

An Overview of  
Persistent Organic  
Pollutants (POPs)  
Research at Birmingham

Stuart Harrad

# SCOPE

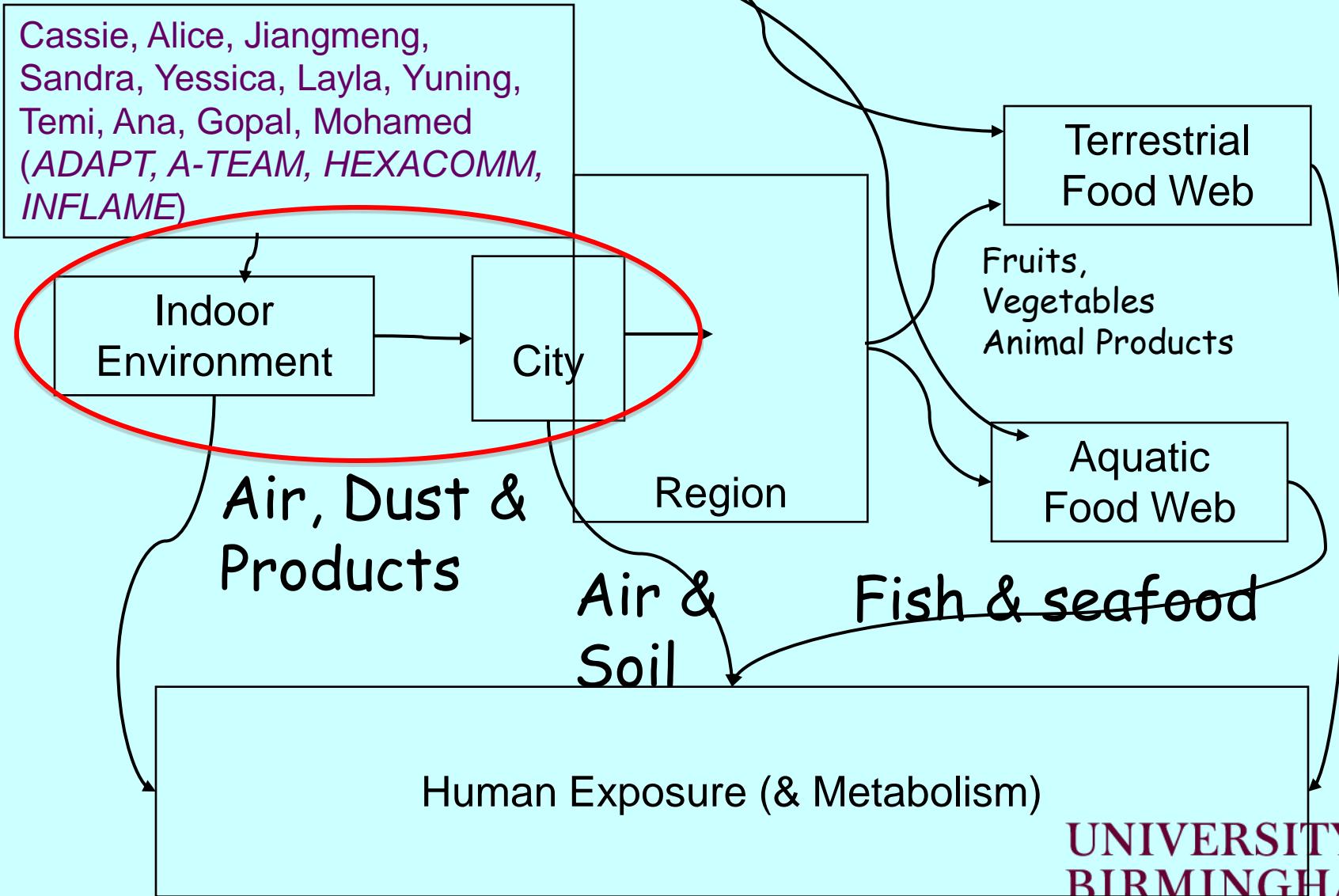
- Covers many aspects of the sources, environmental fate and behaviour of POPs, with a particular focus on human exposure assessment
- Compounds covered include:
  - PCBs
  - PBDEs, HBCDs, TBBP-A
  - NBFRs
  - OPEs
  - PFASs
  - PAH

# COLLABORATIONS

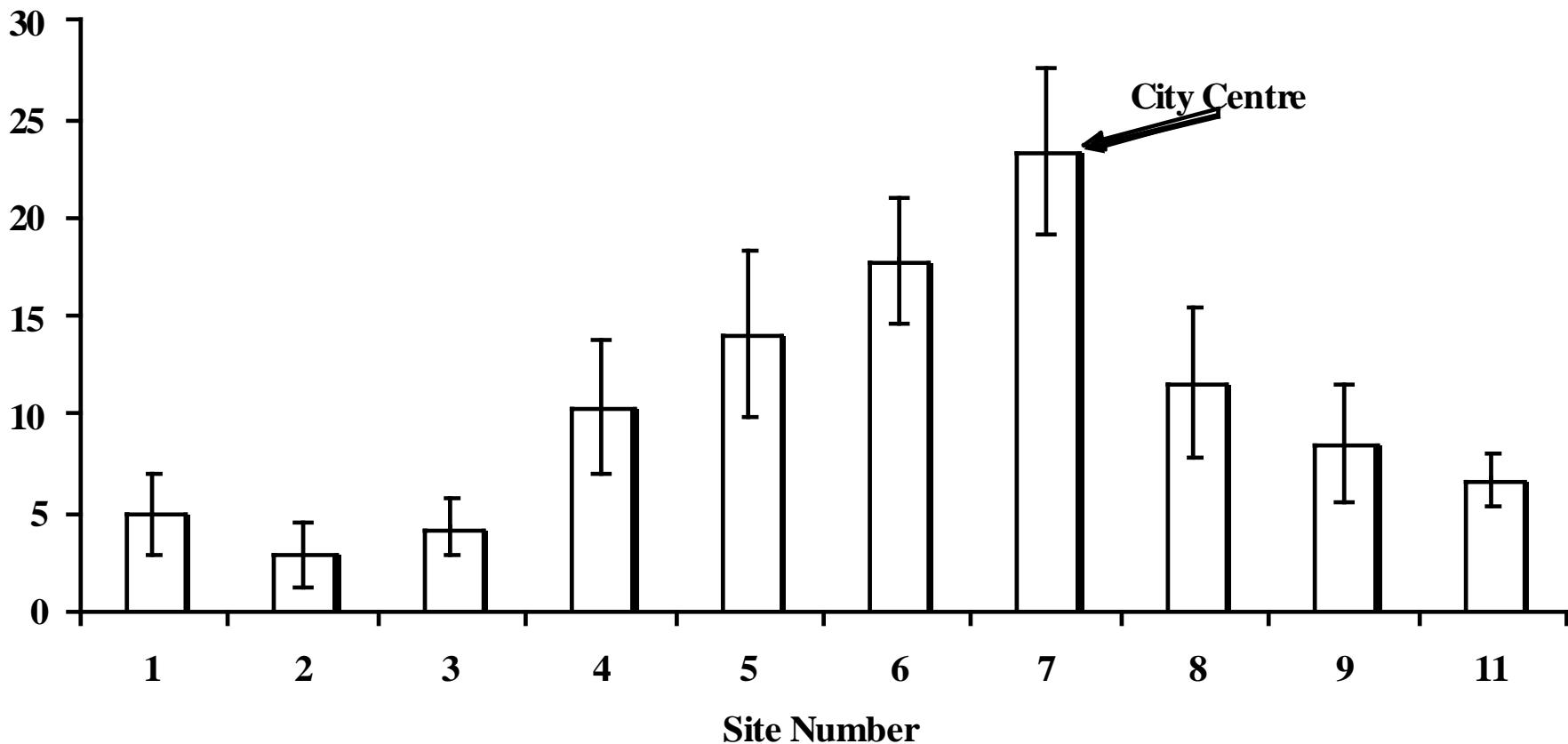
- A-TEAM (exposure assessment for consumer chemicals)
- INFLAME (FRs indoors)
- ELUTE (environmental fate/metabolism BFRs)
- HEXACOMM (indoor contamination with PAH/PM)
- INTERFLAME (FRs in the environment)
  - Involve many partners from: Australia, Belgium, Canada, China, Germany, Japan, the Netherlands, Norway, & Sweden
- Non-academic collaborators/sponsors
  - CEFAS, FERA, FSA, Greenpeace, Ricardo-AEA, Tata Steel & ThermoFisher

## End-of-life management

Cassie, Alice, Jiangmeng,  
Sandra, Yessica, Layla, Yuning,  
Temi, Ana, Gopal, Mohamed  
(ADAPT, A-TEAM, HEXACOMM,  
INFLAME)



# SPATIAL VARIATION IN PBDE CONCENTRATIONS ( $\text{pg m}^{-3}$ ) IN OUTDOOR AIR ACROSS BIRMINGHAM



End-of-life management

Billy, Salim, Iryna,  
Alice, *ELUTE*

Cassie, Alice, Jiangmeng,  
Sandra, Yessica, Layla, Yuning,  
Temi, Ana, Gopal, Mohamed  
(ADAPT, A-TEAM, HEXACOMM,  
*INFLAME*)

# HOW DOES ALL THIS VARY WITH TIME?

Air, Dust &  
Products

City

Region

Air &  
Soil

Terrestrial  
Food Web

Fruits,  
Vegetables  
Animal Products

Aquatic  
Food Web

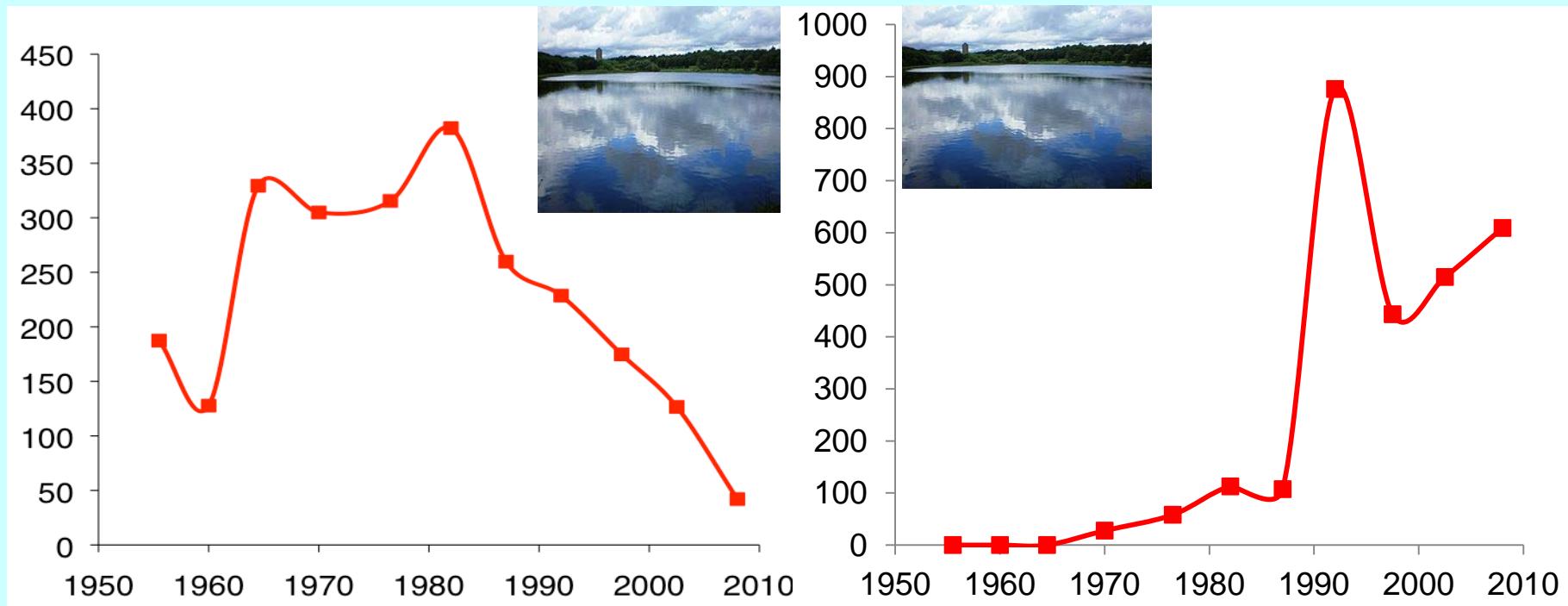
Fish & seafood

*OPAL, ELUTE*

Human Exposure (& Metabolism)

UNIVERSITY OF  
BIRMINGHAM

# TIME TRENDS IN ENVIRONMENTAL CONTAMINATION WITH POPs



- ⑩ How does environment respond to changes in use?
- ⑩ PCB (L) & TBPH (R) trends in dated sediment cores at Edgbaston Pool
- ⑩ TBPH concentrations exceed those of PCBs at their peak!
- ⑩ In ELUTE, will test hypothesis that use of PBDEs has led to increased contamination with PBDD/Fs

# FUTURE CHALLENGES

- Keeping track of the fast changing “chemical landscape” – ever more targets to monitor and understand
- Building our understanding of the fate and behaviour of chemicals once in the waste stream