Bi-ennial Global Interlaboratory Assessment on Persistent Organic Pollutants – 3rd and 4th Round

Ike van der Veen, Heidi Fiedler, Jacob de Boer

LOOKING FURTHER

ASSESSMENT ON PERSISTENT ORGANIC POLLUTANTS – **THIRD ROUND 2016/2017** – NON-DL POPS

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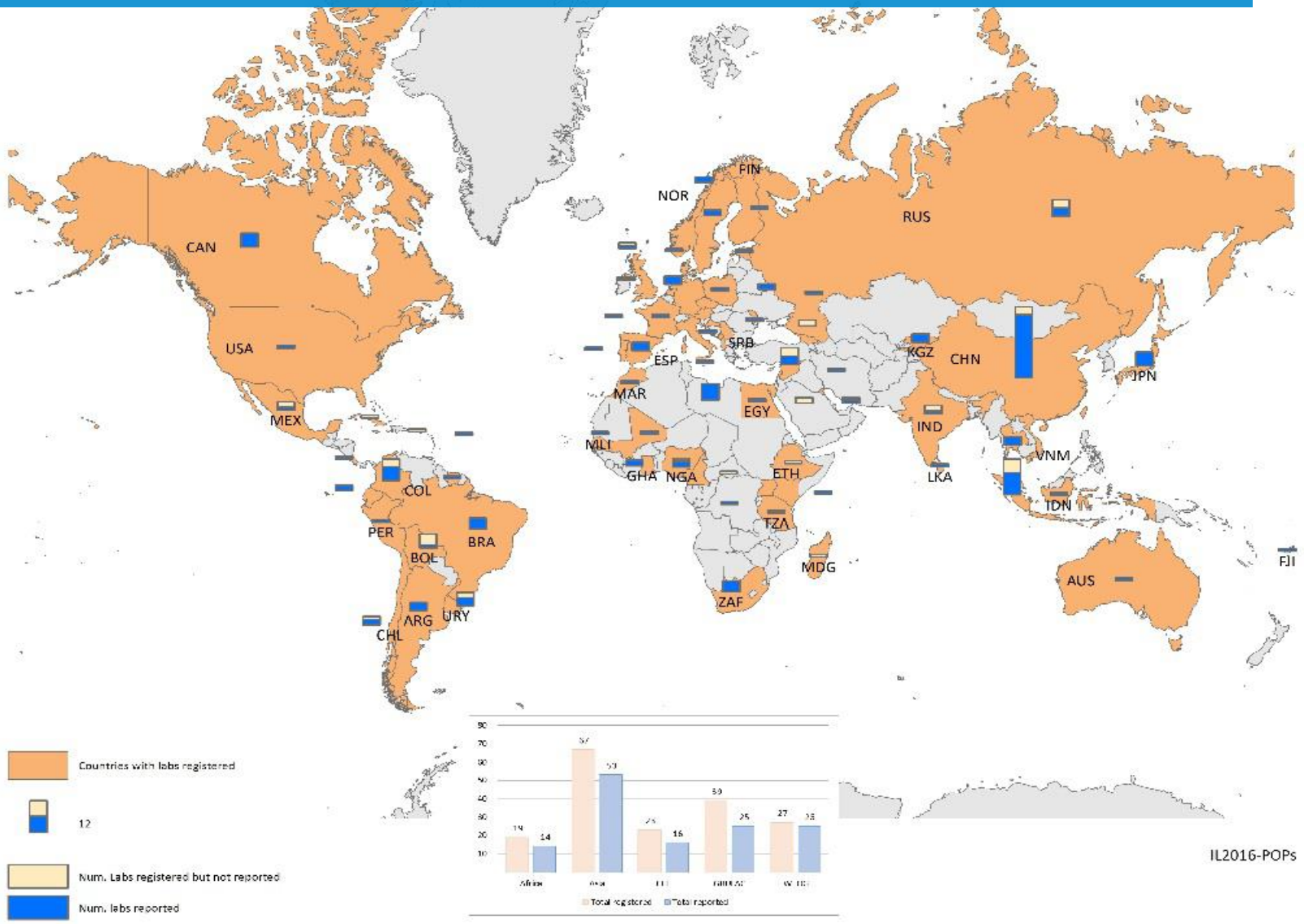
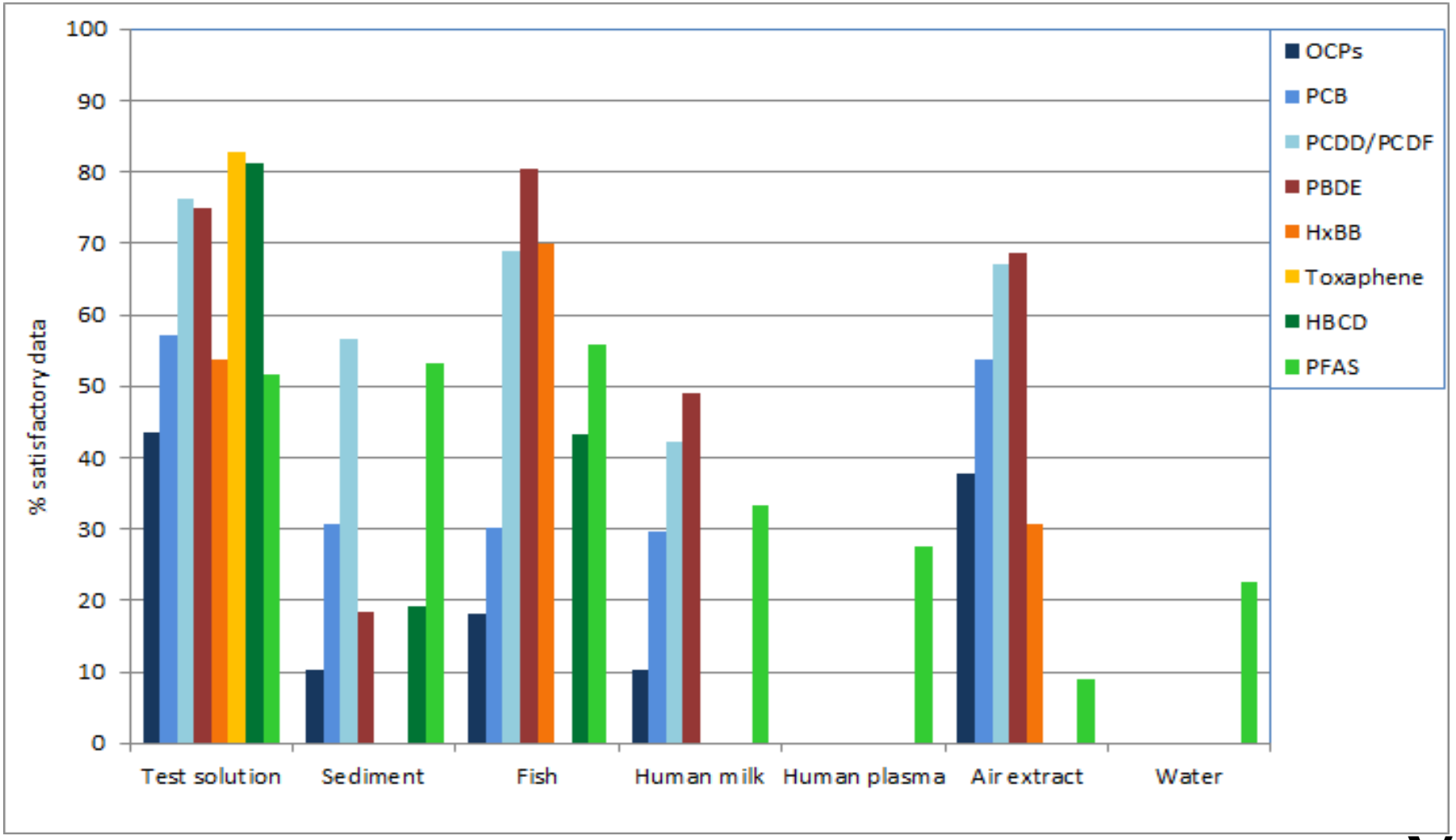


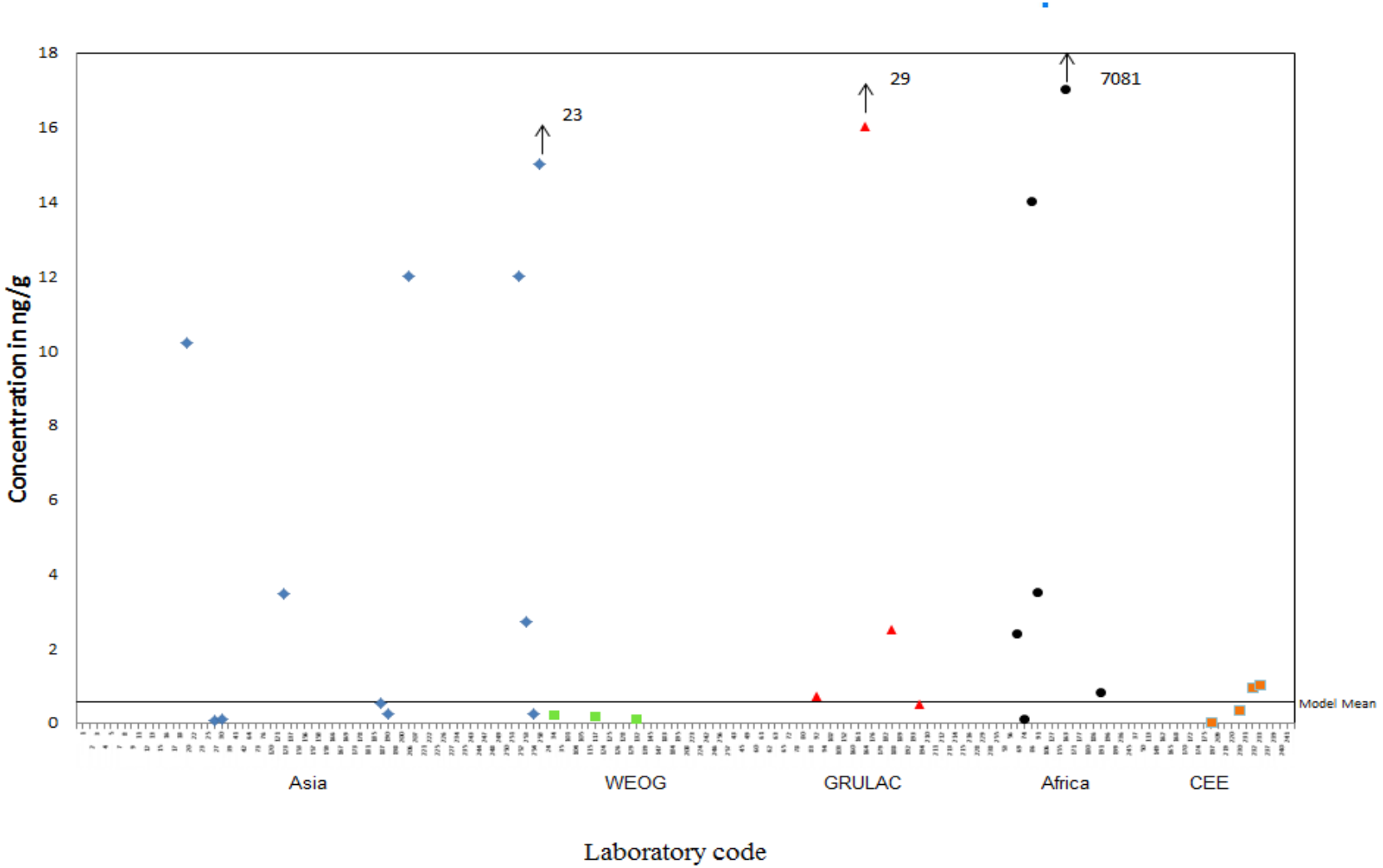
OVERVIEW

- 3rd Exercise in series
- 175 Laboratories from 66 countries registered: a sharp increase in comparison to the previous assessment with 105 laboratories
- Test materials:
  - test solutions
  - sediment
  - air (extract)
  - water (PFASs only)
  - fish
  - human milk
  - human plasma (PFASs only)

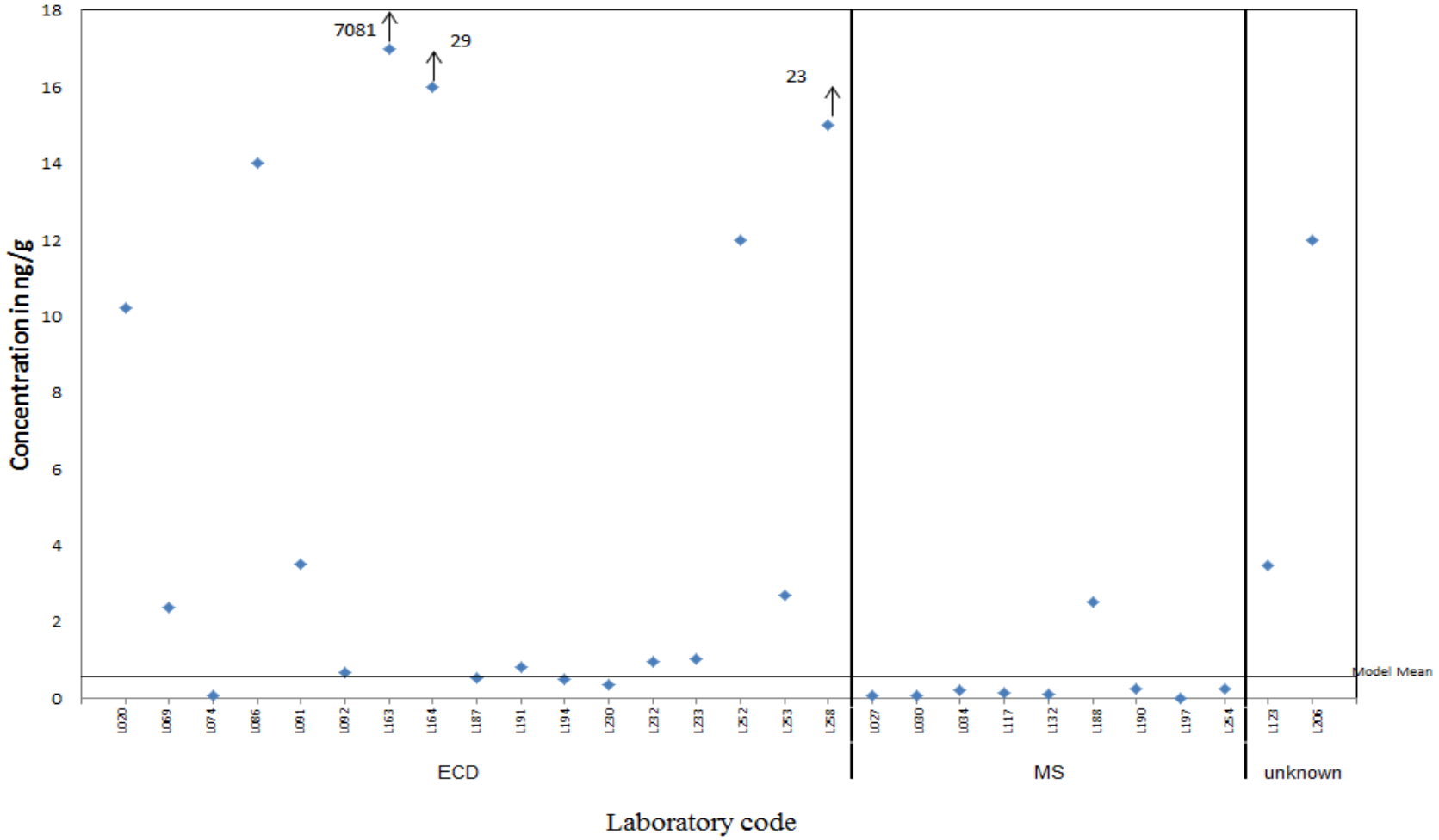
SATISFACTORY Z-SCORES



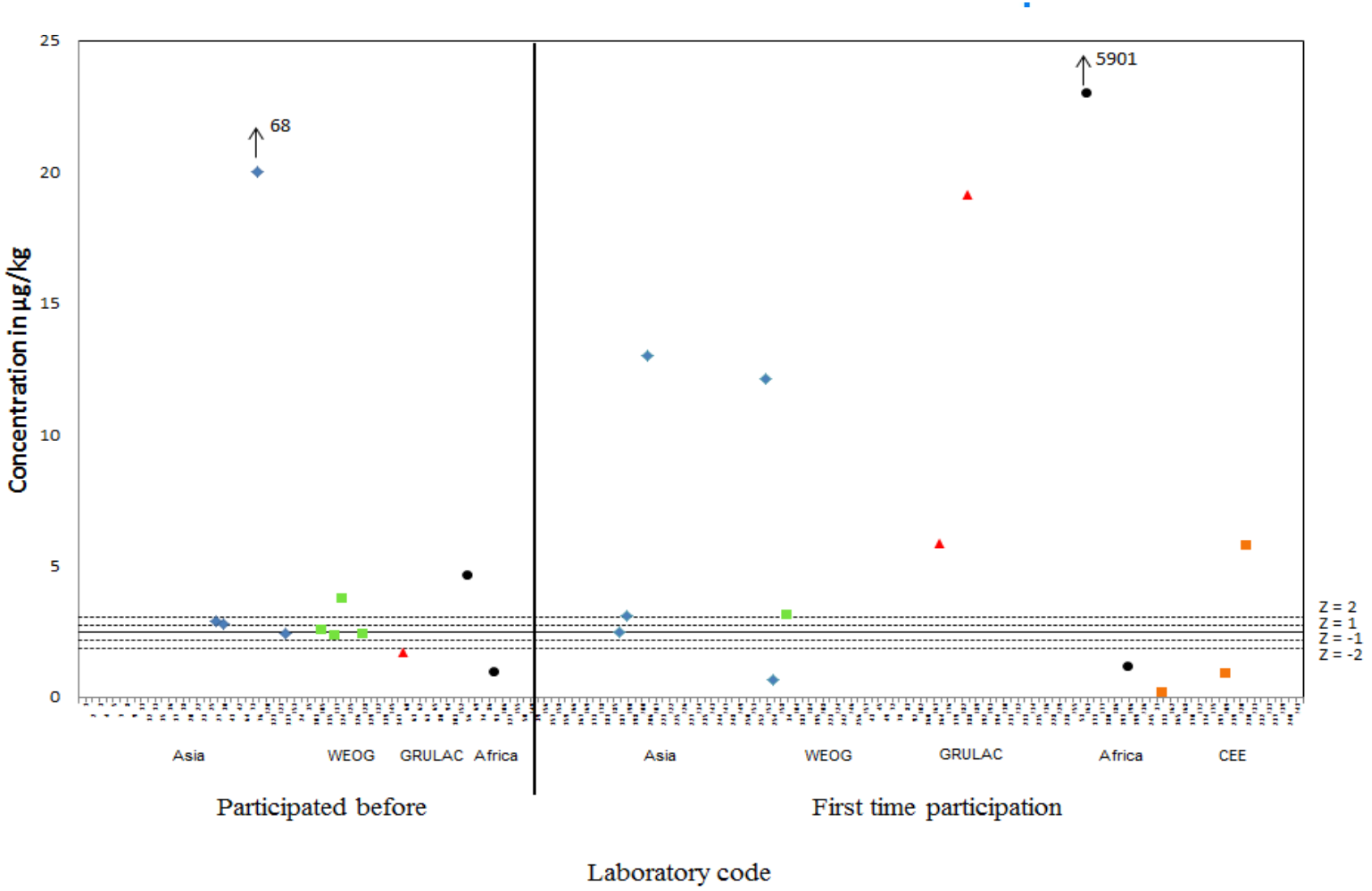
Dieldrin sediment



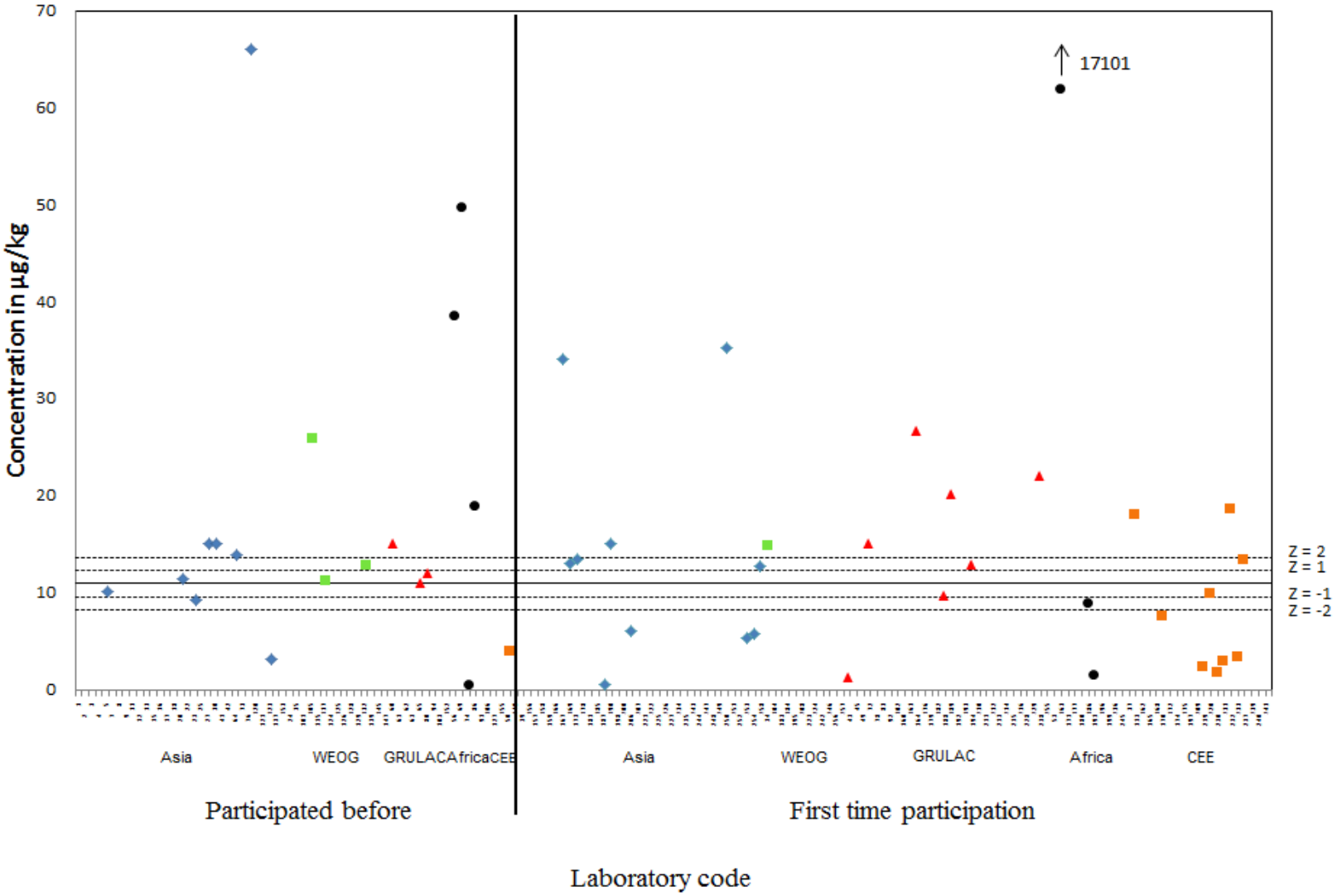
Dieldrin in sediment, per method



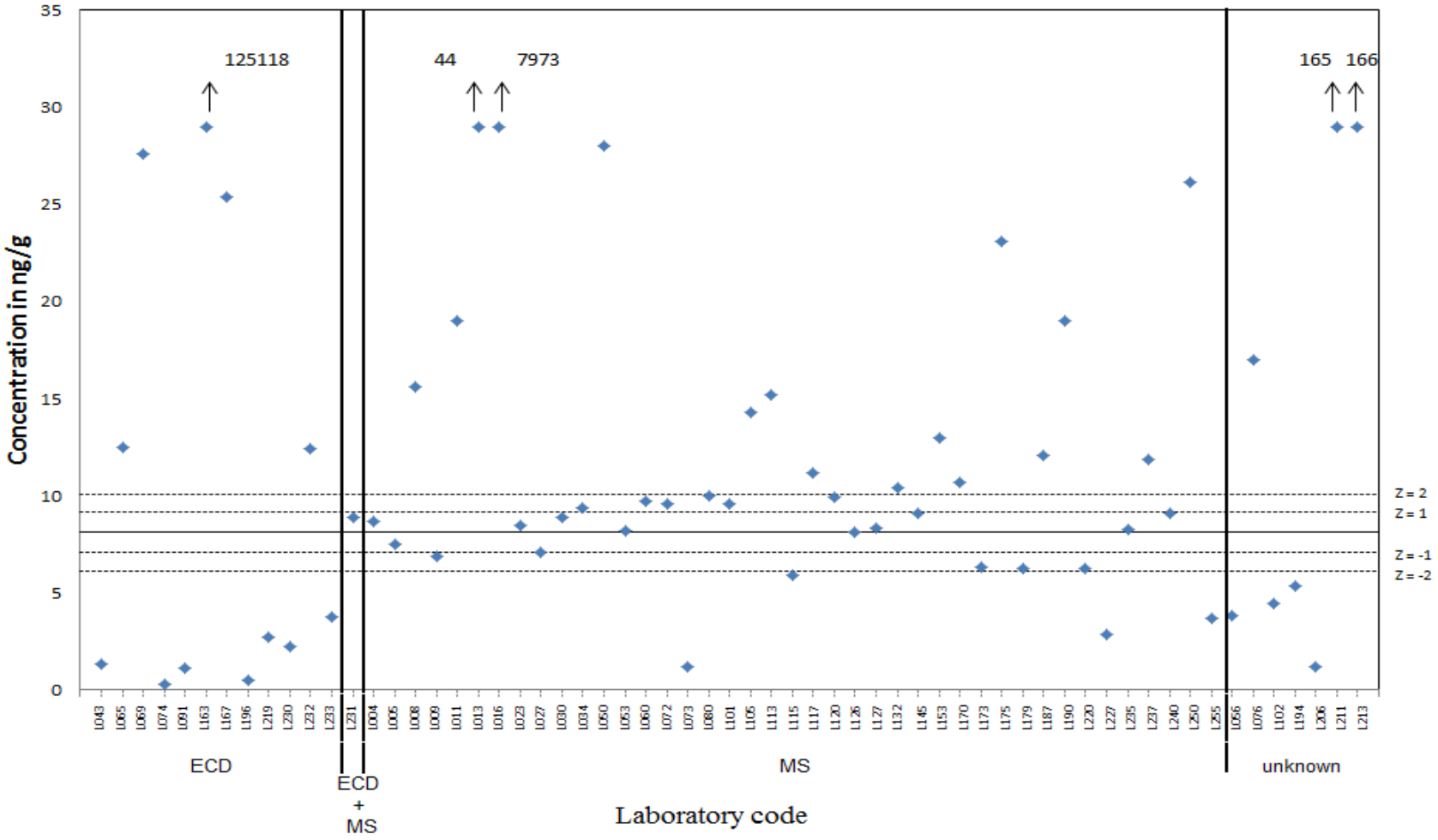
DIELDRIN IN FISH - EXPERIENCED AND NEW LABS



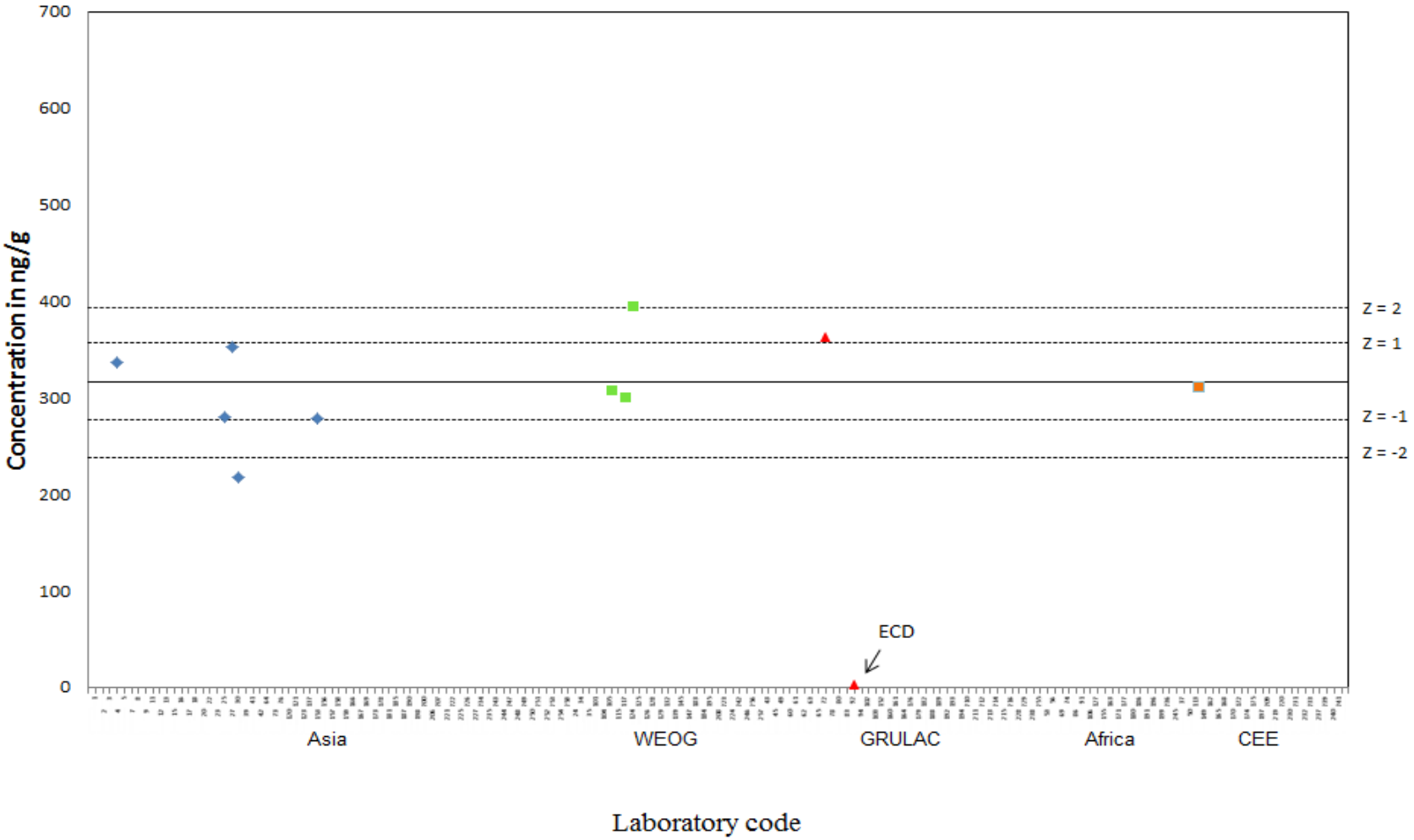
P,P'-DDE IN SEDIMENT, EXPERIENCED AND NEW LABS



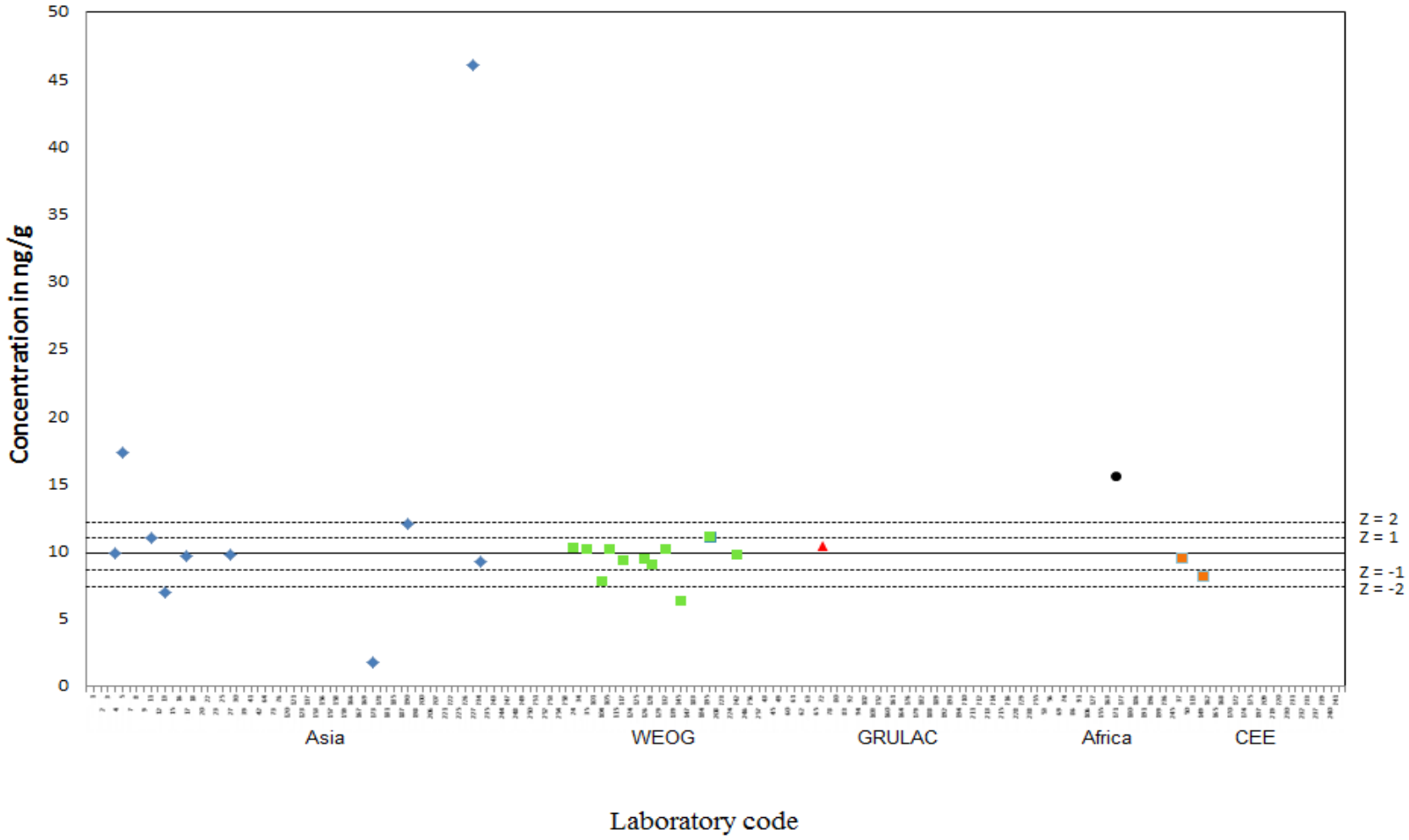
PCB 153 IN SEDIMENT, PER METHOD



TOXAPHENE TEST SOLUTION



PBDE AIR


Concentration in ng/g
50
45
40
35
30
25
20
15
10
5
0
Z = 2
Z = 1
Z = -1
Z = -2
Asia
WEOG
GRULAC
Africa
CEE
Laboratory code

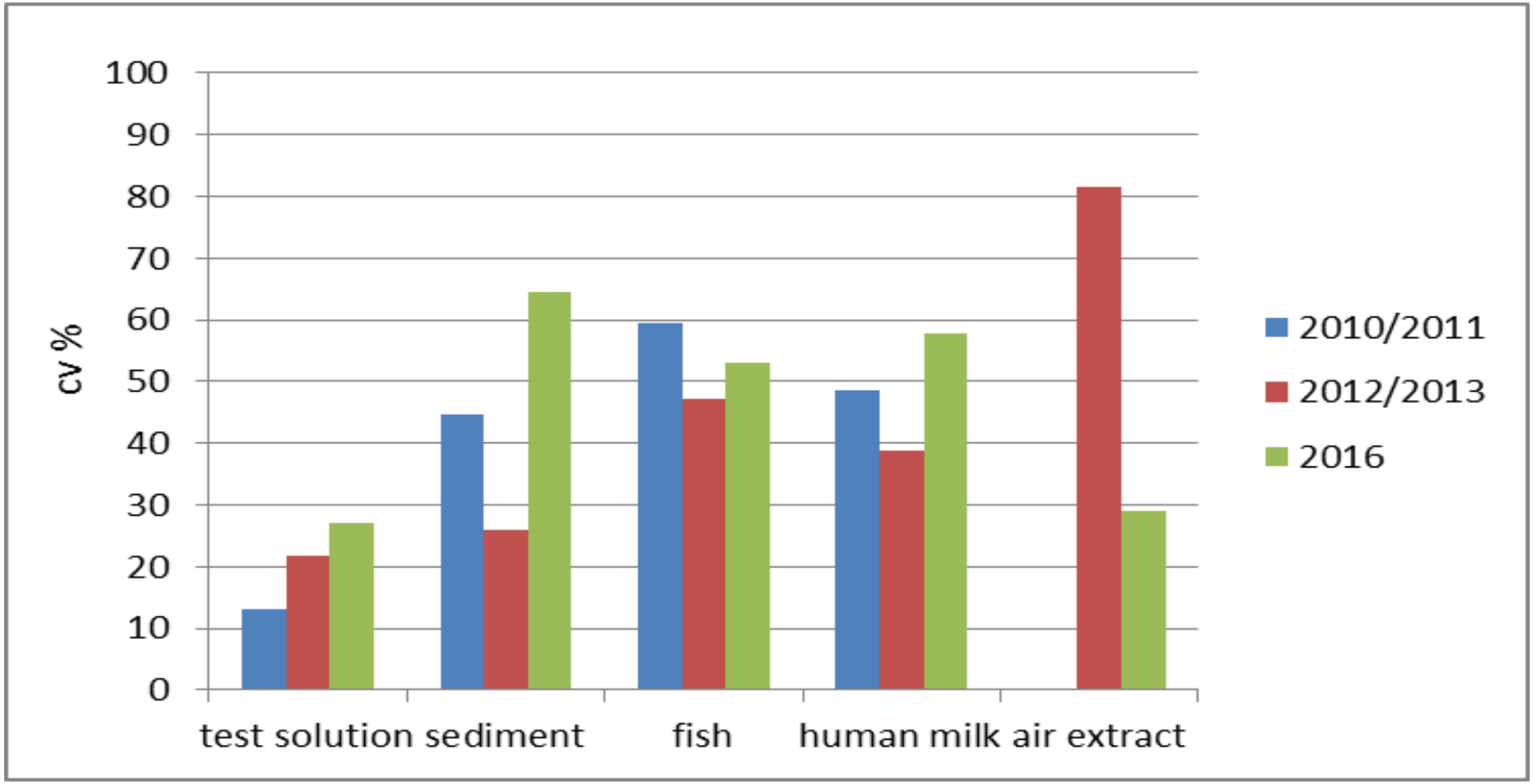
PBDE AND PBB RESULTS (CV%)

Congener	Test solution n=39	Sediment n=27	Fish n=23	Human milk n=10	Air extract n=25
47	16	75	20	31	9
99	8	96	8	49	12
100	19	92	15	35	17
153	18	83	9	21	12
154	19	91	19	98	19
183	21	23	14	32	18
BB153 (n = 5 - 9)	37	429	20	9	51

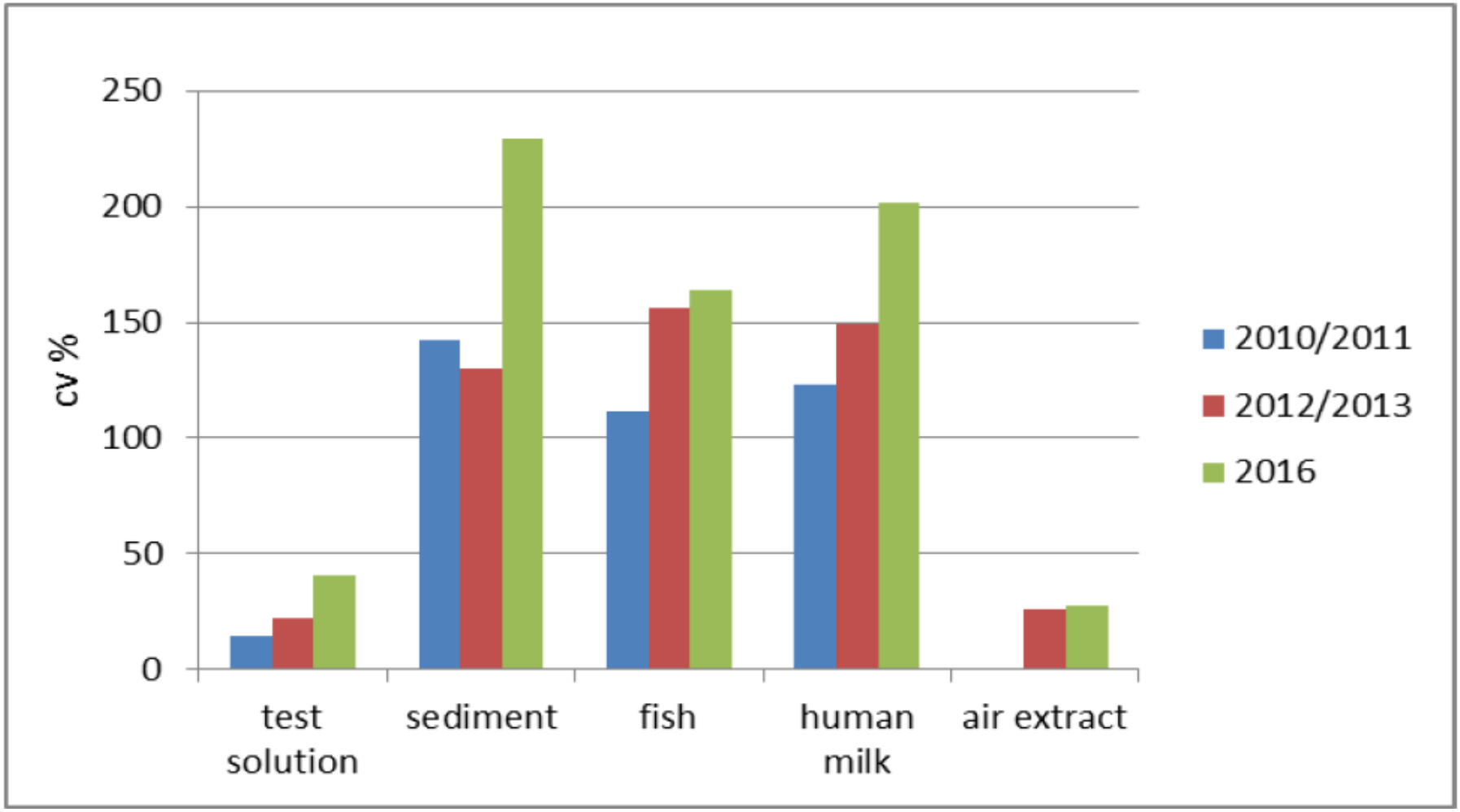
HBCD RESULTS (CV%)

Diastereomer	Test solution	Sediment	Fish	Human Milk
α	14	48	21	167
β	13	91	120	-
γ	12	36	97	-

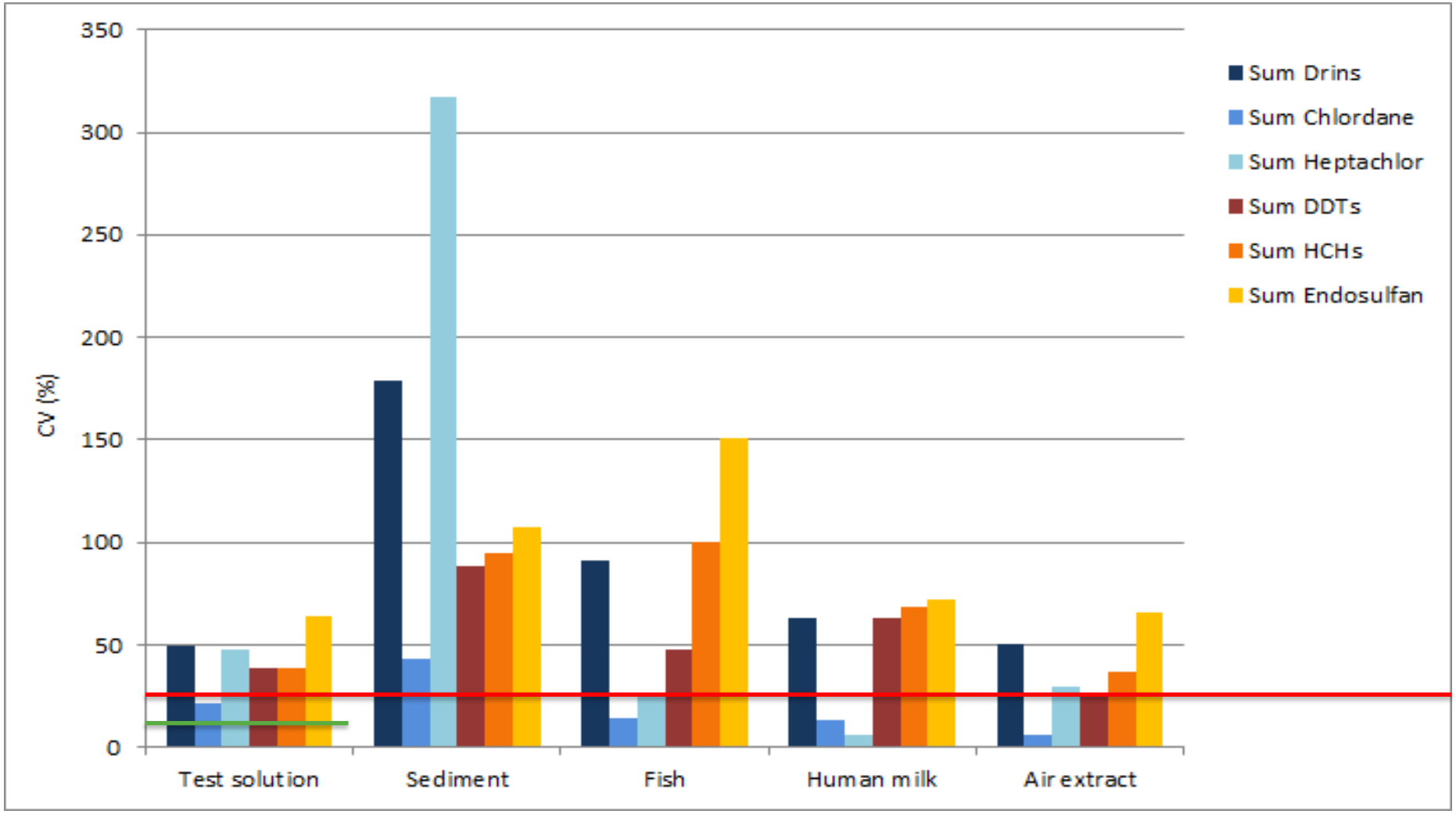
PCB RESULTS OF LAST THREE EXERCISES



OCP RESULTS OF LAST THREE EXERCISES



SUM OCPS - CV


350
300
250
200
150
100
50
0
CV (%)
Test solution
Sediment
Fish
Human milk
Air extract
Sum Drins
Sum Chlordane
Sum Heptachlor
Sum DDTs
Sum HCHs
Sum Endosulfan

CONCLUSIONS AND RECOMMENDATIONS AFTER 3 ILS

- Laboratories need to carry out POP analyses **on a regular basis** in order not to loose the built up knowledge. Governments should support their laboratories herein
- Laboratories are encouraged to train their own technicians by **repeatedly analysing** certified and internal reference materials
- Laboratories analysing OCPs are encouraged to use **GC-MS** and ^{13}C labelled standards to improve their analysis
- As it is extremely difficult to obtain test materials with a relevant contamination degree for all POPs, in future materials may need to be fortified for some of the POPs, in order to provide materials with realistic levels
- **Continuation** of this interlaboratory assessment studies is needed to monitor and improve the overall level of performance of POPs analysis
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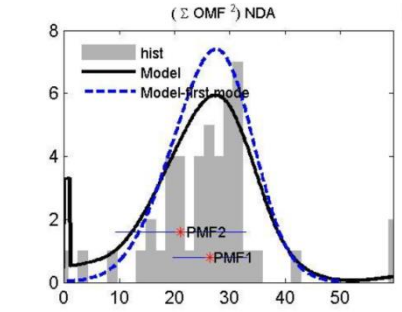
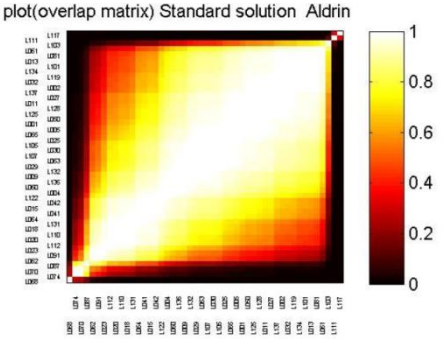
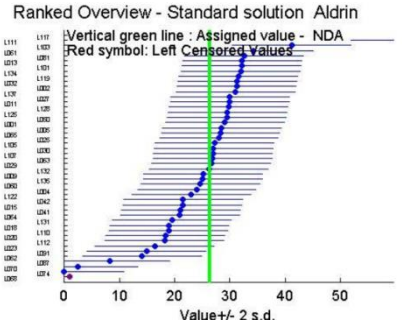
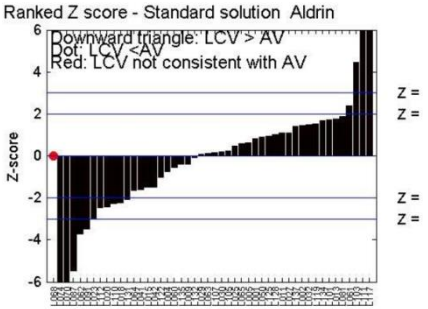
- Training, instruction and capacity building is necessary in the developing regions (CEE, Africa, GRULAC and parts of the Asian and Pacific region) for all POPs with particular attention to clean up of difficult matrices such as sediment and fish

Bi-ennial Global Interlaboratory Assessment on Persistent Organic Pollutants – Fourth Round 2018









ÖREBRO UNIVERSITET

VU VRIJE UNIVERSITEIT AMSTERDAM

LOOKING FURTHER

Test samples

Fish

Test solutions

Water

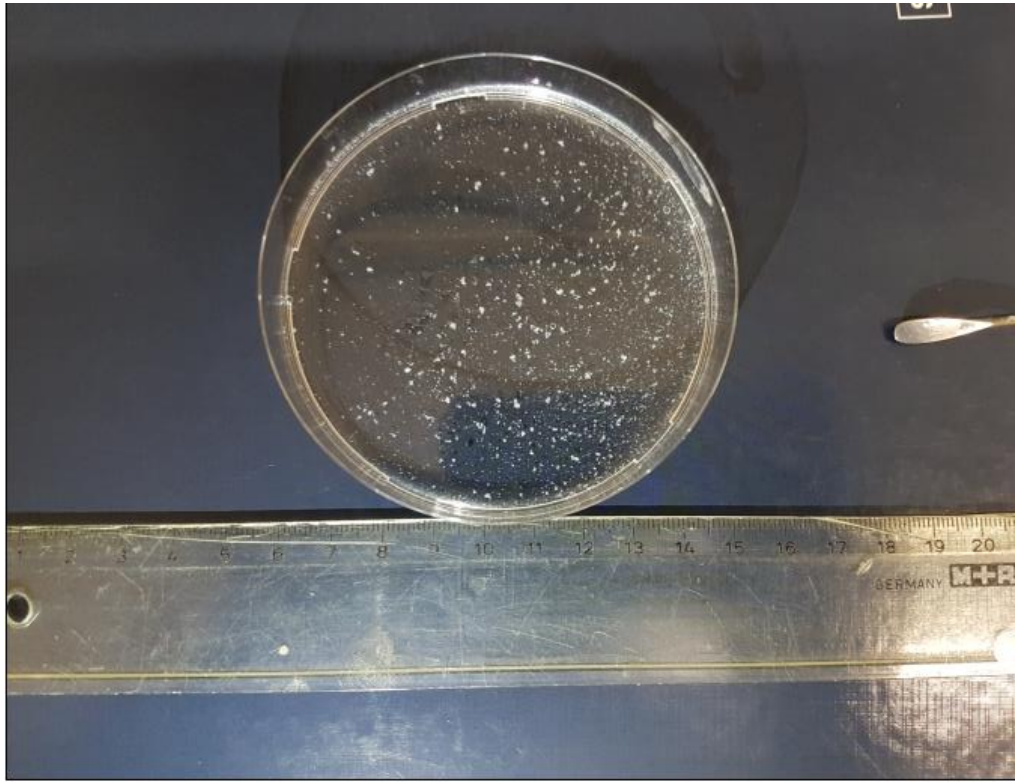
Sediment

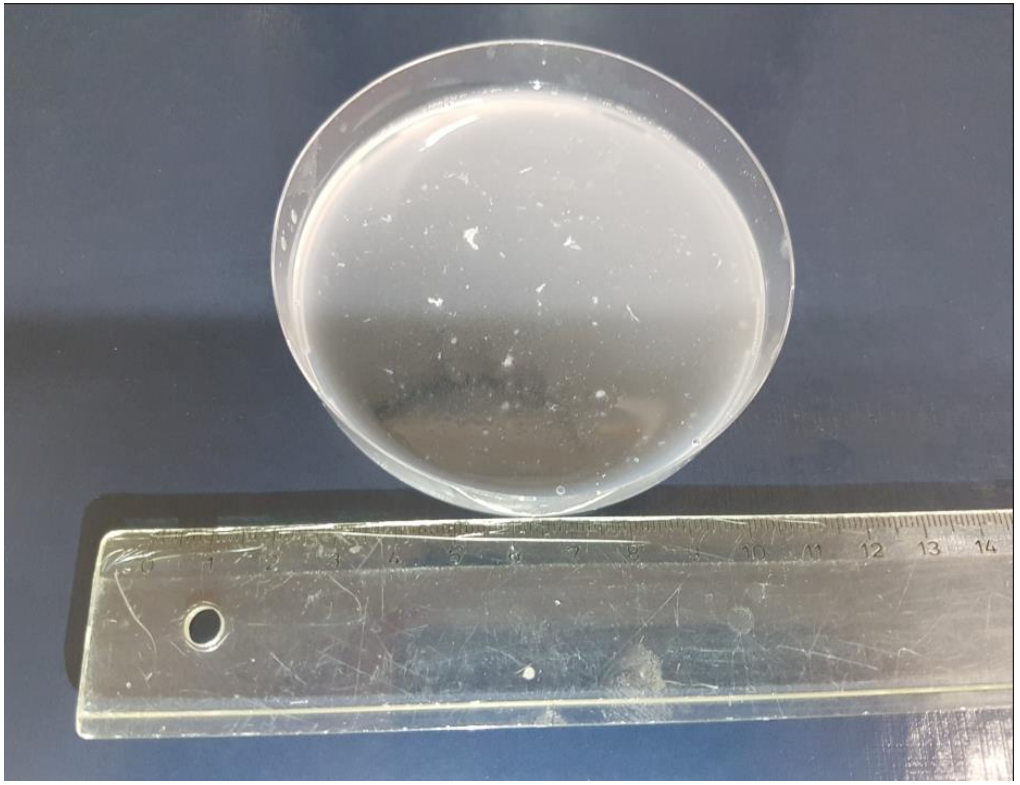
Preparing test samples (Fish)

Pike perch originating from a river in The Netherlands

Preparing test samples (Fish)

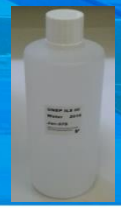
Preparing test samples (Fish)

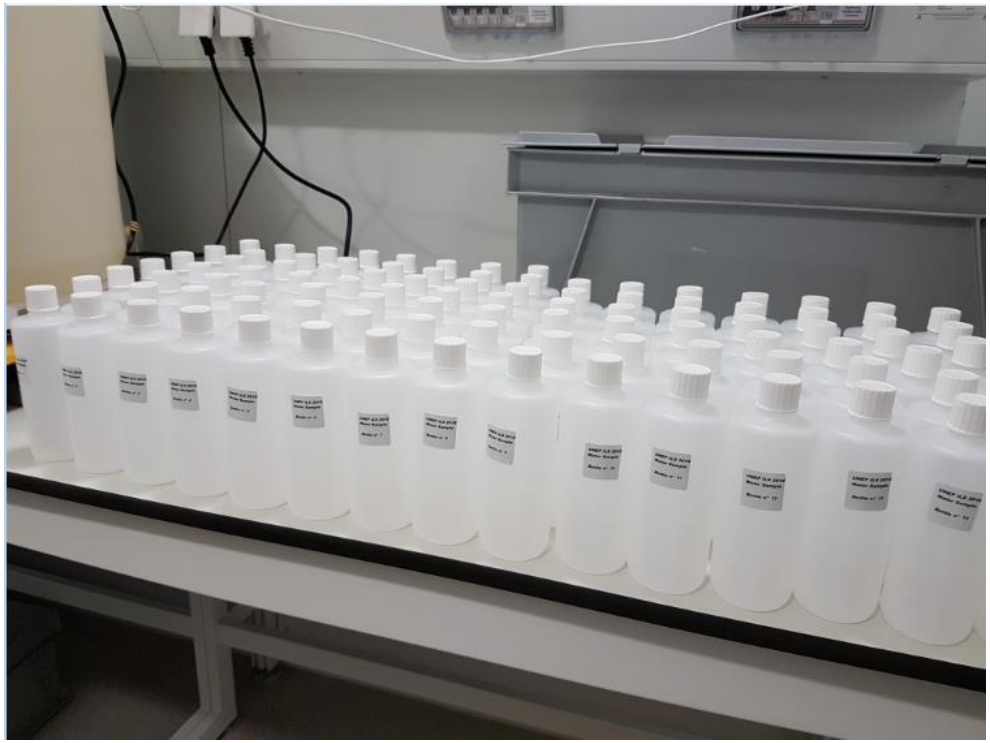




Preparing test samples (Fish)

Preparing test samples (water)





Preparation of test samples (status)

Fish

- Is ready for all compounds except Toxaphene

Water

- Ready

Test solutions

- Compounds are ordered and delivered

Sediment

- Sediment has been approved for all compounds
- Analyses for PFASs suitability is going on right now