pour un développement durable

Surface waters monitoring in France

General points

Water basins districts

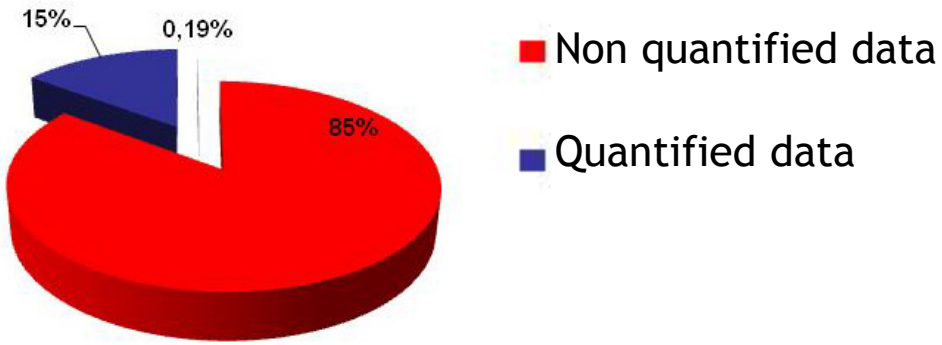
- Continental territories: 6 basins
- Overseas territories: 4 basins

Source: Système d'Information sur l'Eau Rhin-Meuse
http://www.rhin-meuse.eaufrance.fr/

INERIS
maîtriser le risque
pour un développement durable

Surface waters monitoring in France
State of the art of chemicals investigation

Water agencies data 2007-2009



- ca. 17 000 000 data
- 85% not quantified
- great heterogeneity of units
- ca. 1300 substances (ca. 55%) with common references to national system codification

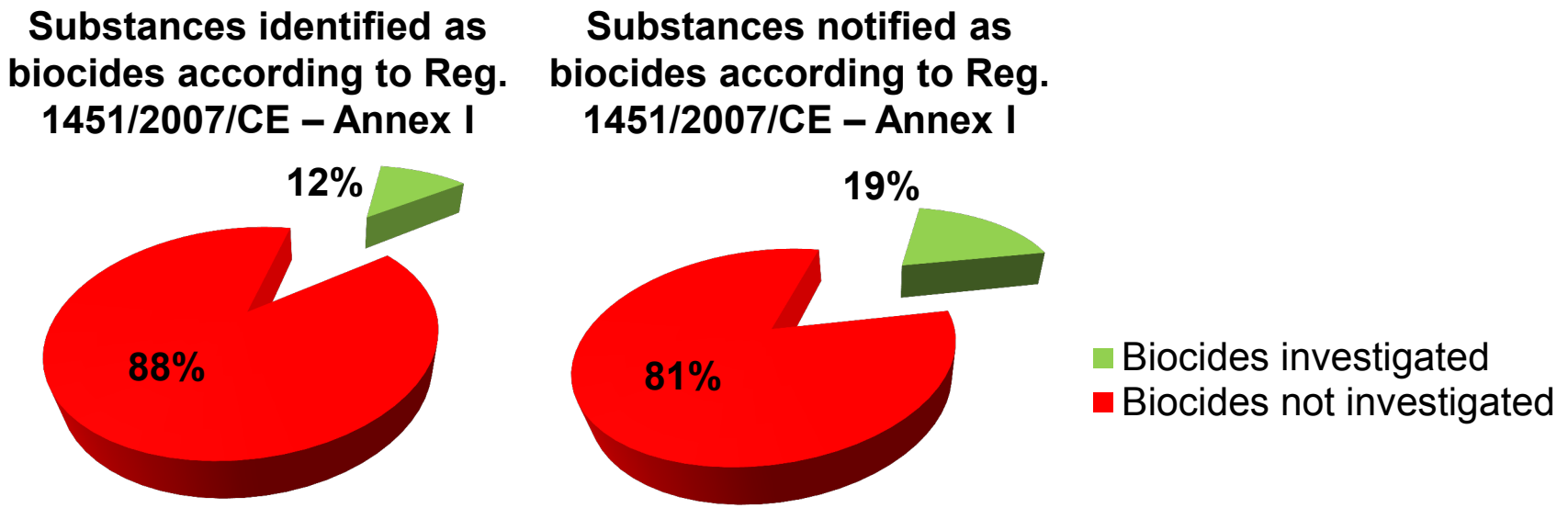
➡ General recommendations for future monitoring campaigns: special attention should be given to:

- LOQ relevance
- data suitability for the intended use
- data codification appropriateness, including metadata to ensure databases workability

INERIS
maîtriser le risque pour un développement durable

Surface waters monitoring in France: 2007-2009 data
Focus on biocides investigation

Few biocides active substances effectively investigated in surface waters on the period 2007-2009



➡ Recommendation for future monitoring campaigns:

- Specific inclusion of biocides active substances and their metabolites

INERIS
maîtriser le risque pour un développement durable

Towards a watchlist for surface waters monitoring in FR

National monitoring campaign scheduled 2012

Objectives

- Obtain information on chemicals in the environment, not already included in routine monitoring programmes, e.g. those of the Water Framework Directive (WFD)

➡ Priorisation of the substances depending on the information available, e.g. hazard data, exposure data (analytical performance and occurrence)

INERIS
maîtriser le risque pour un développement durable

Towards a watchlist for surface waters monitoring in FR
Substances selection - Chemicals priorisation process

Candidate substances dataset of ca. 2400 chemicals, including:

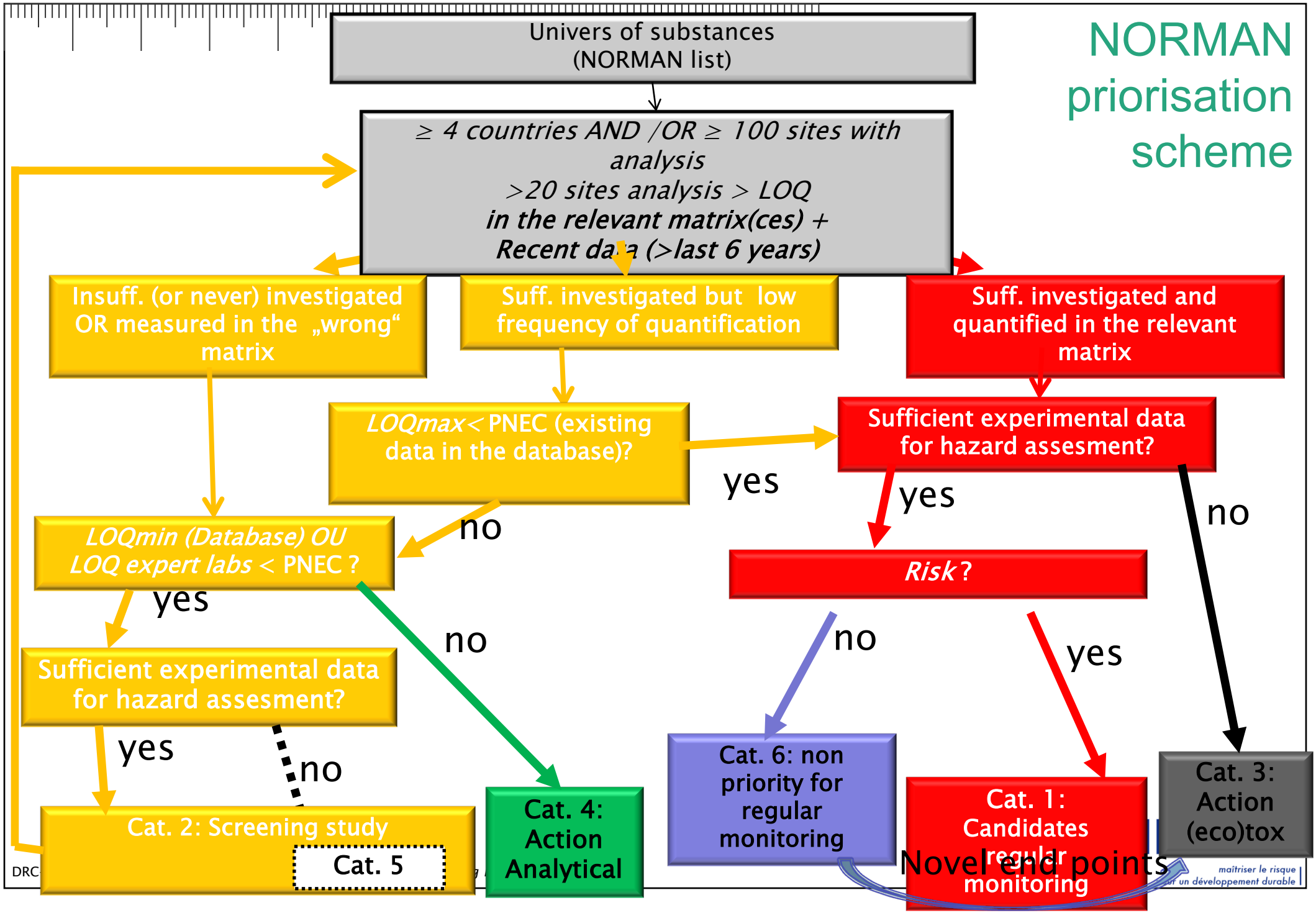
- industrial chemicals
- pesticides (including biocides)
- biocides (69 “biocides only”)
- pharmaceuticals

Adaptation of initial candidate substances dataset for 5 French overseas departments (DOM) with inclusion of additional lists of :

- pesticides listed as used specifically in DOM
- biocides actives substances (PT18 and PT19)
- WHO recommended insecticides for vector control

INERIS
maîtriser le risque pour un développement durable

NORMAN priorisation scheme



Towards a watchlist for surface waters monitoring in FR
Criteria for allocation of the substances to the 6 action categories

Availability of monitoring data in relevant matrix(ces) for the given substance :

- Fugacity models, physico-chemical properties (Kow, Koc, water solubility)

Level of investigation and evidence of exposure:

- Nb of river basins and Nb of sites with monitoring data
- Nb of sites with quantified data

Level of analytical methods performance:

- Limit of quantification (LOQ) < Lowest PNEC

Risk of PNEC exceedance:

- Measured Environmental Conc. (MEC95) / Lowest PNEC >1

INERIS
maîtriser le risque pour un développement durable

Towards a watchlist for surface waters monitoring in FR
Substances selection - Chemicals priorisation process

Applied criteria for priorisation and corresponding scores (cf. NORMAN priorisation scheme):

- **Risk score**
- **Properties score**

INERIS
maîtriser le risque pour un développement durable

Towards a watchlist for surface waters monitoring in FR
Substances selection - Chemicals priorisation process

Applied criteria for priorisation and corresponding scores (cf. NORMAN priorisation scheme):

- **Risk score** takes into account PNEC exceedance→MEC_{95}/PNEC with:
  - Exceedance frequency (nb of sites with exceedance)
  - Level of exceedance (scores from 0 to 1 for ratios from 1000 to <1)

INERIS
maîtriser le risque pour un développement durable

Towards a watchlist for surface waters monitoring in FR
Substances selection - Chemicals priorisation process

Applied criteria for priorisation and corresponding scores (cf. NORMAN priorisation scheme):

- Risk score
- **Properties score** takes into account:
  - Usage (from closed systems uses to dispersive environmental uses)
  - Hazard indicators of ecotoxicological properties: PNEC
  - Hazard indicators of toxicological properties: CMR classification
  - Additional weight given to SVHC, i.e.
    - PBT and vPvB classification
    - Endocrine disrupting properties

INERIS
maîtriser le risque pour un développement durable

Towards a watchlist for surface waters monitoring in FR

Substances selection - Chemicals priorisation process

Applied criteria for priorisation and corresponding scores (cf. NORMAN priorisation scheme):

- **Risk score**
- **Properties score**

Substances with the highest score selected for inclusion in the watchlist for surface waters monitoring : total of ca.240 substances, including:

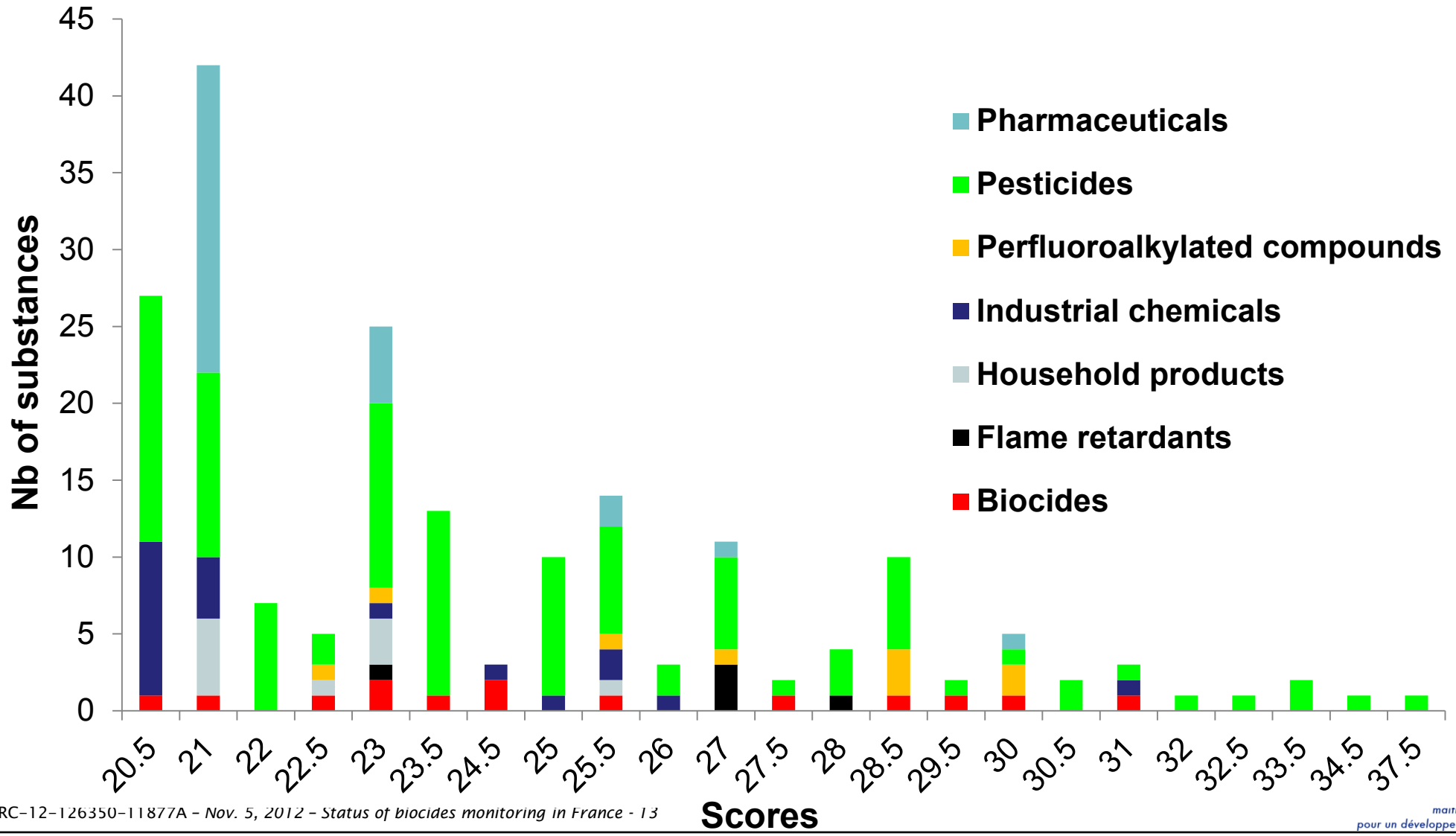
- Pesticides: ca. 80
- Pharmaceuticals: ca. 50
- Biocides: ca. 20
- PAH: ca. 20
- etc.

INERIS
maîtriser le risque pour un développement durable

Towards a watchlist for surface waters monitoring in FR

Scores results by use category

Only scores > 20 are represented



INERIS
maîtriser le risque
pour un développement durable

Analysing 2007 – 2009 monitoring campaign results
Focus on biocides

Among the 375 substances notified in the review programme for the examination of the active substances of biocidal products,

72 substances effectively monitored 2007 – 2009

23 substances “quantified” (>5% analysis, national leve)

Few substances quantified.

Focus on substances authorised for 1 PT or more

Among the 22 substances for which at least one PT is authorised,

4 substances “quantified” (>5% all analysis, national level)

Among these 4 substances authorised, for which monitoring is deemed representative/reliable:

- all MEC95/PNEC ratio > 1
- 2 fungicides also authorised in FR for pesticides use

INERIS
maîtriser le risque pour un développement durable

Analysing 2007 – 2009 monitoring campaign results
Focus on biocides

Brief conclusion on preliminary results show that

- Few biocides substances were effectively monitored during 2007–2009 surface waters monitoring campaigns

- Among the biocides monitored, few are quantified

  ↳ Need for better analytical performance or low environmental concentrations ?

- Among the biocides monitored and effectively quantified, all seem to present a risk

  ↳ Need for PNEC refinement or risk reduction measures and/or regulatory feedback ?

INERIS
maîtriser le risque pour un développement durable

Perspectives

What will the watchlist for surface waters monitoring contribute to?

Watchlist for surface waters monitoring campaign in line of being completed end 2012, with ca. 20 biocides included further to priorisation process

In a near future, analysis of this new monitoring campaign should be done, with a focus on biocides in order to :

- allow a better detection of biocides in the environment
- identify and better predict plausibility of biocides linked environmental risks

risks possibly identified might serve in feedback regulatory needs if deemed relevant

INERIS
maîtriser le risque pour un développement durable