For our environment

Umwelt Bundesamt

ERBFacility WG3 Meeting

Regulatory importance of raptor monitoring data for chemicals management

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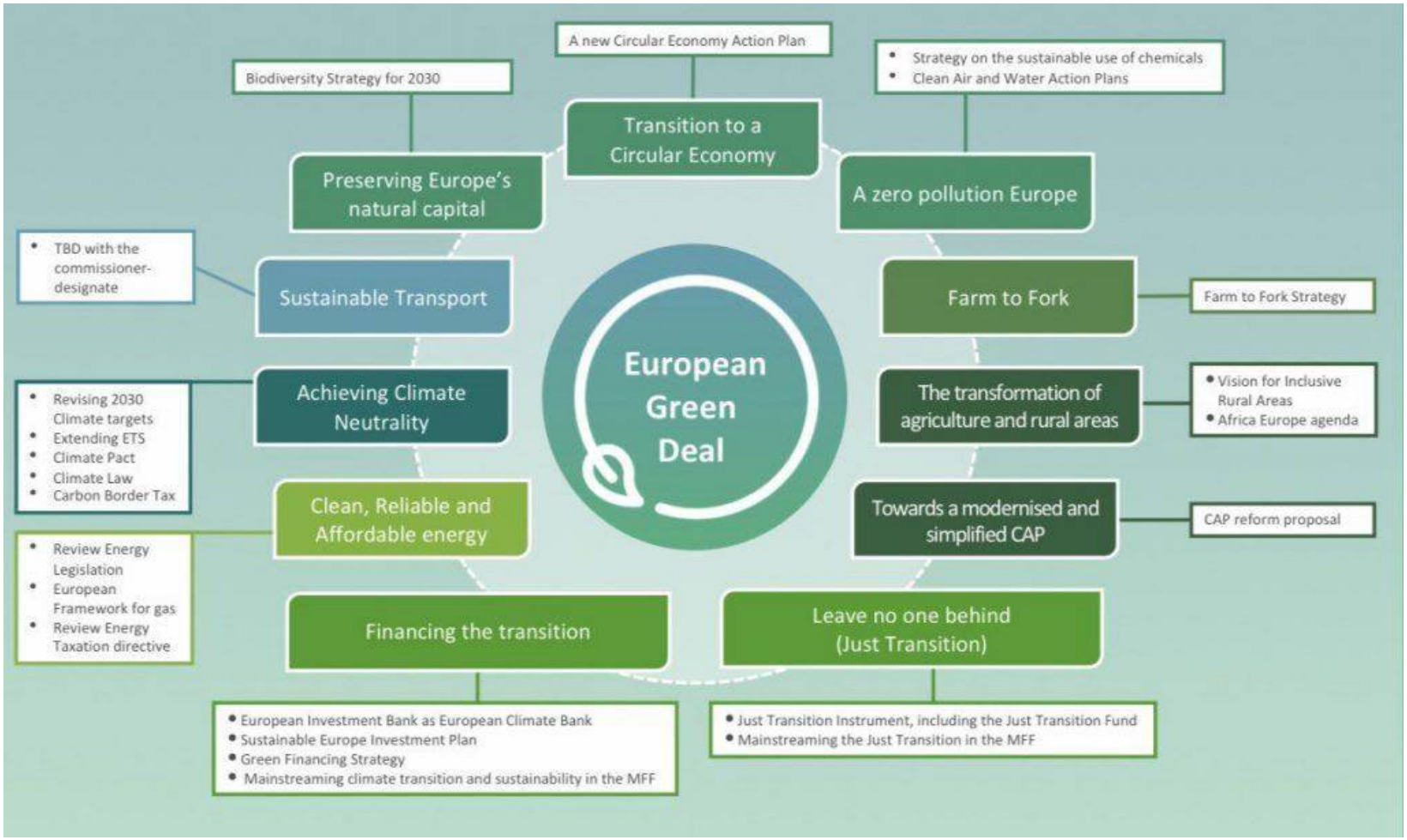
ERBfacilty

Green deal and regulatory importance of monitoring data for chemicals managament



ERBfacilty

The European Partnership for the Assessment of Risks from Chemicals (PARC)

A broad consortium of more than 25 countries and several European agencies is preparing a **European Partnership for the Assessment of Risks from Chemicals.**

PARC will provide chemical risk assessors and risk managers with new data, knowledge and methods. The role of the partnership is to facilitate the transition to next-generation risk assessment in order to **better protect human health and the environment**.

The impacts related to the specific objectives will be addressed on three levels through:

- A sustainable EU-wide cross-disciplinary network to identify and agree on research and innovation needs and support the uptake of conceptual, scientific and technical research findings in regulatory chemical risk assessment.
- Joint research and innovation activities responding to the priorities identified in order to support the current regulatory risk assessment processes and respond to emerging challenges.
- The strengthening of existing capacities and the building of new EU-wide, cross-disciplinary research and innovation platforms to support chemical risk assessment.

PARC WP Monitoring

Better understand environmental and human exposure via multiple sources

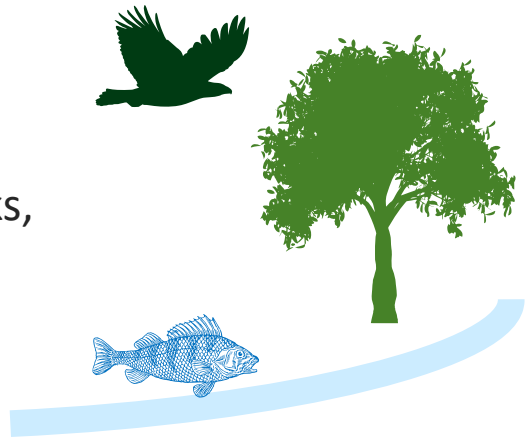
Develop harmonized multisource monitoring

Catalyse innovative monitoring techniques

Deliver robust high-quality exposure data

Integrate early warning system

Build on existing monitoring networks, expertise, infrastructure



European policies: Marine Framework Strategy Directive (MFSD)

Aims to achieve Good Environmental Status (GES) of the EU's marine waters and to protect the resource base upon which marine-related economic and social activities depend.

Monitoring to control for GES:

Descriptor 1: Biodiversity indicators e.g.:

- Population growth rates, abundance and distribution of marine mammals
- White-tailed sea eagle productivity
- Nutritional status of seals

Descriptor 8: Contaminants

- Substances are toxic, persistent and liable to bio-accumulate and other substances or groups of substances which give rise to an equivalent level of concern

Descriptor 9: Contaminants in seafood

- Substances accumulating in an organism are likely to be transferred in the food chain, also referred to as biomagnification

European policies: REACH

Which information can monitoring data provide for regulations?

1. Registration

- Substances that are produced or imported at >1 t/a
- Industry needs to assess the hazards and potential risks of a substance (registration dossier)

2. Evaluation

- Examination of testing proposals (ECHA)
- Compliance check (31% of registration dossiers are non-compliant)

- Substance evaluation e.g. by UBA
- → Identification of substances of very high concern (SVHCs)

Substances of very high concern:

- Persistent, bioaccumulative and toxic (PBT)
- Carcinogenic, mutagenic or toxic for reproduction (CMR)
- Or substances that cause an equivalent level of concern

3. Authorisation

- Progressive replacement of SVHCs by less dangerous substances
- → Aim: controlled use of a substance or replacement

4. Restriction

- Limit or ban the manufacture, placing on the market (including imports) or use of a substance

Regulatory use of monitoring data

What criteria are we looking for?

Hazard/ PBT assessment:

1. Persistence

- Degradation in marine water > 60 days
- Degradation in fresh water > 40 days
- Degradation in sediment > 120 days

Lab based data!

2. Bioaccumulation

- Bioaccumulation factor > 2000
- Concentration of test substance in a fish/tissues divided by the concentration of the substance in the surrounding medium

3. Toxicity

- Commonly relies on model organisms such as Japanese quail
- Outside the scope of monitoring for now

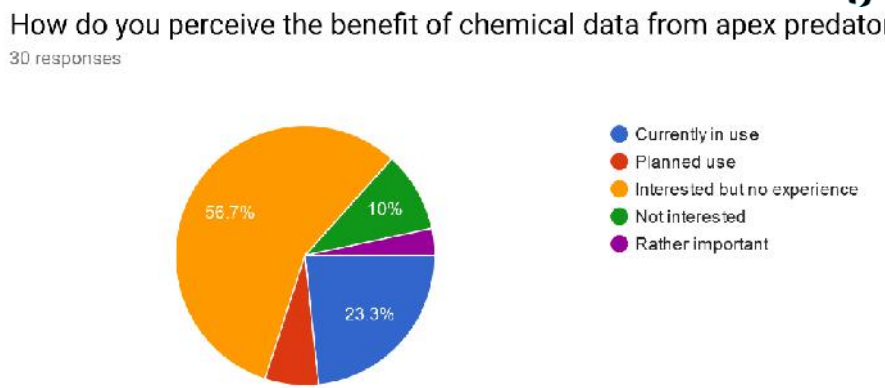
Weight of Evidence

- All available information of a PBT or vPvB substance is considered (e.g. results from monitoring and modelling)

Why are regulators not monitoring chemicals in top-predators?

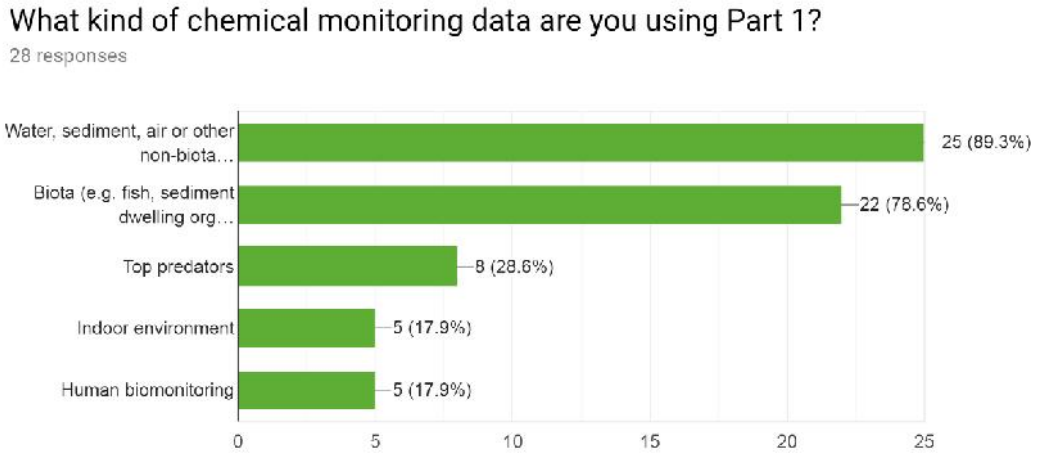
Questionnaire issued 2019

- 90% of the respondents are interested chemical monitoring data from apex predators
- ➢ But more than half are lacking experience in assessing wildlife data



"not standardized, expensive, missing expertise/ guidance to use data, no access to data, data collection needs to be centralized across MS, …"

- Most chemical monitoring data come from biotic compartments or lower trophic level taxa
- < 30% are currently using data from top predator



European chemical monitoring

Standardisation of monitoring schemes

Harmonised sentinel monitoring protocol and sampling matrix

Ecotoxicology (2016) 25:777–801
DOI 10.1007/s10646-016-1636-8

Tracking pan-continental trends in environmental contamination using sentinel raptors—what types of samples should we use?

https://doi.org/10.1007/s10646-016-1636-8

Ambio
https://doi.org/10.1007/s13280-020-01341-9

PERSPECTIVE

A schematic sampling protocol for contaminant monitoring in raptors

https://doi.org/10.1007/s13280-020-01341-9

Harmonised choice of sentinel species

Advantages

- Distributed throughout Europe
- Breeding within agricultural settings, urban habitats and forest patches
- Active foraging and facultative scavenging
- Carcasses are frequently found
- Sufficient liver weight for analytical requirements

Disadvantages

- Dietary plasticity
- Partial migrant in northern Europe

https://doi.org/10.1016/j.scitotenv.2020.139198

LIFE APEX

Linking Europeans Biota collections

LIFE APEX - Systematic use of contaminant data from apex predators and their prey in chemicals management

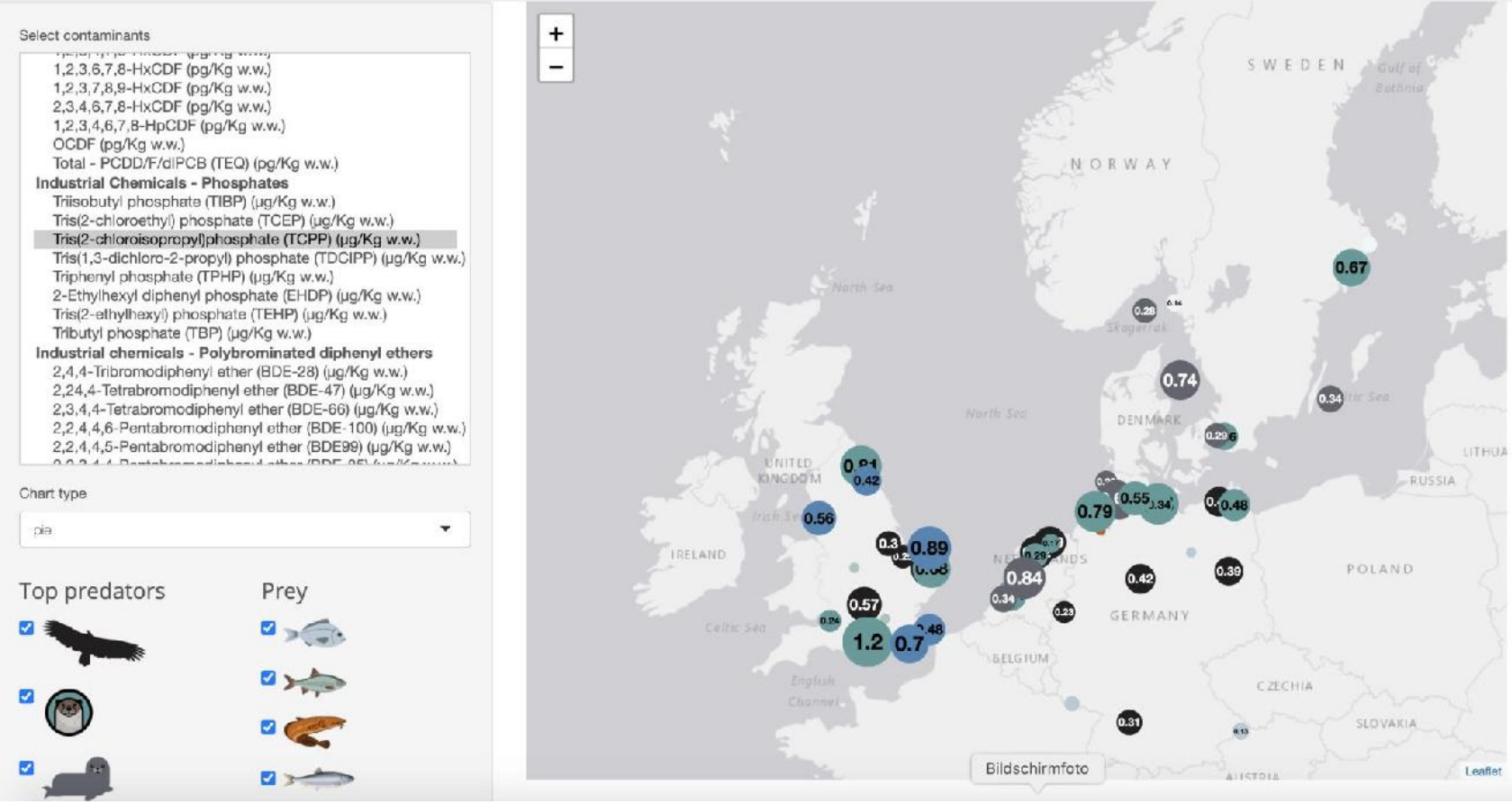
- Support environmental and chemical legislation, e.g. MSFD, REACH…
- Generate an inventory of available samples from Environmental Specimen Banks, research collections and Natural History Museums.
- Provide guidance for biota sampling, processing, archiving so that sample collections can be used more effectively.
- Address citizens' interest in pollutant data from top predators.

LIFE APEX

Wide-scope target screening

Example for high persistence and bioaccumulation

- Tris(2 chloro-isopropyl)phospate (TCPP) -> Industrial

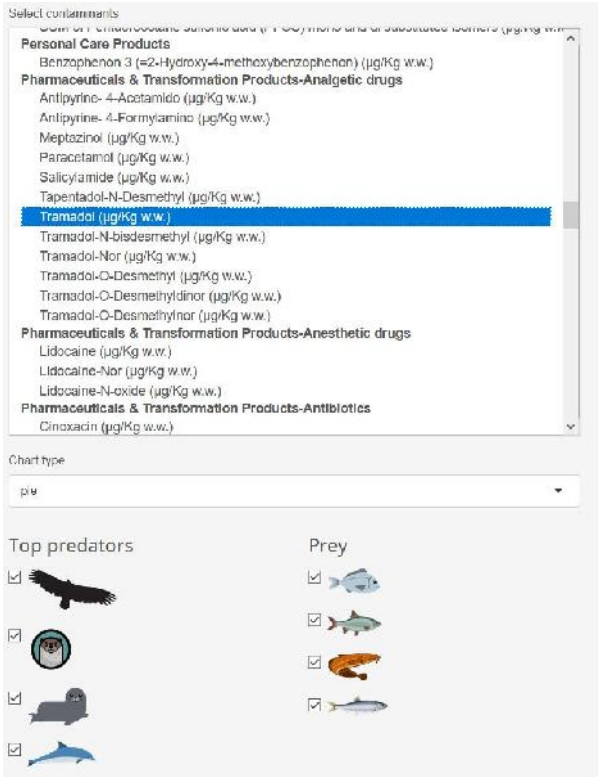


LIFE APEX

Wide-scope target screening

Example for low persistence:

- Tramadol -> opioid pain medication
- Predators: Only metabolites -> Parent compound in prey species

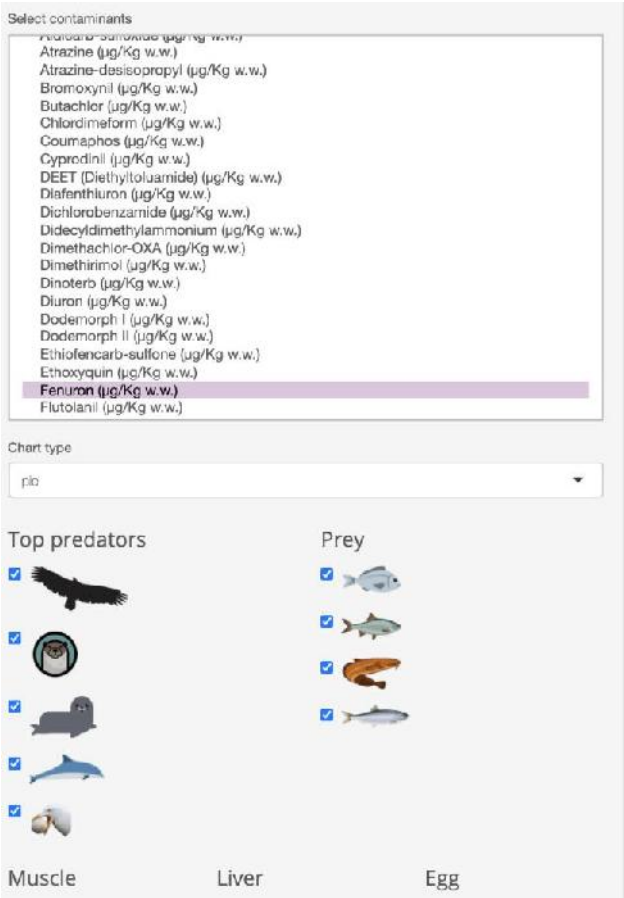


LIFE APEX

Wide-scope target screening

Example for regional exposure

- Fenuron -> Plant protection product -> accumulation limited to fish



Thank you for your attention

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