

NEWSLETTER LIFE APEX



ISSUE NO. 7 | MAY 2022



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



SAVE THE DATE: LIFE APEX Final Workshop

Discussion with international experts towards a better use of monitoring data from apex predators and their prey in hazard assessment and management under REACH

on Tuesday 14th June 2022 (9:30- 16:00h)

Hybrid



TOPIC 01

- European sample coverage of apex predator samples
- Final number of detected compounds

TOPIC 02

- Life APEX Tier 3: Contaminants in top predators from all over Europe

TOPIC 03

- Proof of concept study on raptors and rodenticides and PBDEs
- Risk characterisation and assessment of temporal trends/study designs
- Final conference in Berlin: Additional information

Telegram

14th of June 2022
+++Save-the-date+++

- Final Life APEX conference in Berlin as hybrid event
- Presentation and discussion of project results and lessons learned for future pan-European monitoring

Spotlight presentations from

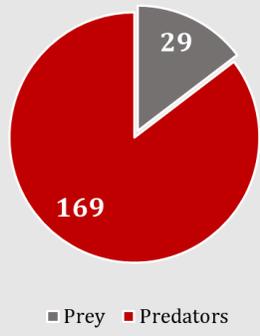
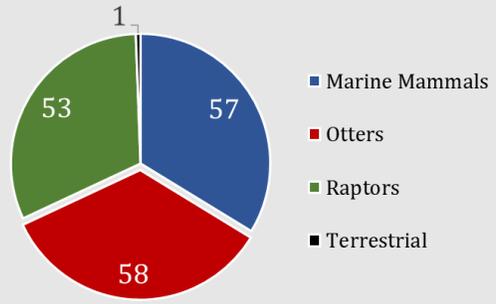
- Policy makers on Zero Pollution Ambition and top predators
- Academia on chemicals and biodiversity
- Industry on top predators in chemicals risk assessment

- Presentation of overall detected compounds, classified by their intended use (e.g. pharmaceuticals, pesticides etc.)
- In total, 250 contaminants were detected among >2,400 compounds via wide-scope target screening
→ European apex predators are exposed to large variety of emerging chemicals from various chemicals legislations!

Proof of concept:

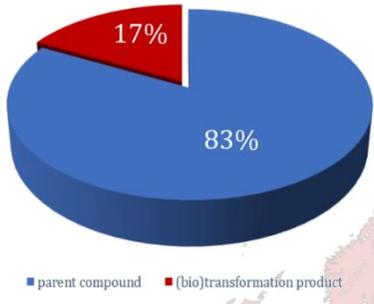
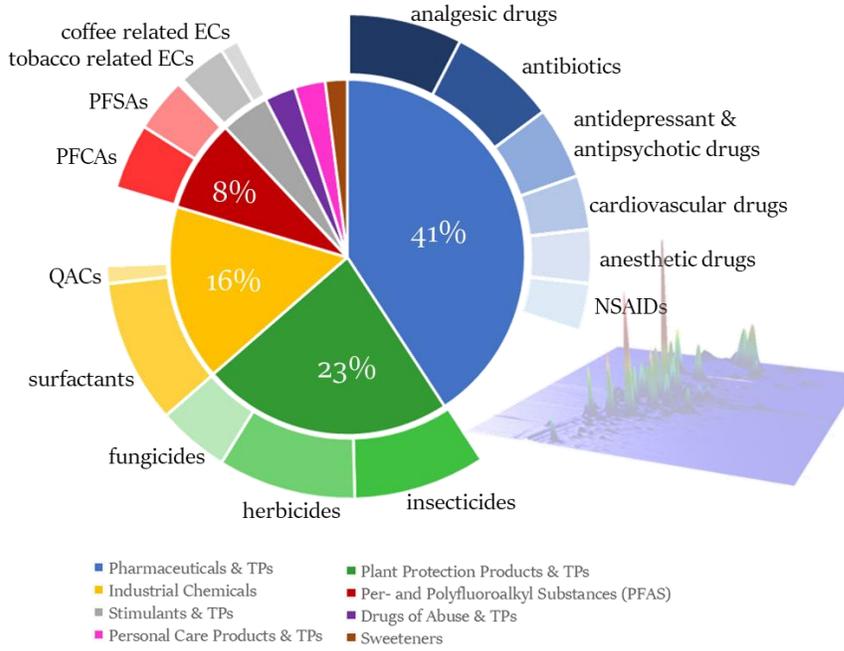
- Characterisation exposure and risks of raptors for rodenticides and PBDEs
- Exploration of monitoring designs to effectively and efficiently detect temporal trends

01: LIFE APEX (ALL TIERS):



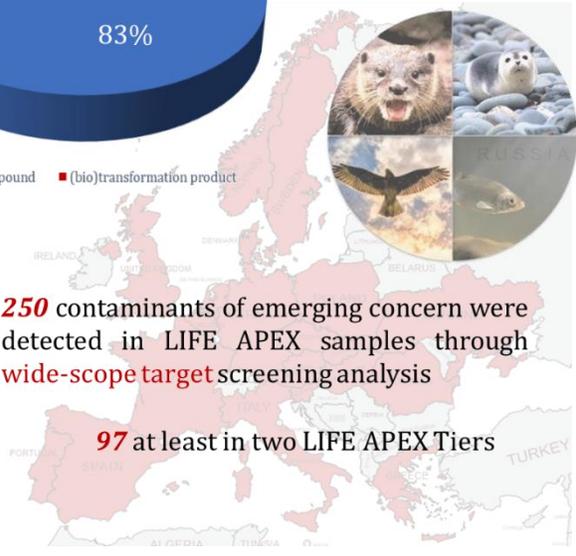
198 apex predators & prey samples
20 European countries

pan-European biomonitoring study

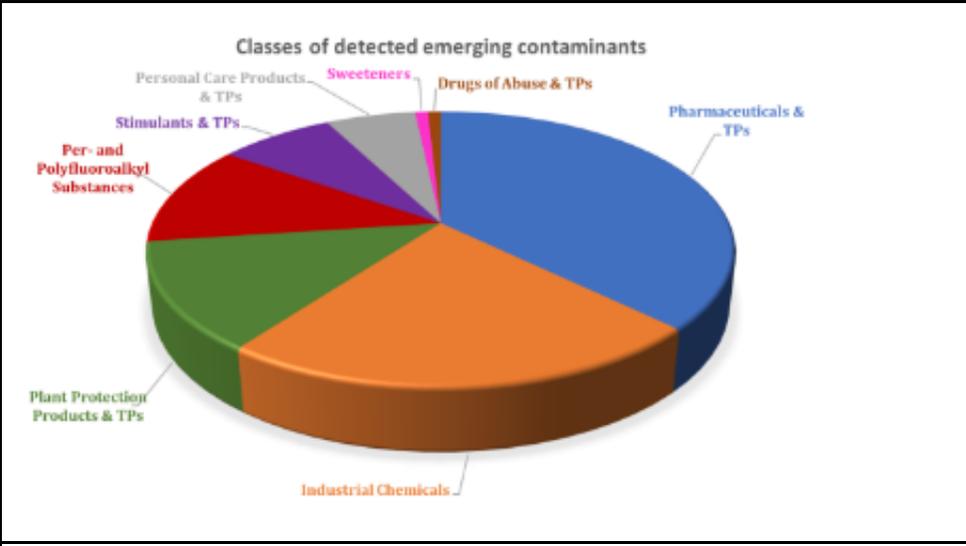


250 contaminants of emerging concern were detected in LIFE APEX samples through wide-scope target screening analysis

97 at least in two LIFE APEX Tiers



01: LIFE APEX TIER 3:



- ✓ In total, **118** CECs were detected in Life APEX samples (Tier 3)
- ✓ **Pharmaceuticals & TPs** → **37%**
- ✓ Industrial Chemicals → **23%**
- ✓ Plant Protection Products & TPs → **13%**
- ✓ Per- and Polyfluoroalkyl Substances (PFAS) → **12%**

- Same trend for PFAS detection as observed in previous Tiers → higher concentrations in otters compared to marine mammals and raptors
- Otters from UK → significant higher cumulative concentration of PFAS, especially I-PFOS
- Pharmaceuticals were detected in high concentrations in Buzzard samples, indicating potential medical treatment before death

02: UPDATE ON OUR PROOF OF CONCEPT STUDY

Monitoring: How many samples and how often?

As part of the Life Apex B6 demonstrator we have been carried out Pan-European analysis of current chemicals of concern, the aims being:

- (1) to characterise exposure and risk that these contaminants pose to raptors and the wider environment
- (2) to explore the design of monitoring programmes to effectively and efficiently detect temporal trends in these contaminants

For our demonstration of monitoring at the pan-European scale (Task B6.4) more than 125 Common Buzzard (*Buteo buteo*) liver samples from 17 institutions in 11 countries, allowed 63 pooled samples to be prepared for multiple targeted analyses. The time period of samples was from 1998 to 2021, varying by country.

Factors that can increase variability within annual results include: age, sex (through differing diets or off-loading of contaminants into eggs) and nutritional status of the bird. Despite not restricting these factors within the sampling strategy, Monte Carlo based power analysis has shown that even relatively small time trends in concentrations can be detected over likely monitoring time periods (5 or 10 years).

For Rodenticides, how many samples are need to detect a year on year **10% change** in over a **10 year period**?

35 samples, from across Europe, analysed per year would allow these changes to be detected.

Further samples above 60 samples per year would not improve power to detect these trends.

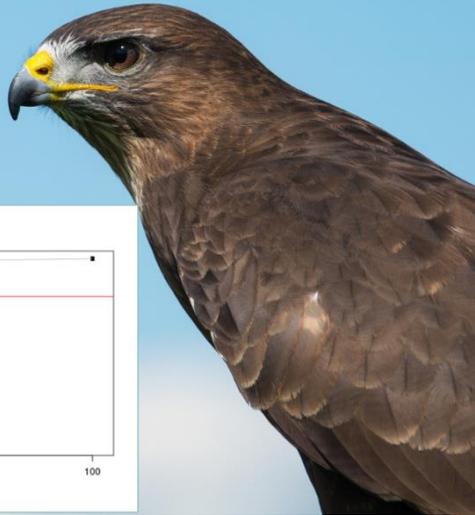
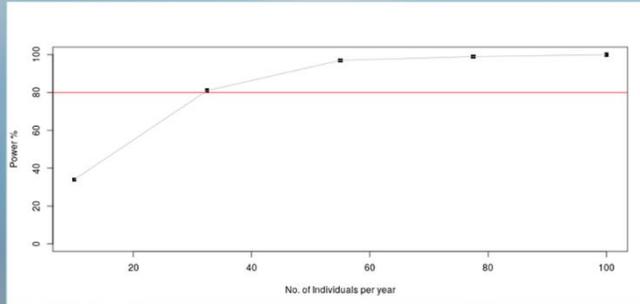


Figure 1

Comparisons among contaminants using the same pooled liver samples (2-3 individuals) from 11 countries across Europe indicated that the inherent variability in exposure differed between contaminants and that this in turn affects our power to detect temporal changes in these datasets.

For example (Fig. 2), a similar number of samples analysed per year for sum Polybrominated Diphenyl Ethers (SumPBDEs) allowed smaller changes (5% per year) to be detected in a shorter period of time (over a 5 year period) than for sum Second Generation Anticoagulant Rodenticides (SumSGAR; 10% change per year over a 10 year period).

For SumPBDEs, how many samples are need to detect a year on year **5% change** in over a **5 year period**?

45 samples, from across Europe, analysed per year would allow these changes to be detected.

Further samples above 80 samples per year would not improve power to detect these trends.

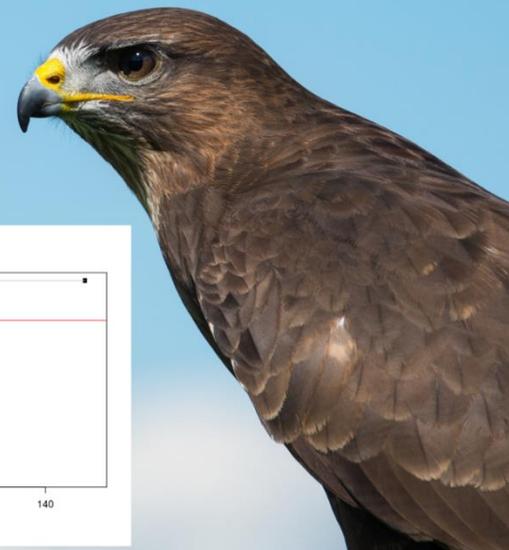
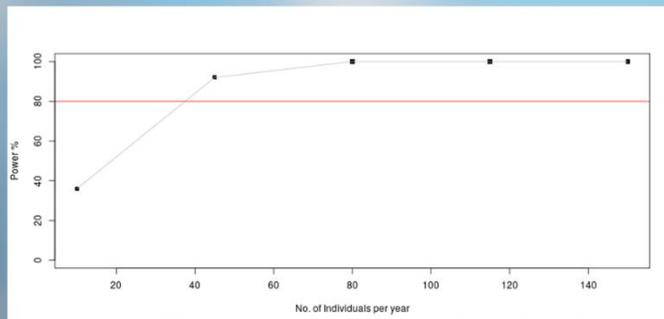


Figure 2

03: LIFE APEX: FINAL CONFERENCE: JUNE 14TH IN BERLIN



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Discussion with international experts towards a better use of monitoring data from apex predators and their prey in hazard assessment and management under REACH

on Tuesday 14th June 2022 (9:30- 16:00h)

Hybrid

Venue: Representation of the federal state of Saxony-Anhalt Luisenstraße 18, 10117 Berlin, Germany

Programme:

09:30	Reception and coffee		
10:00	Welcome	tba, Umweltbundesamt	
	Session 1: The LIFE APEX project		
10:15	LIFE APEX: next generation monitoring data for chemicals management	Jaroslav Slobodnik, Environmental Institute	
10:35	Making use of what is there: Environmental specimen banks, scientific collections and Natural History Museums	Alexander Badry, Umweltbundesamt	
10:50	Biomonitoring approaches to assessing effectiveness of chemicals risk management measures	Paola Movalli, Naturalis	
	Case study: Effectiveness evaluation for rodenticides	Lee Walker, UK Centre for Ecology & Hydrology	
11:15	Benchmarks from the past: Legacy POPs	Alessandra Cincinelli, University of Florence	
11:30	A new angle: wide scope target screening in biota	Nikoloas Thomaidis, National and Kapodistrian University of Athens	
11:45	From Non-Target Screening to digital archives	Nikiforos Alygizakis, National and Kapodistrian University of Athens, Environmental Institute	
12:00	Making use of apex predator data in chemical risk and hazard assessment	Gabriele Treu, Umweltbundesamt	
12:30	Lunch		
13:30	Session 2: Making use of the data		
	Spotlight talks, 10' each		
	Zero Pollution Ambition, CSS and top predators		
	Policy perspective	Sylvain Bintein, EC DG Environment	
	Non-governmental organisation perspective	Dirk Bunke, Friends of the Earth / Ökoinstitut	
	Chemicals and biodiversity		
	Research perspective	Ursula Siebert, University of Veterinary Medicine Hannover	
	Policy perspective, MSFD	Victoria Tornero, EC DG Joint Research Centre	
	Top predators in chemicals risk assessment		
	Regulatory perspective	Romana Hornek-Gausterer, Umweltbundesamt Austria	
	Industry perspective	Björn Hidding, European Chemical Industry Council / BASF	
	Research perspective - PARC	Katrin Vorkamp, Aarhus University	
14:40	Coffee		
15:00	Round table discussion	All spotlight presenters	
16:00	Closing remarks	Umweltbundesamt	

Registration link: <https://www.umweltbundesamt.de/registration-life-apex-workshop>

Please indicate whether you like to attend in person or online! We are looking forward to seeing you in June

-The Life APEX Team

Project Partners

 <p>Environmental Institute</p>	 <p>German Environment Agency</p>	 <p>Naturalis Biodiversity Center</p>	 <p>National and Kapodistrian University of Athens</p>
 <p>UK Centre for Ecology & Hydrology</p> <p>UK Centre for Ecology & Hydrology</p>		 <p>Università degli Studi di Firenze</p>	

IMPRINT

<p>Project Coordinator</p>  <p>Jaroslav Slobodnik is the director of Environmental Institute. Among his specialisations are environmental science-to-policy interactions, development of monitoring strategies and environmental analytical chemistry. He is frequently responsible for the design of environmental information and data management systems.</p>	<p>Project Manager</p>  <p>Natalia Glowacka is the project manager of LIFE APEX. She got her PhD degree in environmental management. She has more than five years of experience in the field of administration and management of national and international environmental projects in Environmental Institute.</p>	<p>Newsletter Editor</p>  <p>Alexander Badry is an early career researcher in the field of environmental toxicology. He is working as research assistant at the German Environment Agency and is doing his Doctorate at the Leibniz Institute for Zoo and Wildlife Research on contaminants in birds of prey.</p>
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