



Towards a Good Ecological Status? The Prospects for the Third Implementation Cycle of the EU Water Framework Directive in The Netherlands

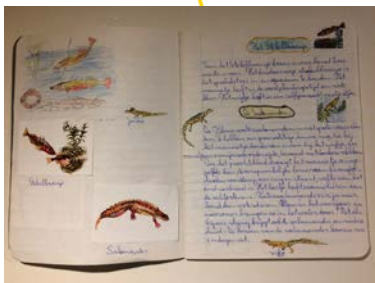
Carel Dieperink



Carel Dieperink

- Public Administration and Philosophy
- Public Finance and Political science
- International Relations
- Environmental studies

- Copernicus Institute
- Board member HDSR
- Honorary fellow NIOO





Towards a Good Ecological Status?

- Scientific question
- Political question
- Normative elements

What is good (enough?) water?

What are legitimate water uses?

Governance challenge

- Multi-actor
- Multi-level
- Multi-sector



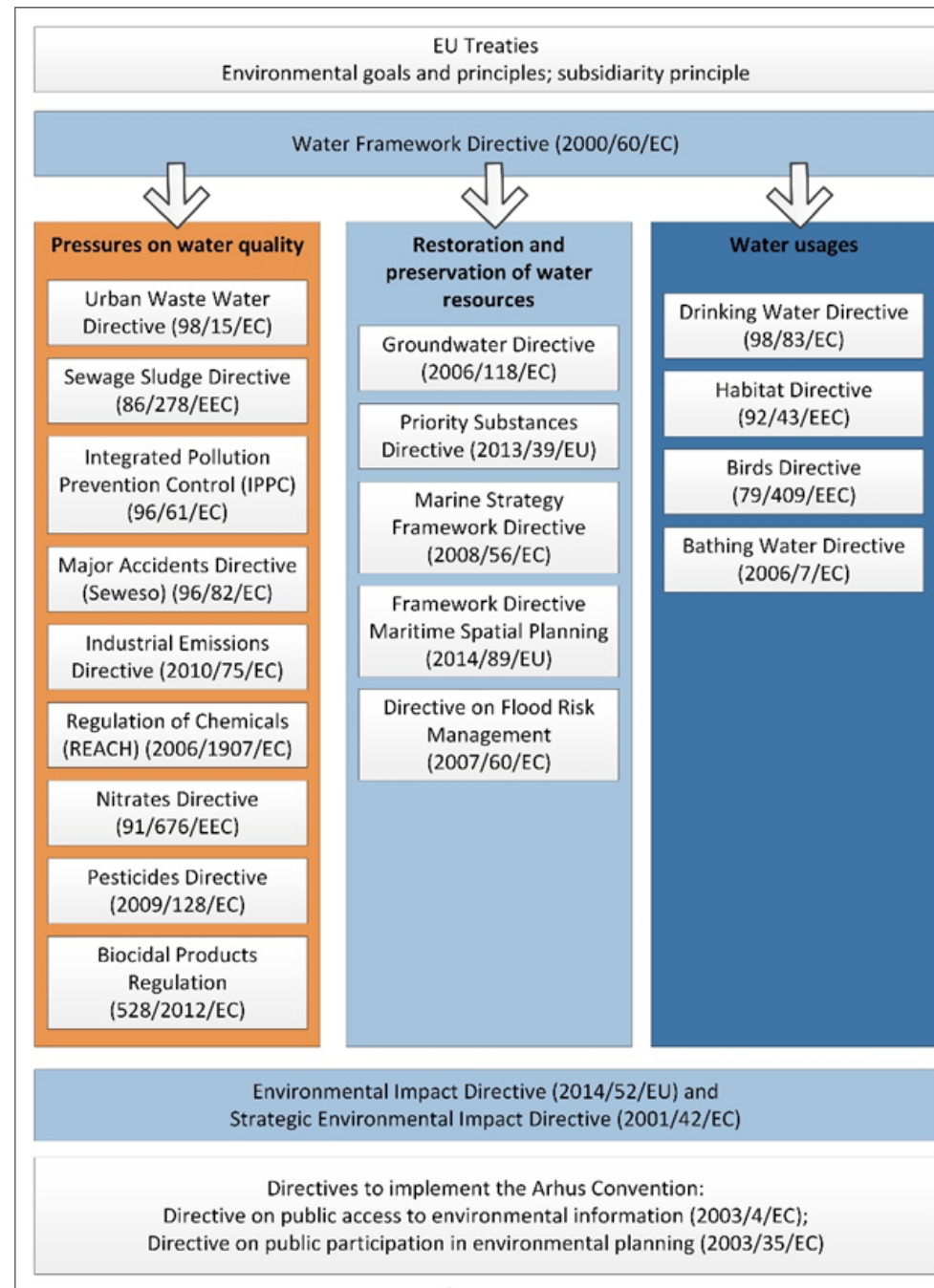




WFD: Aims and approach

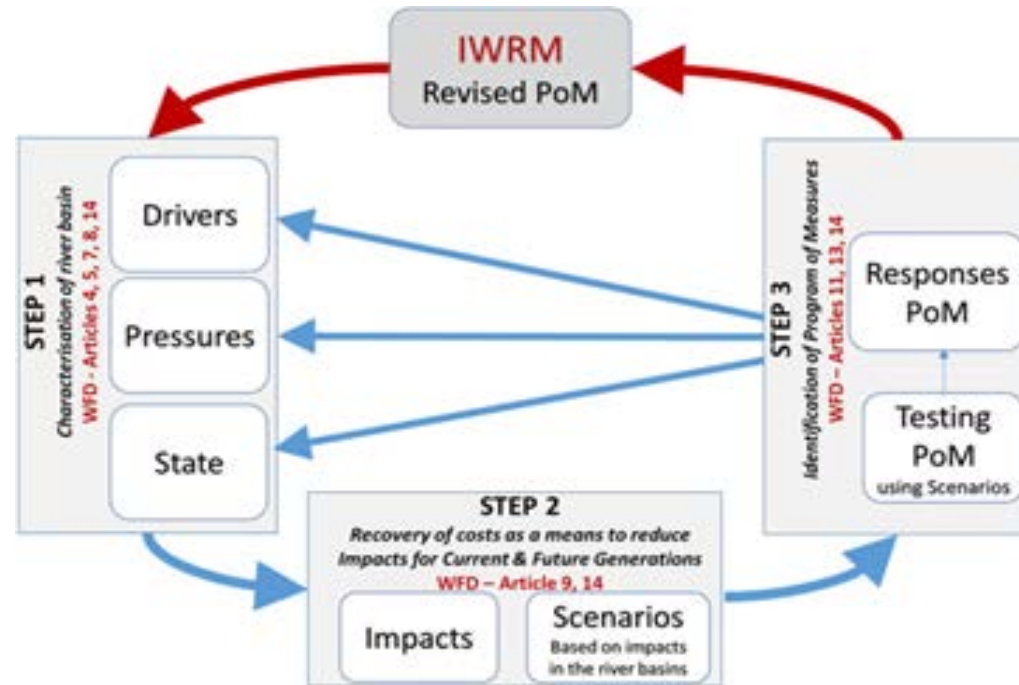
- Good chemical and **ecological** status of surface water
- Good chemical and quantitative status groundwater
- No deterioration
- Integrated approach
- Basin as object







The management cycle of the Water framework Directive



(Source: Apostolaki et al. 2019)



Potential approaches to improve water quality

Reduction of emissions

- Water treatment facilities
- Sewer overflows
- Agricultural runoffs
- Other diffuse sources
- New substances

Ecologically sound morphology

- Fish ladders
- Nature friendly riverbanks
- Re meandering

Ecologically sound management

- Mowing
- Dredging
- Inlets
- Duckweed and exotic species
- Water levels

Laws and regulations

- Permits
- Enforcement

Based on HDSR (2020 KRW-maatregelenplan 2022-2027 Technische onderbouwing actualisatie KRW-maatregelen en -doelen



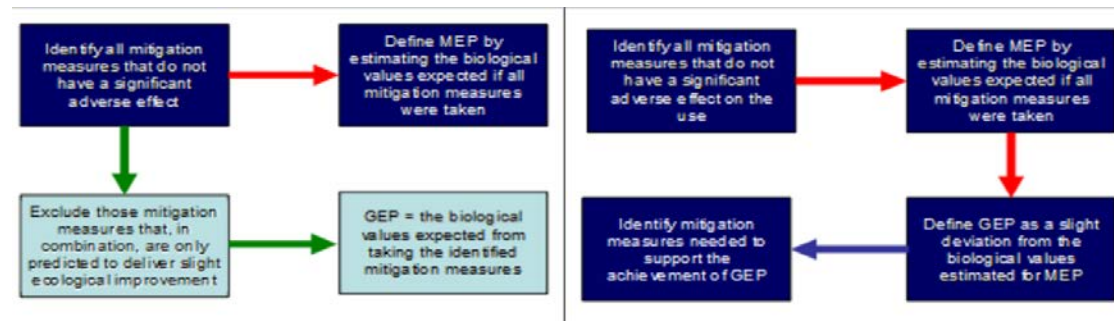
Potential approaches to deal with droughts

General risk management strategies	Possible drought risk management strategies
Prevention	Reduce freshwater demands through water-saving technologies and –campaigns
	Increase water availability through buffering, infiltration systems and active water reservoir capacity management
	Increase water availability through investment in alternative water resources
	Increase water availability through supra-regional and supranational collaborations
Mitigation/ Adaptation	Prioritization of specific water functions
	Increase societal preparedness by awareness raising campaigns and timely, consistent and clear communication between actors
	Increase preparedness by applying a wide framework of indicators to predict periods of drought
	Increase preparedness by improving data and information availability through standardization, disclosure and exchange of data between actors
	Land-use change by (a.o.) reforestation, crop diversification and using more drought-resistant and/or salt-tolerant crops
Recovery	Acceptance and recovery from damages by compensation and/or insurance systems

(a.o. Jalink and Dieperink, 2024)

Dutch implementation experiences

- Small waters not designated as WFD water bodies
- 3% of the 723 water bodies classified as natural; 55% as artificial and 42% as heavily modified
- Pragmatic approach: feasible measures



(Dieperink et al. 2012; Van Kats et al. 2022)



Dutch implementation experiences

Feasible (low hanging fruit) measures

- Fish ladders
- No changes in water level regimes or manure free buffer zones
- Permitting system not up to date
- Lack of point source monitoring
- More research is needed.....

(Dieperink et al. 2012; Van Kats et al. 2022; Wuijts et al. 2022; Rotscheid et al. 2024)



Hampering factors found

- Diffuse pressures ask for multilevel governance
- Regional water authorities lack competences

- Lack of political will
- Lack of capacity

(Van Kats et al., 2022)





Stimulating factors found

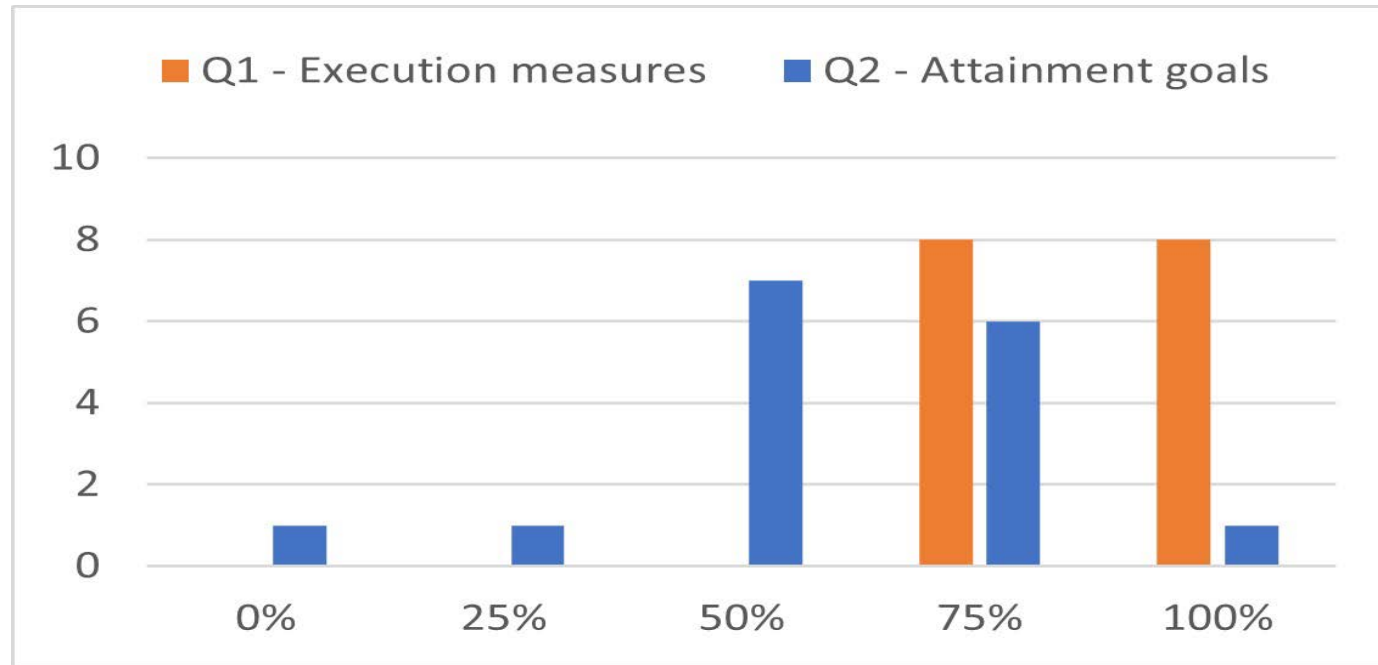
- Administrative support
- Financial possibilities of RWAs (own taxes)
- Good cooperation
- Knowledge

(Van Kats et al., 2022)





2027 Expectations Dutch Regional Water Authorities

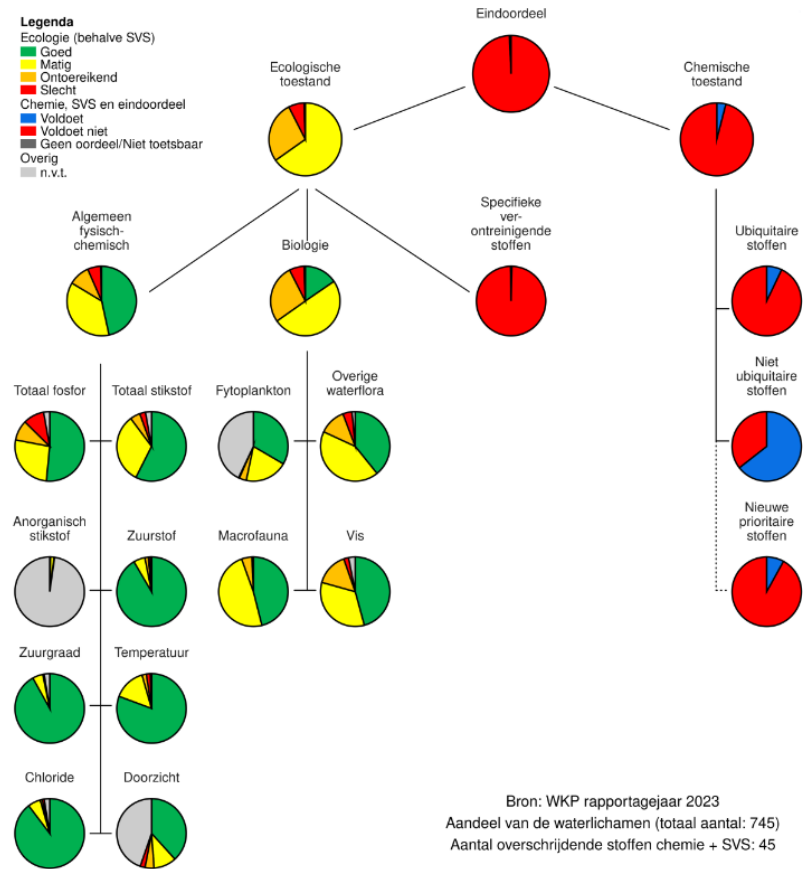


Interviewees expectations on the actual execution of measures and the attainment of the 2027 goal (n= 16) (Van Kats et al. 2022)



Current status Dutch waterbodies

KRW-oordeel rapportagejaar 2023 - voor alle KRW-waterlichamen in Nederland



- 745 surface water bodies, together more than 100,000 targets.
- 80% of targets are achieved
- Due to one-out all-out principle no surface water body in good condition
- 19 (of the 23) ground water bodies not in good condition (Ritzen, 2025)



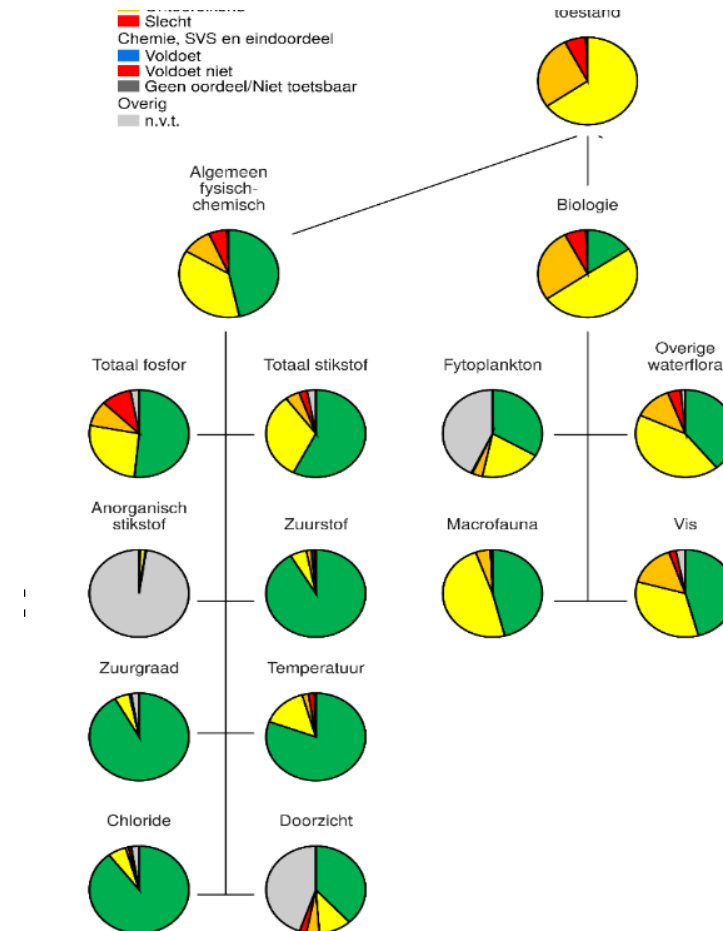
Current chemical status

- 80 WFD substances meet the standard
- 42 substances do not (30 must meet standards by 2027)
- 2 priority substances are found to exceed the standard in more than 80% of the water bodies.
 - Polybrominated diphenyl ethers (PBDEs, flame retardants)
 - Heptachlor (a crop protection product)
- 3 specific pollutants exceed the standards in more than 50% of the water bodies
 - Cobalt
 - Selenium
 - Arsenic
 - Ammonium (Slagter et al. 2024)



Current ecological status

- 2009-2021 improvements
- Stagnation
- Key causes: nutrients, modification waterbodies, lack of ecological management; climate change, exotic species

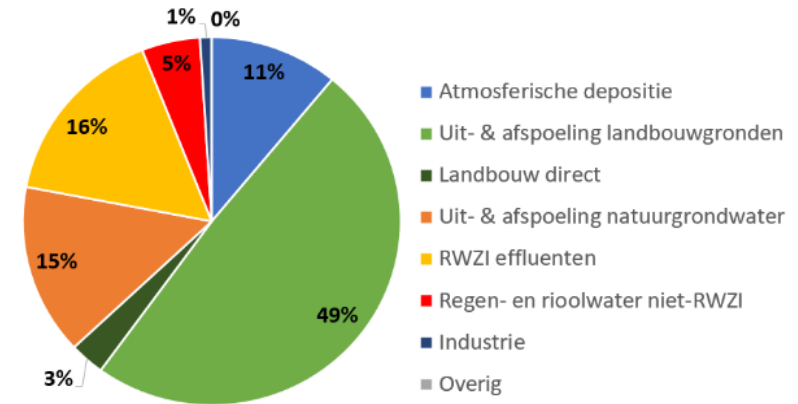




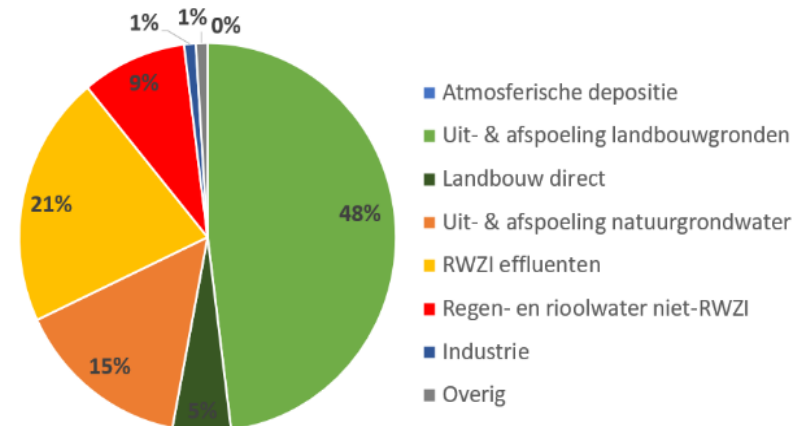
Nutrients

- 41% of water bodies Nitrogen targets not met
- 46% of water bodies Phosphate targets not met

Overzicht bronnen stikstof (N)



Overzicht bronnen fosfaat (P)





Key challenges

Recommendations WFD scan (Van Rijswick et al 2024)

1. Discuss 'target gaps' with other authorities Who uses which instruments?
2. Strengthen permitting and compliance
3. Safeguard WFD in instruments
Revise all permits and approvals
WFD-driven enforcement policy
4. Use of voluntary measures
Enforce or explain if targets are not reached

- Legacies (nutrient rich soils; landfills in the peatlands; sediments)
- Invasive species



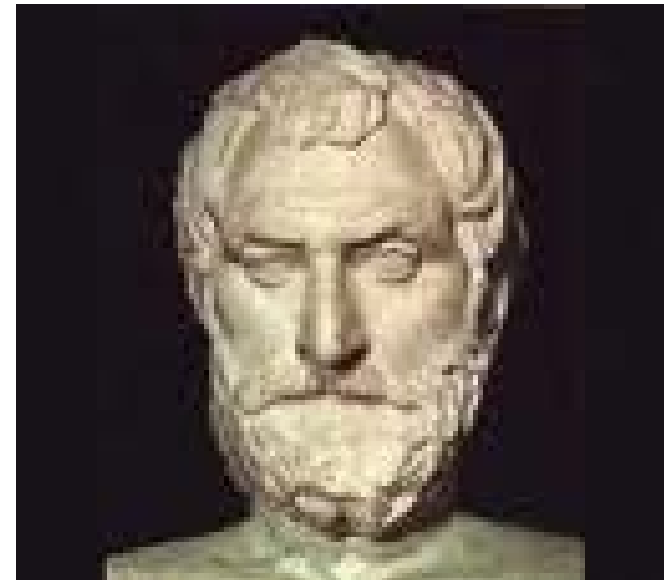


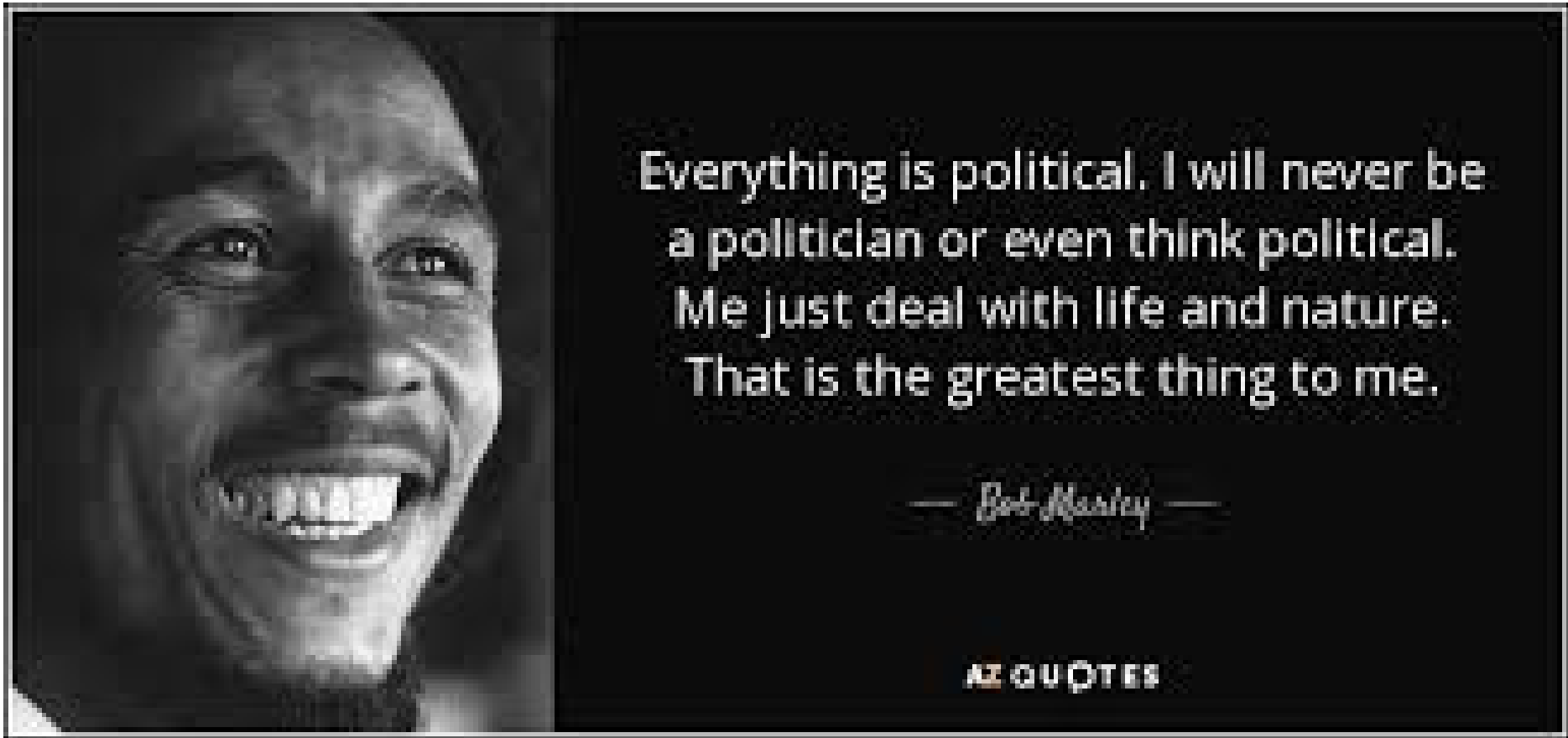
"Everything is water"

"That from which is everything that exists and from which it first becomes and into which it is rendered at last, its substance remaining under it, but transforming in qualities, that they say is the element and principle of things that are."

"Thales the founder of his type of philosophy says that it is water." [(Aristotle, Metaphysics)

Thales of Miletus
(c. 624 BC – c.
546 BC)







Conclusion



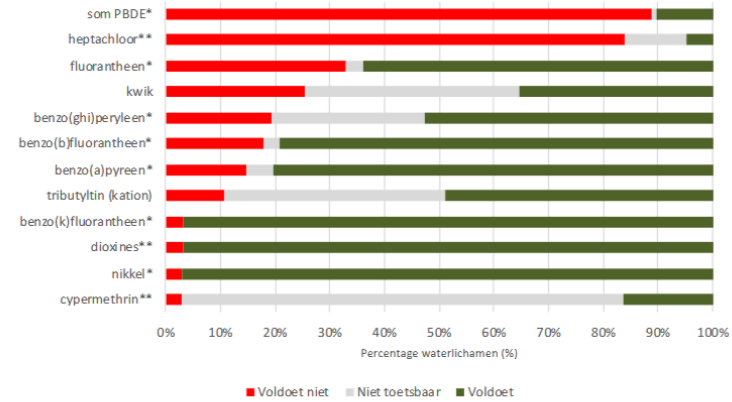
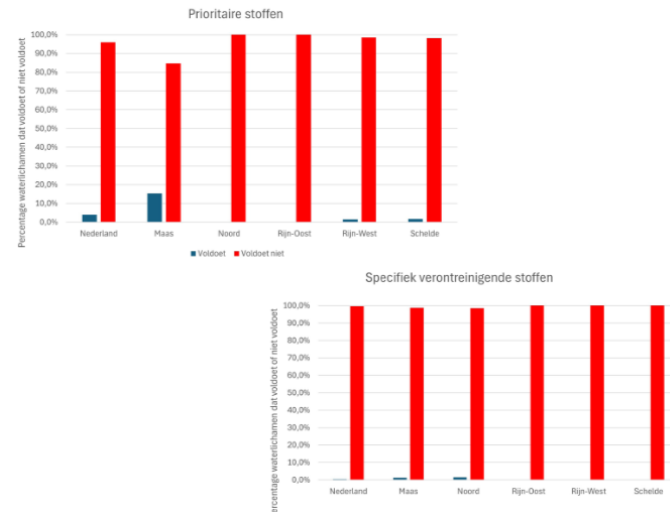


Current chemical status

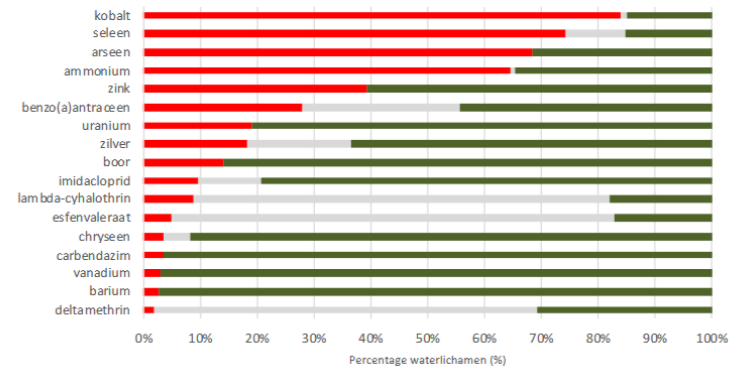
OPPERVLAKTEWATER - CHEMIE

Chemische toestand, trends en prognose

Bij chemie gaat het om 42 probleemstoffen waarvan momenteel de normen overschreden worden. Hiervan moeten 30 stoffen uiterlijk in 2027 aan de KRW-normen voldoen. Voor Nederland als geheel voldoen 30 waterlichamen anno 2023 aan de KRW-normen voor de goede chemische toestand en 3 waterlichamen voldoen aan alle normen voor de specifiek verontreinigde stoffen. De meeste normoverschrijdingen worden veroorzaakt door slechts een beperkt aantal stoffen, zie onderstaande afbeeldingen (afbeeldingen b, c en d). Van de prioritaire stoffen worden de polybroomdifenylethers (PBDE's, brandvertragende middelen) en heptachloor (een gewasbeschermingsmiddel) in meer dan 80% van de waterlichamen normoverschrijdend aangetroffen. Voor de specifiek verontreinigende stoffen geldt dat ook voor kobalt. Seleen, arseen en ammonium overschrijden in meer dan 50% van de waterlichamen de normen.



Afbeelding c) Prioritaire stoffen die in meer dan 1% van de waterlichamen niet voldoen aan de norm (IHW, 2023). De uiterste termijn voor stoffen zonder ster is 2027, met een ster (*) 2033, en met twee sterren (**) 2039.





Current chemical status

- Most standard exceedances are caused by only a limited number of substances
- > 96% of water bodies are currently not in good chemical condition
- 30 water bodies meet WFD standards for good chemical status;
- 3 water bodies meet all standards for the specifically polluted substances.