

REPORT

2025

Interlaboratory Comparison on POPs in Food 2025

The twenty-sixth round of an international study

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Interlaboratory Study on POPs in Food
The twenty-sixth round of an international study

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Summary

The 26th round of the Interlaboratory Comparison on POPs in Food was conducted in 2025 by the Norwegian Institute of Public Health (NIPH). The study included the determination of the 2,3,7,8-chlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs), as well as dioxin-like non-ortho and mono-ortho chlorinated biphenyls (PCBs) in three different food items. Additionally, the participating laboratories could determine the concentrations of six indicator PCBs, polybrominated diphenyl ethers (PBDEs) and hexabromocyclododecanes (HBCDs) in the same food samples.

This year the fish sample for determination of poly- and perfluoroalkyl substances (PFASs) was a Halibut sample, designated for the determination of the following poly- and perfluoroalkyl substances: perfluorooctanesulfonate (PFOS), perfluorohexanesulfonate (PFHxS), perfluorooctanoate (PFOA), perfluorononanoate (PFNA), perfluorodecanoate (PFDA) and perfluoroundecanoate (PFUnDA).

The objectives of this interlaboratory comparison study were

- A. To offer a tool for quality assurance to the participating laboratories
- B. To assess the between-laboratory reproducibility
- C. To assess the readiness of expert laboratories worldwide to determine levels of chlorinated and brominated persistent organic pollutants, as well as for PFASs, in regular foodstuffs.

With respect to PCDDs/PCDFs, non-ortho PCBs, mono-ortho PCBs, indicator PCBs, PBDEs and α -HBCD, the 2025 round of this study was performed on unfortified homogenates of Fish oil, Salmon and Lamb. The unfortified Halibut homogenate was offered for the determination of PFASs.

If desired, the laboratories could also determine the concentrations of PCDDs/PCDFs, non-ortho PCBs, mono-ortho PCBs, indicator PCBs, PBDEs and α -HBCD in standard solutions from Cambridge Isotope Laboratories, provided by NIPH. The results for these Analytes are reported in Appendix 1.

The test materials were sent to 41 laboratories worldwide in February and March 2025 and results were returned from 40 of these.

A draft report was made available on our webpage www.fhi.no/ILC November 19th, 2025, and the deadline for commenting on the published results was set to December 3rd, 2025.

This report presents the reported results for all seventeen 2,3,7,8-substituted PCDDs/PCDFs, the four non-ortho substituted PCBs #77, 81, 126 and 169 and the eight mono-ortho substituted PCBs #105, 114, 118, 123, 156, 157, 167, 189 in the three food items on a fresh weight and lipid weight basis.

The results of six indicator PCBs #28, 52, 101, 138, 153 and 180, eight PBDEs #28, 47, 99, 100, 153, 154, 183 and 209, and total HBCDs as well as the α -, β - and γ -isomers are also presented.

The results of PFOS (for all reported PFOS, sum of branched and linear PFOS, and only linear PFOS), and PFHxS, PFOA, PFNA, PFDA and PFUnDA, without distinguishing between these branched and linear PFASs, in a sample of Halibut, are also included.

The consensus concentration (assigned value) for each analyte in the four food samples was determined as follows: For the seventeen 2,3,7,8-substituted PCDDs/PCDFs, the four non-

ortho substituted PCBs and the eight mono-ortho substituted PCBs non-detected congeners were assigned a concentration corresponding to the reported detection limits. The median of all reported concentrations for each analyte was then calculated. All values above twice the median were removed from the calculations. The consensus median and consensus mean as well as standard deviation (SD) were calculated from the remaining data and this second median was called consensus value.

For the PBDEs, the indicator PCBs and HBCDs the non-detects were removed from the data set. The median of all reported concentrations for each analyte was then calculated. All values above twice the median were removed from the calculation. The consensus median (consensus value) and consensus mean as well as standard deviation (SD) were calculated from the remaining data.

When calculating the results for PFASs in the sample of Halibut, we adopted the same approach as we used for the indicator PCBs and PBDEs.

Toxic equivalents (TEQs) were calculated from the consensus medians of individual congeners using the toxic equivalency factors (TEFs) derived by WHO in 1997, published in 1998, and later updated in 2005, published in 2006 (see Appendix C). From 2012: WHO2005TEQs as well as WHO1998TEQs were used, as opposed to only WHO1998TEQs in the reports published before 2012. From 2024, the WHO1998TEQs were no longer calculated, only WHO2006TEQs, as well as the new TEQs from WHO in 2022, published in 2024 (WHO2024TEQs).

Z-scores for the PCDD/PCDF TEQs were calculated for each laboratory using $\pm 20\%$ of the consensus TEQs as a value for target standard deviation ($\sigma=0.2$), on both fresh weight and lipid weight basis. Further, Z-scores were calculated for the non-ortho PCB TEQ, the mono-ortho PCB TEQs, the total TEQ, the sum of six indicator PCBs, the sum of eight PBDEs, total HBCD and the three isomers of HBCD, and for each individual congener in all three matrices of Fish oil, Salmon and Lamb ($\sigma=0.2$, both on a fresh weight and a lipid weight basis). The z-scores for PFASs were calculated in the same way, but on fresh weight basis only.

The consensus values of the standard solutions were calculated as mentioned above except for the removal of all values exceeding $\pm 50\%$ of the median prior to the final calculations of the consensus median and mean.

The consensus values for the lipid contents were calculated by first excluding results deviating more than two SD from the mean of all values and then re-calculating the median, mean and SD.

The sample of Fish oil was the sample in this study with the highest total TEQ (2.6 pg TE/g fresh weight, WHO₂₀₂₄TEFs). For this sample, Z-scores within ± 1 were obtained by 86% of the participating laboratories and Z-scores within ± 2 were achieved by 94% of the participants (Z scores within ± 1 and ± 2 , corresponds to a trueness of $\pm 20\%$ and $\pm 40\%$, respectively). The Fish oil sample was followed by the sample of Salmon, with a consensus total TEQ of 0.11 pg TE/g fresh weight (WHO₂₀₂₄TEFs). For this sample, 54% of the participants achieved Z-scores within ± 1 and 59% achieved Z-scores within ± 2 . For the sample of Lamb, total TEQ was 0.027 pg TE/g fresh weight (WHO₂₀₂₄TEFs) and Z-scores within ± 1 were obtained by 63% of the reporting participants and Z-scores within ± 2 were achieved by 70% of the participants.

The relative standard deviation (RSD) calculated for the total TEQ (fresh weight) after removal of outliers was 15% for the sample that had the highest levels of contaminants (Fish

oil). For the less contaminated Salmon and Lamb samples, the corresponding RSD values were 21% and 11%, respectively.

Across the three food samples, 24-33 laboratories reported results for the six indicator PCBs. The total consensus concentrations (median) on fresh weight basis for six indicator PCBs were 31147 pg/g (10%) in Fish oil, 1406 pg/g (12%) in Salmon and 371 pg/g (14%) in Lamb, with % of total RSDs given in parentheses.

For the three food samples, 14-18 laboratories reported concentrations for all seven of the tetra- to hepta-PBDEs and 13-16 laboratories reported concentrations for PBDE-209. The consensus concentrations of the sum of the PBDEs without PBDE-209 were on fresh weight basis 2486 (7%), 114 (17%) and 10 (21%) pg/g in Fish oil, Salmon and Lamb, respectively, with total RSDs given in parentheses. The consensus concentrations for PBDE-209 were 26 (n=15, RSD=57%), 22 (n=16, RSD=64%) and 14 (n=13, RSD=72%) pg/g fresh weight in Fish oil, Salmon and Lamb, respectively.

The consensus concentrations calculated for HBCDs are only indicative, as only a few laboratories reported results across the three food samples (n=2-4, including α -, β - and γ -HBCD).

Among the laboratories, 5-15 reported results for the different PFASs in the sample of Halibut. The consensus concentrations for all reported PFOS, sum (i.e. branched and linear PFOS) and only linear PFOS were 241, 234 and 241 pg/g fresh weight, respectively), for which 60%, 50% and 80% of the laboratories obtained a Z-score within ± 2 . For PFUnDA (consensus concentration 203 pg/g fresh weight), 73% of the laboratories obtained z-scores ± 2 , and for PFDA (consensus concentration 52 pg/g fresh weight), 80% of the participants obtained z-scores ± 2 . For PFNA (consensus concentration 28 pg/g fresh weight), 47% obtained z-scores ± 2 . The consensus concentrations for PFOA and PFHxS were 12 and 6 pg/g fresh weight, respectively, for which 27% and 36% of the laboratories had z-scores ± 2 . The consensus concentrations of PFOS linear, PFHxS and PFOA are only indicative due to few reported results, i.e. ≤ 7 .

Introduction

Maximum residue limits and official food control systems are established in many countries for the monitoring of levels of dioxins and dioxin-like PCBs in food and feed, both to map and to reduce human and animal exposure to these highly toxic pollutants. For the same reasons, the European Union introduced levels of legislation in 2014 for the indicator PCBs as well. New tolerable weekly intakes (TWIs) for dioxins were introduced by EFSA in 2018 and for PFASs (more specifically; PFOS, PFOA, PFHxS and PFNA), tolerable weekly intakes (TWIs) were established in 2020. To meet these requirements, there is a large demand for chemical analytical laboratories with the skills and abilities to determine these contaminants at very low concentrations and in complex matrixes.

Additionally, it is usually required by the authorities that laboratories performing such measurements are accredited according to ISO standards and/or prove their competence by successful participation in interlaboratory studies.

This is the 26th round of the world-wide interlaboratory comparison study on dioxin-like compounds, eight PBDEs, six indicator PCBs and HBCDs in food, organized by the Department of Food Safety at the Norwegian Institute of Public Health (NIPH), Oslo, Norway. From 2019, a food sample designated for the determination of six selected PFASs was also added. This year, a sample of Halibut was offered for analysis of PFASs.

The main objective of this exercise is to assess the between-laboratory reproducibility of dioxin-like compound analyses in foods and by that contribute to the proficiency and quality of the participating laboratories.

The exercise took place from February and March 2025, when the samples were shipped to the laboratories for analysis, until the reporting deadline 30th June, 2025, when the last reports with results were received. A draft report was made available to the participants on our webpage (<http://www.fhi.no/ILC>) on November 19th, 2025.

All participants from previous rounds in this series of Interlaboratory Comparisons on POPs in Food were invited to participate. In addition, several other laboratories announced their interest and were invited to participate. There was no limit to the total number of participating laboratories. The 40 laboratories that submitted results, and thereby contributed to the study results, are presented in Table 1.

Table 1. Participants (n = 40) that reported results in the 26th round of the Interlaboratory Comparison on POPs in Food 2025

Additives, Contaminants and Composition Section Hong Kong, P.R. China	Agricultural Chemicals Research Institute, Ministry of Agriculture Taichung, Taiwan (R.O.C.)
ALS Environmental - Burlington Burlington, Canada	Arkansas Human and Animal Food Laboratory Jefferson, USA
AsureQuality Limited - Lower Hutt Wellington, New Zealand	Australian Ultra Trace Laboratory Sydney, Australia
Canadian Food Inspection Agency (CFIA) Calgary, Canada	CARSO-LSEHL Vénissieux, France
Central Laboratory of Residue Analysis of Pesticides and Heavy Metals in Foods Giza, Arabic Republic of Egypt (ARE)	China National Center for Food Safety Risk Assessment Beijing, P.R. China
CVUA MEL Münster, Germany	Danish Veterinary and Food Administration Ringsted, Denmark
Empa, Swiss Federal Laboratories for Materials Science and Technology Dübendorf, Switzerland	Food Research Division, Health Products and Food Branch, Health Canada Ottawa, Canada
Hubei Provincial Center for Disease Control and Prevention Wuhan, P.R. China	ISTITUTO ZOOPROFILATTICO SPERIMENTALE DELLA LOMBARDIA E DELL'EMILIA ROMAGNA "BRUNO UBERTINI" Brescia, Italy
Japan Food Research Laboratories Japan	LABORATOIRE DE L'ENVIRONNEMENT ET DE L'ALIMENTATION DE LA VENDEE La Roche sur Yon, France
Laboratory of SGS Bulgaria Varna, Bulgaria	Landesuntersuchungsamt, Institut für Lebensmittelchemie Speyer Speyer, Germany
Marchwood Scientific Services Southampton, United Kingdom	MicroPolluants Technologie SAS Saint Julien les Metz, France
National Cheng Kung University Tainan, Taiwan (R.O.C)	NofaLab B.V. Schiedam, The Netherlands
Oekometric Bayreuth, Germany	Pacific Rim Laboratories Inc. Surrey, Canada

POP Lab, Shenzhen Center for Disease Control & Prevention, Guangdong, PRC Shanghai, P.R. China	Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences Beijing, P.R. China
SERVIZOS DE APOIO Á INVESTIGACIÓN A Coruña, Spain	SGS Analytics Germany GmbH, Standort Jena Jena, Germany
SGS INSTITUT FRESENIUS GmbH Bayreuth, Germany	SGS Taiwan Ltd. New Taipei City, Taiwan (R.O.C.)
Shanghai Municipal Center for Disease Control and Prevention Shanghai, P.R. China	SINTEF Industri Trondheim, Norway
Stiftelsen NILU Kjeller, Norway	Super Micro Mass Research & Technology Center, Cheng Shiu University Kaohsiung City, Taiwan (R.O.C.)
TERANA Valence, France	TLR International Laboratories Ridderkerk, The Netherlands
Umeå University, Department of Chemistry Umeå, Sweden	Wellington Laboratories Inc. Guelph, Canada

Design and practical implementation

Study design and reporting of results: PCDDs/PCDFs, non-ortho substituted PCBs, mono-ortho substituted PCBs, indicator PCBs, PBDEs and HBCDs

As in the previous rounds of this interlaboratory comparison study, the test material chosen represented naturally contaminated food items. The analytes to be determined were all seventeen 2,3,7,8-substituted PCDDs/PCDFs, the four non-ortho substituted PCBs #77, 81, 126 and 169 and the eight mono-ortho substituted PCBs #105, 114, 118, 123, 156, 157, 167 and 189. If desired, the laboratories could also determine eight PBDEs #28, 47, 99, 100, 153, 154, 183 and 209, six indicator PCBs #28, 52, 101, 138, 153 and 180, total HBCD and its three isomers (α -, β -, γ -HBCD). The six PCB congeners belong together with the mono-ortho PCB #118 to the selection of PCBs commonly referred to as ICES-7 (ICES-7: Report of the ICES Advisory Committee, 2010; Book 7).

The analysis should be performed using the laboratories' own methods for sample preparation and instrumental analysis, their own quantification standards and quantification procedures and their own method for lipid determination.

It was recommended that laboratories determined as many as possible of the 2,3,7,8-substituted PCDDs/PCDFs, dioxin-like PCBs, PBDEs, indicator PCBs and HBCDs in the samples of Fish oil, Salmon and Lamb.

The laboratories were to report the concentration of each detected congener (e.g. $S/N \geq 3$) in the food items on fresh weight basis, as well as the limit of detection (LOD, e.g. $S/N = 3$). Non-detected congeners (e.g. $S/N < 3$) were to be marked "ND" in the comments' column of the Report forms. As the report was to include the determination of lipid percent in the food samples, the laboratories should also include the determined lipid percentage of the samples as well as sample amount used for the analysis.

In addition to the food samples, six standard solutions containing known concentrations of the analytes could be analysed, using the laboratories' own quantification standards and methods. The provided standard solutions consisted of the following components:

- 1) Seventeen 2,3,7,8-substituted PCDDs/PCDFs (2:5:10 pg/ μ l for tetra:penta-hexa-hepta:octa chlorinated dibenzo-p-dioxins/-dibenzo furans, respectively)
- 2) Four non-ortho PCBs (10 pg/ μ l)
- 3) Eight mono-ortho PCBs (100 pg/ μ l)
- 4) Eight PBDEs (seven PBDEs with concentration 25 pg/ml, and BDE-209 with 100 pg/ μ l)
- 5) Six indicator PCBs (100 pg/ μ l)
- 6) α -HBCD (500 pg/ μ l)

The test materials consisted of homogenates of Fish oil, Salmon and Lamb. The laboratories could choose to analyse one, two or all three food samples.

Study design and reporting of results: PFASs

For the 26th round of the Norwegian POPs in Food study, the sample of Halibut was offered for the determination of the following PFASs: PFOS, PFHxS, PFOA, PFNA, PFDA and PFUnDA. As for the other matrices, the Halibut sample was not fortified.

The laboratories' own methods for sample preparation and instrumental analysis, as well as their own quantification standards should be used for the analysis of the sample.

The laboratories were to report the concentration of each detected congener (e.g. S/N $\geq$ 3) in the Halibut on fresh weight basis as well as the limit of detection (LOD, e.g. S/N=3). Non-detected congeners (e.g. S/N<3) were to be marked "ND" in the comments column of the Report forms.

Confidentiality

Each participating laboratory was given an exclusive laboratory code by the coordinators. In the present report, the participants are presented in the tables and figures by their unique codes. The participants have access to their own code only and laboratory codes were not revealed to any third parties.

When received by the coordinators, the raw data from the laboratories were entered into a database. A draft report was generated and made available to all participants on the web page www.fhi.no/ILC on November 19th, 2025.

Collection, preparation and distribution of samples

Samples shipped to the participants consisted of one to three of the following:

- Fish oil (~90 g)
- Salmon (~50 g)
- Lamb (~70 g)

The test materials were produced from natural products and were not fortified with standards.

The Fish oil, Salmon and Lamb samples were bought from local stores.

Two brands of Fish oil were combined and homogenized by continuous stirring, while it was heated gently.

The Salmon arrived as fresh fileted fish and were frozen. Later, it was defrosted, pooled and grinded, and finally homogenized thoroughly.

The Lamb arrived as frozen grinded meat taken from various parts of the animal, which was mixed and homogenized thoroughly.

The Halibut arrived as frozen whole fish from the Institute of Marine Research, Norway. It was defrosted, fileted, pooled and grinded, and finally homogenized thoroughly.

Sub-samples of at least 90 g of Fish oil (Fish oil-2025), 50 g of Salmon (Salmon-2025) and 70 g of Lamb (Lamb-2025) were placed into screw-cap polystyrene bottles. The bottles were all carefully washed, rinsed with methanol and dried before use. All samples were stored at -20°C until shipment to the participating laboratories.

Statistical analysis

As for previous rounds, this is the approach for the calculation of the consensus concentrations (assigned value) for each of the congeners included in the study:

For PCDDs/PCDFs and dioxin-like PCBs: Congener-by-congener medians were calculated from the food sample data of all reporting laboratories. The detection limits were used as concentration for non-detected congeners (upper bound concentration).

For PBDEs, indicator PCBs and HBCDs: Non-detected congeners in the food samples were removed from the data set prior to consensus calculation. The same approach was used for the calculation of the PFASs.

Outliers for all congeners were defined as those values which exceeded twice the median of all values and thus removed from the data set.

The consensus values were defined as the median of the remaining data for each congener. The consensus mean and SD were calculated from this data set for each congener. The congener data that were removed prior to consensus calculations are marked accordingly in the tables presenting the individual results.

For the standard solutions, outliers were defined as those values outside $\pm 50\%$ of the median of all reported values and were removed from the data set before the median, mean and SD were calculated from the remaining data. The consensus of the lipid content was calculated as the mean after removal of values outside $\pm 2 \times \text{SD}$.

TEQs were calculated from the consensus medians for PCDDs/PCDFs, non-ortho PCBs and mono-ortho PCBs, using the toxic equivalency factors derived by WHO in 2005 and 2022, and published in 2006 and 2024. As the detection limit was used for the concentration of non-detects, these TEQs represent upper bound concentrations.

Z-scores on both fresh weight and lipid weight basis for PCDD/PCDF TEQ, as well as for the non-ortho PCB TEQ, the mono-ortho PCB TEQ, the total TEQ (WHO₂₀₂₄TEFs), the sum of six indicator PCBs, the sum of eight PBDEs, total HBCD and for each HBCD congener were calculated for each laboratory according to the following equation:

$$Z = (x - X)/\sigma$$

Where x = reported value; X = consensus value (assigned value); σ = target value for standard deviation. A σ of 0.2 multiplied by the consensus value was used, i.e. Z-scores between +1 and -1 reflect a deviation of $\pm 20\%$ from the consensus value.

The final report and certificate

The draft of the final report was prepared by the coordinators and published electronically in December 2025.

The final report was available to the participants in pdf format at www.fhi.no/ILC.

A certificate of participation, stating the participant's laboratory code, will be sent to each participating laboratory that has contributed to the results in January 2026.

Coordination

The study was initiated and carried out by the Department of Food Safety, Norwegian Institute of Public Health, Oslo, Norway. Members of the coordination committee were:

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Results

Presentations in the report

Forty laboratories worldwide submitted their results within the deadline and the results are presented in the following chapters. All participating laboratories will be able to compare their own performance, congener by congener, with the other laboratories. Since variations in performance are based on several factors, it is recommended that each laboratory carefully evaluate the factors that, favourably or unfavourably, may have contributed to its performance.

Readers of the report can without being participants in the study or without access to laboratory codes, get a general overview of the analytical performance of laboratories worldwide on the determination on dioxins, dioxin-like PCBs, indicator PCBs, PBDEs, HBCDs and PFASs in regular foodstuffs.

In Appendix E, the consensus statistics are given on fresh and lipid weight basis for concentrations of individual congeners and TEQ values, a summary of TEQ values for each food item and the Z-score plots on both fresh and lipid weight basis, based on a target deviation of $\pm 20\%$ from the consensus TEQ₂₀₂₄-values.

Individual results reported by the laboratories for each congener are given for Analytes, Fish oil, Salmon and Lamb in Appendices 1, 2, 3 and 4, respectively. The results for PFASs in the sample of Halibut are presented in Appendix 5 and results of the lipid determinations are presented in Appendix 6.

Summary of the results

PCDDs/PCDFs

Analyte solution-2025

Concentrations of PCDDs/PCDFs were reported by 31 laboratories. The mean RSD for the 17 congeners was 6.9% ranging from 5.0% for 2,3,4,6,7,8-HxCDF to 11% for 2,3,7,8-TCDD. The calculation of Z-scores for the TEQs (target 10 pg TEQ/ μ L based on TEF₂₀₂₄-values) of the PCDD/PCDF standard solution showed that 97% of the laboratories had z-scores within the range of ± 2 of the consensus value. This clearly demonstrates that the calibration solutions for PCDDs/PCDFs used by the laboratories generally are of high quality.

Fish oil-2025

For the sample of Fish oil, PCDD/PCDF results from 35 laboratories were received. From these results, the calculated consensus TEQ (PCDD/PCDF TEQ based on WHO₂₀₂₄-TEFs) was 1.2 pg TE/g fresh weight and 1.2 pg TE/g lipid weight.

The mean RSD was 34%, ranging from 12% for 2,3,7,8-TCDF to 77% for 1,2,3,4,6,7,8,9-OCDF. Z-scores for the TEQs within ± 1 were obtained by 83% of the laboratories and 97% of the laboratories had Z-scores within ± 2 (fresh weight basis).

Salmon-2025

PCDD/PCDF concentrations in the Salmon sample were reported by 37 laboratories. The consensus TEQ was 0.032 pg TEQ/g fresh weight and 0.23 pg TEQ/g lipid weight (PCDD/PCDF TEQ based on WHO₂₀₂₄TEFs). The mean RSD was 47% ranging from 28% to

67% for 2,3,7,8-TCDF and 1,2,3,4,6,7,8,9-OCDF, respectively. The Z-scores were within ± 1 for 38% of the laboratories and within ± 2 for 54% of the laboratories (fresh weight basis).

Lamb-2025

PCDD/PCDF concentrations in the sample of Lamb were determined by 27 laboratories. The consensus TEQ for PCDD/PCDF based on WHO₂₀₂₄TEFs was 0.016 pg TEQ/g fresh weight and 0.12 pg TEQ/g lipid weight (PCDD/PCDF TEQ based on WHO₂₀₂₄TEFs). The mean RSD was 43% ranging from 20% for 1,2,3,4,7,8-HxCDF to 68% for 1,2,3,4,7,8,9-HpCDF. Z-scores for PCDD/PCDF TEQ within ± 1 were obtained by 48% of the laboratories and 63% had Z-scores within ± 2 (fresh weight basis).

Dioxin-like PCBs

Analyte solution-2025

The 12 dioxin-like PCBs in the analyte solution were analysed and reported by 30-31 laboratories. The RSDs for the different congeners were ranging from 3.5% for PCB-123 to 7.0% for PCB-126, with a mean of 5.4%.

Fish oil-2025

Dioxin-like PCB concentrations in the sample of Fish oil were reported from 35 laboratories. The concentrations of the 12 congeners varied between 1.6 pg/g fresh weight (PCB-81) and 5070 pg/g fresh weight (PCB-118). The mean RSD for concentrations of individual dioxin-like PCB congeners was 18%, ranging from 10% for PCB-169 to 35% for PCB-123.

The dioxin-like PCBs contributed 56% to the total TEQ (WHO TEF₂₀₂₄) in the sample with PCB-126 as the main contributor (79%).

Salmon-2025

Of the participating laboratories, 37 measured and reported dioxin-like PCB concentrations in the Salmon sample. The concentrations ranged from 0.18 pg/g fresh weight for PCB-81 to 195 pg/g fresh weight for PCB-118. The mean RSD for concentrations of individual dioxin-like PCB congeners on fresh weight basis was 27%, ranging from 18% for PCB-105 to 41% for PCB-123.

The dioxin-like PCBs contribute to about 70% of the total TEQ in the sample with PCB-126 as the main contributor (82%).

Lamb-2025

Dioxin-like PCBs in Lamb were reported by 27 laboratories. Levels were ranging from 0.030 pg/g fresh weight for PCB-81 to 41 pg/g fresh weight for PCB-118. The mean RSD for concentrations of individual dioxin-like PCB congeners on fresh weight basis was 23%, ranging from 13% for PCB-156 to 36% for PCB-123.

The contribution of the dioxin-like PCBs to the total TEQ was about 37% with PCB-126 as the main contributor (80% of total TEQ).

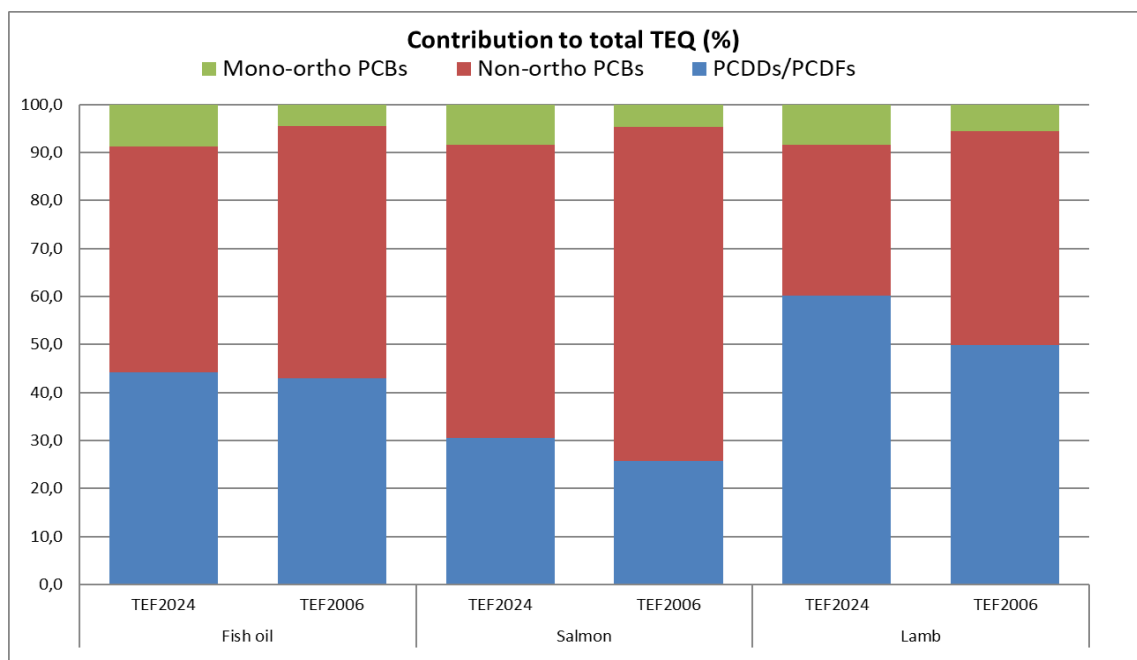
Total TEQ

The total TEQ for the sample of Fish oil was 2.6 pg TEQ/g fresh weight and 2.6 pg TEQ/g lipid weight (WHO TEF₂₀₂₄). The total TEQ of the Salmon sample was 0.11 pg TEQ/g fresh

weight and 0.75 pg TEQ/g lipid weight, and the Lamb contained 0.027 pg TEQ/g fresh weight and 0.19 pg TEQ/g lipid weight.

In Figure 1, the percentage contribution to the TEQ values for the three groups of compounds is depicted based on WHO TEF₂₀₂₄ and WHO TEF₂₀₀₆, respectively. For the selection of food items included in this study, the dioxin-like PCBs contributed from 40% to 70% to the total TEQ (using WHO TEF₂₀₂₄), demonstrating the variation in contribution, and the importance of the PCBs for the determination of the total TEQs related to the toxic potency of food samples.

Figure 1. The percentage contribution of PCDDs/PCDFs, non-ortho PCBs and mono-ortho PCBs to the total TEQ calculated, using both the WHO₂₀₂₄ TEFs and WHO₂₀₀₆ TEFs, in the three food samples



Indicator PCBs

Analyte solution-2025

In all, 28 laboratories reported indicator PCBs in the analyte solution. The mean RSD was 7.6%, ranging from 6.8% for PCB-180 to 8.4% for PCB-138.

Fish oil-2025

For the sample of Fish oil, results for indicator PCBs were received from 32 laboratories. The consensus concentrations varied between 1574 pg/g fresh weight (PCB-28) and 9719 pg/g fresh weight (PCB-153). The consensus median for the sum of indicator PCBs was 31147 pg/g fresh weight. The RSDs ranged from 22% to 32% for PCB-52 and PCB-28, respectively, with a mean of 25% for all indicator PCBs.

Salmon-2025

For the sample of Salmon, 33 laboratories reported results for indicator PCBs. The consensus concentrations ranged from 71 pg/g fresh weight (PCB-28) to 461 pg/g fresh weight (PCB-153) with a consensus median for the sum of indicator PCBs of 1406 pg/g fresh weight. The mean RSD was 26%, ranging from 22% for PCB-101 to 31% for PCB-28.

Lamb-2025

For the sample of Lamb, results were obtained from 24 laboratories for indicator PCBs. The consensus concentrations of indicator PCBs in Lamb ranged from 19 pg/g fresh weight (PCB-28) to 148 pg/g (PCB-153) and the consensus median for the sum was 371 pg/g fresh weight. The mean RSD was 30%, ranging from 26% to 38% for PCB-153 and PCB-28, respectively.

PBDEs

Analyte solution-2025

The tri- to hepta-PBDEs standard solution was analysed by 17 laboratories and 16 laboratories reported values for PBDE-209. The RSDs were between 5.4% for PBDE-47 and 13% for PBDE-183, with a mean of 8.5% including PBDE-209.

Fish oil-2025

The PBDE concentrations in Fish oil were reported by 16 laboratories, except for PBDE-209, for which 15 results were received. The consensus concentrations were in the range of 3.7 pg/g fresh weight for PBDE-183 to 1594 pg/g fresh weight for PBDE-47. The consensus concentration for PBDE-209 was 26 pg/g fresh weight. The sum of tri- to hepta-PBDEs was 2486 pg/g fresh weight. The range of RSDs on fresh weight basis varied from 8.2% for PBDE-47 to 57% for PBDE-209, with a mean of 28%.

Salmon-2025

Of the laboratories, 18 reported results for tri- to hepta-PBDEs in Salmon and 16 reported results for PBDE-209. The consensus concentrations varied between 0.77 pg/g fresh weight (PBDE-183) and 63 pg/g fresh weight (PBDE-47). The concentration for PBDE-209 was 22 pg/g fresh weight. The sum of tri- to hepta-PBDEs was 114 pg/g fresh weight. The RSD calculated from the concentrations on fresh weight ranged from 22% for PBDE-99 to 64% for PBDE-209, with a mean of 32%.

Lamb-2025

Among the laboratories, 14 reported results for tri- to hepta-PBDEs in Lamb and 13 reported results for PBDE-209. The concentrations varied between 0.13 pg/g fresh weight (PBDE-28) and 2.7 pg/g (PBDE-99). The concentration for PBDE-209 was 14 pg/g. The sum of tri- to hepta-PBDEs was 10 pg/g fresh weight. The RSDs for the individual congeners were ranging from 31% for PBDE-153 to 72% for PBDE-209, with a mean of 44%.

HBCDs

Also, in this round of the study, the isomers α -, β - and γ -HBCD as well as total HBCD could be determined and reported. The consensus concentrations calculated for HBCDs are only indicative, since very few laboratories reported results across the three food samples (n=2-4).

PFASs

A sample of Halibut was offered to the participants for the determination of PFASs. For the reported PFAS analyses, the results are calculated specifically for three sets of PFOS data (All reported, Sum or Linear PFOS). No laboratory reported only branched PFOS. For the other PFAS compounds, the results are presented without distinguishing between the branched and linear PFASs.

Results on various PFASs were reported by 5-15 laboratories. The consensus concentration of the sum of individual PFAS groups was 535 pg/g fresh weight, with PFOS as the main contributor (234 pg/g fresh weight for PFOS – sum of branched and linear, n=10). The concentrations of PFUnDA, PFDA and PFNA in the sample were 203, 52 and 28 pg/g fresh weight, respectively. The consensus values for PFOA and PFHxS were 12 and 6 pg/g fresh weight, respectively. The consensus concentrations of PFOS linear, PFHxS and PFOA are only indicative due to few reported results, i.e. ≤ 7 .

The RSD values for the individual PFASs ranged from 20% for PFDA to 82% for PFOA, with a mean RSD of 39% for all PFASs.

Lipid content

The mean lipid % and % RSDs (in parentheses) for the lipid contents of the food samples were calculated to be 100% (0.11%) for the sample of Fish oil, 14% (9.9%) for the Salmon sample and 14% (7.8%) for the sample of Lamb.

Acknowledgements

The laboratories are acknowledged for their participation in this interlaboratory comparison and in their interest in its overall objectives, thereby making it clear that they value good analytical performance. All the individual analysts are acknowledged for their contributions to the results.

We thank Cambridge Isotope Laboratories, Inc., for providing the standard solutions for this interlaboratory study and the Institute of Marine Research, Norway, for providing the haddock sample.

Appendix A:

Participant's affiliations
and addresses

Affiliations and addresses of participants

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Appendix B:

Study announcement and
instructions for participants

February 2025

Announcement for Interlaboratory Comparison on POPs in Food 2025

Introduction

We hereby announce the 26th round of the Interlaboratory Comparison on the Determination of POPs in Food (“The Norwegian POPs in Food-study”). The study is open for academic, regulatory as well as commercial laboratories world-wide. The organizer of this study is Department of Food Safety at the Norwegian Institute of Public Health, Oslo, Norway. The study is scheduled to take place from February to June 2025.

A draft report will be available by October- November 2025, and the final report will be available to the participants by December 2025. All participants who have contributed to the results will receive a certificate of participation in the study.

Objectives

One of the main objectives of this exercise is to assess the interlaboratory consistency in results from analyses of dioxins, PCBs, PBDEs, HBCDs and PFAS in regular food items known to contribute to the intake in the general population. Further, the world-wide readiness and capacity in analysing halogenated persistent organic pollutants in food will be demonstrated. The study also serves as a tool of quality assurance for the participating laboratories.

Participants

We encourage all laboratories working in this field to participate and assess their analytical performance. To do this, participants are requested to completely fill out the Registration Form and mark the desired sample types and what analyte solutions they intend to determine.

Please send us the registration form in excel format (not pdf-format).

Analytical requirements

In this interlaboratory comparison, all the seventeen 2, 3, 7, 8-substituted PCDDs and PCDFs, the four non-ortho PCBs, CB-77, 81, 126 and 169 as well as the eight mono-ortho PCBs, PCB-105, 114, 118, 123, 156, 157, 167, and 189 will be assessed.

In addition, the participants are invited to determine six marker PCBs, eight PBDEs and HBCDs. The concentration of the following congeners can be reported: PCB-28, 52, 101, 138, 153 and 180 and PBDE-28, 47, 99, 100, 153, 154, 183 and 209.

The concentration of α -HBCD, β -HBCD and γ -HBCD as well as the total of these isomers will also be assessed. For total HBCD, this applies to laboratories using GC analysis that cannot separate HBCD isomers. For laboratories capable of measuring each HBCD isomer separately, they should NOT sum the alpha (α), beta (β), and gamma (γ) isomers and report it as total HBCD.

For the matrix intended for the determination of PFASs, the participants are asked to report one or more of the following components: Perfluorooctanesulfonate (PFOS, please mention which form; linear, branched or sum), perfluorohexanesulfonate (PFHxS), perfluorooctanoate (PFOA), perfluorononanoate (PFNA), perfluorodecanoate (PFDA) and perfluoroundecanoate (PFUnDA).

The test materials for POPs analysis consist of three fresh food homogenates (total of four including PFAS). You can choose to analyse one, two or all three of the food items. We encourage you to determine as many analytes as possible. You are further requested to determine and report the lipid content of these three foods.

We also include standard solutions of all analytes, except PFAS, that should be analysed as solutions of known concentration, which may be used to check your own calibration solutions. All laboratories are requested to report their own results based on their analysis and not the concentrations in the analyte solutions provided by the organizer.

Test material

The test materials consist of four unfortified natural food product homogenates:

- Fish oil (labelled “Fish oil-2025”) ~50 g
- Salmon (labelled “Salmon-2025”) ~90 g
- Lamb meat (labelled “Lamb-2025”) ~100 g
- Halibut (PFAS) (labelled “PFAS-2025”) ~50 g

The samples will be distributed by an international courier service to the participating laboratories.

Please note:

To avoid delay or retention of the samples at customs, please inform us if there are import restrictions in your country for any of the samples. If the samples are retained in customs and a second shipment is required, please note that the associated costs for the second shipment will be the responsibility of the participating laboratory.

Instructions for analysis and reporting

In short, the participating laboratories should:

- use their own standard operation procedures for extraction, clean-up and instrumental determination
- use their own reference standards for identification and quantification
- report one single concentration for each analyte in each food matrix determined on fresh weight basis
- report limits of detection for all measured analytes in each food item
- report the lipid content

Further detailed instructions and reporting forms will be sent by e-mail simultaneously with the dispatch of the samples in March.

Time schedule

Announcement	February 2025
Return of registration form	February 21st, 2025
Shipment of test material	From February to March, 2025

Confirmation of receipt of test material by participant	Within 7 days after receiving the samples
Reporting of test results	June 30th, 2025
Publication of draft report on website	October-November 2025
Final report available to all participants	December 2025

Participation fee

All laboratories that have received the test materials will receive a corresponding invoice in Norwegian kroner (NOK). The participation fee for any combination of the analytes in one food item is 13 700 NOK, in two food items 14 700 NOK, 15 700 NOK for three food items and for the complete set of all four food items the fee is 16 700 NOK.

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Interlaboratory Comparison on Dioxins in Food 2025

Instructions for participants

March 2025

1. Introduction

This is the 26th Round of the Interlaboratory Comparison Study on the Determination of POPs in Food organised by the Department of Food Safety, Norwegian Institute of Public Health, Oslo, Norway.

The objective of this exercise is to assess the interlaboratory comparability of the results from analyses of all dioxins and dioxin-like PCBs included in the WHO-TEF schemes in regular foods. Participants may also determine and report concentrations of six indicator PCBs, eight polybrominated diphenylethers (PBDEs) and hexabromocyclododecane (HBCD). The exercise serves as a quality assurance instrument for the participating laboratories. A further purpose is to assess the world-wide readiness and capacity for the determination of dioxin-like compounds, indicator PCBs, PBDEs and HBCD in food. Instructions for the analysis and submission of results are given below.

Additionally, we also offer a fish sample for the determination of poly- and perfluoroalkyl substances (PFAS). This year's sample is wild Halibut.

Please read these instructions carefully before starting the experimental work.

The participating laboratories will contribute to the interlaboratory comparability in the analytical performance for determination of

- dioxins and furans: all seventeen 2,3,7,8-substituted PCDDs and PCDFs
- non-ortho PCBs: CB-77, 81, 126 and 169
- mono-ortho PCBs: CB-105, 114, 118, 123, 156, 157, 167 and 189
- indicator PCBs: CB-28, 52, 101, 138, 153 and 180
- PBDEs: BDE-28, 47, 99, 100, 153, 154, 183 and 209
- HBCD: α -HBCD, β -HBCD, γ -HBCD and total HBCD

in the following samples:

Fish oil (Fish oil-2025)
Salmon (Salmon-2025)
Lamb meat (Lamb-2025)

The mentioned analytes can also be determined in respective six standard solutions.

The participants also are given the opportunity to determine

- perfluorooctanesulfonate (PFOS)
- perfluorohexanesulfonate (PFHxS)
- perfluorooctanoate (PFOA)
- perfluorononanoate (PFNA)
- perfluorodecanoate (PFDA)
- perfluoroundecanoate (PFUnDA).

in the following sample:

Halibut (PFAS-2025)

2. Design of the study

2.1 Test materials

Samples

One standard solution of each:

- EDF-5008-50 with PCDDs/PCDFs at concentrations 2:5:10 pg/μl for tetra:penta-hexa-hepta:octa chlorinated dibenzo-p-dioxins/-dibenzo furans, respectively
- EC-4986/1000 with non-ortho PCBs with concentration 10 pg/μl
- EC-4987/100 with mono-ortho PCBs with concentration 100 pg/μl
- EC-5179/50 with indicator PCBs with concentration 100 pg/μl
- EO-5103/100 with PBDEs with concentration 25 pg/μl, except BDE-209 with 100 pg/μl
- ULM-4834-S/100 with α-HBCD with a concentration 500 pg/μl

One sample of each

- approx. 50 g of Fish oil
- approx. 90 g of Salmon
- approx. 100 g of Lamb meat
- approx. 50 g of wild Halibut (PFAS)

We do not provide any standard solution for the determination of PFAS.

Fortification

The samples are prepared from regular market foods. There is no fortification or spiking of the target analytes in the food samples.

Shipment

The samples are fresh, frozen food homogenates. They are distributed by international courier and should reach the receiving laboratory in good condition within a few days.

2.2 Coding

Coding of laboratories

Upon arrival of the samples in the participant's laboratory, the Microsoft Excel file named "Participant confirmation", shall be filled in and returned to the coordinators by e-mail. The code of the laboratory will then be given by the coordinators. The laboratory codes will not be revealed to the other participants or to any third parties.

Coding of samples

Fish oil	Fish oil-2025
Salomon	Salmon-2025
Lamb meat	Lamb-2025
Halibut (PFAS)	PFAS-2025

The above sample coding is marked on the sample bottles.

2.3 Analytical procedure

Storage of the samples

The samples are fresh, frozen homogenates of natural food items. They are shipped frozen and should be stored frozen until they are analysed.

Methods to be used

Laboratories shall use

- their own methods for sample preparation and instrumental analysis
- their own internal and quantification standards
- their own lipid determination procedure

Standard solutions

The standard solutions should be analysed using the laboratory's own quantification standards and methods, and the results shall be reported. All laboratories are requested to report their own results based on their analysis and not the concentrations in the analyte solutions provided by the organizer.

General

Beware of the high risk of background contamination and positive blank values when analysing food samples with levels of dioxins, PCBs, PBDEs and HBCDs in the low ppt range.

Use sample size according to expected levels of dioxins for the determinations in order to achieve a detection level that leaves as few as possible of the analytes as non-detected. The sample amount dispatched is not meant for replicate analyses.

The samples might become inhomogeneous during freezing and transport. Re-homogenise all received material of each food item before any portion is taken out for analysis.

An estimate of the lipid content in the samples follows below:

- Fish oil: 100%
- Salmon: 15-17%
- Lamb meat: 12-15%

3. Reporting

3.1 Results to be reported

Laboratories are recommended to report as many as possible of the congeners mentioned in Chapter 1.

The reports **should** be in Excel-format and include the determined lipid percent for the samples, except for the fish sample designated for the analysis of PFAS.

The analytical report must include concentrations for all the congeners in all the samples on fresh weight basis, see Report forms B, C, D for PCDD/PCDF and dioxin-like PCBs and Report form 2, 3, 4 for marker PCBs, PBDEs and HBCD, and the Report Form “PFAS-2024” for PFASs.

Laboratories must report concentration on fresh weight basis for each congener which is detected ($S/N \geq 3$), **as well as** the limit of determination (LOD, $S/N = 3$) for each sample. Non-detected congeners ($S/N < 3$) must be marked ND in the Comments column of the Report form. **Please note that the LOD will be used as concentration of non-detected congeners.**

For the reporting of PFAS: The results should be reported as the **anion**, not the salt! Also, be aware that PFAS should be reported as **pg/g**, not ng/g!

Please inform us which form of PFOS you are reporting, i.e. whether it is the linear, branched or the sum of both isomers.

For total HBCD, this applies to laboratories using GC analysis that cannot separate HBCD isomers. For laboratories capable of measuring each HBCD isomer separately, they should NOT sum the alpha (α), beta (β), and gamma (γ) isomers and report it as total HBCD.

3.2 Checklist

Please use the attached checklist before returning the Report forms with your results.

3.3 Submitting results

Four Microsoft Excel files are provided to each participant comprising:

Participants confirmation

- Confirmation of receiving test materials

Report form dioxins and dioxin-like PCBs

- analytical data, Report forms A, B, C and D

Report form marker PCBs, PBDEs and HBCDs

- analytical data, Report forms 1, 2, 3 and 4

Report form for PFASs

Participants are requested to submit their reports electronically to avoid possible transcription errors.

Please, do not alter rows or columns in the original Report forms since this may cause problems in the automatic program calculations, causing risk of errors and additional work!

Please write your Lab code only in Report Form A of Dioxin report form and Report Form 1 of Marker PCB, PBDE report form. It will be automatically copied to the other forms in the same file.

The electronic report shall be sent to dioxin@fhi.no in Excel-format within the deadline.

Deadline

The reports must be in our hands no later than June 30th, 2025 to enable us to prepare the draft report to be published in October-November 2025. A confirmation for the receipt of your results will be sent to you by e-mail within a week.

4. Statistical evaluations

Prior to the final report, a draft version will be prepared based on the data reported October-November 2025. The co-ordinators will calculate mean, median and between-laboratory standard deviations for each congener. Outliers will be removed and consensus values will be calculated. In case of extreme deviation from normal distribution, appropriate procedures will be used to get the best estimate of the true value as possible. For the dioxin-like compounds, TEQ values will be calculated for each laboratory and a consensus TEQ value based on the consensus of the congeners, using the newest available TEF values. Z-scores will be calculated for the laboratories' results for all congeners, and for PCDD/PCDF TEQs and PCB TEQs as well.

5. Final report

The final report will be prepared by the coordinators and published in December 2025 and will then be made available for all interested parties in an electronic version on <http://www.fhi.no>.

Certificates of participation in the study will be issued to all laboratories submitting results after the publication of the final report.

6. Fee

An invoice will be sent to all laboratories that have received the test materials. The participation fee for any combination of the 29 dioxin-like congeners, six marker PCBs, 8 PBDEs, HBCDs and PFASs is

- NOK 13 700 for one food item
- NOK 14 700 for two food items
- NOK 15 700 for three food items
- NOK 16 700 for four food items

Up to six standard solutions will be distributed free of charge to all participants, dependent on which analytes the participating laboratories intend to determine.

Invoices will be sent out after we have received the Participant confirmation from the participants.

7. Time schedule

Announcement	30th January 2025
Return of registration form	February 20th, 2025
Shipment of test material	From February to March, 2025
Confirmation of receipt of test material by participant	Within 7 days after reception
Reporting of test results	June 30th, 2025
Publication of draft report on web-site	October-November 2025
Final report available to all participants	December 2025

[Please make sure that your results are reported in time as there normally will be no extension of the deadline](#)

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Checklist

In order to avoid possible misunderstandings and errors when reporting your results, we here give a list of possible pitfalls. Please, check this list and your Report forms before reporting your results.

- ☐ Are the results for each congener filled out in the correct order? Be especially aware of 2,3,4,6,7,8- and 1,2,3,7,8,9-HxCDF, and PCB 81.
- ☐ Are all congener results reported in **pg/μl** for standards and **pg/g** for samples?
- ☐ Did you remember to report the lipid percent of the samples?
- ☐ Are the results of the samples reported on a *fresh weight basis*?
- ☐ Are both concentration and LOD reported for each congener?
- ☐ Are sample amount and measured lipid content filled in?

☐ Are non-detected congeners marked with ND in the Comments column?

Appendix C:

WHO TEFs for human risk assessment

WHO TEFs for human risk assessment

The WHO TEF values used for human risk assessment are based on the conclusions of the European Centre of Environmental Health of the World Health Organization (ECEH-WHO) and the International programme on Chemical Safety (IPCS) (ECEH-WHO/IPCS) meeting in Stockholm, Sweden, June 15-18, 1997 (M. van den Berg et al., Environ. Health Perspect., 106(12), 775-792, 1998, <https://doi.org/10.1289/ehp.98106775>), WHO - International Programme on Chemical Safety (IPCS) expert meeting in Geneva, Switzerland, June, 2005 (2005 WHO-TEFs) (M. van den Berg et al., Toxicol. Sci., 93(2), 223-241, 2006, <https://doi.org/10.1093/toxsci/kfl055>) and WHO expert meeting, Lisbon, Portugal, October 17-21, 2022 (2022 WHO-TEFs) ((M. DeVito et al., Regul. Toxicol. Pharmacol., 146, 105525, 2024, <https://doi.org/10.1016/j.yrtph.2023.105525>).

Congener	2005 WHO-TEF (2006)	2022 WHO-TEF (2024)
<i>Chlorinated dibenzo-p-dioxins</i>		
2,3,7,8-TCDD	1	1
1,2,3,7,8-PeCDD	1	0.4
1,2,3,4,7,8-HxCDD	0.1	0.09
1,2,3,6,7,8-HxCDD	0.1	0.07
1,2,3,7,8,9-HxCDD	0.1	0.05
1,2,3,4,6,7,8-HpCDD	0.01	0.05
OCDD	0.0003	0.001
<i>Chlorinated dibenzofurans</i>		
2,3,7,8-TCDF	0.1	0.07
1,2,3,7,8-PeCDF	0.03	0.01
2,3,4,7,8-PeCDF	0.3	0.1
1,2,3,4,7,8-HxCDF	0.1	0.3
1,2,3,6,7,8-HxCDF	0.1	0.09
1,2,3,7,8,9-HxCDF	0.1	0.2
2,3,4,6,7,8-HxCDF	0.1	0.1
1,2,3,4,6,7,8-HpCDF	0.01	0.02
1,2,3,4,7,8,9-HpCDF	0.01	0.1
OCDF	0.0003	0.002
<i>Non-ortho substituted PCBs</i>		
PCB 77	0.0001	0.0003
PCB 81	0.0003	0.006
PCB 126	0.1	0.05
PCB 169	0.03	0.005
<i>Mono-ortho substituted PCBs</i>		
PCB 105	0.00003	0.00003
PCB 114	0.00003	0.00003
PCB 118	0.00003	0.00003
PCB 123	0.00003	0.00003
PCB 156	0.00003	0.00003
PCB 157	0.00003	0.00003
PCB 167	0.00003	0.00003
PCB 189	0.00003	0.00003

Abbreviations used: T: tetra; Pe: penta; Hx: hexa; Hp: hepta; O: octa;
CDD: chlorodibenzo-*p*-dioxin; CDF: chlorodibenzofuran; PCB: polychlorinated biphenyl.

Appendix D:

Homogeneity testing

Homogeneity testing of test materials for “Interlaboratory Comparison on Dioxins in Food” organised by the Norwegian Institute of Public Health

Introduction

The International Harmonized Protocol for the Proficiency Testing of Analytical Chemistry Laboratories (Pure Appl Chem 2006;78:145-96) states that “The bulk material prepared for the proficiency test must be sufficient homogeneous and stable, in respect of each analyte, to ensure that all laboratories receive distribution units that do not differ to any consequential degree in mean analyte concentration. The scheme provider must clearly state the procedure used to establish the homogeneity of the test material”.

The protocol requires that the variation in composition among the distributed units is negligible in relation to variation introduced by the measurements conducted by the participants of the proficiency test (PT). The estimated variation between the samples (s_{sam}) should be less than 30 % of the target standard deviation (σ_p), i.e., $s_{\text{sam}} < 0.3 \sigma_p$.

Further the protocol states that homogeneity testing is required to reassure the participants in proficiency testing schemes that the distributed units of the test material are sufficiently similar. The test specified calls for the selection of ten or more units at random after the putative homogenized material has been split and packaged into discrete samples for distribution. The material from each sample is then analyzed in duplicate, under randomized repeatability conditions (that is, all in one run) using a method with sufficient analytical precision. The value of σ_{sam} is then estimated from the mean squares after one-way analysis of variance (ANOVA).

The quality of the analytical method used for homogeneity testing has a large impact on the results. If the analytical precision (σ_{an}) of the homogeneity test is not small, important sampling variation may be obscured by analytical variation. We may get a non-significant result when testing for heterogeneity, not because it is not present, but the test has no power to detect it. It is recommended that the analytical (repeatability) precision of the method used in the homogeneity test should satisfy $\sigma_{\text{an}} < 0.5 \sigma_p$

Consequences for the Interlaboratory Comparison on Dioxins in Food

Below follows the consequences for the Interlaboratory Comparison on Dioxin in Food;

1.

The protocol recommends duplicate analysis of at least 10 distribution units. Due to limited amount of test material in each distribution unit and the requirement for sufficiently low analytical standard deviation, the test analysis has to be restricted to PCB, e.g., 6 indicator PCB or CB-153. It is, however, questionable whether analysis of indicator PCB also reflects the distribution of dioxins and other contaminants in the sample, as the test material is often prepared by mixing specifically contaminated material with background contaminated material in order to achieve a sufficient contamination level. Therefore, the distribution of PCBs in the sample might not be relevant for the distribution of dioxins in the sample. The analytical precision of the method used in the homogeneity test should be less than half of the target standard deviation, i.e., $\sigma_{\text{an}} < 0.5 \sigma_p$. For determination of dioxins, the target standard deviation may be approximated by the requirement for trueness (Commission Regulation (EC) No 1883/2006) of $\pm 20 \%$ for total TEQ, i.e., the analytical precision should be less than 10 %. This is unrealistic to achieve for the determination of dioxins.

2.

The homogeneity testing using, e.g., the determination of indicator PCBs, requires the analysis of at least 60 samples prior to shipment of the distribution units to the participants. This causes problems for the time schedule of the sample preparation and involves high costs.

3.

The laboratory conducting the homogeneity test on PT analytes would have access to the test material and knowledge of contamination levels prior to the start of the PT and would therefore not be qualified for participation in the PT.

Conclusion

A valid testing of homogeneity of the test materials of the Interlaboratory Comparison (ILC) on Dioxins in Food with respect to the distribution of dioxins and dioxin-like PCBs is not guaranteed using indicator PCBs. It is doubtful that the analytical precision is small enough to detect a lack in sufficient homogeneity. Given the need for annually testing three different matrices for homogeneity, alternative, rapid and low cost homogeneity tests using surrogate should be applied.

Present approach for homogeneity testing for the ILC on Dioxins in Food

The Harmonized Protocol states under Chapter Testing for sufficient homogeneity: “Tests for sufficient homogeneity are in practice never wholly satisfactory... However, given that sufficient homogeneity is a reasonable prior assumption (because proficiency testing scheme providers do their best to ensure it), and that the cost [and time-consumption] of testing for it is often high, it is sensible to make the main emphasis the avoidance of “Type 1 errors” (that is, false rejection of a satisfactory material).

Having this in mind and the facts that it is impossible to determine all analytes for homogeneity testing of food test material and that a single indicator analyte not necessarily reflects the distribution of the other analytes, we have developed an approach that ensures that the test material is thoroughly blended and evenly distributed among the individual test bottles. The homogeneity testing of solid samples is based on the principle of measuring electrolytic conductivity after addition of sodium chloride to a small portion of the coarsely blended test material. A demonstration of homogeneous distribution of the added salt in the sub samples would indicate our ability to evenly blend the food matrix, i.e., with this approach we ensure the efficiency of our blending procedure. This is especially of importance when blending highly contaminated food matrices with background contaminated food matrices.

When testing homogeneity of the food samples, sodium chloride was added to about 10% of the test material in such an amount that the conductivity was about doubled compared to the natural conductivity. This sub-sample was added to the total sample. For example, to 1 kg of homogenised chicken meat, 150 g NaCl were added resulting in an addition of 1 % NaCl to the final test material of 15 kg. Conductivity measurements are performed as follows: boiling water is added to 10.0 g of the test material, and the resulting dispersion is ultrasonicated. After centrifugation, the extract is filtered through folded paper filters and allowed to cool to room temperature. The electrolytic conductivity of the water extract is measured using a conductivity meter.

Homogeneity of the test material was demonstrated by comparing the conductivity in water extracts of 10 samples from the same bottle (variation within bottles), and in extracts from 10 different bottles (variation between bottles).

Example

As an example, the relative standard deviation (RSD) of 10 conductivity measurements within a sample bottle containing chicken meat homogenate was 2 %. The RSD for the measurement of samples from 10 different, randomly selected bottles was 3 %. The contribution of the inhomogeneity to the total variation, calculated from $RSD^2_{\text{inhomogeneity}} = RSD^2_{\text{between}} - RSD^2_{\text{within}}$ ¹ was 2.2 % and hence small and acceptable. The total uncertainty for the determination of PCDD/Fs is usually considerably larger, so the measured contribution of inhomogeneity to the total uncertainty can be neglected

¹G. Becher, L.S. Haug, C. Thomsen, World-wide comparison on the quality of analytical determinations of PCDDs/PCDFs and dioxin-like PCBs in food, Talanta 63 (2004) 1115-1122.

Appendix E:

Summary results

Consensus of congener concentrations

Consensus of TEQ values

Consensus statistics

Laboratories' reported TEQs

Laboratories' Z-scores

Z-score plots

Consensus of congener concentrations

	Fish oil		Salmon		Lamb	
	pg/g fw.	pg/g lw.	pg/g fw.	pg/g lw.	pg/g fw.	pg/g lw.
2,3,7,8-TCDD	0,12	0,12	0,0060	0,042	0,0030	0,021
1,2,3,7,8-PeCDD	0,46	0,46	0,0096	0,068	0,0066	0,047
1,2,3,4,7,8-HxCDD	0,084	0,084	0,0050	0,035	0,0060	0,043
1,2,3,6,7,8-HxCDD	0,32	0,32	0,0080	0,056	0,0080	0,057
1,2,3,7,8,9-HxCDD	0,079	0,079	0,0038	0,027	0,0037	0,026
1,2,3,4,6,7,8-HpCDD	0,16	0,16	0,023	0,16	0,021	0,15
1,2,3,4,6,7,8,9-OCDD	0,20	0,20	0,042	0,30	0,044	0,31
2,3,7,8-TCDF	6,1	6,1	0,17	1,2	0,0050	0,036
1,2,3,7,8-PeCDF	0,74	0,74	0,019	0,14	0,0035	0,025
2,3,4,7,8-PeCDF	2,7	2,7	0,037	0,26	0,016	0,11
1,2,3,4,7,8-HxCDF	0,17	0,17	0,0060	0,042	0,012	0,088
1,2,3,6,7,8-HxCDF	0,25	0,25	0,0060	0,042	0,0070	0,050
2,3,4,6,7,8-HxCDF	0,29	0,29	0,0077	0,054	0,0061	0,044
1,2,3,7,8,9-HxCDF	0,027	0,027	0,0031	0,022	0,0028	0,020
1,2,3,4,6,7,8-HpCDF	0,10	0,10	0,010	0,068	0,013	0,094
1,2,3,4,7,8,9-HpCDF	0,027	0,027	0,0050	0,035	0,0041	0,029
1,2,3,4,6,7,8,9-OCDF	0,097	0,097	0,012	0,085	0,014	0,10
PCB-77	53	53	5,4	38	0,76	5,4
PCB-126	23	23	1,2	8,5	0,15	1,1
PCB-169	11	11	0,28	1,9	0,080	0,57
PCB-81	1,6	1,6	0,18	1,3	0,030	0,21
PCB-105	1700	1700	61	432	16	112
PCB-114	104	104	3,6	25	1,2	8,9
PCB-118	5070	5070	195	1373	41	293
PCB-123	53	53	2,6	19	0,38	2,7
PCB-156	381	381	16	116	12	82
PCB-157	120	120	5,2	36	1,9	13
PCB-167	221	221	12	85	2,6	19
PCB-189	31	31	1,6	11	1,2	8,6

fw. - fresh weight

lw. - lipid weight

Consensus of congener concentrations

	Fish oil		Salmon		Lamb	
	pg/g fw.	pg/g lw.	pg/g fw.	pg/g lw.	pg/g fw.	pg/g lw.
PCB-28	1574	1574	71	498	19	133
PCB-52	4495	4495	183	1289	34	244
PCB-101	6530	6530	289	2034	44	317
PCB-138	6782	6782	304	2143	65	463
PCB-153	9719	9719	461	3245	148	1059
PCB-180	2047	2047	98	691	61	434
PBDE-28	110	110	3,6	26	0,13	0,90
PBDE-47	1594	1594	63	441	2,2	16
PBDE-99	111	111	11	76	2,7	19
PBDE-100	344	344	16	113	1,0	6,8
PBDE-153	28	28	3,4	24	1,9	14
PBDE-154	295	295	16	116	0,82	5,9
PBDE-183	3,7	3,7	0,77	5,4	1,0	7,4
PBDE-209	26	26	22	152	14	98
α-HBCD*	1405	1405	31	220	19	136
β-HBCD*	**	**	**	**	**	**
γ-HBCD*	5,3	5,3	3,0	21	**	**
Total HBCD*	1464	1464	41	286	19	136
Sum PCB	31147	31147	1406	9900	371	2650
Sum PBDE without 209	2486	2486	114	801	10	70
Sum PBDE	2512	2512	135	953	23	168

fw. - fresh weight

lw. - lipid weight

*: Indicative value due to few reported values

**: Unable to calculate consensus value due to few submitted results

Fish 2025: PFAS, consensus values

	Halibut pg/g fw.
PFOS - All reported	241
PFOS - Sum	234
PFOS - Linear*	241
PFHxS*	6
PFOA*	12
PFNA	28
PFDA	52
PFUnDA	203
Sum PFAS	535

fw. - fresh weight

*: Indicative value due to few reported values

Consensus of TEQs

TEF2024

	Fish oil		Salmon		Lamb	
	pg TE/g fw.	pg TE/g lw.	pg TE/g fw.	pg TE/g lw.	pg TE/g fw.	pg TE/g lw.
2,3,7,8-TCDD	0,12	0,12	0,0060	0,042	0,0030	0,021
1,2,3,7,8-PeCDD	0,18	0,18	0,0038	0,027	0,0026	0,019
1,2,3,4,7,8-HxCDD	0,0076	0,0076	0,00045	0,0032	0,00054	0,0039
1,2,3,6,7,8-HxCDD	0,022	0,022	0,00056	0,0039	0,00056	0,0040
1,2,3,7,8,9-HxCDD	0,0040	0,0040	0,00019	0,0013	0,00018	0,0013
1,2,3,4,6,7,8-HpCDD	0,0079	0,0079	0,0011	0,0080	0,0011	0,0075
1,2,3,4,6,7,8,9-OCDD	0,00020	0,00020	0,000042	0,00030	0,000044	0,00031
2,3,7,8-TCDF	0,42	0,42	0,012	0,083	0,00035	0,0025
1,2,3,7,8-PeCDF	0,0074	0,0074	0,00019	0,0014	0,000035	0,00025
2,3,4,7,8-PeCDF	0,27	0,27	0,0037	0,026	0,0016	0,011
1,2,3,4,7,8-HxCDF	0,051	0,051	0,0018	0,013	0,0037	0,026
1,2,3,6,7,8-HxCDF	0,023	0,023	0,00054	0,0038	0,00063	0,0045
2,3,4,6,7,8-HxCDF	0,029	0,029	0,00077	0,0054	0,00061	0,0044
1,2,3,7,8,9-HxCDF	0,0054	0,0054	0,00062	0,0044	0,00056	0,0040
1,2,3,4,6,7,8-HpCDF	0,0020	0,0020	0,00019	0,0014	0,00026	0,0019
1,2,3,4,7,8,9-HpCDF	0,0027	0,0027	0,00050	0,0035	0,00041	0,0029
1,2,3,4,6,7,8,9-OCDF	0,00019	0,00019	0,000024	0,00017	0,000029	0,00020
PCB-77	0,016	0,016	0,0016	0,011	0,00023	0,0016
PCB-126	1,2	1,2	0,061	0,43	0,0077	0,055
PCB-169	0,053	0,053	0,0014	0,0097	0,00040	0,0029
PCB-81	0,0098	0,010	0,0011	0,0076	0,00018	0,0013
PCB-105	0,051	0,051	0,0018	0,013	0,00047	0,0034
PCB-114	0,0031	0,0031	0,00011	0,00076	0,000037	0,00027
PCB-118	0,15	0,15	0,0059	0,041	0,0012	0,0088
PCB-123	0,0016	0,0016	0,000079	0,00056	0,000011	0,000081
PCB-156	0,011	0,011	0,00049	0,0035	0,00035	0,0025
PCB-157	0,0036	0,0036	0,00015	0,0011	0,000056	0,00040
PCB-167	0,0066	0,0066	0,00036	0,0025	0,000078	0,00056
PCB-189	0,00093	0,00093	0,000047	0,00033	0,000036	0,00026
PCDDs/PCDFs	1,2	1,2	0,032	0,23	0,016	0,12
Non-ortho PCBs	1,2	1,2	0,065	0,46	0,0085	0,061
Mono-ortho PCBs	0,23	0,23	0,0089	0,063	0,0023	0,016
Total TEQ	2,6	2,6	0,11	0,75	0,027	0,19

fw. - fresh weight

lw. - lipid weight

Consensus of TEQs

TEF2006

	Fish oil		Salmon		Lamb	
	pg TE/g fw.	pg TE/g lw.	pg TE/g fw.	pg TE/g lw.	pg TE/g fw.	pg TE/g lw.
2,3,7,8-TCDD	0,12	0,12	0,0060	0,042	0,0030	0,021
1,2,3,7,8-PeCDD	0,46	0,46	0,0096	0,068	0,0066	0,047
1,2,3,4,7,8-HxCDD	0,0084	0,0084	0,00050	0,0035	0,00060	0,0043
1,2,3,6,7,8-HxCDD	0,032	0,032	0,00080	0,0056	0,00080	0,0057
1,2,3,7,8,9-HxCDD	0,0079	0,0079	0,00038	0,0027	0,00037	0,0026
1,2,3,4,6,7,8-HpCDD	0,0016	0,0016	0,00023	0,0016	0,00021	0,0015
1,2,3,4,6,7,8,9-OCDD	0,000060	0,000060	0,000013	0,000089	0,000013	0,000094
2,3,7,8-TCDF	0,61	0,61	0,017	0,12	0,00050	0,0036
1,2,3,7,8-PeCDF	0,022	0,022	0,00058	0,0041	0,00011	0,00075
2,3,4,7,8-PeCDF	0,81	0,81	0,011	0,077	0,0048	0,034
1,2,3,4,7,8-HxCDF	0,017	0,017	0,00060	0,0042	0,0012	0,0088
1,2,3,6,7,8-HxCDF	0,025	0,025	0,00060	0,0042	0,00070	0,0050
2,3,4,6,7,8-HxCDF	0,029	0,029	0,00077	0,0054	0,00061	0,0044
1,2,3,7,8,9-HxCDF	0,0027	0,0027	0,00031	0,0022	0,00028	0,0020
1,2,3,4,6,7,8-HpCDF	0,0010	0,0010	0,00010	0,00068	0,00013	0,00094
1,2,3,4,7,8,9-HpCDF	0,00027	0,00027	0,000050	0,00035	0,000041	0,00029
1,2,3,4,6,7,8,9-OCDF	0,000029	0,000029	0,0000036	0,000025	0,0000043	0,000031
PCB-77	0,0053	0,0053	0,00054	0,0038	0,000076	0,00054
PCB-126	2,3	2,3	0,12	0,85	0,015	0,11
PCB-169	0,32	0,32	0,0083	0,058	0,0024	0,017
PCB-81	0,00049	0,00049	0,000054	0,00038	0,0000090	0,000064
PCB-105	0,051	0,051	0,0018	0,013	0,00047	0,0034
PCB-114	0,0031	0,0031	0,00011	0,00076	0,000037	0,00027
PCB-118	0,15	0,15	0,0059	0,041	0,0012	0,0088
PCB-123	0,0016	0,0016	0,000079	0,00056	0,000011	0,000081
PCB-156	0,011	0,011	0,00049	0,0035	0,00035	0,0025
PCB-157	0,0036	0,0036	0,00015	0,0011	0,000056	0,00040
PCB-167	0,0066	0,0066	0,00036	0,0025	0,000078	0,00056
PCB-189	0,00093	0,00093	0,000047	0,00033	0,000036	0,00026
PCDDs/PCDFs	2,1	2,1	0,048	0,34	0,020	0,14
Non-ortho PCBs	2,6	2,6	0,13	0,92	0,018	0,13
Mono-ortho PCBs	0,23	0,23	0,0089	0,063	0,0023	0,016
Total TEQ	5,0	5,0	0,19	1,3	0,040	0,29

fw. - fresh weight

lw. - lipid weight

Consensus statistics

Analyte solution

	Target value pg/μl	Consensus median, pg/μl	Median all values pg/μl	Consensus mean, pg/μl	Standard deviation, pg/μl	Relative standard deviation, %	No. of values reported	No. of values removed
2,3,7,8-TCDD	2,0	2,0	2,0	2,0	0,21	11	31	1
1,2,3,7,8-PeCDD	5,0	5,0	5,0	5,1	0,27	5,4	31	1
1,2,3,4,7,8-HxCDD	5,0	5,0	5,0	5,0	0,40	7,9	31	1
1,2,3,6,7,8-HxCDD	5,0	4,8	4,8	4,8	0,35	7,4	31	1
1,2,3,7,8,9-HxCDD	5,0	4,9	5,0	4,9	0,38	7,6	31	1
1,2,3,4,6,7,8-HpCDD	5,0	5,0	5,0	5,0	0,33	6,7	31	1
1,2,3,4,6,7,8,9-OCDD	10	9,7	9,7	9,6	0,61	6,3	31	1
2,3,7,8-TCDF	2,0	2,0	2,0	2,0	0,16	8,3	31	1
1,2,3,7,8-PeCDF	5,0	5,0	5,0	5,0	0,31	6,3	31	1
2,3,4,7,8-PeCDF	5,0	5,0	5,0	4,9	0,29	5,9	31	1
1,2,3,4,7,8-HxCDF	5,0	5,0	5,0	4,9	0,31	6,3	31	1
1,2,3,6,7,8-HxCDF	5,0	5,0	5,0	5,0	0,29	5,8	31	1
2,3,4,6,7,8-HxCDF	5,0	4,9	4,9	4,9	0,25	5,0	31	1
1,2,3,7,8,9-HxCDF	5,0	5,0	5,0	5,0	0,27	5,4	31	1
1,2,3,4,6,7,8-HpCDF	5,0	5,0	5,0	5,0	0,37	7,4	31	1
1,2,3,4,7,8,9-HpCDF	5,0	4,9	4,9	4,9	0,39	7,9	31	1
1,2,3,4,6,7,8,9-OCDF	10	10	10	9,9	0,68	6,9	31	1
PCB 77	10	10	10	10	0,50	5,0	31	1
PCB 126	10	10	10	10	0,70	7,0	31	1
PCB 169	10	10	10	10	0,58	6,0	31	1
PCB 81	10	10	10	10	0,56	5,6	31	1
PCB 105	100	99	99	99	4,5	4,6	30	0
PCB 114	100	100	100	100	4,7	4,7	30	0
PCB 118	100	101	101	100	5,4	5,3	30	0
PCB 123	100	101	101	101	3,6	3,5	30	0
PCB 156	100	99	99	99	4,1	4,1	30	0
PCB 157	100	98	98	98	5,1	5,1	30	0
PCB 167	100	98	98	99	6,6	6,7	30	0
PCB 189	100	99	99	98	6,7	6,8	30	0

Consensus statistics

2025

Analyte solution

	Target value pg/μl	Median, pg/μl all values	Median, pg/μl outliers removed	Mean, pg/μl all values	Mean, pg/μl outliers removed
PCB-28	100	101	101	102	102
PCB-52	100	100	100	100	100
PCB-101	100	101	101	100	100
PCB-138	100	102	102	102	102
PCB-153	100	101	101	101	101
PCB-180	100	101	101	101	101
PBDE-28	25	25	25	25	25
PBDE-47	25	24	24	25	25
PBDE-99	25	25	25	25	25
PBDE-100	25	25	25	25	25
PBDE-153	25	25	25	25	25
PBDE-154	25	24	24	25	25
PBDE-183	25	24	24	24	24
PBDE-209	100	96	96	96	96
α-HBCD *	500	499	499	504	504

	Relative standard deviation, % all values	Relative standard deviation, % outliers removed	No. of values reported values	No. of reported outliers
PCB-28	7,5	7,5	28	0
PCB-52	7,8	7,8	28	0
PCB-101	7,9	7,9	28	0
PCB-138	8,4	8,4	28	0
PCB-153	7,2	7,2	28	0
PCB-180	6,8	6,8	28	0
PBDE-28	6,0	6,0	17	0
PBDE-47	5,4	5,4	17	0
PBDE-99	8,3	8,3	17	0
PBDE-100	8,7	8,7	17	0
PBDE-153	8,1	8,1	17	0
PBDE-154	9,5	9,5	17	0
PBDE-183	13	13	17	0
PBDE-209	8,8	8,8	16	0
α-HBCD*	3,8	3,8	3	0

*: Indicative value due to few reported values

2025

Consensus statistics

Fish oil, fresh weight

	Consensus median, pg/g	Median all values pg/g	Consensus mean, pg/g	Standard deviation, pg/g	Relative standard deviation, %	No. of values reported	No. of values removed	No. of reported non-detects
2,3,7,8-TCDD	0,12	0,12	0,12	0,030	24	35	1	3
1,2,3,7,8-PeCDD	0,46	0,46	0,47	0,073	16	35	0	1
1,2,3,4,7,8-HxCDD	0,084	0,090	0,088	0,039	44	35	4	10
1,2,3,6,7,8-HxCDD	0,32	0,32	0,32	0,052	16	35	0	1
1,2,3,7,8,9-HxCDD	0,079	0,080	0,084	0,032	37	35	2	10
1,2,3,4,6,7,8-HpCDD	0,16	0,16	0,16	0,054	33	35	1	7
1,2,3,4,6,7,8,9-OCDD	0,20	0,26	0,24	0,14	59	35	6	12
2,3,7,8-TCDF	6,1	6,1	6,0	0,71	12	35	0	1
1,2,3,7,8-PeCDF	0,74	0,74	0,75	0,10	13	35	0	1
2,3,4,7,8-PeCDF	2,7	2,7	2,7	0,53	19	35	2	1
1,2,3,4,7,8-HxCDF	0,17	0,17	0,18	0,040	22	35	0	1
1,2,3,6,7,8-HxCDF	0,25	0,26	0,25	0,043	17	35	1	1
2,3,4,6,7,8-HxCDF	0,29	0,29	0,30	0,060	20	35	0	2
1,2,3,7,8,9-HxCDF	0,027	0,036	0,030	0,018	60	35	10	22
1,2,3,4,6,7,8-HpCDF	0,10	0,10	0,11	0,041	36	35	3	7
1,2,3,4,7,8,9-HpCDF	0,027	0,041	0,029	0,019	64	35	9	26
1,2,3,4,6,7,8,9-OCDF	0,097	0,15	0,11	0,085	77	35	8	22
PCB-77	53	53	54	6,9	13	35	0	0
PCB-126	23	23	24	7,2	30	35	0	0
PCB-169	11	11	11	1,1	10	35	0	0
PCB-81	1,6	1,7	1,6	0,44	27	35	4	2
PCB-105	1700	1700	1661	181	11	35	0	0
PCB-114	104	104	107	23	21	35	0	1
PCB-118	5070	5070	5125	822	16	35	0	0
PCB-123	53	56	56	19	35	35	3	2
PCB-156	381	381	381	42	11	35	0	0
PCB-157	120	120	121	14	12	35	0	0
PCB-167	221	221	227	32	14	35	0	0
PCB-189	31	31	32	5,3	16	35	0	1

Consensus statistics

2025

Fish oil, fresh weight

	Median, pg/g all values	Median, pg/g outliers removed	Median, pg/g outliers and NDs removed	Mean, pg/g all values	Mean, pg/g outliers removed	Mean, pg/g outliers and NDs removed
PCB-28	1574	1560	1574	1703	1641	1662
PCB-52	4495	4495	4495	4420	4420	4420
PCB-101	6530	6530	6530	6505	6505	6505
PCB-138	6782	6782	6782	6693	6693	6693
PCB-153	9719	9719	9719	9469	9469	9469
PCB-180	2047	2047	2047	1979	1979	1979
PBDE-28	111	110	110	113	104	104
PBDE-47	1595	1594	1594	1711	1590	1590
PBDE-99	111	111	111	116	116	116
PBDE-100	344	344	344	353	353	353
PBDE-153	29	28	28	32	30	30
PBDE-154	296	295	295	323	298	298
PBDE-183	4,5	4,3	3,7	8,3	4,6	4,5
PBDE-209	30	26	26	198	23	23
α -HBCD *	1346	1346	1405	953	953	1405
β -HBCD *	4,1	2,6	**	18	2,6	**
γ -HBCD *	5,3	3,2	5,3	19	3,2	5,3
Total HBCD *	757	757	1464	757	757	1464

	Relative standard deviation, % all values	Relative standard deviation, % outliers removed	Relative standard deviation, % outliers and NDs removed	No. of values reported	No. of reported outliers	No. of reported NDs
PCB-28	37	33	32	32	1	1
PCB-52	22	22	22	32	0	0
PCB-101	23	23	23	32	0	0
PCB-138	24	24	24	32	0	0
PCB-153	22	22	22	32	0	0
PCB-180	25	25	25	32	0	0
PBDE-28	40	27	27	16	1	0
PBDE-47	29	8,2	8,2	16	1	0
PBDE-99	26	26	26	16	0	0
PBDE-100	24	24	24	16	0	0
PBDE-153	26	15	15	16	1	0
PBDE-154	40	27	27	16	1	0
PBDE-183	180	36	40	16	1	4
PBDE-209	215	57	57	15	6	3
α -HBCD*	82	82	5,9	3	0	1
β -HBCD*	149	86	**	3	1	3
γ -HBCD*	144	97	**	3	1	2
Total HBCD*	132	132	**	2	0	1

NDs: Non-detects

*: Indicative value due to few reported values

**: Not possible to calculate results due to few reported results

2025

Consensus statistics

Salmon, fresh weight

	Consensus median, pg/g	Median all values pg/g	Consensus mean, pg/g	Standard deviation, pg/g	Relative standard deviation, %	No. of values reported	No. of values removed	No. of reported non-detects
2,3,7,8-TCDD	0,0060	0,0080	0,0069	0,0033	48	37	13	15
1,2,3,7,8-PeCDD	0,0096	0,013	0,011	0,0045	40	37	11	15
1,2,3,4,7,8-HxCDD	0,0050	0,0079	0,0055	0,0032	58	37	13	22
1,2,3,6,7,8-HxCDD	0,0080	0,011	0,0092	0,0043	47	37	12	17
1,2,3,7,8,9-HxCDD	0,0038	0,0064	0,0045	0,0024	54	37	14	26
1,2,3,4,6,7,8-HpCDD	0,023	0,029	0,027	0,012	45	37	10	13
1,2,3,4,6,7,8,9-OCDD	0,042	0,057	0,049	0,025	51	37	12	13
2,3,7,8-TCDF	0,17	0,17	0,18	0,050	28	37	2	2
1,2,3,7,8-PeCDF	0,019	0,024	0,022	0,0077	35	37	8	7
2,3,4,7,8-PeCDF	0,037	0,040	0,040	0,013	32	37	6	6
1,2,3,4,7,8-HxCDF	0,0060	0,0080	0,0067	0,0021	31	37	14	17
1,2,3,6,7,8-HxCDF	0,0060	0,0080	0,0068	0,0028	41	37	12	16
2,3,4,6,7,8-HxCDF	0,0077	0,0091	0,0078	0,0036	46	37	13	16
1,2,3,7,8,9-HxCDF	0,0031	0,0045	0,0034	0,0018	54	37	15	27
1,2,3,4,6,7,8-HpCDF	0,010	0,016	0,013	0,0069	55	37	10	14
1,2,3,4,7,8,9-HpCDF	0,0050	0,0070	0,0052	0,0033	63	37	12	27
1,2,3,4,6,7,8,9-OCDF	0,012	0,023	0,017	0,011	67	37	12	22
PCB-77	5,4	5,4	5,6	1,5	27	37	0	0
PCB-126	1,2	1,2	1,3	0,38	31	37	0	2
PCB-169	0,28	0,28	0,28	0,095	34	37	2	7
PCB-81	0,18	0,20	0,19	0,067	35	37	6	5
PCB-105	61	61	60	11	18	37	0	0
PCB-114	3,6	3,6	3,7	1,2	31	37	2	3
PCB-118	195	195	198	38	19	37	0	0
PCB-123	2,6	2,8	2,8	1,1	41	37	6	5
PCB-156	16	16	16	3,4	21	37	0	1
PCB-157	5,2	5,2	5,2	1,3	24	37	0	2
PCB-167	12	12	12	2,8	23	37	0	1
PCB-189	1,6	1,6	1,6	0,37	23	37	3	5

Consensus statistics

2025

Salmon, fresh weight

	Median, pg/g all values	Median, pg/g outliers removed	Median, pg/g outliers and NDs removed	Mean, pg/g all values	Mean, pg/g outliers removed	Mean, pg/g outliers and NDs removed
PCB-28	71	71	71	85	76	74
PCB-52	183	183	183	175	175	175
PCB-101	289	289	289	288	288	288
PCB-138	304	304	304	311	311	311
PCB-153	461	461	461	461	461	461
PCB-180	99	99	98	101	101	101
PBDE-28	3,7	3,6	3,6	5,7	3,9	3,9
PBDE-47	63	63	63	71	63	63
PBDE-99	11	11	11	16	11	11
PBDE-100	16	16	16	18	18	18
PBDE-153	3,5	3,4	3,4	3,5	3,3	3,3
PBDE-154	17	16	16	18	17	17
PBDE-183	0,89	0,86	0,77	1,0	0,80	0,76
PBDE-209	31	18	22	63	25	27
α -HBCD *	39	31	31	359	32	32
β -HBCD *	13	1,0	**	56	8,5	**
γ -HBCD *	10	3,0	3,0	55	7,2	3,0
Total HBCD *	47	41	41	474	41	41

	Relative standard deviation, % all values	Relative standard deviation, % outliers removed	Relative standard deviation, % outliers and NDs removed	No. of values reported	No. of reported outliers	No. of reported NDs
PCB-28	67	31	31	33	1	2
PCB-52	24	24	24	33	0	0
PCB-101	22	22	22	33	0	0
PCB-138	28	28	28	33	0	0
PCB-153	24	24	24	33	0	0
PCB-180	27	27	27	33	0	2
PBDE-28	130	27	27	18	1	0
PBDE-47	40	28	28	18	2	0
PBDE-99	77	22	22	18	3	0
PBDE-100	31	31	31	18	0	0
PBDE-153	39	27	27	18	1	0
PBDE-154	32	24	24	18	1	0
PBDE-183	63	37	34	18	2	4
PBDE-209	160	69	64	16	3	1
α -HBCD*	182	44	44	4	1	0
β -HBCD*	171	159	**	4	1	4
γ -HBCD*	175	132	**	4	1	3
Total HBCD*	158	22	22	3	1	0

NDs: Non-detects

*: Indicative value due to few reported values

** : Not possible to calculate results due to few reported results

Consensus statistics

2025

Lamb, fresh weight

	Consensus median, pg/g	Median all values pg/g	Consensus mean, pg/g	Standard deviation, pg/g	Relative standard deviation, %	No. of values reported	No. of values removed	No. of reported non-detects
2,3,7,8-TCDD	0,0030	0,0034	0,0034	0,0013	37	27	7	15
1,2,3,7,8-PeCDD	0,0066	0,0070	0,0065	0,0022	34	27	8	11
1,2,3,4,7,8-HxCDD	0,0060	0,0070	0,0068	0,0023	33	27	6	10
1,2,3,6,7,8-HxCDD	0,0080	0,0083	0,0083	0,0031	38	27	6	8
1,2,3,7,8,9-HxCDD	0,0037	0,0049	0,0039	0,0019	49	27	7	15
1,2,3,4,6,7,8-HpCDD	0,021	0,023	0,022	0,0074	33	27	6	5
1,2,3,4,6,7,8,9-OCDD	0,044	0,063	0,050	0,022	45	27	5	8
2,3,7,8-TCDF	0,0050	0,0079	0,0061	0,0034	55	27	8	11
1,2,3,7,8-PeCDF	0,0035	0,0049	0,0039	0,0020	53	27	7	14
2,3,4,7,8-PeCDF	0,016	0,016	0,015	0,0048	32	27	4	6
1,2,3,4,7,8-HxCDF	0,012	0,013	0,012	0,0024	20	27	6	6
1,2,3,6,7,8-HxCDF	0,0070	0,0074	0,0075	0,0024	32	27	6	6
2,3,4,6,7,8-HxCDF	0,0061	0,0066	0,0068	0,0026	38	27	5	7
1,2,3,7,8,9-HxCDF	0,0028	0,0040	0,0029	0,0017	61	27	9	17
1,2,3,4,6,7,8-HpCDF	0,013	0,016	0,014	0,0063	46	27	5	6
1,2,3,4,7,8,9-HpCDF	0,0041	0,0050	0,0043	0,0029	68	27	7	19
1,2,3,4,6,7,8,9-OCDF	0,014	0,020	0,017	0,010	58	27	6	16
PCB-77	0,76	0,77	0,76	0,14	18	27	4	2
PCB-126	0,15	0,16	0,15	0,033	22	27	5	4
PCB-169	0,080	0,085	0,081	0,019	24	27	6	6
PCB-81	0,030	0,034	0,030	0,0079	26	27	8	8
PCB-105	16	16	16	3,7	23	27	1	0
PCB-114	1,2	1,3	1,3	0,34	27	27	4	4
PCB-118	41	41	41	6,2	15	27	1	0
PCB-123	0,38	0,40	0,40	0,14	36	27	5	6
PCB-156	12	12	12	1,5	13	27	2	0
PCB-157	1,9	1,9	2,0	0,42	21	27	2	2
PCB-167	2,6	2,8	2,9	0,83	29	27	2	1
PCB-189	1,2	1,2	1,3	0,25	19	27	3	4

Consensus statistics

2025

Lamb, fresh weight

	Median, pg/g all values	Median, pg/g outliers removed	Median, pg/g outliers and NDs removed	Mean, pg/g all values	Mean, pg/g outliers removed	Mean, pg/g outliers and NDs removed
PCB-28	19	19	19	27	19	19
PCB-52	34	34	34	39	34	34
PCB-101	45	44	44	49	44	44
PCB-138	65	65	65	67	67	64
PCB-153	148	148	148	144	144	144
PCB-180	61	61	61	63	63	60
PBDE-28	0,22	0,13	0,13	0,87	0,16	0,15
PBDE-47	2,8	2,5	2,2	4,9	2,5	2,3
PBDE-99	2,7	2,7	2,7	4,3	3,0	3,0
PBDE-100	1,3	1,1	1,0	1,7	1,2	1,1
PBDE-153	2,0	1,9	1,9	2,5	2,2	2,2
PBDE-154	0,84	0,82	0,82	1,1	0,83	0,88
PBDE-183	1,2	1,0	1,0	1,7	1,1	1,1
PBDE-209	25	14	14	55	11	11
α -HBCD *	19	19	19	19	19	19
β -HBCD *	10	10	**	10	10	**
γ -HBCD *	9,0	9,0	**	9,0	9,0	**
Total HBCD *	19	19	19	19	19	19

	Relative standard deviation, % all values	Relative standard deviation, % outliers removed	Relative standard deviation, % outliers and NDs removed	No. of values reported	No. of reported outliers	No. of reported NDs
PCB-28	89	37	38	24	3	3
PCB-52	53	27	27	24	2	2
PCB-101	41	30	30	24	2	2
PCB-138	31	31	30	24	0	2
PCB-153	26	26	26	24	0	0
PCB-180	32	32	29	24	0	2
PBDE-28	234	64	53	14	4	3
PBDE-47	169	52	54	14	2	1
PBDE-99	110	40	40	14	1	0
PBDE-100	93	37	34	14	2	1
PBDE-153	55	31	31	14	1	0
PBDE-154	94	41	33	14	1	2
PBDE-183	70	37	37	14	3	0
PBDE-209	141	72	72	13	6	1
α -HBCD*	125	125	125	2	0	0
β -HBCD*	127	127	**	2	0	2
γ -HBCD*	126	126	**	2	0	2
Total HBCD*	125	125	125	2	0	0

NDs: Non-detects

*: Indicative value due to few reported values

** : Not possible to calculate results due to few reported results

Consensus statistics

Halibut PFAS, fresh weight

	Median, pg/g all values	Median, pg/g outliers removed	Median, pg/g outliers and NDs removed	Mean, pg/g all values	Mean, pg/g outliers removed	Mean, pg/g outliers and NDs removed
PFOS - All reported	248	241	241	307	254	254
PFOS - Sum	250	234	234	330	250	250
PFOS - Linear*	241	241	241	261	261	261
PFHxS*	18	7	6	127	12	7
PFOA *	20	12	12	91	16	17
PFNA	31	28	28	111	31	31
PFDA	53	52	52	115	56	53
PFUnDA	206	203	203	266	198	198

	Relative standard deviation, % all values	Relative standard deviation, % outliers removed	Relative standard deviation, % outliers and NDs removed	No. of reported values	No. of outliers	No. of reported NDs
PFOS - All reported	57	37	37	15	2	2
PFOS - Sum	62	41	41	10	2	2
PFOS - Linear*	36	36	36	5	0	0
PFHxS*	188	64	42	14	5	7
PFOA *	224	71	82	15	5	9
PFNA	186	32	24	15	4	4
PFDA	168	29	20	15	2	4
PFUnDA	71	26	26	15	2	1

NDs: Non-detects

*: Indicative value due to few reported values

Laboratories' reported TEQs, sum indicator PCB and sum PBDE without PBDE 209

TEF2024	Median pg/g	Mean pg/g	Standard deviation, pg/g	Relative standard deviation, %	Min pg/g	Max pg/g	Reporting laboratories
Fish oil, fresh weight							
PCDD/PCDF TEQ	1,2	2,2	0,15	7	0,88	1,7	35
Non-ortho PCB TEQ	1,2	1,3	0,36	28	0,11	2,3	35
Mono-ortho PCB TEQ	0,23	0,23	0,033	14	0,17	0,36	35
Total TEQ	2,7	2,7	0,40	15	1,6	3,9	35
Sum indicator PCB	31304	30768	6718	22	26	43075	32
Sum PBDE without PBDE-209	2448	2657	763	29	2021	5373	16
Salmon, fresh weight							
PCDD/PCDF TEQ	0,042	0,18	0,41	228	0,020	2,5	37
Non-ortho PCB TEQ	0,065	0,068	0,020	30	0,013	0,12	37
Mono-ortho PCB TEQ	0,0091	0,0091	0,0016	18	0,0045	0,013	37
Total TEQ	0,12	0,23	0,41	180	0,051	2,6	37
Sum indicator PCB	1392	1421	336	24	1	1962	33
Sum PBDE without PBDE-209	117	133	50	38	77	248	18
Lamb, fresh weight							
PCDD/PCDF TEQ	0,019	0,12	0,37	295	0,012	1,9	27
Non-ortho PCB TEQ	0,0088	0,052	0,19	353	0,0053	0,97	27
Mono-ortho PCB TEQ	0,0023	0,0027	0,0017	61	0,0017	0,010	27
Total TEQ	0,030	0,17	0,55	333	0,022	2,9	27
Sum indicator PCB	382	390	121	31	0	660	24
Sum PBDE without PBDE-209	12	17	17	98	4,8	69	14

Laboratories' reported TEQs, sum indicator PCB and sum PBDE without PBDE 209

TEF2006	Median pg/g	Mean pg/g	Standard deviation, pg/g	Relative standard deviation, %	Min pg/g	Max pg/g	Reporting laboratories
Fish oil, fresh weight							
PCDD/PCDF TEQ	2,2	2,2	0,36	16	1,3	3,5	35
Non-ortho PCB TEQ	2,6	2,8	0,73	27	0,42	4,7	35
Mono-ortho PCB TEQ	0,23	0,23	0,033	14	0,17	0,36	35
Total TEQ	5,1	5,2	0,82	16	3,0	7,5	35
Sum indicator PCB	31304	30768	6718	22	26	43075	32
Sum PBDE without PBDE-209	2448	2657	763	29	2021	5373	16
Salmon, fresh weight							
PCDD/PCDF TEQ	0,060	0,18	0,43	239	0,027	2,6	37
Non-ortho PCB TEQ	0,13	0,14	0,042	31	0,028	0,26	37
Mono-ortho PCB TEQ	0,0091	0,0091	0,0016	18	0,0045	0,013	37
Total TEQ	0,20	0,33	0,44	135	0,079	2,8	37
Sum indicator PCB	1392	1421	336	24	1	1962	33
Sum PBDE without PBDE-209	117	133	50	38	77	248	18
Lamb, fresh weight							
PCDD/PCDF TEQ	0,023	0,12	0,42	338	0,014	2,2	27
Non-ortho PCB TEQ	0,018	0,12	0,42	360	0,011	2,2	27
Mono-ortho PCB TEQ	0,0023	0,0027	0,0017	61	0,0017	0,010	27
Total TEQ	0,045	0,24	0,84	345	0,034	4,4	27
Sum indicator PCB	382	390	121	31	0	660	24
Sum PBDE without PBDE-209	12	17	17	98	4,8	69	14

Laboratories' Z-scores: Analyte solution

LAB CODE	Sum TE Total TEQ	Sum TE PCDD/PCDF	Sum TE non-ortho PCB	Sum TE mono-orto PCB	Sum Indicator PCB	Sum PBDE Sum with 209	Sum PBDE Sum without 209
1							
2							
3	-1,1	-0,95	-2,9	-0,45	-0,19	-0,21	-0,36
4	-1,1	-0,91	-2,6	-0,047	-0,13	-0,010	0,11
5							
6	-0,99	-0,82	-2,6	0,034	-0,013		
7							
8							
9							
10							
11	-1,3	-1,2	-2,6	0,028	0,10	0,18	0,24
12							
13							
14	-1,1	-0,98	-2,7	-0,10	0,12		
15							
16							
17							
18	-0,78	-0,59	-2,6	-0,39	-1,1		
19							
20	-1,1	-0,96	-2,8	0,015		-0,41	-0,21
21							
22	-1,1	-0,95	-2,4	-0,020	0,057	0,064	-0,015
23							
24							
25							
26							
27							
28	-1,3	-1,2	-2,8	-0,16	-0,19	1,2	1,2
29							
30	-1,4	-1,3	-2,8	-0,39	-0,38		
31							
32	-1,4	-1,2	-2,8	-0,13	0,23		
33							
34							
35	-1,3	-1,2	-2,8	0,046	-0,28	-2,0	-0,27
36							
37							
38							
39	-1,1	-0,91	-2,7	-0,16	-0,10	0,25	0,38
40	-1,3	-1,2	-2,6	-0,15	0,23		
41							
42							
43	-0,80	-0,65	-2,3	0,12	0,13	-0,055	-0,042
44							
45	-1,3	-1,1	-2,6	0,073	-0,0052		
46							
47							
48	34	36	17				
49							
50							
51							
52							
53							
54	-1,2	-1,0	-2,7	-0,054	0,18		
55							
56							
57							
58	-1,2	-1,0	-2,7	-0,11	0,14		
59							
60							
61							
62	-1,1	-1,0	-2,4	-0,015	0,061	0,046	-0,052
63							
64							
65	-1,1	-0,95	-2,6	0,0094	0,12		
66							
67							
68							
69							
70							

Laboratories' Z-scores: Analyte solution (continued)

LAB CODE	Sum TE Total TEQ	Sum TE PCDD/PCDF	Sum TE non-ortho PCB	Sum TE mono-orto PCB	Sum Indicator PCB	Sum PBDE Sum with 209	Sum PBDE Sum without 209
71							
72							
73							
74							
75							
76	-0,64	-0,42	-2,7	-0,062		0,12	0,026
77							
78							
79	-1,7	-1,5	-2,7	0,56	0,35	-0,32	-0,36
80	-1,2	-1,0	-2,4	-0,10	0,26	0,10	0,11
81							
82							
83							
84	-1,1	-0,98	-2,6	0,0026	-0,040		
85							
86	-1,2	-1,1	-2,7	-0,047	-0,10		
87							
88							
89							
90	-1,3	-1,1	-2,8	-0,16	-0,41	-0,31	-0,33
91							
92							
93	-1,2	-1,0	-2,8	0,19	-0,054	-0,44	-0,30
94							
95							
96							
97							
98	-1,1	-1,0	-2,8	0,085	-0,10		
99							
100	-1,1	-1,0	-2,4	0,36	1,1	0,11	0,26
101							
102							
103							
104							
105							
106	-0,74	-0,54	-2,7	-0,067	0,11	0,035	0,064
107							
108							
109							
110							
111							
112							
113							
114							
115							
116							
117							
118							
119							
120							

Laboratories' Z-scores: Fish oil, fresh weight							
LAB CODE	Sum TE Total TEQ	Sum TE PCDD/PCDF	Sum TE non-ortho PCB	Sum TE mono-orto PCB	Sum Indicator PCB	Sum PBDE Sum with 209	Sum PBDE Sum without 209
1							
2							
3	-0,13	-0,37	0,015	0,29	0,29	5,8	5,8
4	-0,083	0,42	-0,42	-0,81	0,090	-0,087	-0,091
5							
6	2,5	0,46	4,3	2,9	1,9		
7	0,16	-0,020	0,32	0,25	0,23		
8							
9							
10							
11	-0,031	-0,12	0,018	0,14	0,083	1,4	0,68
12							
13							
14	0,71	1,3	0,28	0,031	0,25	-0,13	-0,40
15	0,93	0,18	1,9	-0,35	-5,0		
16							
17							
18	-0,46	0,086	-0,89	-0,93	-0,81		
19							
20	0,074	0,37	-0,22	0,14		0,36	-0,39
21							
22	0,87	-0,0076	1,9	-0,10	0,0054	-0,052	-0,061
23							
24							
25	0,0061	0,042	-0,056	0,15	-0,67		
26							
27							
28	0,33	1,4	-0,53	-0,42	-0,54	0,16	0,21
29							
30	-0,20	0,28	-0,44	-1,3	-0,64		
31							
32	-0,32	-0,41	-0,36	0,32	0,20		
33							
34							
35							
36							
37							
38							
39	-2,0	0,24	-4,5	0,21	1,6	3,7	0,40
40	1,1	2,2	0,17	0,17	0,38		
41							
42							
43	0,63	0,95	0,48	-0,23	-0,19	-0,63	-0,62
44							
45	-0,015	-0,065	0,0058	0,13	0,089		
46							
47							
48	0,24	0,25	0,018	1,4	1,2	-0,88	-0,94
49							
50							
51							
52	0,19	-0,082	0,35	0,74	0,22		
53							
54	-0,32	-0,042	-0,56	-0,45	-0,13		
55							
56							
57							
58	-0,32	-0,024	-0,58	-0,41	-0,17		
59							
60							
61							
62	0,99	-0,050	2,2	-0,087	-0,041	-0,043	-0,051
63							
64							
65	-0,33	-0,36	-0,34	-0,12	0,028		
66							
67							
68							
69							
70	-0,33	-0,0012	-0,54	-0,89	-0,34		

Laboratories' Z-scores: Fish oil, fresh weight (continued)

LAB CODE	Sum TE Total TEQ	Sum TE PCDD/PCDF	Sum TE non-ortho PCB	Sum TE mono-orto PCB	Sum Indicator PCB	Sum PBDE Sum with 209	Sum PBDE Sum without 209
71	0,37	1,2	-0,53	0,80			
72							
73							
74							
75							
76	0,13	-0,31	0,53	0,21	0,022	-0,051	-0,15
77							
78							
79							
80							
81	1,4	-0,31	3,3	-0,035	-0,23	-0,15	-0,12
82	0,55	0,60	0,61	-0,028	-0,14		
83							
84							
85							
86							
87	0,26	0,21	0,37	-0,11	0,043		
88							
89							
90							
91							
92							
93	1,5	-0,19	3,2	0,41	0,034	-0,27	-0,27
94							
95							
96							
97							
98							
99	-0,87	-1,2	-0,66	-0,30	-0,52		
100	-0,055	0,13	-0,24	-0,00081	-0,067	0,70	0,75
101	1,0	1,2	0,80	0,74	0,88	0,72	0,75
102							
103							
104							
105							
106	-0,26	-0,37	-0,057	-0,72			
107							
108							
109							
110							
111							
112							
113							
114							
115							
116							
117							
118							
119							
120							

Laboratories' Z-scores: Fish oil, lipid weight							
LAB CODE	Sum TE Total TEQ	Sum TE PCDD/PCDF	Sum TE non-ortho PCB	Sum TE mono-orto PCB	Sum Indicator PCB	Sum PBDE Sum with 209	Sum PBDE Sum without 209
1							
2							
3	-0,13	-0,37	0,015	0,29	0,29	5,8	5,8
4	-0,083	0,42	-0,42	-0,81	0,090	-0,087	-0,091
5							
6	2,5	0,46	4,3	2,9	1,9		
7	0,16	-0,020	0,32	0,25	0,23		
8							
9							
10							
11	-0,025	-0,11	0,024	0,15	0,090	1,4	0,69
12							
13							
14	0,71	1,3	0,28	0,031	0,25	-0,13	-0,40
15	0,93	0,18	1,9	-0,35	-5,0		
16							
17							
18	-0,16	0,42	-0,62	-0,67	-0,53		
19							
20	0,074	0,37	-0,22	0,14		0,36	-0,39
21							
22	0,87	-0,0076	1,9	-0,10	0,0054	-0,052	-0,061
23							
24							
25	0,0061	0,042	-0,056	0,15	-0,67		
26							
27							
28	0,33	1,4	-0,53	-0,42	-0,54	0,16	0,21
29							
30	-0,20	0,28	-0,44	-1,3	-0,63		
31							
32	-0,32	-0,41	-0,36	0,32	0,20		
33							
34							
35							
36							
37							
38							
39	-2,0	0,24	-4,5	0,21	1,6	3,7	0,40
40	1,1	2,2	0,17	0,17	0,39		
41							
42							
43	0,63	0,95	0,48	-0,23	-0,19	-0,63	-0,62
44							
45							
46							
47							
48	0,27	0,28	0,047	1,4	1,3	-0,86	-0,91
49							
50							
51							
52	0,19	-0,082	0,35	0,74	0,22		
53							
54	-0,32	-0,042	-0,56	-0,45	-0,13		
55							
56							
57							
58	-0,32	-0,024	-0,58	-0,41	-0,17		
59							
60							
61							
62	0,99	-0,050	2,2	-0,087	-0,041	-0,043	-0,051
63							
64							
65	-0,33	-0,36	-0,34	-0,12	0,028		
66							
67							
68							
69							
70	-0,33	-0,0012	-0,54	-0,89	-0,34		

Laboratories' Z-scores: Fish oil, lipid weight (continued)

LAB CODE	Sum TE Total TEQ	Sum TE PCDD/PCDF	Sum TE non-ortho PCB	Sum TE mono-orto PCB	Sum Indicator PCB	Sum PBDE Sum with 209	Sum PBDE Sum without 209
71							
72							
73							
74							
75							
76							
77							
78							
79	0,13	-0,31	0,53	0,21	0,022	-0,051	-0,15
80	1,4	-0,31	3,3	-0,035	-0,23	-0,15	-0,12
81							
82							
83							
84	0,55	0,60	0,61	-0,028	-0,14		
85							
86							
87							
88							
89							
90							
91							
92							
93	1,5	-0,19	3,2	0,41	0,034	-0,27	-0,27
94							
95							
96							
97							
98	-0,87	-1,2	-0,66	-0,30	-0,52		
99							
100	-0,055	0,13	-0,24	-0,00081	-0,067	0,70	0,75
101							
102							
103							
104							
105							
106	1,0	1,2	0,80	0,74	0,88	0,72	0,75
107							
108	-0,26	-0,37	-0,057	-0,72			
109							
110							
111							
112							
113							
114							
115							
116							
117							
118							
119							
120							

Laboratories' Z-scores: Salmon, fresh weight							
LAB CODE	Sum TE Total TEQ	Sum TE PCDD/PCDF	Sum TE non-ortho PCB	Sum TE mono-orto PCB	Sum Indicator PCB	Sum PBDE Sum with 209	Sum PBDE Sum without 209
1							
2							
3	-0,24	-0,46	-0,22	0,48	0,85	4,0	5,0
4	-0,47	-0,37	-0,50	-0,59	0,31	0,86	-0,13
5							
6	23	67	3,5	0,20	0,16		
7	13	44	0,087	-0,015	-0,35		
8							
9							
10							
11	-0,39	-0,13	-0,52	-0,43	-0,35	13	-0,22
12							
13							
14	3,2	9,5	0,39	0,92	1,0	1,9	0,20
15	-2,6	-1,9	-3,0	-2,5	-5,0		
16							
17							
18	5,7	18	0,40	-0,11	-0,092		
19							
20							
21							
22	0,36	0,12	0,52	0,032	-0,11	0,080	0,32
23							
24							
25	0,18	1,8	-0,56	-0,22	-0,93		
26							
27							
28	0,18	1,2	-0,34	0,14	-0,21	-0,45	0,41
29							
30	5,1	17	-0,17	-0,89	-0,051		
31							
32	-1,1	-1,1	-1,1	-0,36	-0,19		
33							
34							
35	0,18	0,58	0,014	-0,077	0,45	4,2	5,9
36							
37							
38							
39	2,6	5,2	1,5	0,61	2,0	11	4,2
40	0,064	0,038	0,052	0,24	0,46		
41							
42							
43	-0,21	1,0	-0,71	-1,0	-0,80	-0,56	-1,3
44							
45							
46							
47							
48	7,2	26	-1,4	0,17	-0,40	-1,2	-1,3
49							
50							
51							
52	0,10	7,8	-4,0	1,6	0,74		
53							
54	-0,66	-0,69	-0,68	-0,47	-0,14		
55							
56							
57							
58	-0,67	-0,63	-0,72	-0,47	-0,12		
59							
60							
61							
62	0,11	0,26	-0,0043	0,41	0,27	-0,15	0,080
63							
64							
65	0,46	1,5	-0,00070	0,13	0,51		
66							
67							
68							
69							
70	13	33	4,6	0,70	0,93		

Laboratories' Z-scores: Salmon, fresh weight (continued)

LAB CODE	Sum TE Total TEQ	Sum TE PCDD/PCDF	Sum TE non-ortho PCB	Sum TE mono-orto PCB	Sum Indicator PCB	Sum PBDE Sum with 209	Sum PBDE Sum without 209
71							
72							
73							
74	2,7	5,5	1,3	2,4			
75							
76	118	386	0,55	0,31		3,1	2,8
77							
78							
79	0,53	0,27	0,62	0,77	0,69	0,70	0,0037
80	1,3	-0,89	2,5	-0,17	-0,31	-1,2	-0,46
81							
82							
83							
84	0,87	2,8	0,045	-0,30	-0,29		
85							
86	10	32	1,1	1,7	1,9		
87							
88							
89							
90	0,96	2,6	0,089	1,2	1,3	1,1	1,1
91							
92							
93	2,7	2,2	3,2	-0,092	-0,44	0,52	-0,76
94							
95							
96							
97							
98	6,5	21	-0,034	0,10	0,49		
99							
100	0,48	0,71	0,35	0,60	1,3	0,35	1,1
101							
102							
103	-0,22	-0,53	-0,064	-0,21			
104							
105							
106	6,0	16	2,3	-2,1	-1,7	-2,0	-1,6
107							
108	0,21	-0,11	0,35	0,31			
109							
110							
111							
112							
113							
114							
115							
116							
117							
118							
119							
120							

Laboratories' Z-scores: Salmon, lipid weight

LAB CODE	Sum TE Total TEQ	Sum TE PCDD/PCDF	Sum TE non-ortho PCB	Sum TE mono-orto PCB	Sum Indicator PCB	Sum PBDE Sum with 209	Sum PBDE Sum without 209
1							
2							
3	-0,47	-0,69	-0,46	0,20	0,55	3,5	4,5
4	-0,47	-0,37	-0,50	-0,59	0,31	0,86	-0,13
5							
6	21	62	3,0	-0,13	-0,17		
7	12	39	-0,46	-0,55	-0,85		
8							
9							
10							
11	0,35	0,66	0,20	0,31	0,39	16	0,54
12							
13							
14	3,2	9,5	0,39	0,92	1,0	1,9	0,20
15							
16							
17							
18	5,5	17	0,29	-0,21	-0,19		
19							
20							
21							
22	1,3	1,1	1,5	0,95	0,79	1,0	1,3
23							
24							
25	0,94	2,8	0,093	0,48	-0,34		
26							
27							
28	-0,088	0,90	-0,58	-0,13	-0,45	-0,69	0,13
29							
30	4,7	16	-0,34	-1,0	-0,22		
31							
32	-0,23	-0,28	-0,32	0,63	0,84		
33							
34							
35	0,61	1,0	0,44	0,34	0,90	4,9	6,8
36							
37							
38							
39	2,4	4,9	1,3	0,44	1,8	11	3,9
40	0,028	0,0027	0,017	0,20	0,42		
41							
42							
43	1,0	2,5	0,39	0,078	0,28	0,58	-0,40
44							
45							
46							
47							
48	10	34	-0,55	1,4	0,68	-0,33	-0,42
49							
50							
51							
52	-0,048	7,5	-4,0	1,4	0,58		
53							
54	-0,26	-0,29	-0,28	-0,047	0,31		
55							
56							
57							
58	-0,12	-0,080	-0,18	0,10	0,50		
59							
60							
61							
62	0,42	0,57	0,29	0,73	0,58	0,14	0,38
63							
64							
65	0,32	1,3	-0,12	0,0049	0,37		
66							
67							
68							
69							
70							

Laboratories' Z-scores: Salmon, lipid weight (continued)

LAB CODE	Sum TE Total TEQ	Sum TE PCDD/PCDF	Sum TE non-ortho PCB	Sum TE mono-orto PCB	Sum Indicator PCB	Sum PBDE Sum with 209	Sum PBDE Sum without 209
71							
72							
73							
74	1,3	3,6	0,21	1,0			
75							
76	114	374	0,38	0,15		2,9	2,6
77							
78							
79	0,39	0,13	0,48	0,62	0,54	0,55	-0,13
80	1,9	-0,45	3,3	0,34	0,19	-0,74	0,020
81							
82							
83							
84	1,4	3,5	0,48	0,11	0,12		
85							
86							
87							
88							
89							
90	0,18	1,6	-0,58	0,40	0,44	0,28	0,31
91							
92							
93	3,2	2,8	3,9	0,28	-0,10	0,93	-0,44
94							
95							
96							
97							
98							
99							
100	-0,19	0,013	-0,31	-0,084	0,56	-0,30	0,32
101							
102							
103							
104							
105							
106	11	26	5,9	-0,64	-0,14	-0,48	0,0033
107							
108	0,24	-0,076	0,39	0,35			
109							
110							
111							
112							
113							
114							
115							
116							
117							
118							
119							
120							

Laboratories' Z-scores: Lamb, fresh weight							
LAB CODE	Sum TE Total TEQ	Sum TE PCDD/PCDF	Sum TE non-ortho PCB	Sum TE mono-orto PCB	Sum Indicator PCB	Sum PBDE Sum with 209	Sum PBDE Sum without 209
1							
2							
3	-0,92	-1,3	-0,41	0,13	0,73	1,7	4,0
4	1,2	2,4	-0,52	-0,50	-0,010	3,2	2,2
5							
6	0,11	0,40	-0,068	-1,3	0,0050		
7							
8							
9							
10							
11	0,14	0,12	0,22	-0,011	0,15	15	1,8
12							
13							
14	3,2	4,3	1,6	1,2	1,8	13	1,3
15	0,93	0,38	2,2	0,21	-5,0		
16							
17							
18	23	38	1,4	-0,10	3,9		
19							
20							
21							
22	0,21	0,59	-0,52	0,24	0,33	-2,6	-0,97
23							
24							
25	-0,19	-0,25	-0,17	0,13	-0,68		
26							
27							
28	0,093	1,2	-1,7	-0,76	-1,1	-1,4	3,6
29							
30	32	37	31	0,81	3,4		
31							
32							
33							
34							
35							
36							
37							
38							
39	7,1	2,6	17	2,2	2,2	72	30
40	0,45	0,40	0,63	0,084	0,39		
41							
42							
43	-0,16	0,014	-0,45	-0,31	-0,31	-0,37	-1,2
44							
45							
46							
47							
48							
49							
50							
51							
52							
53							
54	-0,38	-0,54	-0,13	-0,17	-0,051		
55							
56							
57							
58	-0,28	-0,51	0,11	-0,16	0,18		
59							
60							
61							
62	0,29	0,72	-0,51	0,17	0,092	-2,5	-0,71
63							
64							
65	0,98	1,5	0,37	-0,30	0,14		
66							
67							
68							
69							
70	63	69	67	0,43	0,29		

Laboratories' Z-scores: Lamb, fresh weight (continued)

LAB CODE	Sum TE Total TEQ	Sum TE PCDD/PCDF	Sum TE non-ortho PCB	Sum TE mono-orto PCB	Sum Indicator PCB	Sum PBDE Sum with 209	Sum PBDE Sum without 209
71							
72							
73							
74	22	26	16	18			
75							
76	533	588	568	7,5		20	14
77							
78							
79	-0,075	-0,21	0,050	0,40	0,36	9,2	-0,31
80	0,84	0,45	1,8	-0,090	-0,38	-3,2	-2,5
81							
82							
83							
84							
85							
86							
87							
88							
89							
90							
91							
92							
93	0,041	1,0	-1,9	0,26	-0,23	8,4	0,15
94							
95							
96							
97							
98	5,1	9,3	-1,5	-0,48	-0,21		
99							
100	1,4	2,1	0,48	0,24	0,18	1,1	1,1
101							
102							
103							
104							
105							
106							
107							
108	0,51	0,59	0,59	-0,31			
109							
110							
111							
112							
113							
114							
115							
116							
117							
118							
119							
120							

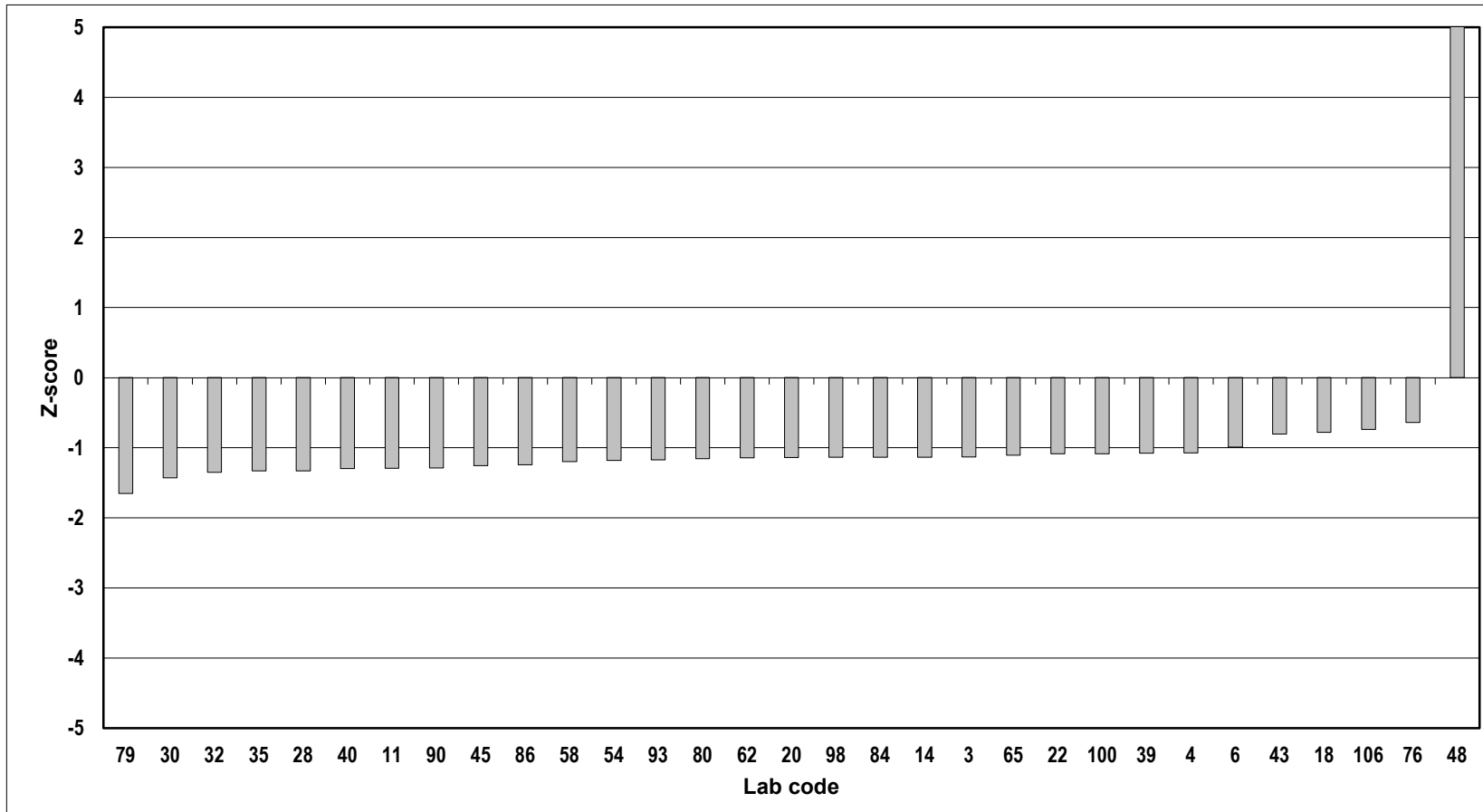
Laboratories' Z-scores: Lamb, lipid weight

LAB CODE	Sum TE Total TEQ	Sum TE PCDD/PCDF	Sum TE non-ortho PCB	Sum TE mono-orto PCB	Sum Indicator PCB	Sum PBDE Sum with 209	Sum PBDE Sum without 209
1							
2							
3	-1,1	-1,5	-0,59	-0,1	0,50	1,4	3,6
4	1,5	2,7	-0,36	-0,34	0,17	3,5	2,4
5							
6	-0,41	-0,15	-0,57	-1,7	-0,50		
7							
8							
9							
10							
11	0,14	0,12	0,22	-0,011	0,15	15	1,8
12							
13							
14	2,8	3,8	1,3	0,91	1,4	12	1,0
15	0,93	0,38	2,2	0,21	-5,0		
16							
17							
18	24	39	1,6	0,042	4,2		
19							
20							
21							
22	0,032	0,40	-0,67	0,056	0,14	-2,6	-1,1
23							
24							
25	-0,26	-0,31	-0,24	0,060	-0,74		
26							
27							
28	1,4	2,8	-0,89	0,34	-0,045	-0,52	5,8
29							
30	32	37	31	0,84	3,4		
31							
32							
33							
34							
35							
36							
37							
38							
39	7,9	3,1	19	2,7	2,7	77	33
40	0,37	0,33	0,55	0,011	0,32		
41							
42							
43	0,17	0,36	-0,14	0,0082	0,011	-0,059	-0,97
44							
45							
46							
47							
48							
49							
50							
51							
52							
53							
54	-0,35	-0,51	-0,095	-0,14	-0,017		
55							
56							
57							
58	-0,25	-0,48	0,15	-0,13	0,21		
59							
60							
61							
62	0,070	0,49	-0,70	-0,040	-0,12	-2,6	-0,88
63							
64							
65	1,6	2,2	0,95	0,21	0,69		
66							
67							
68							
69							
70							

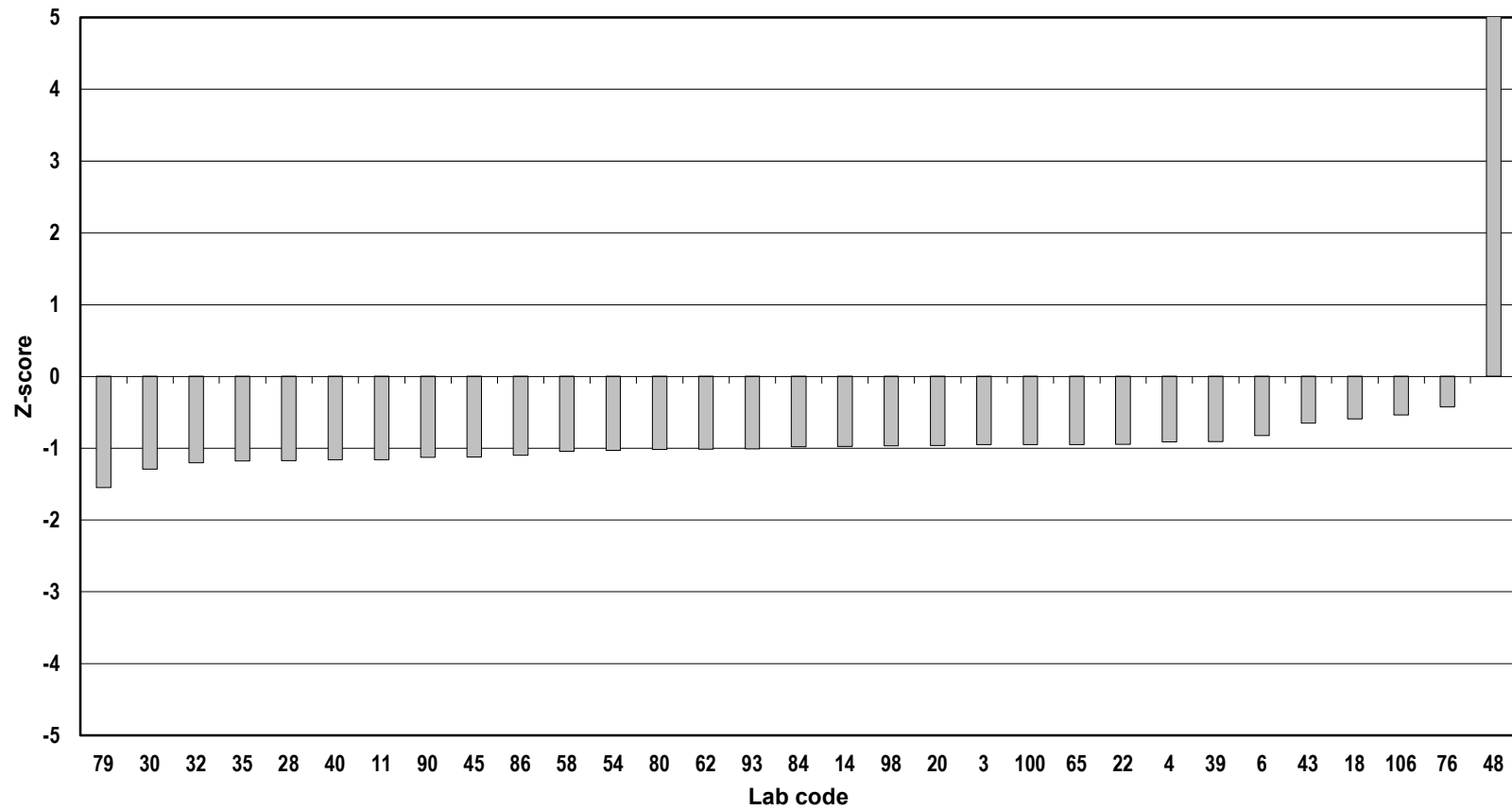
Laboratories' Z-scores: Lamb, lipid weight (continued)

LAB CODE	Sum TE Total TEQ	Sum TE PCDD/PCDF	Sum TE non-ortho PCB	Sum TE mono-orto PCB	Sum Indicator PCB	Sum PBDE Sum with 209	Sum PBDE Sum without 209
71							
72							
73							
74	9,6	12	6,3	7,1			
75							
76	465	514	497	6,0		17	12
77							
78							
79	-0,047	-0,18	0,078	0,43	0,39	9,3	-0,29
80	0,91	0,51	1,9	-0,038	-0,34	-3,2	-2,5
81							
82							
83							
84							
85							
86							
87							
88							
89							
90							
91							
92							
93	-0,72	0,11	-2,4	-0,54	-0,95	6,3	-0,63
94							
95							
96							
97							
98	5,7	10	-1,3	-0,22	0,060		
99							
100	0,86	1,4	0,013	-0,21	-0,27	0,61	0,54
101							
102							
103							
104							
105							
106							
107							
108	0,47	0,55	0,55	-0,35			
109							
110							
111							
112							
113							
114							
115							
116							
117							
118							
119							
120							

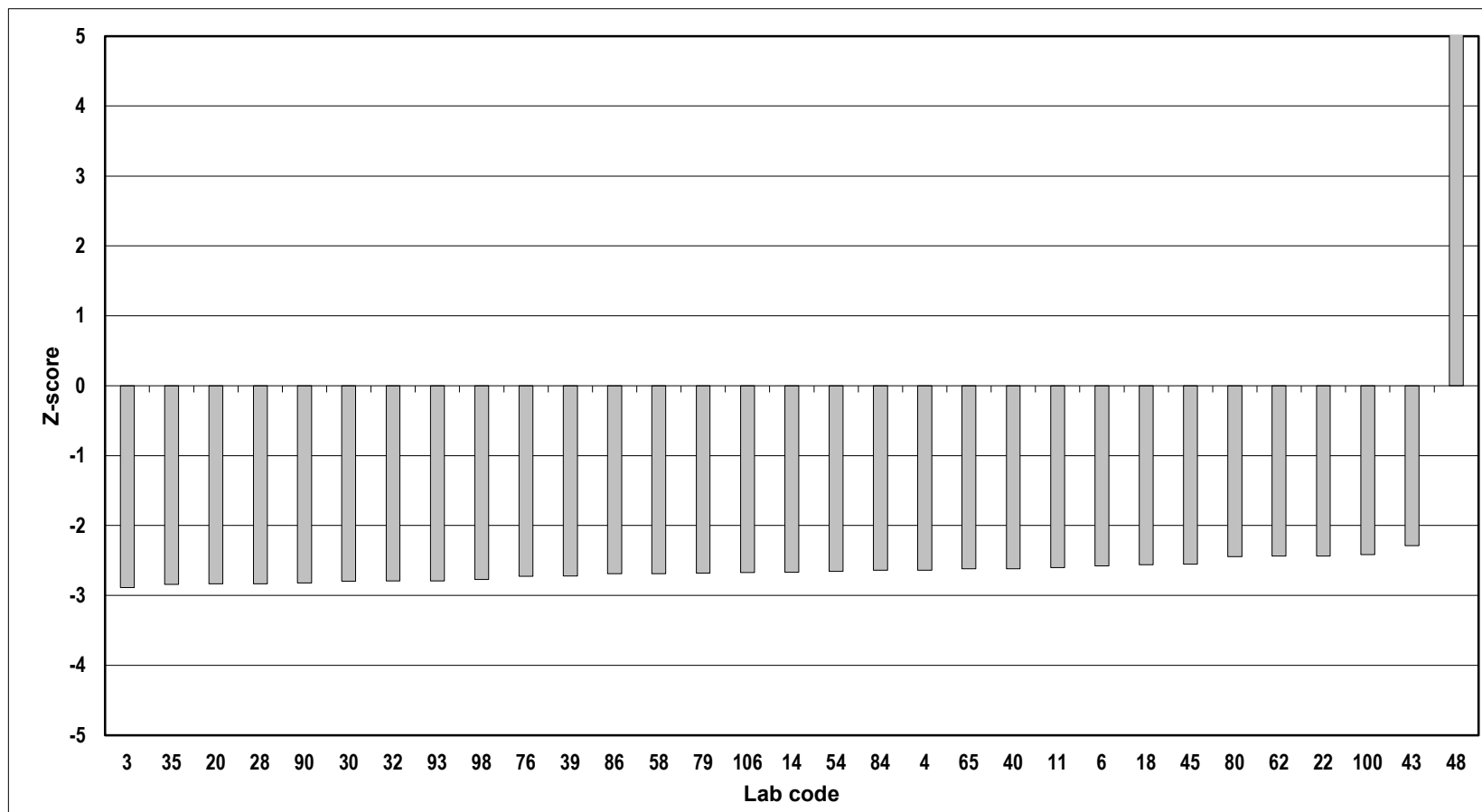
Z-score Analyte solution; total TEQ



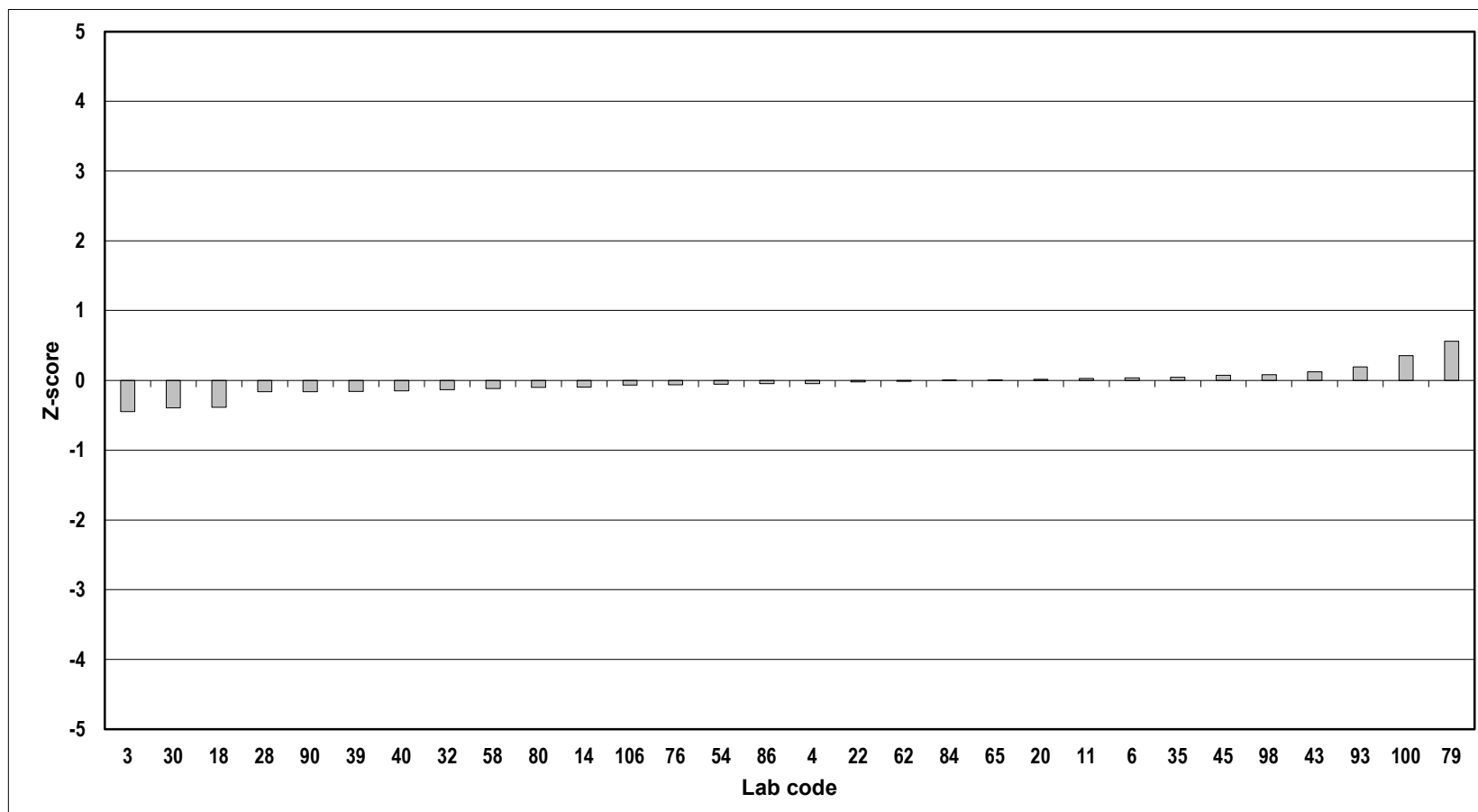
Z-score Analyte solution; PCDD/PCDF TEQ



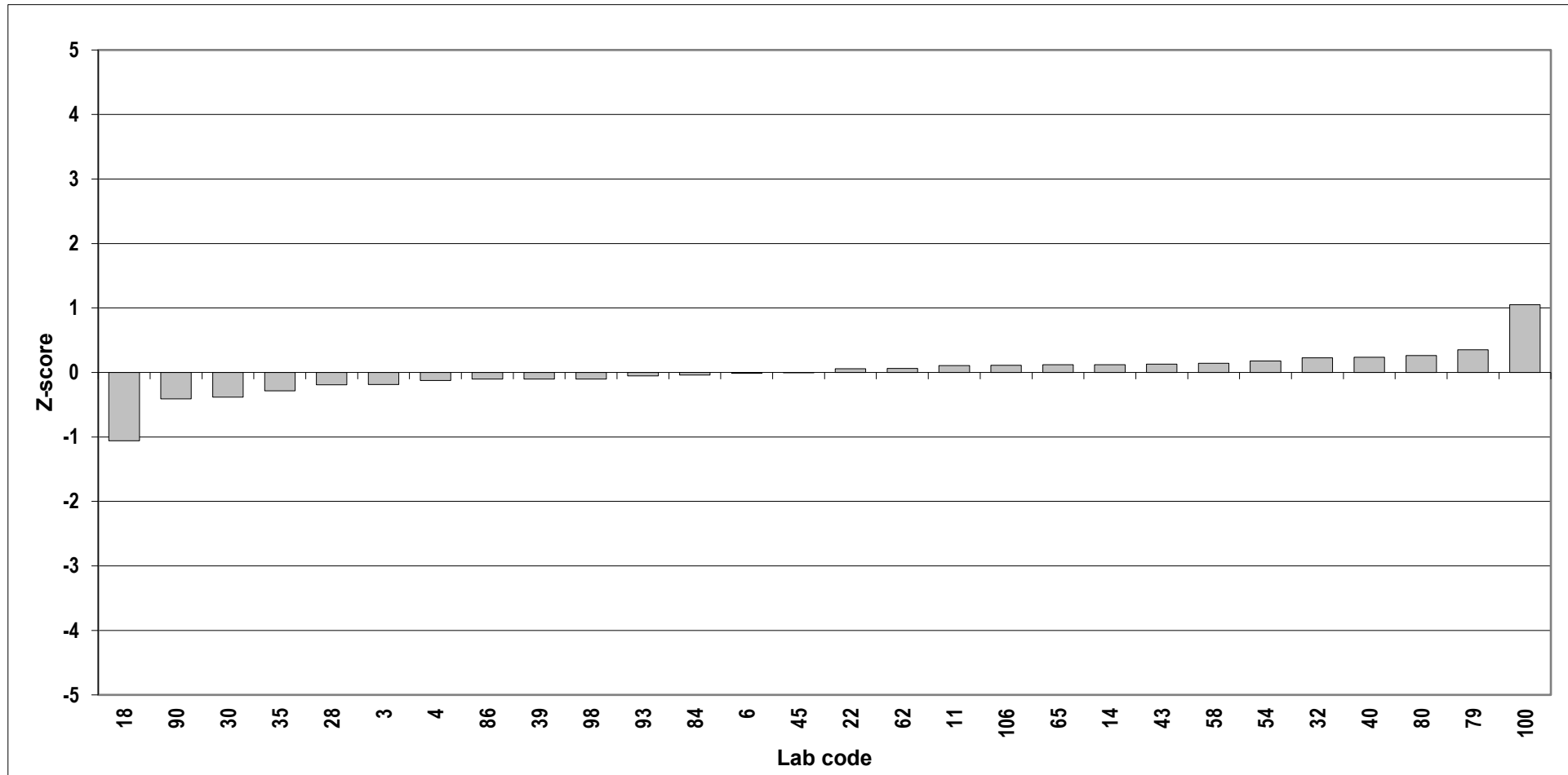
Z-score Analyte solution; non-ortho PCB TEQ



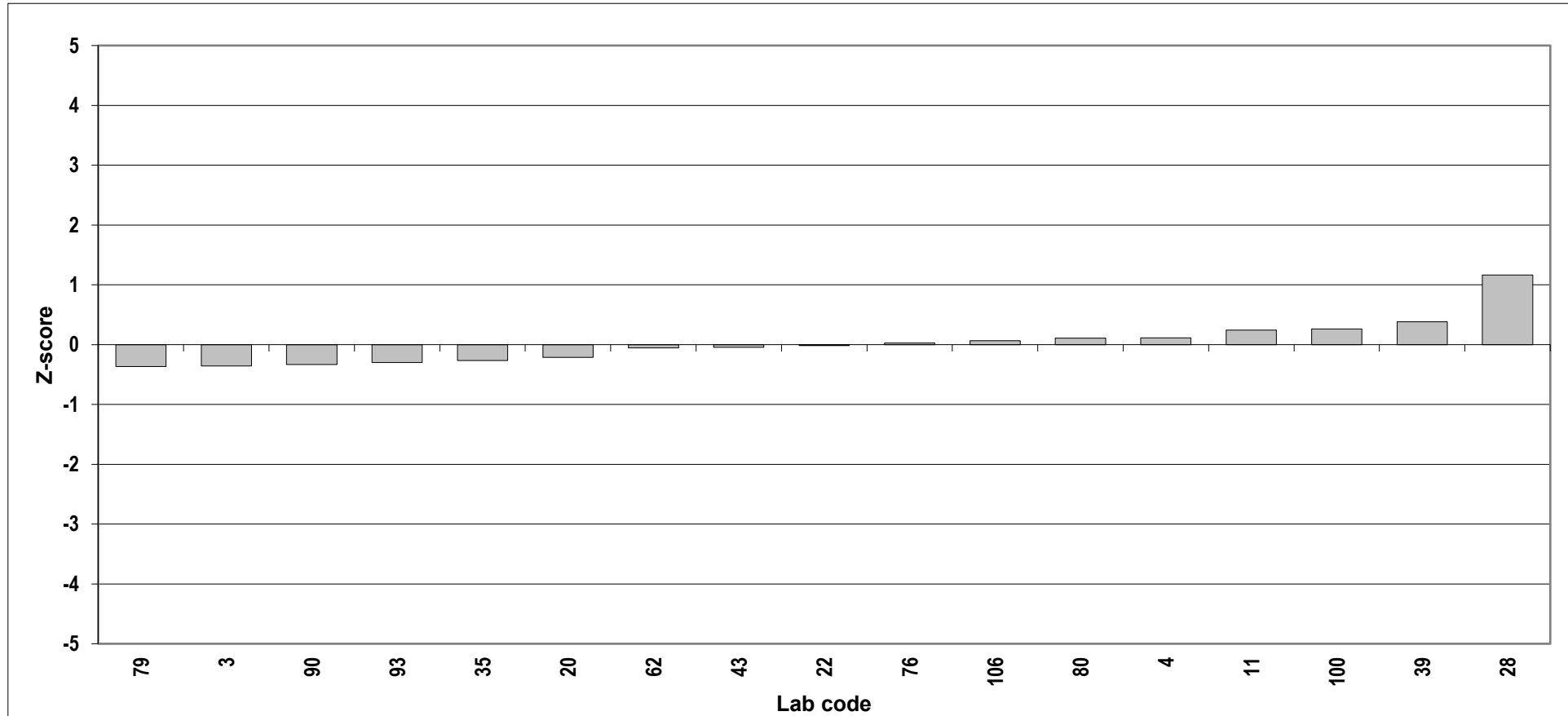
Z-score Analyte solution; mono-ortho PCB TEQ



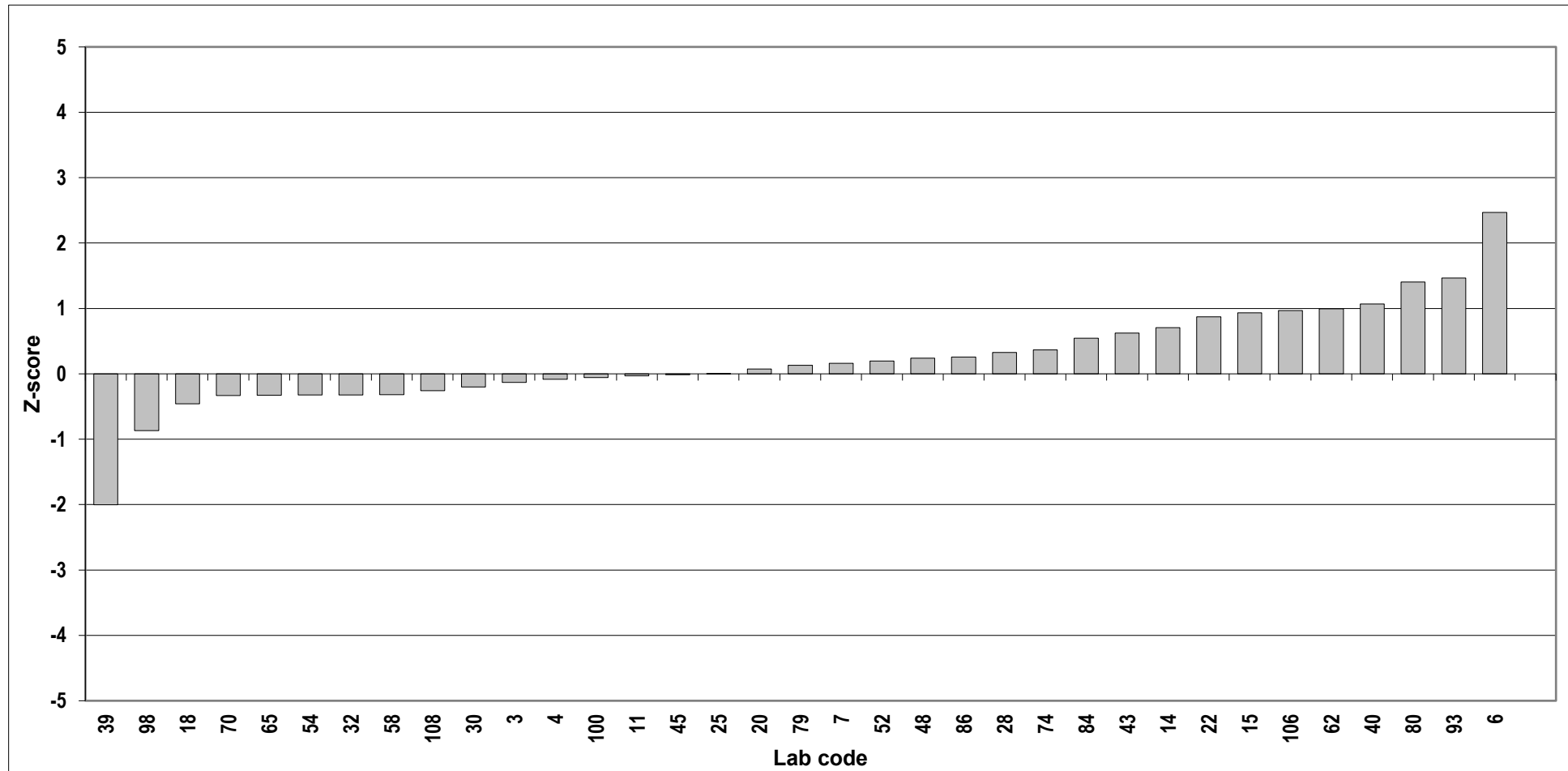
Z-score Analyte solution; sum indicator PCB



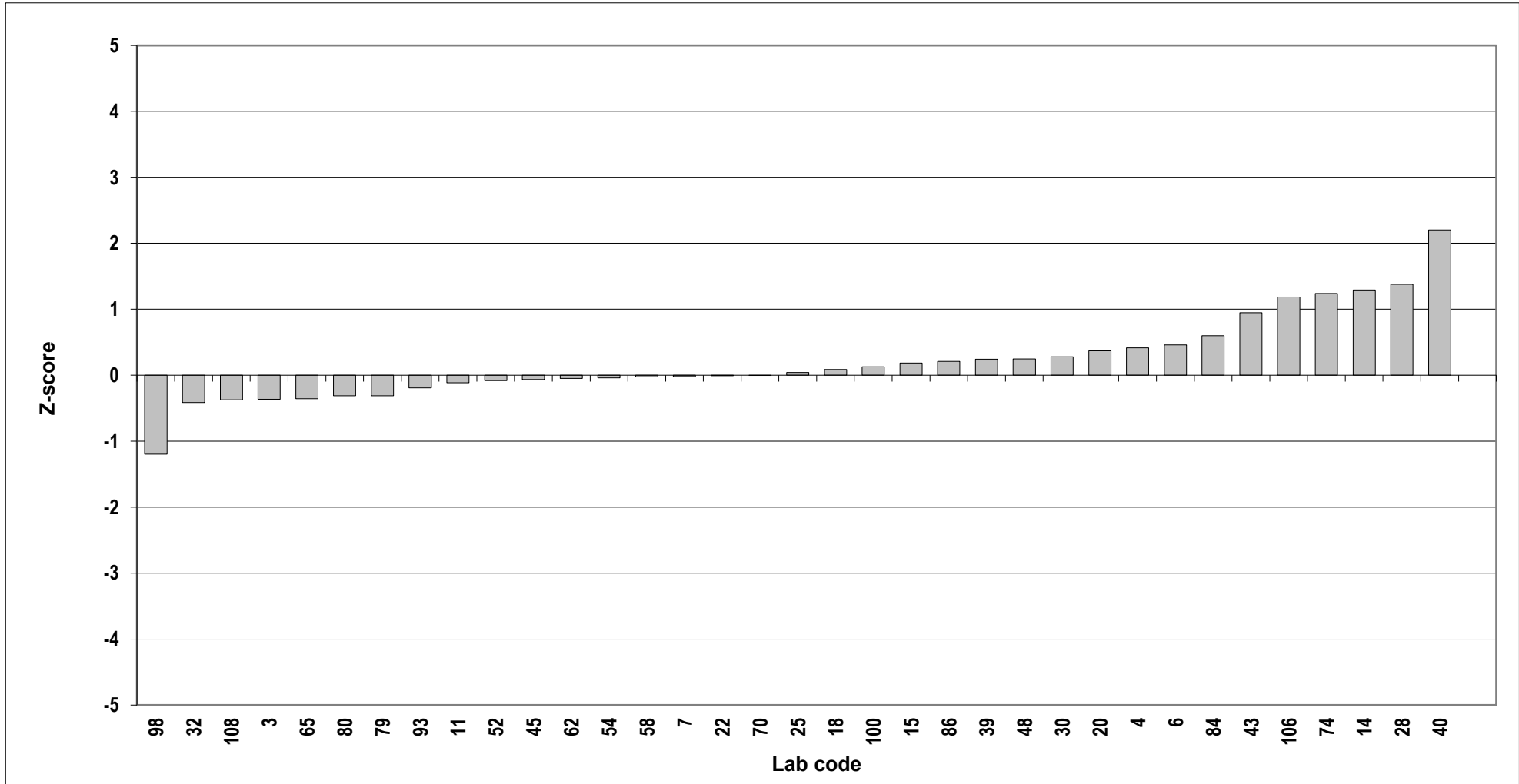
Z-score Analyte solution; sum PBDE without BDE-209



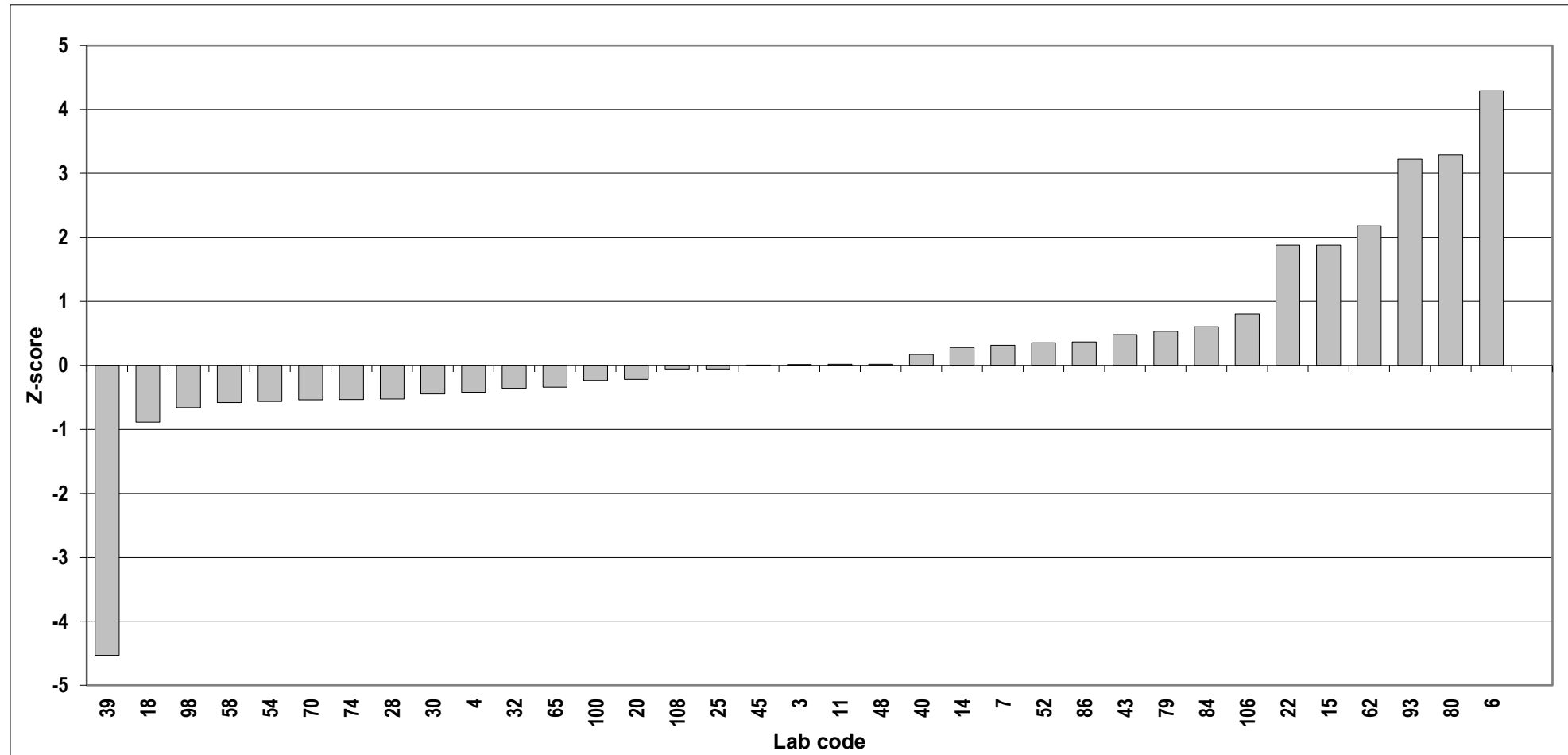
Z-score Fish oil, fresh weight; total TEQ



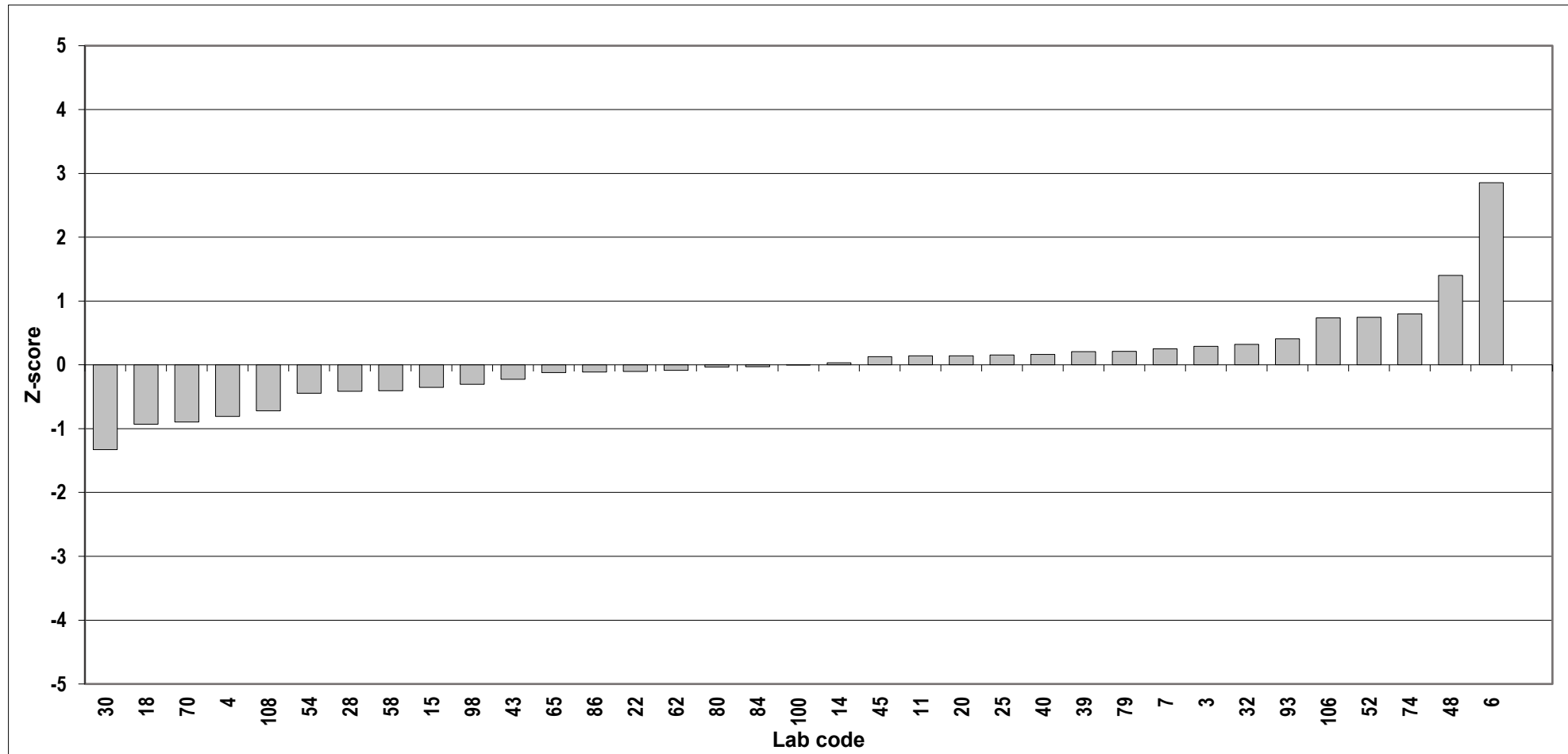
Z-score Fish oil, fresh weight; PCDD/PCDF TEQ



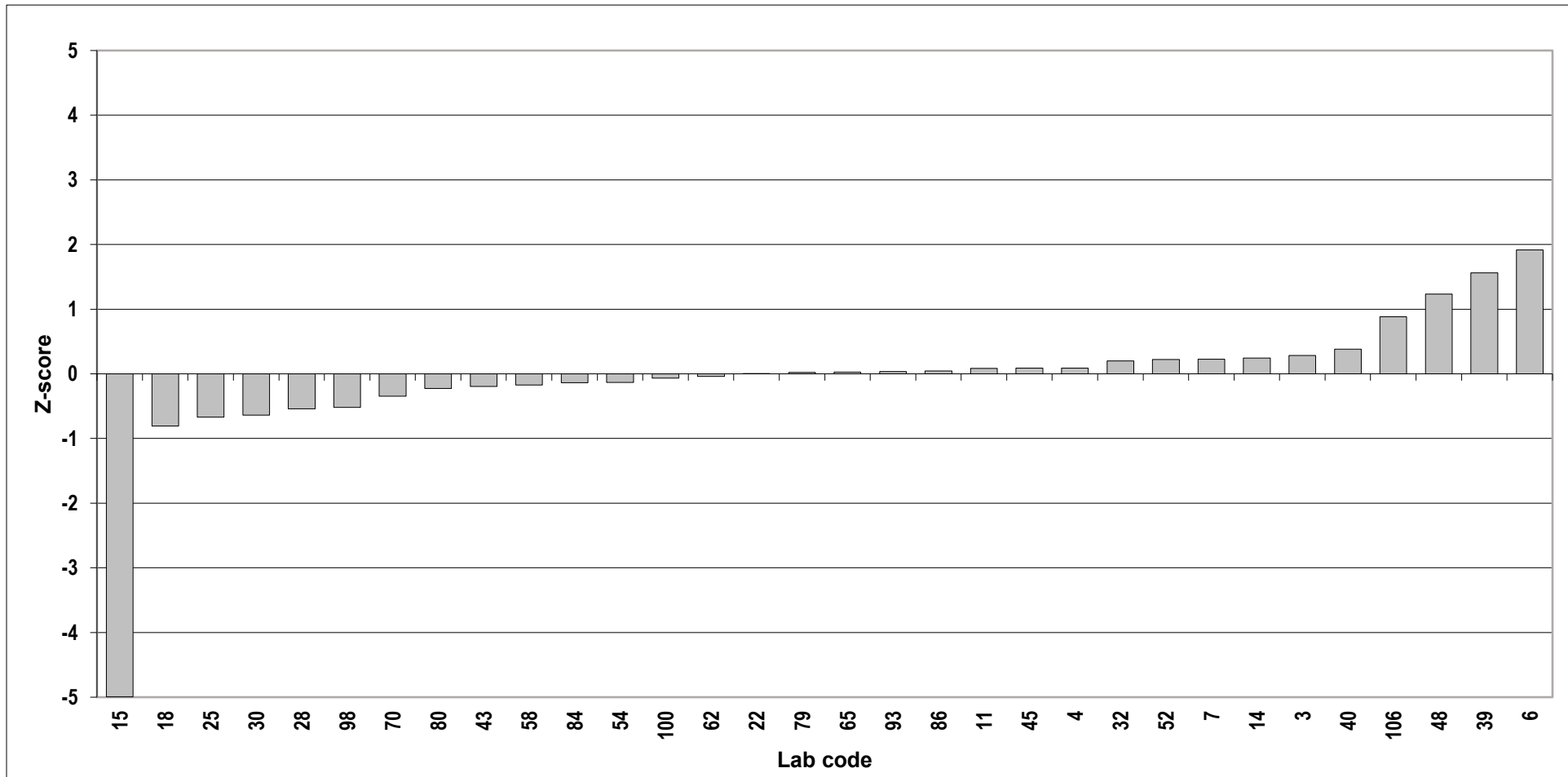
Z-score Fish oil, fresh weight; non-ortho PCB TEQ



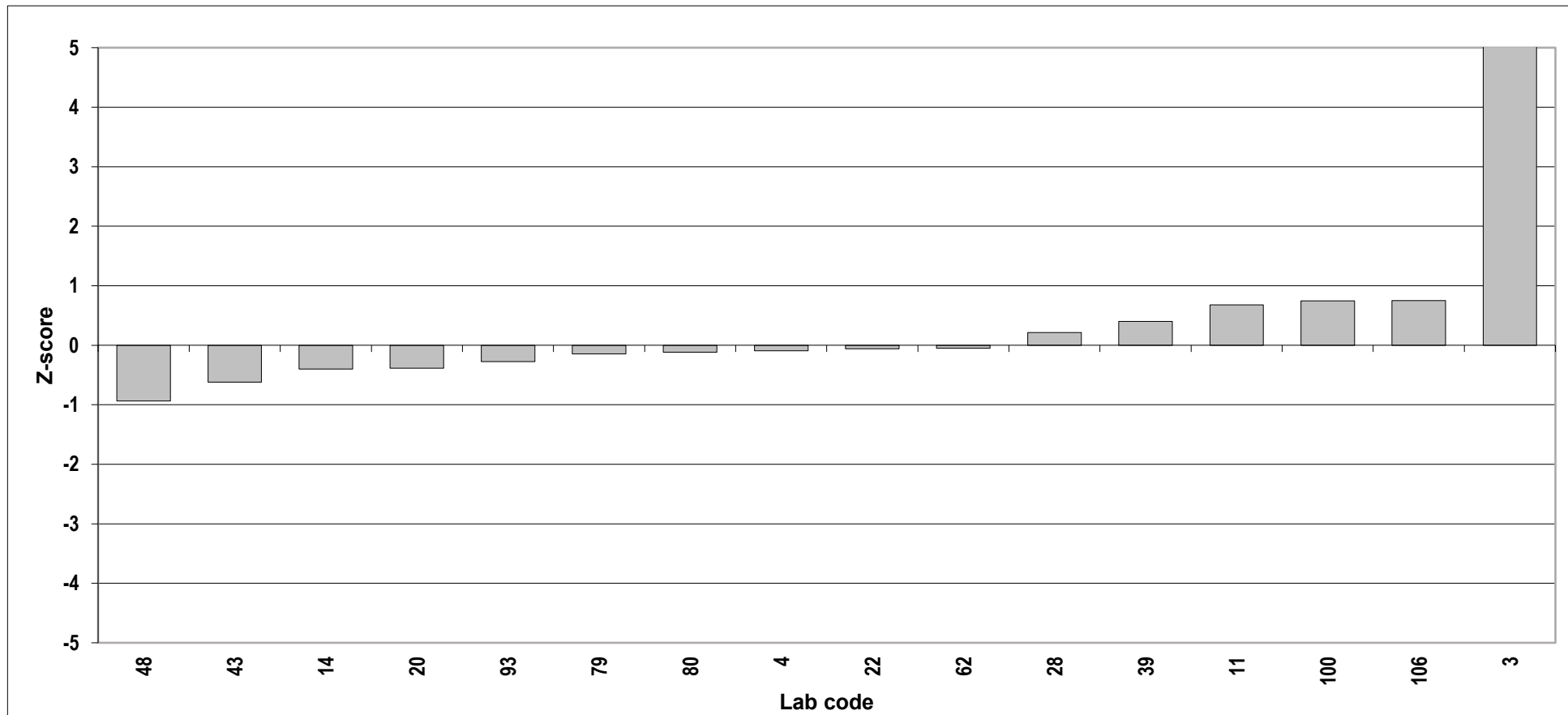
Z-score Fish oil, fresh weight; mono-ortho PCB TEQ



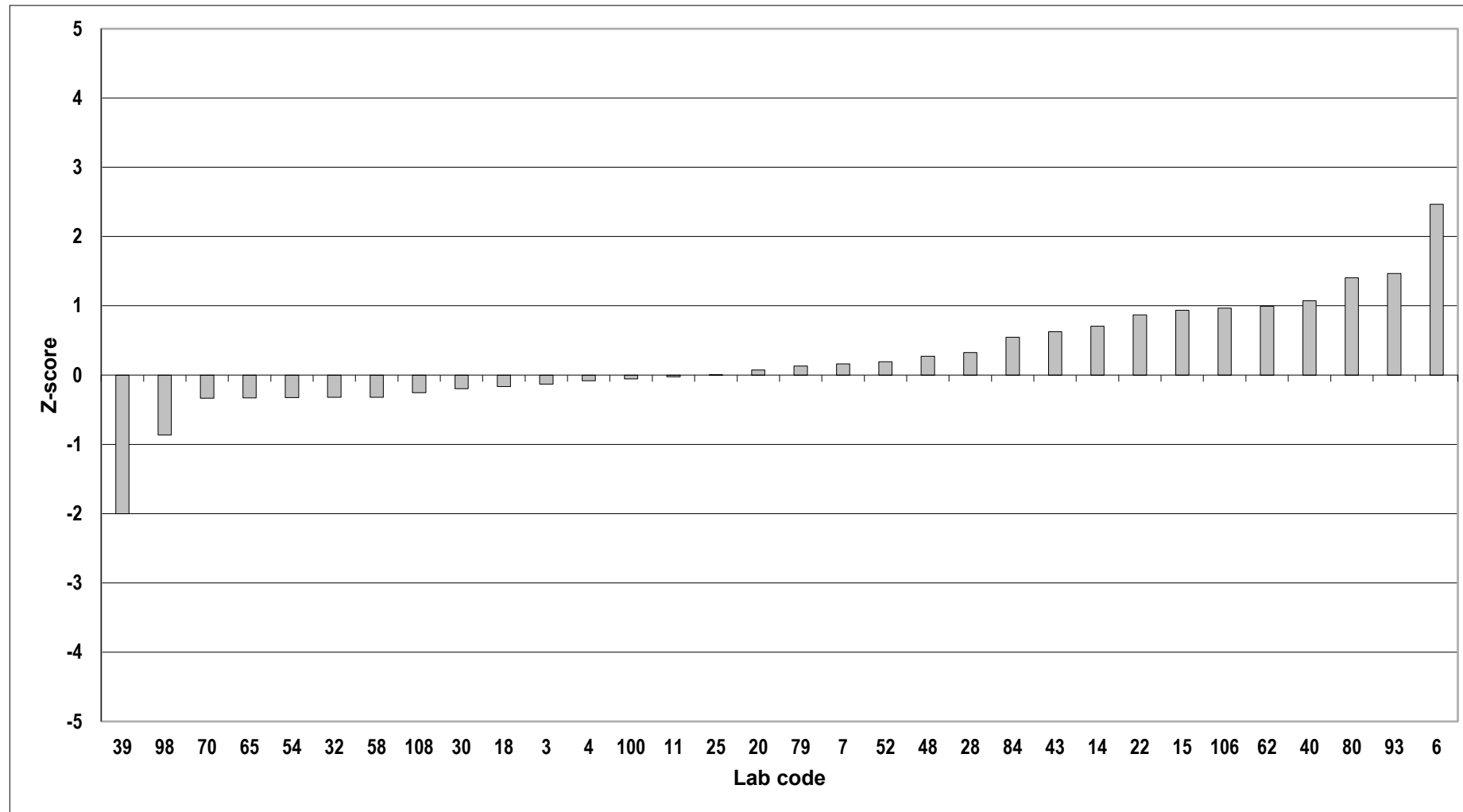
Z-score Fish oil, fresh weight; sum indicator PCB



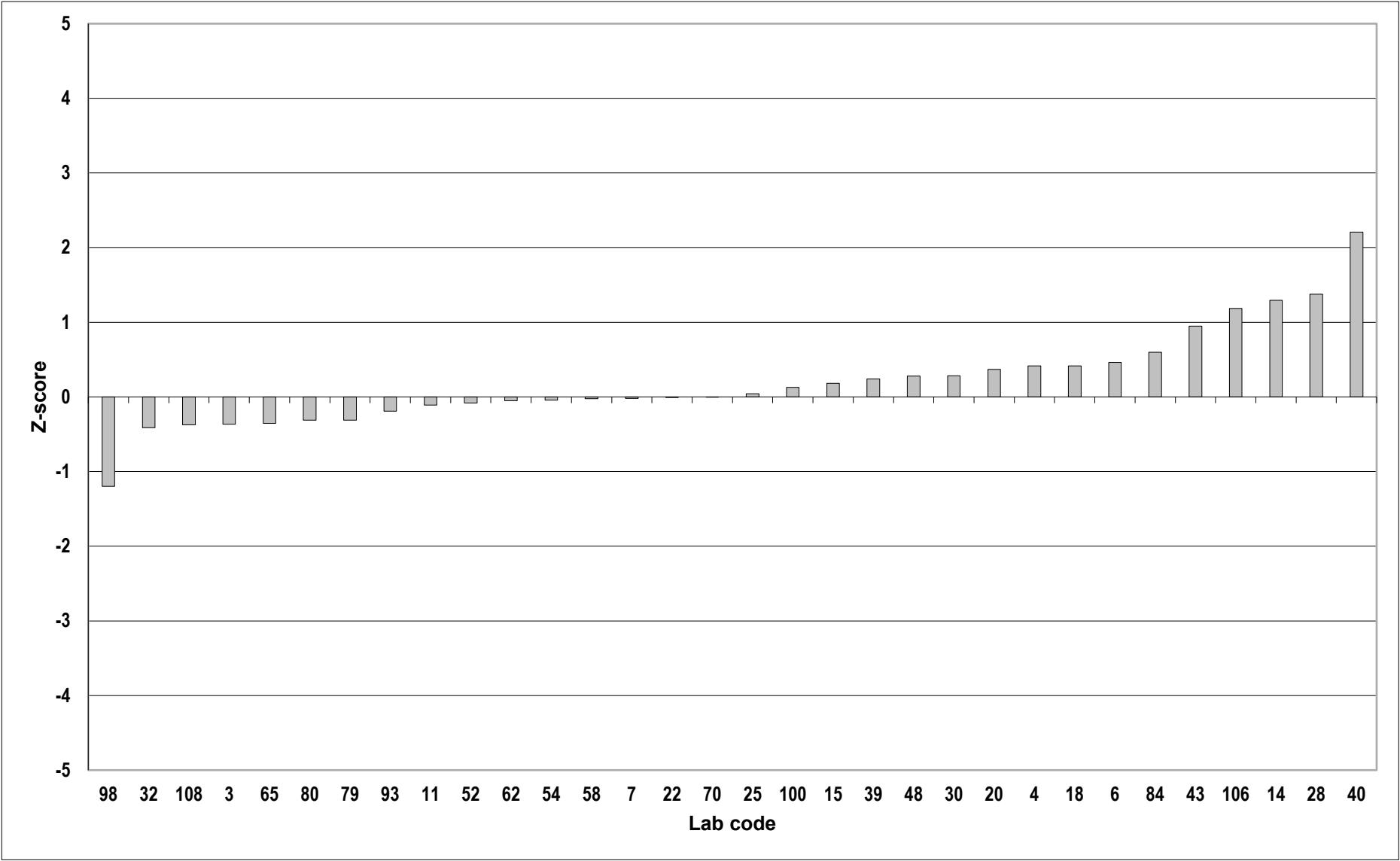
Z-score Fish oil, fresh weight; sum PBDE without BDE-209



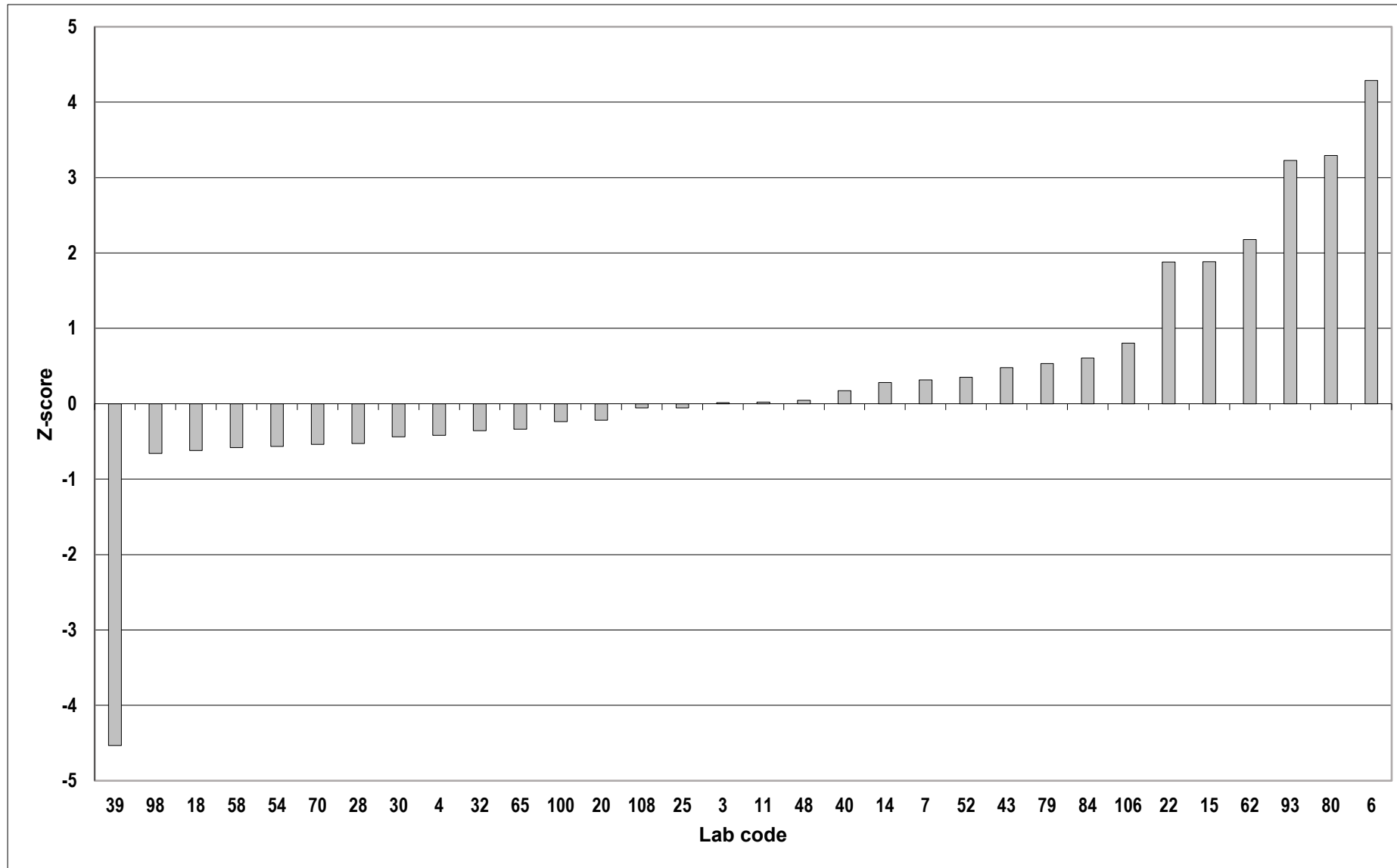
Z-score Fish oil, lipid weight; total TEQ



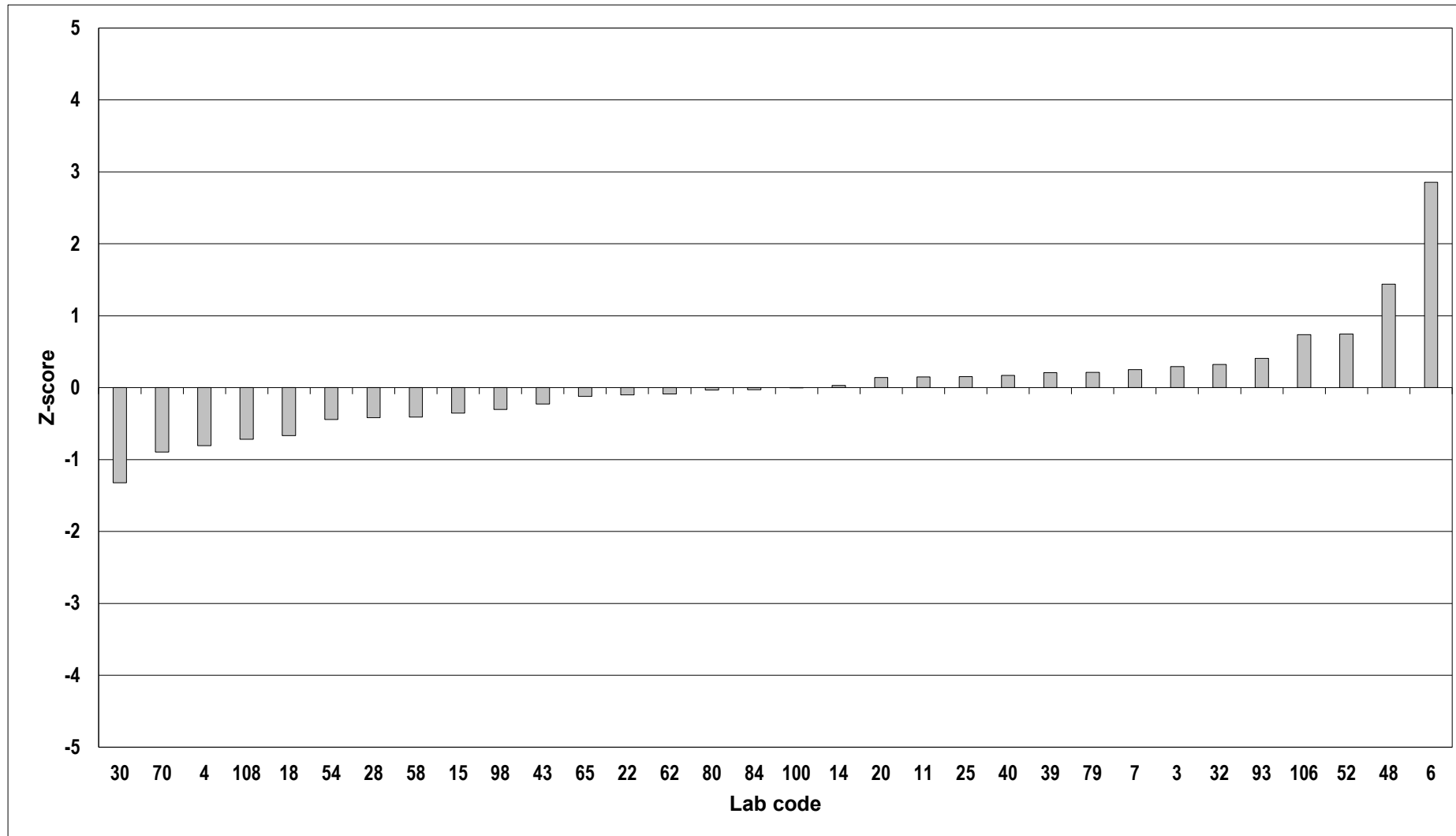
Z-score Fish oil, lipid weight; PCDD/PCDF TEQ



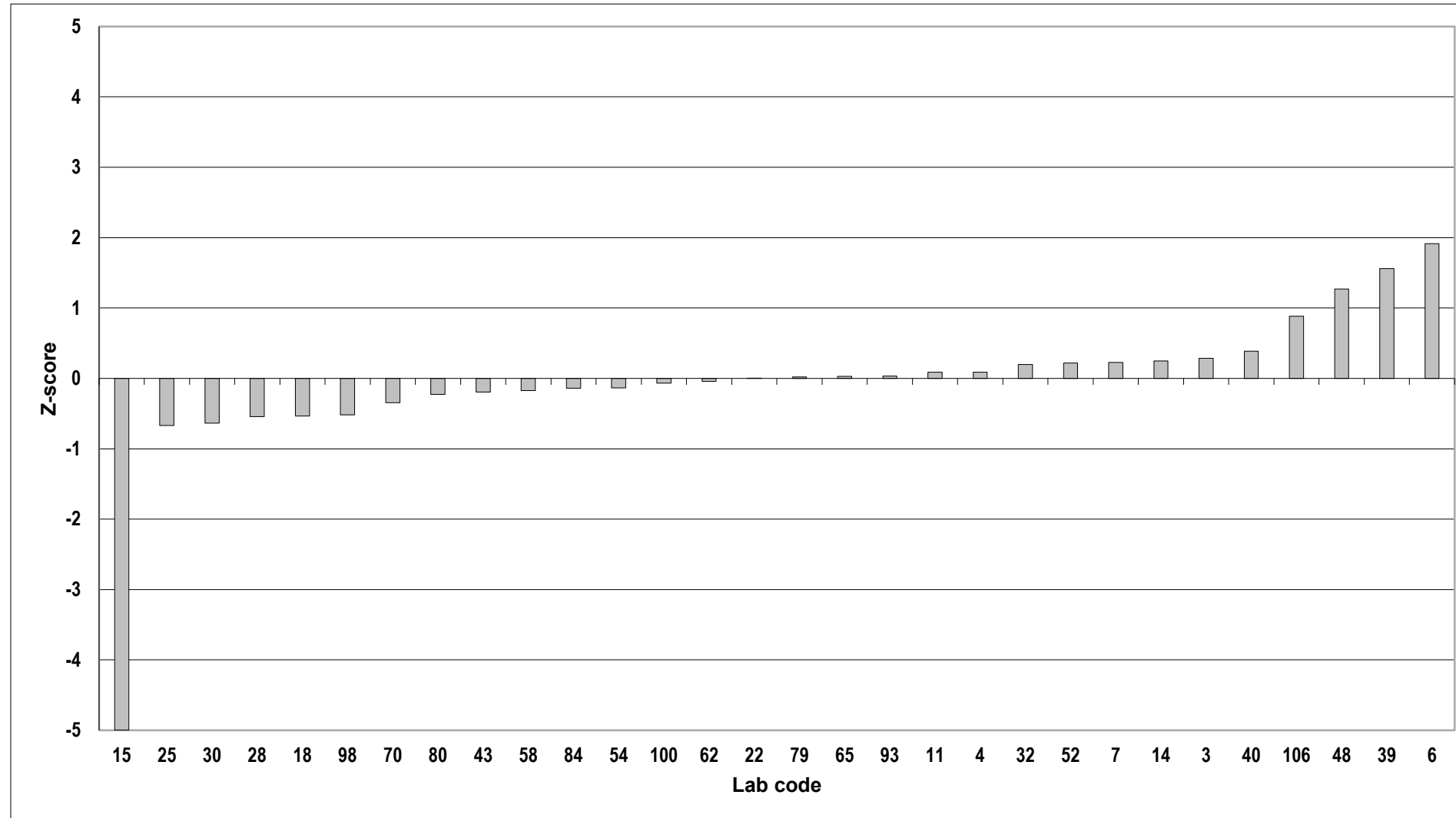
Z-score Fish oil, lipid weight; non-ortho PCB TEQ



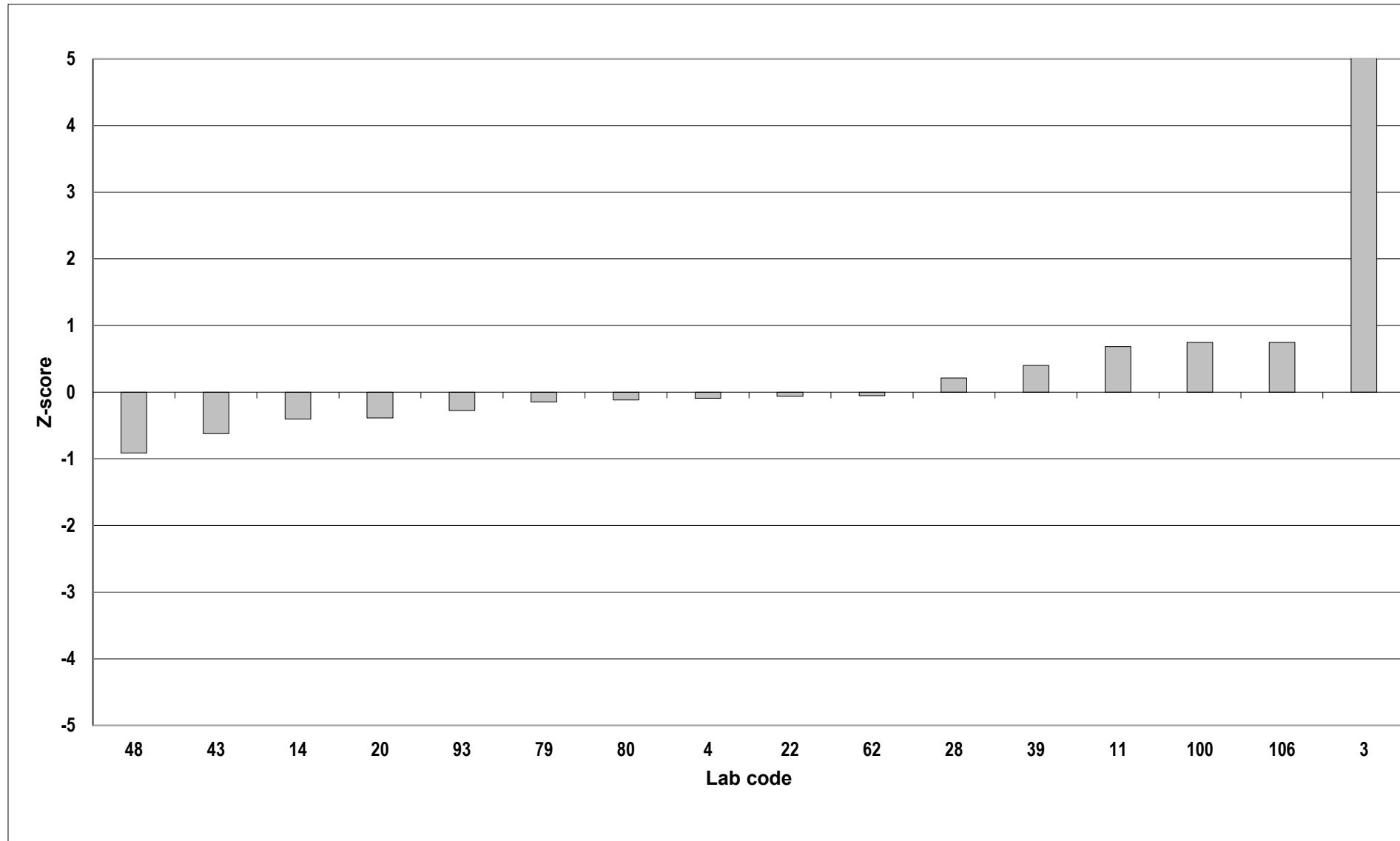
Z-score Fish oil, lipid weight; mono-ortho PCB TEQ



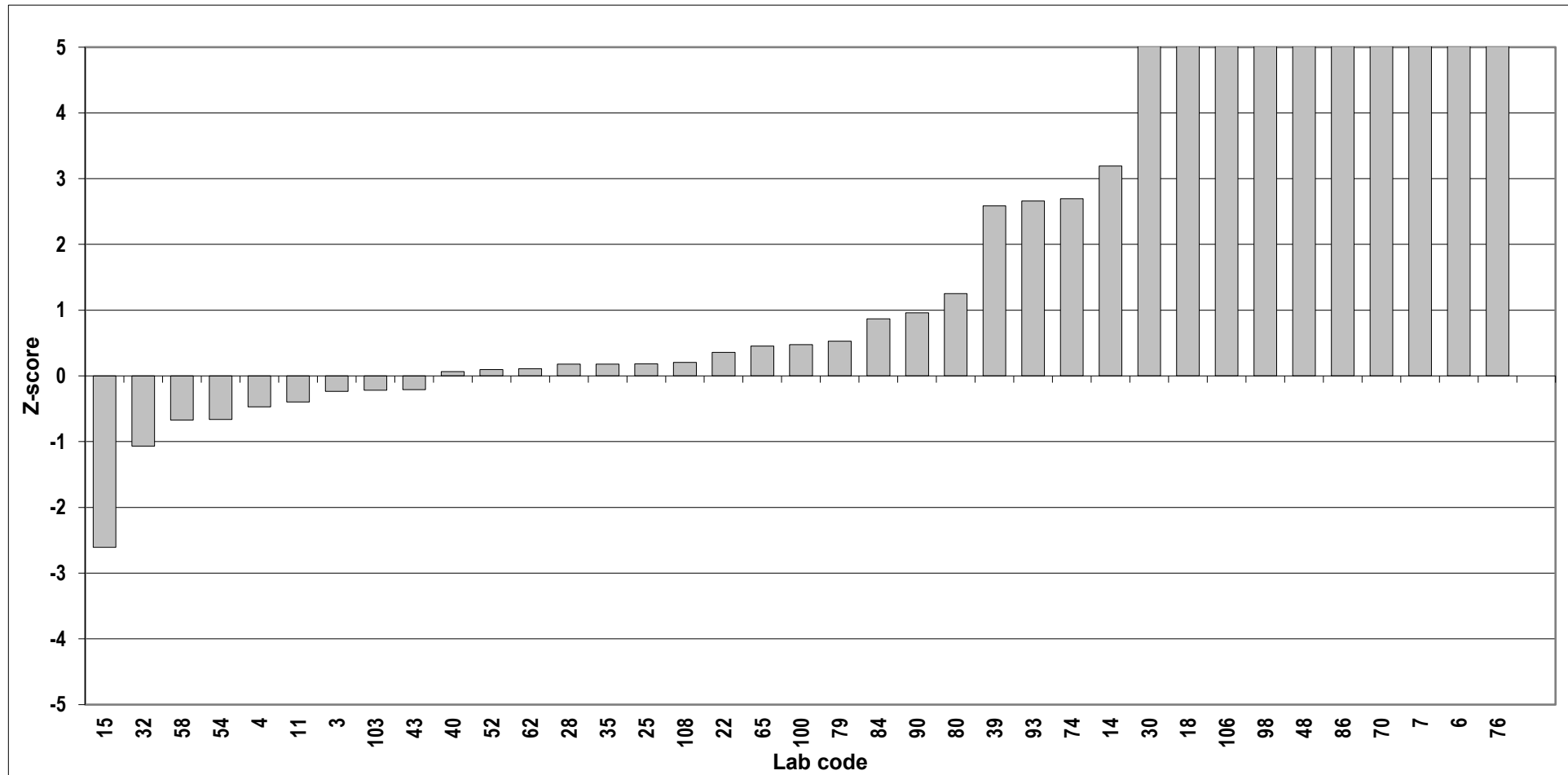
Z-score Fish oil, lipid weight; sum indicator PCB



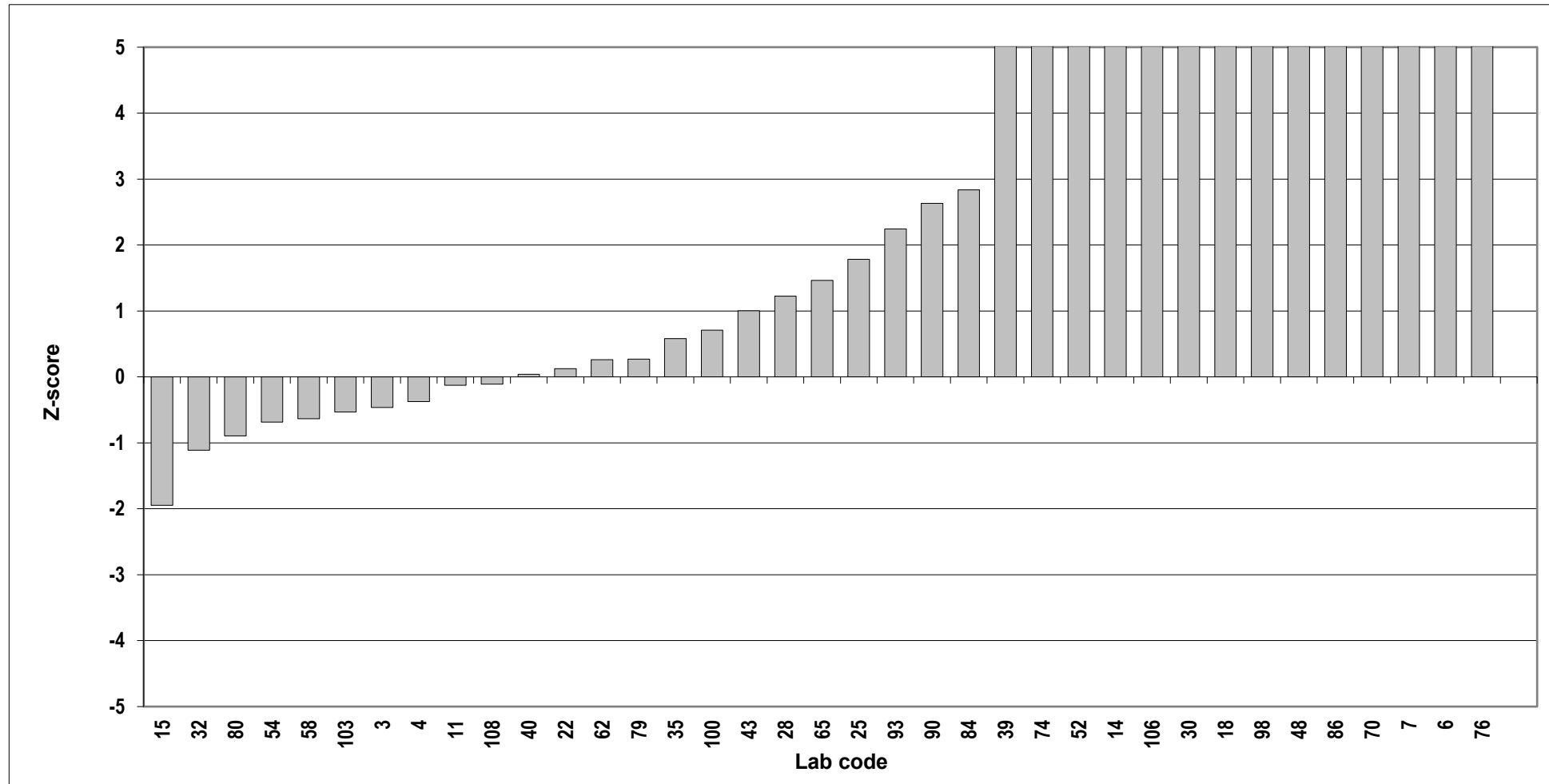
Z-score Fish oil, lipid weight; sum PBDE without PBDE-209



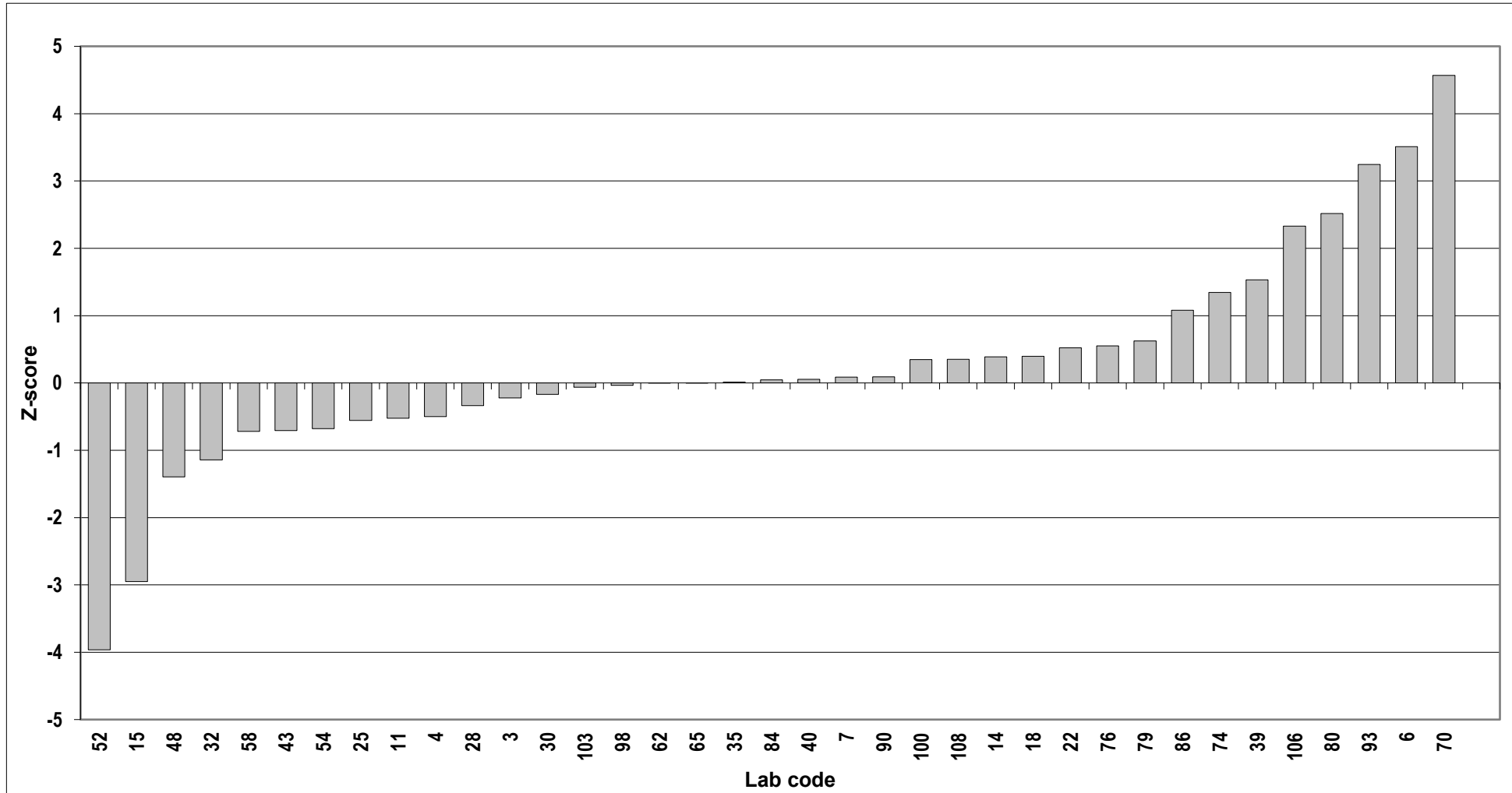
Z-score Salmon, fresh weight; total TEQ



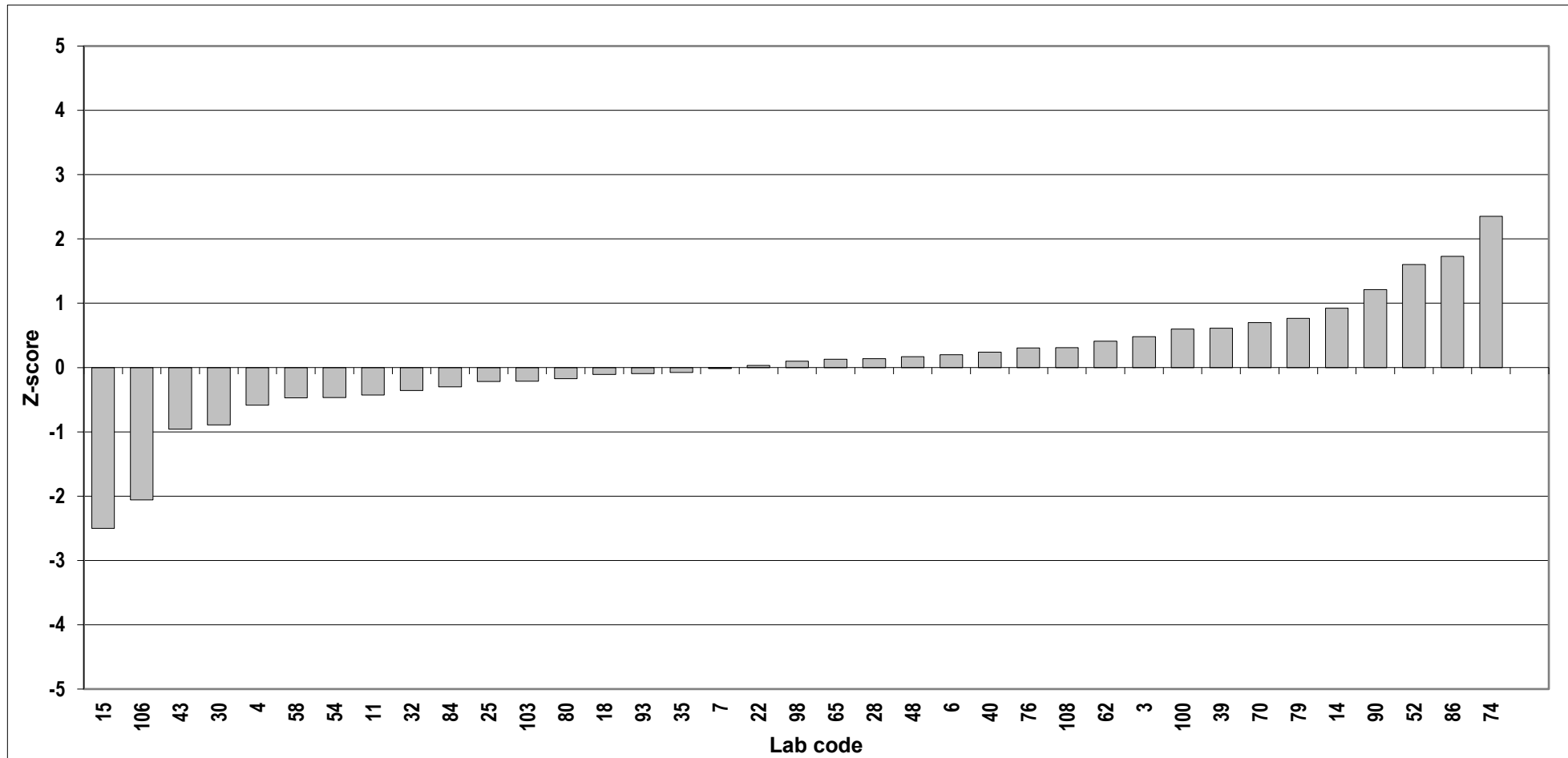
Z-score Salmon, fresh weight; PCDD/PCDF TEQ



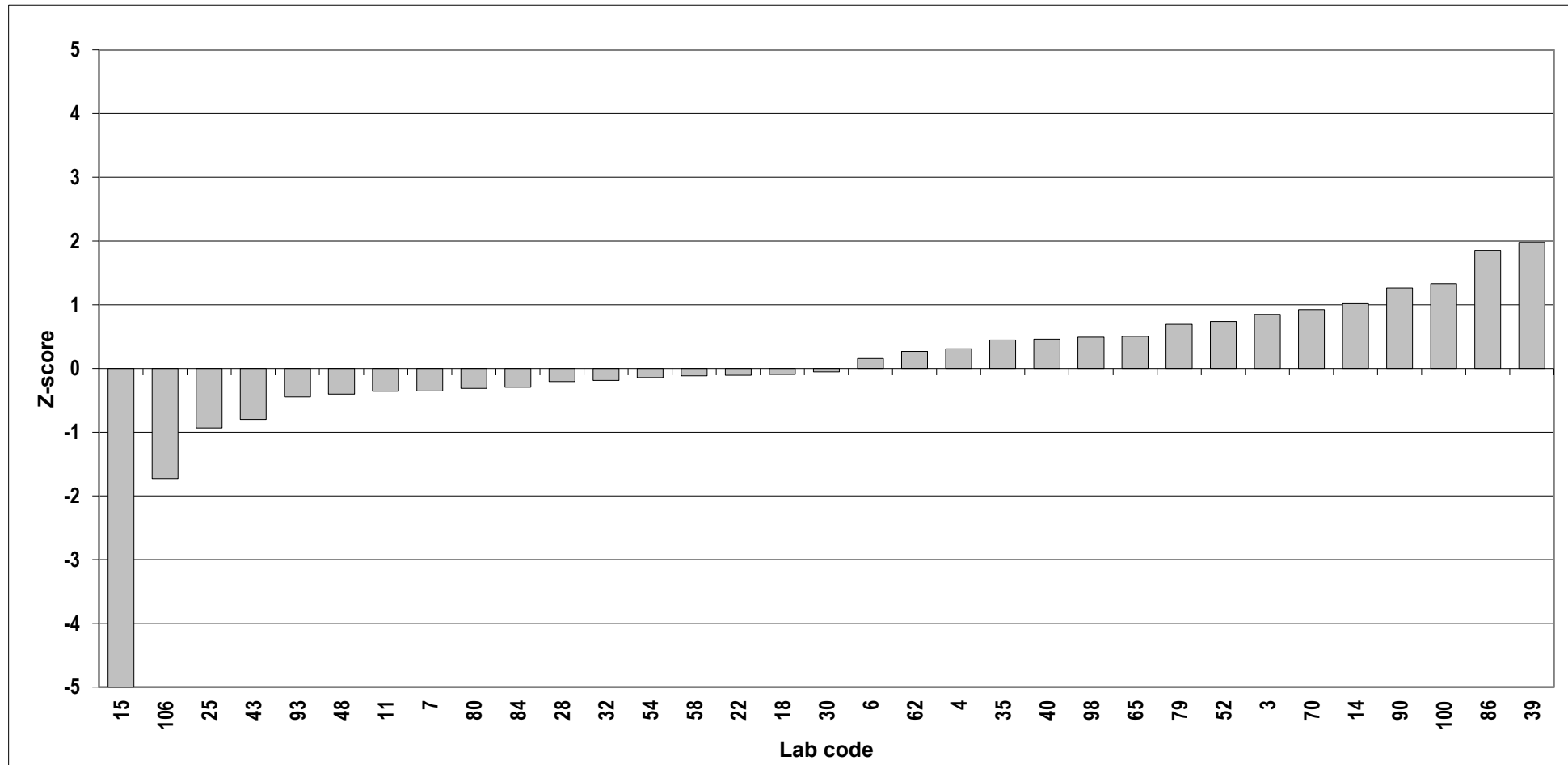
Z-score Salmon, fresh weight; non-ortho PCB TEQ



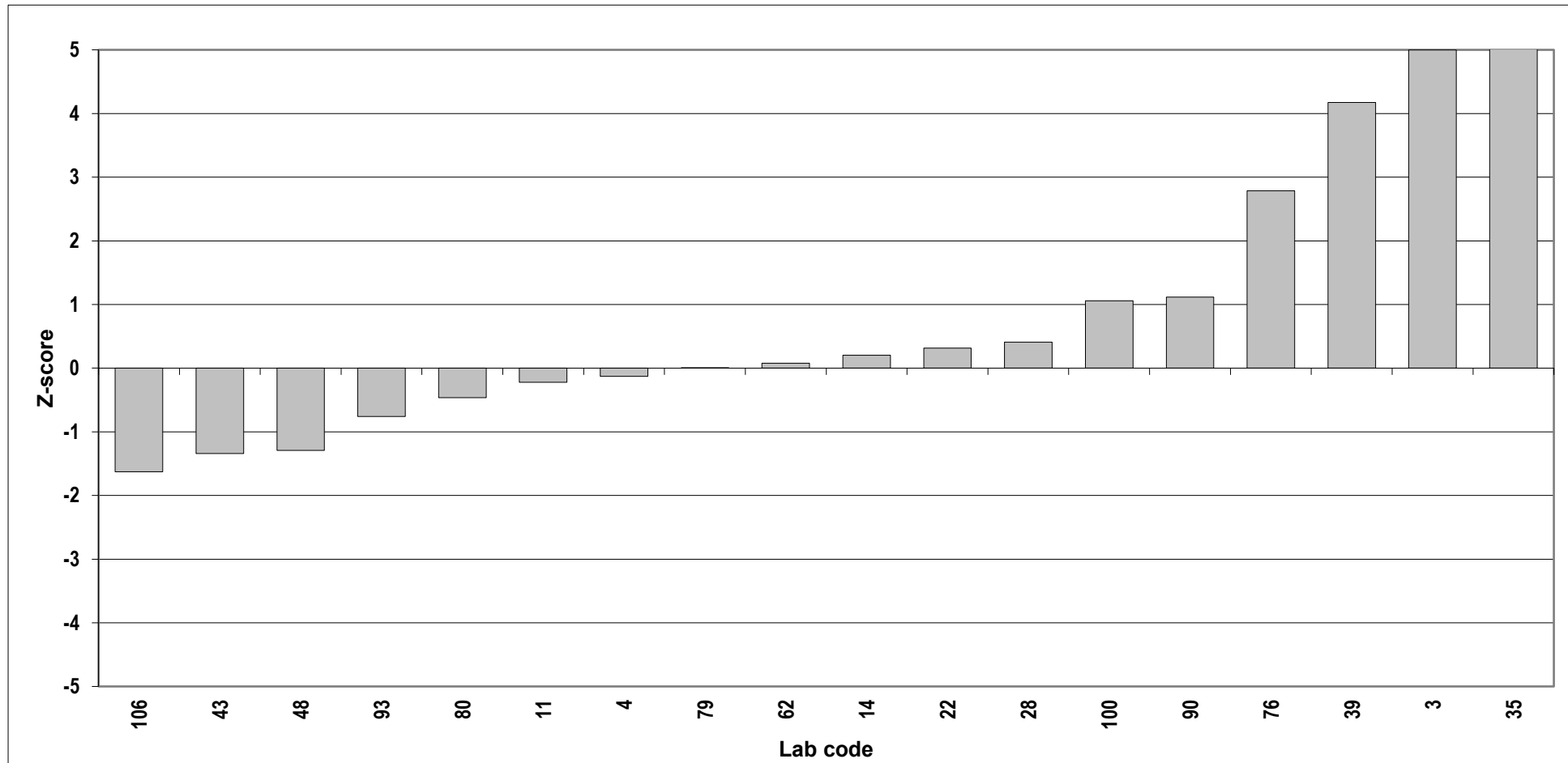
Z-score Salmon, fresh weight; mono-ortho PCB TEQ



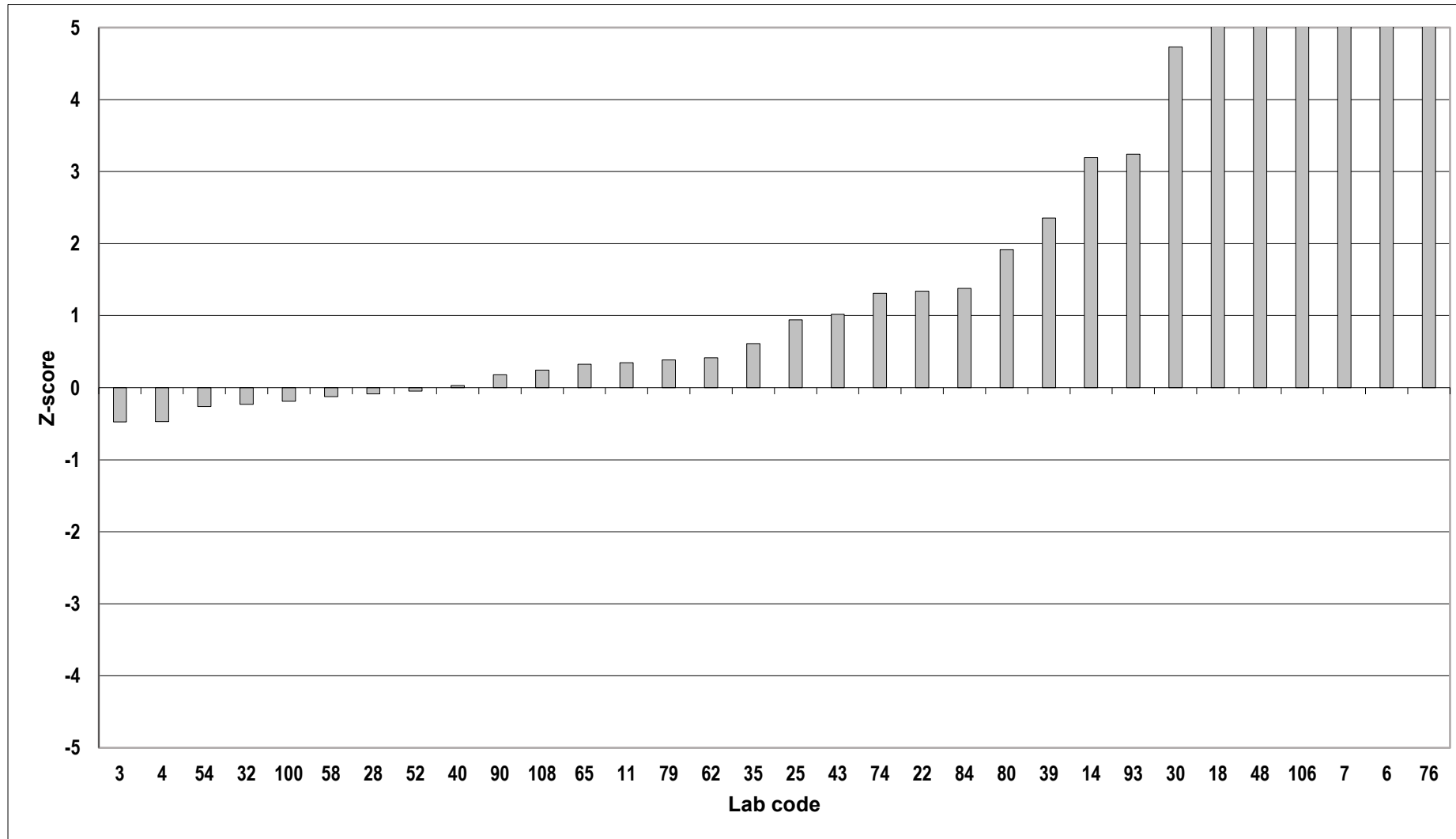
Z-score Salmon, fresh weight; sum indicator PCB



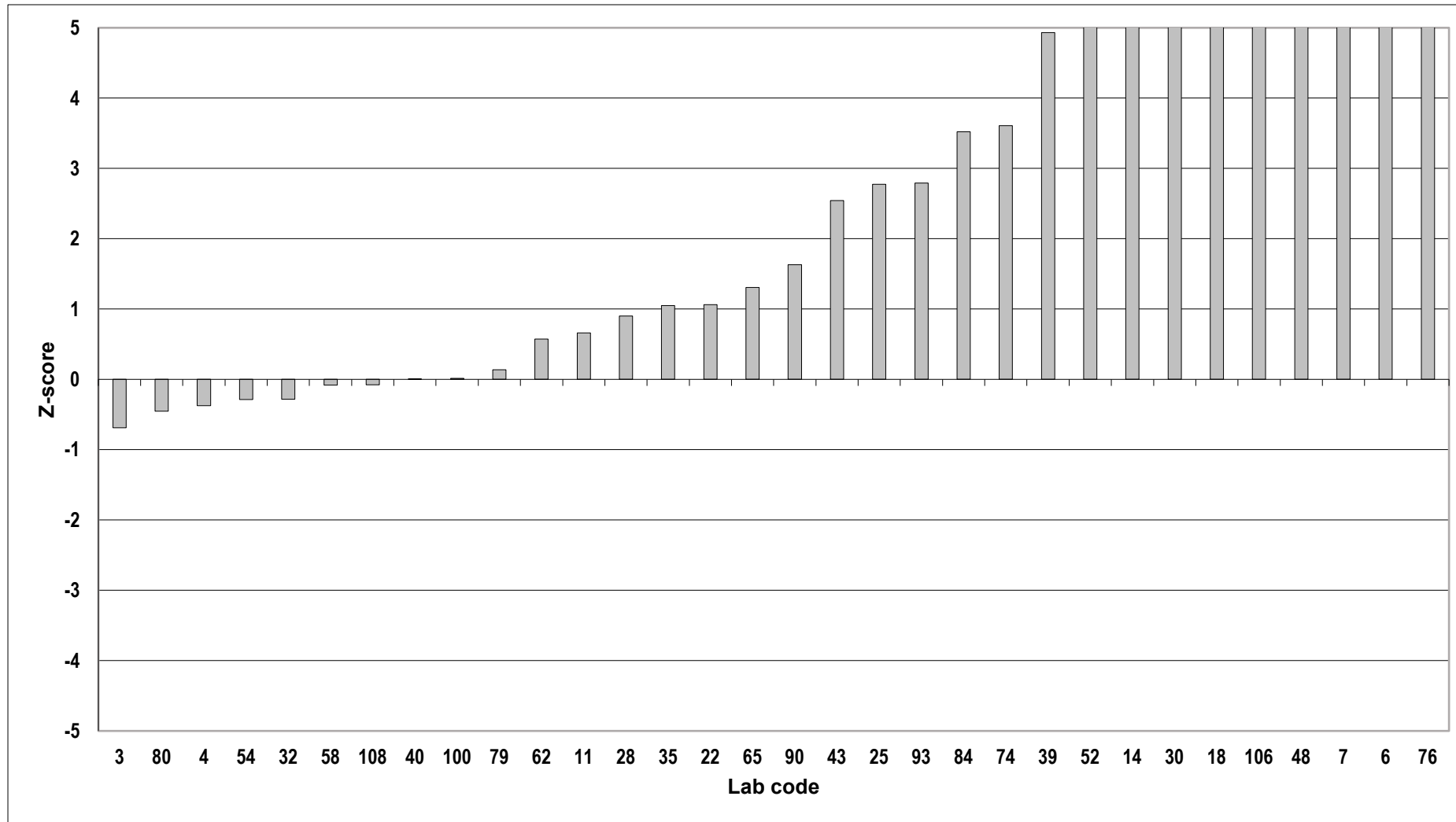
Z-score Salmon, fresh weight; sum PBDE without BDE-209



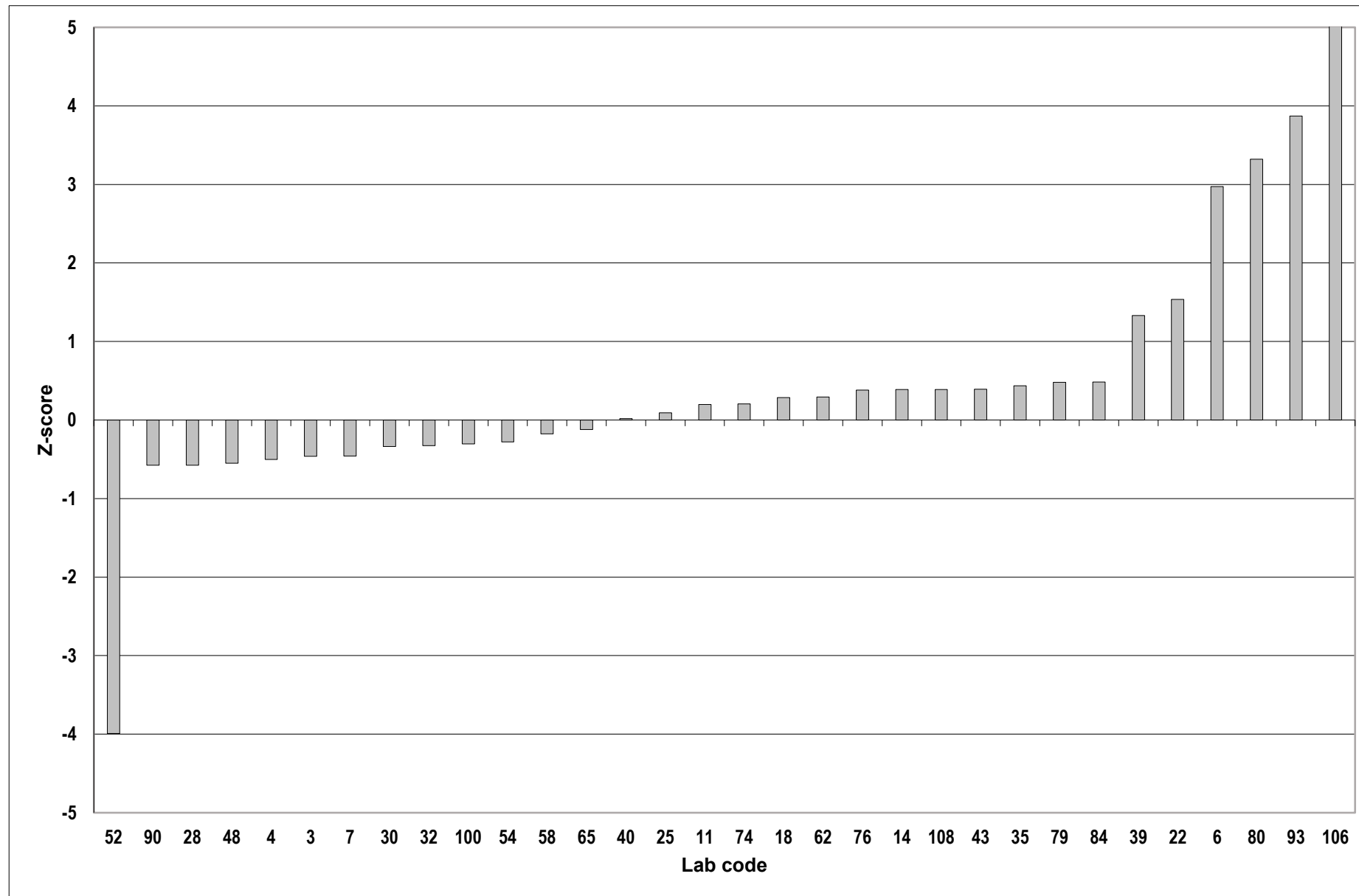
Z-score Salmon, lipid weight; total TEQ



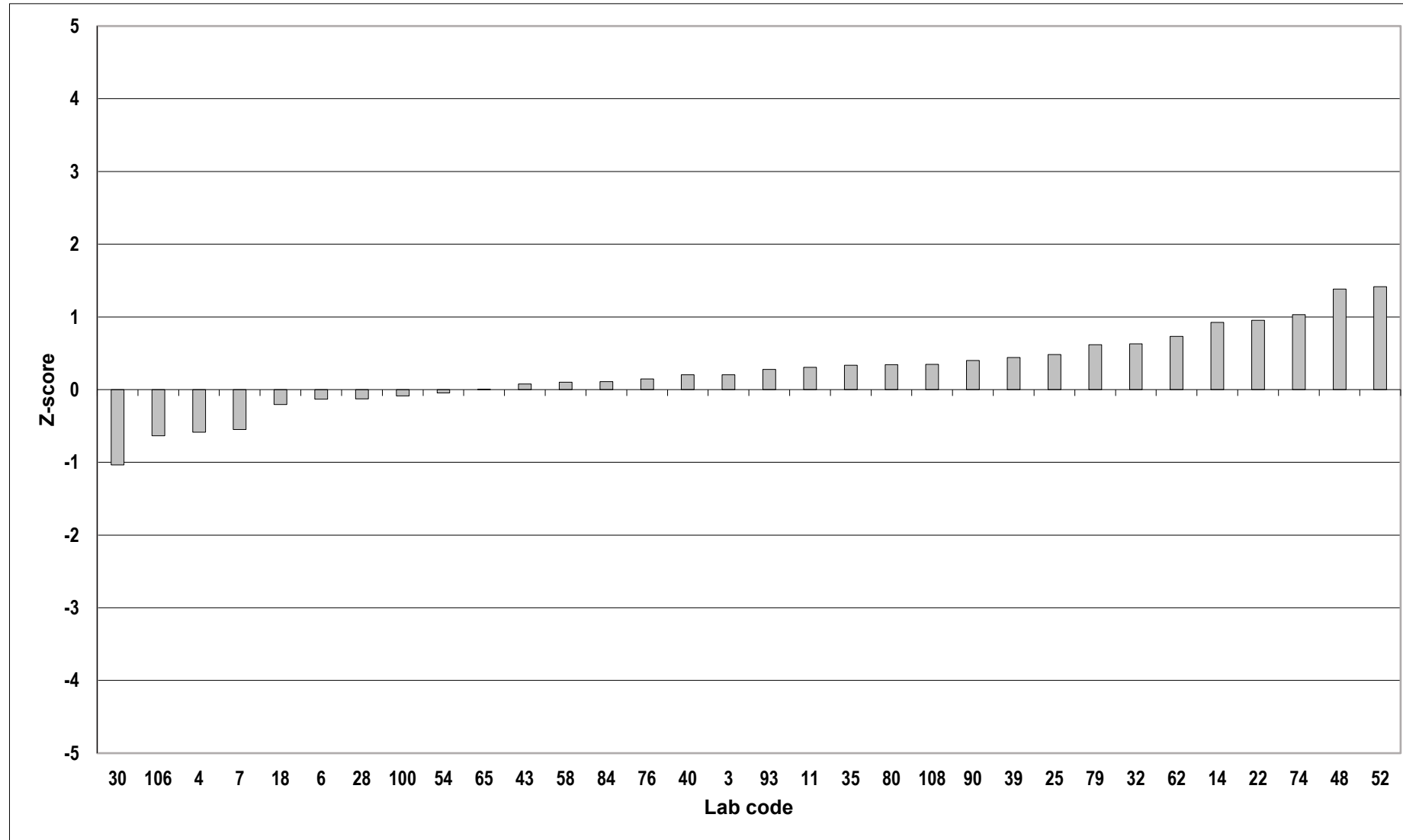
Z-score Salmon, lipid weight; PCDD/PCDF TEQ



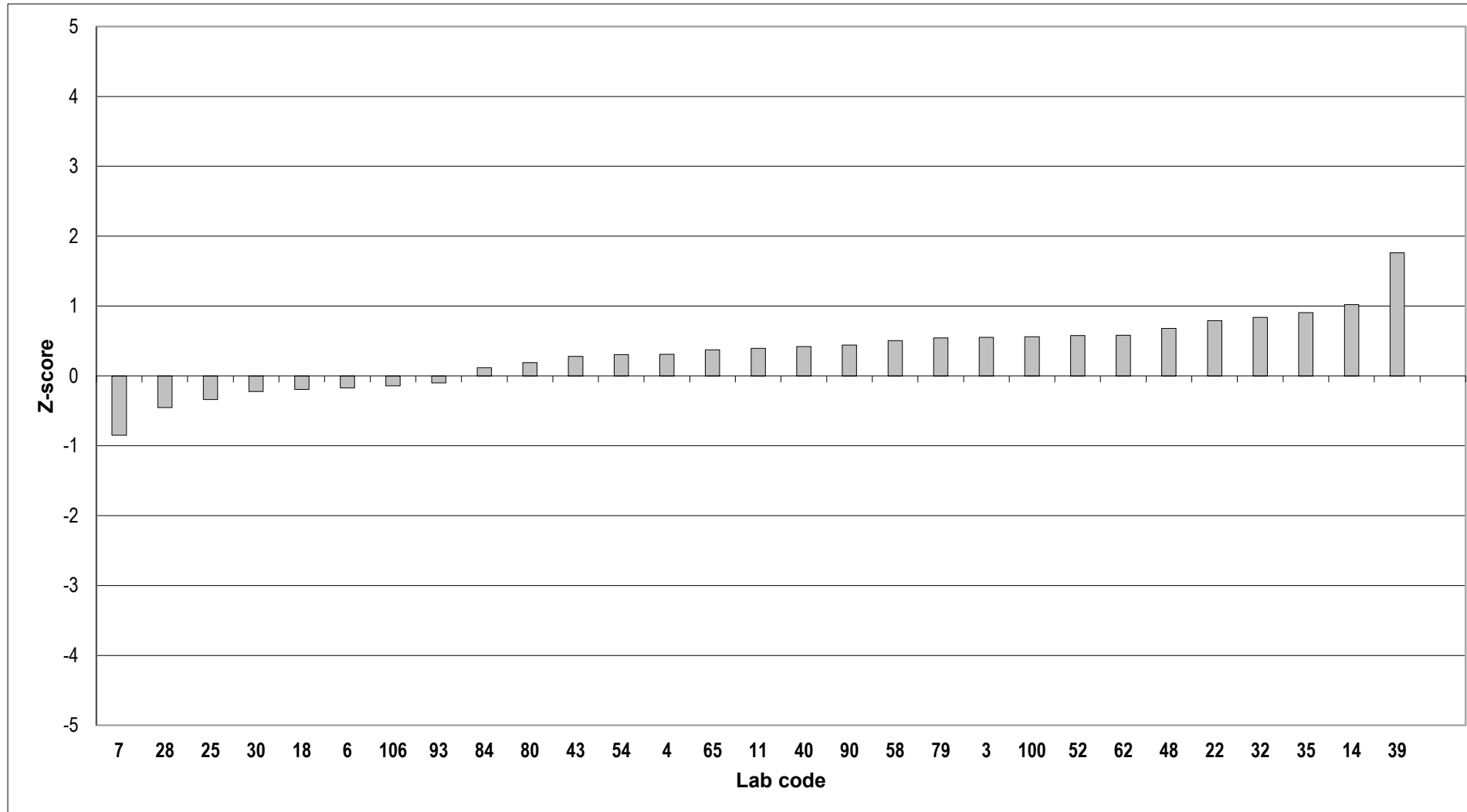
Z-score Salmon, lipid weight; non-ortho PCB TEQ



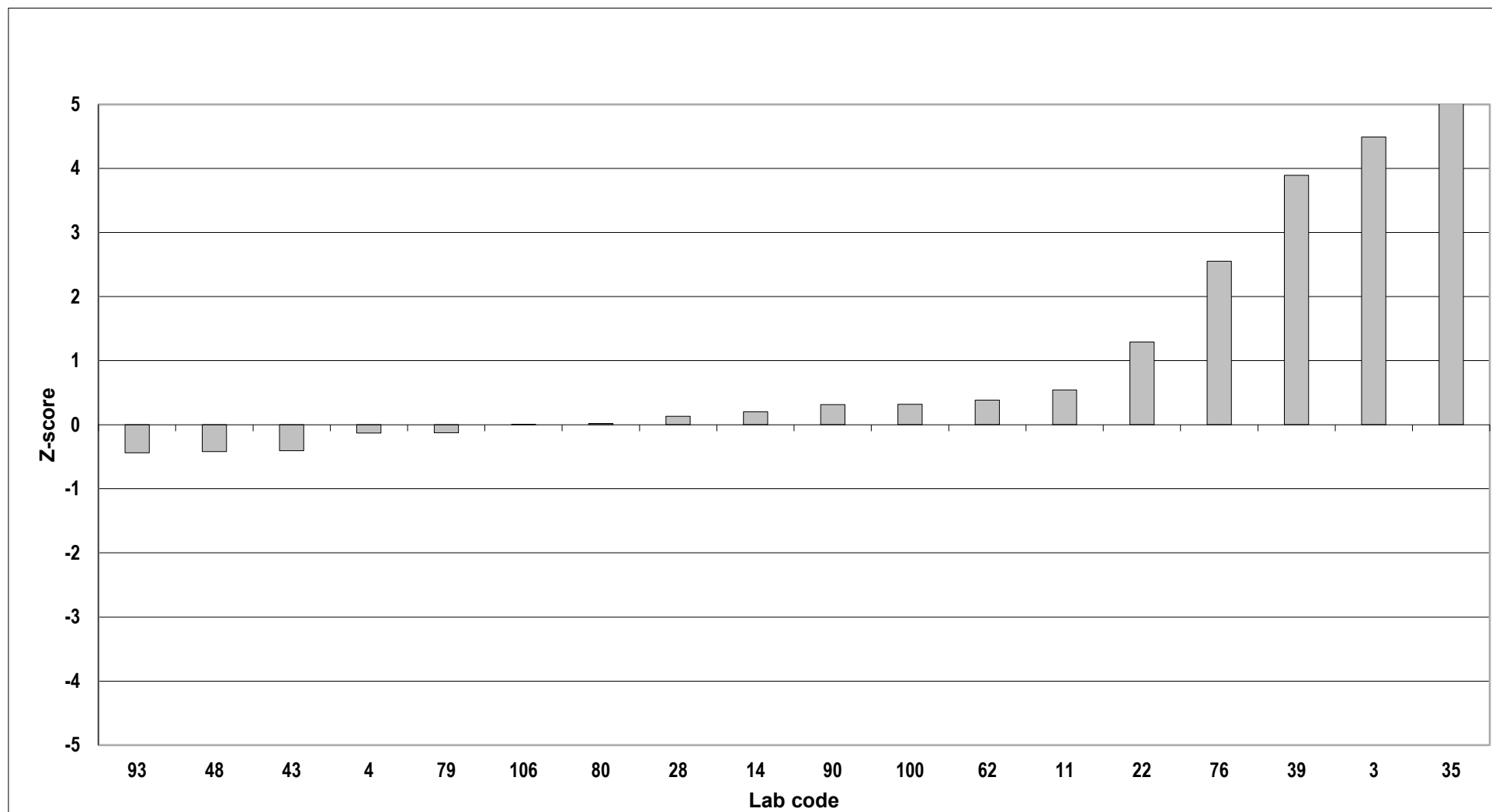
Z-score Salmon, lipid weight; mono-ortho PCB TEQ



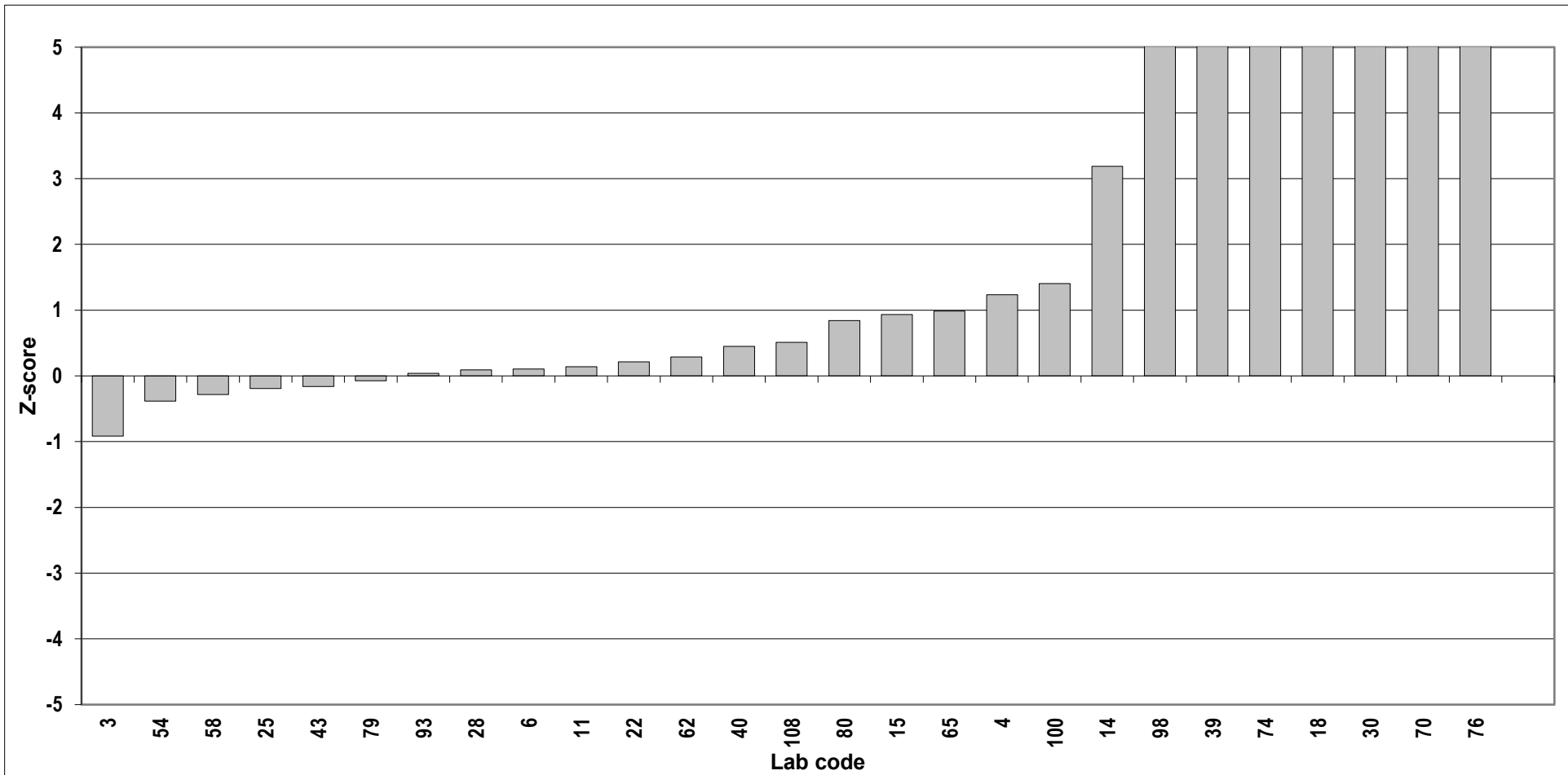
Z-score Salmon, lipid weight; sum indicator PCB



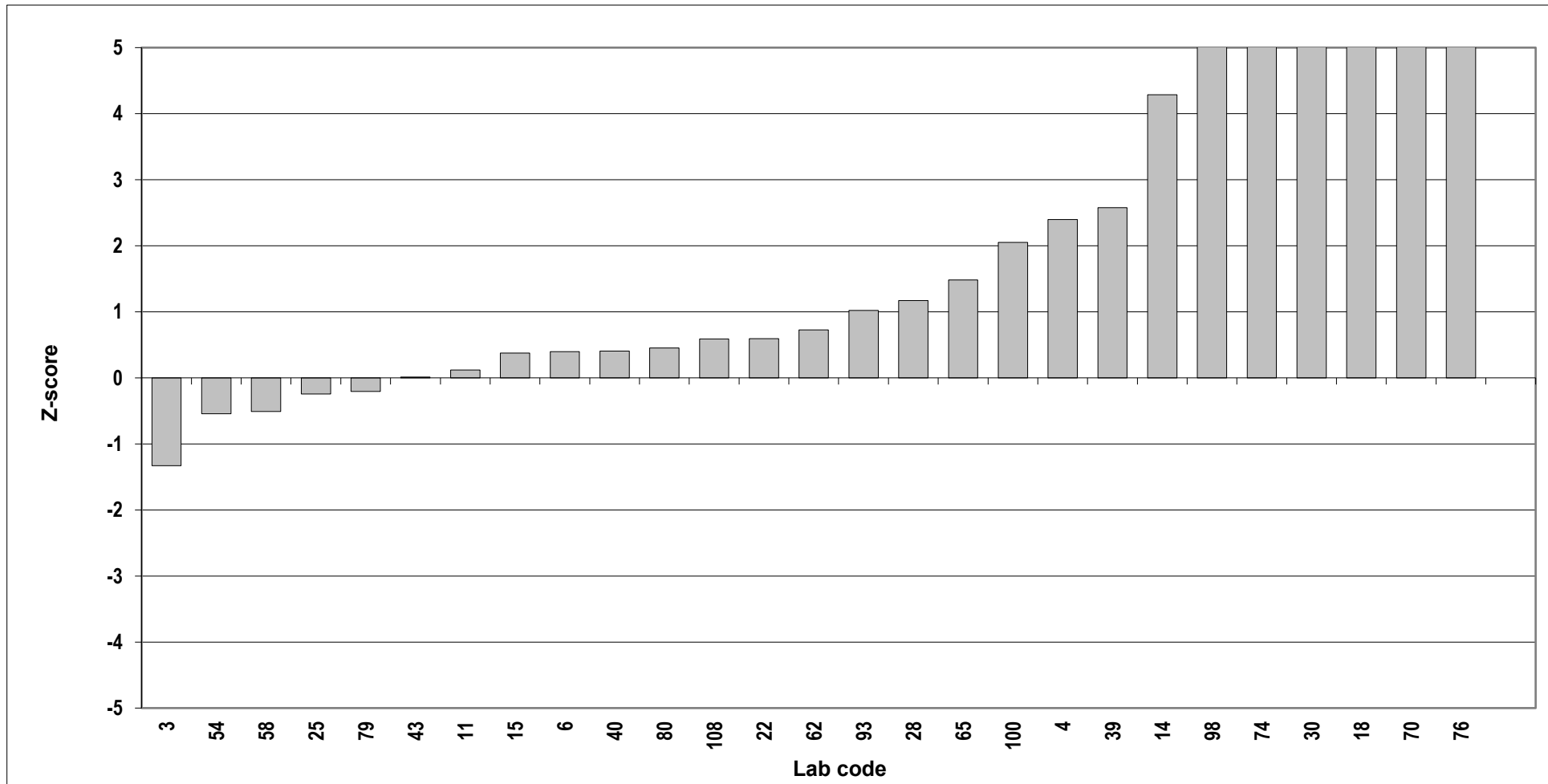
Z-score Salmon, lipid weight; sum PBDE without PBDE-209



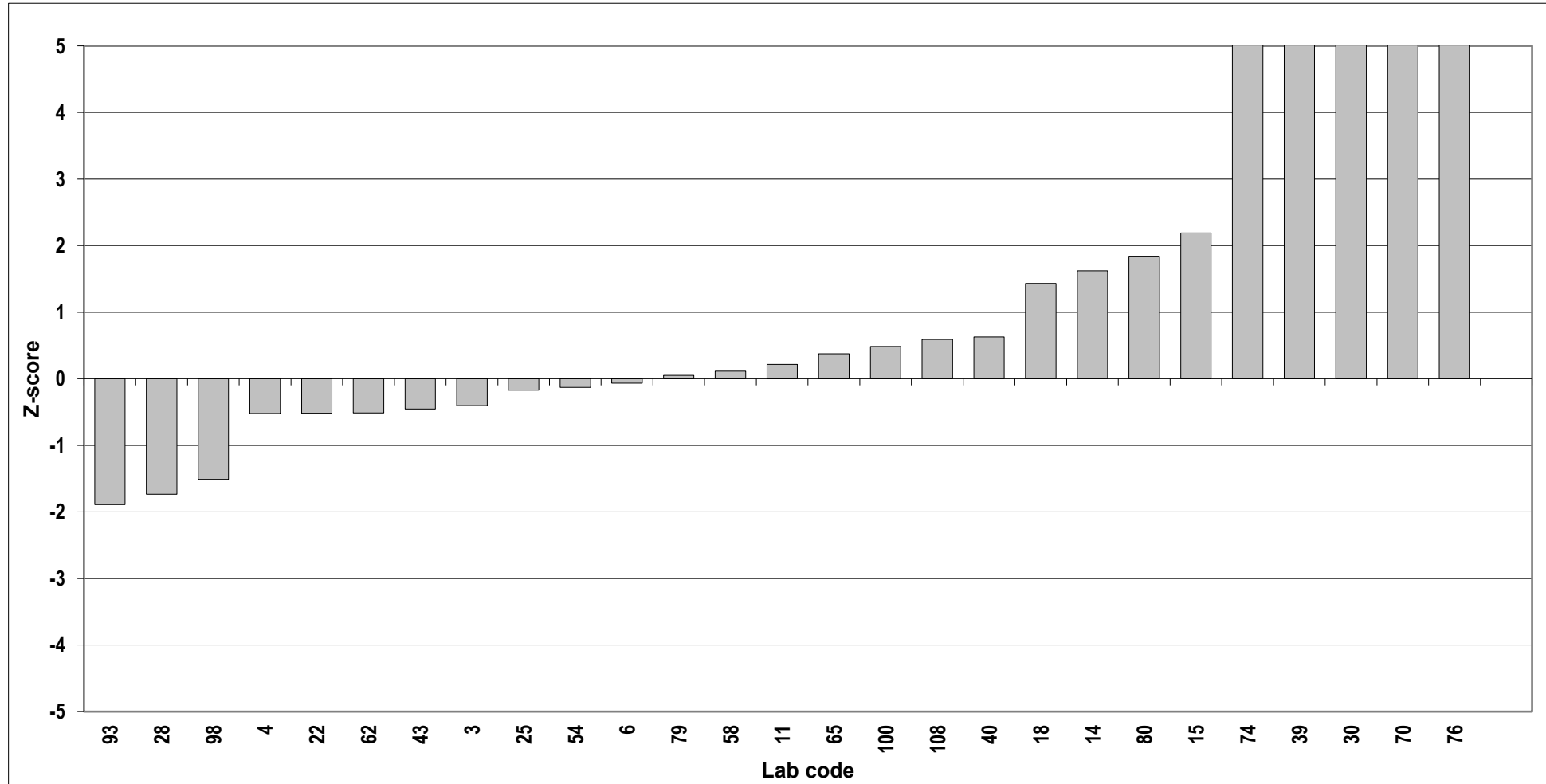
Z-score Lamb, fresh weight; total TEQ



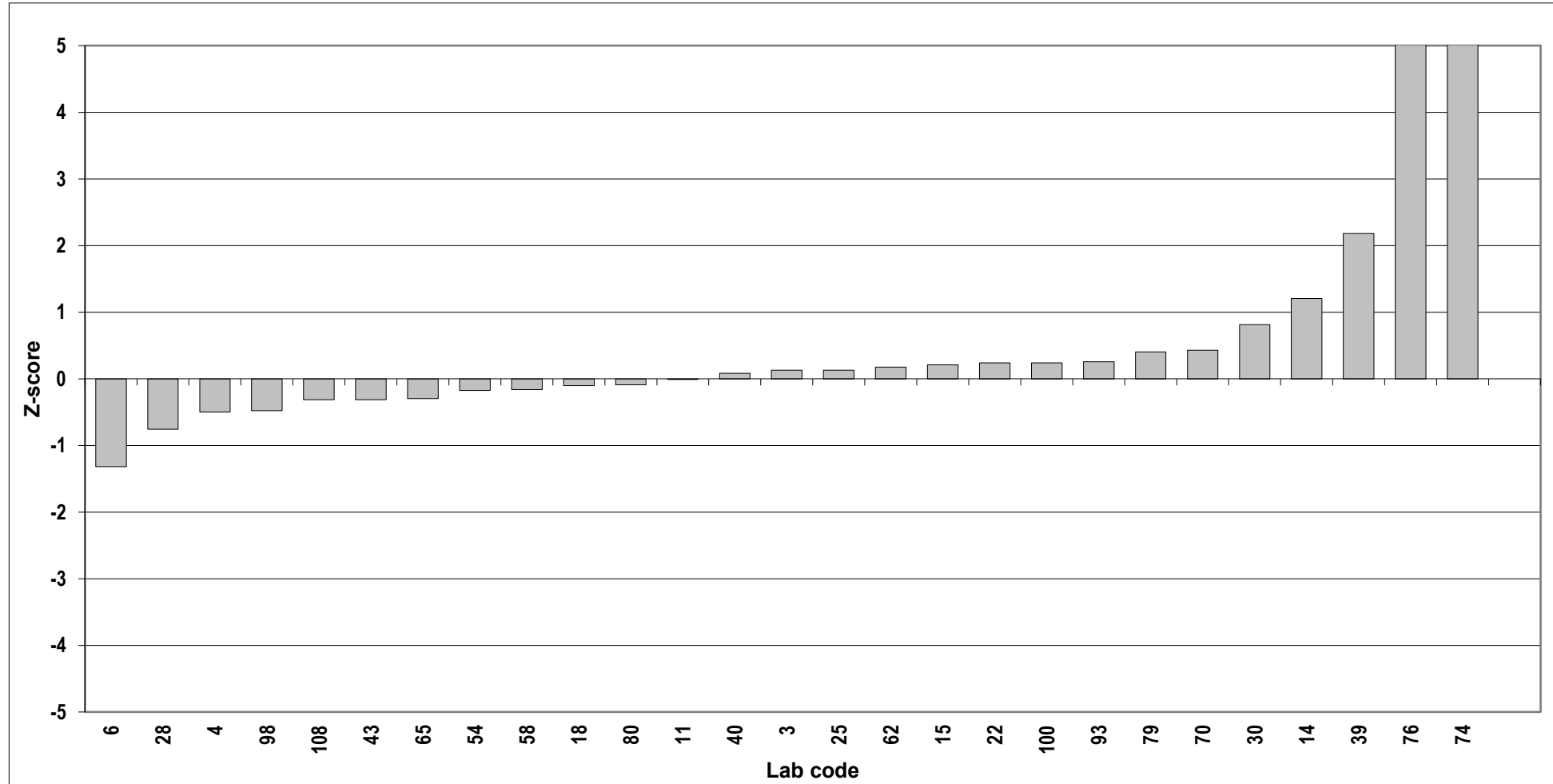
Z-score Lamb, fresh weight; PCDD/PCDF TEQ



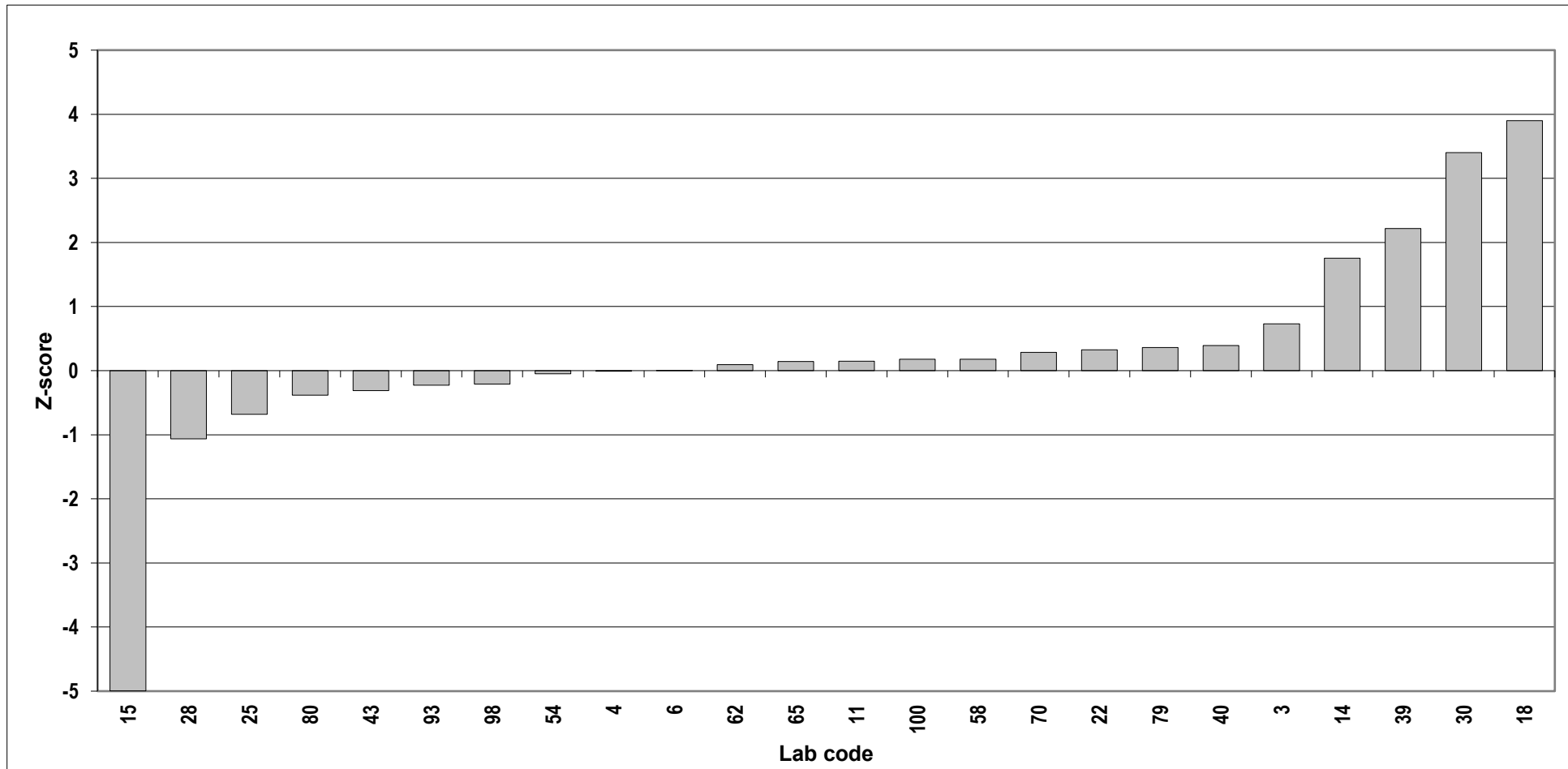
Z-score Lamb, fresh weight; non-ortho PCB TEQ



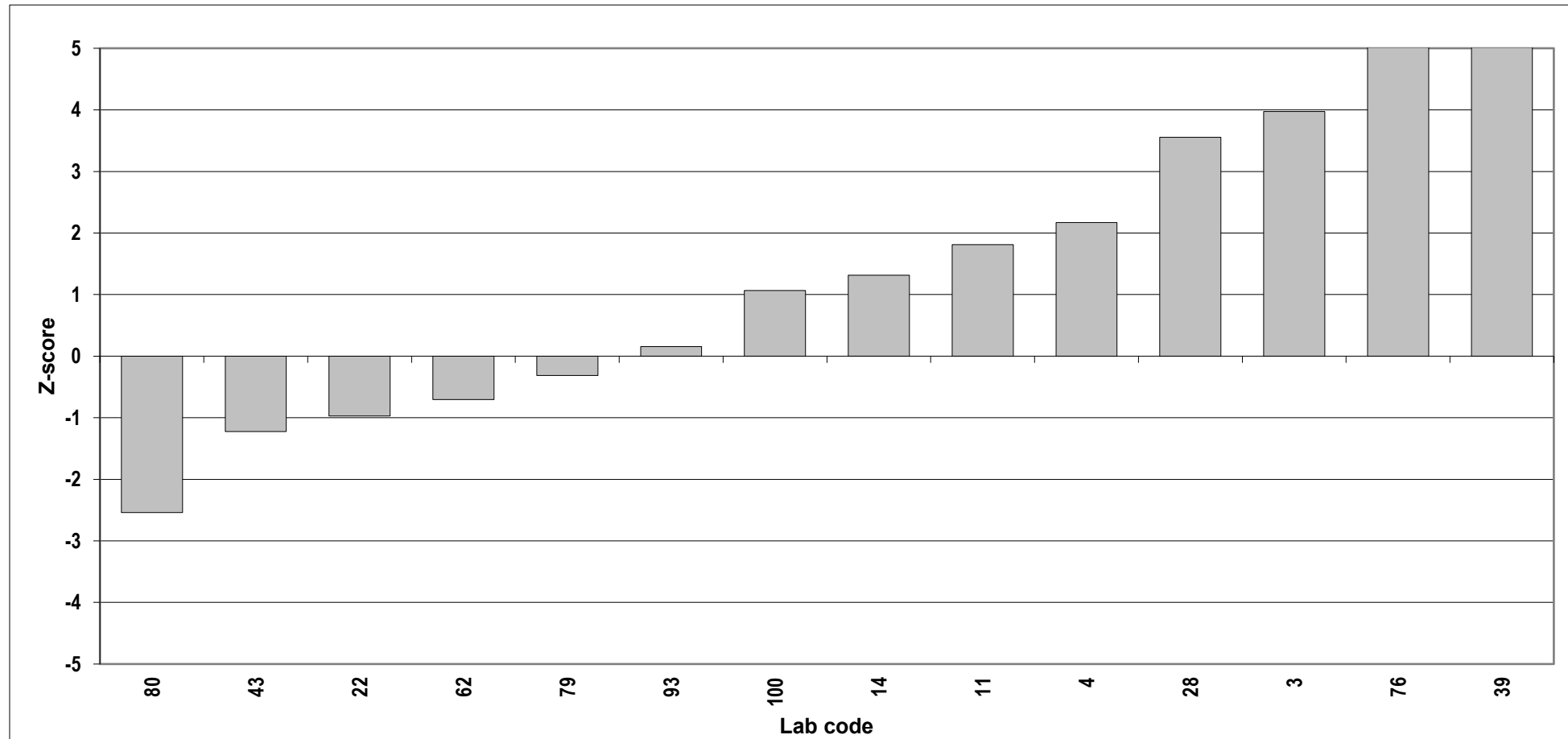
Z-score Lamb, fresh weight; mono-ortho PCB TEQ



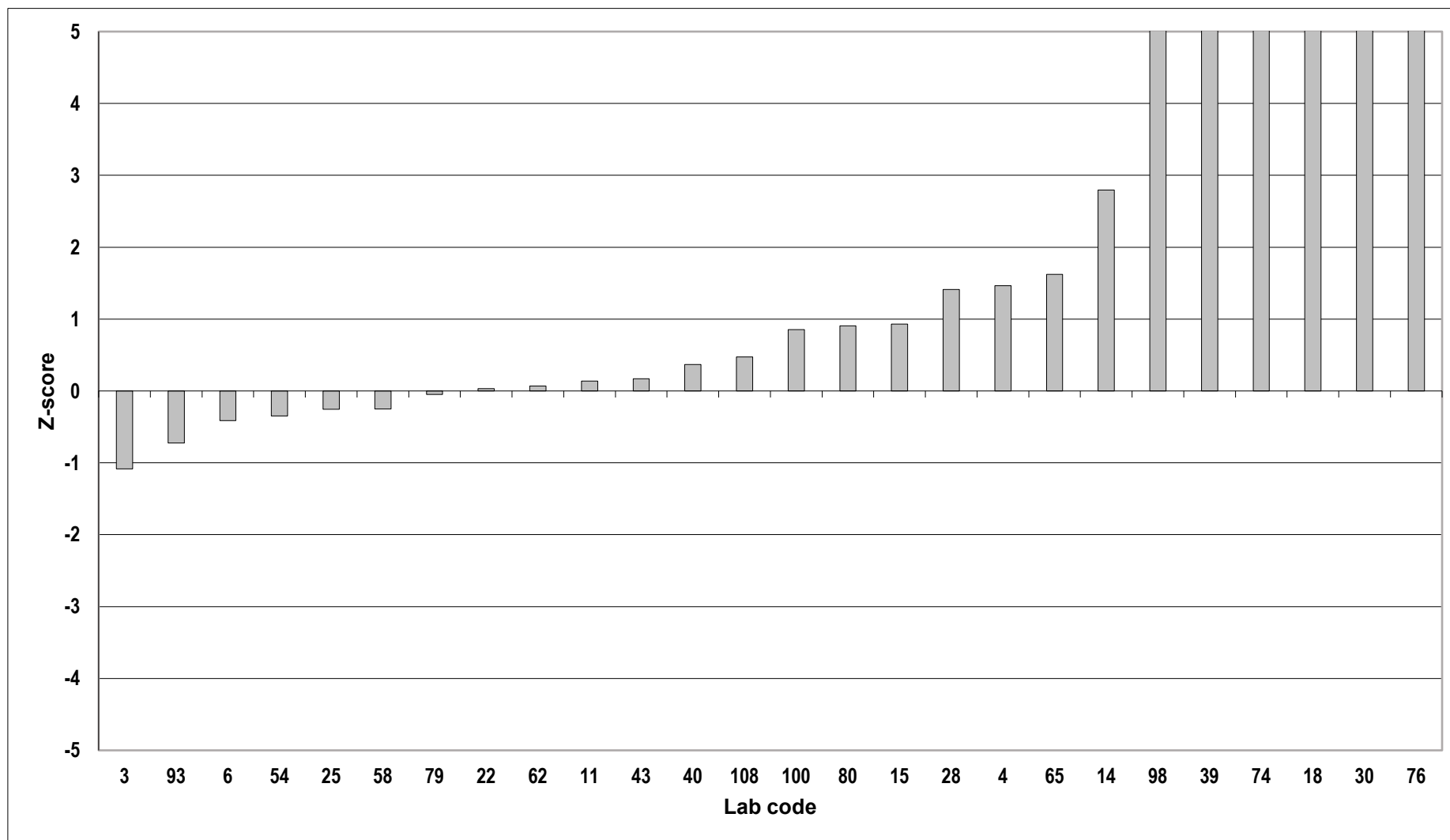
Z-score Lamb, fresh weight; sum indicator PCB



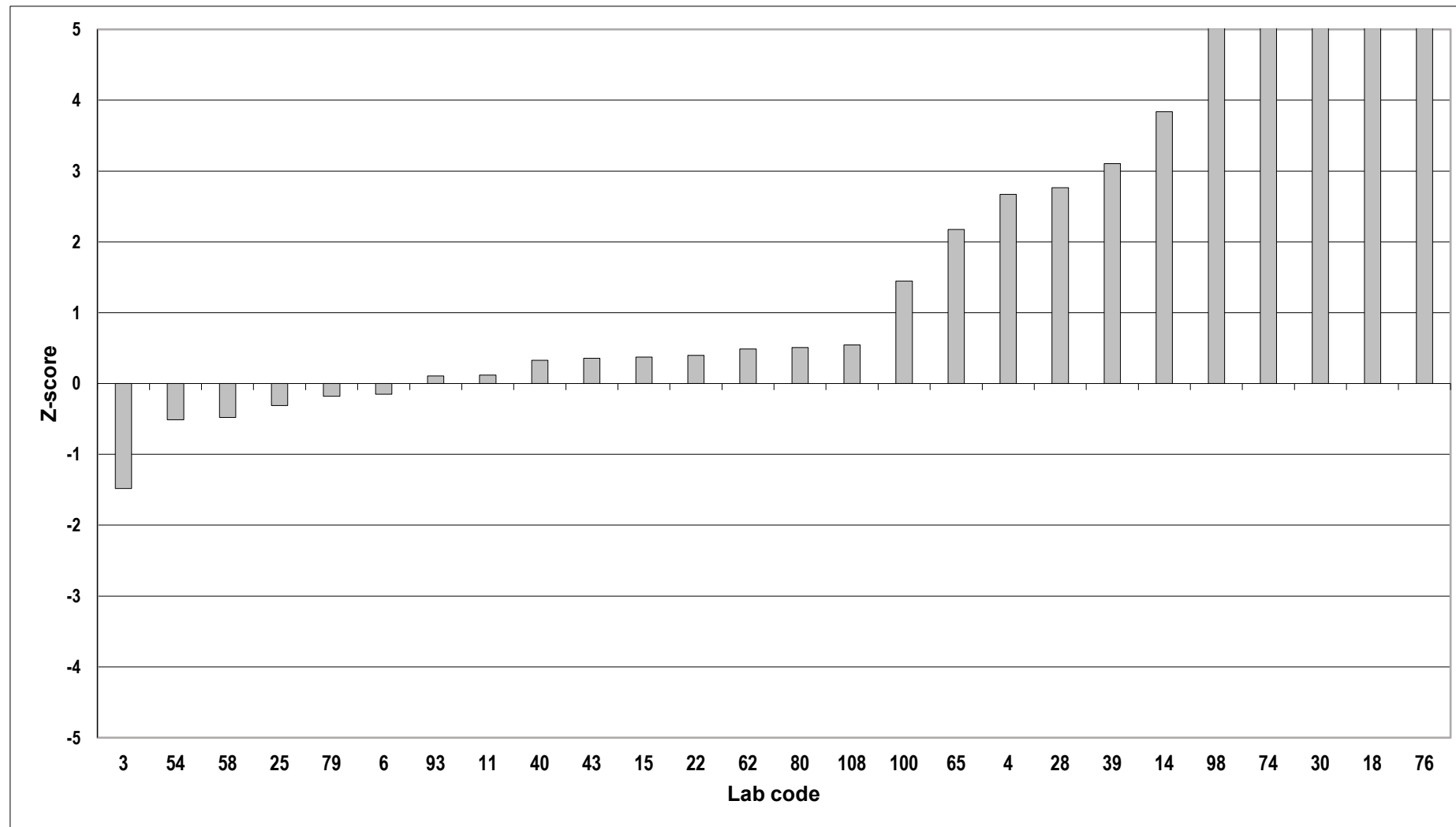
Z-score Lamb, fresh weight; sum PBDE without BDE-209



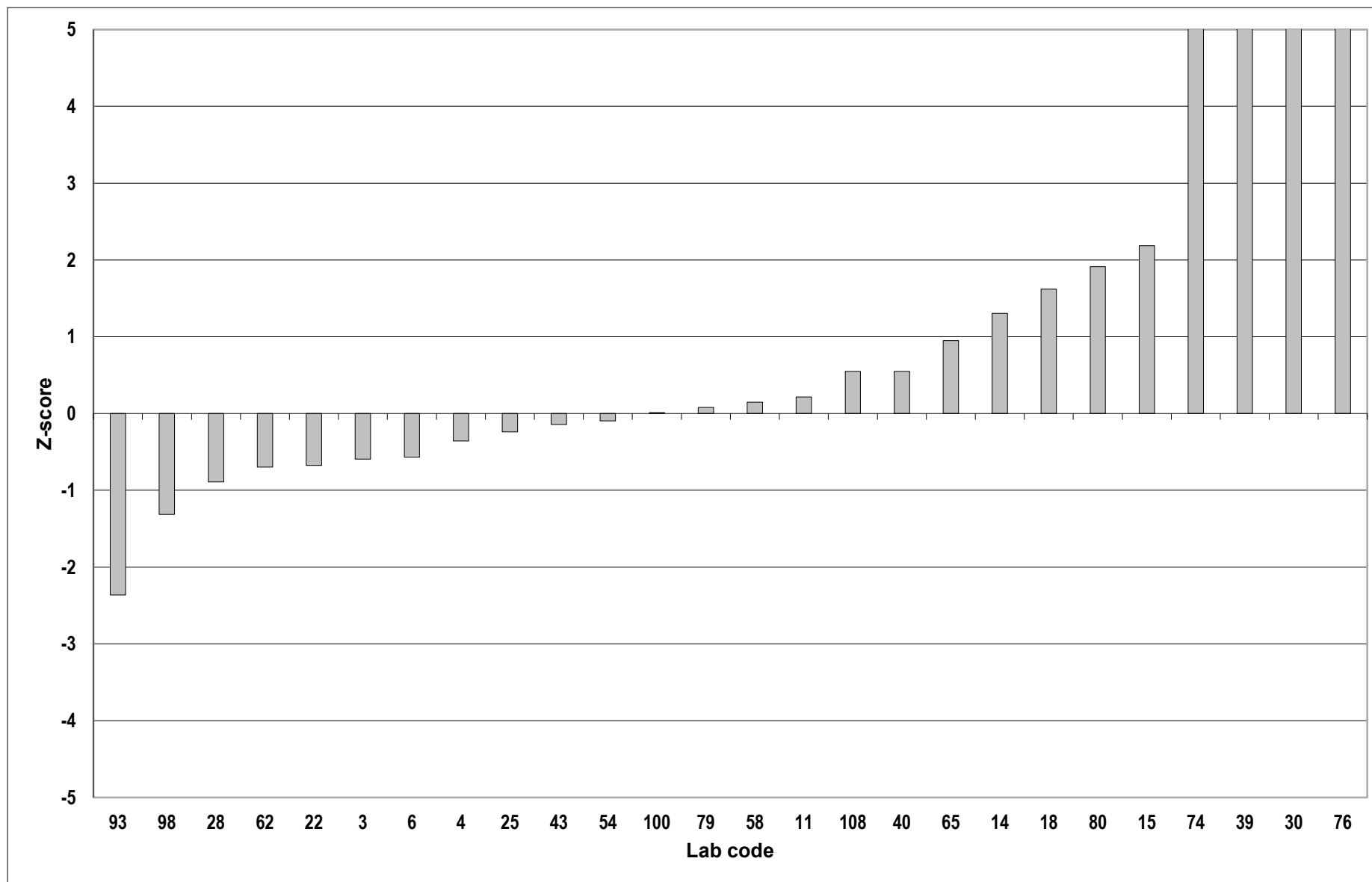
Z-score Lamb, lipid weight; total TEQ



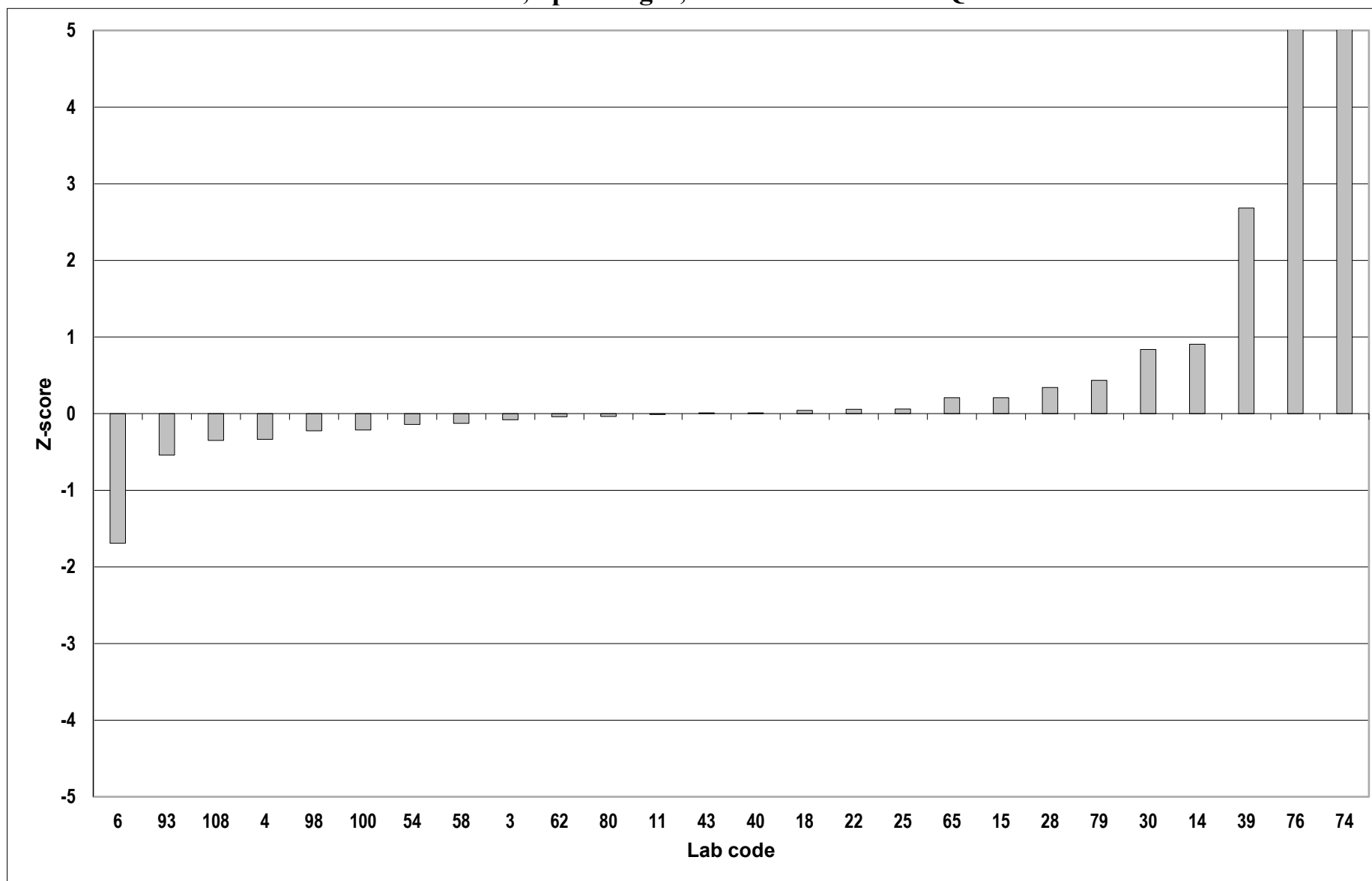
Z-score Lamb, lipid weight; PCDD/PCDF TEQ



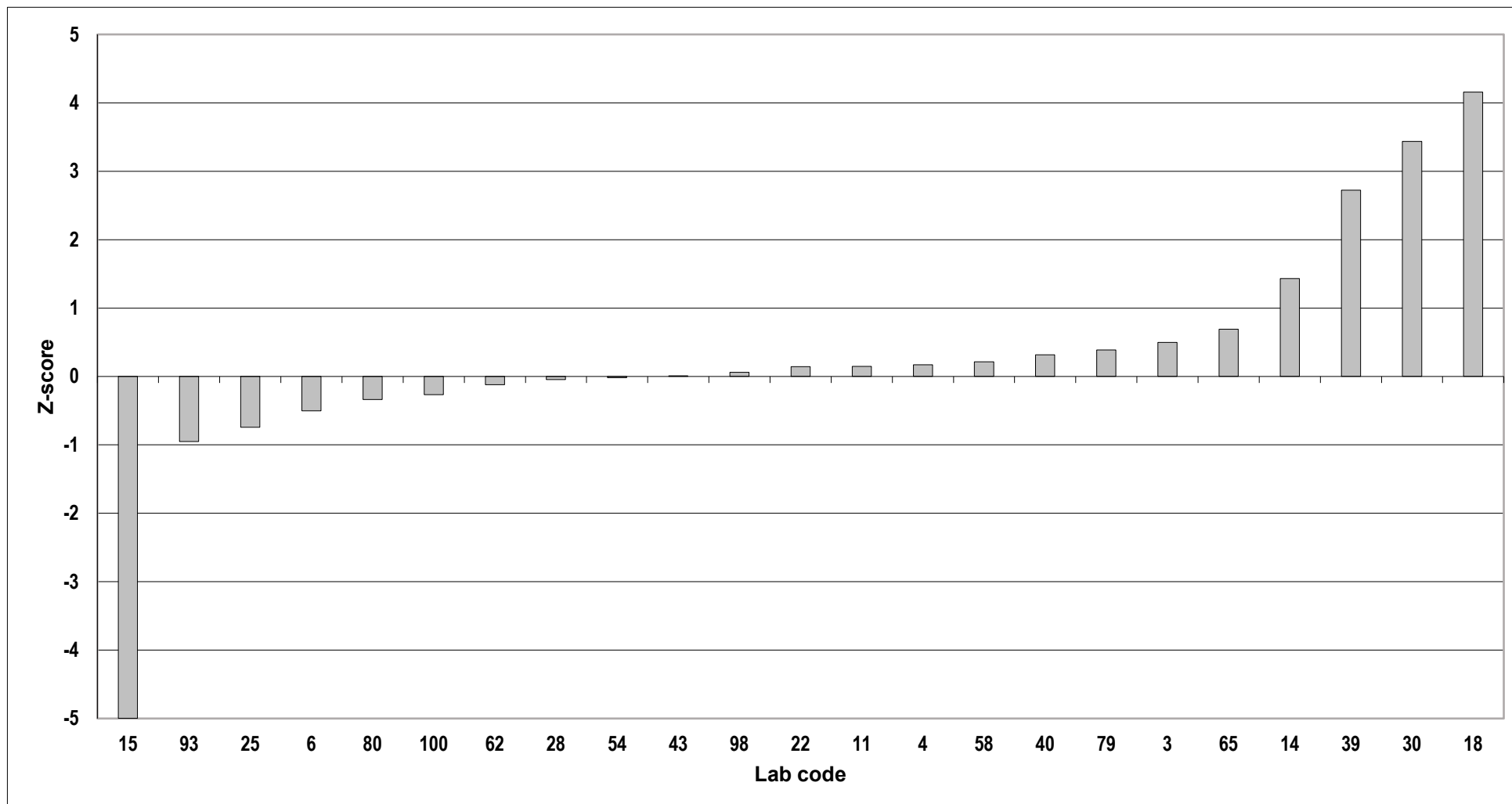
Z-score Lamb, lipid weight; non-ortho PCB TEQ



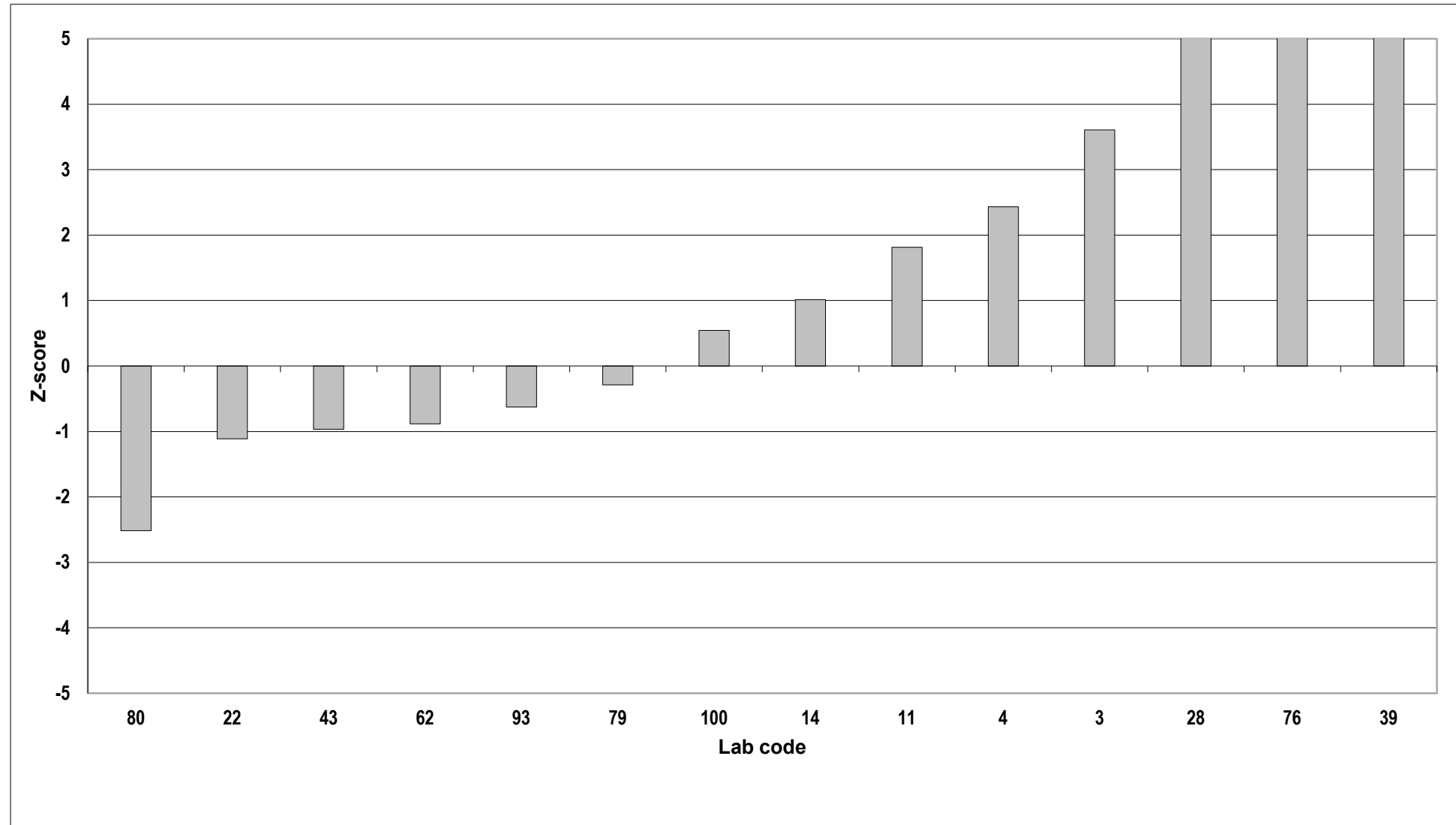
Z-score Lamb, lipid weight; mono-ortho PCB TEQ



Z-score Lamb, lipid weight; sum indicator PCB



Z-score Lamb, lipid weight; sum PBDE without PBDE-209



Appendix 1:

Presentation of results
for analyte solutions

Appendix 1: Presentation of results: Analyte solution

Statistic calculations for PCDDs, PCDFs, dioxin-like PCBs, indicator PCBs, PBDEs and α -HBCD

The analyte solution contained

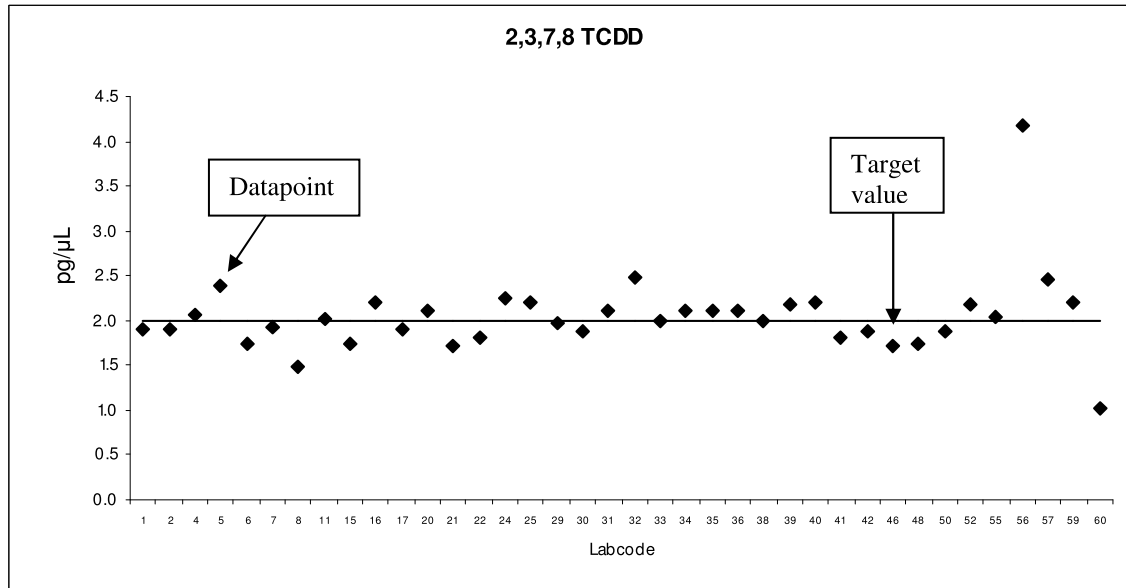
- PCDDs/PCDFs at concentrations of 2:5:10 pg/ μ l for tetra:penta-hexa-hepta:octa chlorinated dibenzodioxins/furans respectively.
- Non-ortho PCBs at concentration of 10 pg/ μ l.
- Mono-ortho PCBs and indicator PCBs at concentration of 100 pg/ μ l.
- PBDE at a concentration of 25 pg/ μ l, except BDE-209 at 100 pg/ μ l.
- α -HBCD at a concentration of 500 pg/ μ l.

These concentrations are called the congeners' target value.

For each congener, the outliers were removed and the consensus calculated according to the following procedure:

1. The median was calculated from all the reported data.
2. Values outside a range of 50 % to 150 % of this median, were defined as outliers and removed from the data set.
3. Median, mean and standard deviation were re-calculated from the remaining data. This median and mean were called consensus median and mean.

The diagram shows the target value and the reported data. Values outside a range of 50 % to 150 % of “median of all values”, were defined as outliers and are not shown in the plot.



Z-Scores of individual congeners

Z-scores of each congener were calculated for each laboratory according to the following equation:

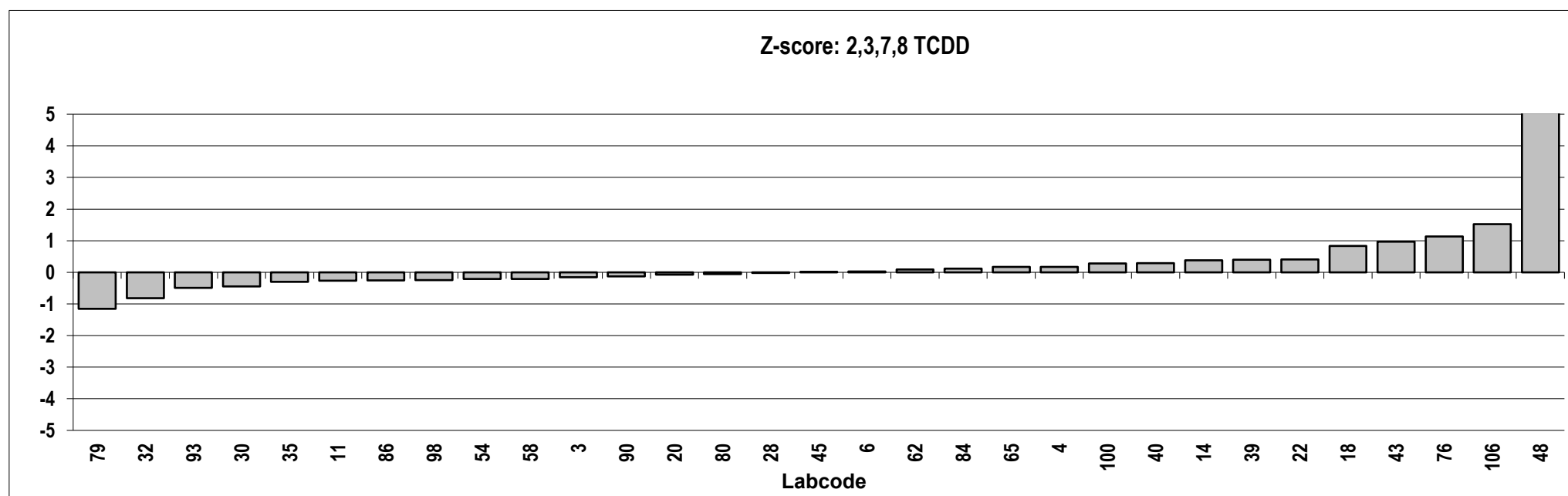
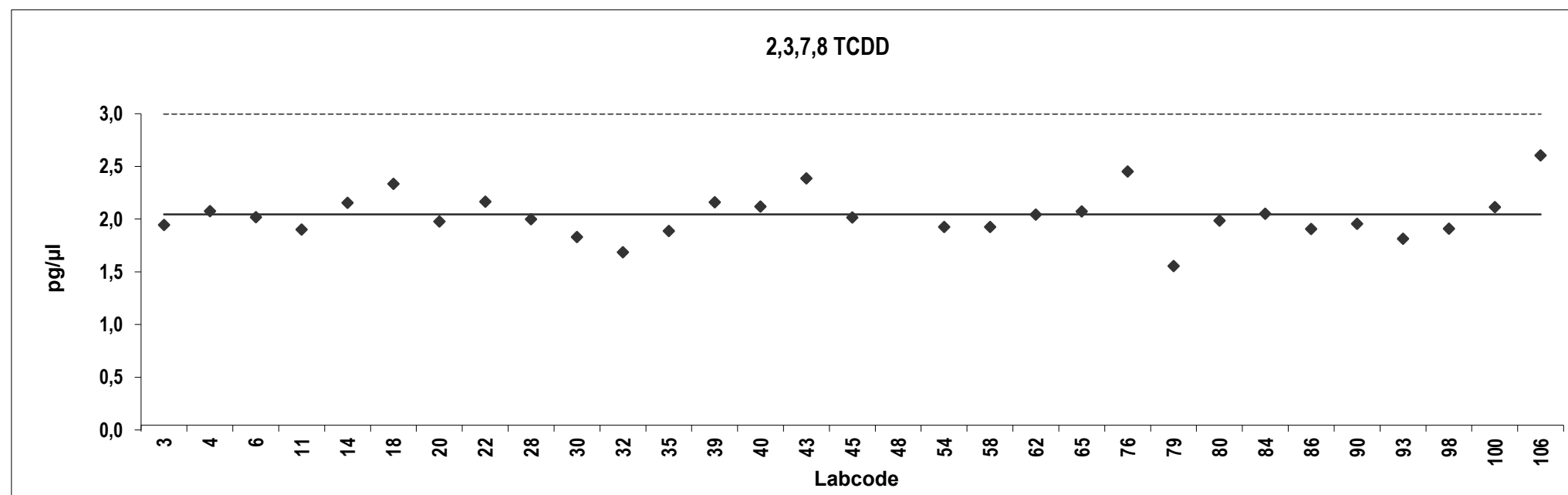
$$z = (x - X)/\sigma$$

Where x = reported value; X = assigned value (consensus); σ = target value for standard deviation. A σ of 20% of the consensus was used, i.e. z-scores between +1 and -1 reflect a deviation of $\pm 20\%$ from the consensus value.

Analyte solution
Congener: 2,3,7,8 TCDD

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	1,9	-0,16				
4	2,0	0,17				
6	2,0	0,030				
11	1,9	-0,27				
14	2,1	0,38				
18	2,3	0,84				
20	1,9	-0,071				
22	2,1	0,40				
28	2,0	-0,021				
30	1,8	-0,45				
32	1,6	-0,82				
35	1,8	-0,31				
39	2,1	0,39				
40	2,1	0,29				
43	2,3	0,97				
45	2,0	0,021				
48	19	44	Outlier			
54	1,9	-0,21				
58	1,9	-0,21				
62	2,0	0,091				
65	2,0	0,17				
76	2,4	1,1				
79	1,5	-1,2				
80	1,9	-0,055				
84	2,0	0,12				
86	1,9	-0,26				
90	1,9	-0,13				
93	1,8	-0,49				
98	1,9	-0,25				
100	2,1	0,28				
106	2,6	1,5				

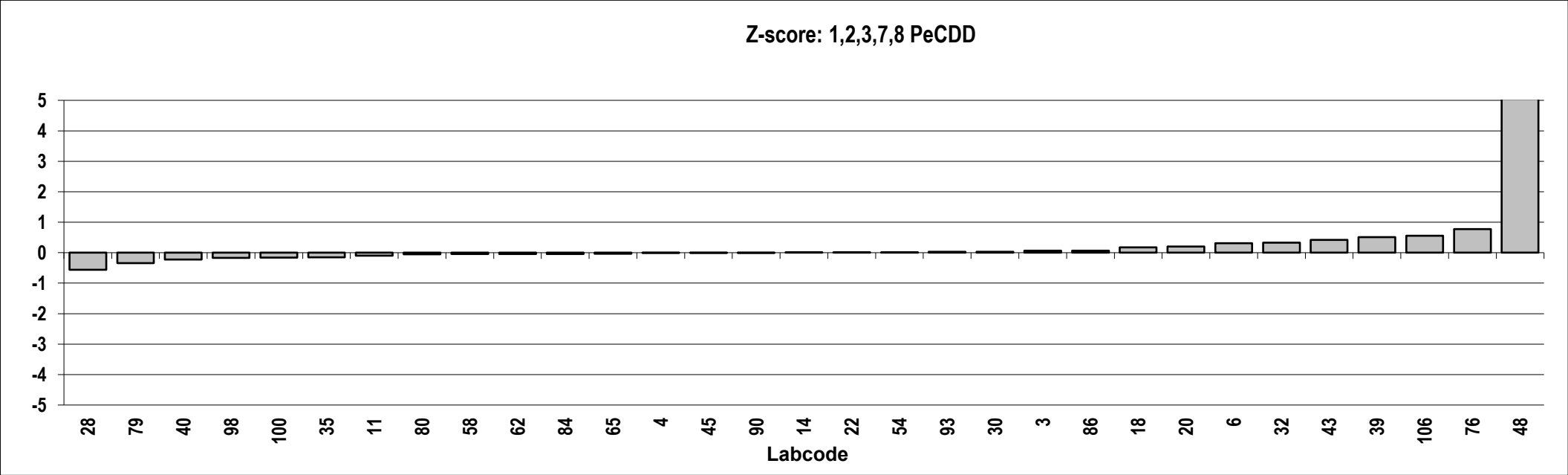
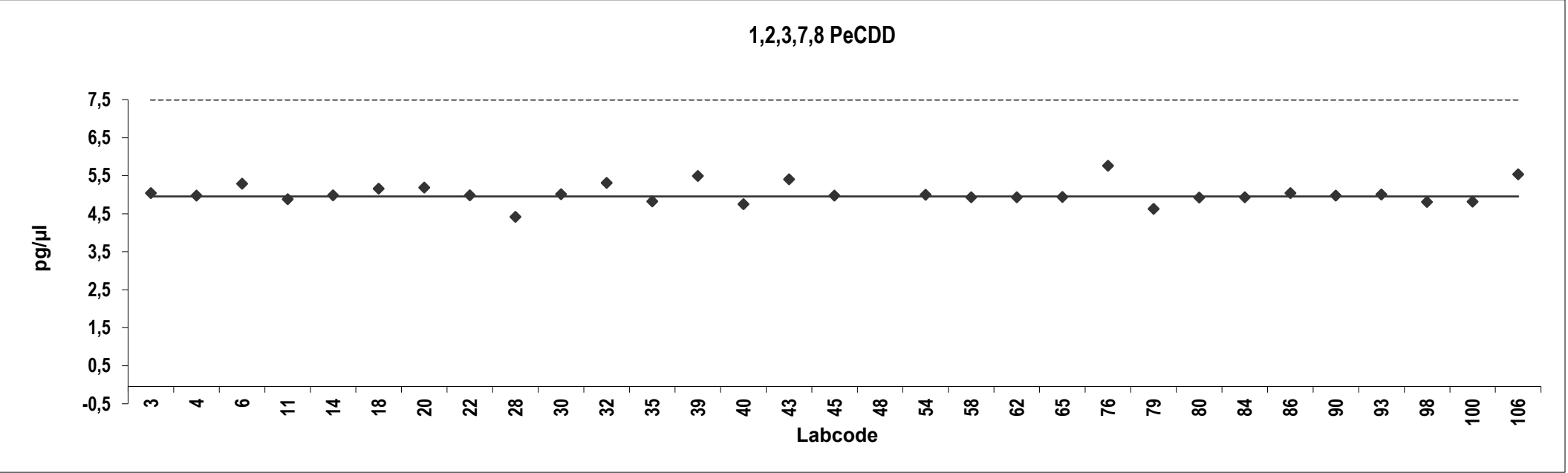
Consensus statistics	
Consensus median, pg/μl	2,0
Median all values, pg/μl	2,0
Consensus mean, pg/μl	2,0
Standard deviation, pg/μl	0,21
Relative standard deviation, %	11
No. of values reported	31
No. of values removed	1
No. of reported non-detects	0



Analyte solution
Congener: 1,2,3,7,8 PeCDD

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	5,1	0,065				
4	5,0	-0,0050				
6	5,3	0,31				
11	4,9	-0,094				
14	5,0	0,0050				
18	5,2	0,17				
20	5,2	0,20				
22	5,0	0,0050				
28	4,5	-0,56				
30	5,1	0,033				
32	5,4	0,33				
35	4,9	-0,16				
39	5,5	0,51				
40	4,8	-0,23				
43	5,4	0,42				
45	5,0	-0,0050				
48	54	49	Outlier			
54	5,0	0,015				
58	5,0	-0,045				
62	5,0	-0,044				
65	5,0	-0,038				
76	5,8	0,78				
79	4,7	-0,35				
80	5,0	-0,055				
84	5,0	-0,044				
86	5,1	0,065				
90	5,0	-0,0050				
93	5,1	0,025				
98	4,9	-0,17				
100	4,9	-0,16				
106	5,6	0,55				

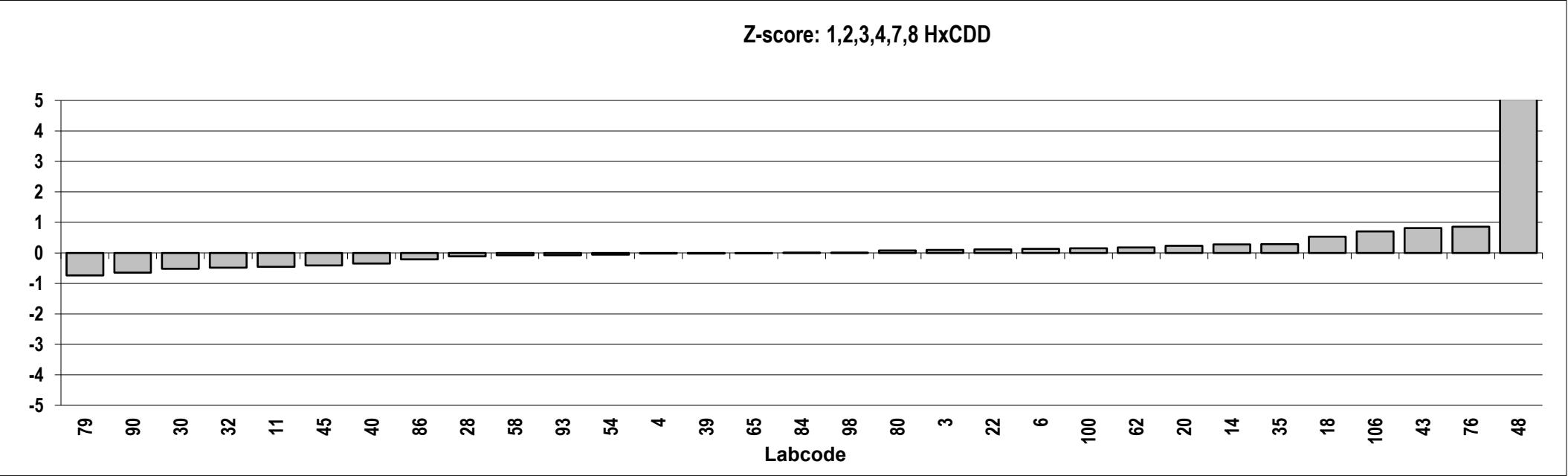
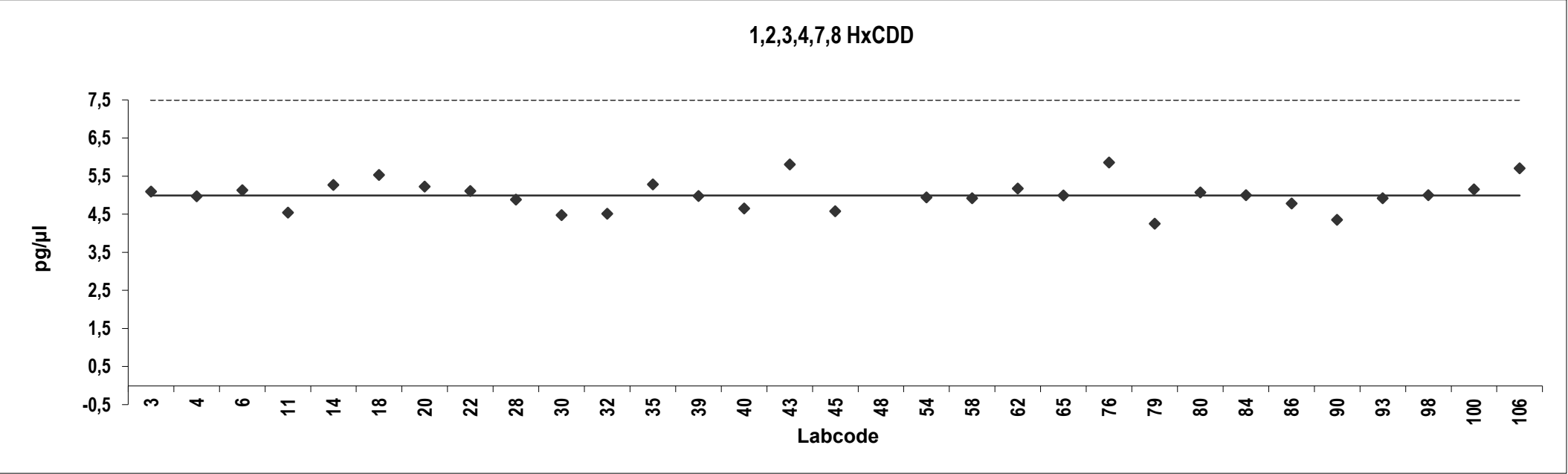
Consensus statistics	
Consensus median, pg/μl	5,0
Median all values, pg/μl	5,0
Consensus mean, pg/μl	5,1
Standard deviation, pg/μl	0,27
Relative standard deviation, %	5
No. of values reported	31
No. of values removed	1
No. of reported non-detects	0



Analyte solution
Congener: 1,2,3,4,7,8 HxCDD

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	5,1	0,095	Outlier			
4	5,0	-0,025				
6	5,1	0,14				
11	4,5	-0,46				
14	5,3	0,27				
18	5,5	0,53				
20	5,2	0,23				
22	5,1	0,12				
28	4,9	-0,12				
30	4,5	-0,52				
32	4,5	-0,48				
35	5,3	0,28				
39	5,0	-0,018				
40	4,7	-0,34				
43	5,8	0,81				
45	4,6	-0,41				
48	5,8	0,53				
54	5,0	-0,055				
58	4,9	-0,075				
62	5,2	0,18				
65	5,0	-0,0017				
76	5,9	0,86				
79	4,3	-0,74				
80	5,1	0,075				
84	5,0	0,0017				
86	4,8	-0,21				
90	4,4	-0,64				
93	4,9	-0,075				
98	5,0	0,0067				
100	5,2	0,16				
106	5,7	0,70				

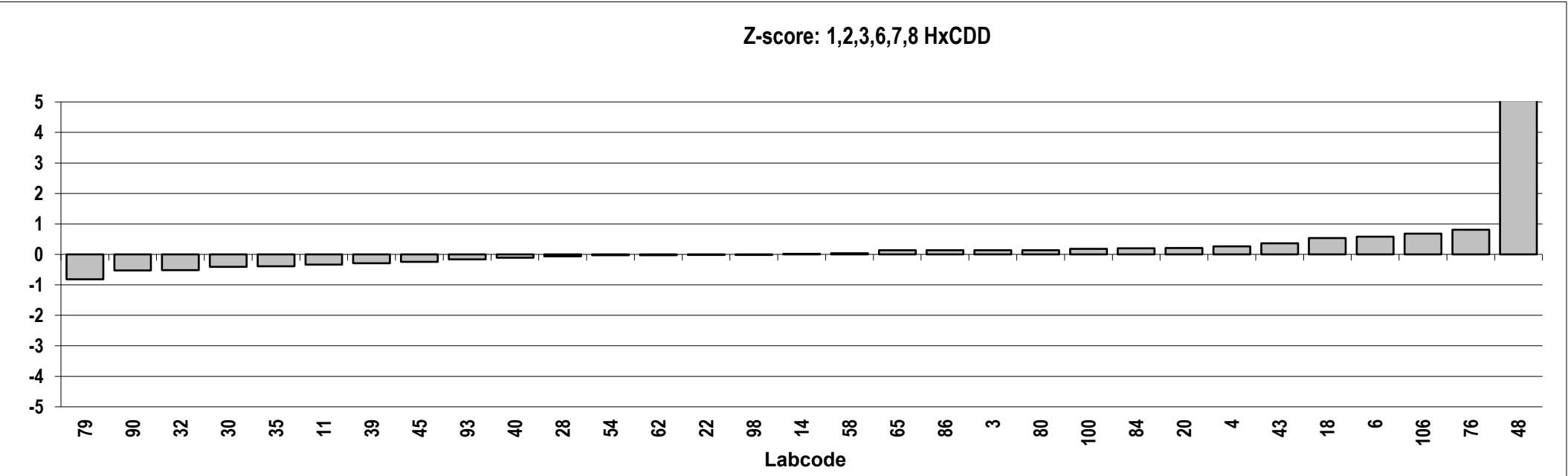
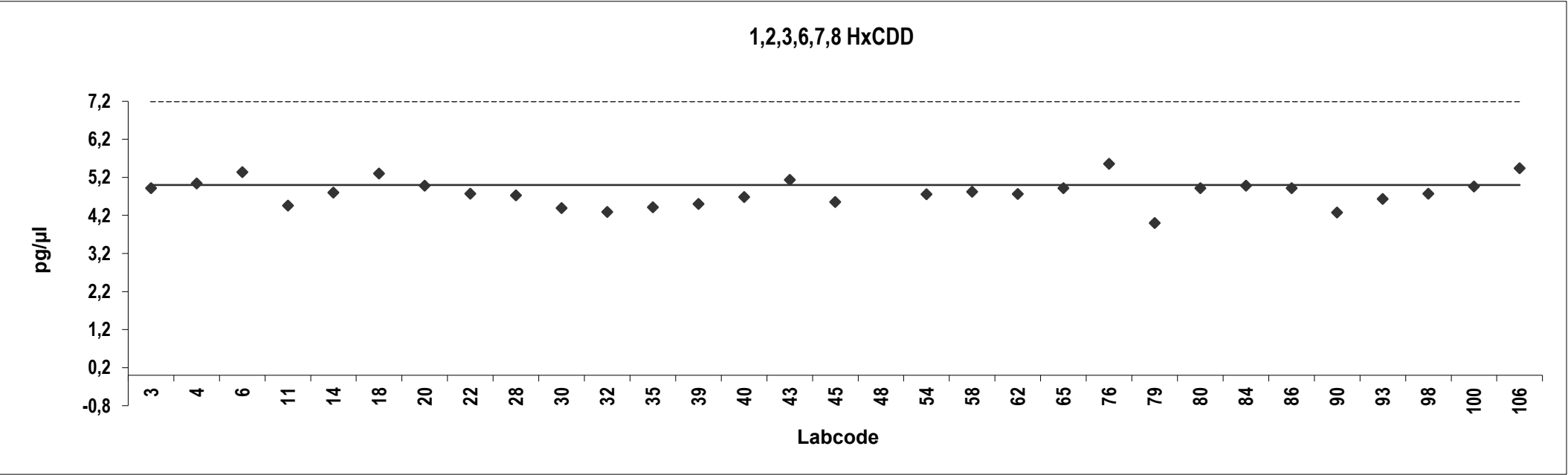
Consensus statistics	
Consensus median, pg/μl	5,0
Median all values, pg/μl	5,0
Consensus mean, pg/μl	5,0
Standard deviation, pg/μl	0,40
Relative standard deviation, %	8
No. of values reported	31
No. of values removed	1
No. of reported non-detects	0



Analyte solution
Congener: 1,2,3,6,7,8 HxCDD

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	4,9	0,14	Outlier			
4	5,0	0,27				
6	5,3	0,58				
11	4,5	-0,34				
14	4,8	0,015				
18	5,3	0,54				
20	5,0	0,21				
22	4,8	-0,016				
28	4,7	-0,063				
30	4,4	-0,41				
32	4,3	-0,52				
35	4,4	-0,39				
39	4,5	-0,29				
40	4,7	-0,11				
43	5,1	0,36				
45	4,6	-0,25				
48	4,4	0,1				
54	4,8	-0,027				
58	4,8	0,036				
62	4,8	-0,023				
65	4,9	0,14				
76	5,6	0,81				
79	4,0	-0,82				
80	4,9	0,14				
84	5,0	0,20				
86	4,9	0,14				
90	4,3	-0,53				
93	4,6	-0,16				
98	4,8	-0,015				
100	5,0	0,18				
106	5,4	0,68				

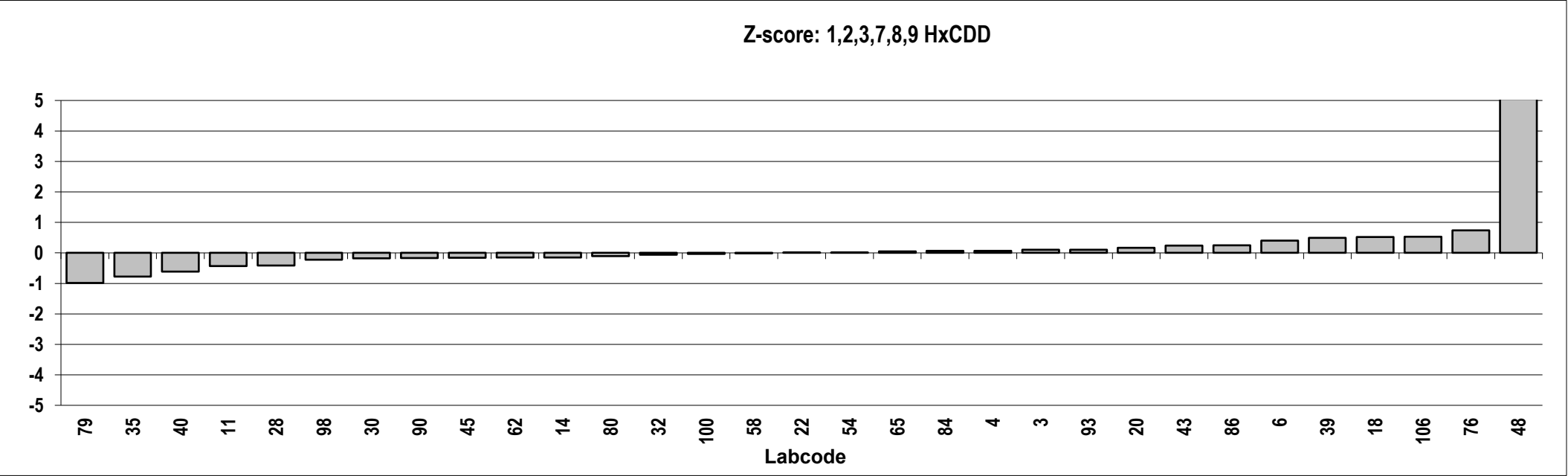
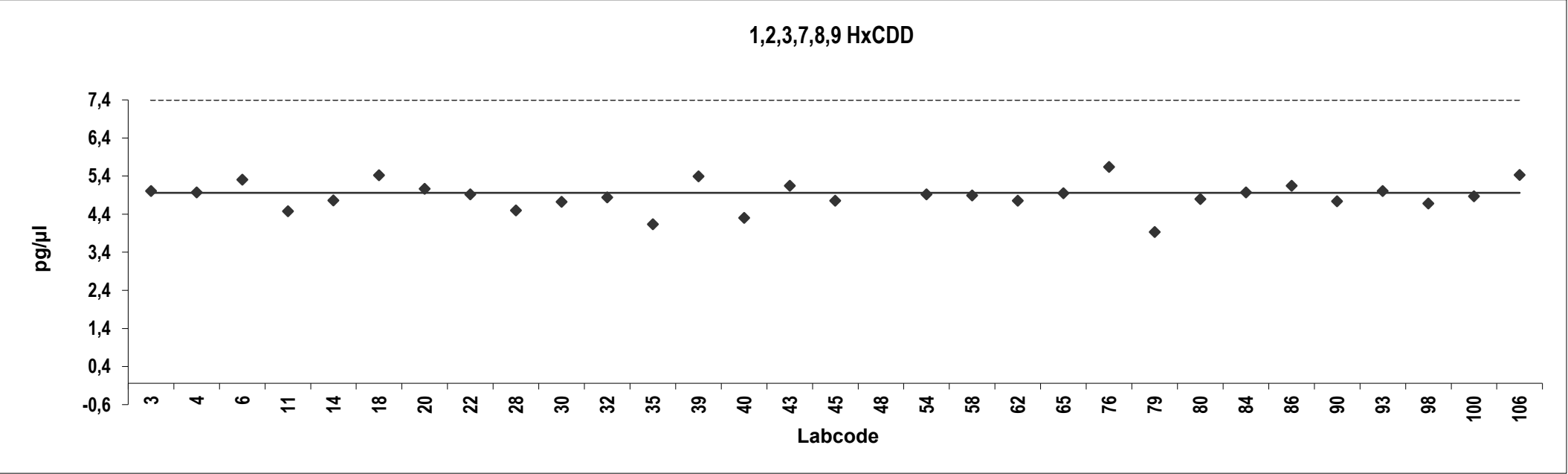
Consensus statistics	
Consensus median, pg/μl	4,8
Median all values, pg/μl	4,8
Consensus mean, pg/μl	4,8
Standard deviation, pg/μl	0,35
Relative standard deviation, %	7
No. of values reported	31
No. of values removed	1
No. of reported non-detects	0



Analyte solution
Congener: 1,2,3,7,8,9 HxCDD

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	5,1	0,11	Outlier			
4	5,0	0,066				
6	5,3	0,41				
11	4,5	-0,43				
14	4,8	-0,15				
18	5,5	0,52				
20	5,1	0,16				
22	5,0	0,015				
28	4,5	-0,41				
30	4,8	-0,18				
32	4,9	-0,064				
35	4,2	-0,78				
39	5,4	0,49				
40	4,3	-0,61				
43	5,2	0,24				
45	4,8	-0,16				
48	5,7	0,52				
54	5,0	0,015				
58	4,9	-0,015				
62	4,8	-0,15				
65	5,0	0,047				
76	5,7	0,74				
79	4,0	-0,98				
80	4,8	-0,11				
84	5,0	0,064				
86	5,2	0,25				
90	4,8	-0,17				
93	5,1	0,11				
98	4,7	-0,23				
100	4,9	-0,035				
106	5,5	0,53				

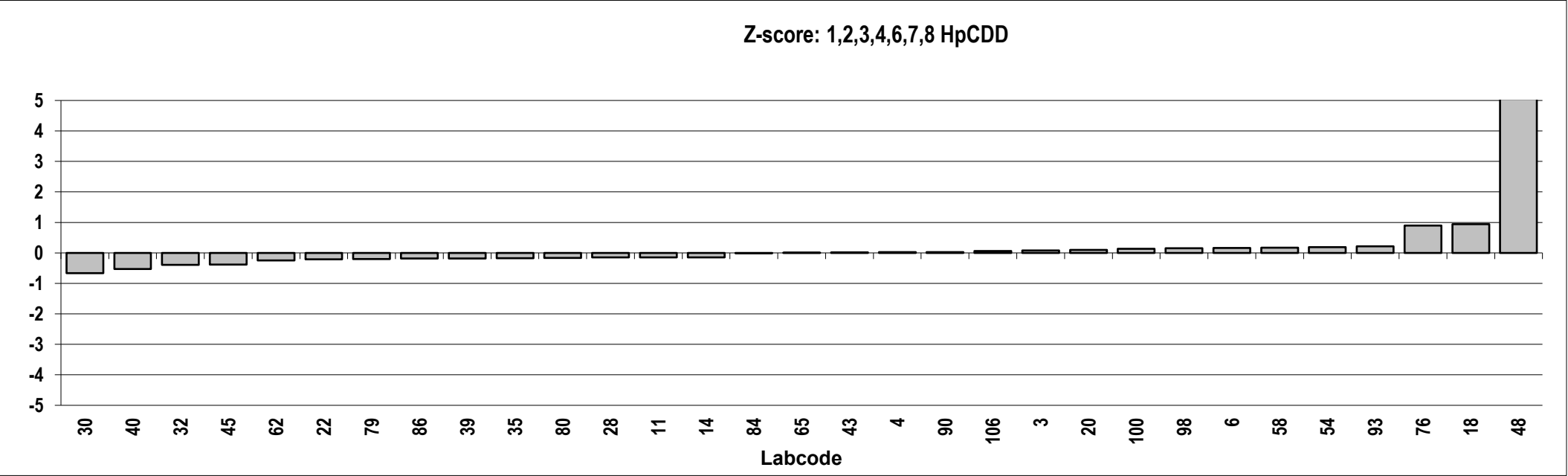
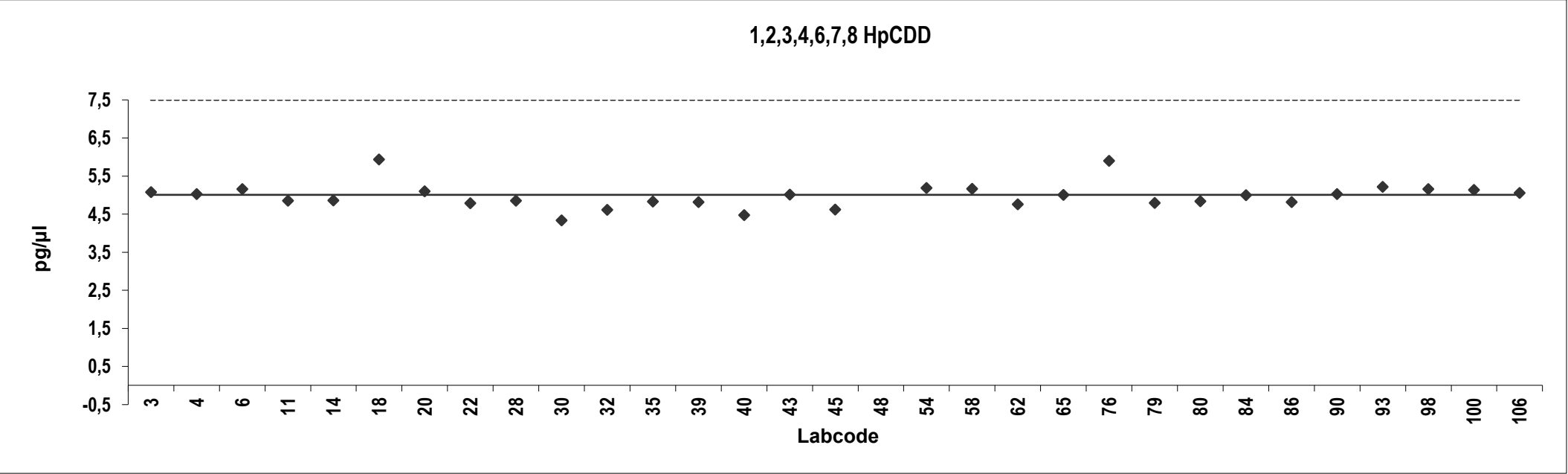
Consensus statistics	
Consensus median, pg/μl	4,9
Median all values, pg/μl	5,0
Consensus mean, pg/μl	4,9
Standard deviation, pg/μl	0,38
Relative standard deviation, %	8
No. of values reported	31
No. of values removed	1
No. of reported non-detects	0



Analyte solution
Congener: 1,2,3,4,6,7,8 HpCDD

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	5,1	0,077	Outlier			
4	5,0	0,027				
6	5,1	0,16				
11	4,8	-0,15				
14	4,9	-0,14				
18	5,9	0,94				
20	5,1	0,10				
22	4,8	-0,21				
28	4,8	-0,15				
30	4,3	-0,67				
32	4,6	-0,39				
35	4,8	-0,17				
39	4,8	-0,18				
40	4,5	-0,53				
43	5,0	0,015				
45	4,6	-0,38				
48	5,3	48				
54	5,2	0,19				
58	5,2	0,17				
62	4,7	-0,24				
65	5,0	0,0021				
76	5,9	0,90				
79	4,8	-0,20				
80	4,8	-0,16				
84	5,0	-0,0021				
86	4,8	-0,19				
90	5,0	0,027				
93	5,2	0,22				
98	5,1	0,16				
100	5,1	0,14				
106	5,1	0,057				

Consensus statistics	
Consensus median, pg/μl	5,0
Median all values, pg/μl	5,0
Consensus mean, pg/μl	5,0
Standard deviation, pg/μl	0,33
Relative standard deviation, %	7
No. of values reported	31
No. of values removed	1
No. of reported non-detects	0



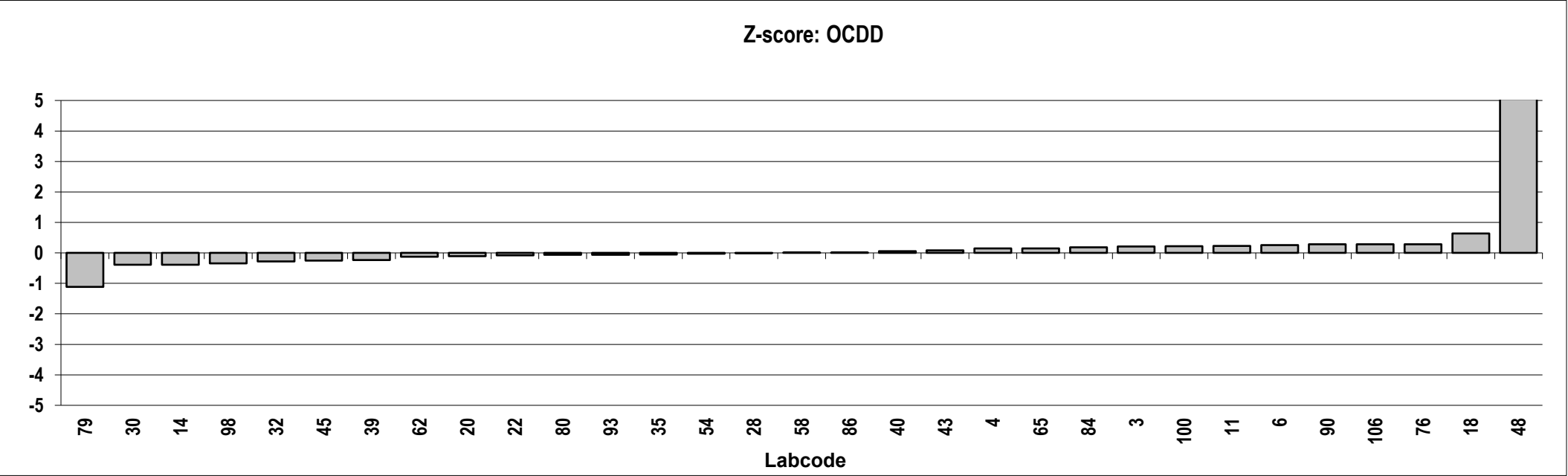
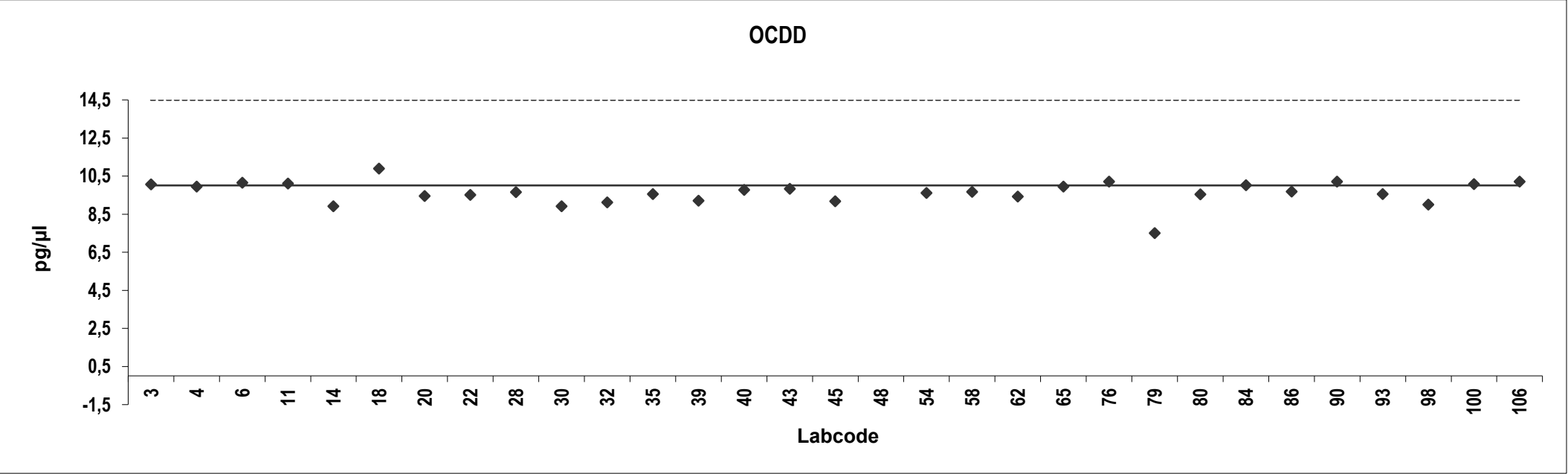
Analyte solution

Congener: OCDD

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	10	0,21				
4	9,9	0,15				
6	10	0,25				
11	10	0,23				
14	8,9	-0,38				
18	11	0,64				
20	9,4	-0,11				
22	9,5	-0,079				
28	9,6	-0,0035				
30	8,9	-0,39				
32	9,1	-0,28				
35	9,6	-0,053				
39	9,2	-0,24				
40	9,8	0,055				
43	9,8	0,087				
45	9,2	-0,25				
48	111	52	Outlier			
54	9,6	-0,022				
58	9,7	0,0035				
62	9,4	-0,13				
65	9,9	0,15				
76	10	0,28				
79	7,5	-1,1				
80	9,5	-0,064				
84	10	0,18				
86	9,7	0,011				
90	10	0,28				
93	9,5	-0,059				
98	9,0	-0,34				
100	10	0,22				
106	10	0,28				

Consensus statistics

Consensus median, pg/μl	9,7
Median all values, pg/μl	9,7
Consensus mean, pg/μl	9,6
Standard deviation, pg/μl	0,61
Relative standard deviation, %	6
No. of values reported	31
No. of values removed	1
No. of reported non-detects	0



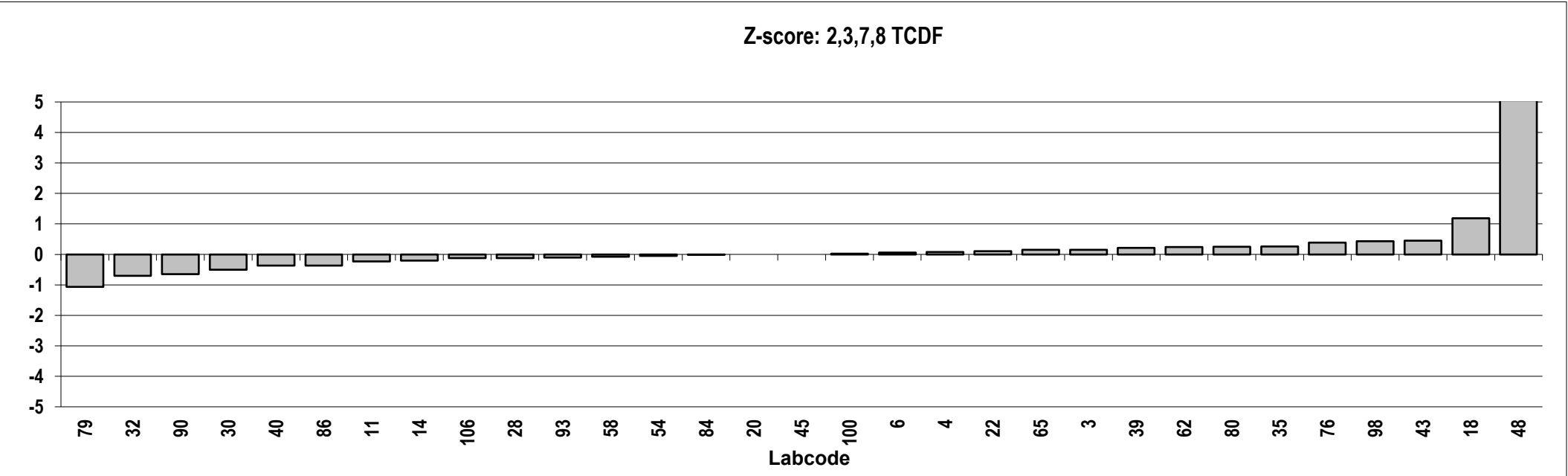
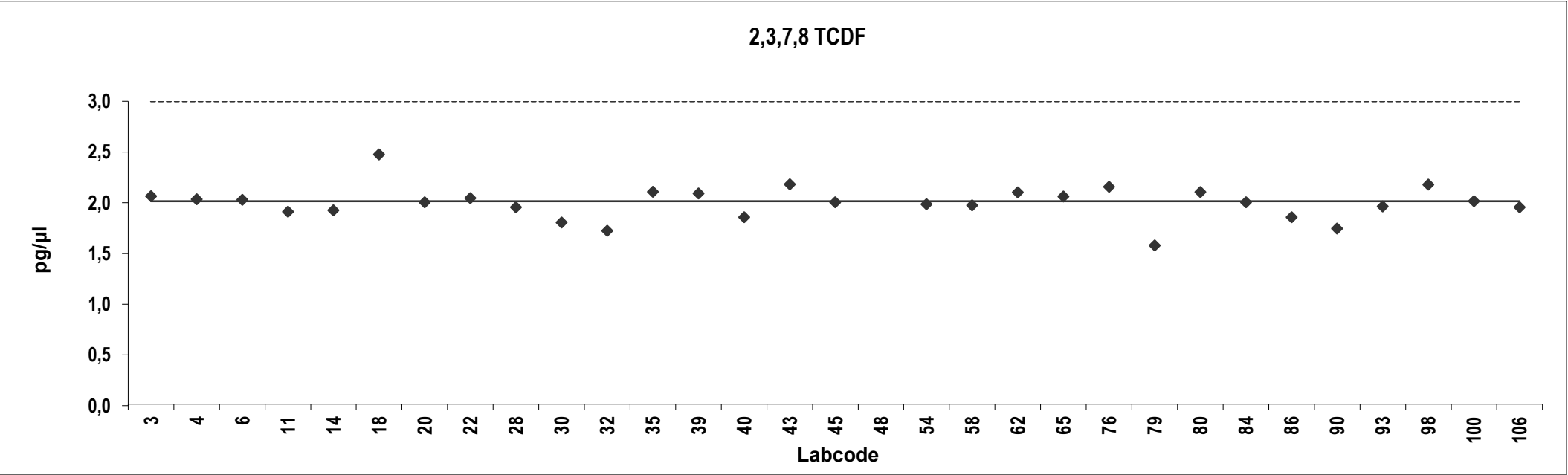
Analyte solution

Congener: 2,3,7,8 TCDF

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	2,1	0,15				
4	2,0	0,075				
6	2,0	0,060				
11	1,9	-0,23				
14	1,9	-0,20				
18	2,5	1,2				
20	2,0	0,0000				
22	2,0	0,10				
28	1,9	-0,12				
30	1,8	-0,50				
32	1,7	-0,71				
35	2,1	0,26				
39	2,1	0,22				
40	1,8	-0,37				
43	2,2	0,45				
45	2,0	0,0000				
48	2,2	0,49	Outlier			
54	2,0	-0,050				
58	2,0	-0,075				
62	2,1	0,24				
65	2,0	0,15				
76	2,1	0,38				
79	1,6	-1,1				
80	2,1	0,25				
84	2,0	-0,0038				
86	1,8	-0,37				
90	1,7	-0,65				
93	2,0	-0,10				
98	2,2	0,44				
100	2,0	0,025				
106	1,9	-0,13				

Consensus statistics

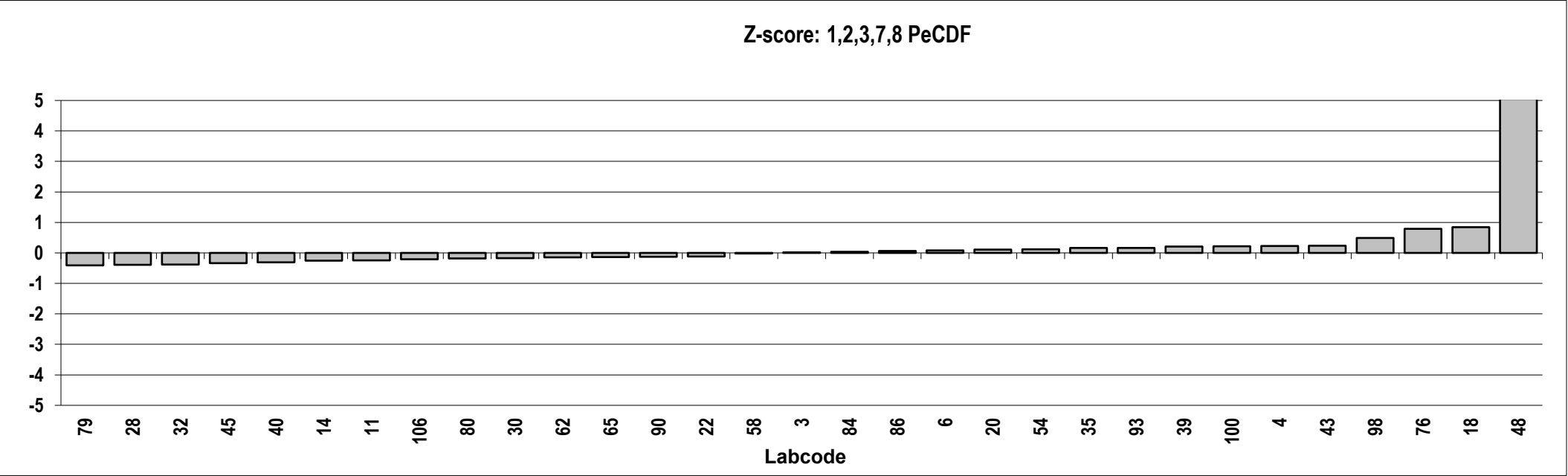
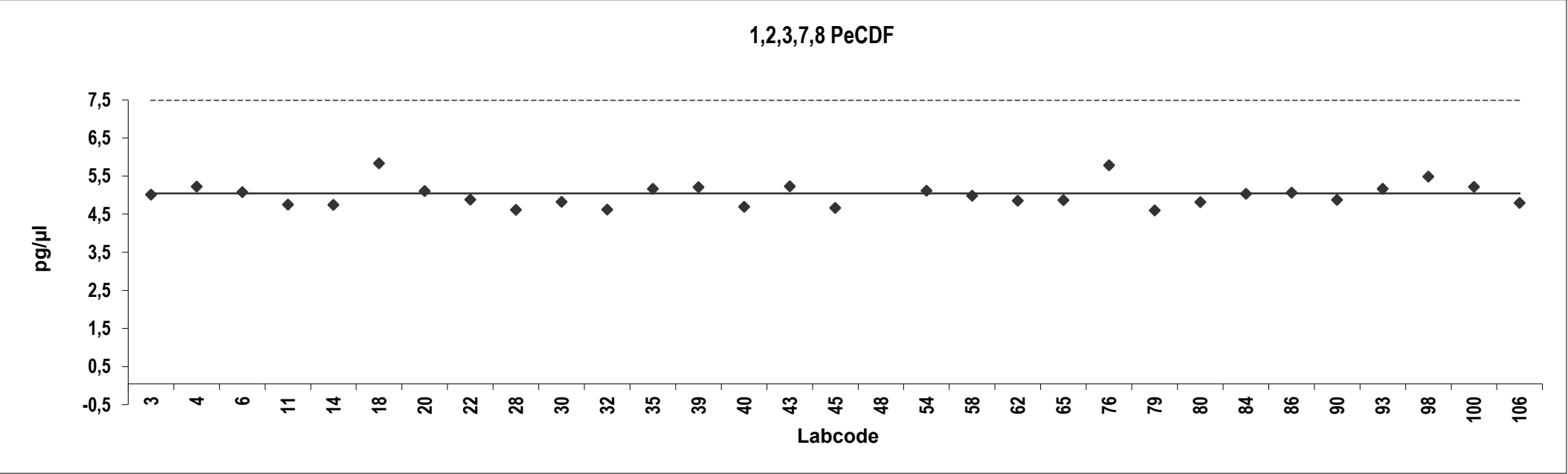
Consensus median, pg/μl	2,0
Median all values, pg/μl	2,0
Consensus mean, pg/μl	2,0
Standard deviation, pg/μl	0,16
Relative standard deviation, %	8
No. of values reported	31
No. of values removed	1
No. of reported non-detects	0



Analyte solution
Congener: 1,2,3,7,8 PeCDF

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	5,0	0,015	Outlier			
4	5,2	0,23				
6	5,0	0,077				
11	4,7	-0,25				
14	4,7	-0,26				
18	5,8	0,84				
20	5,1	0,11				
22	4,8	-0,12				
28	4,6	-0,39				
30	4,8	-0,18				
32	4,6	-0,38				
35	5,1	0,17				
39	5,2	0,21				
40	4,6	-0,31				
43	5,2	0,24				
45	4,6	-0,34				
48	54	49				
54	5,1	0,12				
58	4,9	-0,015				
62	4,8	-0,15				
65	4,8	-0,13				
76	5,7	0,79				
79	4,6	-0,41				
80	4,8	-0,19				
84	5,0	0,037				
86	5,0	0,062				
90	4,8	-0,13				
93	5,1	0,17				
98	5,4	0,49				
100	5,2	0,22				
106	4,8	-0,21				

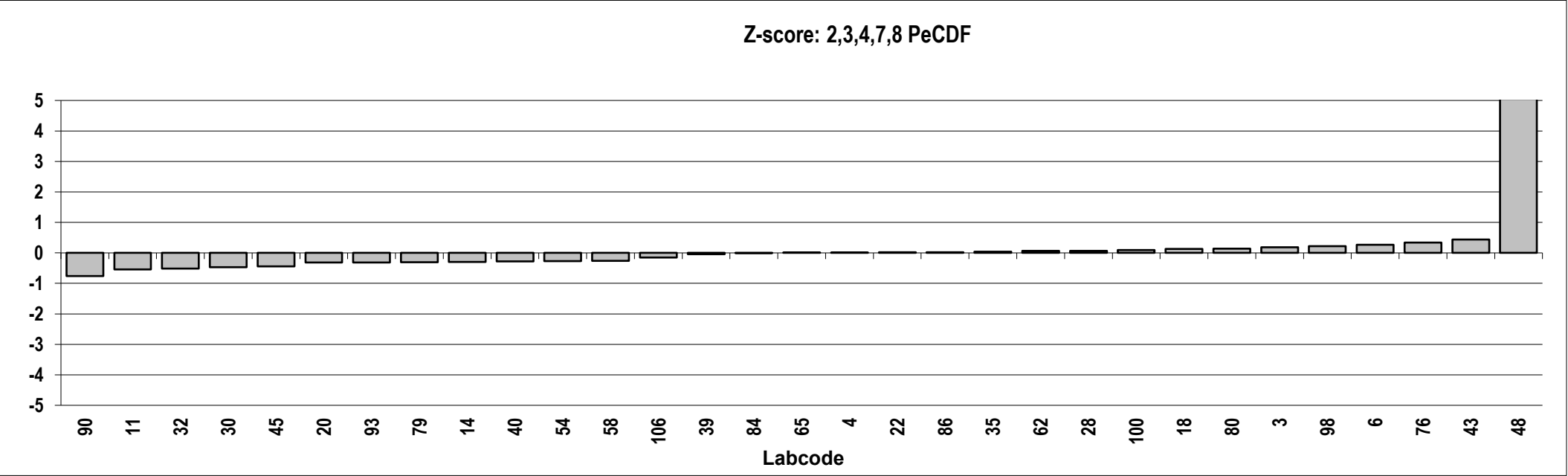
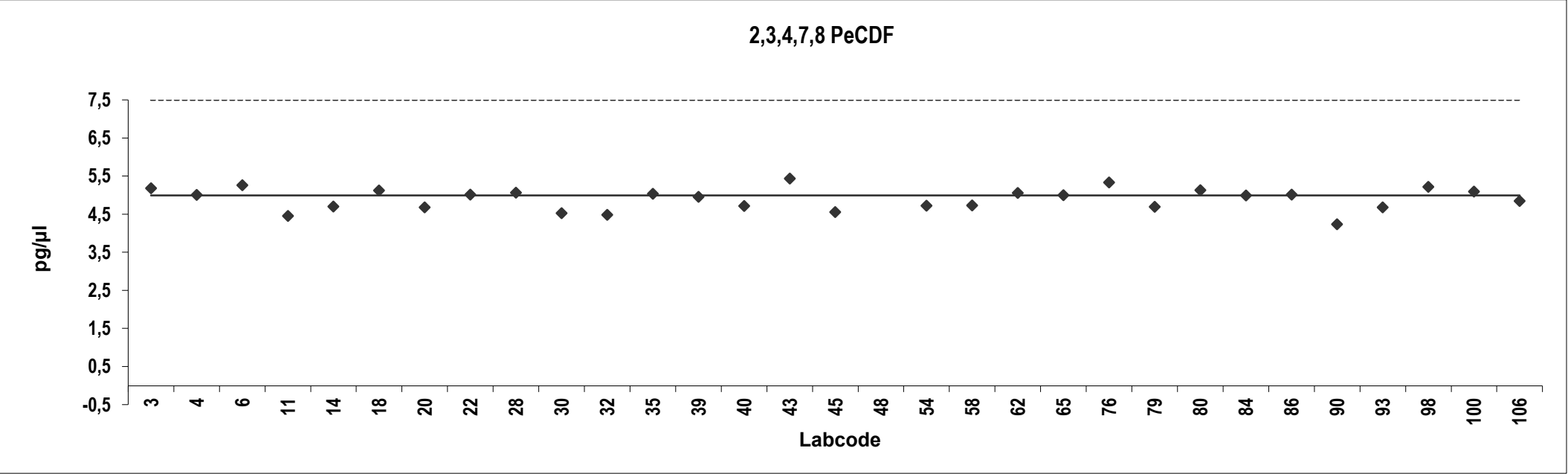
Consensus statistics	
Consensus median, pg/μl	5,0
Median all values, pg/μl	5,0
Consensus mean, pg/μl	5,0
Standard deviation, pg/μl	0,31
Relative standard deviation, %	6
No. of values reported	31
No. of values removed	1
No. of reported non-detects	0



Analyte solution
Congener: 2,3,4,7,8 PeCDF

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	5,2	0,19	Outlier			
4	5,0	0,0064				
6	5,3	0,27				
11	4,5	-0,54				
14	4,7	-0,29				
18	5,1	0,13				
20	4,7	-0,31				
22	5,0	0,016				
28	5,1	0,067				
30	4,5	-0,47				
32	4,5	-0,51				
35	5,0	0,037				
39	5,0	-0,041				
40	4,7	-0,28				
43	5,4	0,44				
45	4,6	-0,44				
48	4,9	44				
54	4,7	-0,27				
58	4,7	-0,26				
62	5,1	0,063				
65	5,0	0,0015				
76	5,3	0,34				
79	4,7	-0,30				
80	5,1	0,14				
84	5,0	-0,0015				
86	5,0	0,019				
90	4,2	-0,76				
93	4,7	-0,31				
98	5,2	0,22				
100	5,1	0,10				
106	4,9	-0,15				

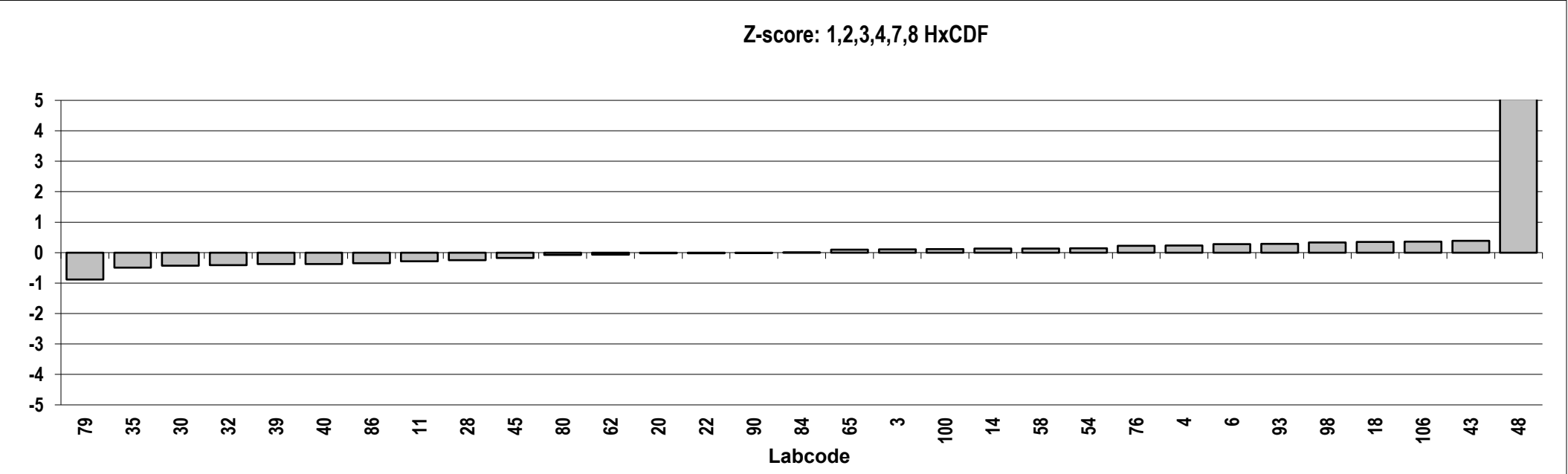
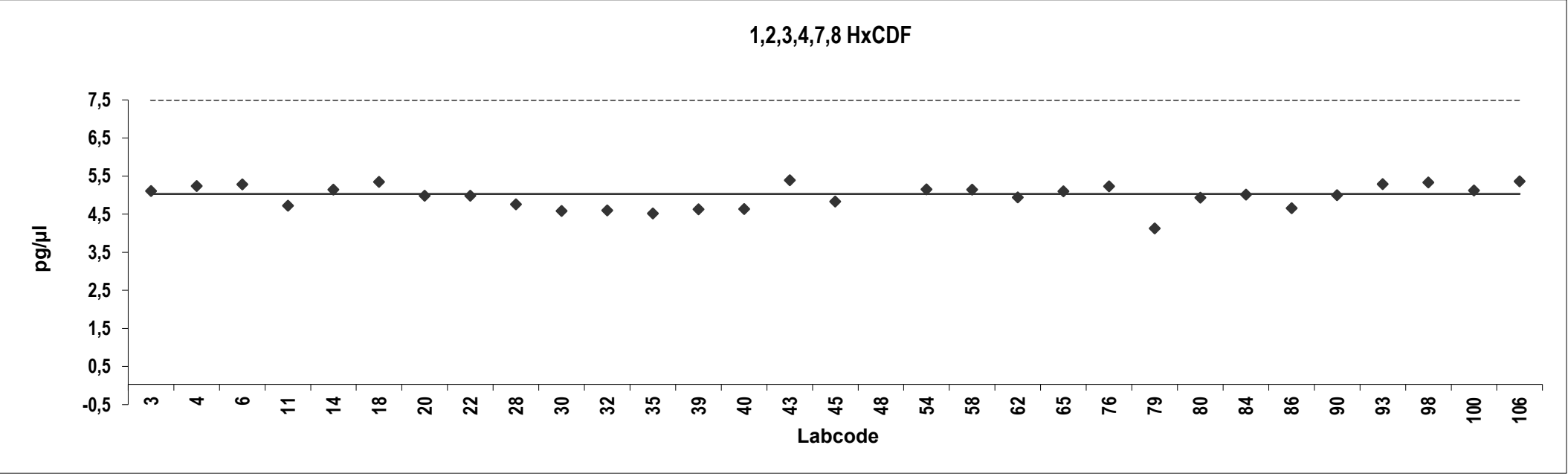
Consensus statistics	
Consensus median, pg/μl	5,0
Median all values, pg/μl	5,0
Consensus mean, pg/μl	4,9
Standard deviation, pg/μl	0,29
Relative standard deviation, %	6
No. of values reported	31
No. of values removed	1
No. of reported non-detects	0



Analyte solution
Congener: 1,2,3,4,7,8 HxCDF

Lab code	Conc.pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	5,1	0,11				
4	5,2	0,24				
6	5,3	0,28				
11	4,7	-0,28				
14	5,1	0,14				
18	5,3	0,35				
20	5,0	-0,025				
22	5,0	-0,025				
28	4,7	-0,25				
30	4,6	-0,43				
32	4,6	-0,41				
35	4,5	-0,49				
39	4,6	-0,38				
40	4,6	-0,37				
43	5,4	0,39				
45	4,8	-0,18				
48	50	45	Outlier			
54	5,1	0,15				
58	5,1	0,14				
62	4,9	-0,068				
65	5,1	0,10				
76	5,2	0,23				
79	4,1	-0,89				
80	4,9	-0,075				
84	5,0	0,0048				
86	4,6	-0,35				
90	5,0	-0,0048				
93	5,3	0,29				
98	5,3	0,33				
100	5,1	0,12				
106	5,3	0,36				

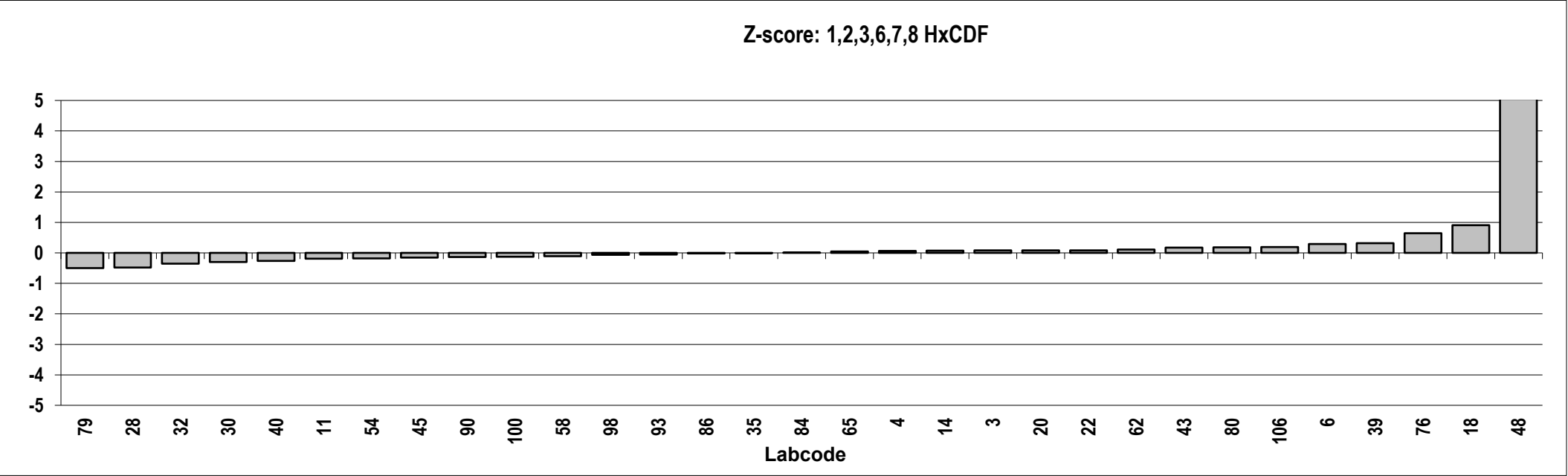
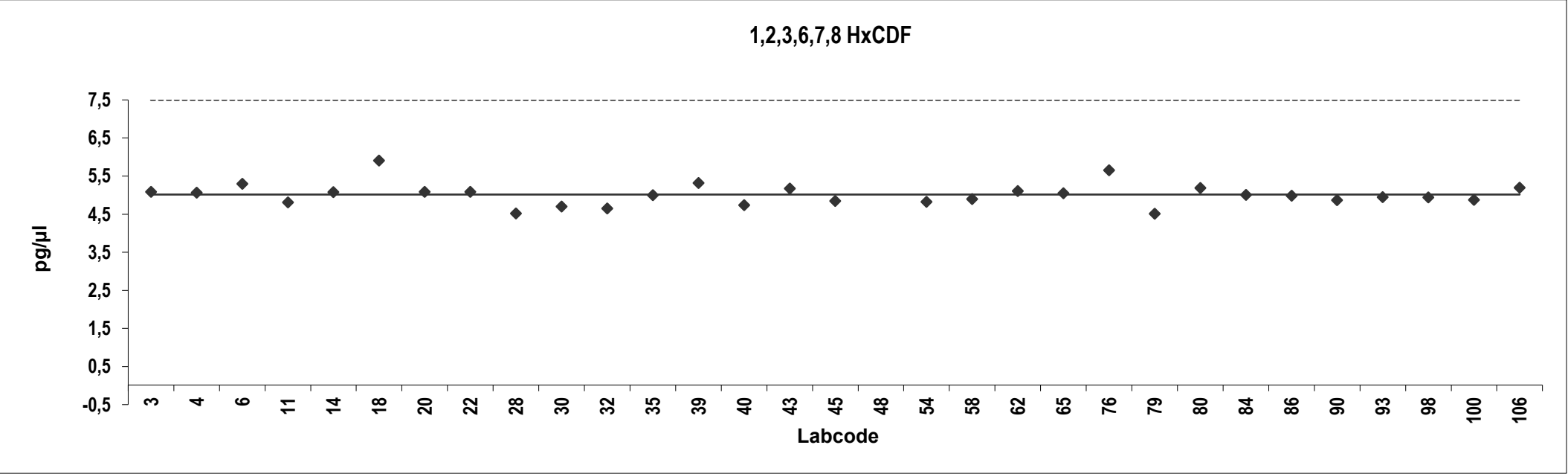
Consensus statistics	
Consensus median, pg/μl	5,0
Median all values, pg/μl	5,0
Consensus mean, pg/μl	4,9
Standard deviation, pg/μl	0,31
Relative standard deviation, %	6
No. of values reported	31
No. of values removed	1
No. of reported non-detects	0



Analyte solution
Congener: 1,2,3,6,7,8 HxCDF

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	5,1	0,083	Outlier			
4	5,1	0,063				
6	5,3	0,29				
11	4,8	-0,19				
14	5,1	0,073				
18	5,9	0,91				
20	5,1	0,083				
22	5,1	0,083				
28	4,5	-0,48				
30	4,7	-0,30				
32	4,6	-0,36				
35	5,0	-0,0029				
39	5,3	0,32				
40	4,7	-0,26				
43	5,2	0,17				
45	4,8	-0,16				
48	4,6	41				
54	4,8	-0,18				
58	4,9	-0,11				
62	5,1	0,11				
65	5,0	0,045				
76	5,6	0,65				
79	4,5	-0,49				
80	5,2	0,18				
84	5,0	0,0029				
86	5,0	-0,016				
90	4,9	-0,14				
93	4,9	-0,057				
98	4,9	-0,063				
100	4,9	-0,13				
106	5,2	0,19				

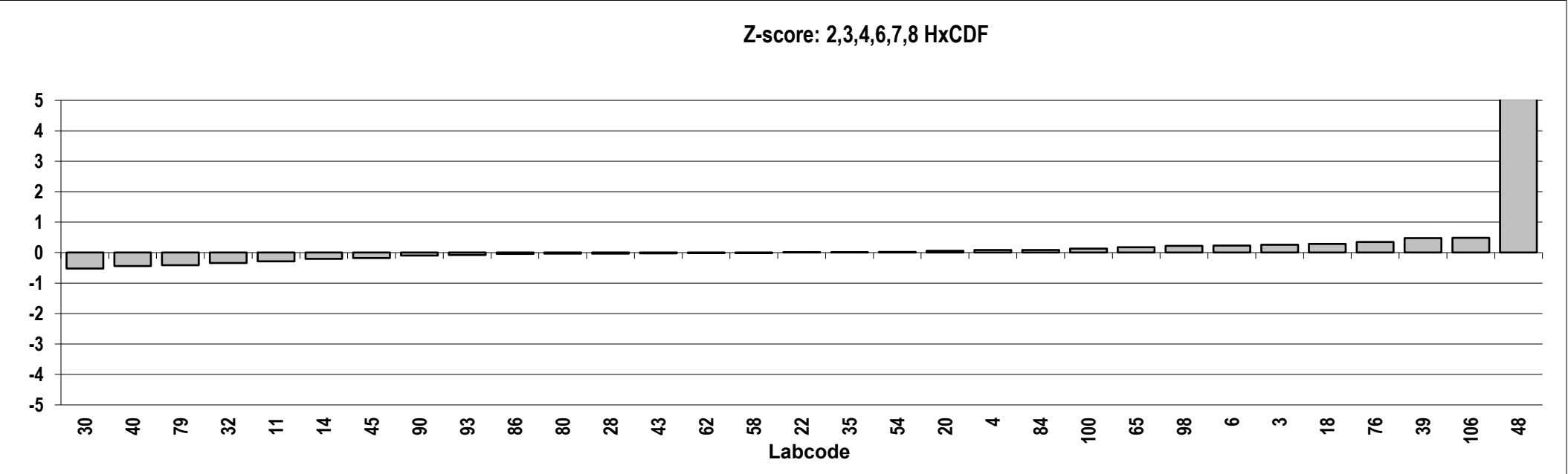
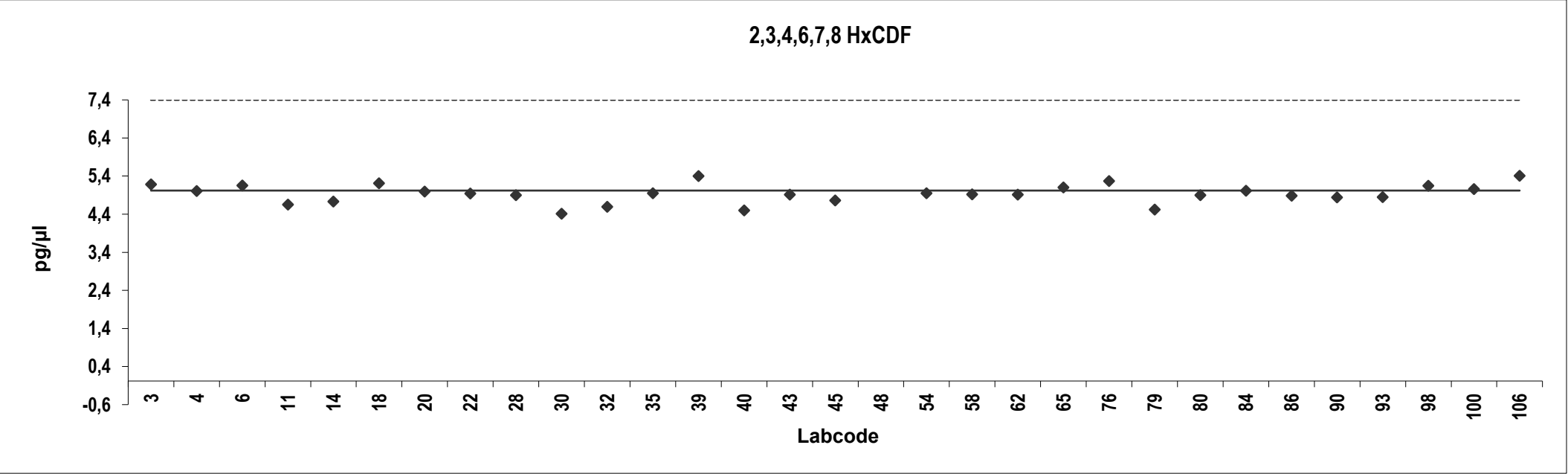
Consensus statistics	
Consensus median, pg/μl	5,0
Median all values, pg/μl	5,0
Consensus mean, pg/μl	5,0
Standard deviation, pg/μl	0,29
Relative standard deviation, %	6
No. of values reported	31
No. of values removed	1
No. of reported non-detects	0



Analyte solution
Congener: 2,3,4,6,7,8 HxCDF

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	5,2	0,25				
4	5,0	0,081				
6	5,1	0,23				
11	4,6	-0,29				
14	4,7	-0,20				
18	5,2	0,29				
20	5,0	0,061				
22	4,9	0,010				
28	4,9	-0,029				
30	4,4	-0,53				
32	4,6	-0,34				
35	4,9	0,016				
39	5,4	0,48				
40	4,5	-0,44				
43	4,9	-0,019				
45	4,7	-0,17				
48	44	40	Outlier			
54	4,9	0,020				
58	4,9	-0,010				
62	4,9	-0,015				
65	5,1	0,18				
76	5,3	0,35				
79	4,5	-0,41				
80	4,9	-0,031				
84	5,0	0,088				
86	4,9	-0,045				
90	4,8	-0,092				
93	4,8	-0,081				
98	5,1	0,22				
100	5,0	0,13				
106	5,4	0,49				

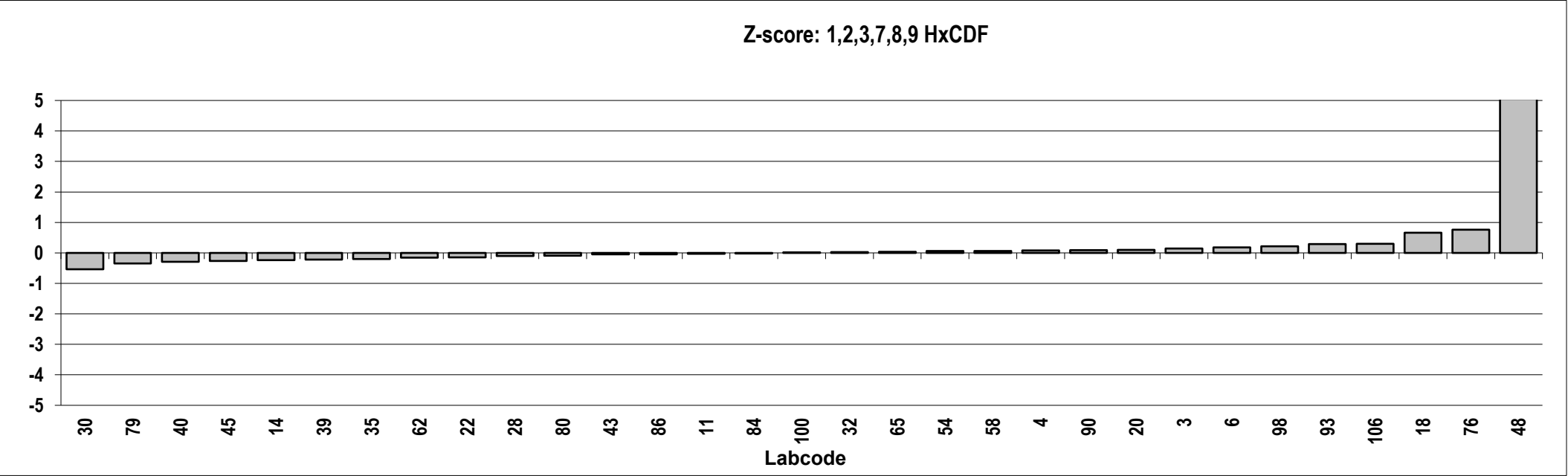
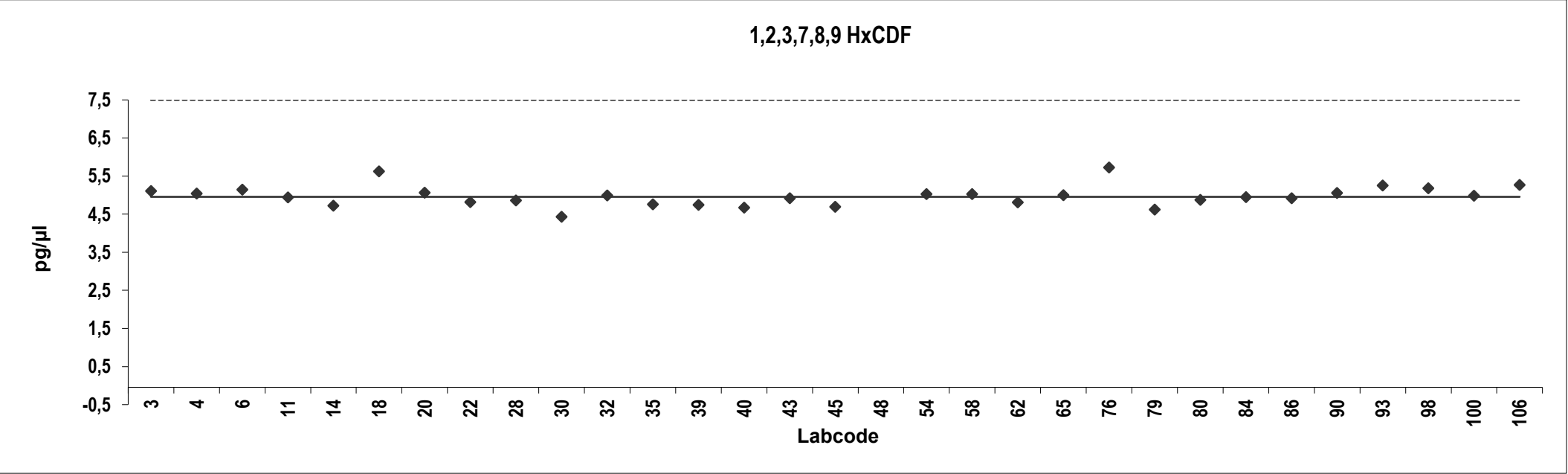
Consensus statistics	
Consensus median, pg/μl	4,9
Median all values, pg/μl	4,9
Consensus mean, pg/μl	4,9
Standard deviation, pg/μl	0,25
Relative standard deviation, %	5
No. of values reported	31
No. of values removed	1
No. of reported non-detects	0



Analyte solution
Congener: 1,2,3,7,8,9 HxCDF

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	5,2	0,14	Outlier			
4	5,1	0,080				
6	5,2	0,18				
11	5,0	-0,026				
14	4,8	-0,24				
18	5,7	0,66				
20	5,1	0,10				
22	4,9	-0,15				
28	4,9	-0,11				
30	4,5	-0,53				
32	5,0	0,030				
35	4,8	-0,20				
39	4,8	-0,22				
40	4,7	-0,29				
43	5,0	-0,049				
45	4,7	-0,27				
48	5,2	0,47				
54	5,1	0,060				
58	5,1	0,060				
62	4,9	-0,15				
65	5,0	0,034				
76	5,8	0,76				
79	4,7	-0,34				
80	4,9	-0,089				
84	5,0	-0,020				
86	5,0	-0,048				
90	5,1	0,090				
93	5,3	0,29				
98	5,2	0,21				
100	5,0	0,020				
106	5,3	0,30				

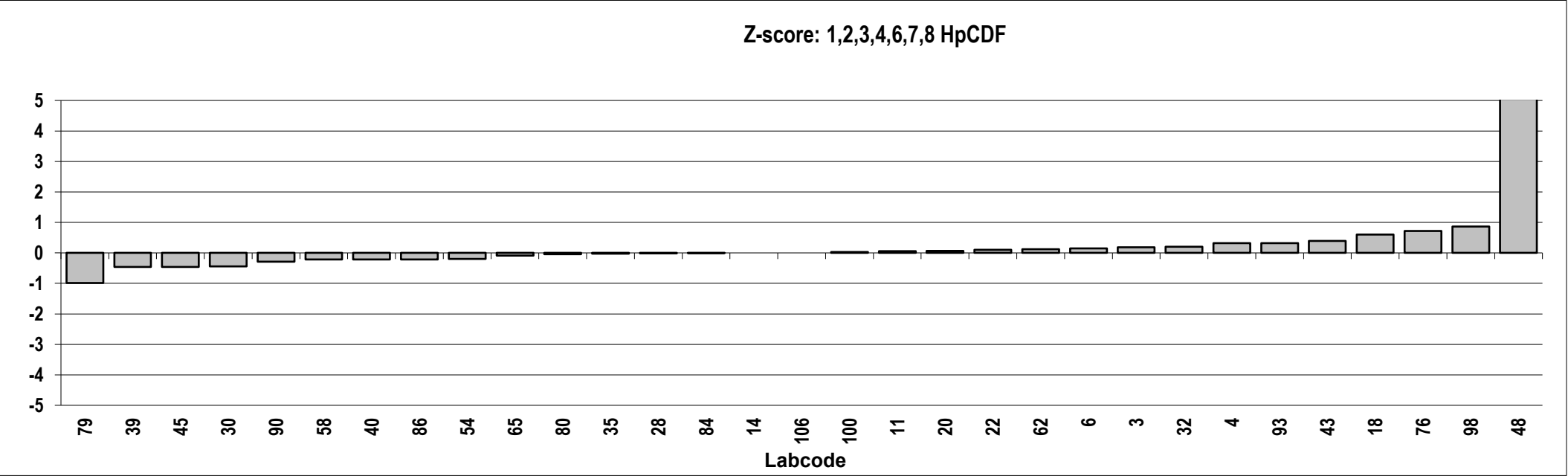
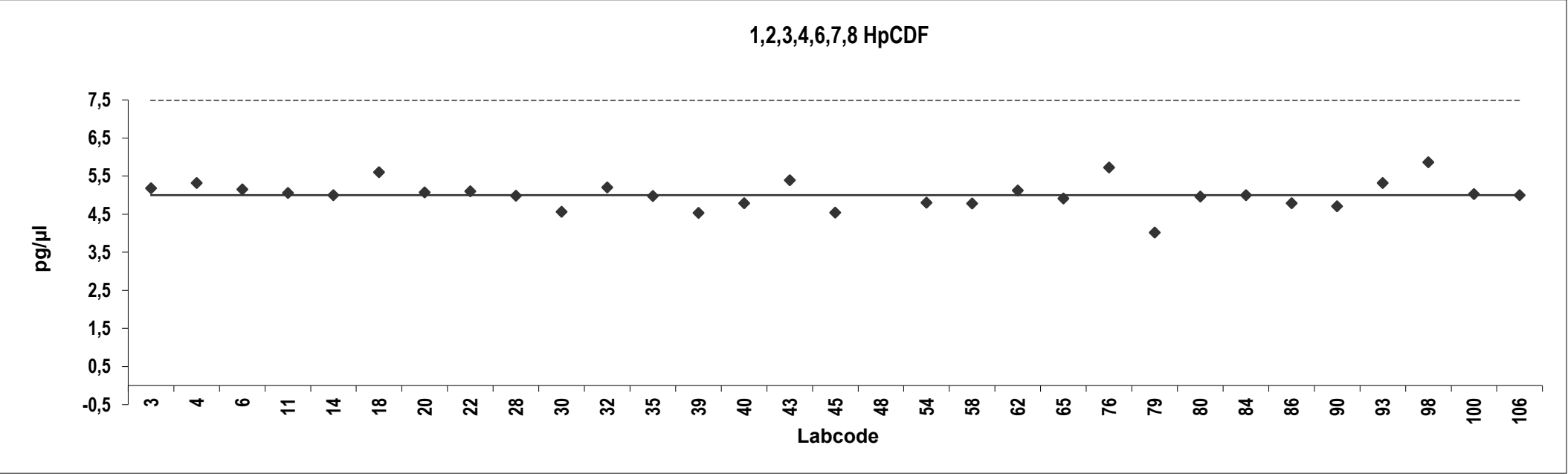
Consensus statistics	
Consensus median, pg/μl	5,0
Median all values, pg/μl	5,0
Consensus mean, pg/μl	5,0
Standard deviation, pg/μl	0,27
Relative standard deviation, %	5
No. of values reported	31
No. of values removed	1
No. of reported non-detects	0



Analyte solution
Congener: 1,2,3,4,6,7,8 HpCDF

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	5,2	0,18	Outlier			
4	5,3	0,32				
6	5,2	0,15				
11	5,1	0,060				
14	5,0	0,0000				
18	5,6	0,60				
20	5,1	0,070				
22	5,1	0,10				
28	5,0	-0,016				
30	4,6	-0,44				
32	5,2	0,20				
35	5,0	-0,022				
39	4,5	-0,46				
40	4,8	-0,21				
43	5,4	0,39				
45	4,5	-0,46				
48	50	45				
54	4,8	-0,20				
58	4,8	-0,22				
62	5,1	0,12				
65	4,9	-0,087				
76	5,7	0,72				
79	4,0	-0,98				
80	5,0	-0,040				
84	5,0	-0,0040				
86	4,8	-0,21				
90	4,7	-0,29				
93	5,3	0,32				
98	5,9	0,86				
100	5,0	0,030				
106	5,0	0,0000				

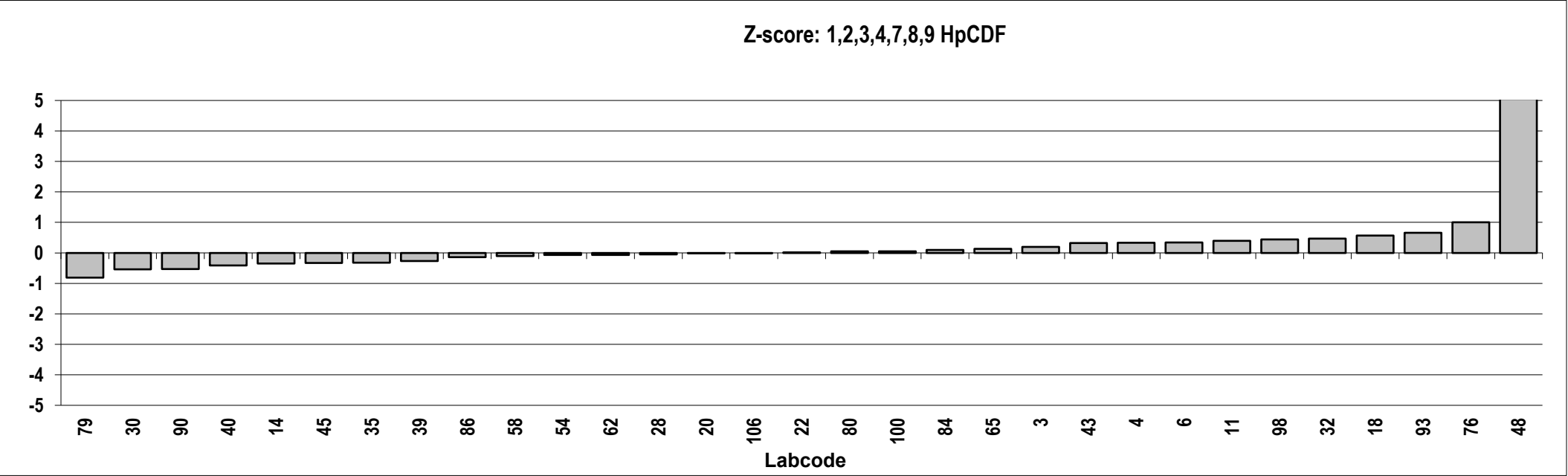
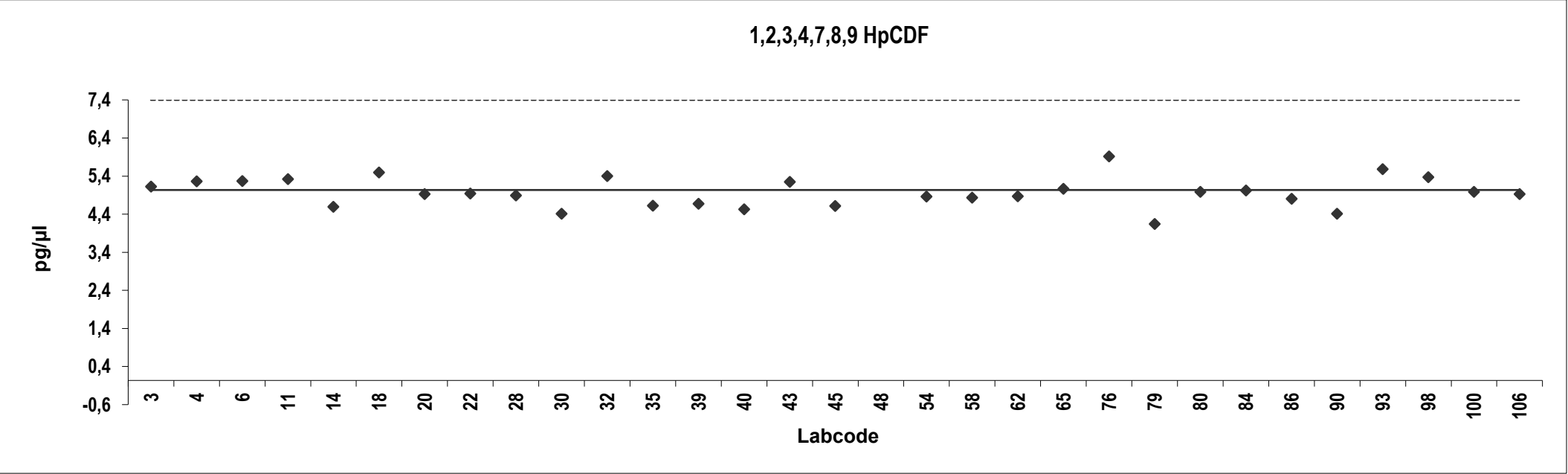
Consensus statistics	
Consensus median, pg/μl	5,0
Median all values, pg/μl	5,0
Consensus mean, pg/μl	5,0
Standard deviation, pg/μl	0,37
Relative standard deviation, %	7
No. of values reported	31
No. of values removed	1
No. of reported non-detects	0



Analyte solution
Congener: 1,2,3,4,7,8,9 HpCDF

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	5,1	0,19	Outlier			
4	5,2	0,34				
6	5,2	0,34				
11	5,3	0,40				
14	4,6	-0,35				
18	5,5	0,57				
20	4,9	-0,010				
22	4,9	0,010				
28	4,9	-0,047				
30	4,4	-0,54				
32	5,4	0,47				
35	4,6	-0,32				
39	4,6	-0,27				
40	4,5	-0,41				
43	5,2	0,32				
45	4,6	-0,33				
48	4,9	0,45				
54	4,8	-0,071				
58	4,8	-0,10				
62	4,8	-0,064				
65	5,0	0,13				
76	5,9	1,0				
79	4,1	-0,81				
80	5,0	0,051				
84	5,0	0,092				
86	4,8	-0,14				
90	4,4	-0,53				
93	5,6	0,66				
98	5,3	0,44				
100	5,0	0,051				
106	4,9	-0,010				

Consensus statistics	
Consensus median, pg/μl	4,9
Median all values, pg/μl	4,9
Consensus mean, pg/μl	4,9
Standard deviation, pg/μl	0,39
Relative standard deviation, %	8
No. of values reported	31
No. of values removed	1
No. of reported non-detects	0



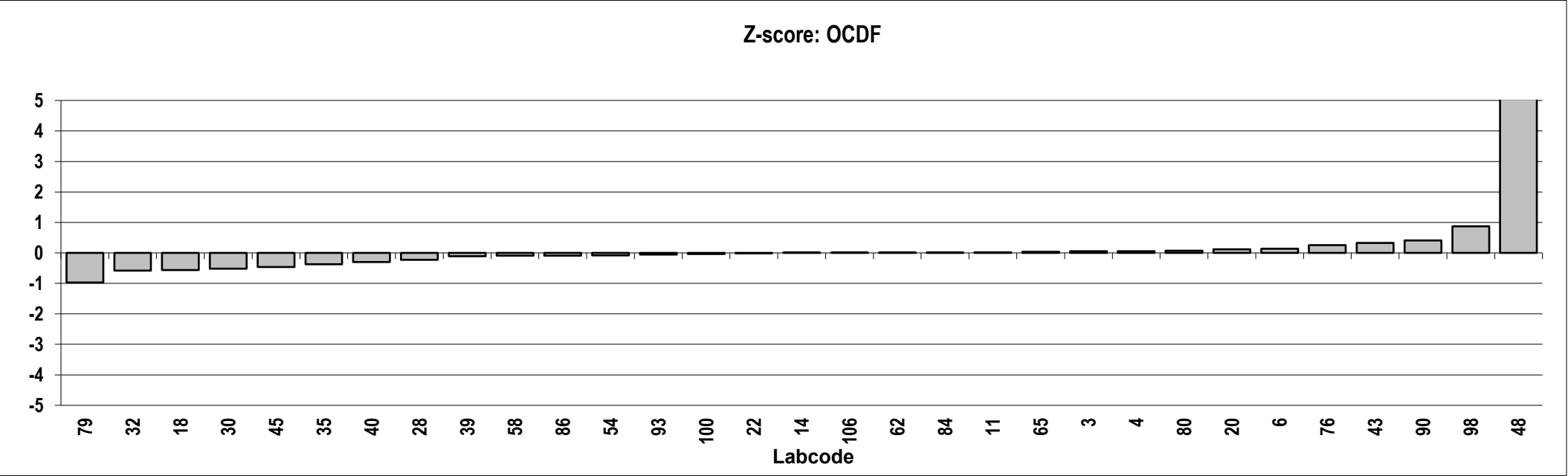
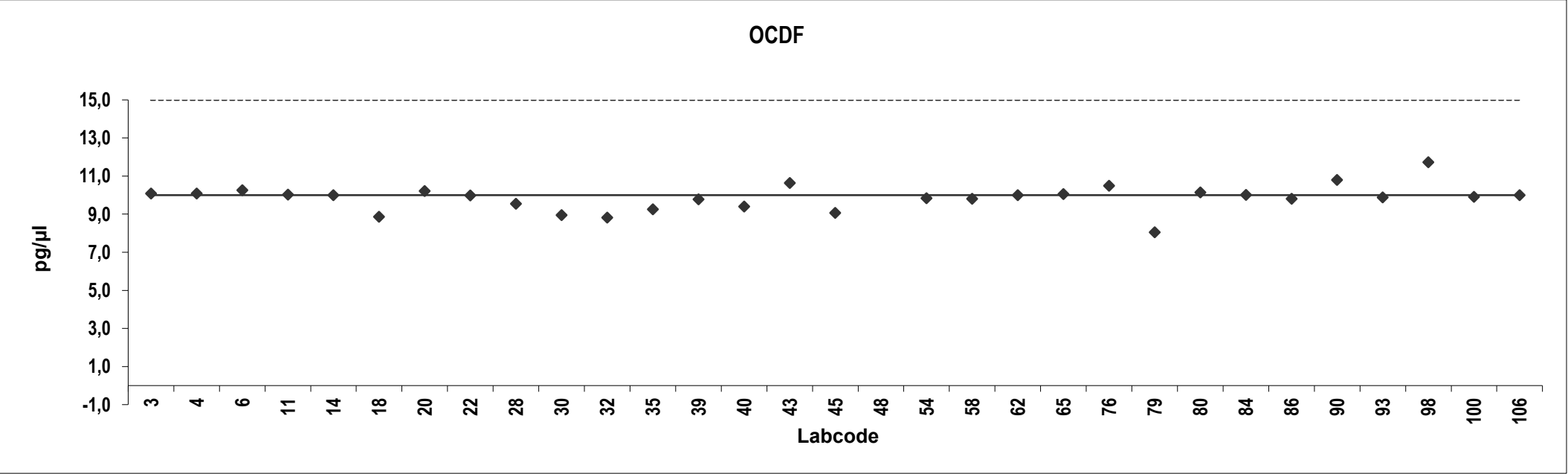
Analyte solution

Congener: OCDF

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	10	0,050				
4	10	0,050				
6	10	0,13				
11	10	0,018				
14	10	0,0050				
18	8,9	-0,56				
20	10	0,12				
22	10	-0,0050				
28	9,5	-0,22				
30	9,0	-0,52				
32	8,8	-0,58				
35	9,3	-0,37				
39	9,8	-0,11				
40	9,4	-0,30				
43	11	0,33				
45	9,1	-0,46				
48	107	49	Outlier			
54	9,8	-0,080				
58	9,8	-0,090				
62	10	0,0065				
65	10	0,033				
76	10	0,25				
79	8,1	-0,97				
80	10	0,075				
84	10	0,0080				
86	9,8	-0,090				
90	11	0,41				
93	9,9	-0,055				
98	12	0,87				
100	9,9	-0,040				
106	10	0,0050				

Consensus statistics

Consensus median, pg/μl	10
Median all values, pg/μl	10
Consensus mean, pg/μl	9,9
Standard deviation, pg/μl	0,68
Relative standard deviation, %	7
No. of values reported	31
No. of values removed	1
No. of reported non-detects	0



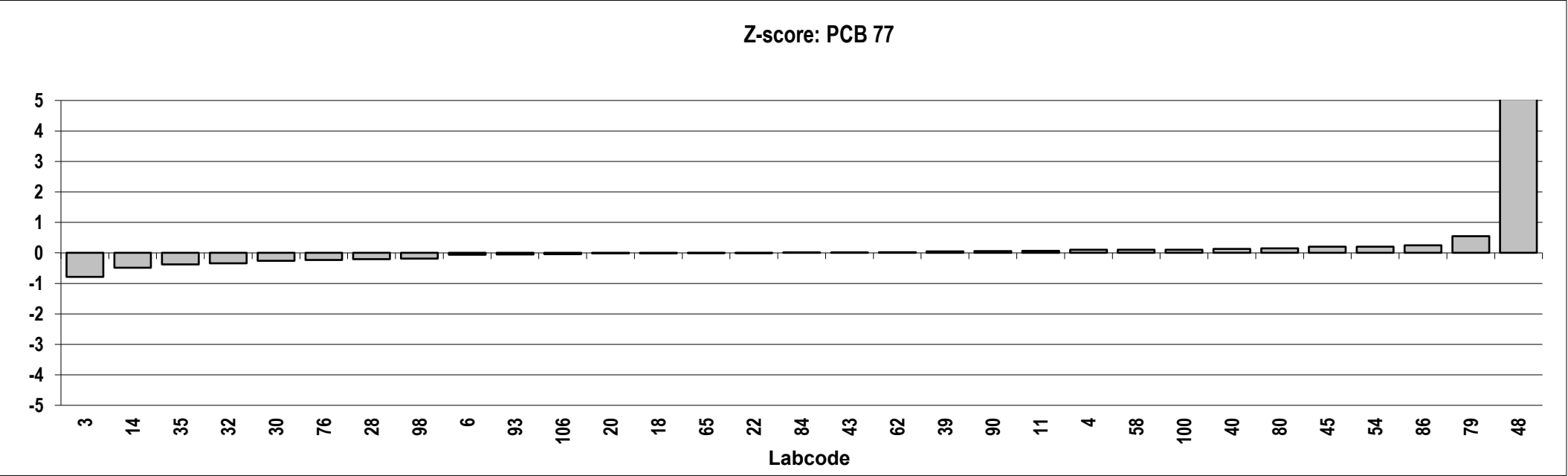
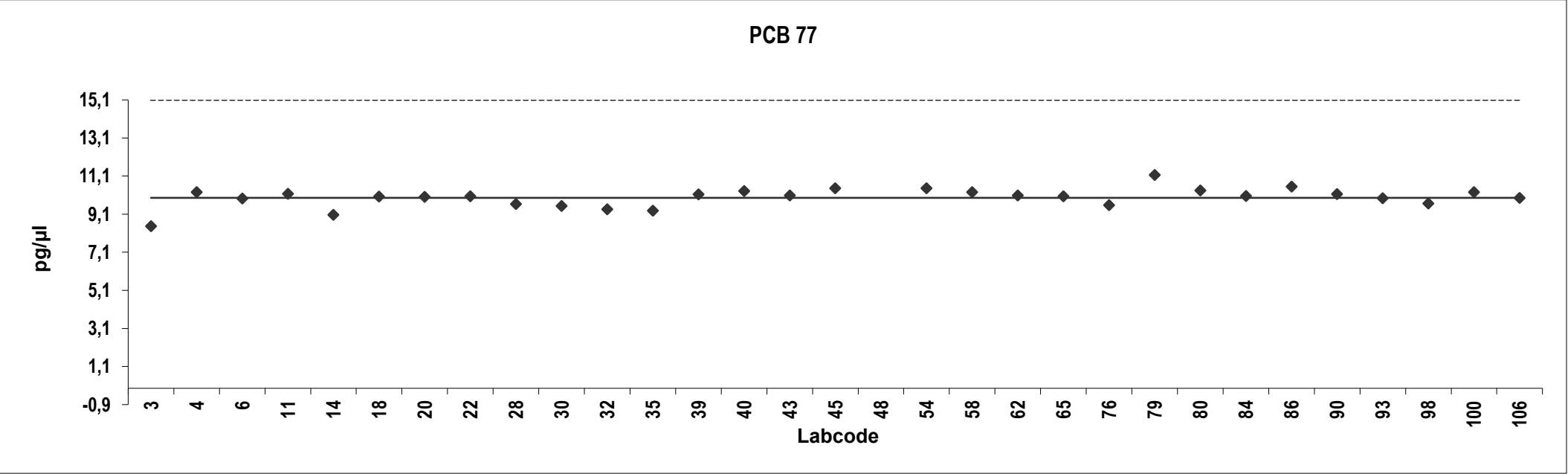
Analyte solution

Congener: PCB 77

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	8,5	-0,78				
4	10	0,11				
6	10	-0,062				
11	10	0,064				
14	9,1	-0,48				
18	10	-0,014				
20	10	-0,019				
22	10	-0,0037				
28	9,7	-0,21				
30	9,6	-0,26				
32	9,4	-0,34				
35	9,3	-0,38				
39	10	0,048				
40	10	0,13				
43	10	0,016				
45	11	0,20				
48	93	41	Outlier			
54	11	0,20				
58	10	0,11				
62	10	0,018				
65	10	-0,0060				
76	9,6	-0,24				
79	11	0,55				
80	10	0,15				
84	10	0,0037				
86	11	0,25				
90	10	0,056				
93	10	-0,053				
98	9,7	-0,19				
100	10	0,11				
106	10	-0,043				

Consensus statistics

Consensus median, pg/μl	10
Median all values, pg/μl	10
Consensus mean, pg/μl	10
Standard deviation, pg/μl	0,50
Relative standard deviation, %	5
No. of values reported	31
No. of values removed	1
No. of reported non-detects	0



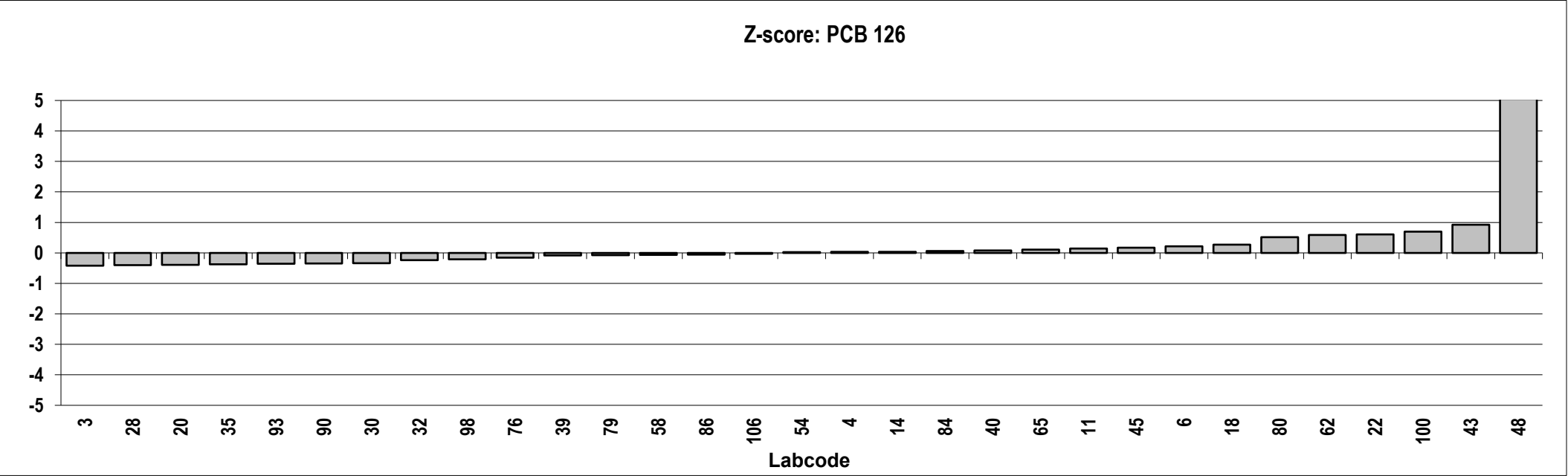
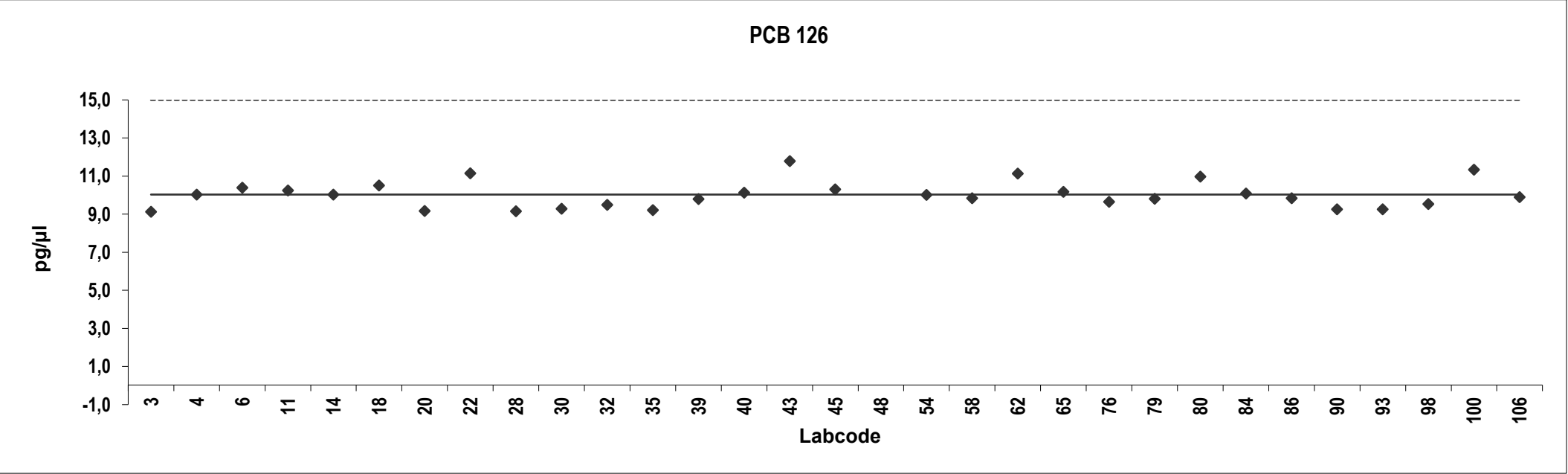
Analyte solution

Congener: PCB 126

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	9,1	-0,42				
4	10	0,038				
6	10	0,22				
11	10	0,14				
14	10	0,038				
18	10	0,27				
20	9,1	-0,40				
22	11	0,60				
28	9,1	-0,41				
30	9,3	-0,33				
32	9,5	-0,24				
35	9,2	-0,37				
39	9,8	-0,082				
40	10	0,084				
43	12	0,93				
45	10	0,17				
48	91	41	Outlier			
54	10,0	0,028				
58	9,8	-0,063				
62	11	0,59				
65	10	0,11				
76	9,6	-0,15				
79	9,8	-0,074				
80	11	0,51				
84	10	0,065				
86	9,8	-0,059				
90	9,2	-0,35				
93	9,2	-0,36				
98	9,5	-0,22				
100	11	0,69				
106	9,9	-0,028				

Consensus statistics

Consensus median, pg/μl	9,9
Median all values, pg/μl	10
Consensus mean, pg/μl	10
Standard deviation, pg/μl	0,70
Relative standard deviation, %	7
No. of values reported	31
No. of values removed	1
No. of reported non-detects	0



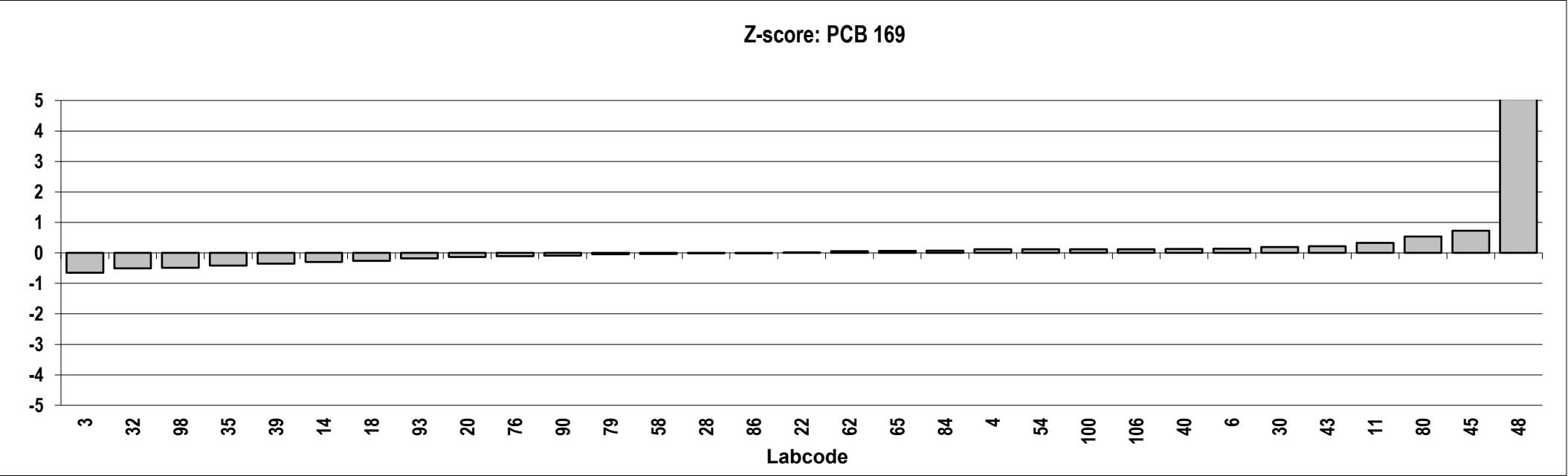
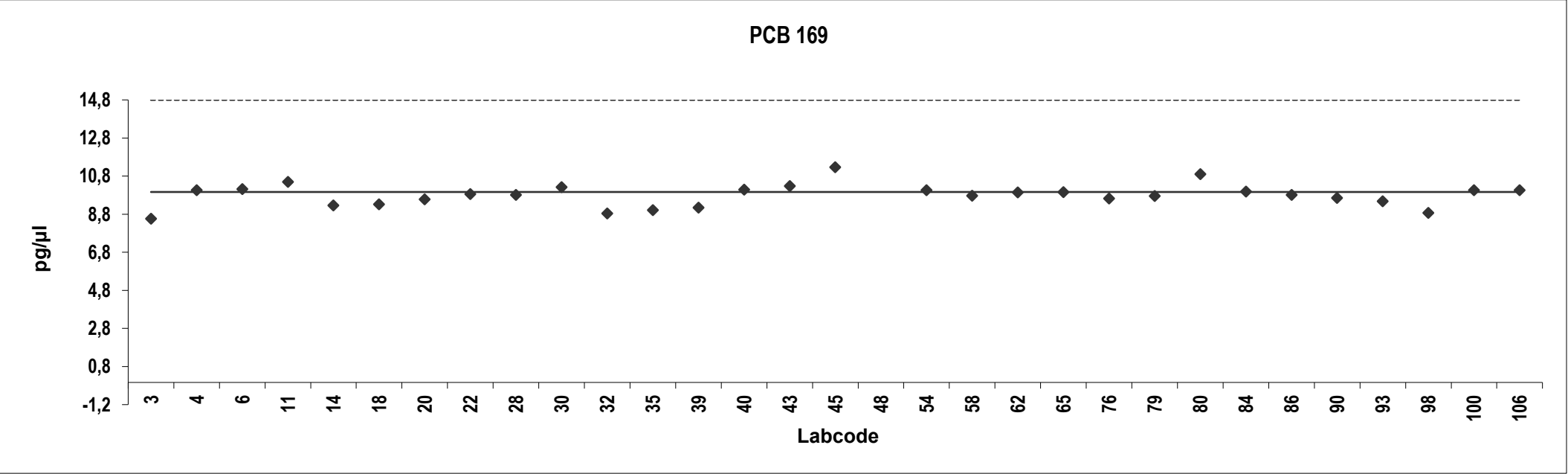
Analyte solution

Congener: PCB 169

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	8,6	-0,65				
4	10	0,12				
6	10	0,14				
11	11	0,33				
14	9,3	-0,29				
18	9,4	-0,26				
20	9,6	-0,13				
22	9,9	0,0095				
28	9,9	-0,011				
30	10	0,20				
32	8,9	-0,50				
35	9,0	-0,42				
39	9,2	-0,35				
40	10	0,13				
43	10	0,22				
45	11	0,72				
48	95	43	Outlier			
54	10	0,12				
58	9,8	-0,031				
62	10	0,057				
65	10	0,063				
76	9,7	-0,11				
79	9,8	-0,044				
80	11	0,54				
84	10	0,078				
86	9,9	-0,0095				
90	9,7	-0,092				
93	9,5	-0,18				
98	8,9	-0,49				
100	10	0,12				
106	10	0,12				

Consensus statistics

Consensus median, pg/μl	9,9
Median all values, pg/μl	9,9
Consensus mean, pg/μl	9,8
Standard deviation, pg/μl	0,58
Relative standard deviation, %	6
No. of values reported	31
No. of values removed	1
No. of reported non-detects	0



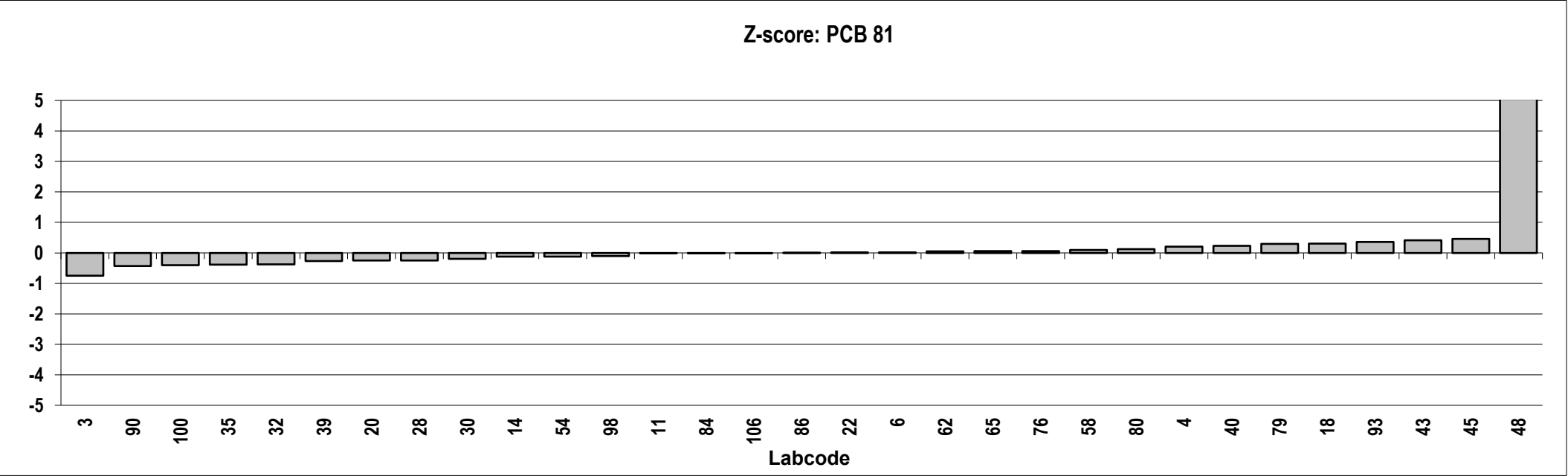
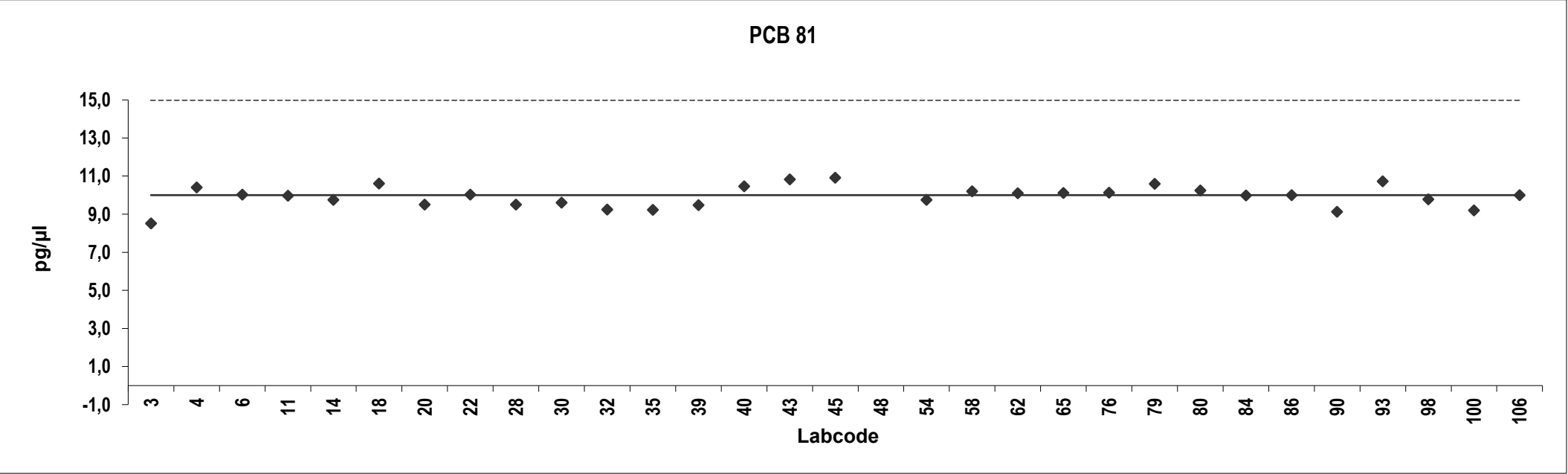
Analyte solution

Congener: PCB 81

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	8,5	-0,74				
4	10	0,20				
6	10	0,016				
11	10	-0,014				
14	9,8	-0,13				
18	11	0,30				
20	9,5	-0,25				
22	10	0,010				
28	9,5	-0,25				
30	9,6	-0,20				
32	9,2	-0,38				
35	9,2	-0,39				
39	9,5	-0,27				
40	10	0,23				
43	11	0,41				
45	11	0,46				
48	96	43	Outlier			
54	9,8	-0,13				
58	10	0,10				
62	10	0,047				
65	10	0,056				
76	10	0,064				
79	11	0,30				
80	10	0,12				
84	10	-0,0065				
86	10	0,000025				
90	9,1	-0,44				
93	11	0,36				
98	9,8	-0,11				
100	9,2	-0,40				
106	10	-0,000025				

Consensus statistics

Consensus median, pg/μl	10
Median all values, pg/μl	10
Consensus mean, pg/μl	9,9
Standard deviation, pg/μl	0,56
Relative standard deviation, %	6
No. of values reported	31
No. of values removed	1
No. of reported non-detects	0



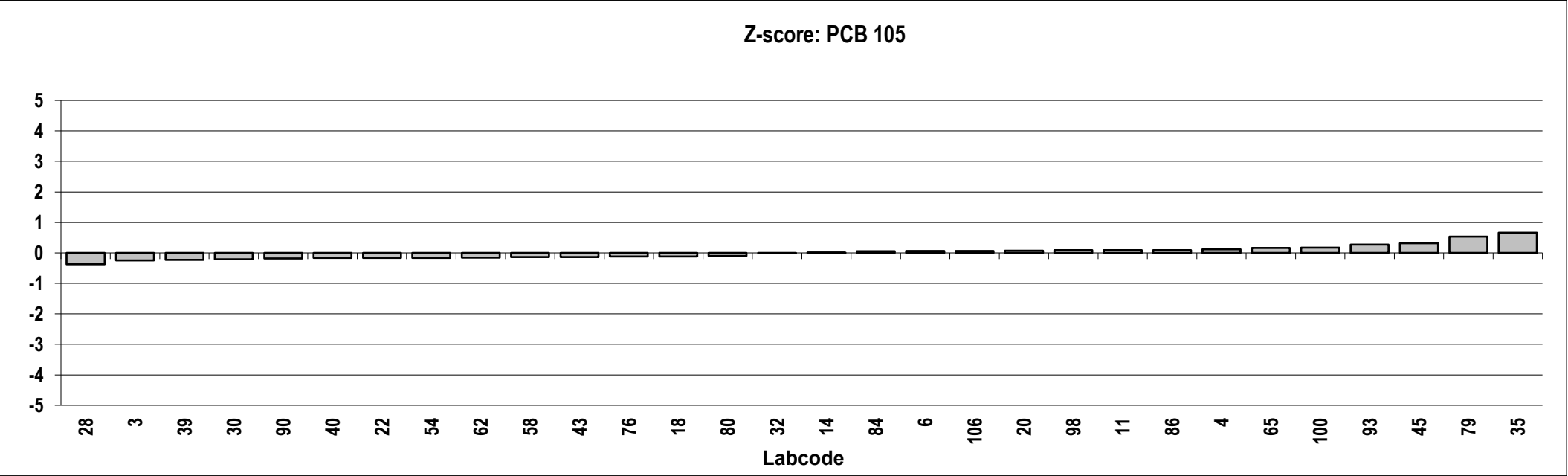
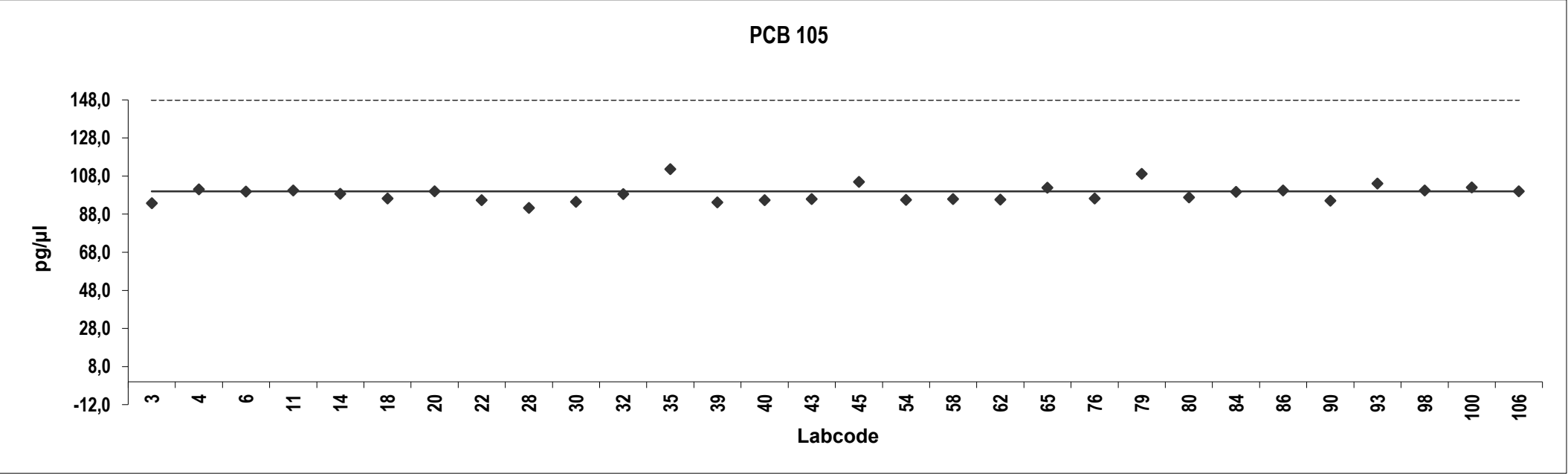
Analyte solution

Congener: PCB 105

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	94	-0,25				
4	101	0,12				
6	100	0,060				
11	100	0,090				
14	99	0,0052				
18	96	-0,12				
20	100	0,071				
22	95	-0,17				
28	91	-0,37				
30	94	-0,21				
32	99	-0,0052				
35	112	0,66				
39	94	-0,23				
40	95	-0,17				
43	96	-0,14				
45	105	0,32				
54	96	-0,16				
58	96	-0,14				
62	96	-0,15				
65	102	0,17				
76	96	-0,12				
79	109	0,53				
80	97	-0,10				
84	100	0,051				
86	101	0,094				
90	95	-0,18				
93	104	0,27				
98	100	0,090				
100	102	0,17				
106	100	0,067				

Consensus statistics

Consensus median, pg/μl	99
Median all values, pg/μl	99
Consensus mean, pg/μl	99
Standard deviation, pg/μl	4,5
Relative standard deviation, %	5
No. of values reported	30
No. of values removed	0
No. of reported non-detects	0



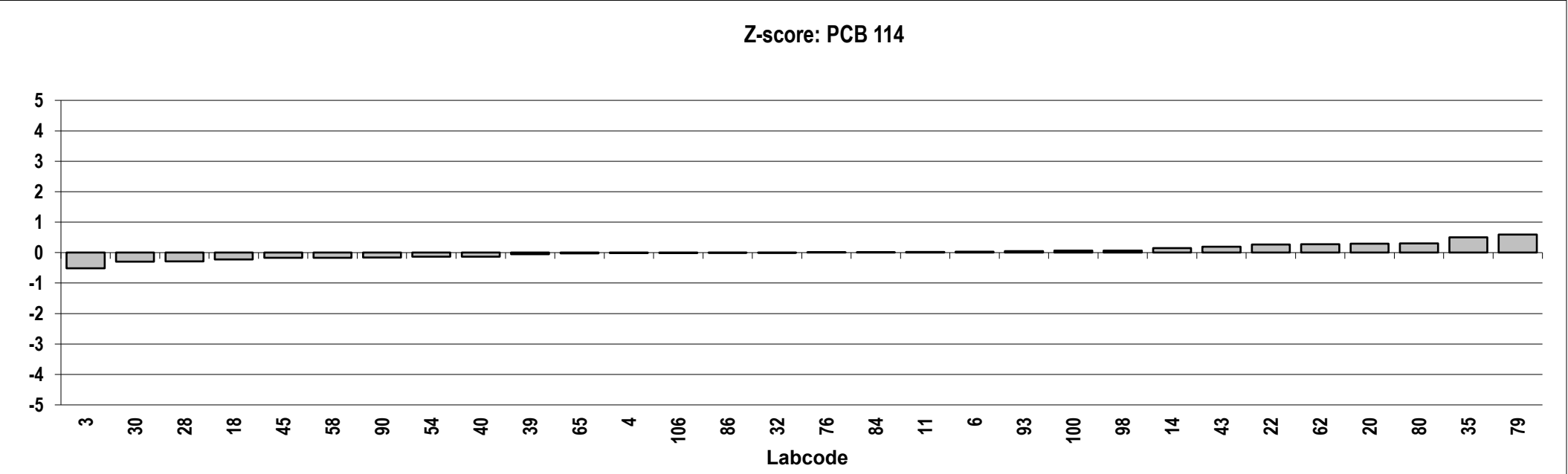
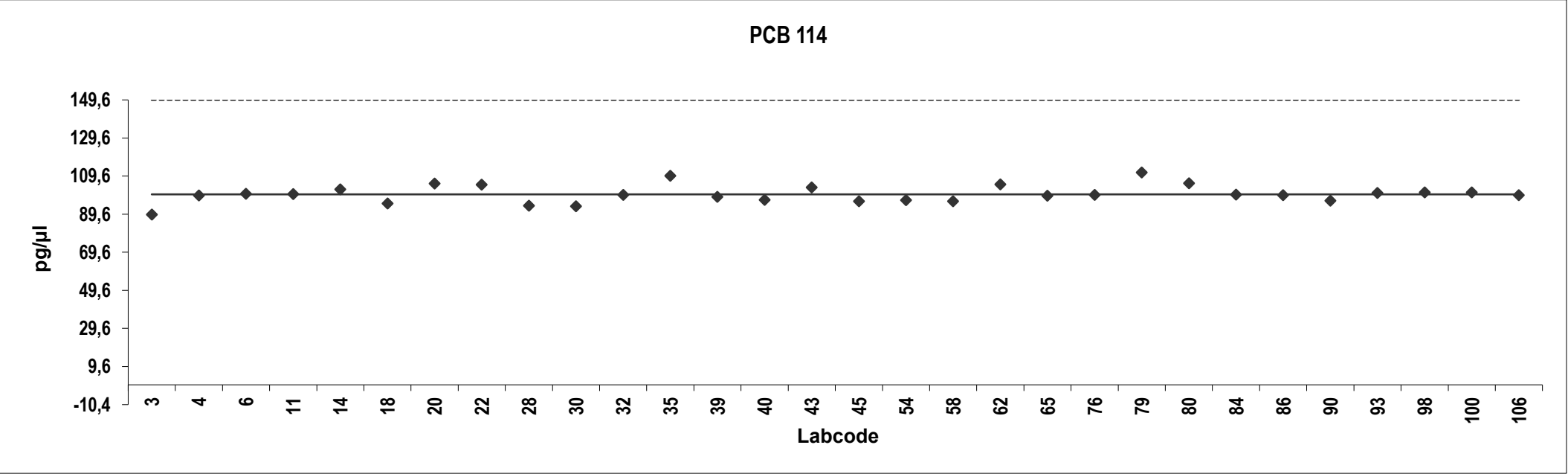
Analyte solution

Congener: PCB 114

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	89	-0,52				
4	99	-0,019				
6	100	0,027				
11	100	0,020				
14	103	0,14				
18	95	-0,22				
20	106	0,30				
22	105	0,27				
28	94	-0,29				
30	94	-0,30				
32	100	-0,0014				
35	110	0,50				
39	99	-0,053				
40	97	-0,13				
43	104	0,19				
45	96	-0,17				
54	97	-0,14				
58	96	-0,17				
62	105	0,28				
65	99	-0,025				
76	100	0,0014				
79	111	0,59				
80	106	0,30				
84	100	0,0080				
86	100	-0,0070				
90	97	-0,16				
93	101	0,049				
98	101	0,066				
100	101	0,064				
106	100	-0,012				

Consensus statistics

Consensus median, pg/μl	100
Median all values, pg/μl	100
Consensus mean, pg/μl	100
Standard deviation, pg/μl	4,7
Relative standard deviation, %	5
No. of values reported	30
No. of values removed	0
No. of reported non-detects	0



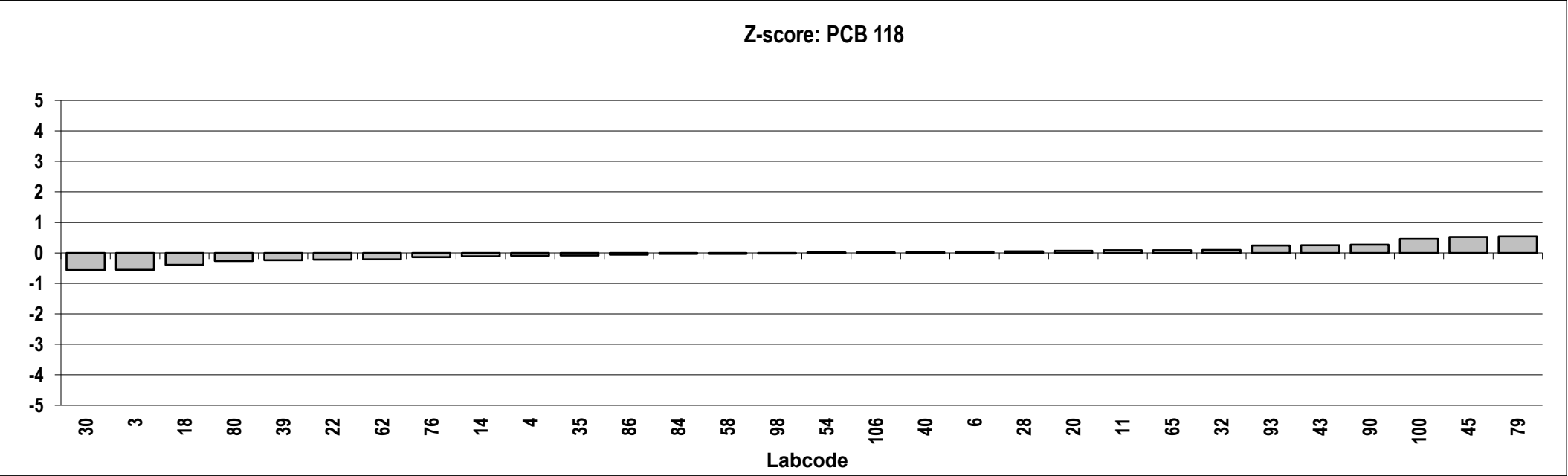
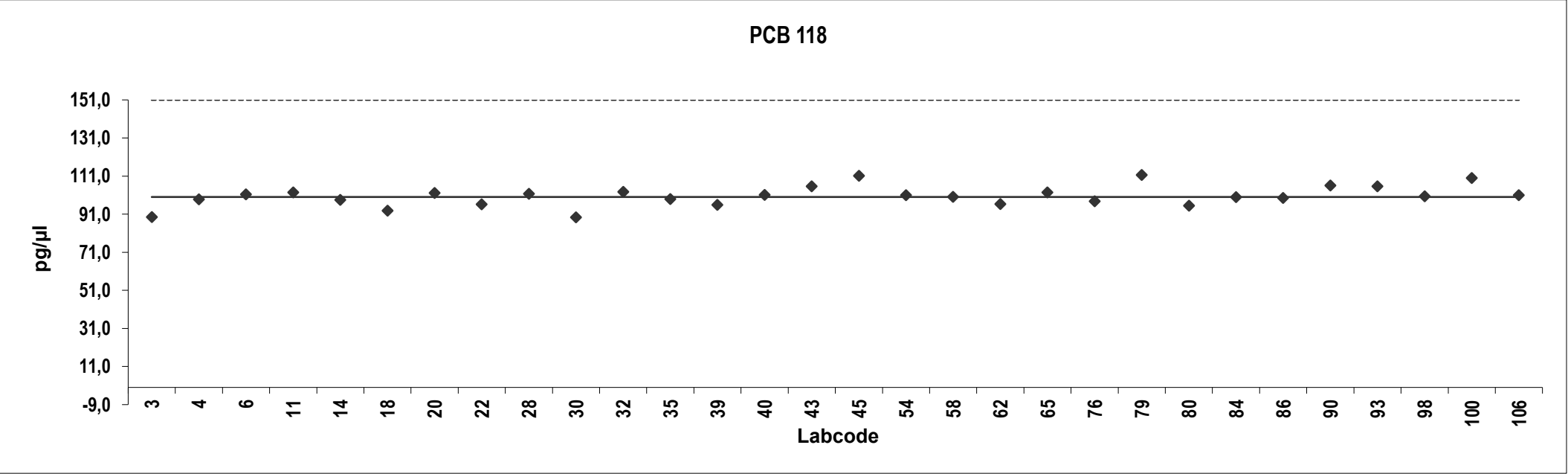
Analyte solution

Congener: PCB 118

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	89	-0,56				
4	99	-0,092				
6	101	0,039				
11	102	0,089				
14	98	-0,11				
18	93	-0,39				
20	102	0,071				
22	96	-0,22				
28	102	0,047				
30	89	-0,56				
32	103	0,10				
35	99	-0,087				
39	96	-0,24				
40	101	0,025				
43	106	0,25				
45	111	0,52				
54	101	0,017				
58	100	-0,032				
62	96	-0,22				
65	102	0,089				
76	98	-0,14				
79	112	0,54				
80	95	-0,26				
84	100	-0,034				
86	99	-0,059				
90	106	0,27				
93	106	0,25				
98	100	-0,017				
100	110	0,46				
106	101	0,017				

Consensus statistics

Consensus median, pg/μl	101
Median all values, pg/μl	101
Consensus mean, pg/μl	100
Standard deviation, pg/μl	5,4
Relative standard deviation, %	5
No. of values reported	30
No. of values removed	0
No. of reported non-detects	0



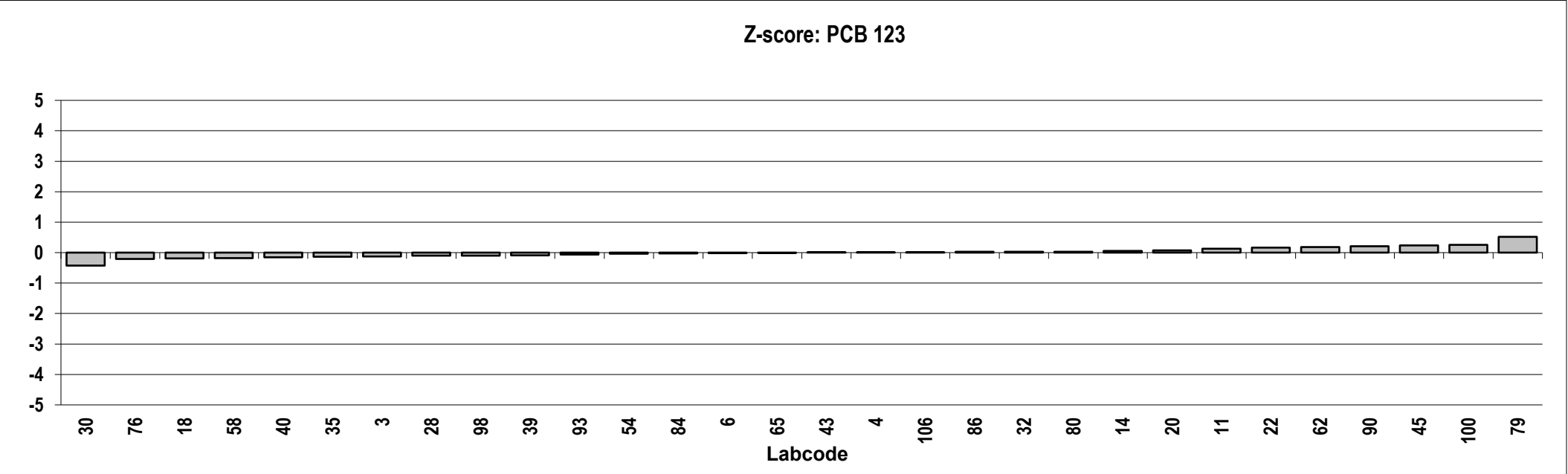
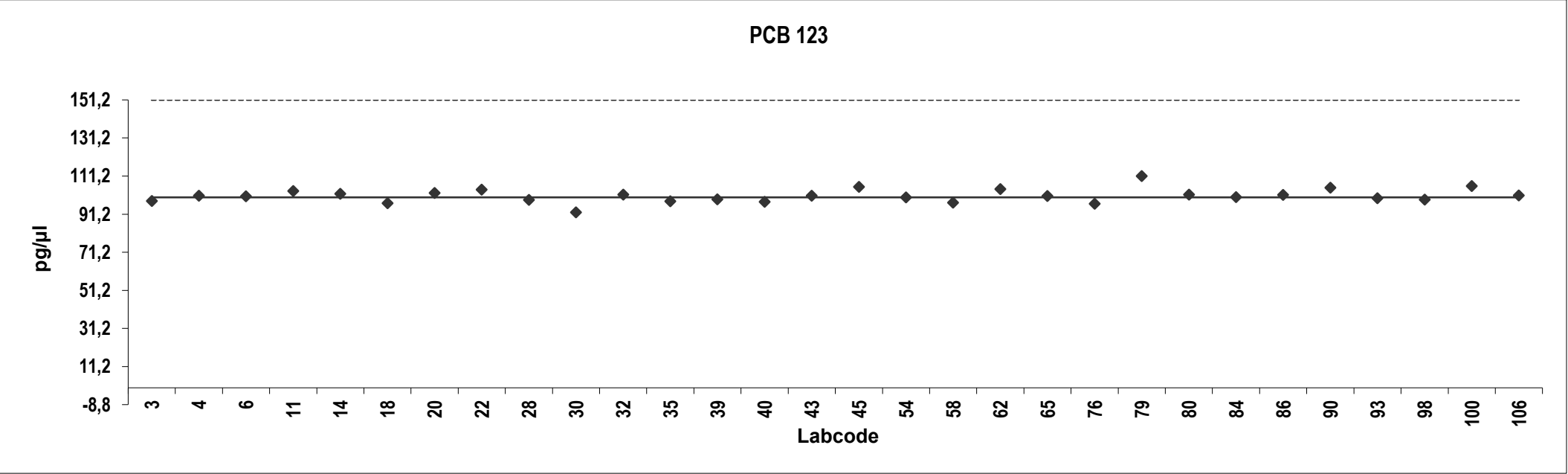
Analyte solution

Congener: PCB 123

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	98	-0,13				
4	101	0,0061				
6	101	-0,013				
11	103	0,12				
14	102	0,056				
18	97	-0,19				
20	102	0,077				
22	104	0,17				
28	99	-0,10				
30	92	-0,43				
32	101	0,030				
35	98	-0,14				
39	99	-0,088				
40	98	-0,15				
43	101	0,0032				
45	106	0,23				
54	100	-0,039				
58	97	-0,18				
62	104	0,18				
65	101	-0,0032				
76	97	-0,20				
79	111	0,52				
80	101	0,030				
84	100	-0,031				
86	101	0,025				
90	105	0,21				
93	100	-0,063				
98	99	-0,10				
100	106	0,26				
106	101	0,011				

Consensus statistics

Consensus median, pg/μl	101
Median all values, pg/μl	101
Consensus mean, pg/μl	101
Standard deviation, pg/μl	3,6
Relative standard deviation, %	4
No. of values reported	30
No. of values removed	0
No. of reported non-detects	0



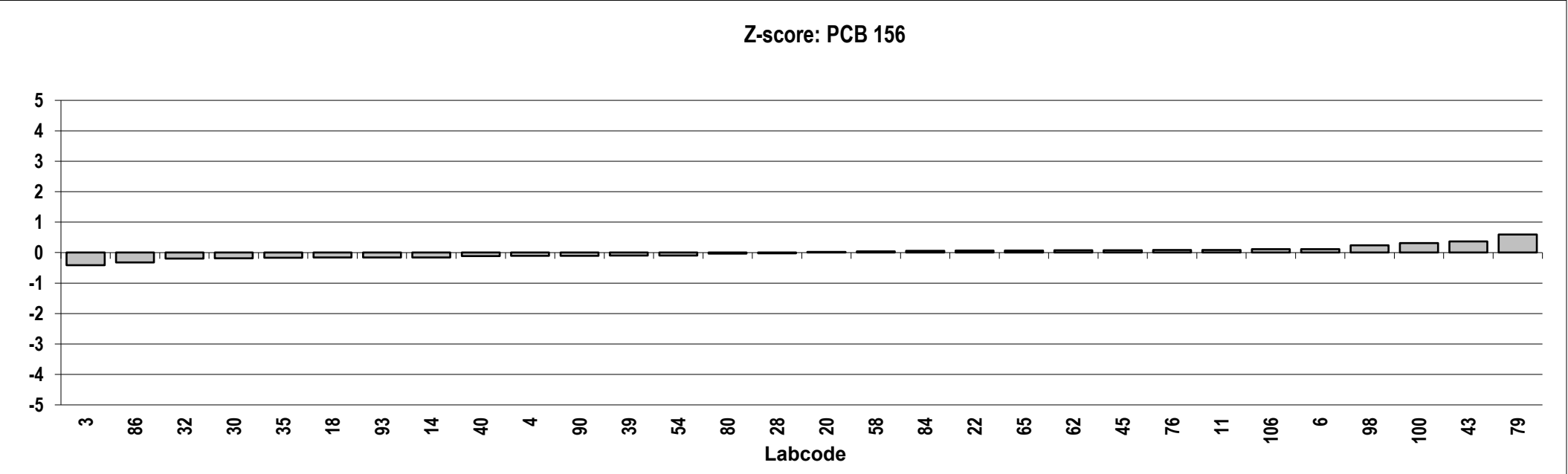
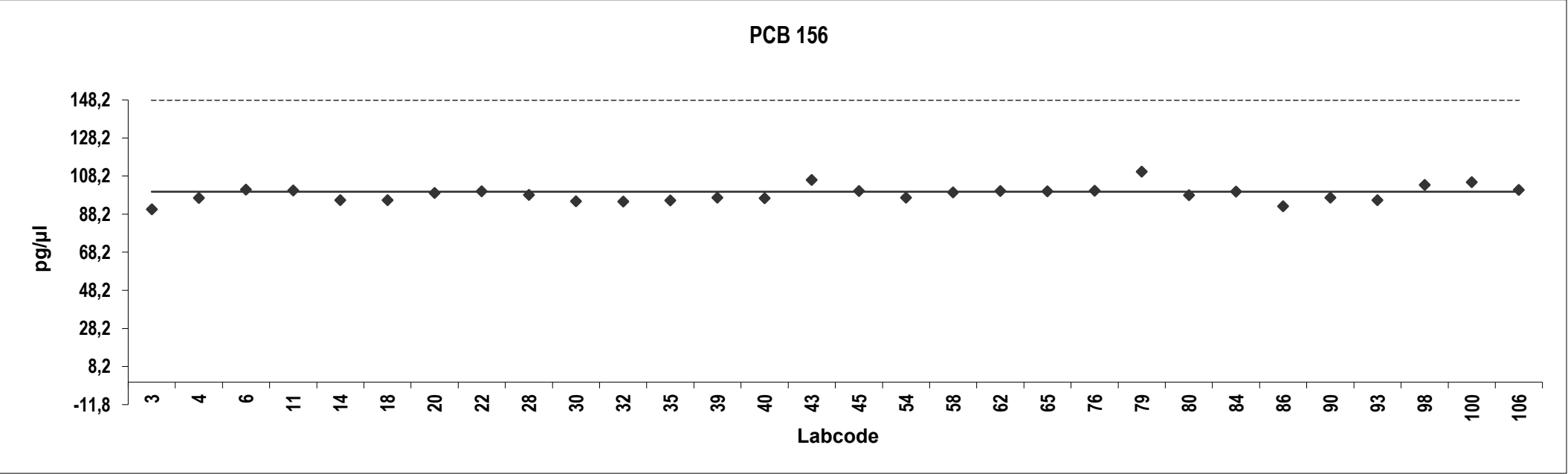
Analyte solution

Congener: PCB 156

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	91	-0,41				
4	97	-0,11				
6	101	0,12				
11	101	0,090				
14	96	-0,16				
18	96	-0,16				
20	99	0,025				
22	100	0,071				
28	98	-0,025				
30	95	-0,19				
32	95	-0,20				
35	95	-0,17				
39	97	-0,10				
40	97	-0,11				
43	106	0,37				
45	100	0,081				
54	97	-0,10				
58	100	0,040				
62	100	0,078				
65	100	0,071				
76	101	0,086				
79	111	0,60				
80	98	-0,034				
84	100	0,061				
86	92	-0,32				
90	97	-0,10				
93	96	-0,16				
98	103	0,24				
100	105	0,31				
106	101	0,11				

Consensus statistics

Consensus median, pg/μl	99
Median all values, pg/μl	99
Consensus mean, pg/μl	99
Standard deviation, pg/μl	4,1
Relative standard deviation, %	4
No. of values reported	30
No. of values removed	0
No. of reported non-detects	0



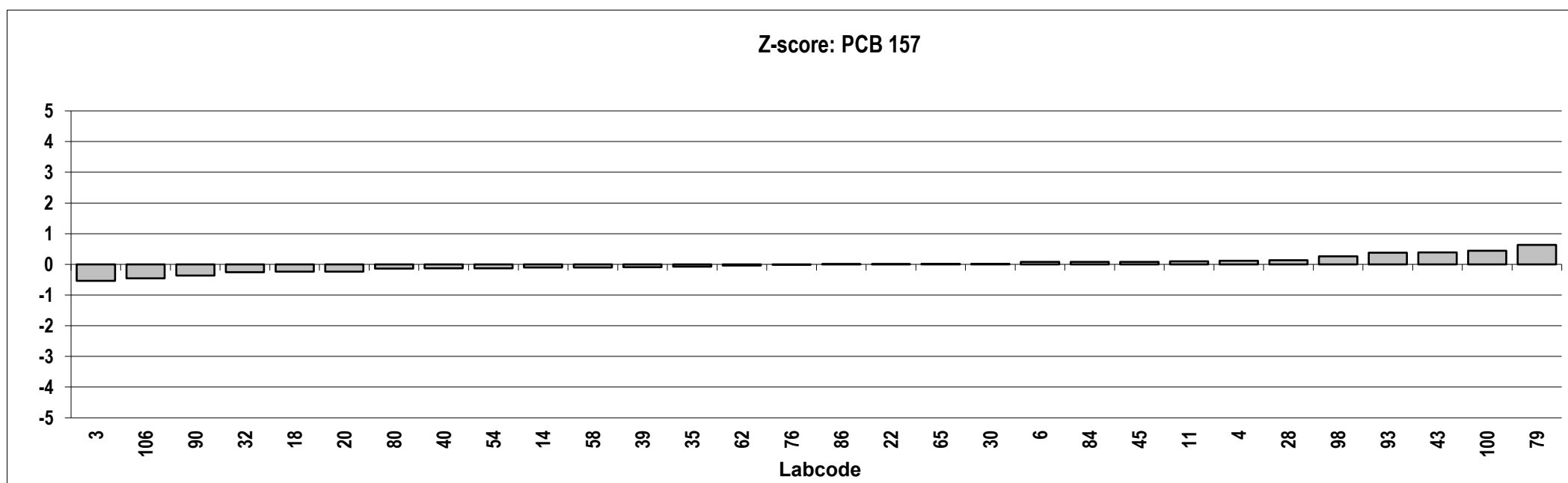
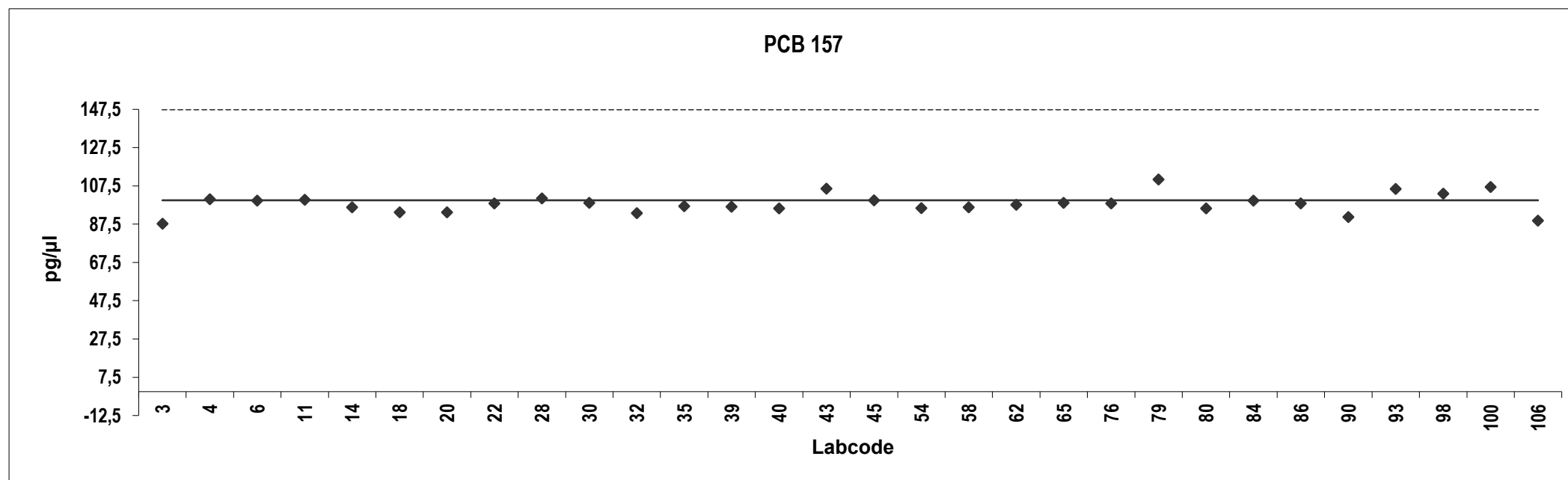
Analyte solution

Congener: PCB 157

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	88	-0,54				
4	101	0,11				
6	100	0,076				
11	100	0,10				
14	96	-0,10				
18	94	-0,24				
20	94	-0,24				
22	98	0,0036				
28	101	0,13				
30	99	0,019				
32	93	-0,26				
35	97	-0,072				
39	97	-0,090				
40	96	-0,13				
43	106	0,39				
45	100	0,084				
54	96	-0,12				
58	96	-0,10				
62	98	-0,037				
65	99	0,018				
76	98	-0,0015				
79	111	0,64				
80	96	-0,13				
84	100	0,078				
86	98	0,0015				
90	91	-0,36				
93	106	0,38				
98	104	0,26				
100	107	0,44				
106	89	-0,45				

Consensus statistics

Consensus median, pg/μl	98
Median all values, pg/μl	98
Consensus mean, pg/μl	98
Standard deviation, pg/μl	5,1
Relative standard deviation, %	5
No. of values reported	30
No. of values removed	0
No. of reported non-detects	0



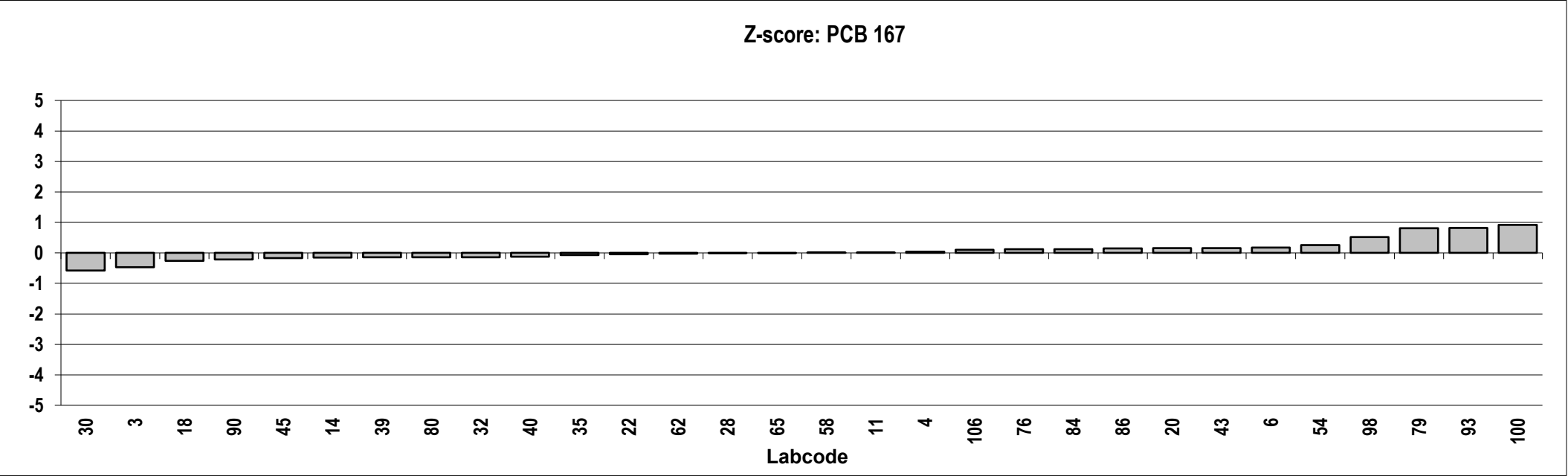
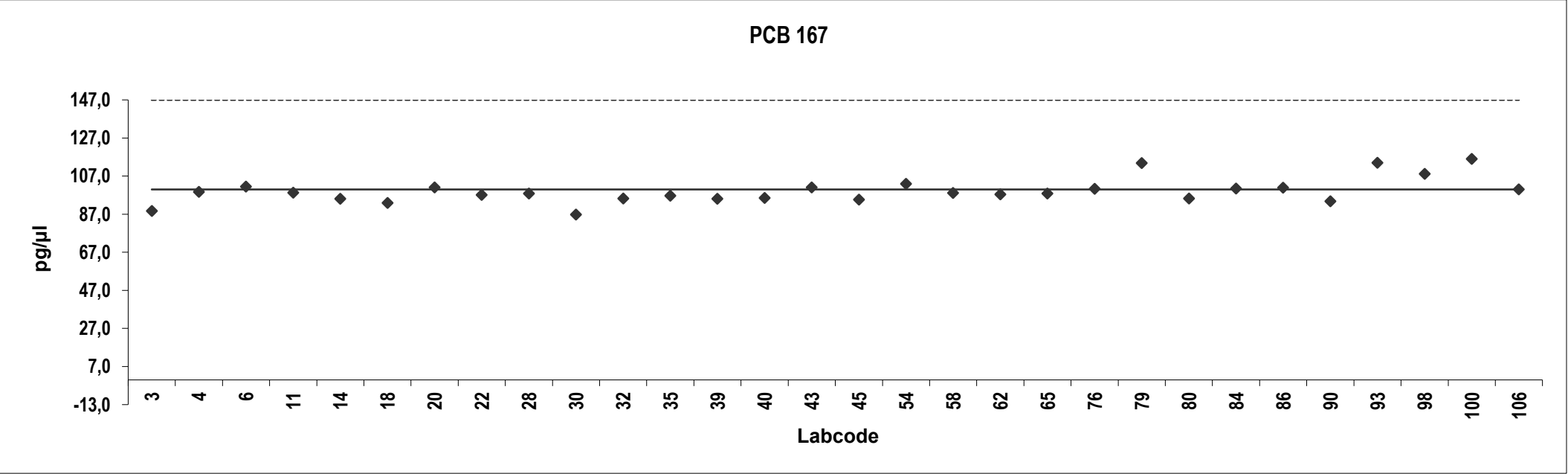
Analyte solution

Congener: PCB 167

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	89	-0,47				
4	99	0,040				
6	101	0,17				
11	98	0,013				
14	95	-0,15				
18	93	-0,26				
20	101	0,15				
22	97	-0,046				
28	98	-0,010				
30	87	-0,57				
32	95	-0,14				
35	97	-0,068				
39	95	-0,15				
40	96	-0,13				
43	101	0,16				
45	95	-0,17				
54	103	0,25				
58	98	0,0044				
62	97	-0,026				
65	98	-0,0044				
76	100	0,12				
79	114	0,81				
80	95	-0,14				
84	100	0,12				
86	101	0,15				
90	94	-0,21				
93	114	0,82				
98	108	0,52				
100	116	0,92				
106	100	0,10				

Consensus statistics

Consensus median, pg/μl	98
Median all values, pg/μl	98
Consensus mean, pg/μl	99
Standard deviation, pg/μl	6,6
Relative standard deviation, %	7
No. of values reported	30
No. of values removed	0
No. of reported non-detects	0



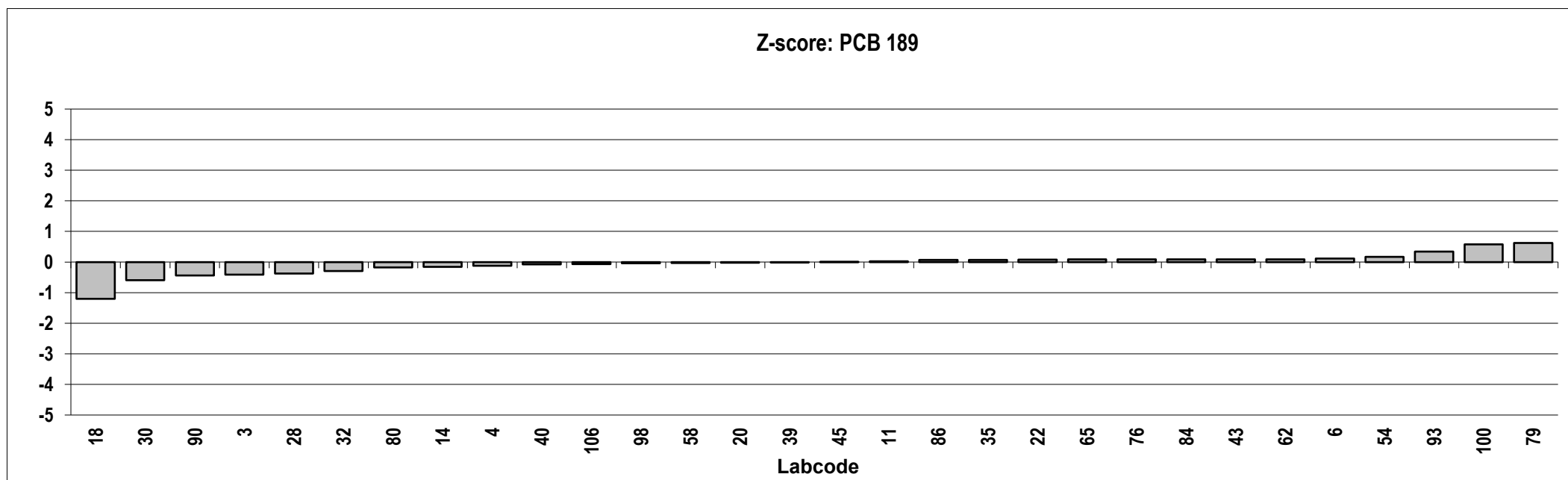
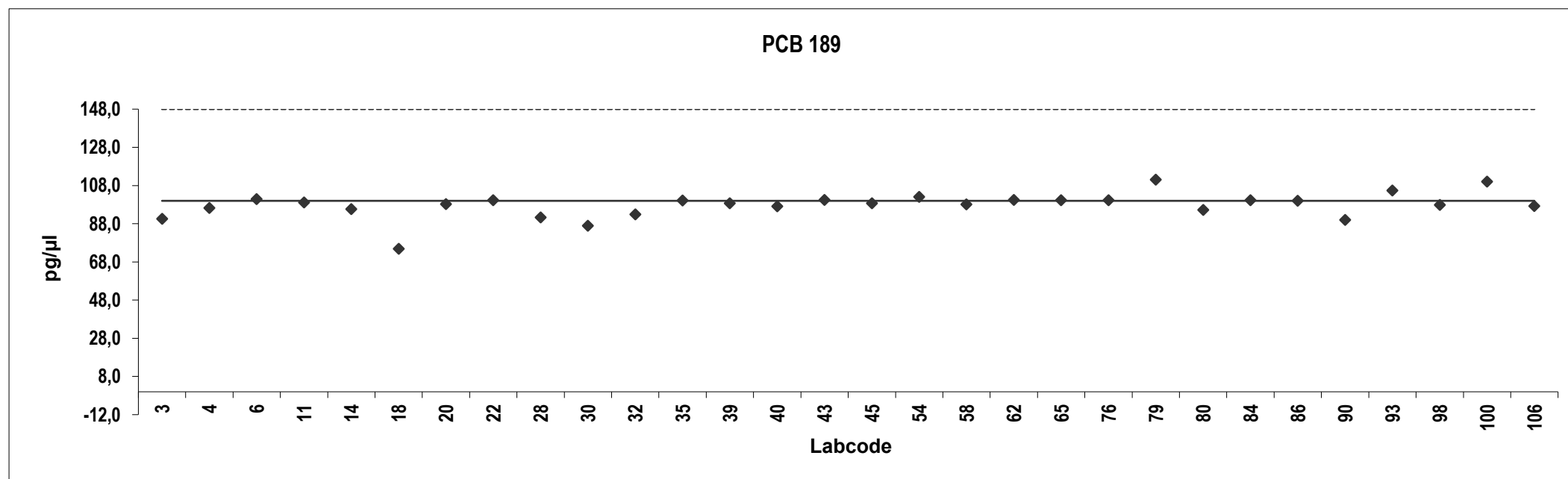
Analyte solution

Congener: PCB 189

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	91	-0,41				
4	96	-0,12				
6	101	0,11				
11	99	0,021				
14	96	-0,15				
18	75	-1,2				
20	98	-0,022				
22	100	0,080				
28	91	-0,37				
30	87	-0,60				
32	93	-0,29				
35	100	0,072				
39	99	-0,0010				
40	97	-0,080				
43	100	0,089				
45	99	0,0010				
54	102	0,17				
58	98	-0,029				
62	100	0,090				
65	100	0,083				
76	100	0,084				
79	111	0,63				
80	95	-0,18				
84	100	0,086				
86	100	0,067				
90	90	-0,44				
93	105	0,34				
98	98	-0,041				
100	110	0,57				
106	97	-0,070				

Consensus statistics

Consensus median, pg/μl	99
Median all values, pg/μl	99
Consensus mean, pg/μl	98
Standard deviation, pg/μl	6,7
Relative standard deviation, %	7
No. of values reported	30
No. of values removed	0
No. of reported non-detects	0



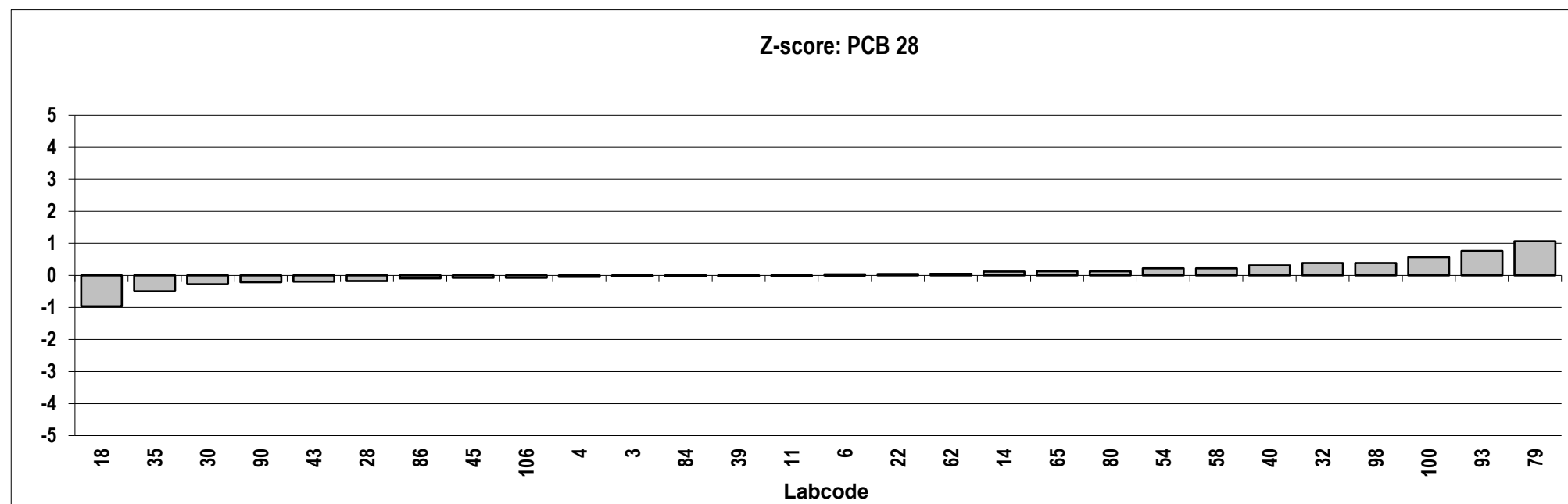
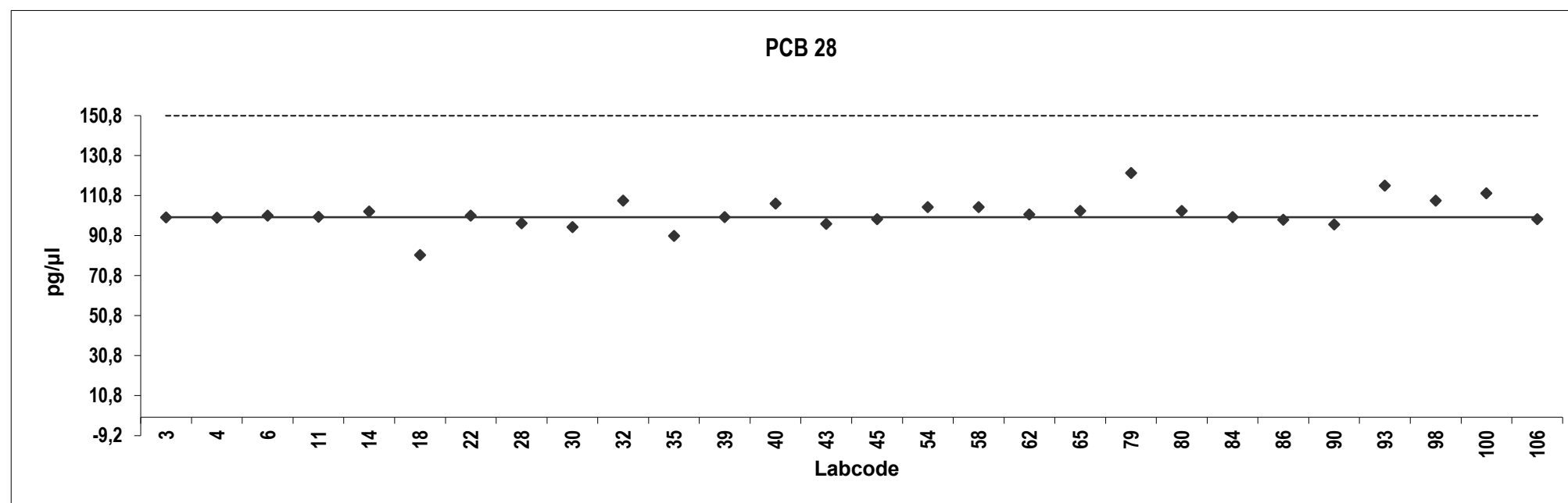
Analyte solution

Congener: PCB 28

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	100	-0,028				
4	100	-0,041				
6	101	0,013				
11	100	-0,013				
14	103	0,12				
18	81	-0,96				
22	101	0,016				
28	97	-0,18				
30	95	-0,27				
32	108	0,39				
35	91	-0,49				
39	100	-0,022				
40	107	0,31				
43	97	-0,19				
45	99	-0,076				
54	105	0,22				
58	105	0,22				
62	101	0,039				
65	103	0,13				
79	122	1,1				
80	103	0,13				
84	100	-0,025				
86	99	-0,093				
90	96	-0,21				
93	116	0,76				
98	108	0,39				
100	112	0,57				
106	99	-0,076				

Consensus statistics

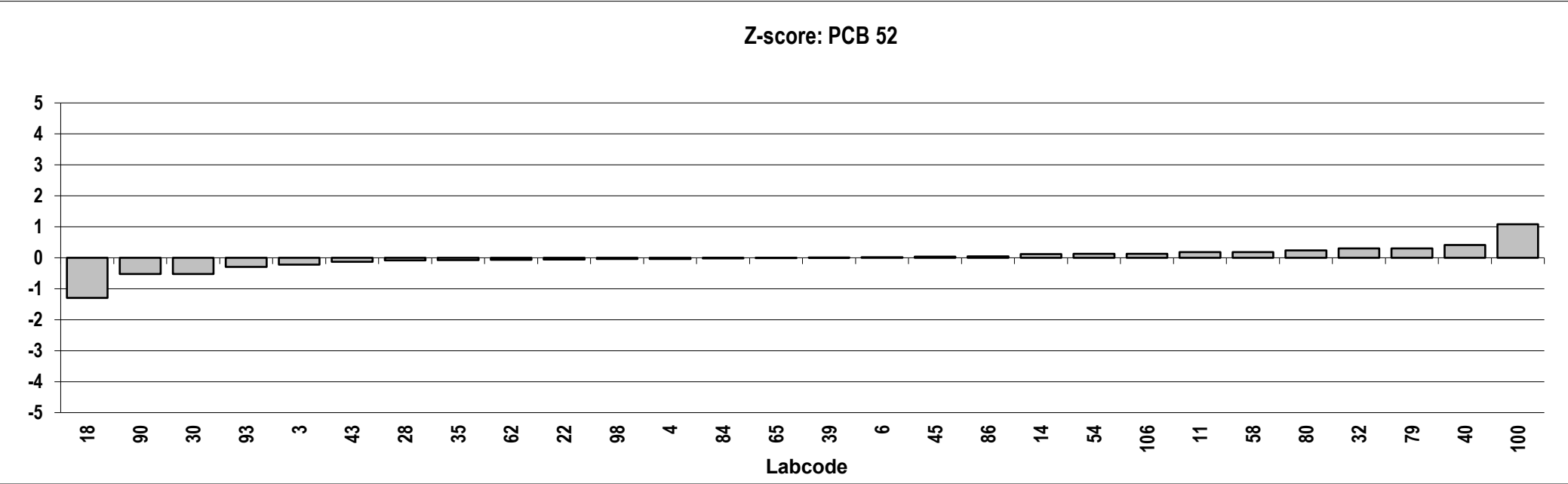
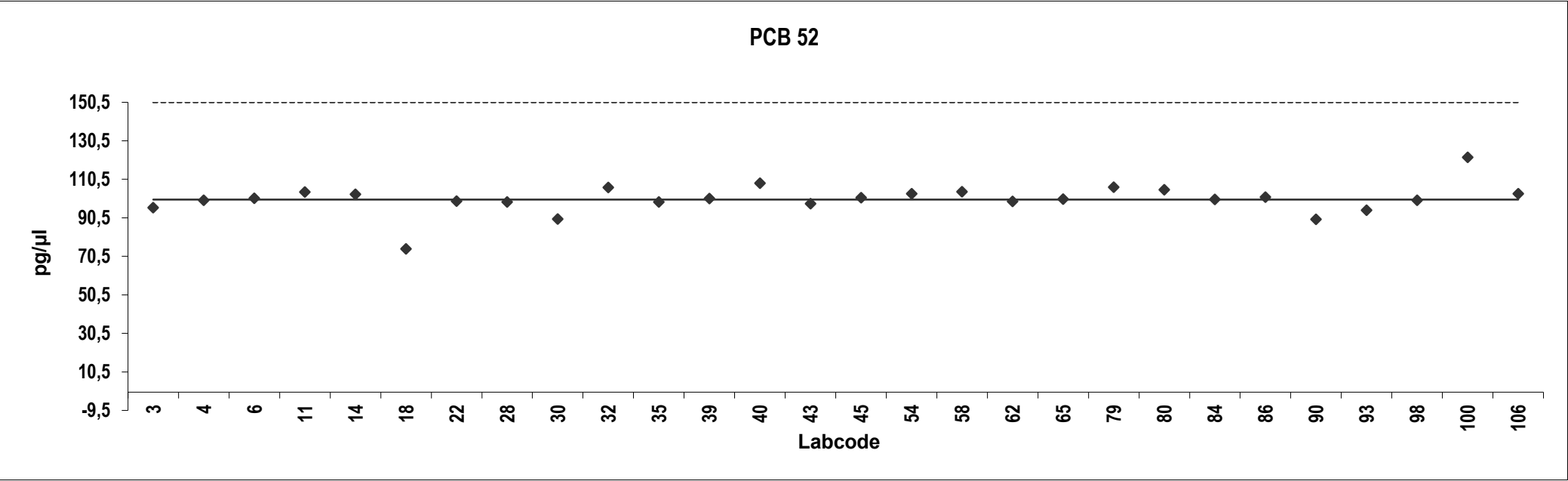
Consensus median, pg/μl	101
Median all values, pg/μl	101
Consensus mean, pg/μl	102
Standard deviation, pg/μl	7,6
Relative standard deviation, %	7
No. of values reported	28
No. of values removed	0
No. of reported non-detects	0



Analyte solution
Congener: PCB 52

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	96	-0,22				
4	100	-0,037				
6	101	0,018				
11	104	0,18				
14	103	0,12				
18	74	-1,3				
22	99	-0,056				
28	99	-0,081				
30	90	-0,52				
32	106	0,30				
35	99	-0,078				
39	101	0,0080				
40	109	0,41				
43	98	-0,13				
45	101	0,033				
54	103	0,13				
58	104	0,18				
62	99	-0,064				
65	100	-0,0080				
79	106	0,30				
80	105	0,24				
84	100	-0,015				
86	101	0,047				
90	90	-0,53				
93	94	-0,30				
98	100	-0,039				
100	122	1,1				
106	103	0,13				

Consensus statistics	
Consensus median, pg/μl	100
Median all values, pg/μl	100
Consensus mean, pg/μl	100
Standard deviation, pg/μl	7,8
Relative standard deviation, %	8
No. of values reported	28
No. of values removed	0
No. of reported non-detects	0



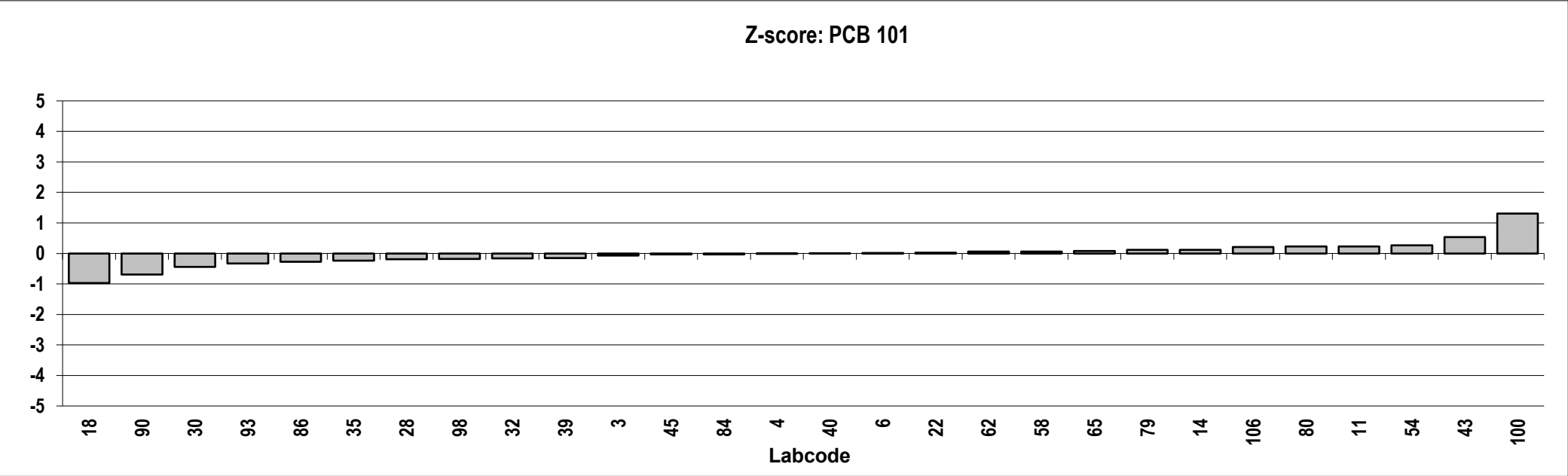
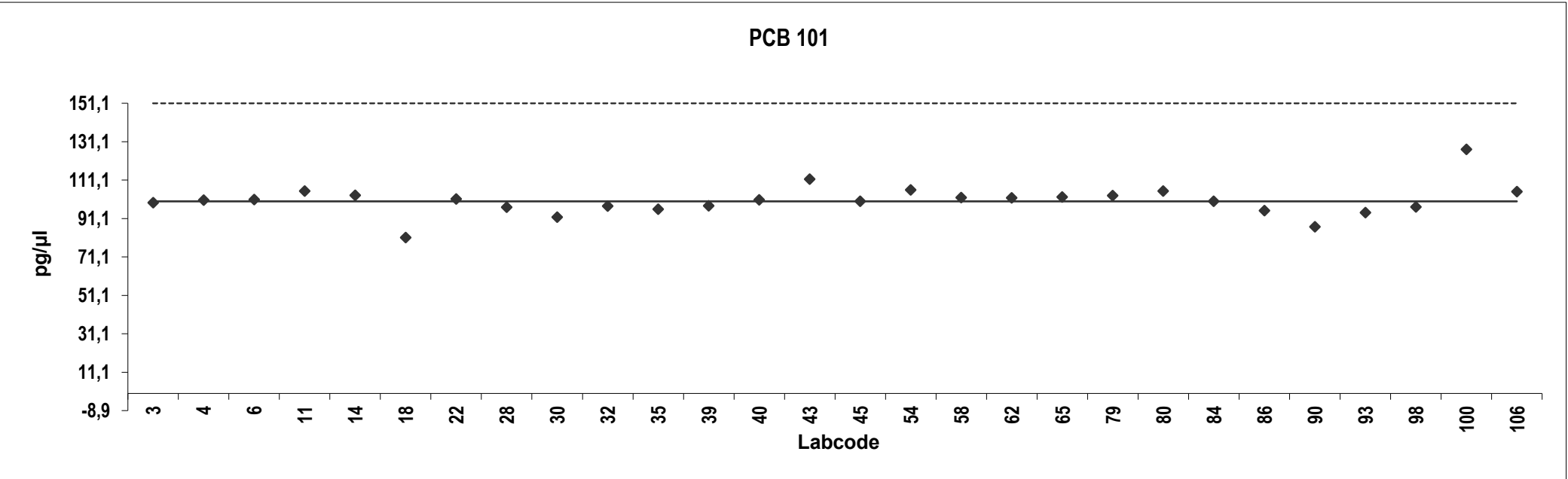
Analyte solution

Congener: PCB 101

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	99	-0,072				
4	101	-0,0057				
6	101	0,011				
11	105	0,23				
14	103	0,12				
18	81	-0,97				
22	101	0,024				
28	97	-0,19				
30	92	-0,44				
32	97	-0,16				
35	96	-0,24				
39	98	-0,15				
40	101	0,0057				
43	112	0,54				
45	100	-0,036				
54	106	0,26				
58	102	0,064				
62	102	0,059				
65	102	0,078				
79	103	0,11				
80	105	0,23				
84	100	-0,033				
86	95	-0,28				
90	87	-0,69				
93	94	-0,33				
98	97	-0,18				
100	127	1,3				
106	105	0,21				

Consensus statistics

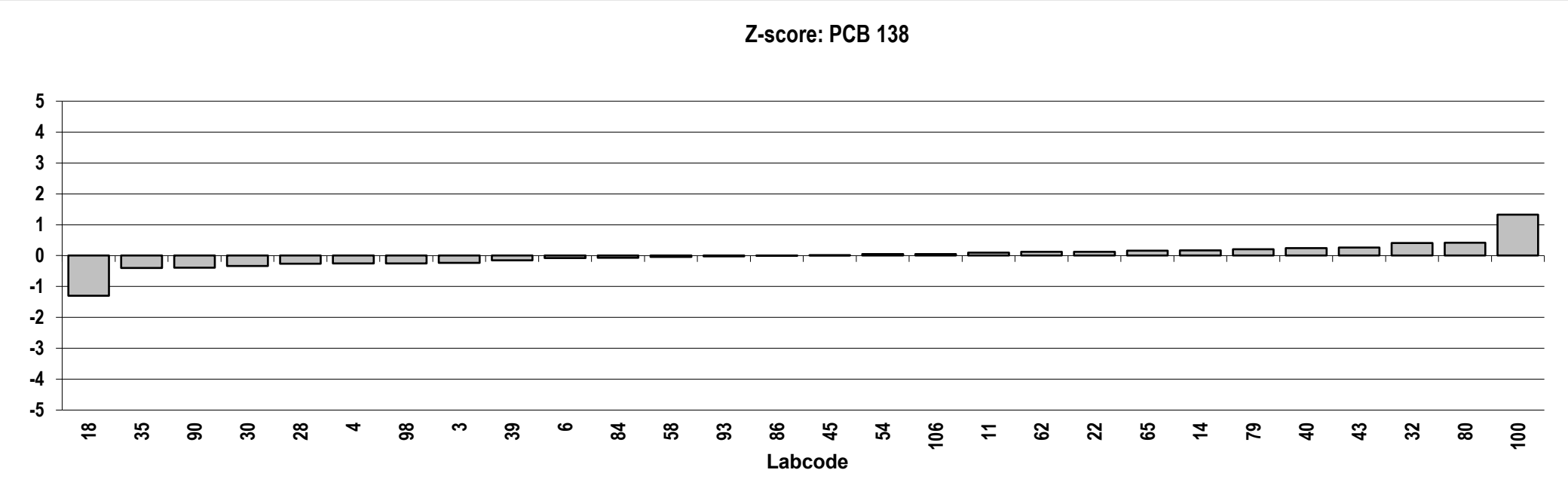
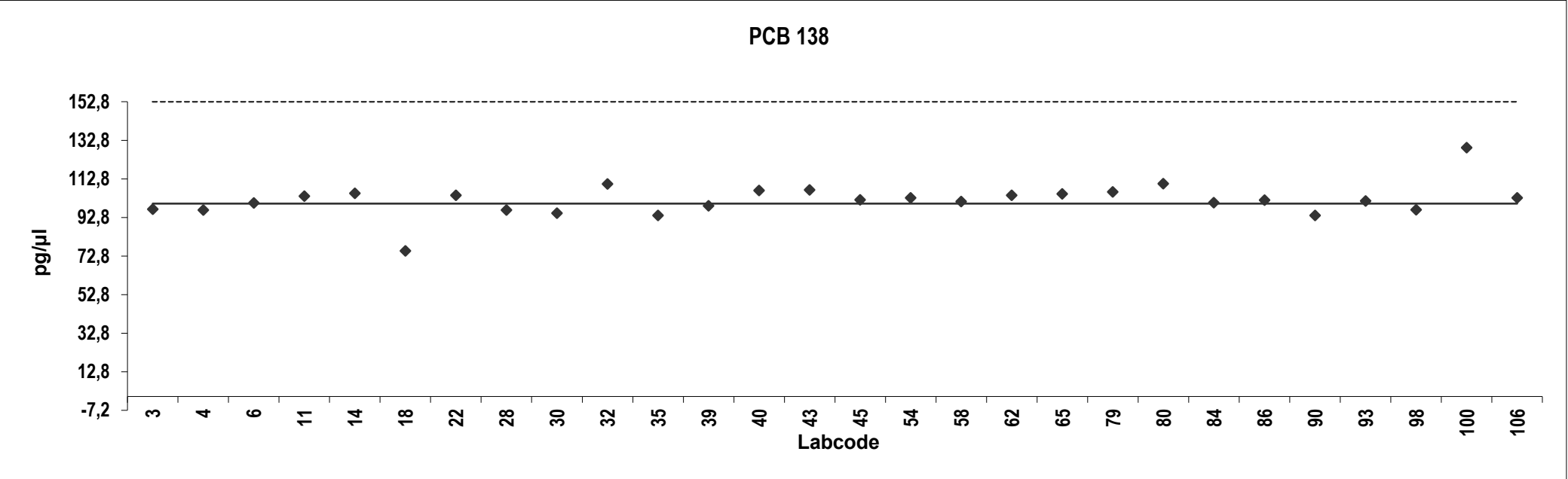
Consensus median, pg/μl	101
Median all values, pg/μl	101
Consensus mean, pg/μl	100
Standard deviation, pg/μl	8,0
Relative standard deviation, %	8
No. of values reported	28
No. of values removed	0
No. of reported non-detects	0



Analyte solution
Congener: PCB 138

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	97	-0,23				
4	97	-0,25				
6	100	-0,078				
11	104	0,094				
14	105	0,17				
18	75	-1,3				
22	104	0,12				
28	97	-0,26				
30	95	-0,34				
32	110	0,40				
35	94	-0,40				
39	99	-0,15				
40	107	0,24				
43	107	0,26				
45	102	0,0053				
54	103	0,054				
58	101	-0,044				
62	104	0,12				
65	105	0,16				
79	106	0,21				
80	110	0,41				
84	100	-0,071				
86	102	-0,0053				
90	94	-0,39				
93	101	-0,024				
98	97	-0,25				
100	129	1,3				
106	103	0,054				

Consensus statistics	
Consensus median, pg/μl	102
Median all values, pg/μl	102
Consensus mean, pg/μl	102
Standard deviation, pg/μl	8,6
Relative standard deviation, %	8
No. of values reported	28
No. of values removed	0
No. of reported non-detects	0



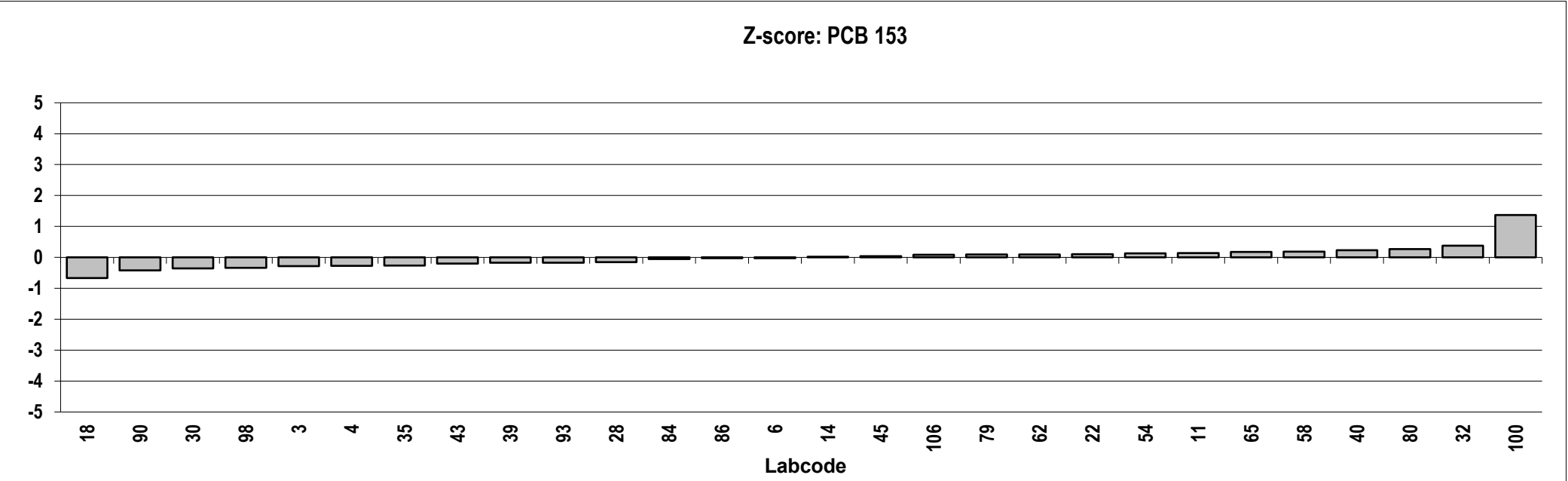
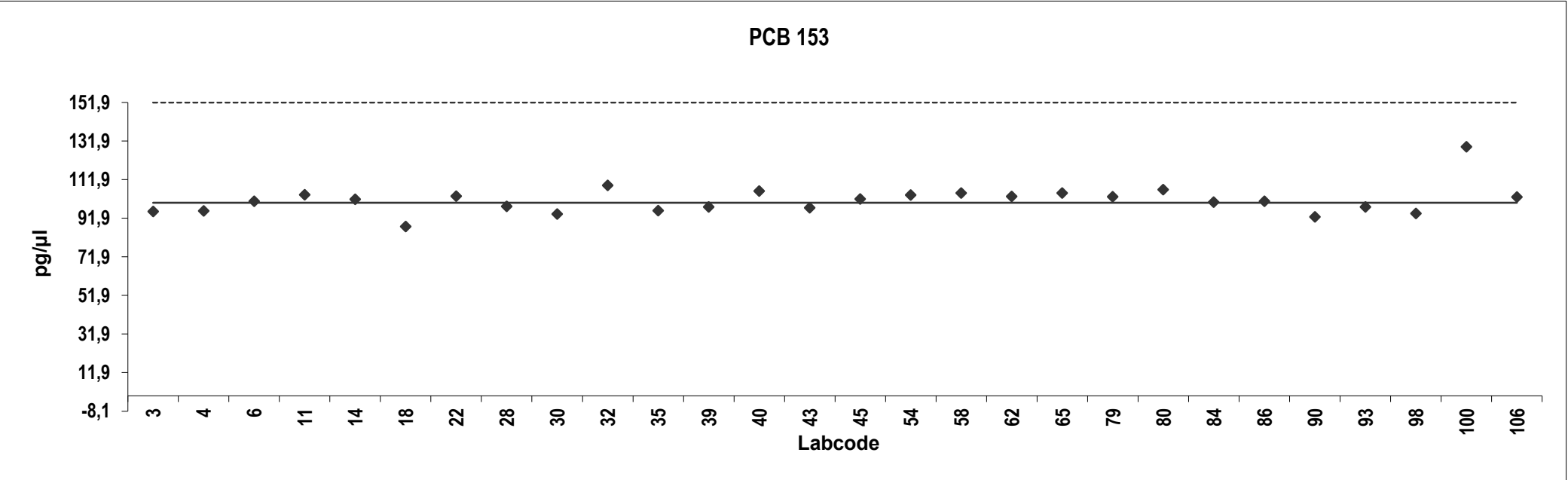
Analyte solution

Congener: PCB 153

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	95	-0,29				
4	96	-0,27				
6	101	-0,025				
11	104	0,14				
14	102	0,025				
18	88	-0,67				
22	103	0,10				
28	98	-0,16				
30	94	-0,36				
32	109	0,38				
35	96	-0,26				
39	98	-0,17				
40	106	0,23				
43	97	-0,20				
45	102	0,035				
54	104	0,13				
58	105	0,18				
62	103	0,098				
65	105	0,18				
79	103	0,092				
80	107	0,27				
84	100	-0,049				
86	101	-0,030				
90	93	-0,42				
93	98	-0,17				
98	94	-0,34				
100	129	1,4				
106	103	0,084				

Consensus statistics

Consensus median, pg/μl	101
Median all values, pg/μl	101
Consensus mean, pg/μl	101
Standard deviation, pg/μl	7,3
Relative standard deviation, %	7
No. of values reported	28
No. of values removed	0
No. of reported non-detects	0



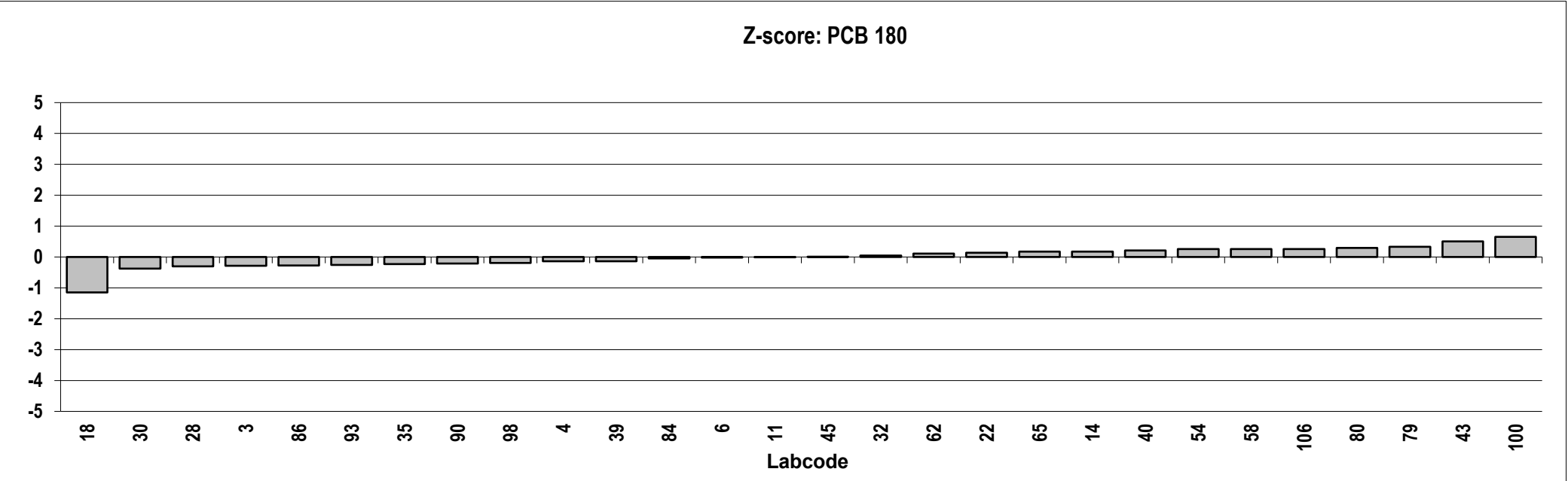
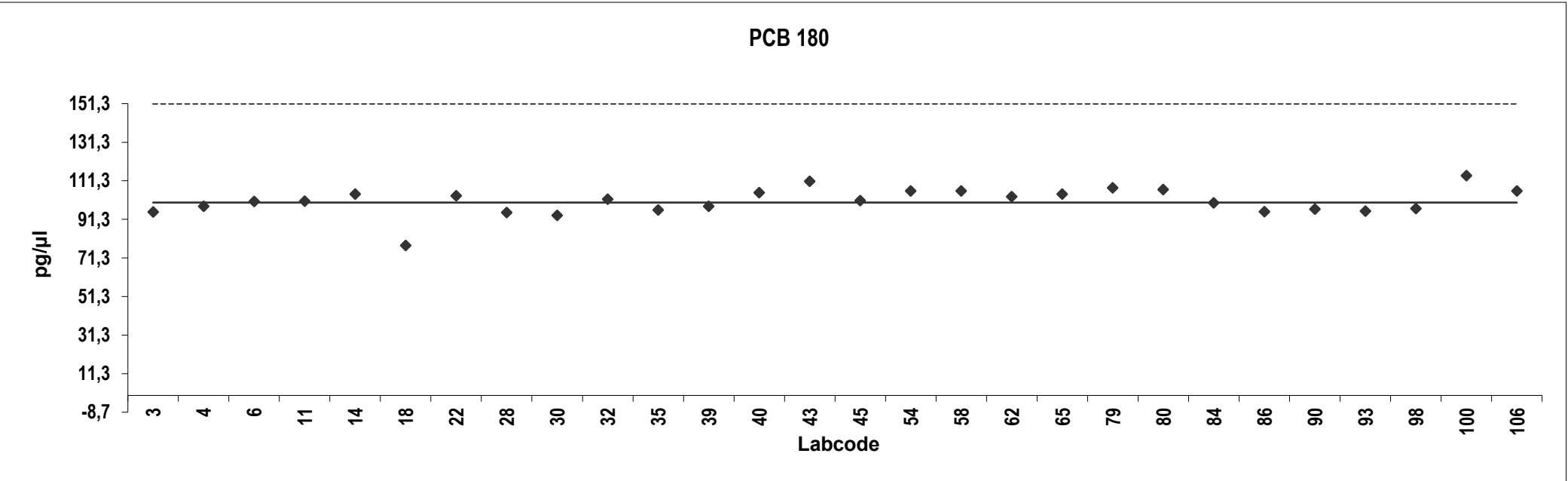
Analyte solution

Congener: PCB 180

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	95	-0,28				
4	98	-0,14				
6	101	-0,016				
11	101	-0,0074				
14	104	0,18				
18	78	-1,1				
22	104	0,13				
28	95	-0,30				
30	93	-0,37				
32	102	0,043				
35	96	-0,23				
39	98	-0,14				
40	105	0,21				
43	111	0,50				
45	101	0,0074				
54	106	0,26				
58	106	0,26				
62	103	0,11				
65	104	0,17				
79	108	0,33				
80	107	0,29				
84	100	-0,049				
86	95	-0,27				
90	97	-0,21				
93	96	-0,26				
98	97	-0,19				
100	114	0,65				
106	106	0,26				

Consensus statistics

Consensus median, pg/μl	101
Median all values, pg/μl	101
Consensus mean, pg/μl	101
Standard deviation, pg/μl	6,9
Relative standard deviation, %	7
No. of values reported	28
No. of values removed	0
No. of reported non-detects	0



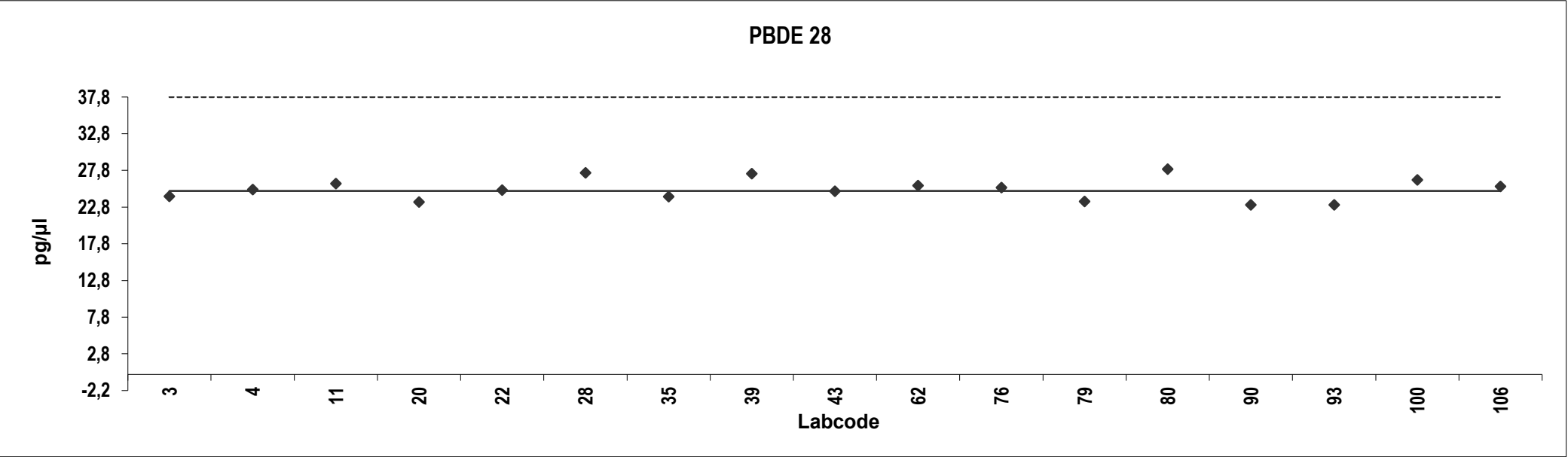
Analyte solution

Congener: PBDE 28

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc.pg/μl	Notes
3	24	-0,18				
4	25	0,0000				
11	26	0,16				
20	24	-0,34				
22	25	-0,016				
28	27	0,45				
35	24	-0,20				
39	27	0,43				
43	25	-0,044				
62	26	0,10				
76	25	0,054				
79	24	-0,32				
80	28	0,55				
90	23	-0,42				
93	23	-0,42				
100	27	0,26				
106	26	0,079				

Consensus statistics

Consensus median, pg/μl	25
Median all values, pg/μl	25
Consensus mean, pg/μl	25
Standard deviation, pg/μl	1,5
Relative standard deviation, %	6
No. of values reported	17
No. of values removed	0
No. of reported non-detects	0



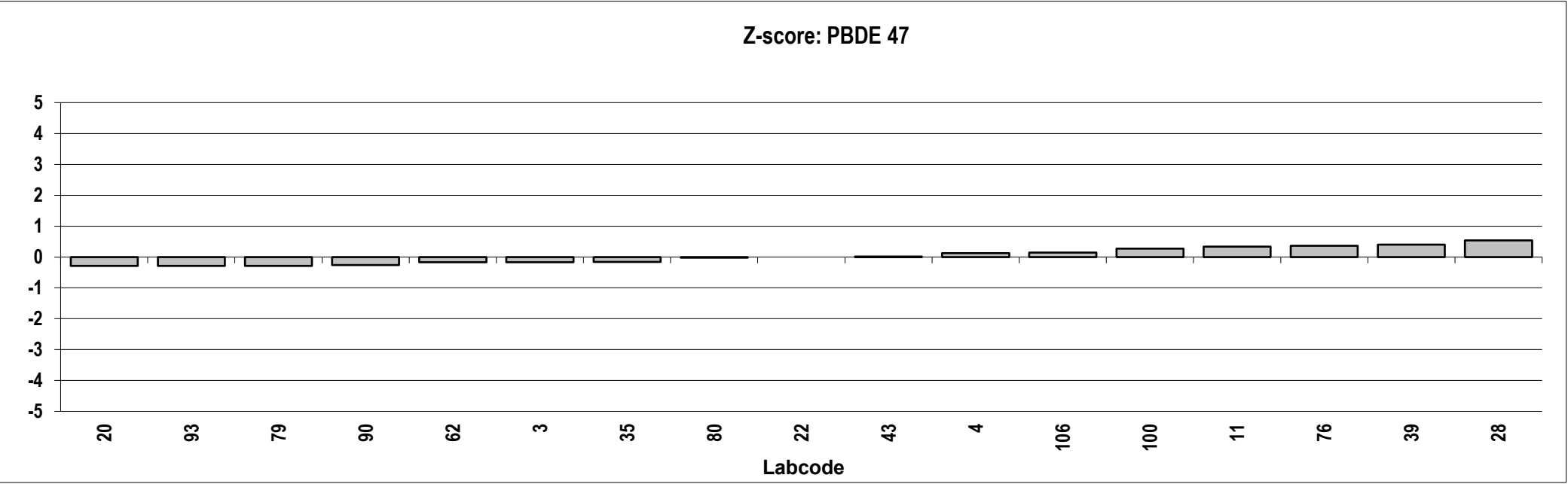
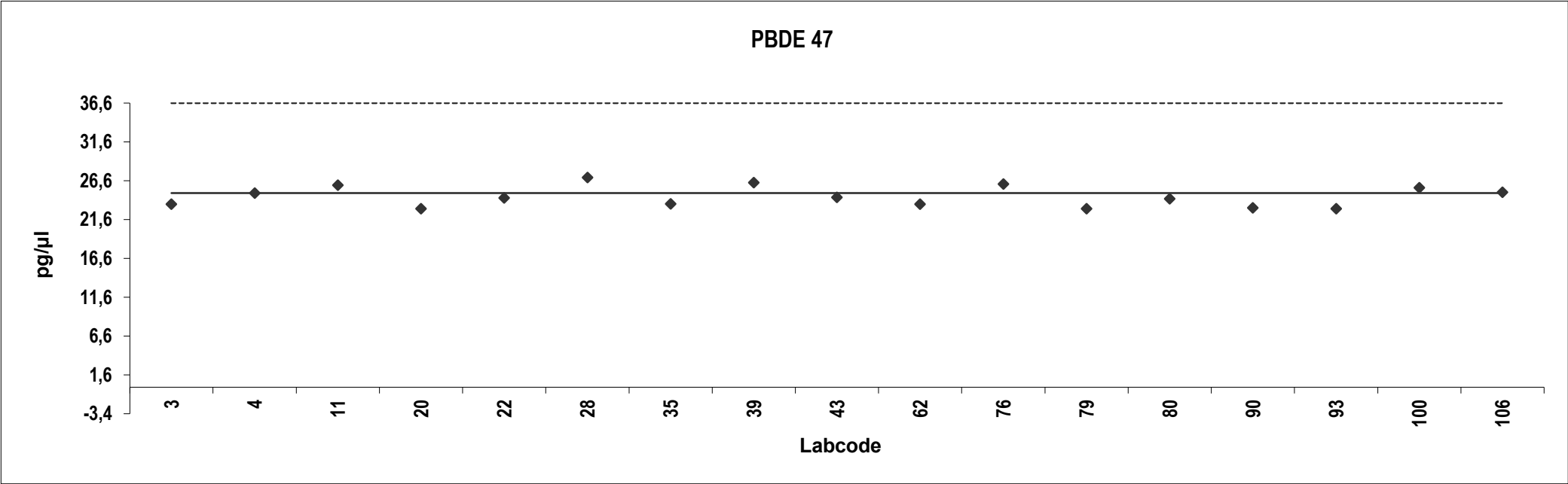
Analyte solution

Congener: PBDE 47

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	24	-0,17				
4	25	0,13				
11	26	0,34				
20	23	-0,28				
22	24	0,0000				
28	27	0,54				
35	24	-0,16				
39	26	0,40				
43	24	0,013				
62	24	-0,17				
76	26	0,37				
79	23	-0,28				
80	24	-0,023				
90	23	-0,26				
93	23	-0,28				
100	26	0,27				
106	25	0,15				

Consensus statistics

Consensus median, pg/μl	24
Median all values, pg/μl	24
Consensus mean, pg/μl	25
Standard deviation, pg/μl	1,3
Relative standard deviation, %	5
No. of values reported	17
No. of values removed	0
No. of reported non-detects	0



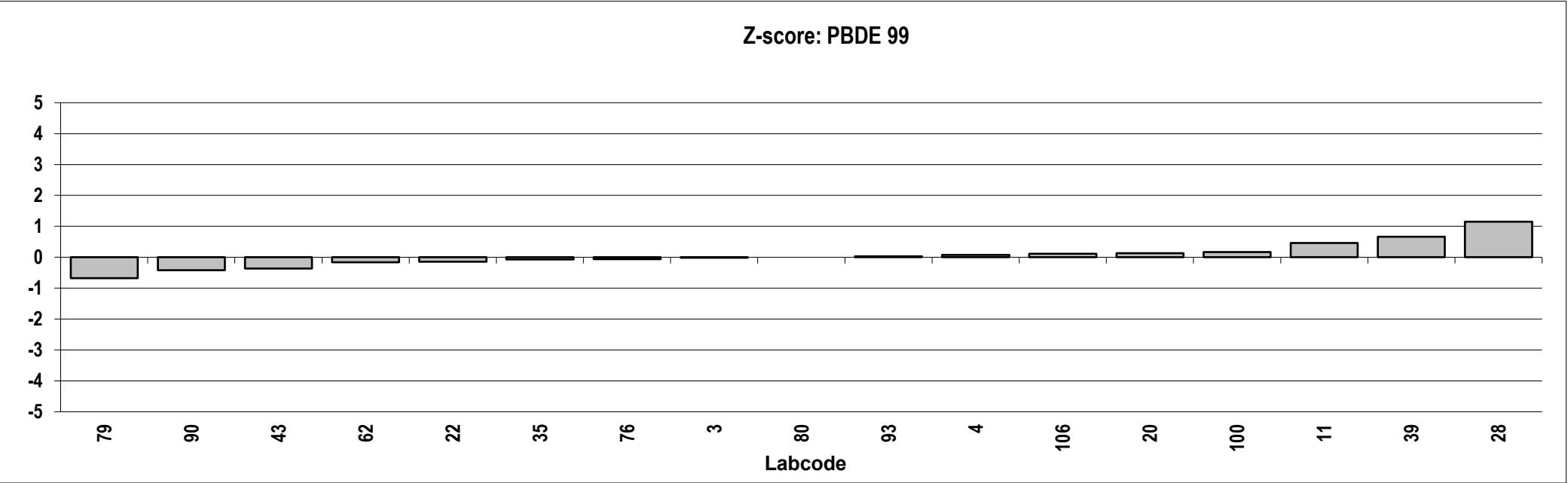
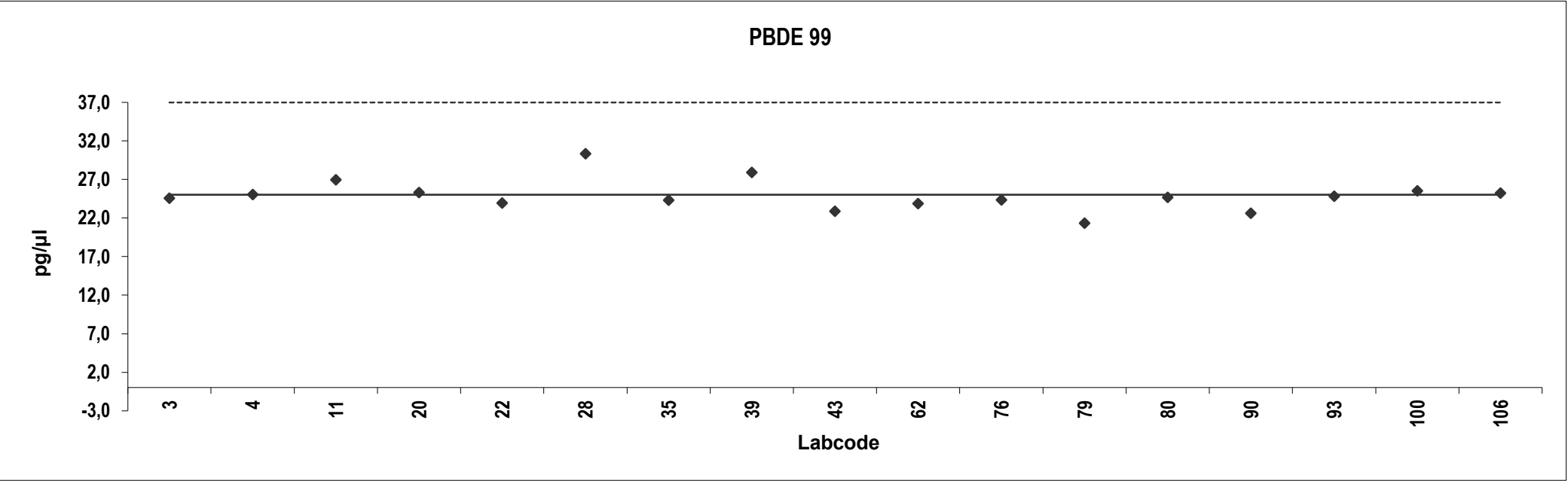
Analyte solution

Congener: PBDE 99

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	25	-0,020				
4	25	0,079				
11	27	0,47				
20	25	0,13				
22	24	-0,14				
28	30	1,1				
35	24	-0,072				
39	28	0,66				
43	23	-0,36				
62	24	-0,16				
76	24	-0,066				
79	21	-0,68				
80	25	0,0000				
90	23	-0,42				
93	25	0,030				
100	26	0,17				
106	25	0,11				

Consensus statistics

Consensus median, pg/μl	25
Median all values, pg/μl	25
Consensus mean, pg/μl	25
Standard deviation, pg/μl	2,1
Relative standard deviation, %	8
No. of values reported	17
No. of values removed	0
No. of reported non-detects	0



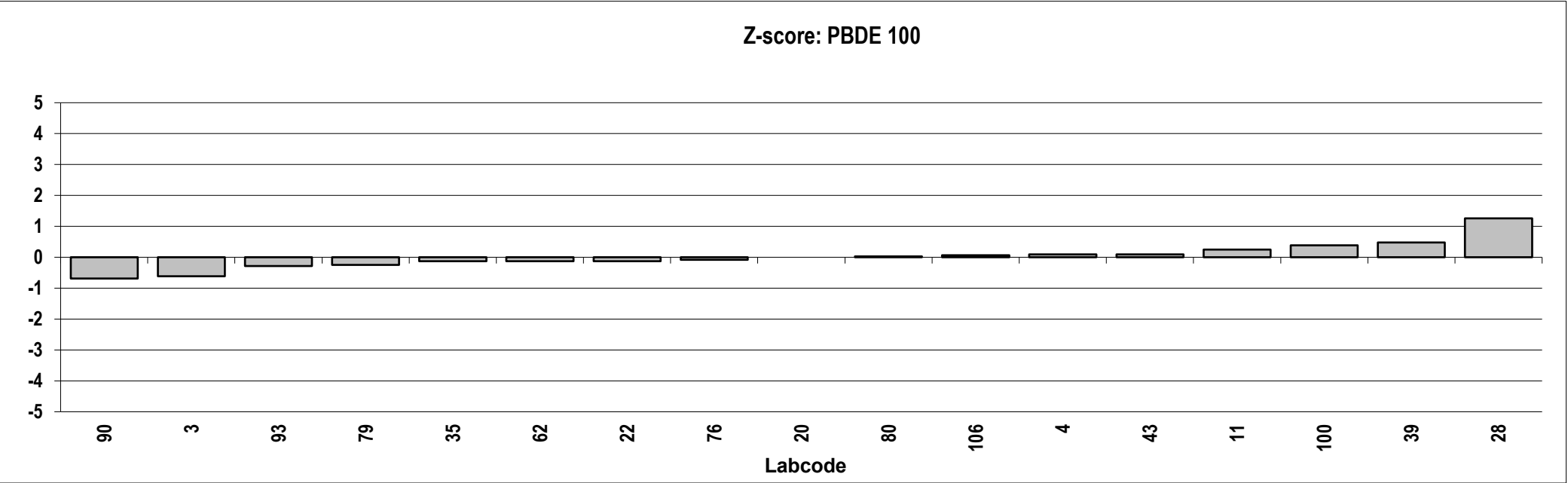
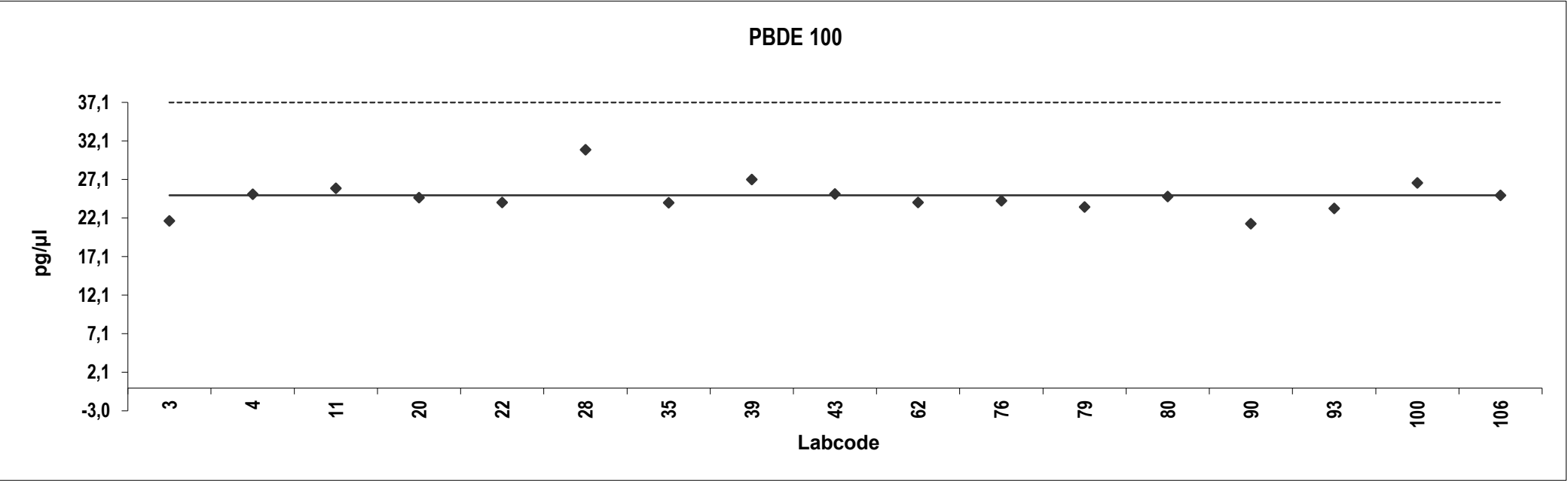
Analyte solution

Congener: PBDE 100

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	22	-0,61				
4	25	0,089				
11	26	0,25				
20	25	0,0000				
22	24	-0,13				
28	31	1,3				
35	24	-0,13				
39	27	0,48				
43	25	0,10				
62	24	-0,13				
76	24	-0,083				
79	23	-0,25				
80	25	0,026				
90	21	-0,69				
93	23	-0,28				
100	27	0,38				
106	25	0,061				

Consensus statistics

Consensus median, pg/μl	25
Median all values, pg/μl	25
Consensus mean, pg/μl	25
Standard deviation, pg/μl	2,2
Relative standard deviation, %	9
No. of values reported	17
No. of values removed	0
No. of reported non-detects	0



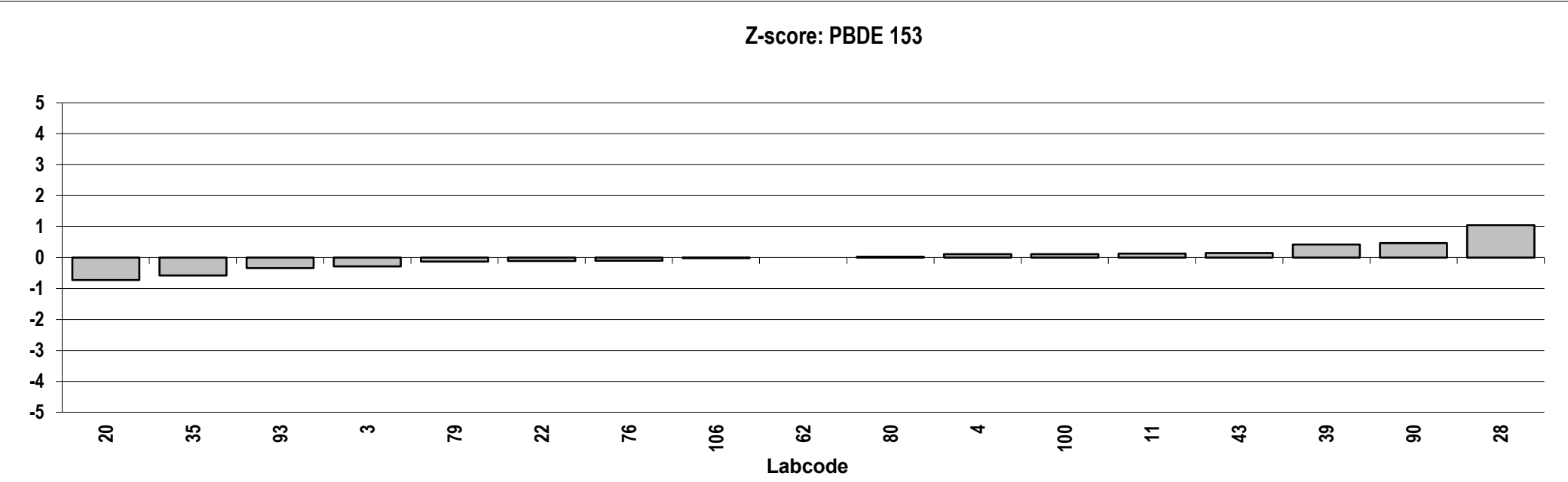
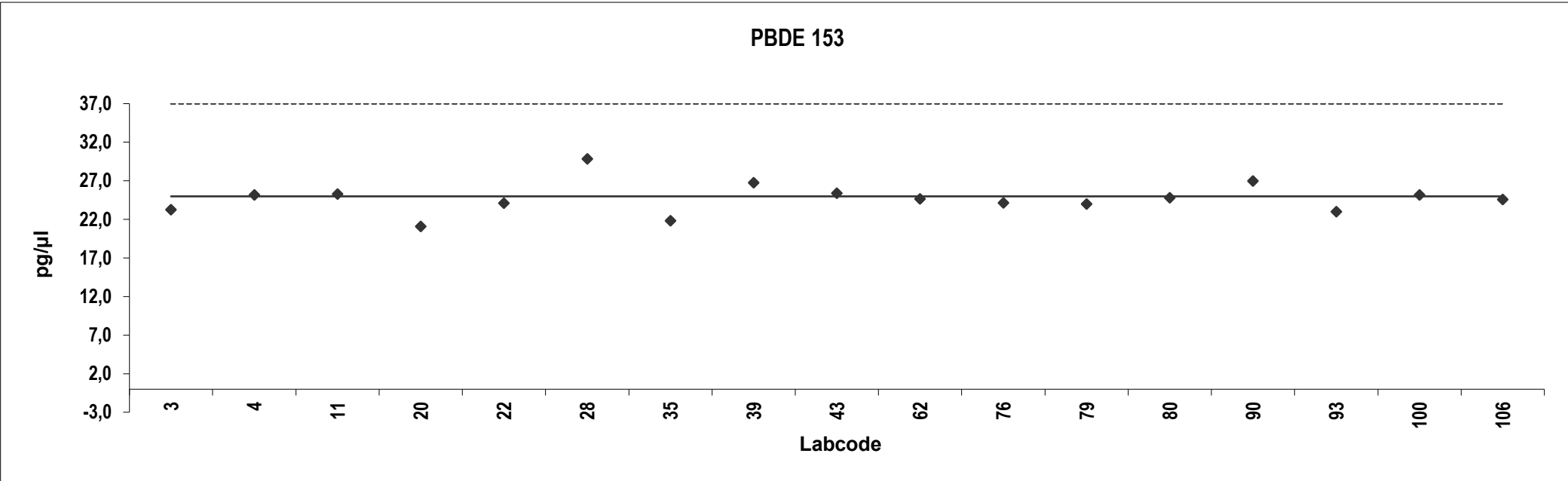
Analyte solution

Congener: PBDE 153

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	23	-0,29				
4	25	0,11				
11	25	0,13				
20	21	-0,72				
22	24	-0,11				
28	30	1,0				
35	22	-0,58				
39	27	0,42				
43	25	0,15				
62	25	0,0000				
76	24	-0,11				
79	24	-0,13				
80	25	0,029				
90	27	0,47				
93	23	-0,34				
100	25	0,11				
106	25	-0,016				

Consensus statistics

Consensus median, pg/μl	25
Median all values, pg/μl	25
Consensus mean, pg/μl	25
Standard deviation, pg/μl	2,0
Relative standard deviation, %	8
No. of values reported	17
No. of values removed	0
No. of reported non-detects	0



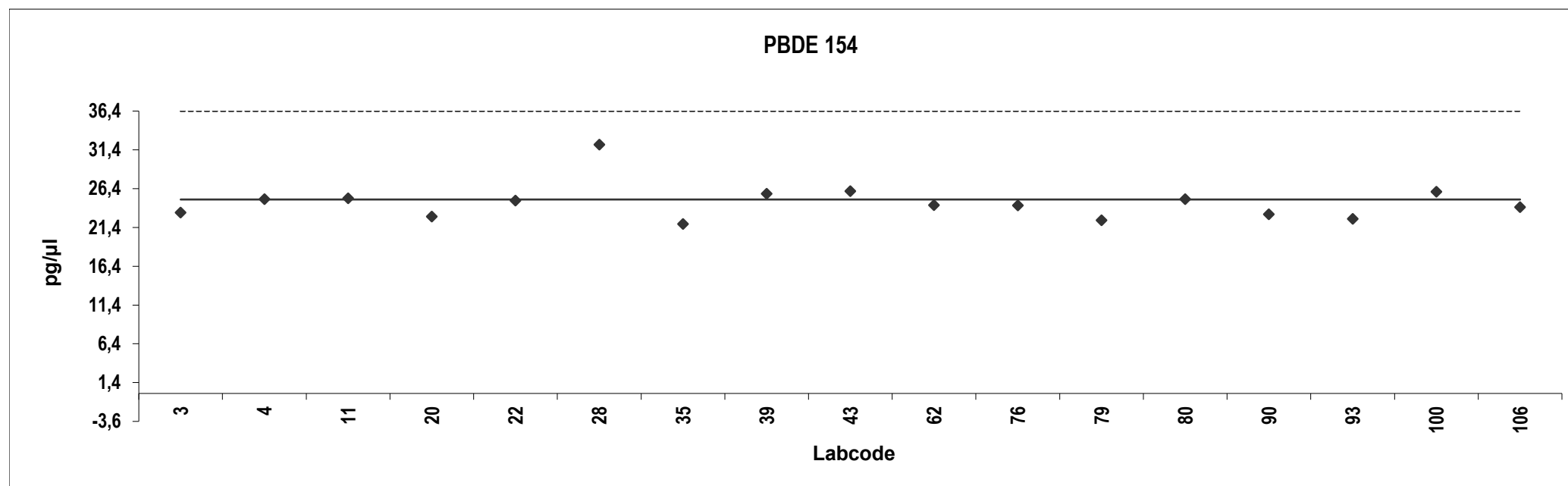
Analyte solution

Congener: PBDE 154

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	23	-0,20				
4	25	0,16				
11	25	0,19				
20	23	-0,30				
22	25	0,12				
28	32	1,6				
35	22	-0,50				
39	26	0,31				
43	26	0,37				
62	24	0,0000				
76	24	-0,0057				
79	22	-0,40				
80	25	0,16				
90	23	-0,24				
93	23	-0,36				
100	26	0,36				
106	24	-0,055				

Consensus statistics

Consensus median, pg/μl	24
Median all values, pg/μl	24
Consensus mean, pg/μl	25
Standard deviation, pg/μl	2,3
Relative standard deviation, %	9
No. of values reported	17
No. of values removed	0
No. of reported non-detects	0



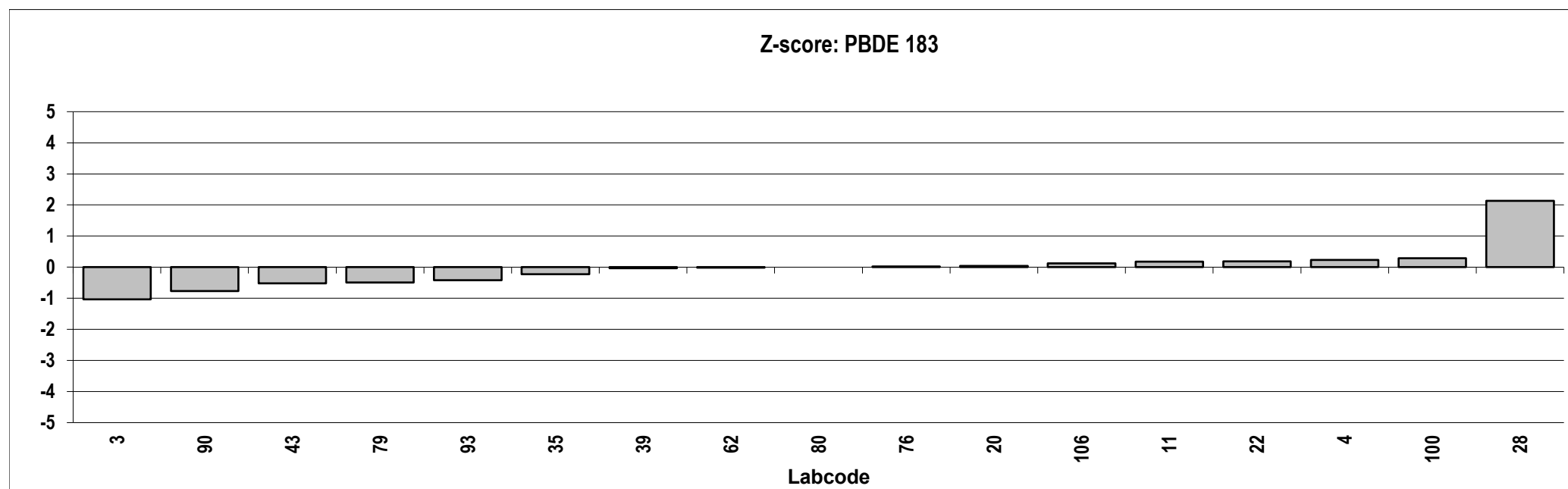
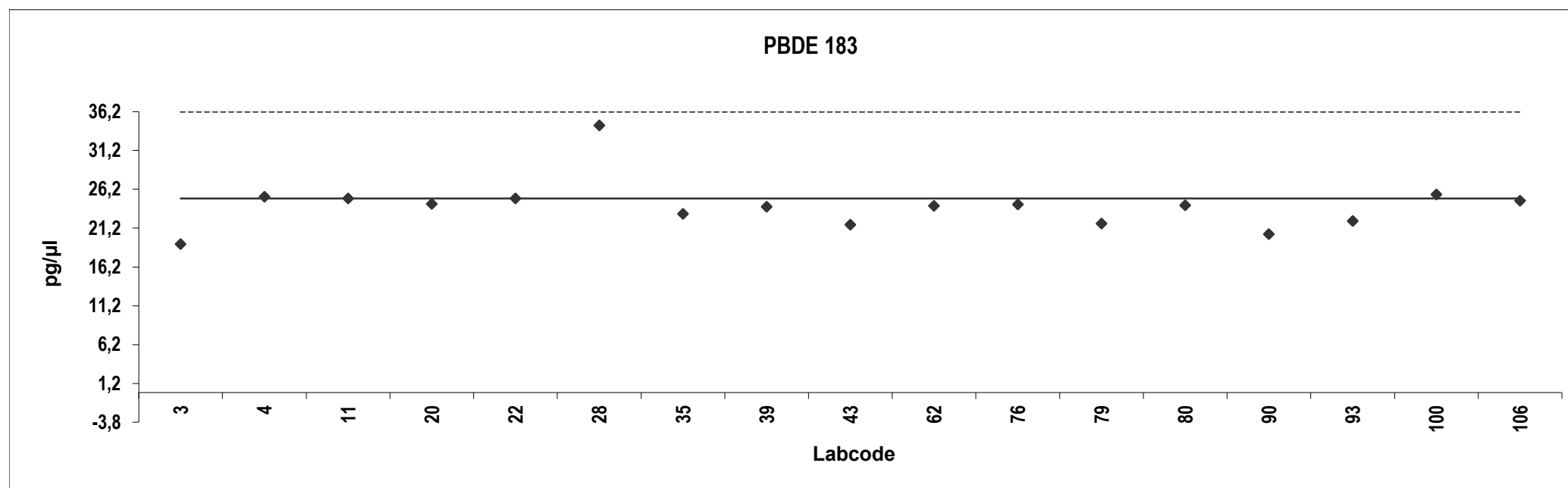
Analyte solution

Congener: PBDE 183

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	19	-1,0				
4	25	0,23				
11	25	0,18				
20	24	0,037				
22	25	0,18				
28	34	2,1				
35	23	-0,23				
39	24	-0,036				
43	22	-0,52				
62	24	-0,013				
76	24	0,025				
79	22	-0,49				
80	24	0,0000				
90	20	-0,77				
93	22	-0,42				
100	26	0,29				
106	25	0,12				

Consensus statistics

Consensus median, pg/μl	24
Median all values, pg/μl	24
Consensus mean, pg/μl	24
Standard deviation, pg/μl	3,2
Relative standard deviation, %	13
No. of values reported	17
No. of values removed	0
No. of reported non-detects	0



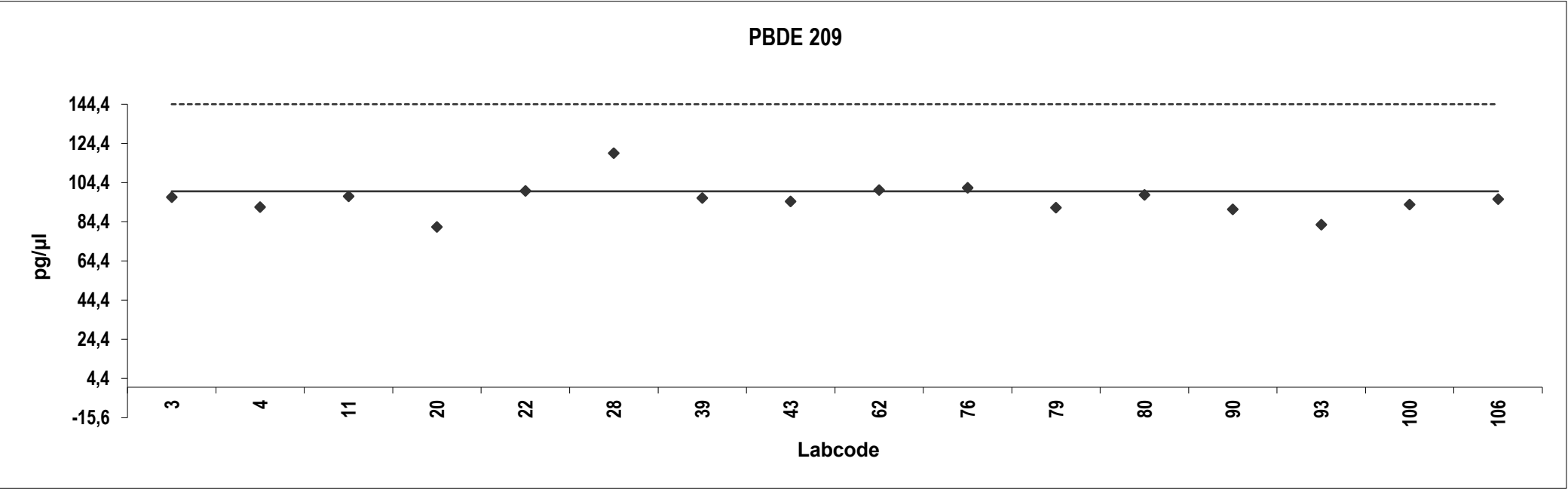
Analyte solution

Congener: PBDE 209

Lab code	Conc. pg/μl	Z-score	Notes	Lab code	Conc. pg/μl	Notes
3	97	0,037				
4	92	-0,23				
11	97	0,060				
20	82	-0,75				
22	100	0,20				
28	119	1,2				
39	97	0,015				
43	95	-0,079				
62	101	0,22				
76	102	0,28				
79	92	-0,24				
80	98	0,097				
90	91	-0,29				
93	83	-0,69				
100	93	-0,16				
106	96	-0,015				

Consensus statistics

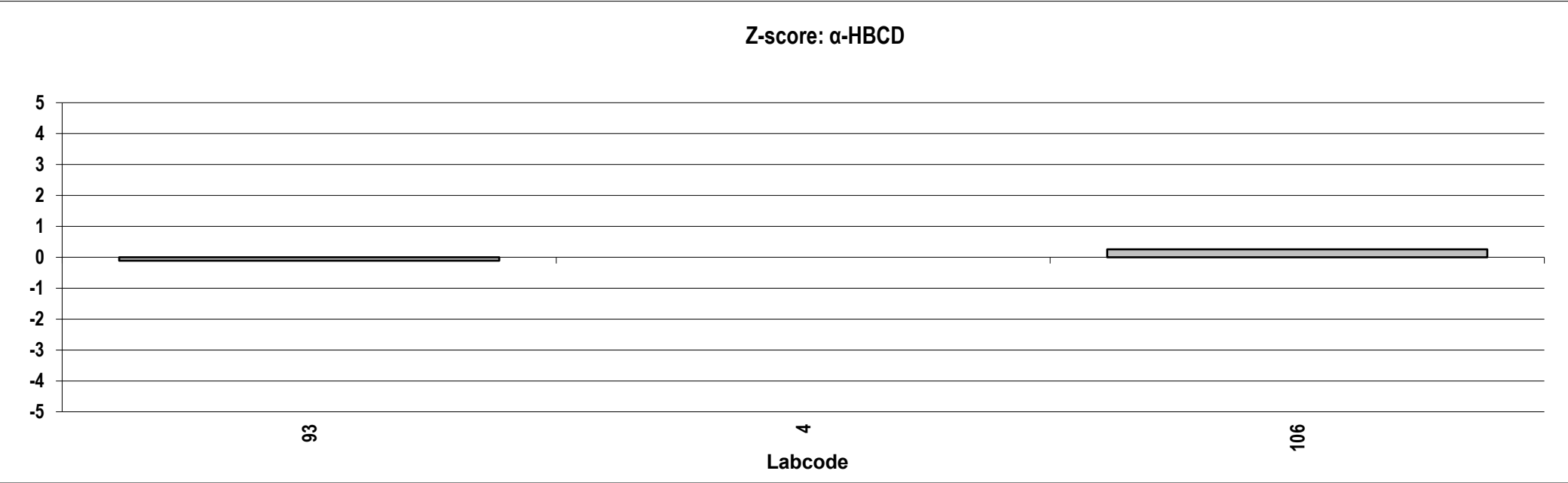
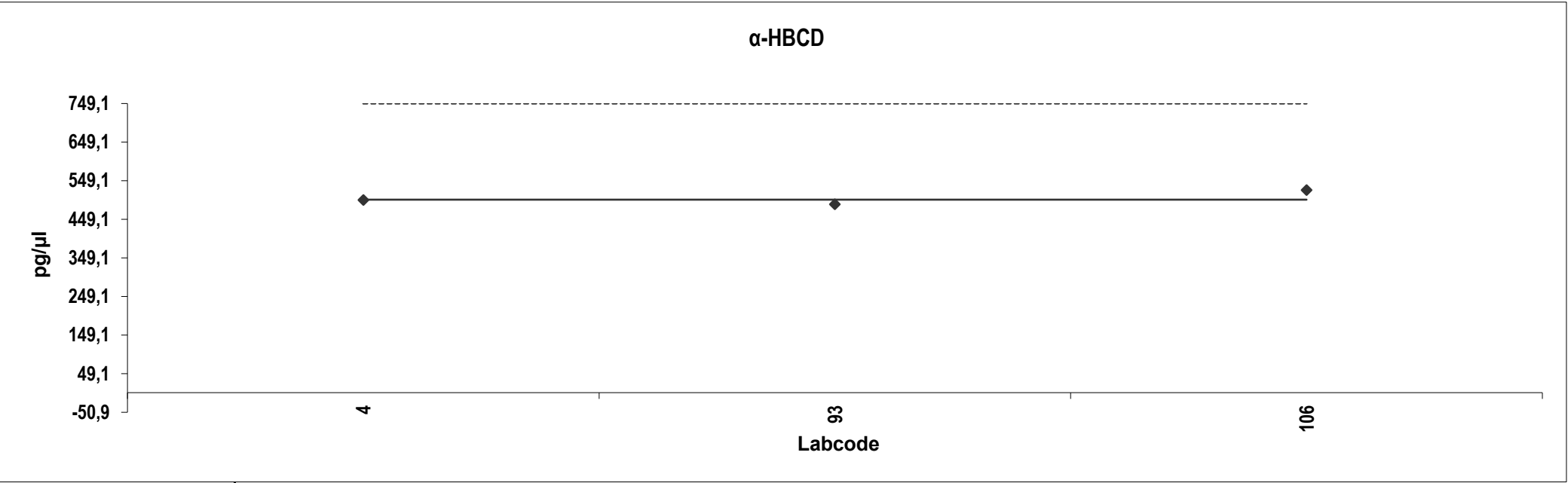
Consensus median, pg/μl	96
Median all values, pg/μl	96
Consensus mean, pg/μl	96
Standard deviation, pg/μl	8,5
Relative standard deviation, %	9
No. of values reported	16
No. of values removed	0
No. of reported non-detects	0



Analyte solution
Congener: α -HBCD

Lab code	Conc. pg/ μ l	Z-score	Notes	Lab code	Conc. pg/ μ l	Notes
4	499	0,0000				
93	488	-0,11				
106	525	0,26				

Consensus statistics	
Consensus median, pg/ μ l	499
Median all values, pg/g	499
Consensus mean, pg/ μ l	504
Standard deviation, pg/ μ l	19
Relative standard deviation, %	4
No. of values reported	3
No. of values removed	0
No. of reported non-detects	0



Appendix 2:

Presentation of results for
Fish oil 2025

Appendix 2: Presentation of results: Fish oil 2025

Statistic calculations for PCDDs, PCDFs and dioxin-like PCBs

For each congener, the outliers were removed, and the consensus calculated according to the following procedure:

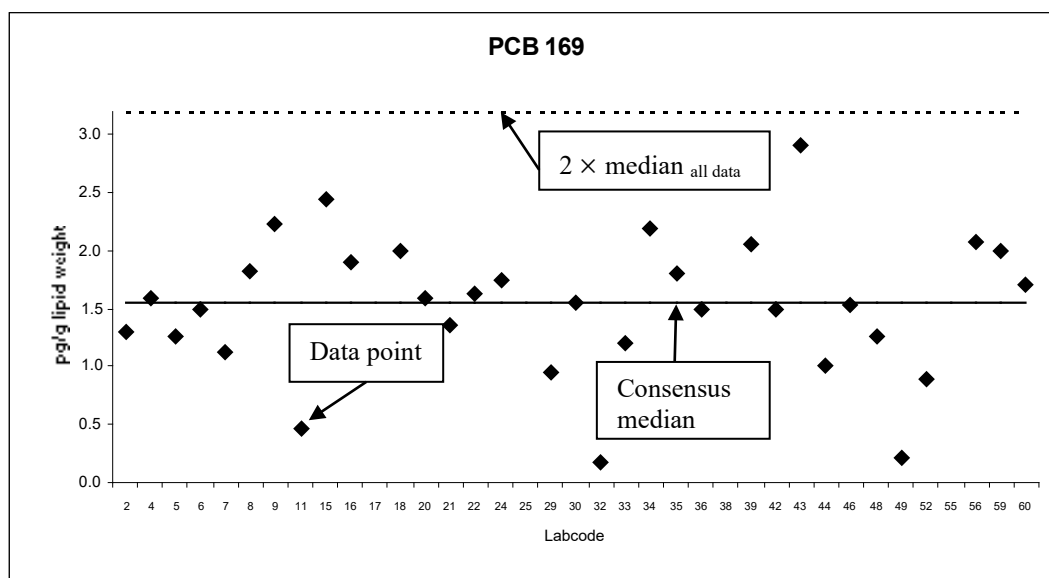
1. The median was calculated from all the reported data, using the detection limit as concentration for non-detected congeners.
2. Values exceeding $2 \times$ this median were defined as outliers and removed from the data set.
3. Median, mean and standard deviation were re-calculated from the remaining data. This second median was called consensus.

Statistic calculations for indicator PCBs, PBDEs and HBCD

For each congener, the outliers were removed and the consensus calculated according to the following procedure:

1. The median was calculated from all the reported data, using the detection limit as concentration for non-detected congeners (NDs).
2. Values exceeding $2 \times$ this median were defined as outliers and removed from the data set. The NDs were also removed.
3. Median, mean and standard deviation were re-calculated from the remaining data. This second median was called consensus.
4. For comparison, median, mean and standard deviation were also calculated without removing NDs.

The diagram shows the reported data up to approximately the limit for outliers ($2 \times$ the first median).



Z-Scores of individual congeners

Z-scores of each congener were calculated for each laboratory according to the following equation:

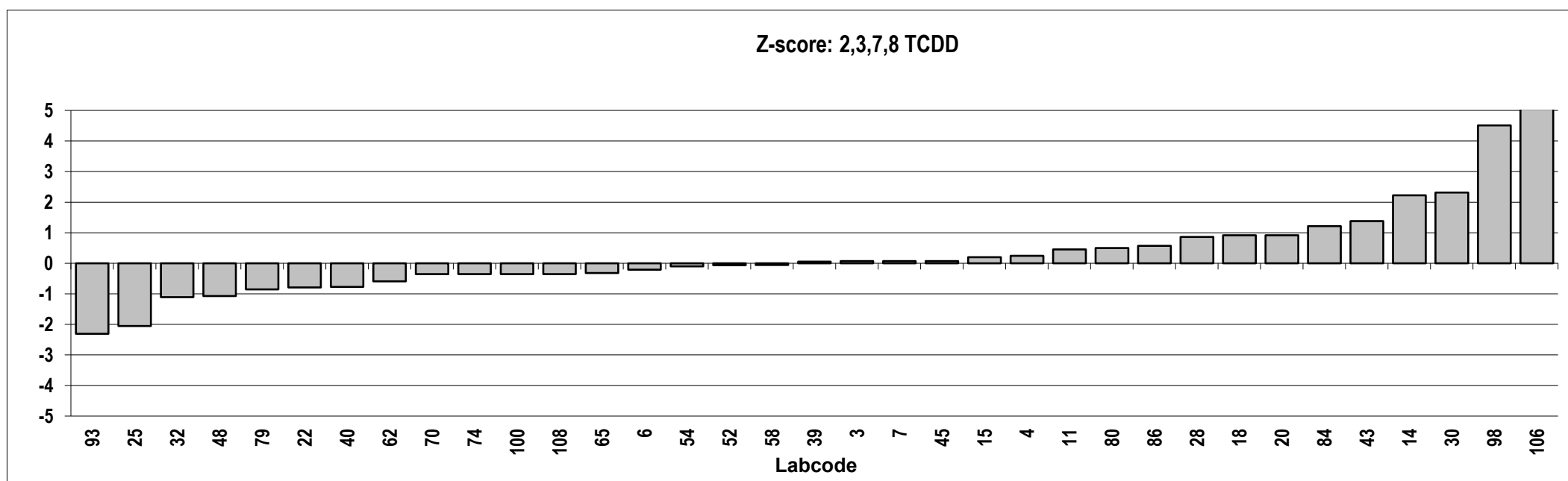
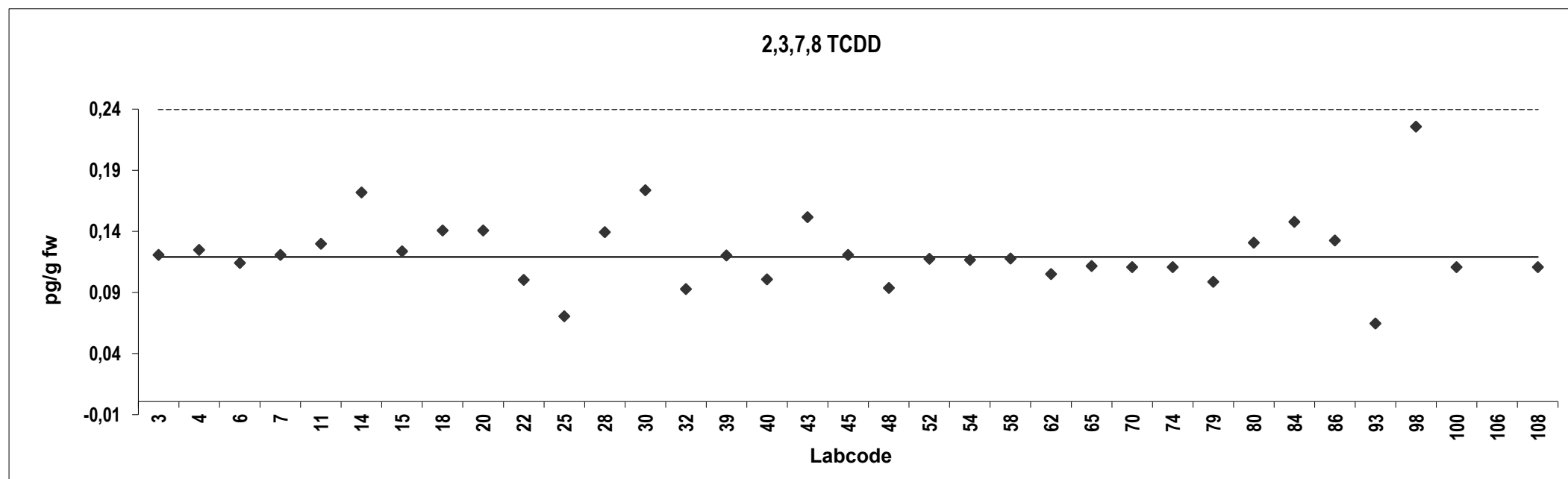
$$z = (x - X) / \sigma$$

where x = reported value; X = assigned value (consensus); σ = target value for standard deviation. A σ of 20% of the consensus was used, i.e. z-scores between +1 and -1 reflect a deviation of $\pm 20\%$ from the consensus value.

Fish oil
Congener: 2,3,7,8 TCDD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,12	0,071				
4	0,12	0,24				
6	0,11	-0,21				
7	0,12	0,071				
11	0,13	0,45				
14	0,17	2,2				
15	0,12	0,20				
18	0,14	0,92				
20	0,14	0,92				
22	0,10	-0,79				
25	0,070	-2,0				
28	0,14	0,86				
30	0,17	2,3				
32	0,092	-1,1				
39	0,12	0,056				
40	0,10	-0,77	ND			
43	0,15	1,4				
45	0,12	0,071				
48	0,093	-1,1	ND			
52	0,12	-0,068				
54	0,12	-0,10				
58	0,12	-0,056				
62	0,10	-0,59				
65	0,11	-0,32				
70	0,11	-0,35				
74	0,11	-0,35				
79	0,098	-0,86				
80	0,13	0,49				
84	0,15	1,2				
86	0,13	0,57				
93	0,064	-2,3				
98	0,23	4,5	ND			
100	0,11	-0,35				
106	0,24	5,1	Outlier			
108	0,11	-0,35				

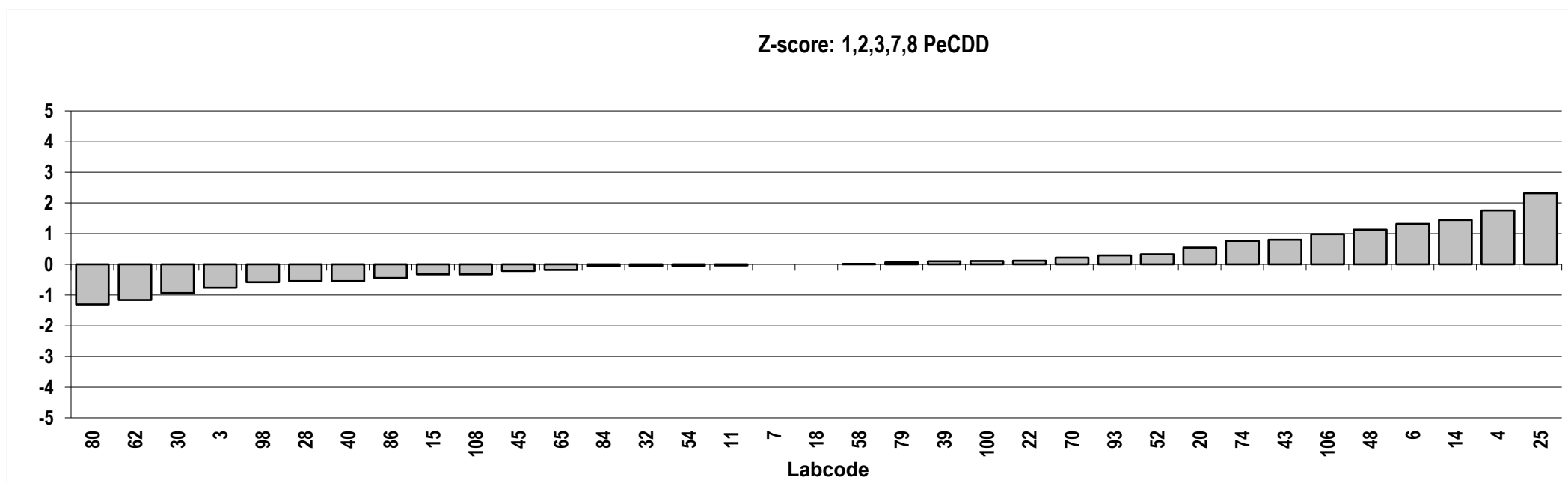
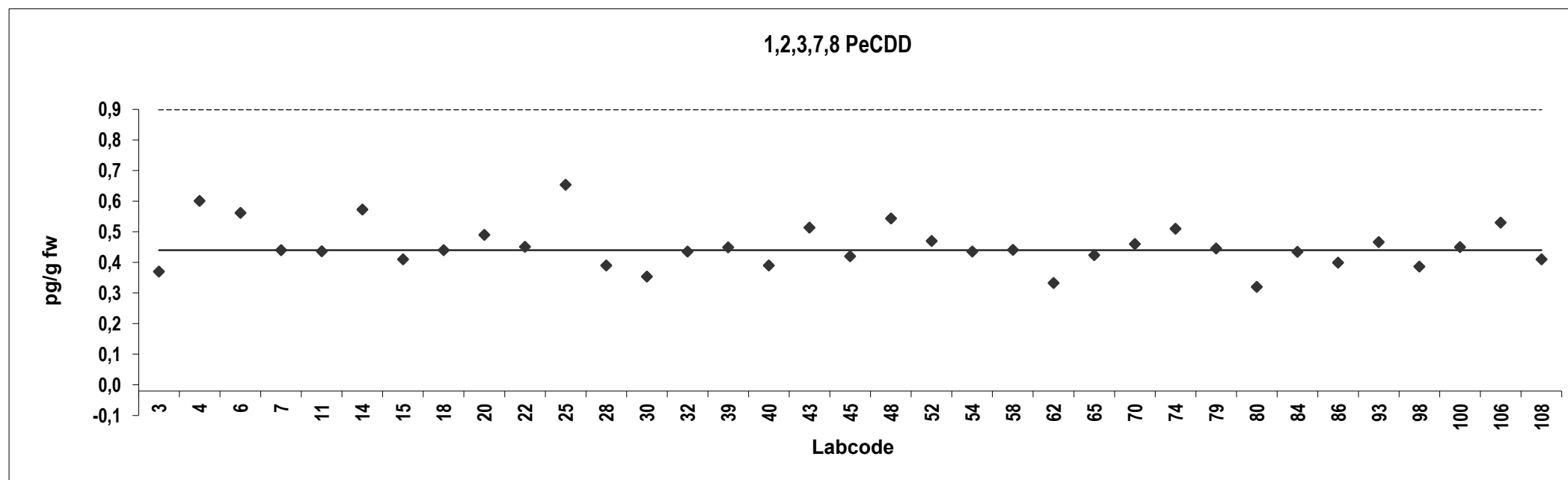
Consensus statistics	
Consensus median, pg/g	0,12
Median all values pg/g	0,12
Consensus mean, pg/g	0,12
Standard deviation, pg/g	0,030
Relative standard deviation, %	24
No. of values reported	35
No. of values removed	1
No. of reported non-detects	3



Fish oil
Congener: 1,2,3,7,8 PeCDD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,39	-0,76	ND			
4	0,62	1,8				
6	0,58	1,3				
7	0,46	0,0000				
11	0,46	-0,036				
14	0,59	1,4				
15	0,43	-0,33				
18	0,46	0,0000				
20	0,51	0,54				
22	0,47	0,12				
25	0,67	2,3				
28	0,41	-0,54				
30	0,37	-0,93				
32	0,46	-0,051				
39	0,47	0,10				
40	0,41	-0,54				
43	0,53	0,80				
45	0,44	-0,22				
48	0,56	1,1				
52	0,49	0,33				
54	0,46	-0,043				
58	0,46	0,011				
62	0,35	-1,2				
65	0,44	-0,18				
70	0,48	0,22				
74	0,53	0,76				
79	0,47	0,065				
80	0,34	-1,3				
84	0,45	-0,058				
86	0,42	-0,45				
93	0,49	0,29				
98	0,41	-0,58				
100	0,47	0,11				
106	0,55	0,98				
108	0,43	-0,33				

Consensus statistics	
Consensus median, pg/g	0,46
Median all values pg/g	0,46
Consensus mean, pg/g	0,47
Standard deviation, pg/g	0,073
Relative standard deviation, %	16
No. of values reported	35
No. of values removed	0
No. of reported non-detects	1

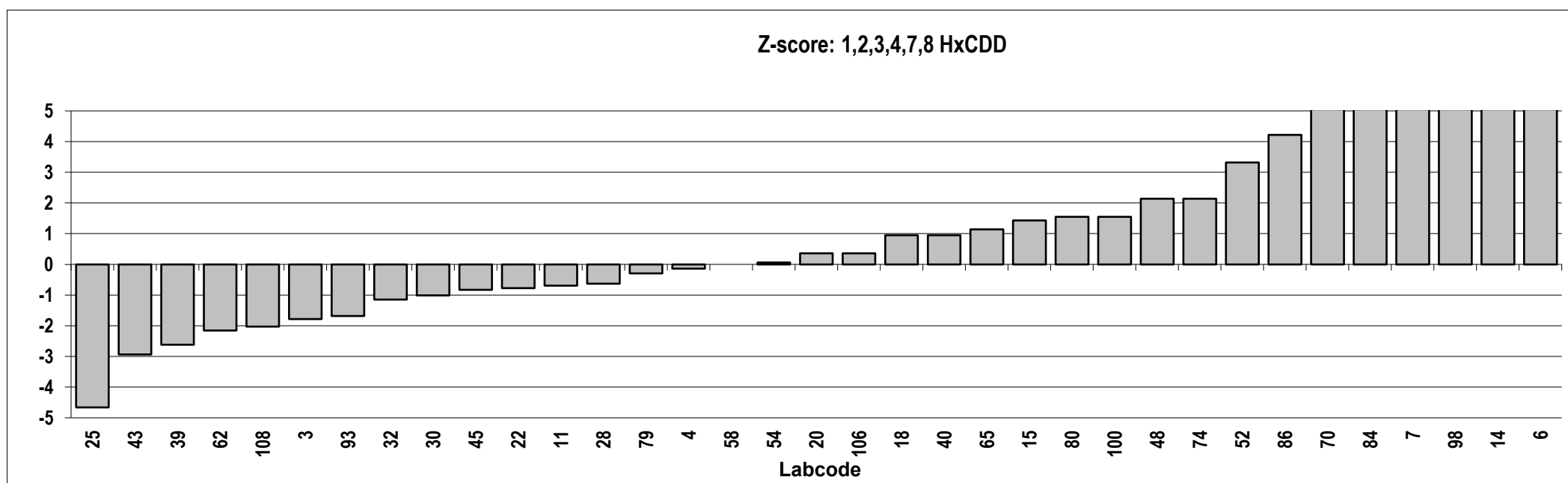
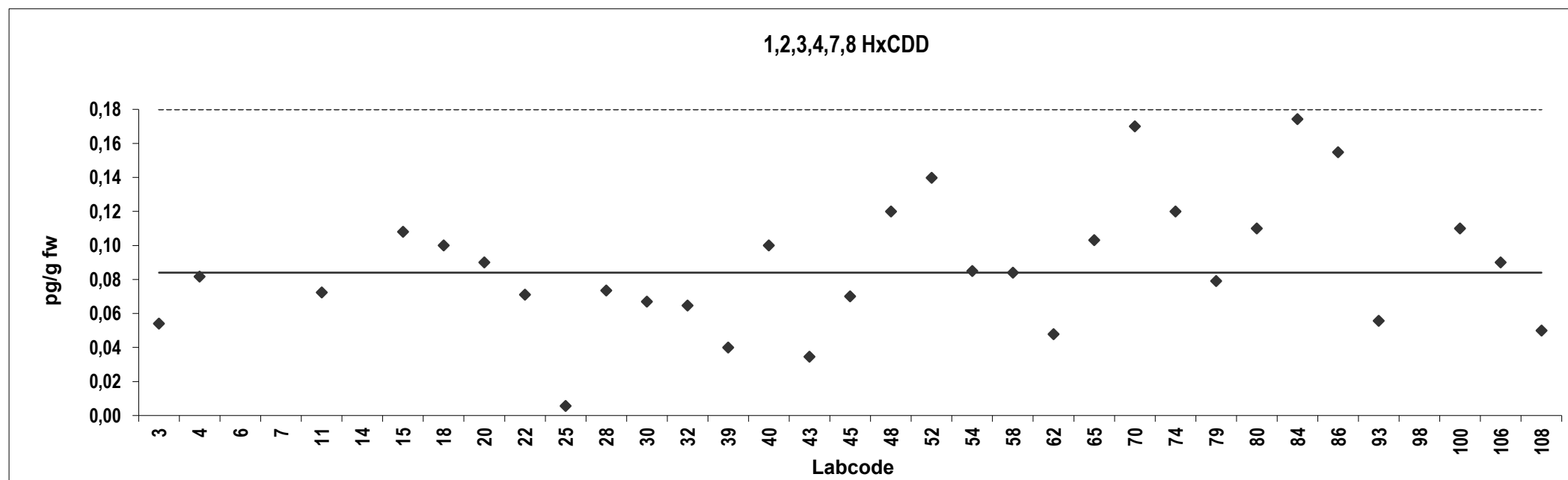


Fish oil
Congener: 1,2,3,4,7,8 HxCDD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,054	-1,8				
4	0,082	-0,14				
6	0,29	12	Outlier			
7	0,21	7,5	Outlier			
11	0,072	-0,69				
14	0,22	8,1	Outlier			
15	0,11	1,4				
18	0,10	0,95	ND			
20	0,090	0,36	ND			
22	0,071	-0,78				
25	0,0056	-4,7				
28	0,073	-0,63				
30	0,067	-1,0				
32	0,065	-1,2				
39	0,040	-2,6	ND			
40	0,10	0,95	ND			
43	0,035	-2,9				
45	0,070	-0,83				
48	0,12	2,1	ND			
52	0,14	3,3	ND			
54	0,085	0,060				
58	0,084	0,0000				
62	0,048	-2,2				
65	0,10	1,1				
70	0,17	5,1	ND			
74	0,12	2,1				
79	0,079	-0,30				
80	0,11	1,5				
84	0,17	5,4	ND			
86	0,15	4,2	ND			
93	0,056	-1,7				
98	0,22	7,8	Outlier,ND			
100	0,11	1,5				
106	0,090	0,36				
108	0,050	-2,0				

Consensus statistics

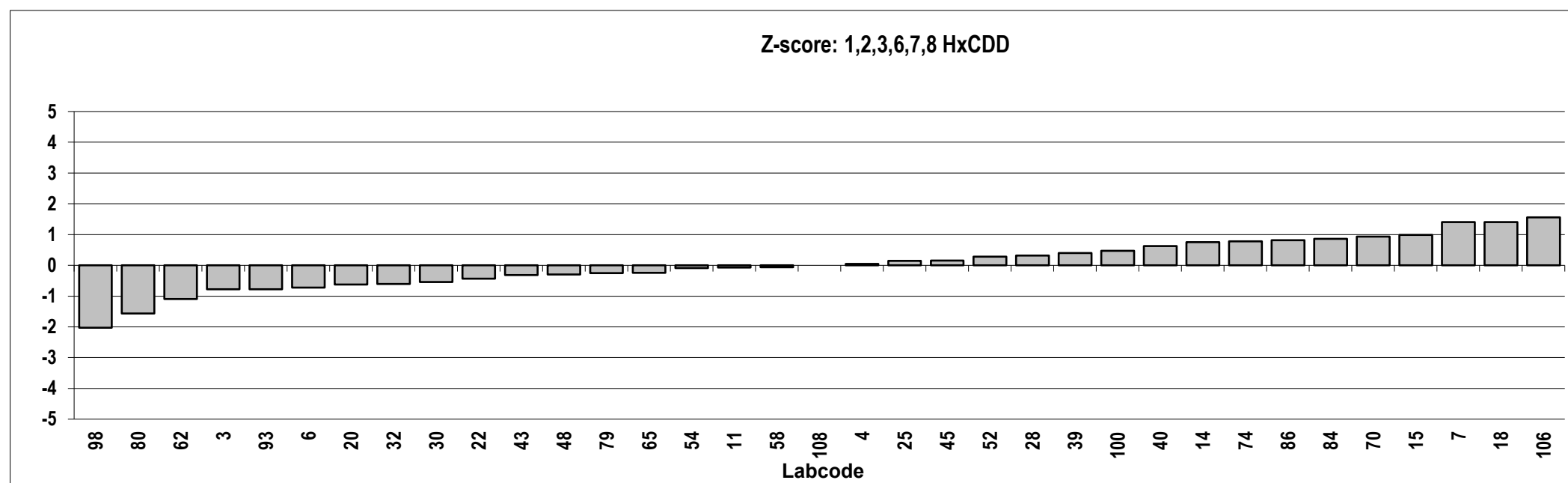
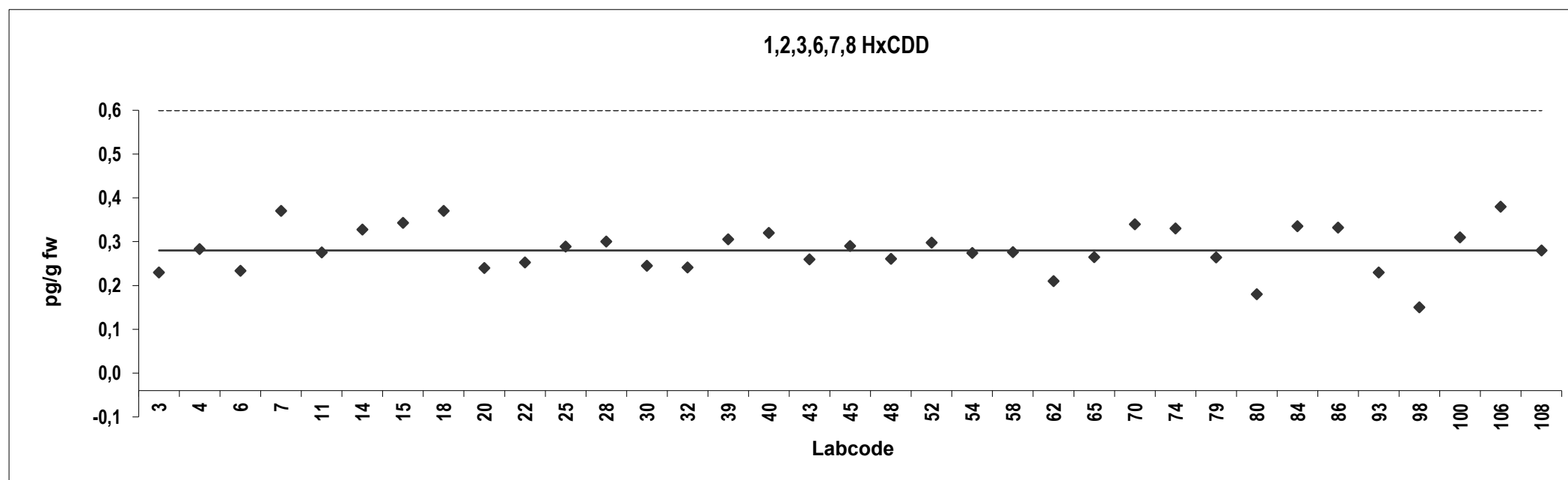
Consensus median, pg/g	0,084
Median all values pg/g	0,090
Consensus mean, pg/g	0,088
Standard deviation, pg/g	0,039
Relative standard deviation, %	44
No. of values reported	35
No. of values removed	4
No. of reported non-detects	10



Fish oil
Congener: 1,2,3,6,7,8 HxCDD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,27	-0,78	ND			
4	0,32	0,047				
6	0,27	-0,72				
7	0,41	1,4				
11	0,32	-0,069				
14	0,37	0,75				
15	0,38	0,98				
18	0,41	1,4				
20	0,28	-0,63				
22	0,29	-0,43				
25	0,33	0,14				
28	0,34	0,31				
30	0,29	-0,55				
32	0,28	-0,61				
39	0,35	0,40				
40	0,36	0,63				
43	0,30	-0,32				
45	0,33	0,16				
48	0,30	-0,30				
52	0,34	0,28				
54	0,31	-0,094				
58	0,32	-0,063				
62	0,25	-1,1				
65	0,30	-0,24				
70	0,38	0,94				
74	0,37	0,78				
79	0,30	-0,25				
80	0,22	-1,6				
84	0,38	0,87				
86	0,37	0,82				
93	0,27	-0,78				
98	0,19	-2,0				
100	0,35	0,47				
106	0,42	1,6				
108	0,32	0,0000				

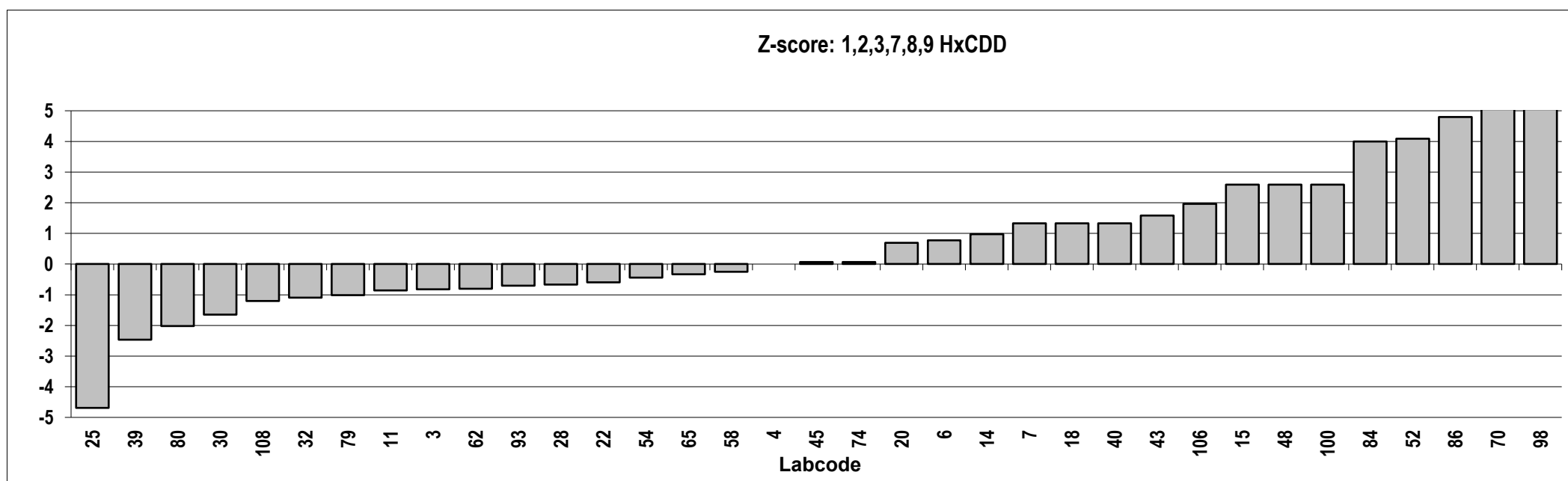
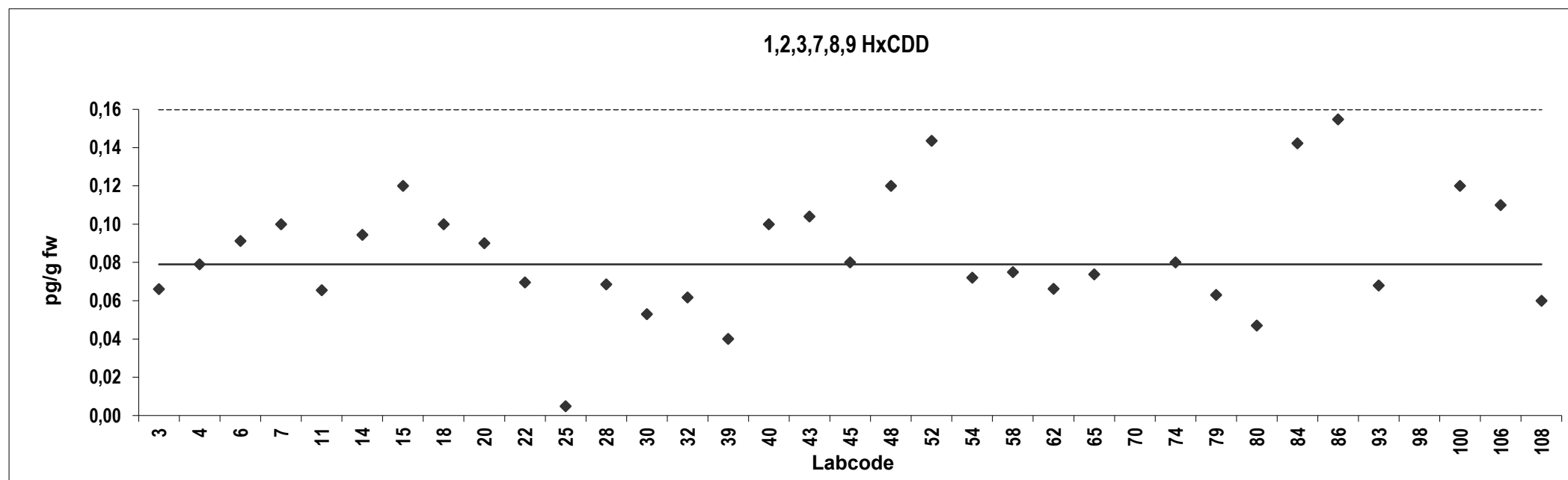
Consensus statistics	
Consensus median, pg/g	0,32
Median all values pg/g	0,32
Consensus mean, pg/g	0,32
Standard deviation, pg/g	0,052
Relative standard deviation, %	16
No. of values reported	35
No. of values removed	0
No. of reported non-detects	1



Fish oil
Congener: 1,2,3,7,8,9 HxCDD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,066	-0,82				
4	0,079	0,0000				
6	0,091	0,77				
7	0,10	1,3				
11	0,065	-0,86				
14	0,094	0,97				
15	0,12	2,6				
18	0,10	1,3	ND			
20	0,090	0,70	ND			
22	0,070	-0,60				
25	0,0049	-4,7				
28	0,069	-0,66				
30	0,053	-1,6				
32	0,062	-1,1				
39	0,040	-2,5	ND			
40	0,10	1,3	ND			
43	0,10	1,6				
45	0,080	0,063				
48	0,12	2,6	ND			
52	0,14	4,1	ND			
54	0,072	-0,44				
58	0,075	-0,25				
62	0,066	-0,81				
65	0,074	-0,34				
70	0,17	5,8	Outlier,ND			
74	0,080	0,063				
79	0,063	-1,0				
80	0,047	-2,0				
84	0,14	4,0	ND			
86	0,15	4,8	ND			
93	0,068	-0,70				
98	0,21	8,3	Outlier,ND			
100	0,12	2,6				
106	0,11	2,0				
108	0,060	-1,2				

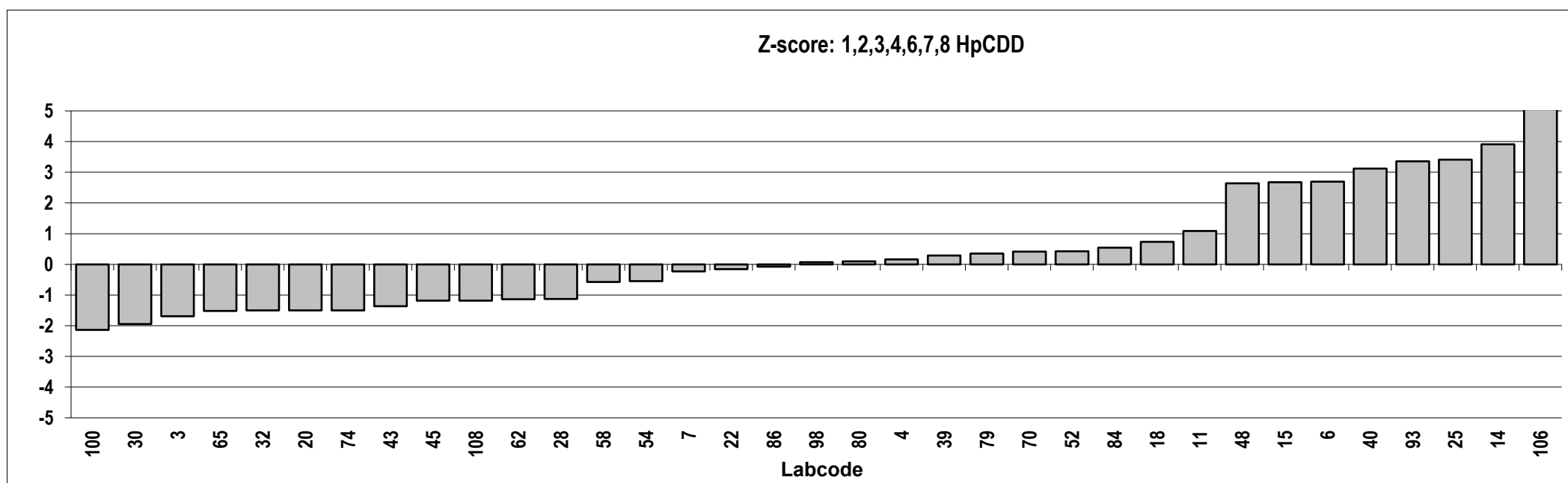
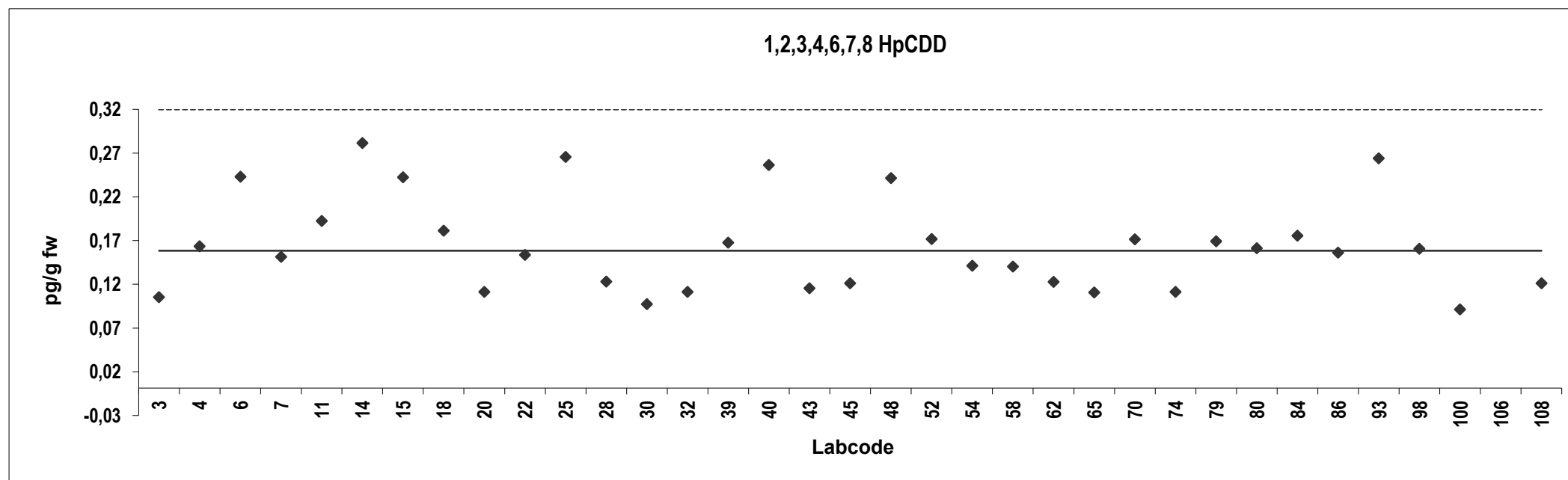
Consensus statistics	
Consensus median, pg/g	0,079
Median all values pg/g	0,080
Consensus mean, pg/g	0,084
Standard deviation, pg/g	0,032
Relative standard deviation, %	37
No. of values reported	35
No. of values removed	2
No. of reported non-detects	10



Fish oil
Congener: 1,2,3,4,6,7,8 HpCDD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,10	-1,7				
4	0,16	0,16				
6	0,24	2,7				
7	0,15	-0,22				
11	0,19	1,1	ND			
14	0,28	3,9				
15	0,24	2,7				
18	0,18	0,73				
20	0,11	-1,5				
22	0,15	-0,15				
25	0,26	3,4				
28	0,12	-1,1				
30	0,096	-1,9				
32	0,11	-1,5				
39	0,17	0,29				
40	0,26	3,1				
43	0,11	-1,4				
45	0,12	-1,2				
48	0,24	2,6	ND			
52	0,17	0,43	ND			
54	0,14	-0,54				
58	0,14	-0,57				
62	0,12	-1,1				
65	0,11	-1,5				
70	0,17	0,41	ND			
74	0,11	-1,5				
79	0,17	0,35				
80	0,16	0,094				
84	0,17	0,55	ND			
86	0,15	-0,072	ND			
93	0,26	3,4				
98	0,16	0,072	ND			
100	0,090	-2,1				
106	0,34	5,8	Outlier			
108	0,12	-1,2				

Consensus statistics	
Consensus median, pg/g	0,16
Median all values pg/g	0,16
Consensus mean, pg/g	0,16
Standard deviation, pg/g	0,054
Relative standard deviation, %	33
No. of values reported	35
No. of values removed	1
No. of reported non-detects	7

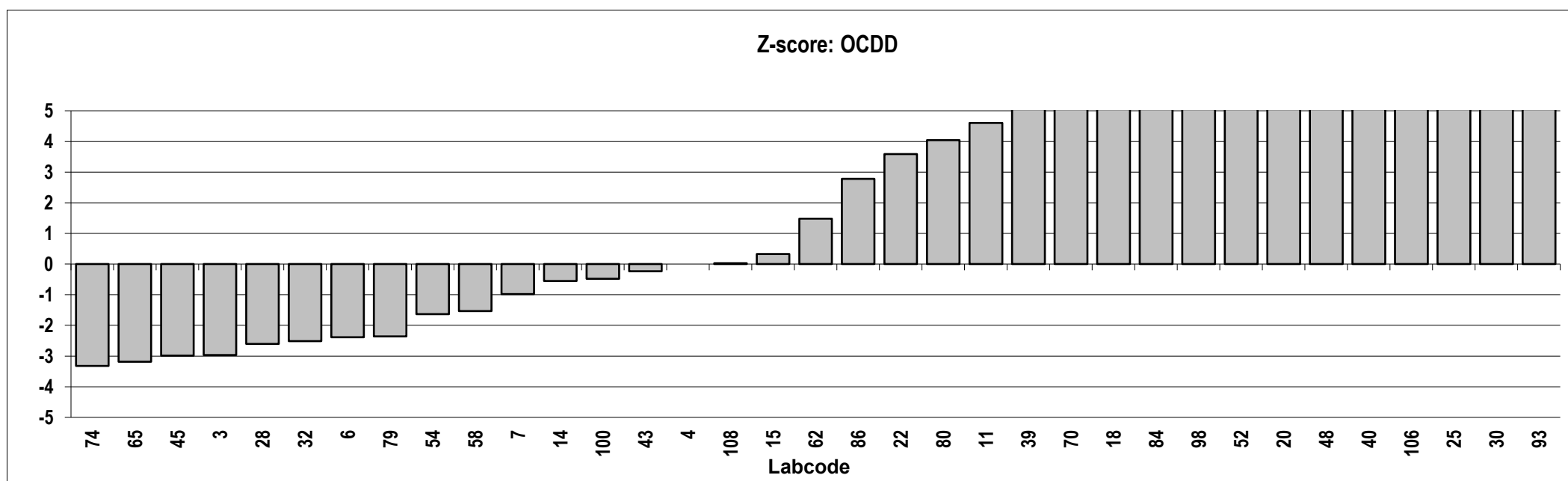
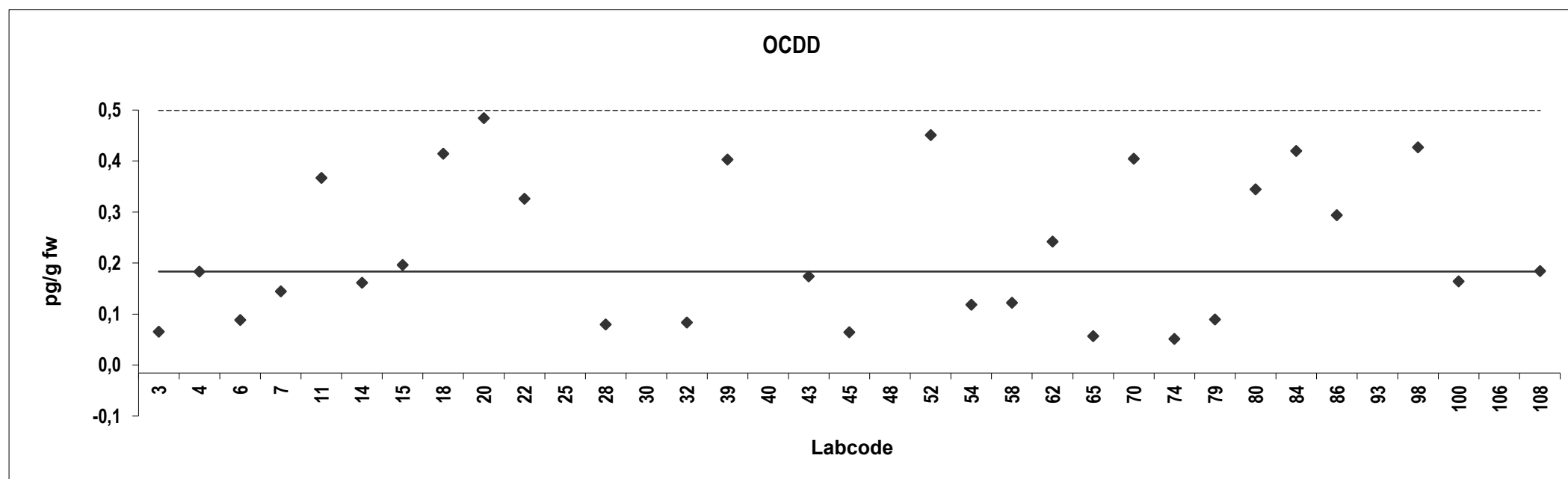


Fish oil
Congener: OCDD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,081	-3,0				
4	0,20	0,0000				
6	0,10	-2,4				
7	0,16	-0,98				
11	0,38	4,6	ND			
14	0,18	-0,55				
15	0,21	0,33				
18	0,43	5,8				
20	0,50	7,6	ND			
22	0,34	3,6				
25	1,9	41	Outlier			
28	0,095	-2,6				
30	2,0	45	Outlier,ND			
32	0,099	-2,5				
39	0,42	5,5				
40	0,99	20	Outlier			
43	0,19	-0,24				
45	0,080	-3,0				
48	0,65	11	Outlier,ND			
52	0,47	6,7	ND			
54	0,13	-1,6				
58	0,14	-1,5				
62	0,26	1,5				
65	0,072	-3,2	ND			
70	0,42	5,6	ND			
74	0,067	-3,3	ND			
79	0,11	-2,4				
80	0,36	4,0				
84	0,44	5,9	ND			
86	0,31	2,8	ND			
93	2,8	65	Outlier			
98	0,44	6,1	ND			
100	0,18	-0,48				
106	1,2	24	Outlier			
108	0,20	0,025	ND			

Consensus statistics

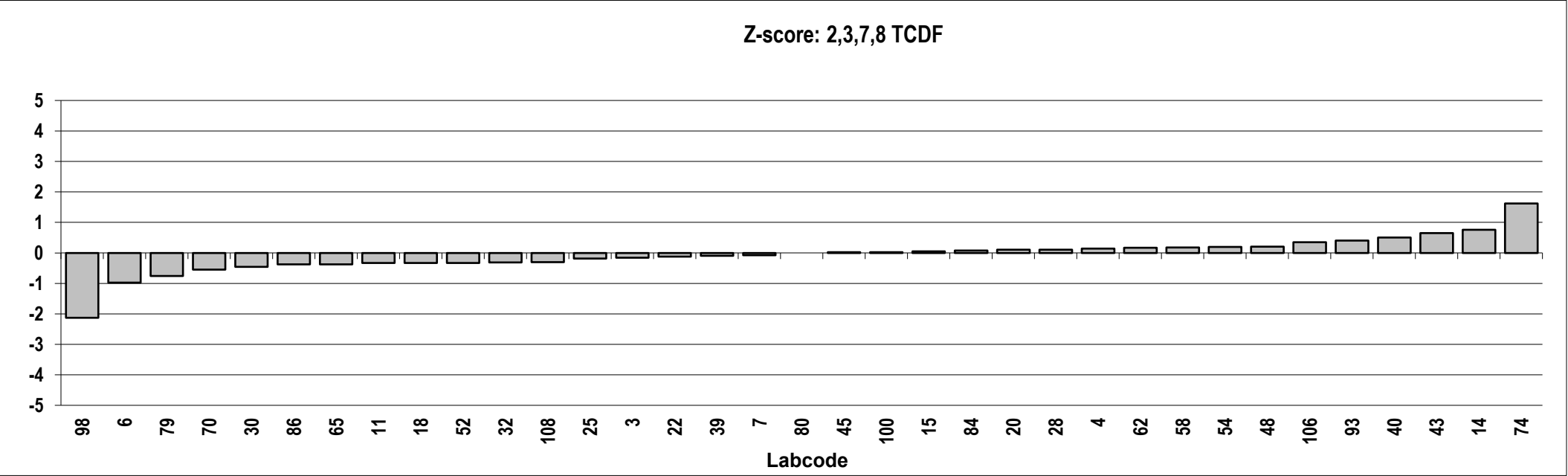
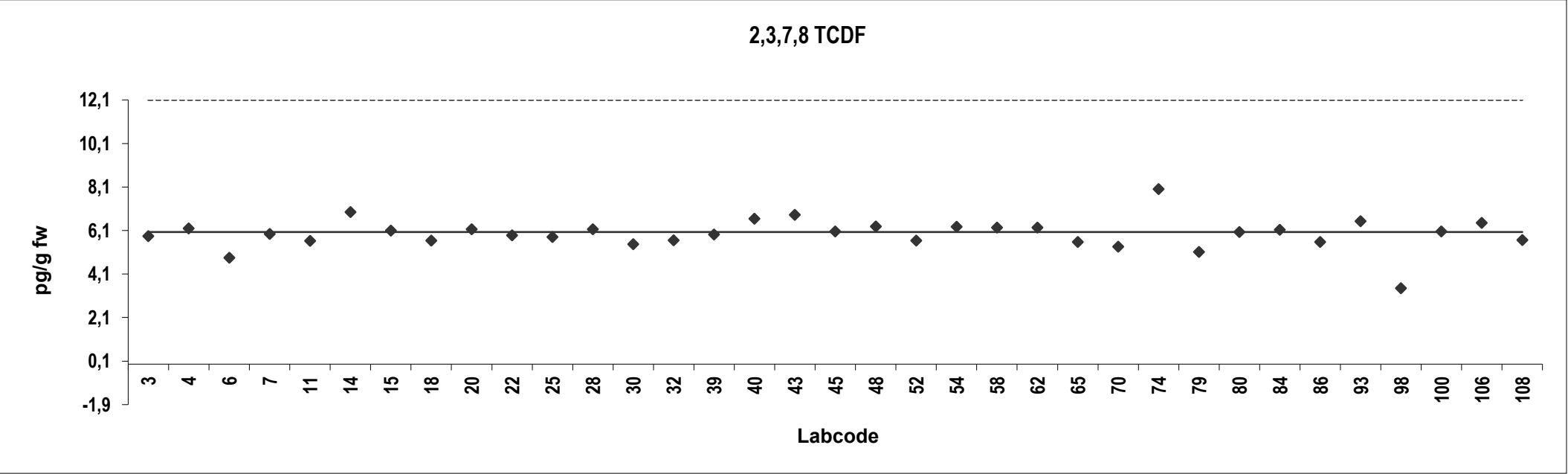
Consensus median, pg/g	0,20
Median all values pg/g	0,26
Consensus mean, pg/g	0,24
Standard deviation, pg/g	0,14
Relative standard deviation, %	59
No. of values reported	35
No. of values removed	6
No. of reported non-detects	12



Fish oil
Congener: 2,3,7,8 TCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	5,9	-0,16	ND			
4	6,2	0,14				
6	4,9	-0,97				
7	6,0	-0,074				
11	5,7	-0,33				
14	7,0	0,76				
15	6,1	0,049				
18	5,7	-0,33				
20	6,2	0,11				
22	5,9	-0,12				
25	5,8	-0,19				
28	6,2	0,11				
30	5,5	-0,46				
32	5,7	-0,32				
39	6,0	-0,10				
40	6,7	0,50				
43	6,9	0,65				
45	6,1	0,025				
48	6,3	0,21				
52	5,7	-0,33				
54	6,3	0,20				
58	6,3	0,17				
62	6,3	0,17				
65	5,6	-0,37				
70	5,4	-0,55				
74	8,0	1,6				
79	5,1	-0,76				
80	6,1	0,0000				
84	6,2	0,082				
86	5,6	-0,38				
93	6,6	0,41				
98	3,5	-2,1				
100	6,1	0,025				
106	6,5	0,35				
108	5,7	-0,30				

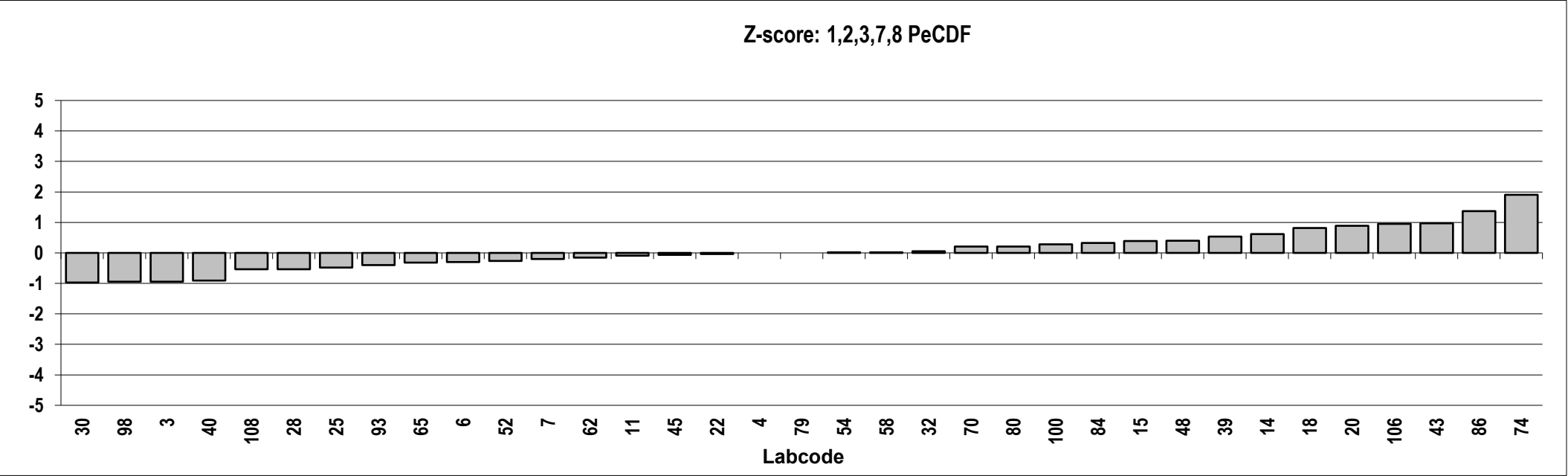
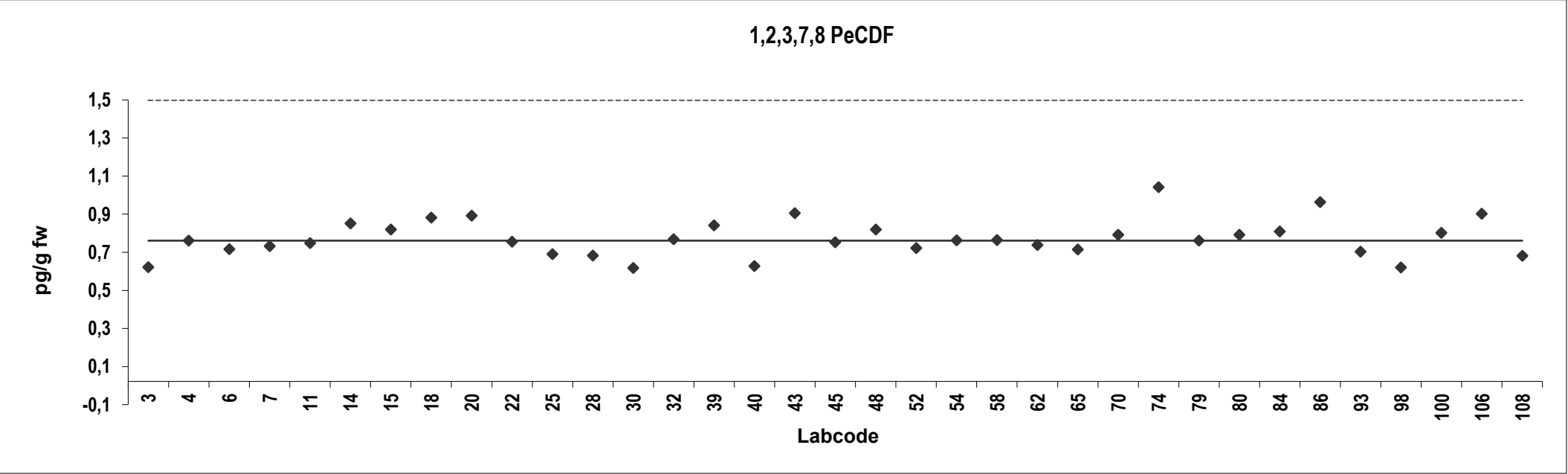
Consensus statistics	
Consensus median, pg/g	6,1
Median all values pg/g	6,1
Consensus mean, pg/g	6,0
Standard deviation, pg/g	0,71
Relative standard deviation, %	12
No. of values reported	35
No. of values removed	0
No. of reported non-detects	1



Fish oil
Congener: 1,2,3,7,8 PeCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,60	-0,94	ND			
4	0,74	0,0000				
6	0,69	-0,30				
7	0,71	-0,20				
11	0,73	-0,090				
14	0,83	0,62				
15	0,80	0,39				
18	0,86	0,82				
20	0,87	0,89				
22	0,73	-0,039				
25	0,67	-0,48				
28	0,66	-0,53				
30	0,60	-0,97				
32	0,75	0,052				
39	0,82	0,54				
40	0,61	-0,91				
43	0,88	0,97				
45	0,73	-0,061				
48	0,80	0,40				
52	0,70	-0,26				
54	0,74	0,014				
58	0,74	0,020				
62	0,72	-0,15				
65	0,69	-0,32				
70	0,77	0,21				
74	1,0	1,9				
79	0,74	0,0000				
80	0,77	0,21				
84	0,79	0,32				
86	0,94	1,4				
93	0,68	-0,40				
98	0,60	-0,95				
100	0,78	0,28				
106	0,88	0,95				
108	0,66	-0,53				

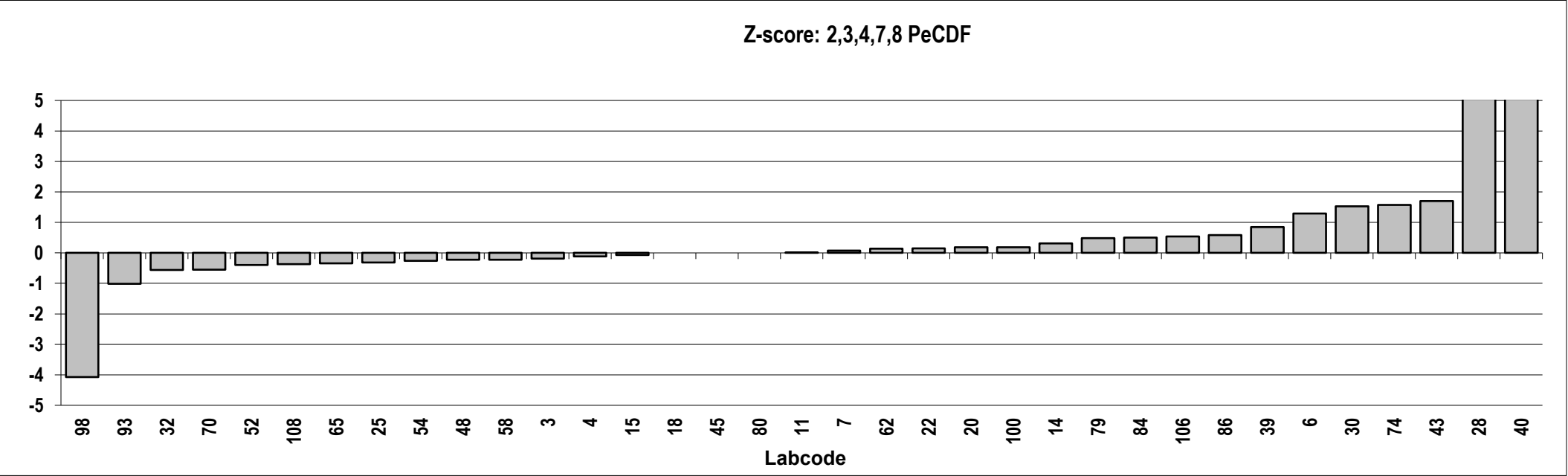
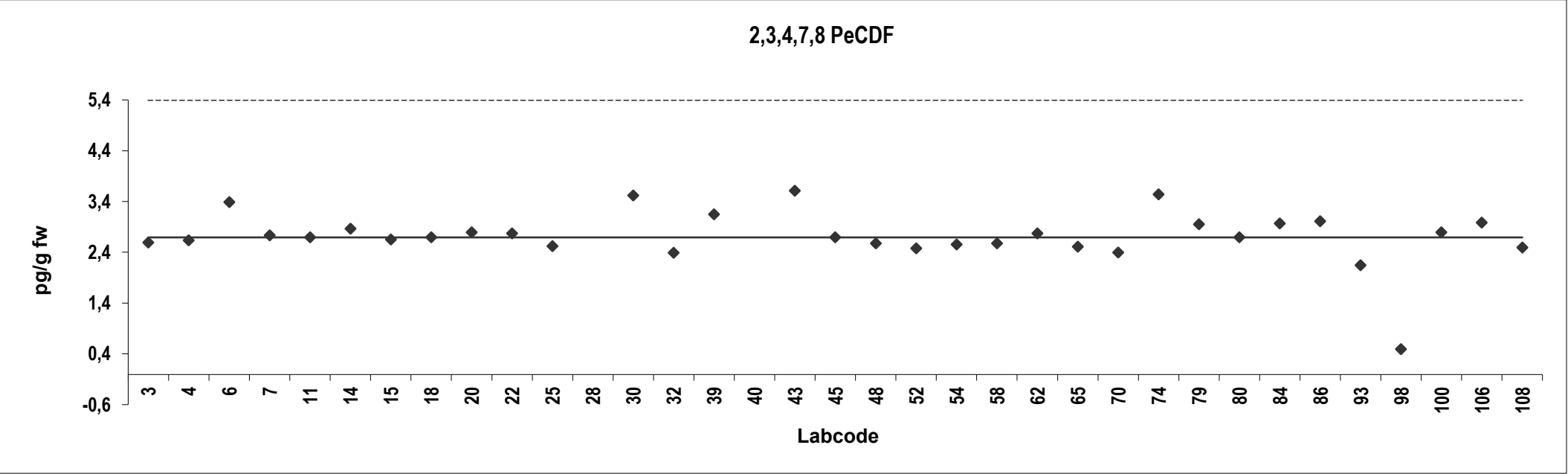
Consensus statistics	
Consensus median, pg/g	0,74
Median all values pg/g	0,74
Consensus mean, pg/g	0,75
Standard deviation, pg/g	0,097
Relative standard deviation, %	13
No. of values reported	35
No. of values removed	0
No. of reported non-detects	1



Fish oil
Congener: 2,3,4,7,8 PeCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	2,6	-0,19				
4	2,6	-0,11				
6	3,4	1,3				
7	2,7	0,074				
11	2,7	0,0068				
14	2,9	0,31				
15	2,7	-0,074				
18	2,7	0,0000				
20	2,8	0,19				
22	2,8	0,15				
25	2,5	-0,32				
28	5,9	5,9	Outlier			
30	3,5	1,5				
32	2,4	-0,56				
39	3,2	0,85				
40	7,4	8,7	Outlier			
43	3,6	1,7				
45	2,7	0,0000				
48	2,6	-0,22				
52	2,5	-0,40				
54	2,6	-0,26				
58	2,6	-0,22				
62	2,8	0,14				
65	2,5	-0,34				
70	2,4	-0,56				
74	3,6	1,6				
79	3,0	0,48				
80	2,7	0,0000				
84	3,0	0,51				
86	3,0	0,59				
93	2,2	-1,0				
98	0,50	-4,1	ND			
100	2,8	0,19				
106	3,0	0,54				
108	2,5	-0,37				

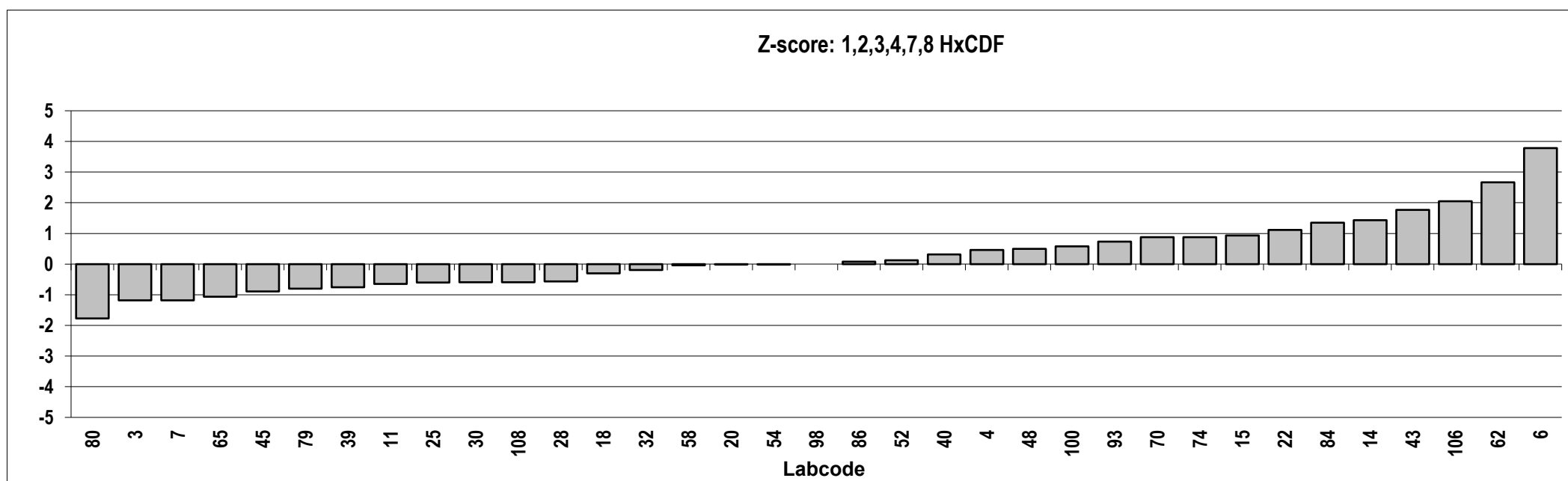
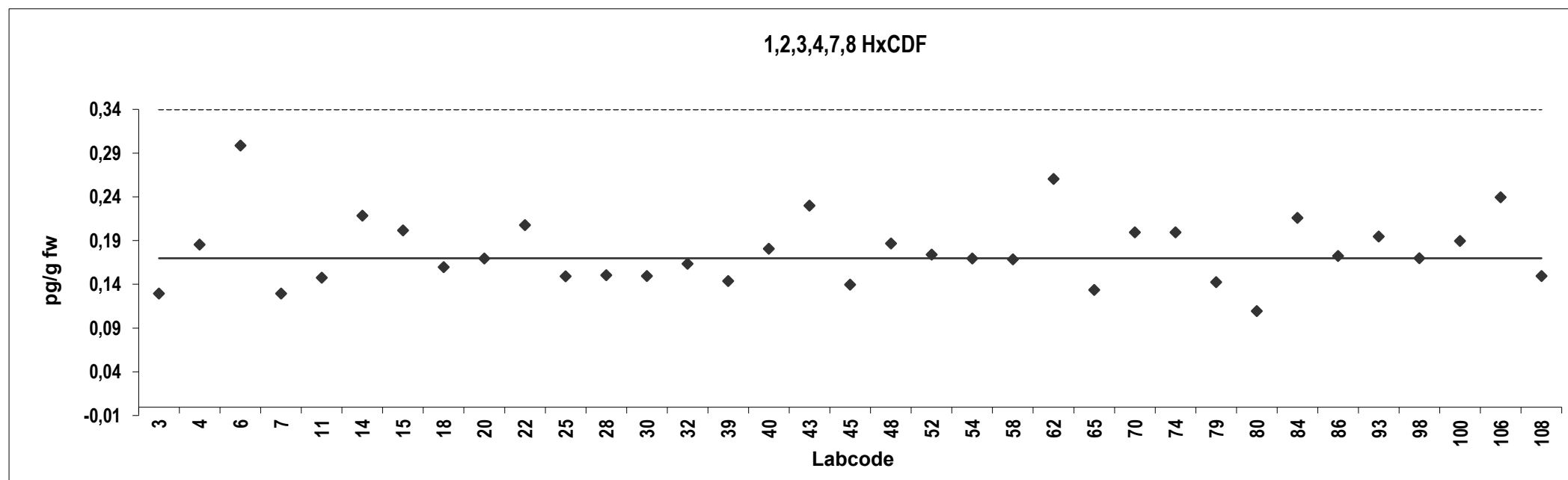
Consensus statistics	
Consensus median, pg/g	2,7
Median all values pg/g	2,7
Consensus mean, pg/g	2,7
Standard deviation, pg/g	0,53
Relative standard deviation, %	19
No. of values reported	35
No. of values removed	2
No. of reported non-detects	1



Fish oil
Congener: 1,2,3,4,7,8 HxCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,13	-1,2				
4	0,19	0,46				
6	0,30	3,8				
7	0,13	-1,2				
11	0,15	-0,65				
14	0,22	1,4				
15	0,20	0,93				
18	0,16	-0,30				
20	0,17	-0,0070				
22	0,21	1,1				
25	0,15	-0,61				
28	0,15	-0,57				
30	0,15	-0,59				
32	0,16	-0,19				
39	0,14	-0,76				
40	0,18	0,32				
43	0,23	1,8				
45	0,14	-0,89				
48	0,19	0,49				
52	0,17	0,12				
54	0,17	-0,0070				
58	0,17	-0,036				
62	0,26	2,7				
65	0,13	-1,1				
70	0,20	0,87				
74	0,20	0,87				
79	0,14	-0,80				
80	0,11	-1,8				
84	0,22	1,4				
86	0,17	0,075				
93	0,20	0,73				
98	0,17	0,0000	ND			
100	0,19	0,58				
106	0,24	2,0				
108	0,15	-0,59				

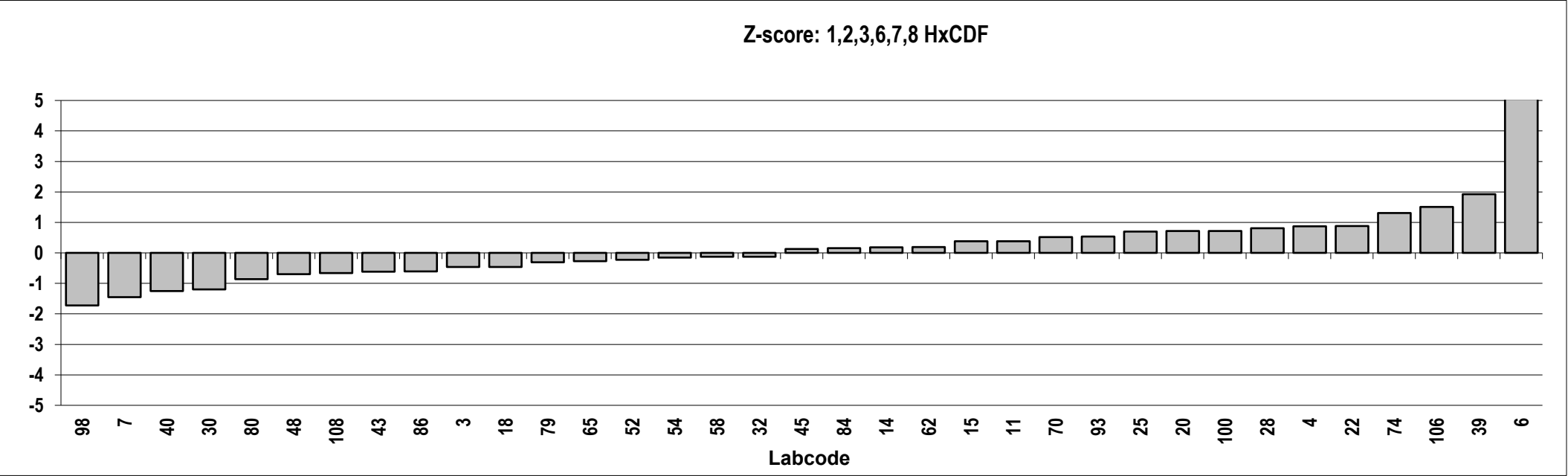
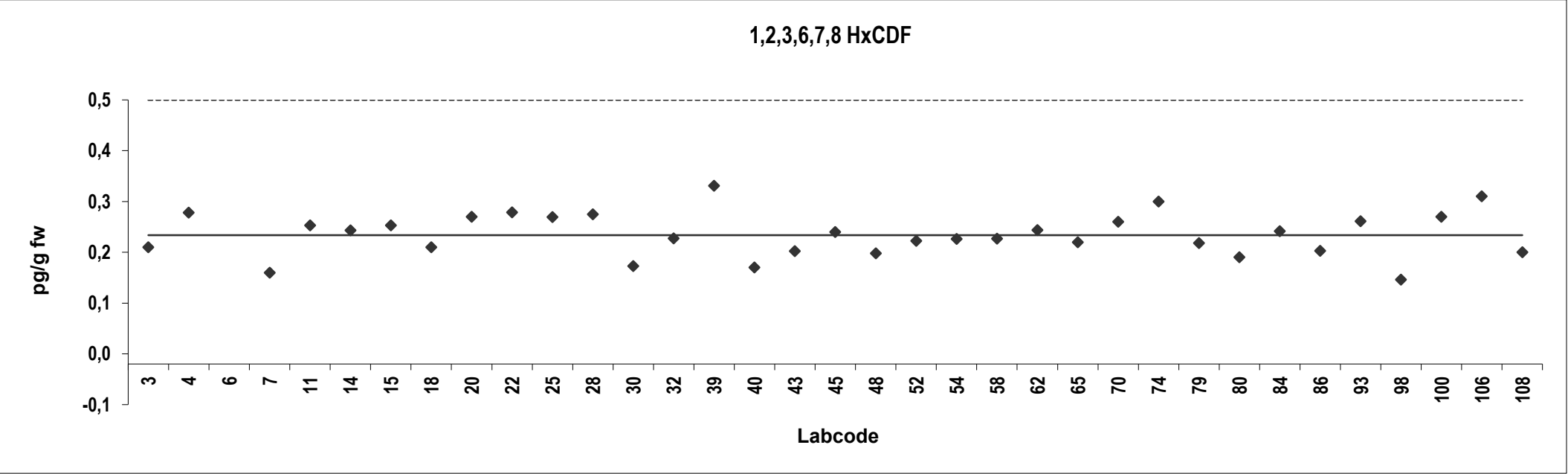
Consensus statistics	
Consensus median, pg/g	0,17
Median all values pg/g	0,17
Consensus mean, pg/g	0,18
Standard deviation, pg/g	0,040
Relative standard deviation, %	22
No. of values reported	35
No. of values removed	0
No. of reported non-detects	1



Fish oil
Congener: 1,2,3,6,7,8 HxCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,23	-0,47	Outlier			
4	0,30	0,87				
6	0,53	5,4				
7	0,18	-1,5				
11	0,27	0,38				
14	0,26	0,18				
15	0,27	0,38				
18	0,23	-0,47				
20	0,29	0,72				
22	0,30	0,88				
25	0,29	0,70				
28	0,29	0,81				
30	0,19	-1,2				
32	0,25	-0,13				
39	0,35	1,9				
40	0,19	-1,3				
43	0,22	-0,62				
45	0,26	0,13				
48	0,22	-0,70				
52	0,24	-0,22				
54	0,25	-0,15				
58	0,25	-0,13	ND			
62	0,26	0,20				
65	0,24	-0,27				
70	0,28	0,52				
74	0,32	1,3				
79	0,24	-0,31				
80	0,21	-0,86				
84	0,26	0,16				
86	0,22	-0,61				
93	0,28	0,54				
98	0,17	-1,7				
100	0,29	0,72				
106	0,33	1,5				
108	0,22	-0,66				

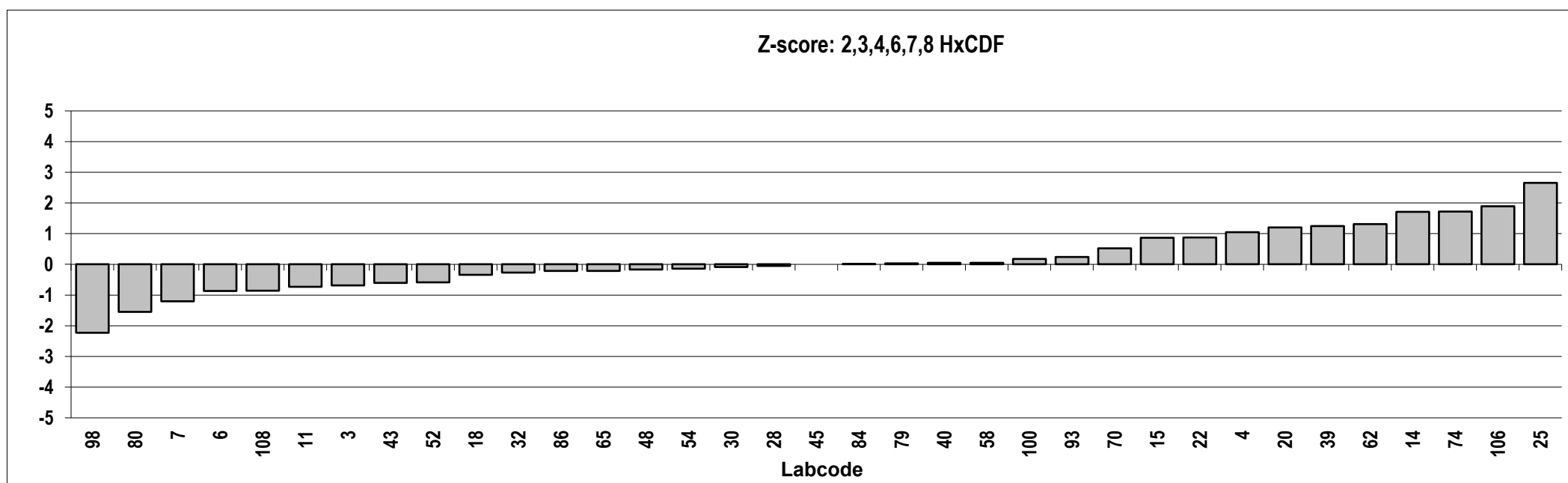
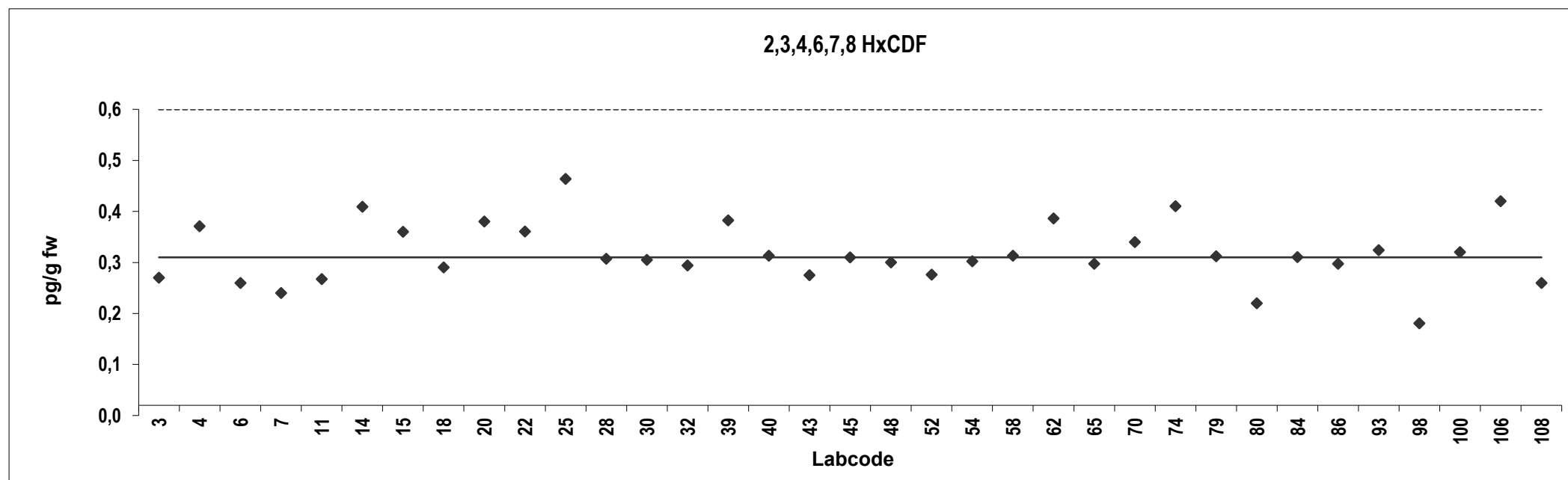
Consensus statistics	
Consensus median, pg/g	0,25
Median all values pg/g	0,26
Consensus mean, pg/g	0,25
Standard deviation, pg/g	0,043
Relative standard deviation, %	17
No. of values reported	35
No. of values removed	1
No. of reported non-detects	1



Fish oil
Congener: 2,3,4,6,7,8 HxCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,25	-0,69				
4	0,35	1,1				
6	0,24	-0,86				
7	0,22	-1,2				
11	0,25	-0,74				
14	0,39	1,7				
15	0,34	0,86				
18	0,27	-0,34				
20	0,36	1,2				
22	0,34	0,87				
25	0,44	2,7				
28	0,29	-0,046				
30	0,29	-0,086				
32	0,27	-0,27				
39	0,36	1,2				
40	0,29	0,052				
43	0,25	-0,61				
45	0,29	0,0000				
48	0,28	-0,17	ND			
52	0,26	-0,58				
54	0,28	-0,14				
58	0,29	0,052				
62	0,37	1,3				
65	0,28	-0,22				
70	0,32	0,52				
74	0,39	1,7				
79	0,29	0,034				
80	0,20	-1,6				
84	0,29	0,0064				
86	0,28	-0,22				
93	0,30	0,24				
98	0,16	-2,2	ND			
100	0,30	0,17				
106	0,40	1,9				
108	0,24	-0,86				

Consensus statistics	
Consensus median, pg/g	0,29
Median all values pg/g	0,29
Consensus mean, pg/g	0,30
Standard deviation, pg/g	0,060
Relative standard deviation, %	20
No. of values reported	35
No. of values removed	0
No. of reported non-detects	2

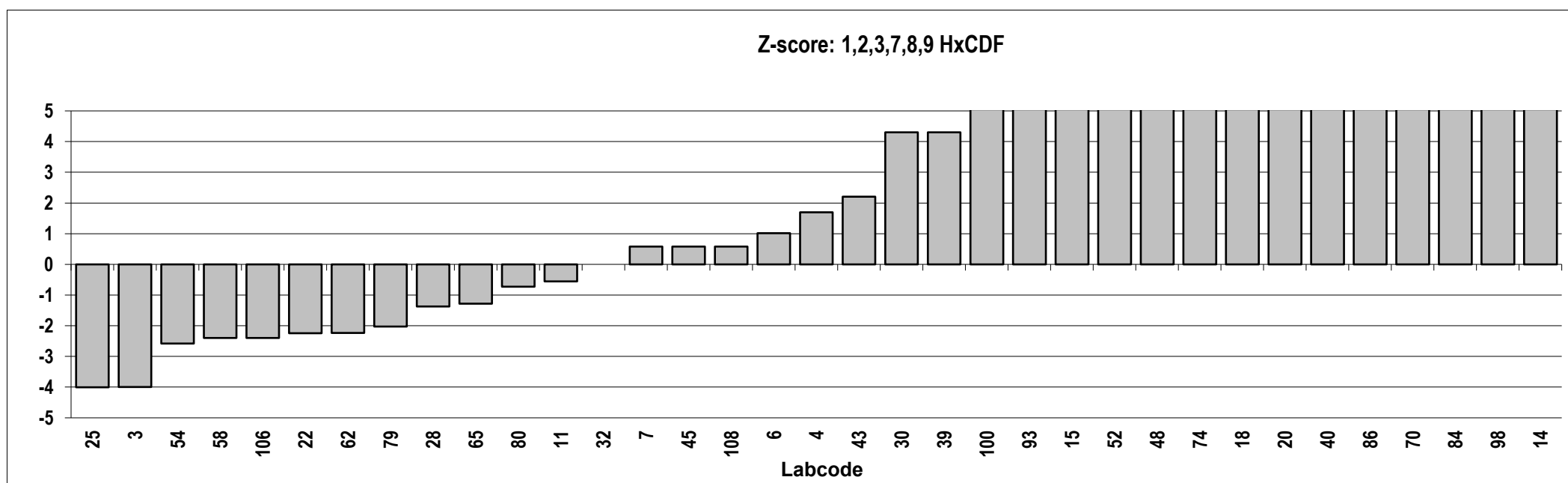
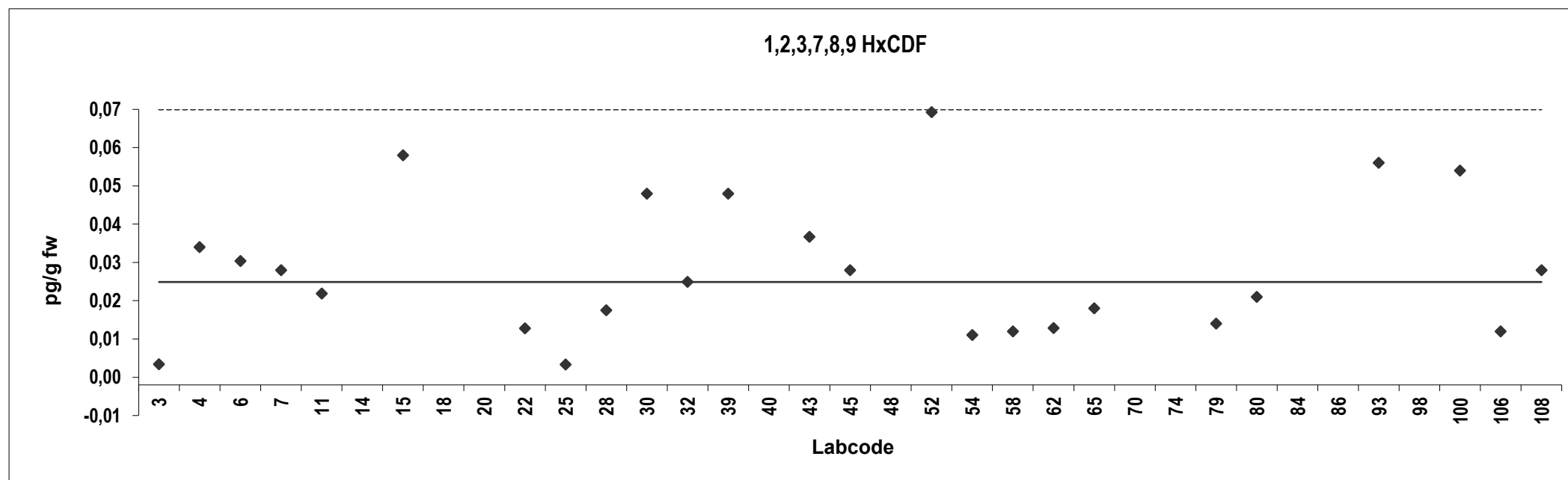


Fish oil
Congener: 1,2,3,7,8,9 HxCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0054	-4,0				
4	0,036	1,7	ND			
6	0,032	1,0				
7	0,030	0,58				
11	0,024	-0,56	ND			
14	0,34	59	Outlier			
15	0,060	6,2				
18	0,10	14	Outlier,ND			
20	0,10	14	Outlier,ND			
22	0,015	-2,2	ND			
25	0,0053	-4,0				
28	0,019	-1,4	ND			
30	0,050	4,3	ND			
32	0,027	0,0000				
39	0,050	4,3	ND			
40	0,11	16	Outlier,ND			
43	0,039	2,2				
45	0,030	0,58	ND			
48	0,082	10	Outlier,ND			
52	0,071	8,2	ND			
54	0,013	-2,6				
58	0,014	-2,4				
62	0,015	-2,2	ND			
65	0,020	-1,3	ND			
70	0,17	27	Outlier,ND			
74	0,090	12	Outlier			
79	0,016	-2,0				
80	0,023	-0,72	ND			
84	0,17	27	Outlier,ND			
86	0,15	24	Outlier,ND			
93	0,058	5,8	ND			
98	0,19	31	Outlier,ND			
100	0,056	5,4				
106	0,014	-2,4	ND			
108	0,030	0,58	ND			

Consensus statistics

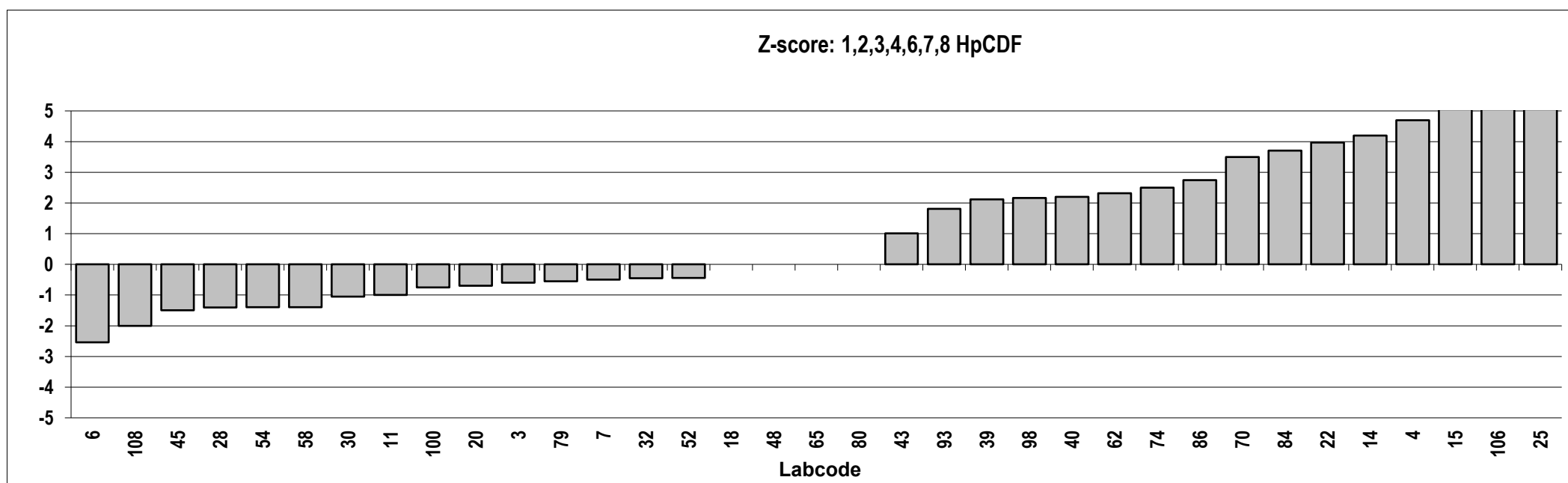
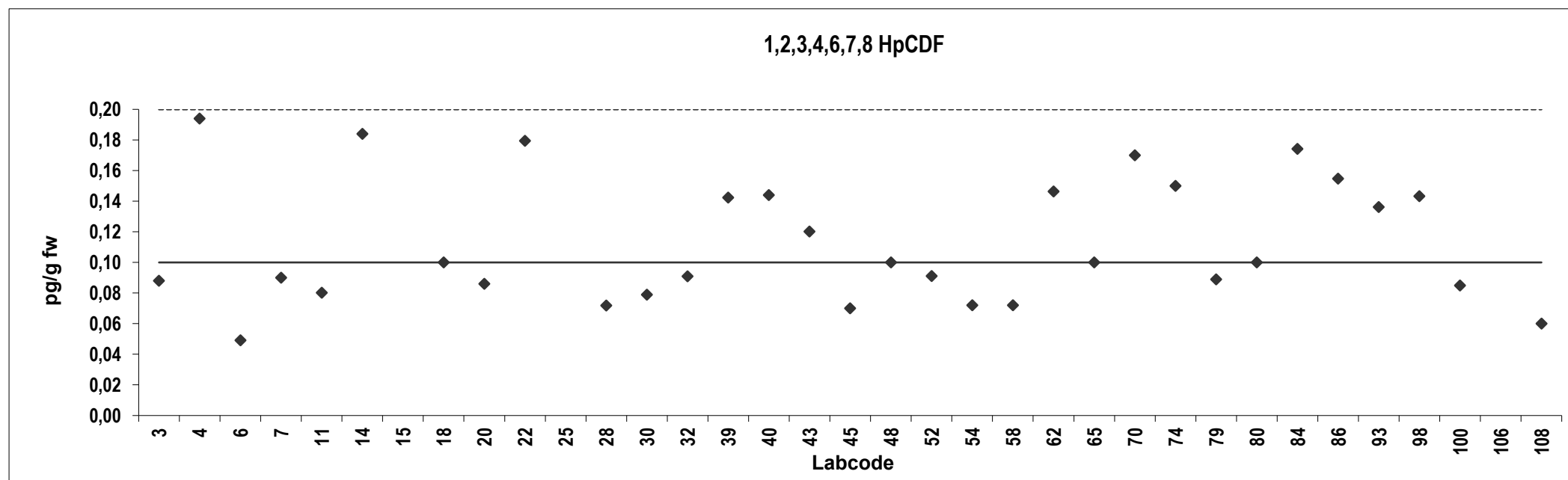
Consensus median, pg/g	0,027
Median all values pg/g	0,036
Consensus mean, pg/g	0,030
Standard deviation, pg/g	0,018
Relative standard deviation, %	60
No. of values reported	35
No. of values removed	10
No. of reported non-detects	22



Fish oil
Congener: 1,2,3,4,6,7,8 HpCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,088	-0,60				
4	0,19	4,7				
6	0,049	-2,5				
7	0,090	-0,50				
11	0,080	-0,99				
14	0,18	4,2				
15	0,20	5,2	Outlier			
18	0,10	0,0000	ND			
20	0,086	-0,70				
22	0,18	4,0				
25	0,28	9,2	Outlier			
28	0,072	-1,4				
30	0,079	-1,1				
32	0,091	-0,45				
39	0,14	2,1				
40	0,14	2,2	ND			
43	0,12	1,0				
45	0,070	-1,5				
48	0,10	0,0000	ND			
52	0,091	-0,44				
54	0,072	-1,4				
58	0,072	-1,4				
62	0,15	2,3				
65	0,10	0,0000				
70	0,17	3,5	ND			
74	0,15	2,5				
79	0,089	-0,55				
80	0,10	0,0000				
84	0,17	3,7	ND			
86	0,15	2,7	ND			
93	0,14	1,8				
98	0,14	2,2	ND			
100	0,085	-0,75				
106	0,27	8,5	Outlier			
108	0,060	-2,0				

Consensus statistics	
Consensus median, pg/g	0,10
Median all values pg/g	0,10
Consensus mean, pg/g	0,11
Standard deviation, pg/g	0,041
Relative standard deviation, %	36
No. of values reported	35
No. of values removed	3
No. of reported non-detects	7

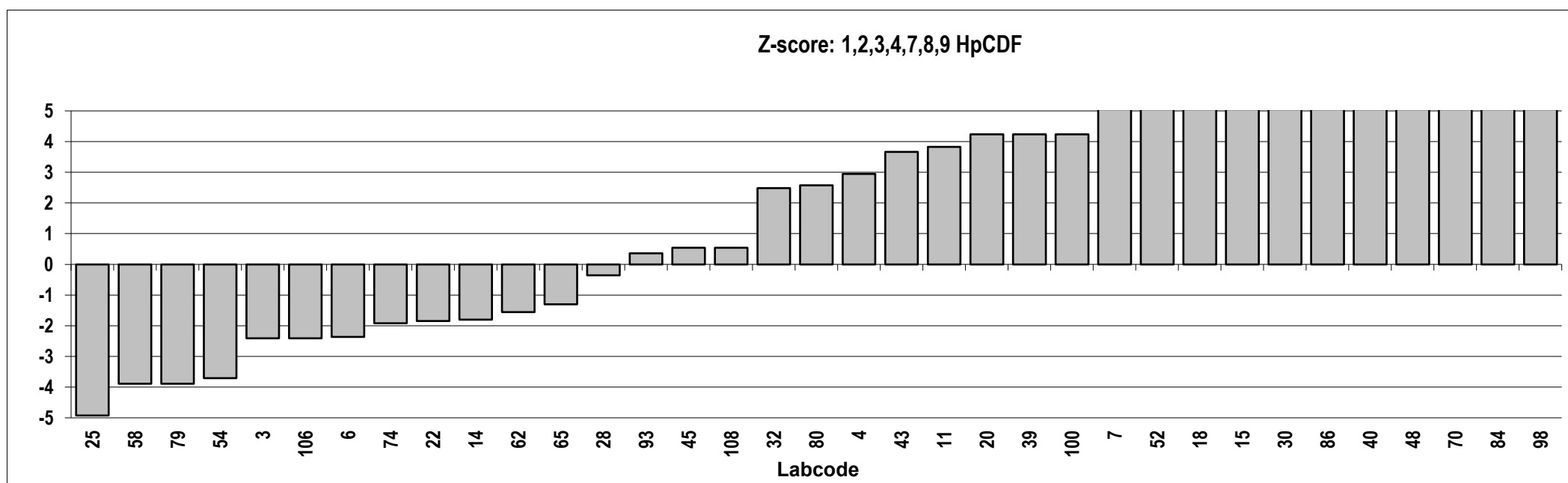
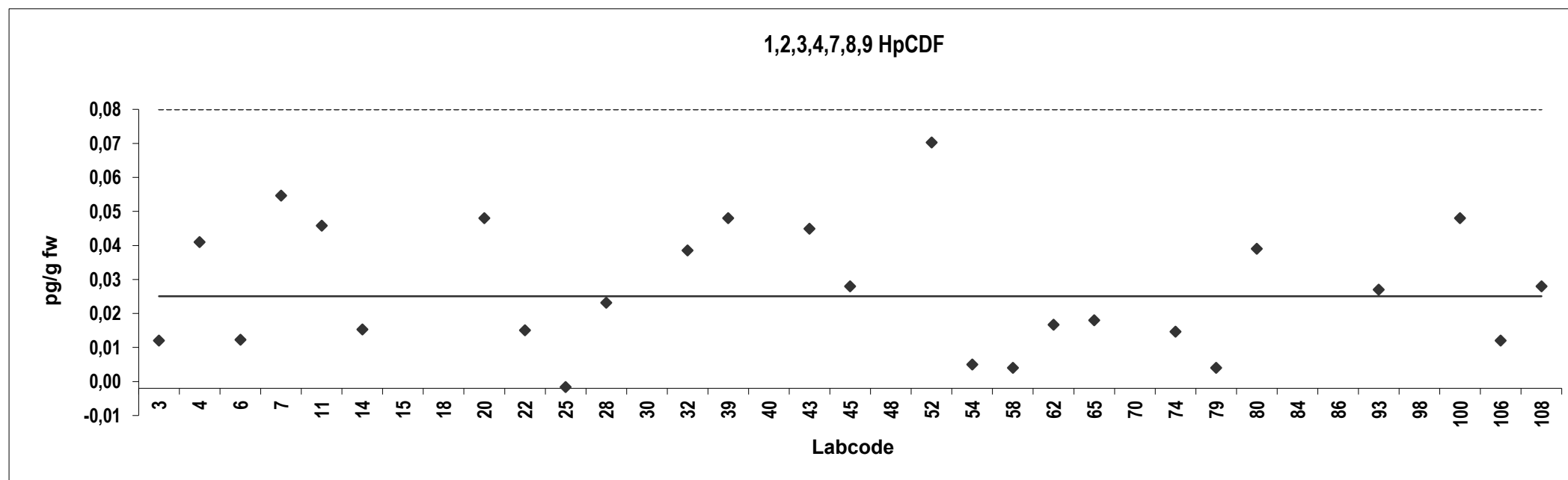


Fish oil
Congener: 1,2,3,4,7,8,9 HpCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,014	-2,4				
4	0,043	2,9	ND			
6	0,014	-2,4				
7	0,057	5,5	ND			
11	0,048	3,8	ND			
14	0,017	-1,8	ND			
15	0,14	21	Outlier			
18	0,10	13	Outlier,ND			
20	0,050	4,2	ND			
22	0,017	-1,8	ND			
25	0,00039	-4,9				
28	0,025	-0,36	ND			
30	0,15	23	Outlier,ND			
32	0,041	2,5				
39	0,050	4,2	ND			
40	0,16	24	Outlier,ND			
43	0,047	3,7				
45	0,030	0,54	ND			
48	0,17	26	Outlier,ND			
52	0,072	8,3	ND			
54	0,0070	-3,7				
58	0,0060	-3,9				
62	0,019	-1,6	ND			
65	0,020	-1,3	ND			
70	0,17	26	Outlier,ND			
74	0,017	-1,9	ND			
79	0,0060	-3,9				
80	0,041	2,6	ND			
84	0,17	27	Outlier,ND			
86	0,15	24	Outlier,ND			
93	0,029	0,36	ND			
98	0,18	28	Outlier,ND			
100	0,050	4	ND			
106	0,014	-2	ND			
108	0,030	0,54	ND			

Consensus statistics

Consensus median, pg/g	0,027
Median all values pg/g	0,041
Consensus mean, pg/g	0,029
Standard deviation, pg/g	0,019
Relative standard deviation, %	64
No. of values reported	35
No. of values removed	9
No. of reported non-detects	26

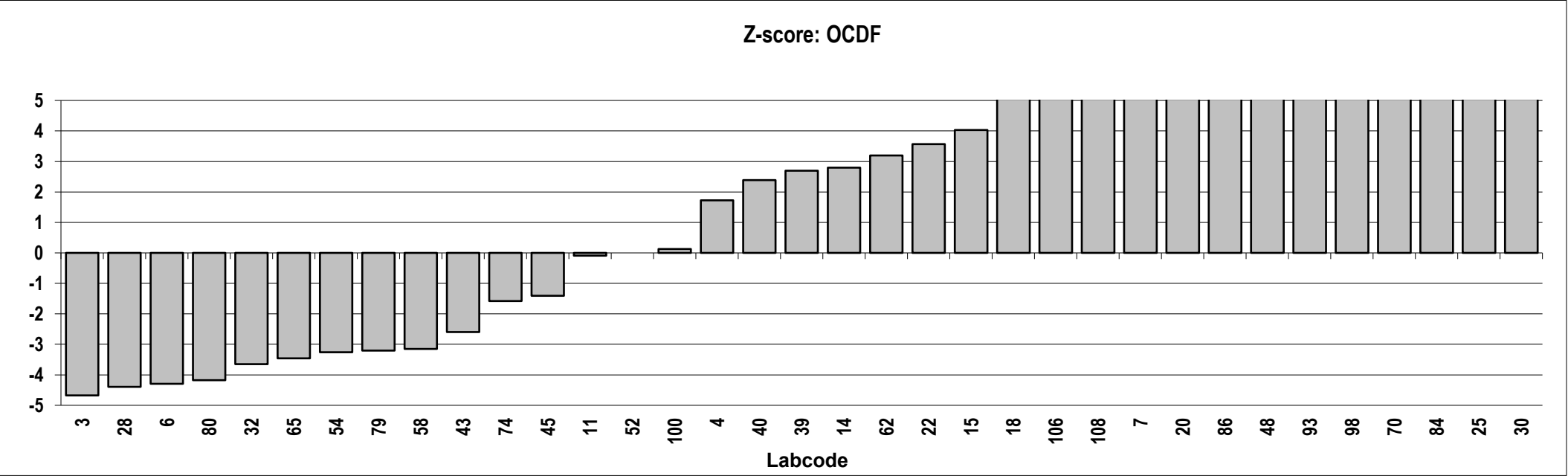
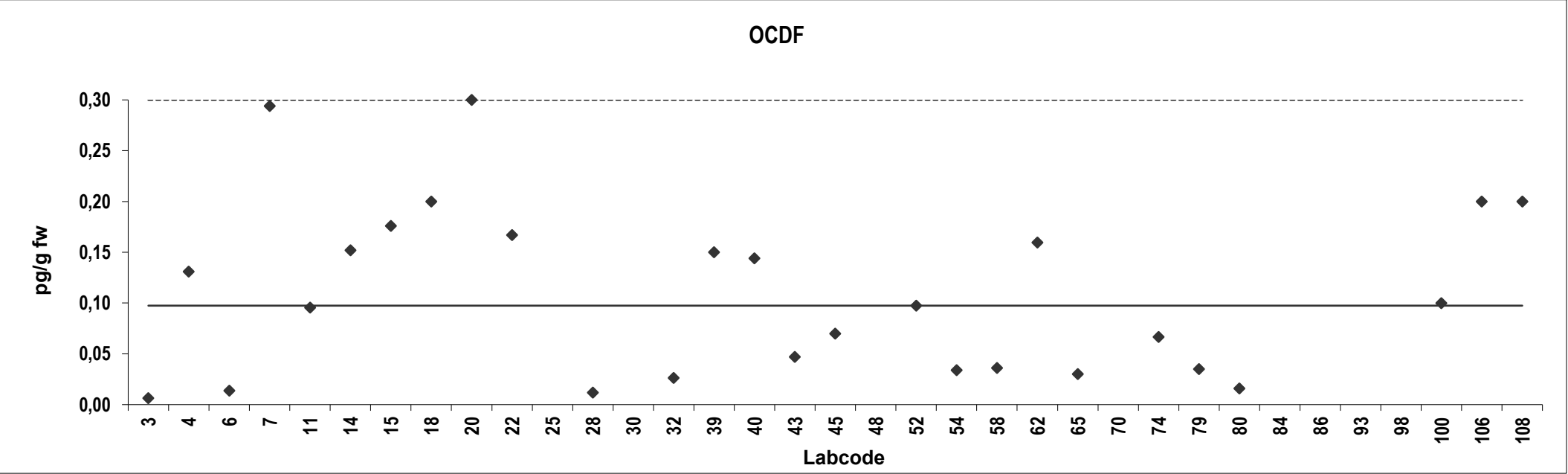


Fish oil
Congener: OCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0063	-4,7				
4	0,13	1,7				
6	0,014	-4,3				
7	0,29	10	ND			
11	0,096	-0,094	ND			
14	0,15	2,8				
15	0,18	4,0				
18	0,20	5,3	ND			
20	0,30	10	ND			
22	0,17	3,6	ND			
25	0,53	22	Outlier			
28	0,012	-4,4	ND			
30	2,0	98	Outlier,ND			
32	0,026	-3,6				
39	0,15	2,7	ND			
40	0,14	2,4	ND			
43	0,047	-2,6				
45	0,070	-1,4	ND			
48	0,34	12	Outlier,ND			
52	0,097	0,0000	ND			
54	0,034	-3,3				
58	0,036	-3,2				
62	0,16	3,2	ND			
65	0,030	-3,5	ND			
70	0,42	17	Outlier,ND			
74	0,067	-1,6	ND			
79	0,035	-3,2				
80	0,016	-4,2	ND			
84	0,44	17	Outlier,ND			
86	0,31	11	Outlier,ND			
93	0,35	13	Outlier			
98	0,36	13	Outlier,ND			
100	0,10	0,13	ND			
106	0,20	5,3				
108	0,20	5,3	ND			

Consensus statistics

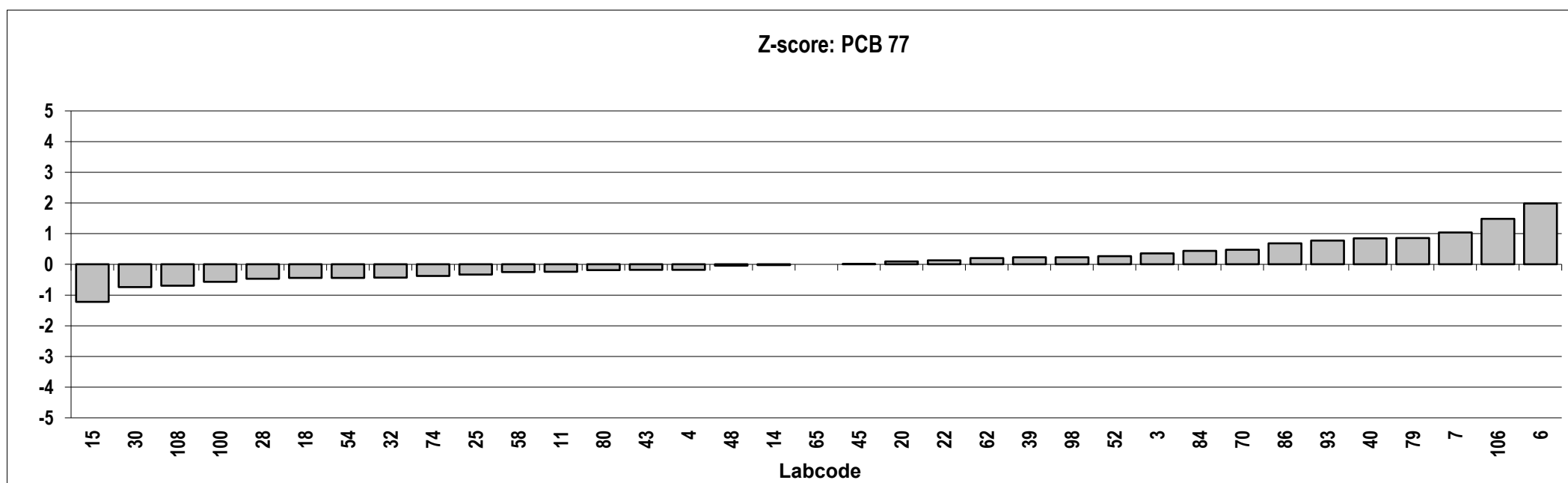
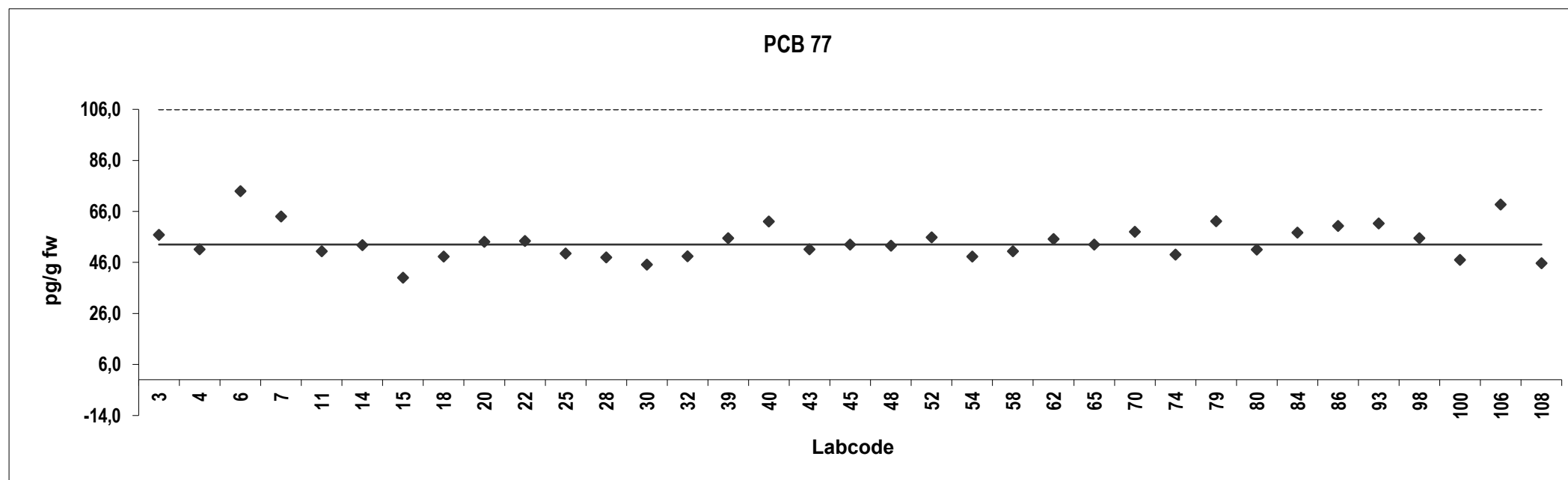
Consensus median, pg/g	0,10
Median all values pg/g	0,15
Consensus mean, pg/g	0,11
Standard deviation, pg/g	0,085
Relative standard deviation, %	77
No. of values reported	35
No. of values removed	8
No. of reported non-detects	22



Fish oil
Congener: PCB 77

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	57	0,36				
4	51	-0,18				
6	74	2,0				
7	64	1,0				
11	50	-0,25				
14	53	-0,026				
15	40	-1,2				
18	48	-0,44				
20	54	0,10				
22	54	0,13				
25	49	-0,33				
28	48	-0,47				
30	45	-0,74				
32	48	-0,43				
39	55	0,23				
40	62	0,85				
43	51	-0,18				
45	53	0,0019				
48	53	-0,045				
52	56	0,27				
54	48	-0,44				
58	50	-0,25				
62	55	0,20				
65	53	0,0000				
70	58	0,47				
74	49	-0,38				
79	62	0,86				
80	51	-0,19				
84	58	0,44				
86	60	0,69				
93	61	0,78				
98	55	0,23				
100	47	-0,56				
106	69	1,5				
108	46	-0,70				

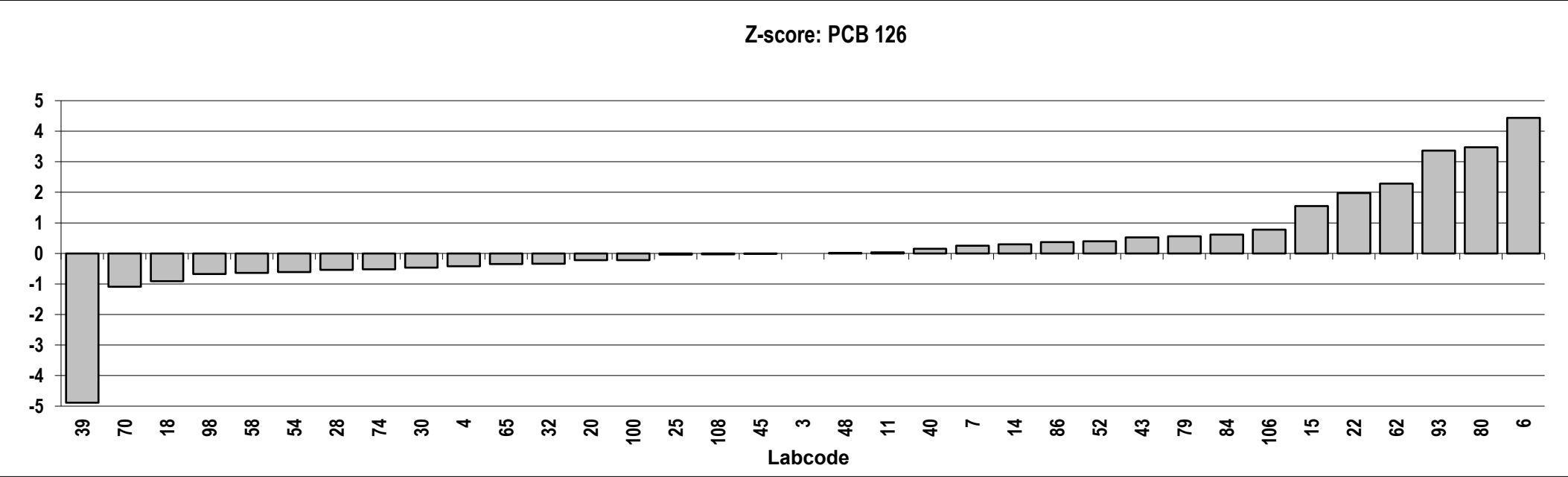
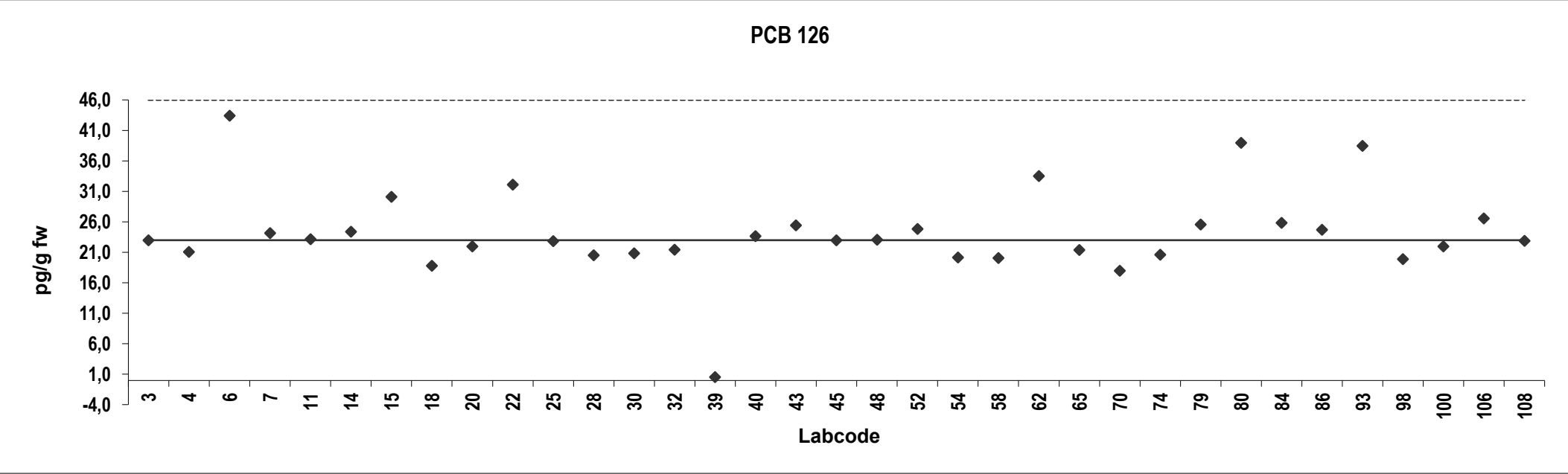
Consensus statistics	
Consensus median, pg/g	53
Median all values pg/g	53
Consensus mean, pg/g	54
Standard deviation, pg/g	6,9
Relative standard deviation, %	13
No. of values reported	35
No. of values removed	0
No. of reported non-detects	0



Fish oil
Congener: PCB 126

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	23	0,0000				
4	21	-0,42				
6	43	4,4				
7	24	0,26				
11	23	0,031				
14	24	0,30				
15	30	1,5				
18	19	-0,91				
20	22	-0,22				
22	32	2,0				
25	23	-0,036				
28	21	-0,54				
30	21	-0,46				
32	21	-0,34				
39	0,53	-4,9				
40	24	0,15				
43	25	0,53				
45	23	-0,0043				
48	23	0,017				
52	25	0,40				
54	20	-0,61				
58	20	-0,63				
62	34	2,3				
65	21	-0,35				
70	18	-1,1				
74	21	-0,52				
79	26	0,56				
80	39	3,5				
84	26	0,62				
86	25	0,37				
93	39	3,4				
98	20	-0,67				
100	22	-0,22				
106	27	0,78				
108	23	-0,026				

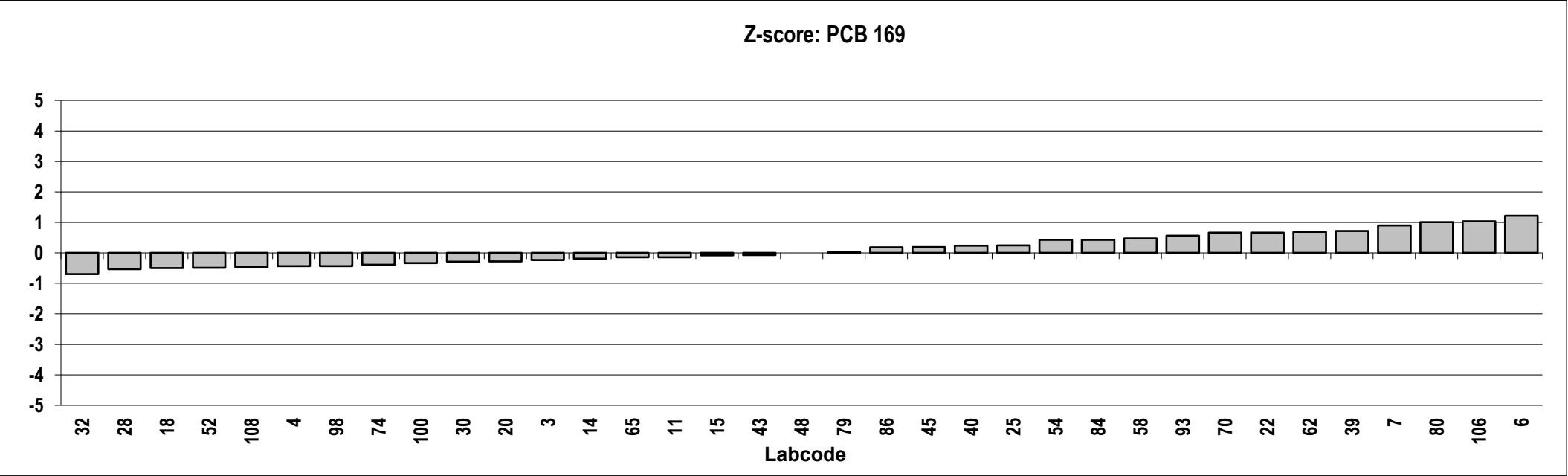
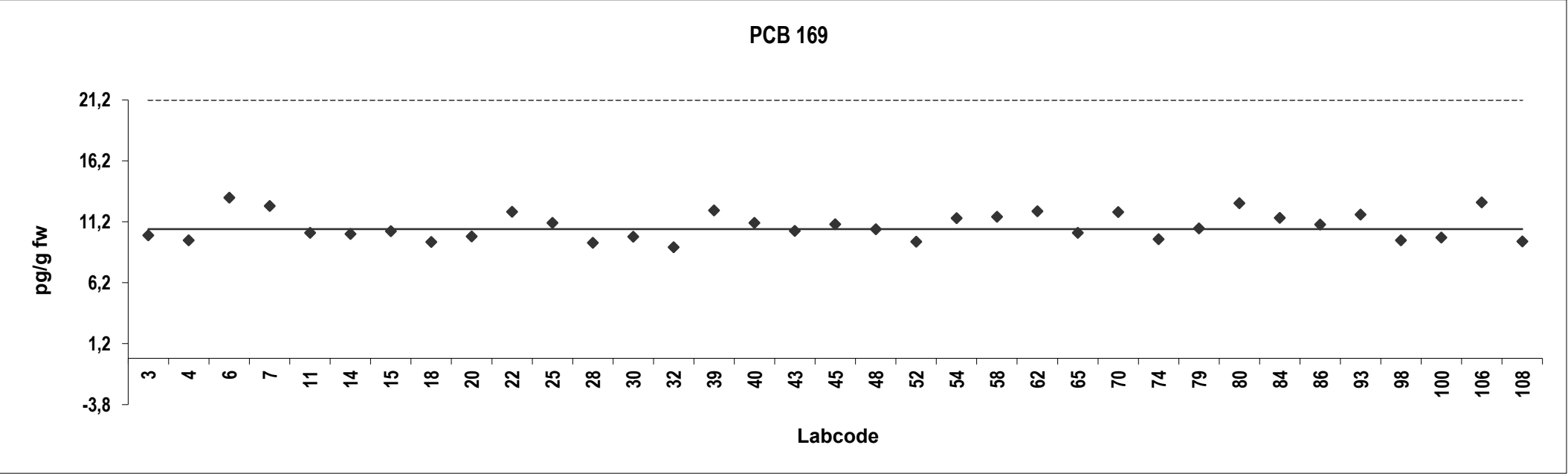
Consensus statistics	
Consensus median, pg/g	23
Median all values pg/g	23
Consensus mean, pg/g	24
Standard deviation, pg/g	7,2
Relative standard deviation, %	30
No. of values reported	35
No. of values removed	0
No. of reported non-detects	0



Fish oil
Congener: PCB 169

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	10	-0,24				
4	9,7	-0,44				
6	13	1,2				
7	13	0,90				
11	10	-0,14				
14	10	-0,19				
15	10	-0,077				
18	9,5	-0,50				
20	10	-0,28				
22	12	0,67				
25	11	0,25				
28	9,5	-0,53				
30	10	-0,29				
32	9,1	-0,70				
39	12	0,72				
40	11	0,24				
43	10	-0,070				
45	11	0,19				
48	11	0,0000				
52	9,6	-0,48				
54	12	0,42				
58	12	0,47				
62	12	0,69				
65	10	-0,15				
70	12	0,66				
74	9,8	-0,39				
79	11	0,031				
80	13	1,0				
84	12	0,43				
86	11	0,18				
93	12	0,57				
98	9,7	-0,44				
100	9,9	-0,33				
106	13	1,0				
108	9,6	-0,47				

Consensus statistics	
Consensus median, pg/g	11
Median all values pg/g	11
Consensus mean, pg/g	11
Standard deviation, pg/g	1,1
Relative standard deviation, %	10
No. of values reported	35
No. of values removed	0
No. of reported non-detects	0

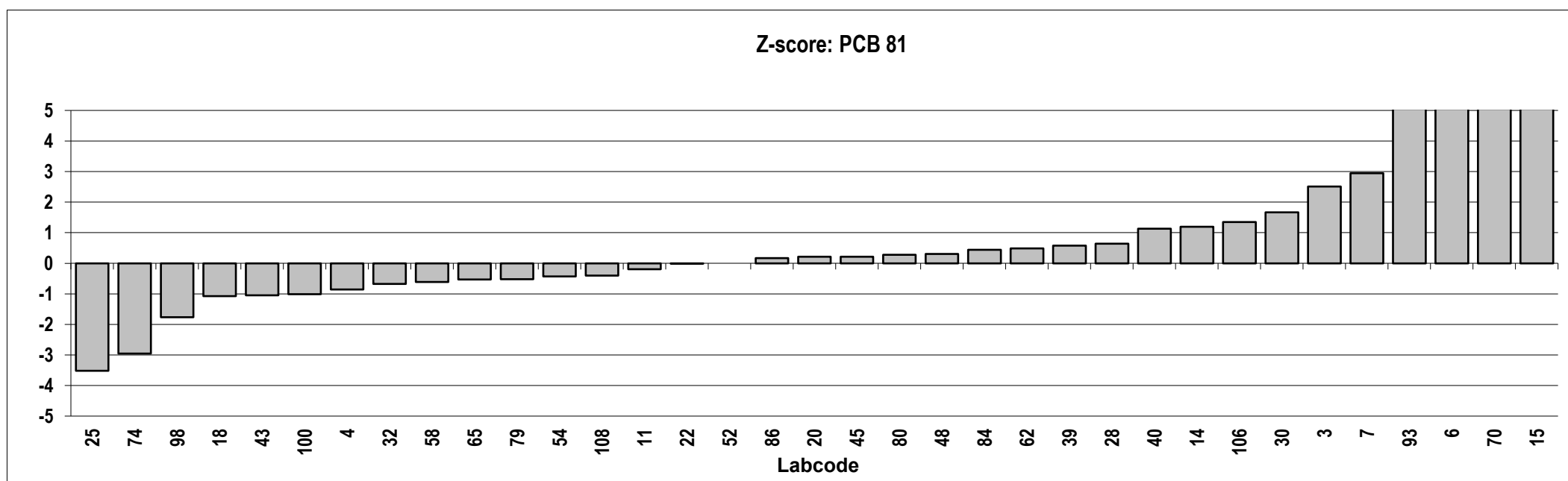
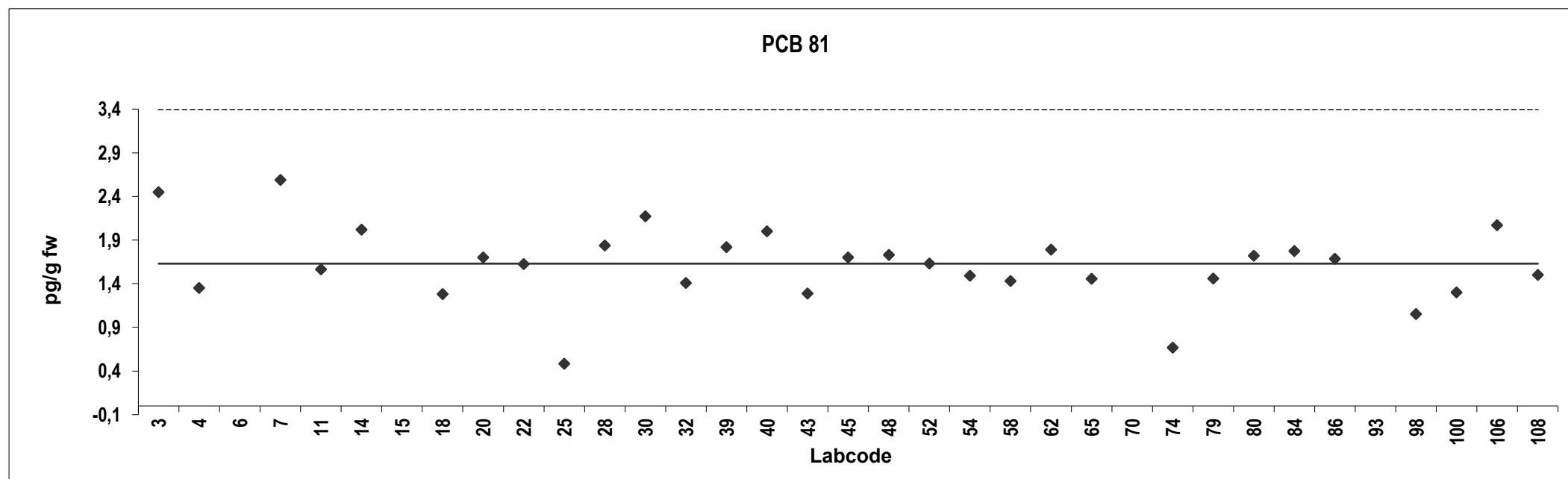


Fish oil
Congener: PCB 81

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	2,5	2,5				
4	1,4	-0,86				
6	4,0	7,2	Outlier			
7	2,6	2,9				
11	1,6	-0,20				
14	2,0	1,2				
15	20	57	Outlier			
18	1,3	-1,1				
20	1,7	0,21				
22	1,6	-0,015				
25	0,48	-3,5				
28	1,8	0,64				
30	2,2	1,7				
32	1,4	-0,68				
39	1,8	0,57				
40	2,0	1,1				
43	1,3	-1,0				
45	1,7	0,21				
48	1,7	0,31				
52	1,6	0,0000				
54	1,5	-0,43				
58	1,4	-0,61				
62	1,8	0,49				
65	1,5	-0,53				
70	20	56	Outlier,ND			
74	0,67	-3,0	ND			
79	1,5	-0,53				
80	1,7	0,28				
84	1,8	0,44				
86	1,7	0,17				
93	3,4	5,5	Outlier			
98	1,1	-1,8				
100	1,3	-1,0				
106	2,1	1,3				
108	1,5	-0,40				

Consensus statistics

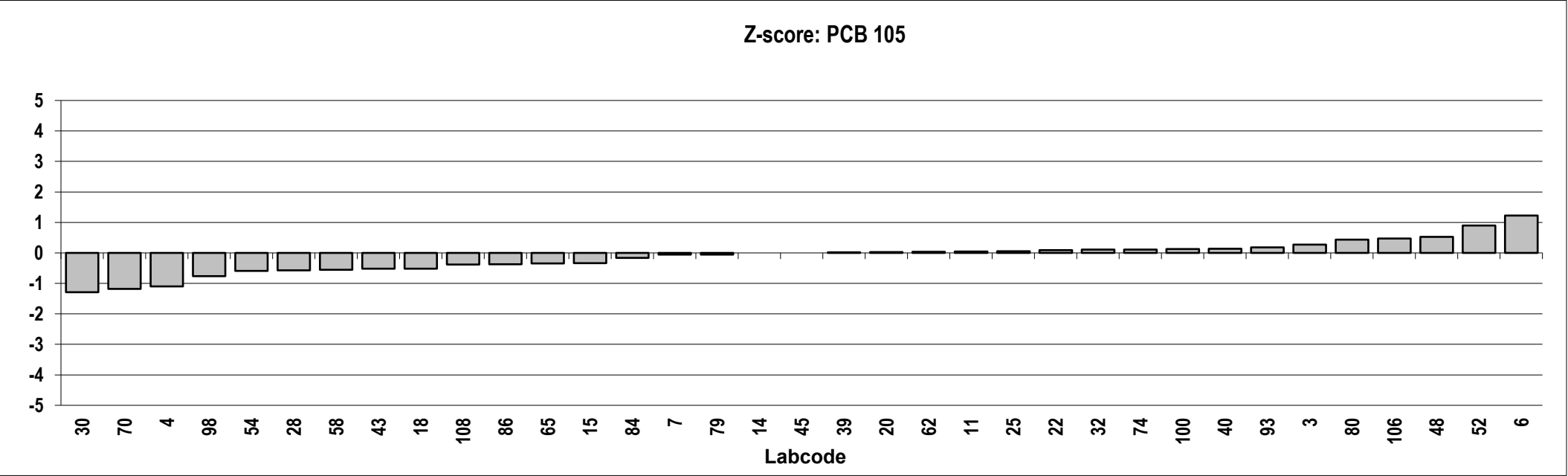
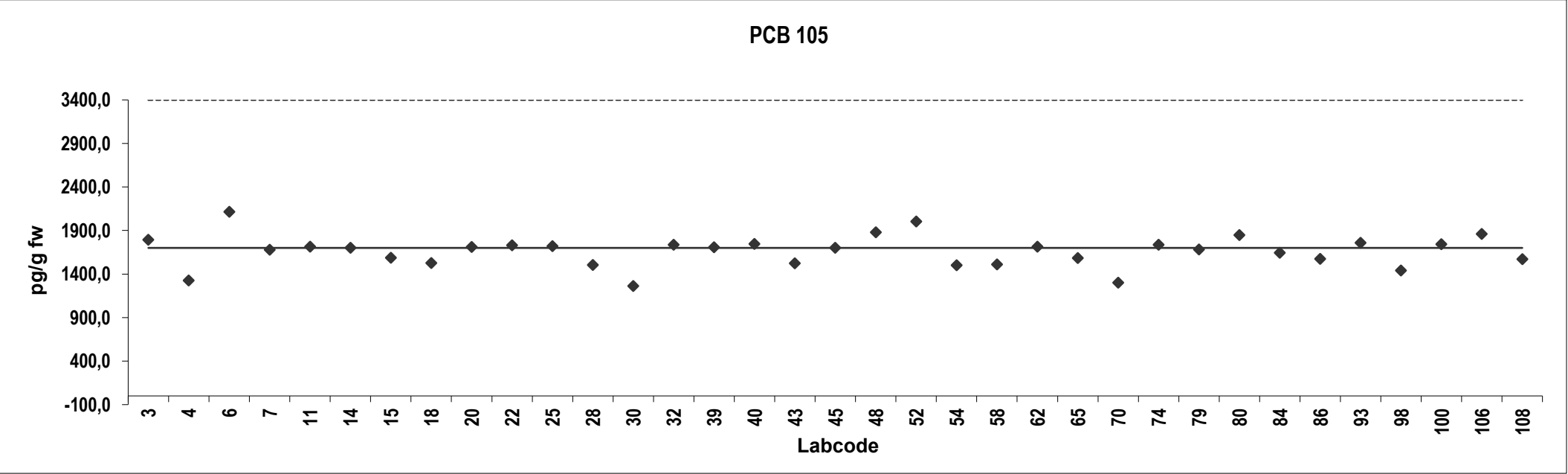
Consensus median, pg/g	1,6
Median all values pg/g	1,7
Consensus mean, pg/g	1,6
Standard deviation, pg/g	0,44
Relative standard deviation, %	27
No. of values reported	35
No. of values removed	4
No. of reported non-detects	2



Fish oil
Congener: PCB 105

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	1793	0,27				
4	1326	-1,1				
6	2115	1,2				
7	1680	-0,059				
11	1715	0,044				
14	1700	0,0000				
15	1586	-0,34				
18	1525	-0,51				
20	1710	0,029				
22	1729	0,087				
25	1719	0,056				
28	1505	-0,57				
30	1261	-1,3				
32	1736	0,10				
39	1706	0,018				
40	1746	0,14				
43	1523	-0,52				
45	1700	0,0000				
48	1880	0,53				
52	2004	0,89				
54	1500	-0,59				
58	1510	-0,56				
62	1713	0,039				
65	1583	-0,34				
70	1300	-1,2				
74	1736	0,11				
79	1681	-0,056				
80	1848	0,43				
84	1643	-0,17				
86	1573	-0,37				
93	1760	0,18				
98	1440	-0,76				
100	1742	0,12				
106	1860	0,47				
108	1571	-0,38				

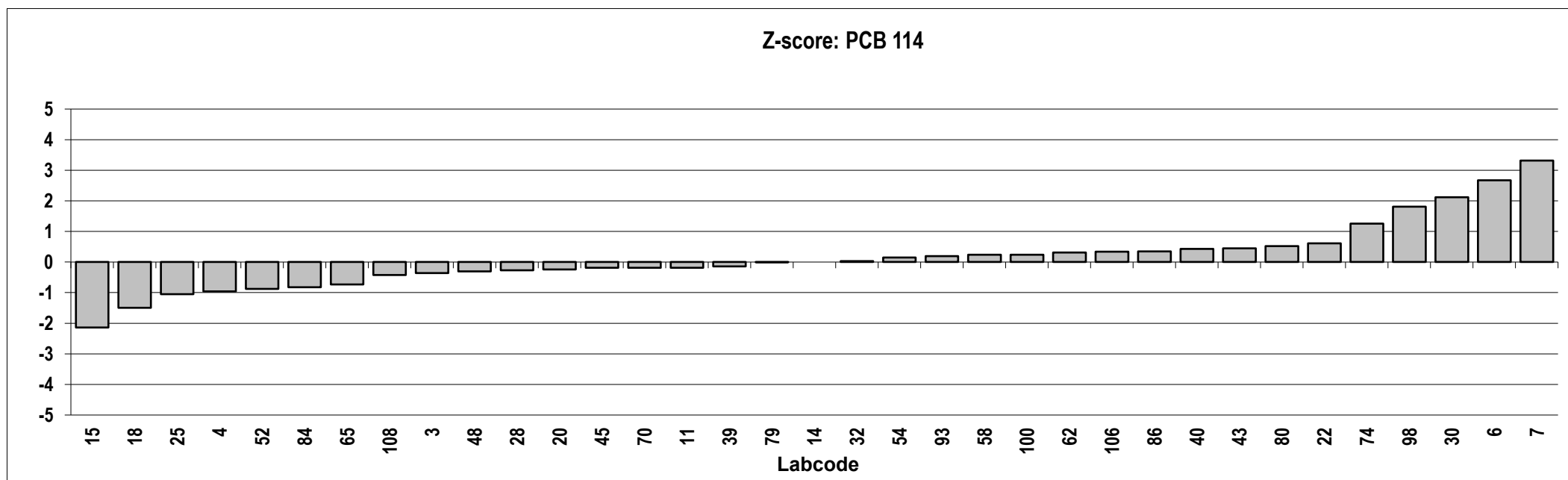
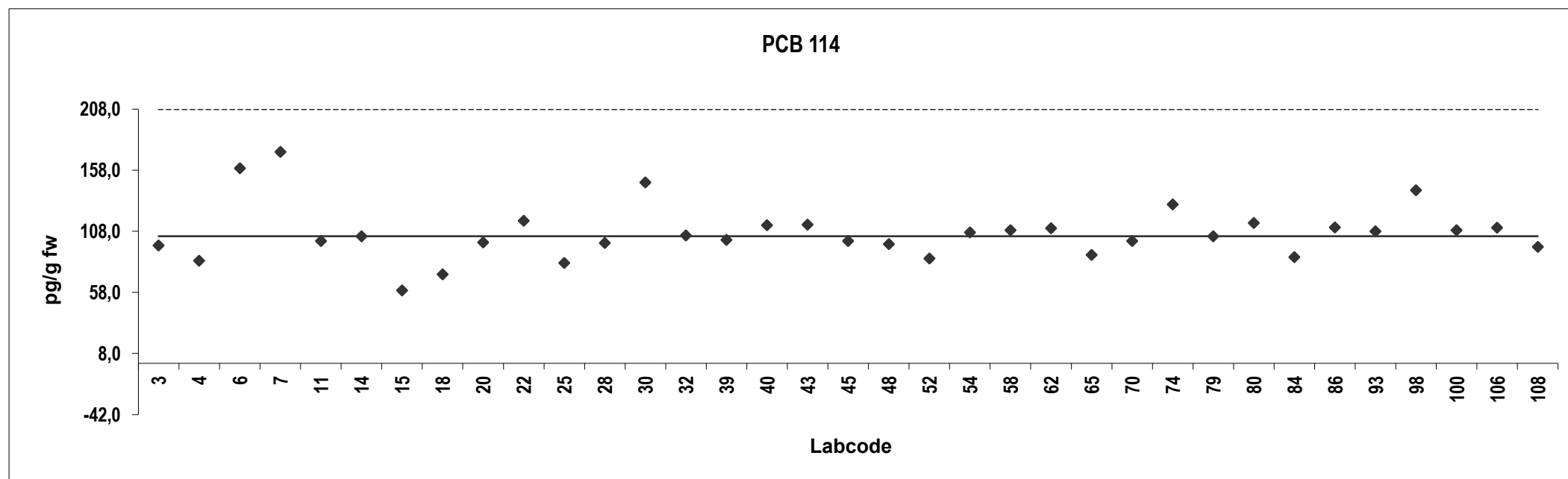
Consensus statistics	
Consensus median, pg/g	1700
Median all values pg/g	1700
Consensus mean, pg/g	1661
Standard deviation, pg/g	181
Relative standard deviation, %	11
No. of values reported	35
No. of values removed	0
No. of reported non-detects	0



Fish oil
Congener: PCB 114

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	96	-0,36	ND			
4	84	-0,96				
6	160	2,7				
7	173	3,3				
11	100	-0,19				
14	104	0,0000				
15	60	-2,1				
18	73	-1,5				
20	99	-0,24				
22	117	0,61				
25	82	-1,1				
28	98	-0,27				
30	148	2,1				
32	105	0,028				
39	101	-0,14				
40	113	0,43				
43	113	0,45				
45	100	-0,19				
48	98	-0,31				
52	86	-0,88				
54	107	0,14				
58	109	0,24				
62	110	0,31				
65	89	-0,73				
70	100	-0,19				
74	130	1,3				
79	104	-0,0053				
80	115	0,52				
84	87	-0,82				
86	111	0,35				
93	108	0,19				
98	142	1,8				
100	109	0,24				
106	111	0,34				
108	95	-0,42				

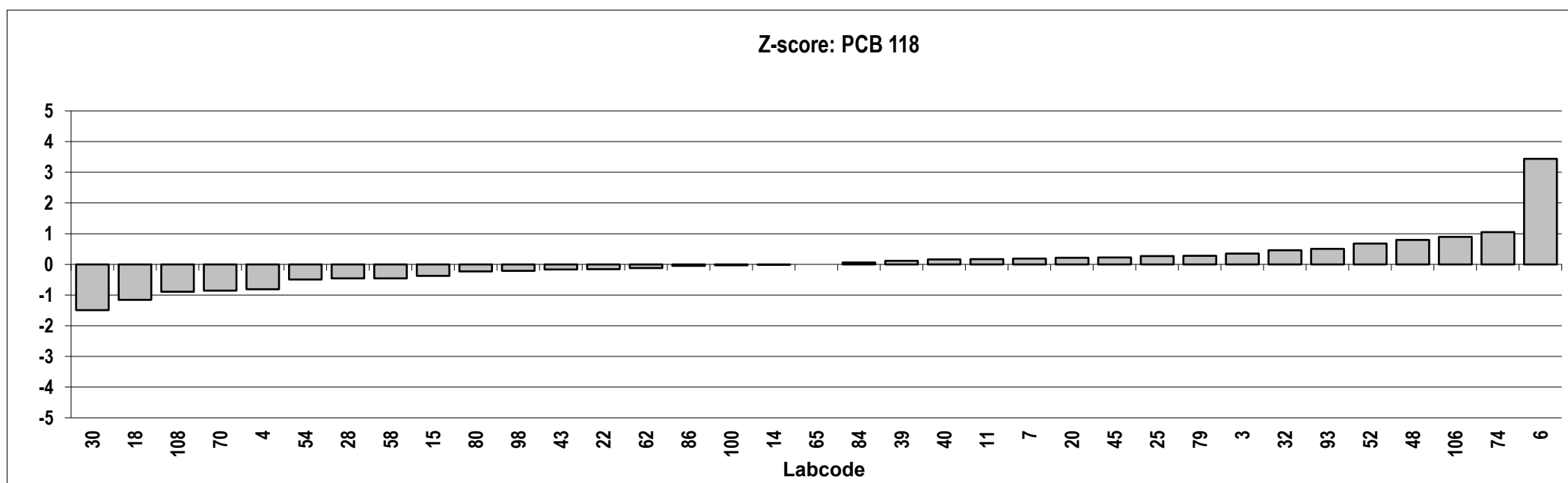
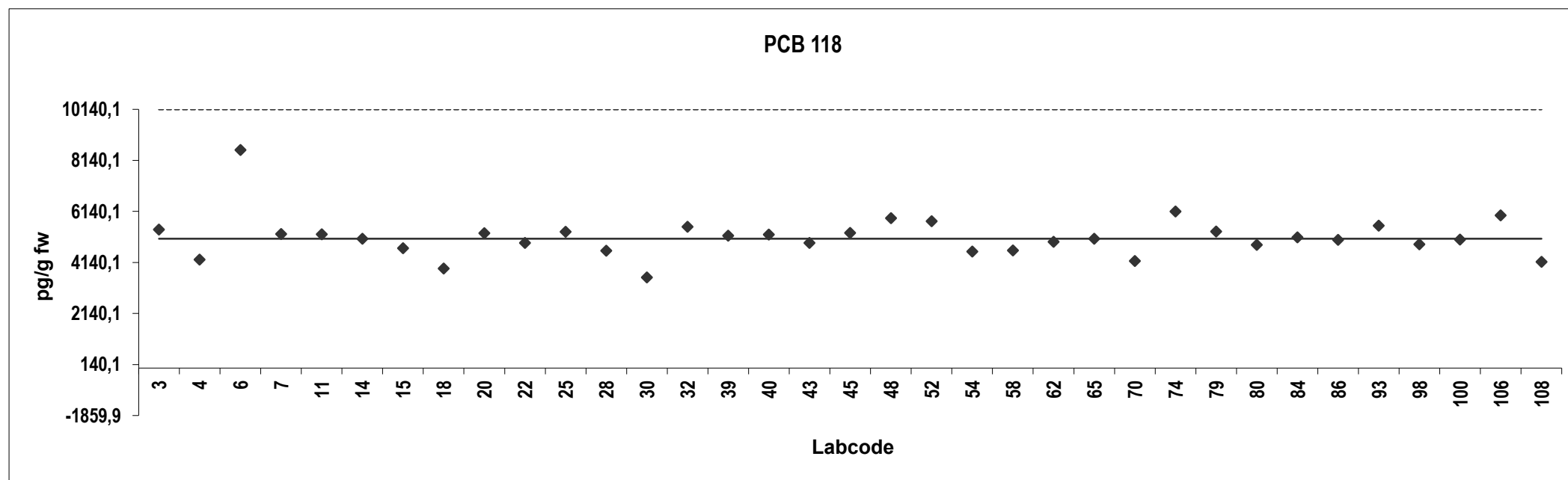
Consensus statistics	
Consensus median, pg/g	104
Median all values pg/g	104
Consensus mean, pg/g	107
Standard deviation, pg/g	23
Relative standard deviation, %	21
No. of values reported	35
No. of values removed	0
No. of reported non-detects	1



Fish oil
Congener: PCB 118

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	5430	0,36				
4	4250	-0,81				
6	8552	3,4				
7	5259	0,19				
11	5241	0,17				
14	5070	-0,000059				
15	4694	-0,37				
18	3902	-1,2				
20	5290	0,22				
22	4909	-0,16				
25	5340	0,27				
28	4604	-0,46				
30	3555	-1,5				
32	5534	0,46				
39	5186	0,11				
40	5231	0,16				
43	4901	-0,17				
45	5300	0,23				
48	5880	0,80				
52	5761	0,68				
54	4570	-0,49				
58	4610	-0,45				
62	4951	-0,12				
65	5070	0,0000				
70	4200	-0,86				
74	6134	1,0				
79	5356	0,28				
80	4833	-0,23				
84	5128	0,057				
86	5024	-0,045				
93	5580	0,50				
98	4853	-0,21				
100	5039	-0,031				
106	5980	0,90				
108	4166	-0,89				

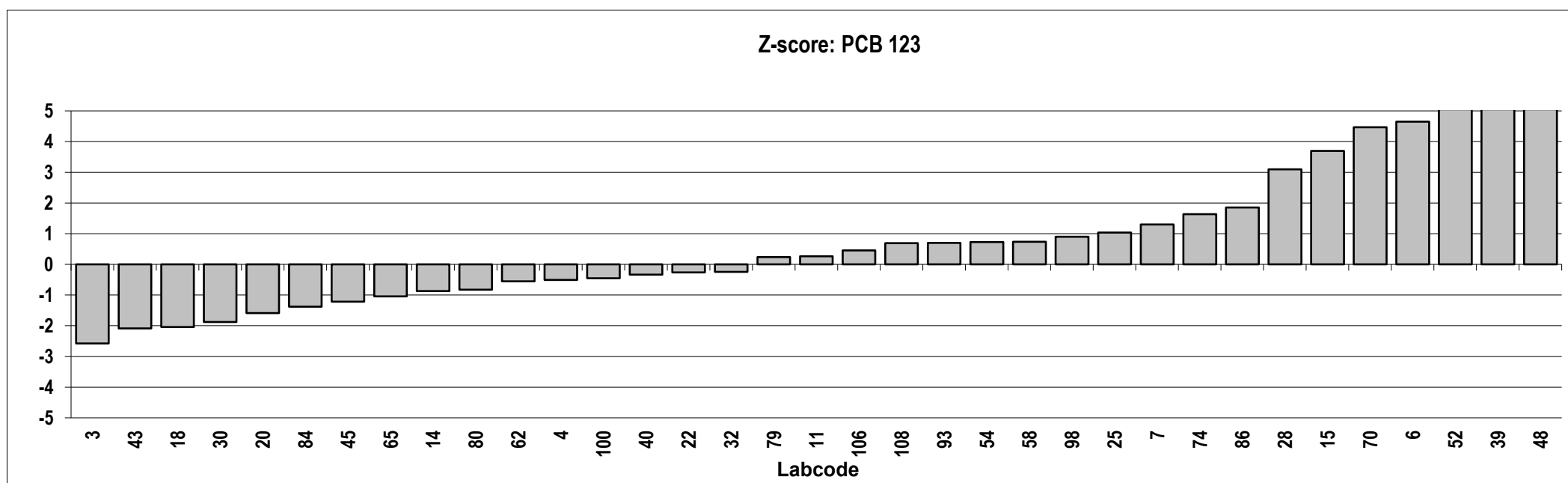
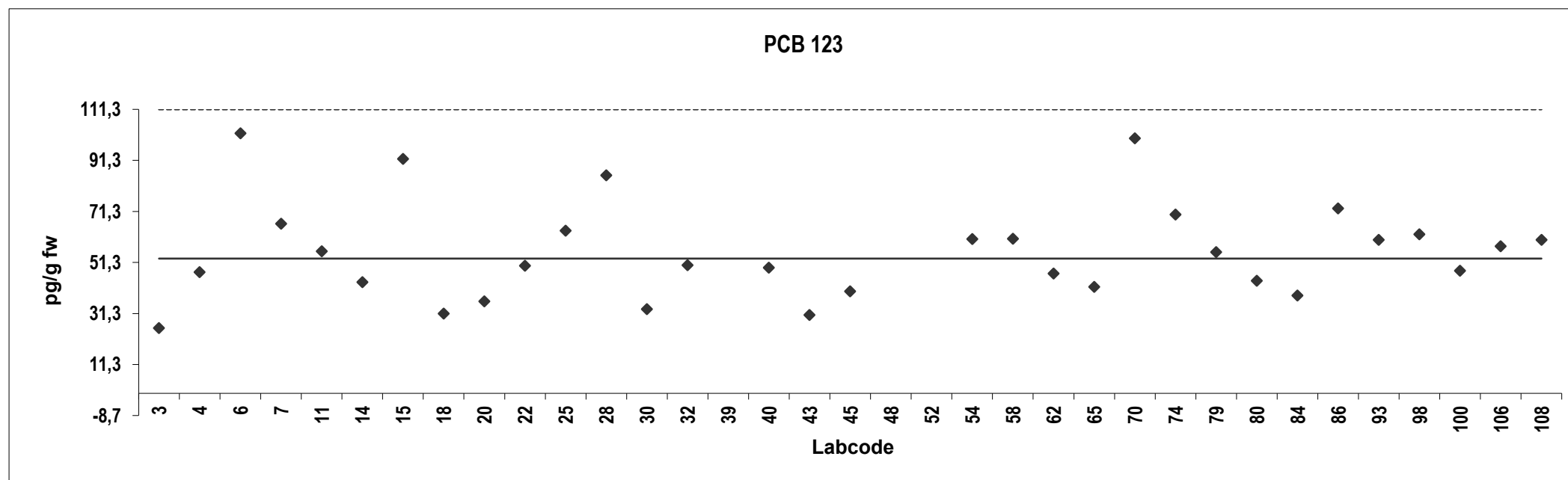
Consensus statistics	
Consensus median, pg/g	5070
Median all values pg/g	5070
Consensus mean, pg/g	5125
Standard deviation, pg/g	822
Relative standard deviation, %	16
No. of values reported	35
No. of values removed	0
No. of reported non-detects	0



Fish oil
Congener: PCB 123

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	26	-2,6				
4	48	-0,50				
6	102	4,7				
7	67	1,3				
11	56	0,27				
14	44	-0,87				
15	92	3,7				
18	31	-2,0				
20	36	-1,6				
22	50	-0,26				
25	64	1,0				
28	85	3,1	ND			
30	33	-1,9				
32	50	-0,24				
39	204	14	Outlier			
40	49	-0,33				
43	31	-2,1				
45	40	-1,2				
48	1300	118	Outlier			
52	194	13	Outlier			
54	61	0,73				
58	61	0,74				
62	47	-0,55				
65	42	-1,0				
70	100	4,5	ND			
74	70	1,6				
79	55	0,24				
80	44	-0,82				
84	38	-1,4				
86	72	1,9				
93	60	0,70				
98	62	0,90				
100	48	-0,46				
106	58	0,45				
108	60	0,69				

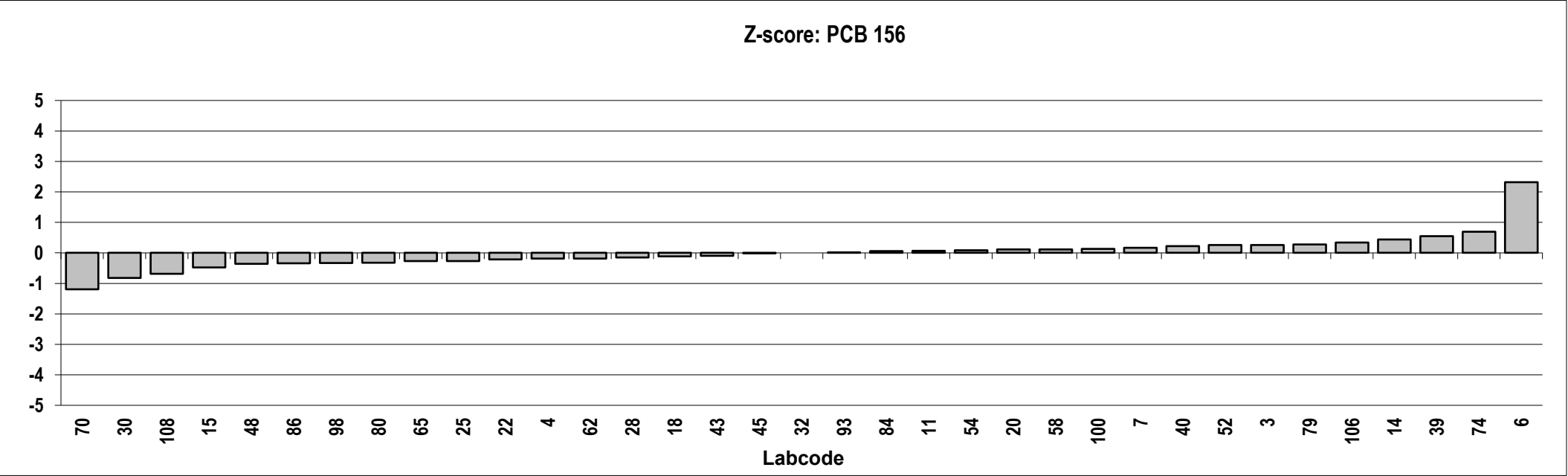
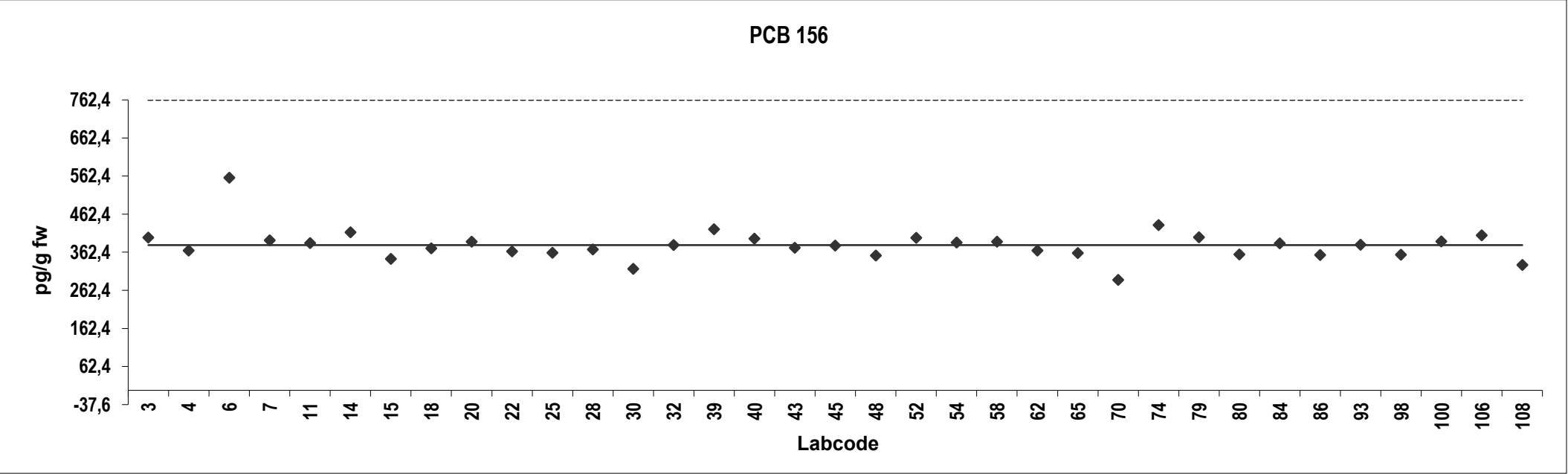
Consensus statistics	
Consensus median, pg/g	53
Median all values pg/g	56
Consensus mean, pg/g	56
Standard deviation, pg/g	19
Relative standard deviation, %	35
No. of values reported	35
No. of values removed	3
No. of reported non-detects	2



Fish oil
Congener: PCB 156

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	401	0,26				
4	367	-0,19				
6	558	2,3				
7	394	0,17				
11	386	0,067				
14	415	0,44				
15	345	-0,48				
18	372	-0,11				
20	390	0,12				
22	365	-0,21				
25	361	-0,26				
28	370	-0,15				
30	319	-0,82				
32	381	0,0000				
39	423	0,55				
40	398	0,22				
43	374	-0,094				
45	380	-0,016				
48	354	-0,36				
52	401	0,25				
54	388	0,089				
58	390	0,12				
62	367	-0,19				
65	361	-0,27				
70	290	-1,2				
74	434	0,69				
79	402	0,27				
80	357	-0,32				
84	386	0,057				
86	355	-0,34				
93	382	0,010				
98	356	-0,33				
100	391	0,13				
106	407	0,34				
108	329	-0,68				

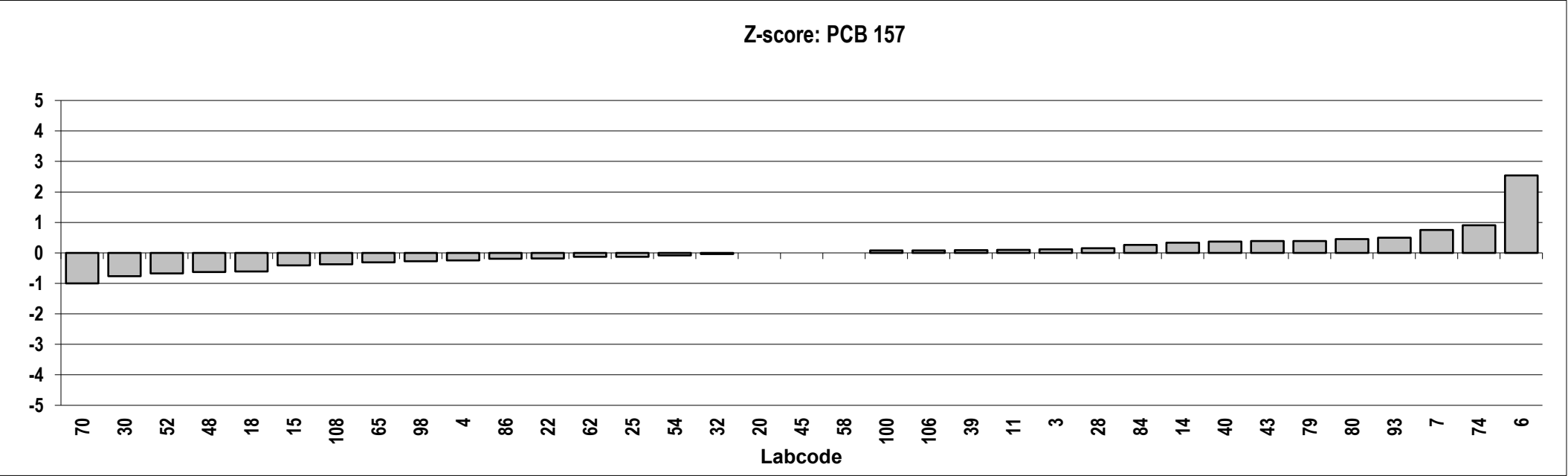
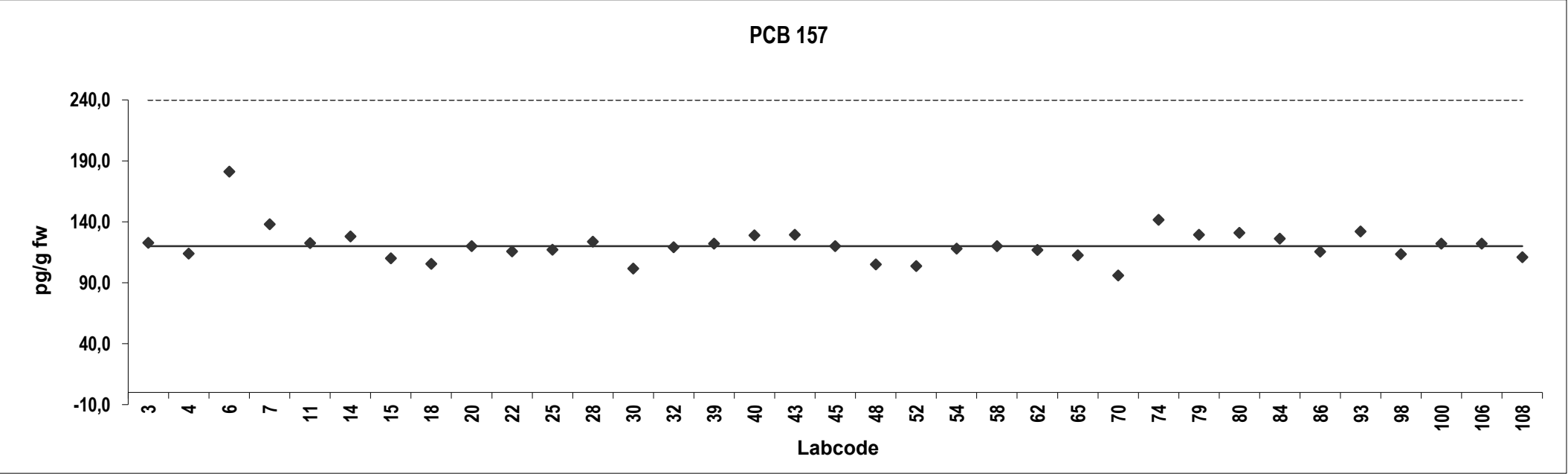
Consensus statistics	
Consensus median, pg/g	381
Median all values pg/g	381
Consensus mean, pg/g	381
Standard deviation, pg/g	42
Relative standard deviation, %	11
No. of values reported	35
No. of values removed	0
No. of reported non-detects	0



Fish oil
Congener: PCB 157

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	123	0,12				
4	114	-0,25				
6	181	2,5				
7	138	0,75				
11	122	0,10				
14	128	0,33				
15	110	-0,41				
18	105	-0,61				
20	120	0,0000				
22	116	-0,18				
25	117	-0,12				
28	124	0,15				
30	102	-0,77				
32	119	-0,034				
39	122	0,085				
40	129	0,38				
43	129	0,39				
45	120	0,0000				
48	105	-0,63				
52	104	-0,68				
54	118	-0,083				
58	120	0,0000				
62	117	-0,13				
65	112	-0,31				
70	96	-1,0				
74	142	0,90				
79	129	0,39				
80	131	0,45				
84	126	0,26				
86	115	-0,19				
93	132	0,50				
98	113	-0,28				
100	122	0,083				
106	122	0,083				
108	111	-0,38				

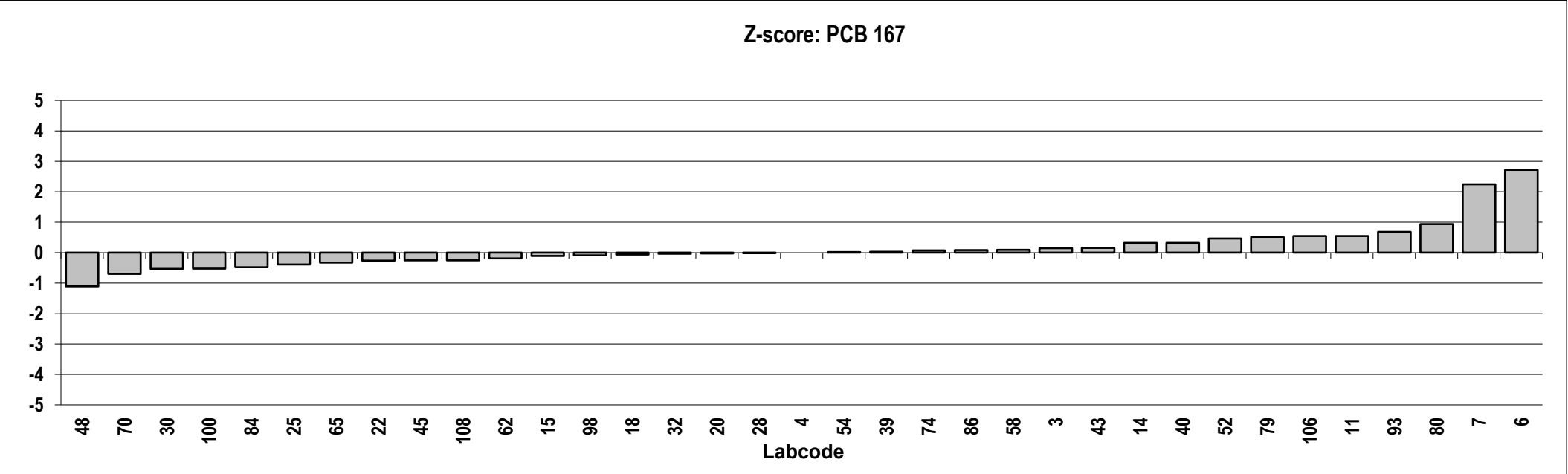
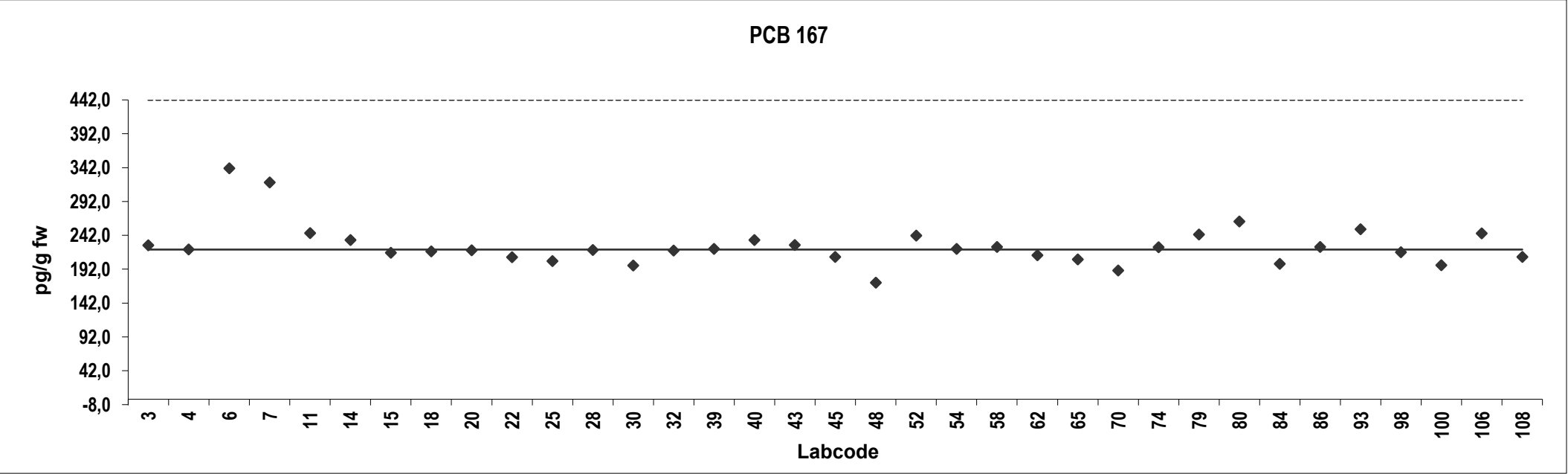
Consensus statistics	
Consensus median, pg/g	120
Median all values pg/g	120
Consensus mean, pg/g	121
Standard deviation, pg/g	14
Relative standard deviation, %	12
No. of values reported	35
No. of values removed	0
No. of reported non-detects	0



Fish oil
Congener: PCB 167

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	227	0,14				
4	221	0,0000				
6	341	2,7				
7	320	2,2				
11	245	0,55				
14	235	0,32				
15	216	-0,10				
18	218	-0,062				
20	220	-0,023				
22	210	-0,26				
25	204	-0,39				
28	220	-0,015				
30	197	-0,53				
32	219	-0,037				
39	222	0,026				
40	235	0,32				
43	228	0,15				
45	210	-0,25				
48	172	-1,1				
52	241	0,46				
54	222	0,023				
58	225	0,090				
62	213	-0,19				
65	207	-0,33				
70	190	-0,70				
74	224	0,075				
79	243	0,51				
80	262	0,93				
84	200	-0,48				
86	225	0,084				
93	251	0,68				
98	217	-0,087				
100	198	-0,52				
106	245	0,54				
108	210	-0,25				

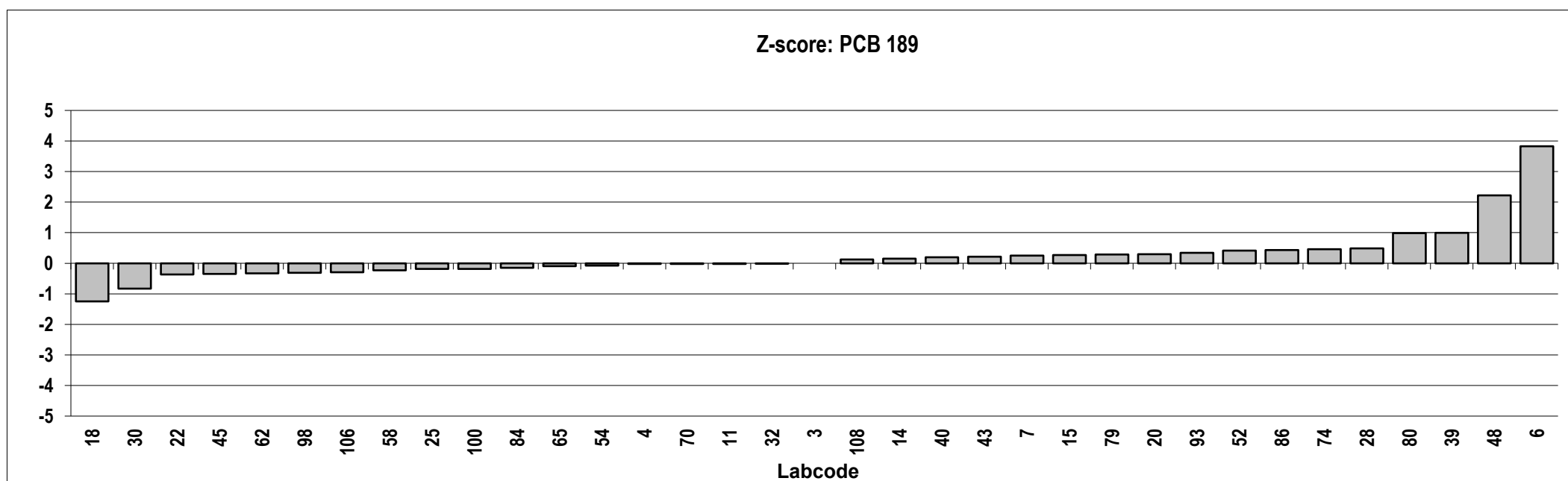
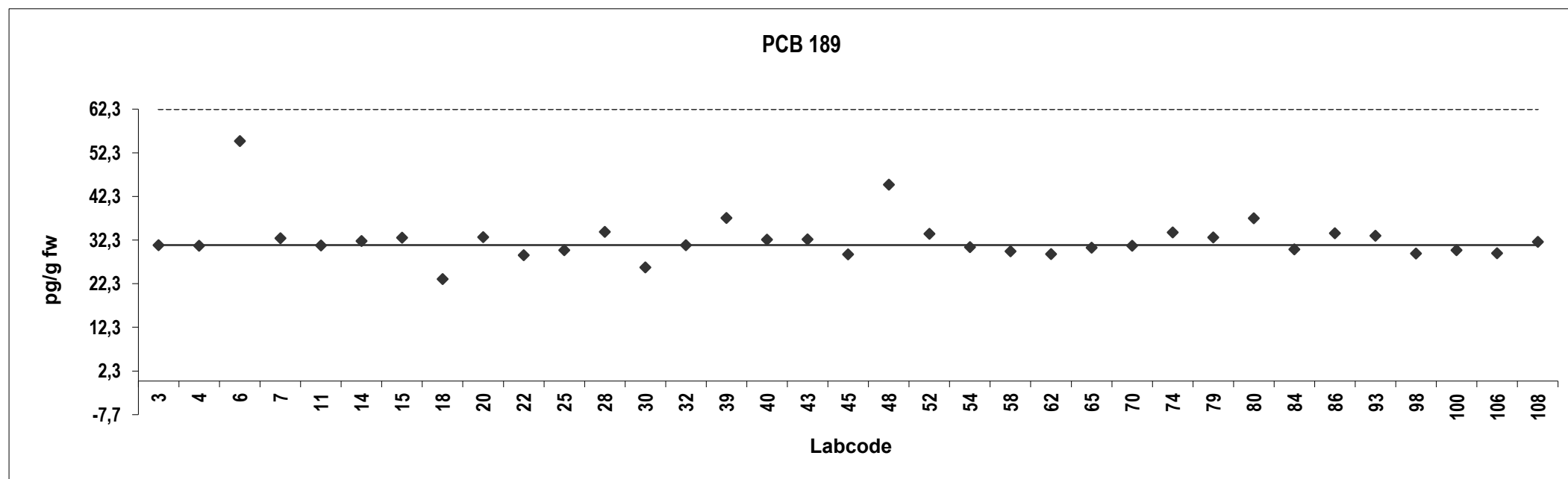
Consensus statistics	
Consensus median, pg/g	221
Median all values pg/g	221
Consensus mean, pg/g	227
Standard deviation, pg/g	32
Relative standard deviation, %	14
No. of values reported	35
No. of values removed	0
No. of reported non-detects	0



Fish oil
Congener: PCB 189

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	31	0,0000	ND			
4	31	-0,024				
6	55	3,8				
7	33	0,25				
11	31	-0,018				
14	32	0,15				
15	33	0,27				
18	23	-1,2				
20	33	0,30				
22	29	-0,37				
25	30	-0,18				
28	34	0,49				
30	26	-0,83				
32	31	-0,0046				
39	37	1,0				
40	32	0,20				
43	32	0,22				
45	29	-0,35				
48	45	2,2				
52	34	0,41				
54	31	-0,072				
58	30	-0,23				
62	29	-0,33				
65	31	-0,095				
70	31	-0,024				
74	34	0,46				
79	33	0,29				
80	37	0,98				
84	30	-0,15				
86	34	0,43				
93	33	0,35				
98	29	-0,31				
100	30	-0,18				
106	29	-0,30				
108	32	0,12				

Consensus statistics	
Consensus median, pg/g	31
Median all values pg/g	31
Consensus mean, pg/g	32
Standard deviation, pg/g	5,3
Relative standard deviation, %	16
No. of values reported	35
No. of values removed	0
No. of reported non-detects	1

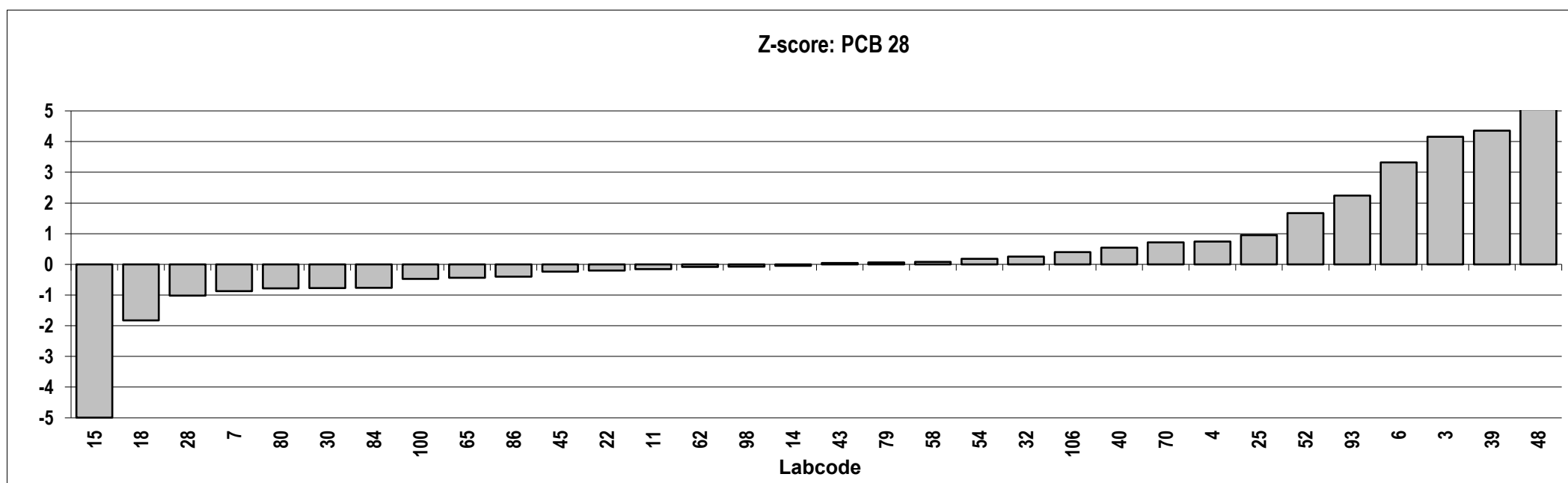
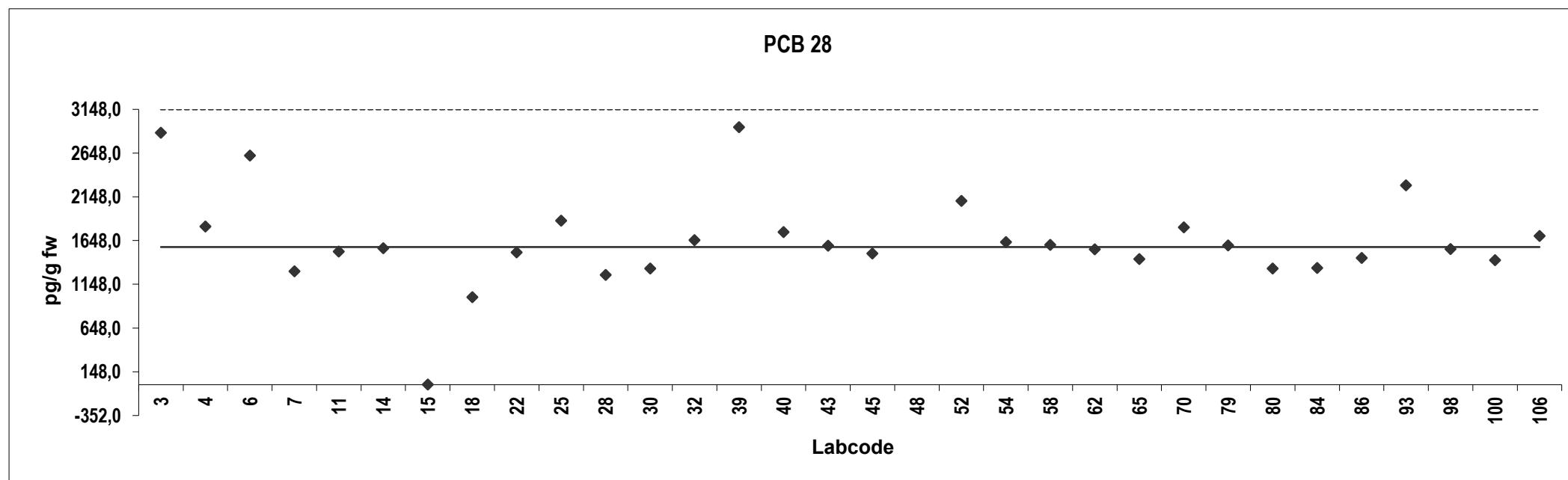


Fish oil
Congener: PCB 28

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	2881	4,2				
4	1809	0,75				
6	2620	3,3				
7	1298	-0,88				
11	1524	-0,16				
14	1560	-0,044				
15	1,2	-5,0				
18	1000	-1,8	ND			
22	1512	-0,20				
25	1875	0,96				
28	1255	-1,0				
30	1329	-0,78				
32	1654	0,25				
39	2945	4,4				
40	1746	0,55				
43	1588	0,044				
45	1500	-0,24				
48	3610	6,5	Outlier			
52	2100	1,7				
54	1630	0,18				
58	1600	0,083				
62	1549	-0,079				
65	1436	-0,44				
70	1800	0,72				
79	1594	0,063				
80	1329	-0,78				
84	1334	-0,76				
86	1449	-0,40				
93	2280	2,2				
98	1551	-0,072				
100	1425	-0,47				
106	1700	0,40				

Consensus statistics

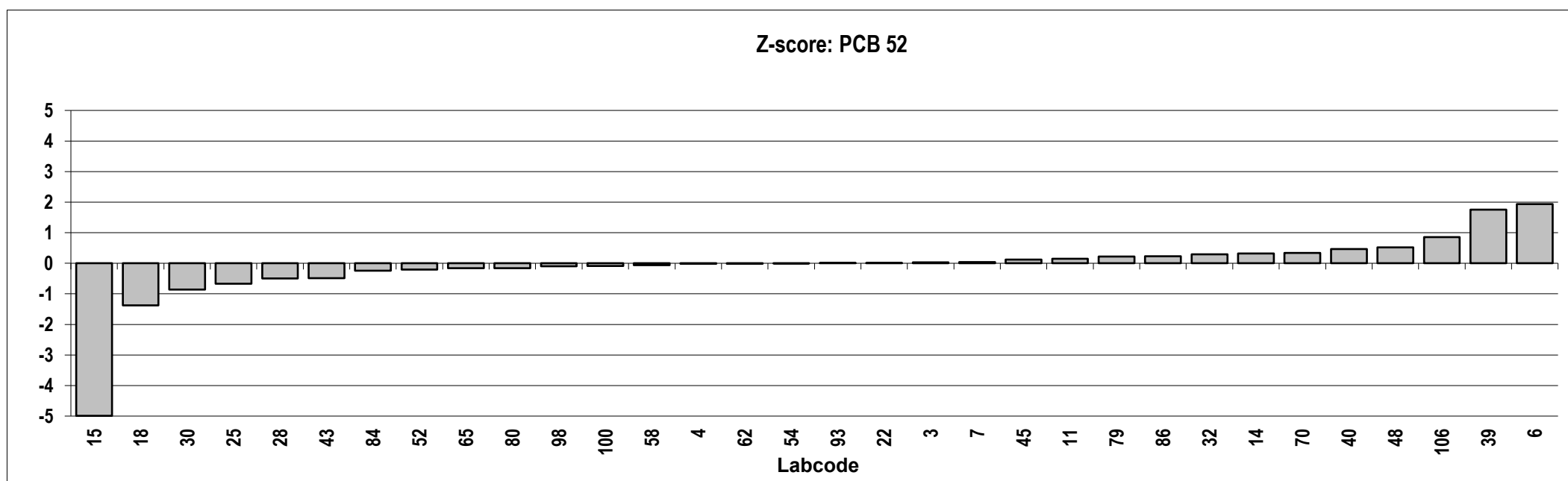
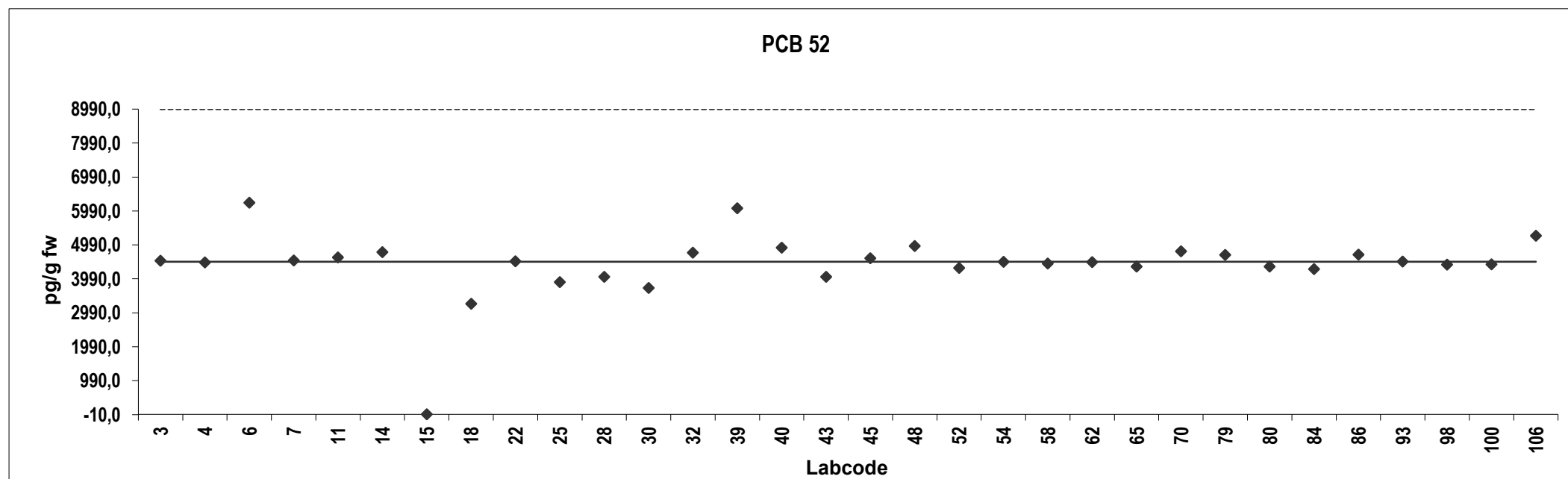
Consensus median, pg/g	1574
Median all values pg/g	1574
Consensus mean, pg/g	1641
Standard deviation, pg/g	542
Relative standard deviation, %	33
No. of values reported	32
No. of values removed	1
No. of reported non-detects	1



Fish oil
Congener: PCB 52

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	4524	0,032				
4	4478	-0,019				
6	6231	1,9				
7	4528	0,037				
11	4624	0,14				
14	4780	0,32				
15	4,4	-5,0				
18	3260	-1,4				
22	4507	0,013				
25	3896	-0,67				
28	4050	-0,50				
30	3723	-0,86				
32	4758	0,29				
39	6071	1,8				
40	4910	0,46				
43	4052	-0,49				
45	4600	0,12				
48	4960	0,52				
52	4311	-0,21				
54	4490	-0,0056				
58	4440	-0,061				
62	4480	-0,017				
65	4350	-0,16				
70	4800	0,34				
79	4696	0,22				
80	4351	-0,16				
84	4279	-0,24				
86	4700	0,23				
93	4500	0,0056				
98	4407	-0,098				
100	4416	-0,088				
106	5260	0,85				

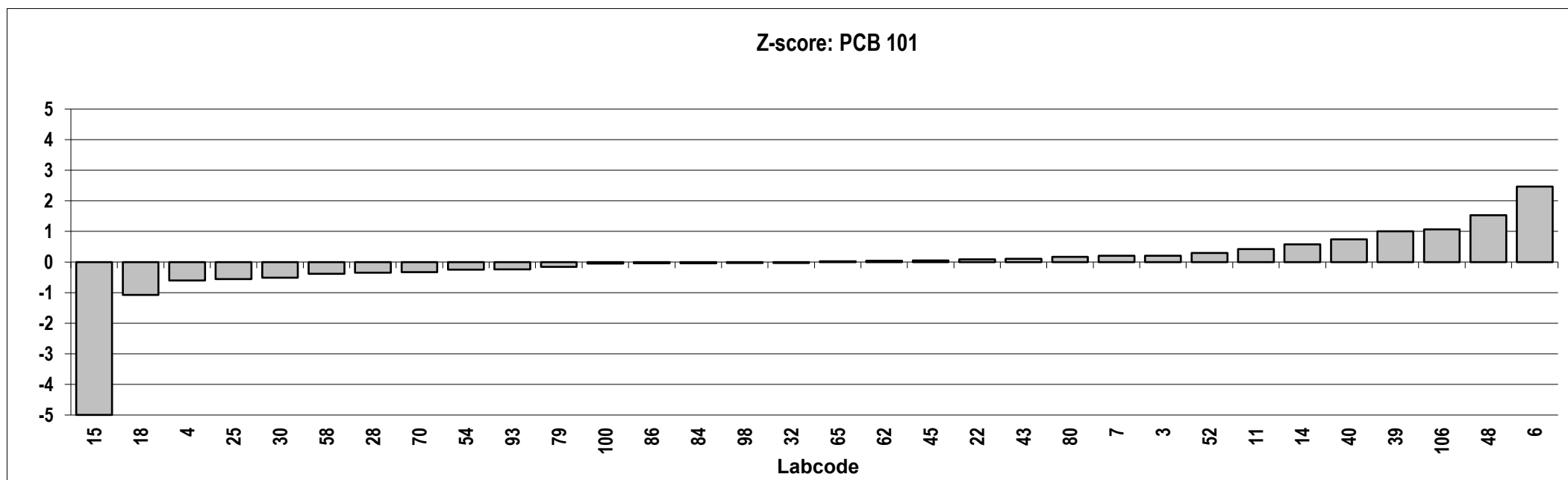
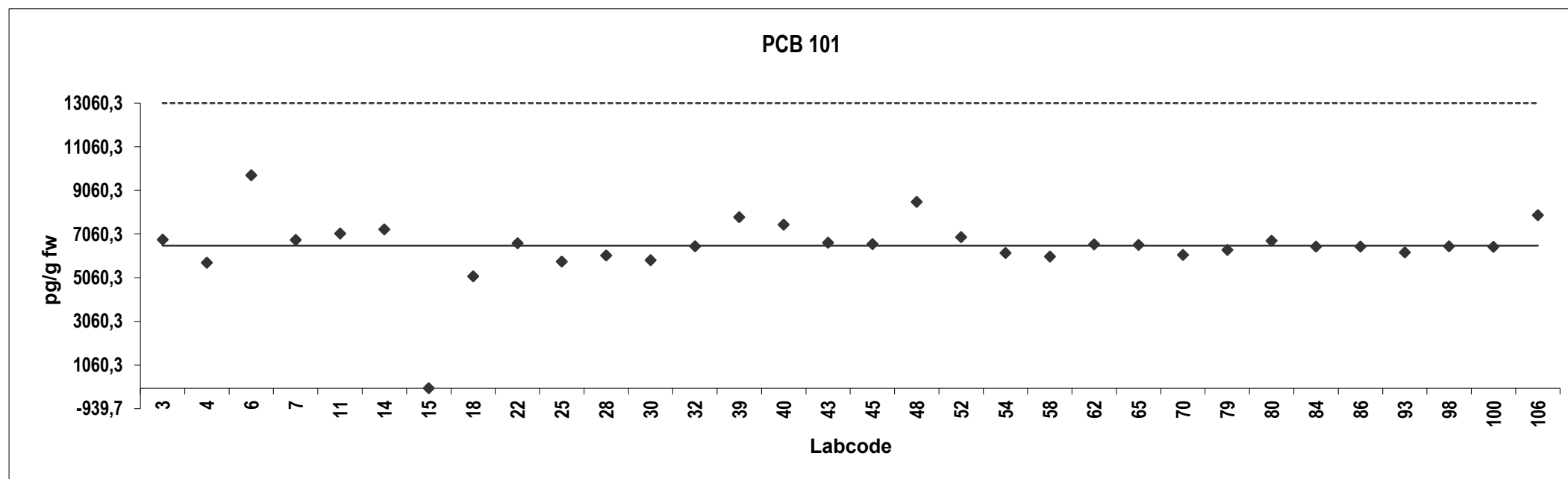
Consensus statistics	
Consensus median, pg/g	4495
Median all values pg/g	4495
Consensus mean, pg/g	4420
Standard deviation, pg/g	981
Relative standard deviation, %	22
No. of values reported	32
No. of values removed	0
No. of reported non-detects	0



Fish oil
Congener: PCB 101

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	6804	0,21				
4	5748	-0,60				
6	9753	2,5				
7	6797	0,20				
11	7079	0,42				
14	7280	0,57				
15	4,5	-5,0				
18	5130	-1,1				
22	6644	0,087				
25	5801	-0,56				
28	6075	-0,35				
30	5861	-0,51				
32	6495	-0,027				
39	7842	1,0				
40	7497	0,74				
43	6669	0,11				
45	6600	0,053				
48	8530	1,5				
52	6914	0,29				
54	6200	-0,25				
58	6030	-0,38				
62	6589	0,045				
65	6565	0,027				
70	6100	-0,33				
79	6329	-0,15				
80	6751	0,17				
84	6483	-0,036				
86	6482	-0,037				
93	6220	-0,24				
98	6495	-0,027				
100	6472	-0,045				
106	7920	1,1				

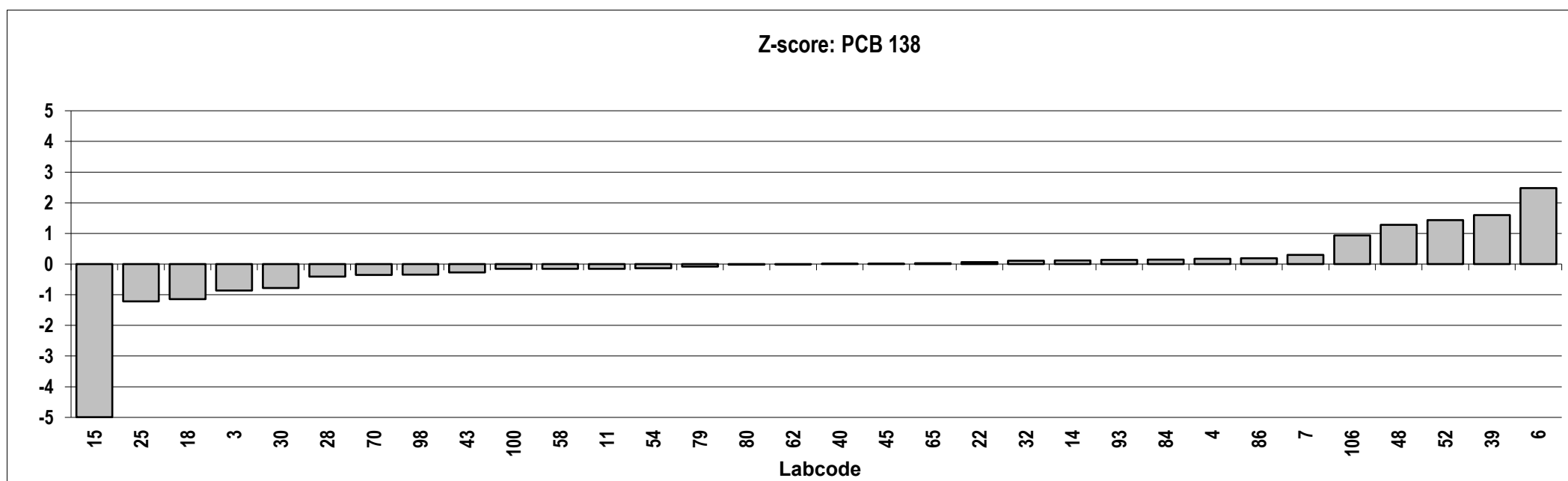
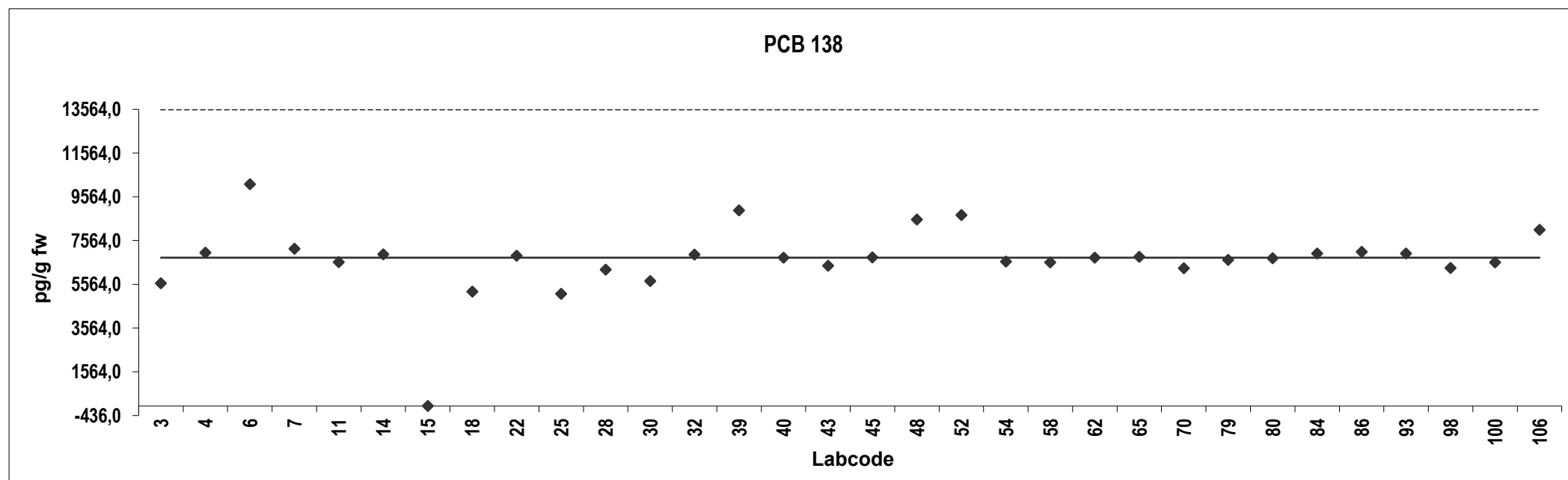
Consensus statistics	
Consensus median, pg/g	6530
Median all values pg/g	6530
Consensus mean, pg/g	6505
Standard deviation, pg/g	1473
Relative standard deviation, %	23
No. of values reported	32
No. of values removed	0
No. of reported non-detects	0



Fish oil
Congener: PCB 138

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	5607	-0,87				
4	7010	0,17				
6	10143	2,5				
7	7183	0,30				
11	6575	-0,15				
14	6940	0,12				
15	5,5	-5,0				
18	5230	-1,1				
22	6866	0,062				
25	5130	-1,2				
28	6230	-0,41				
30	5717	-0,79				
32	6927	0,11				
39	8943	1,6				
40	6785	0,0021				
43	6410	-0,27				
45	6800	0,013				
48	8520	1,3				
52	8730	1,4				
54	6600	-0,13				
58	6570	-0,16				
62	6779	-0,0021				
65	6818	0,026				
70	6300	-0,36				
79	6675	-0,079				
80	6754	-0,021				
84	6973	0,14				
86	7043	0,19				
93	6970	0,14				
98	6310	-0,35				
100	6568	-0,16				
106	8050	0,93				

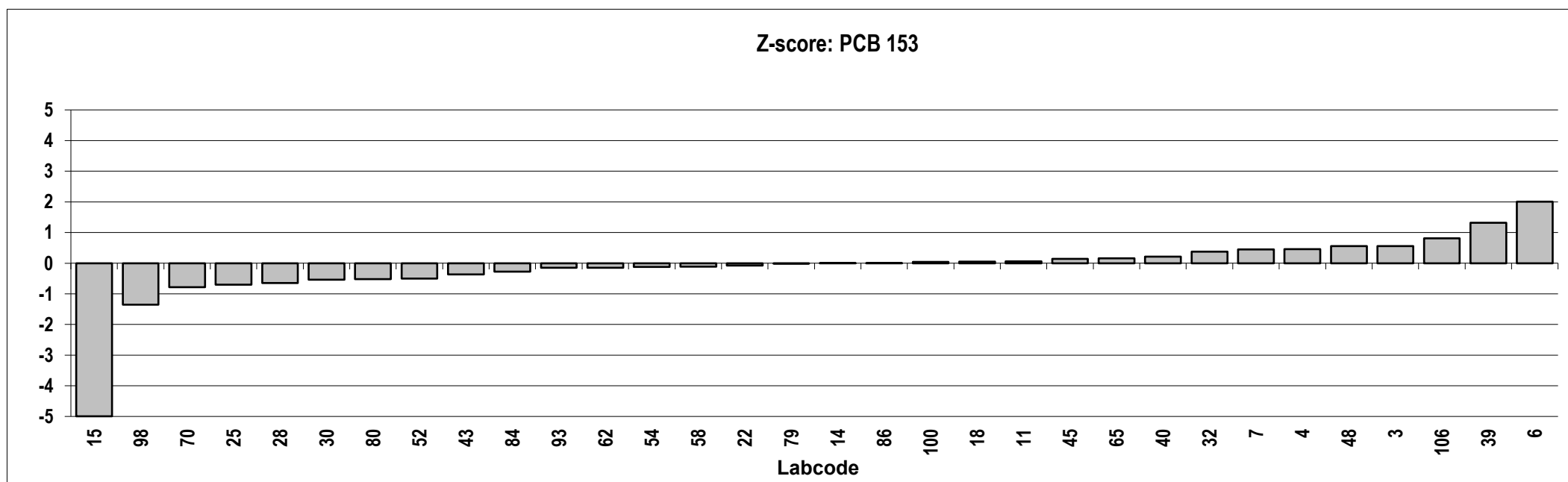
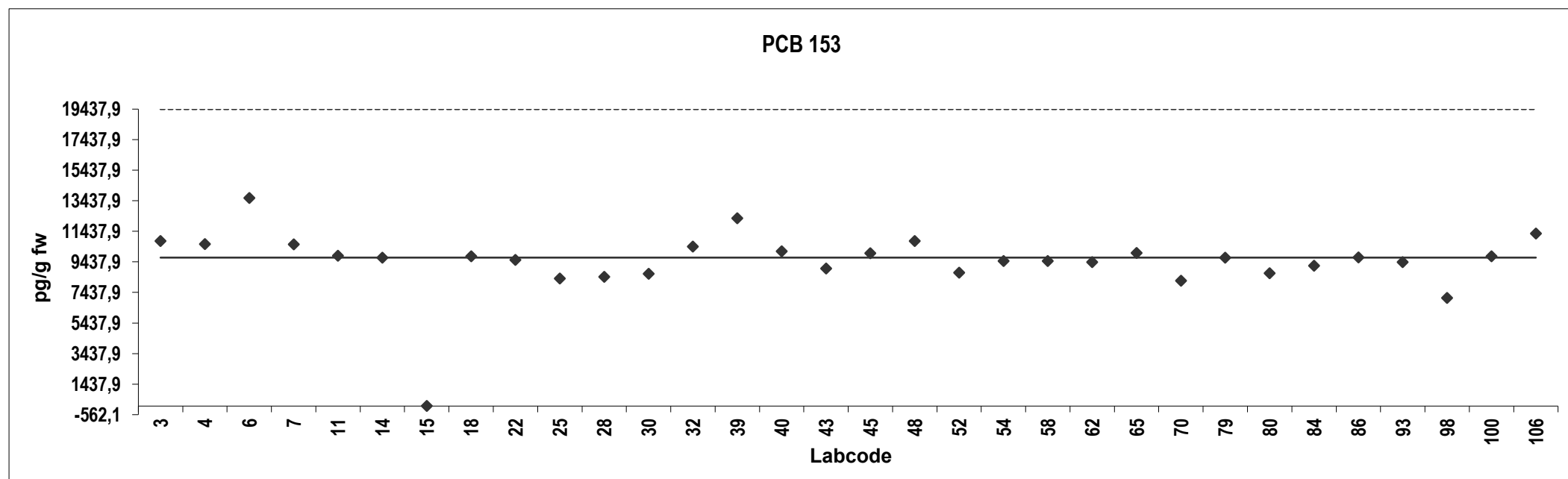
Consensus statistics	
Consensus median, pg/g	6782
Median all values pg/g	6782
Consensus mean, pg/g	6693
Standard deviation, pg/g	1598
Relative standard deviation, %	24
No. of values reported	32
No. of values removed	0
No. of reported non-detects	0



Fish oil
Congener: PCB 153

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	10801	0,56				
4	10610	0,46				
6	13615	2,0				
7	10584	0,45				
11	9835	0,060				
14	9720	0,00054				
15	8,3	-5,0				
18	9810	0,047				
22	9564	-0,080				
25	8348	-0,71				
28	8458	-0,65				
30	8668	-0,54				
32	10443	0,37				
39	12287	1,3				
40	10125	0,21				
43	8999	-0,37				
45	10000	0,14				
48	10800	0,56				
52	8739	-0,50				
54	9490	-0,12				
58	9500	-0,11				
62	9430	-0,15				
65	10029	0,16				
70	8200	-0,78				
79	9718	-0,00054				
80	8702	-0,52				
84	9181	-0,28				
86	9736	0,0089				
93	9420	-0,15				
98	7078	-1,4				
100	9804	0,044				
106	11300	0,81				

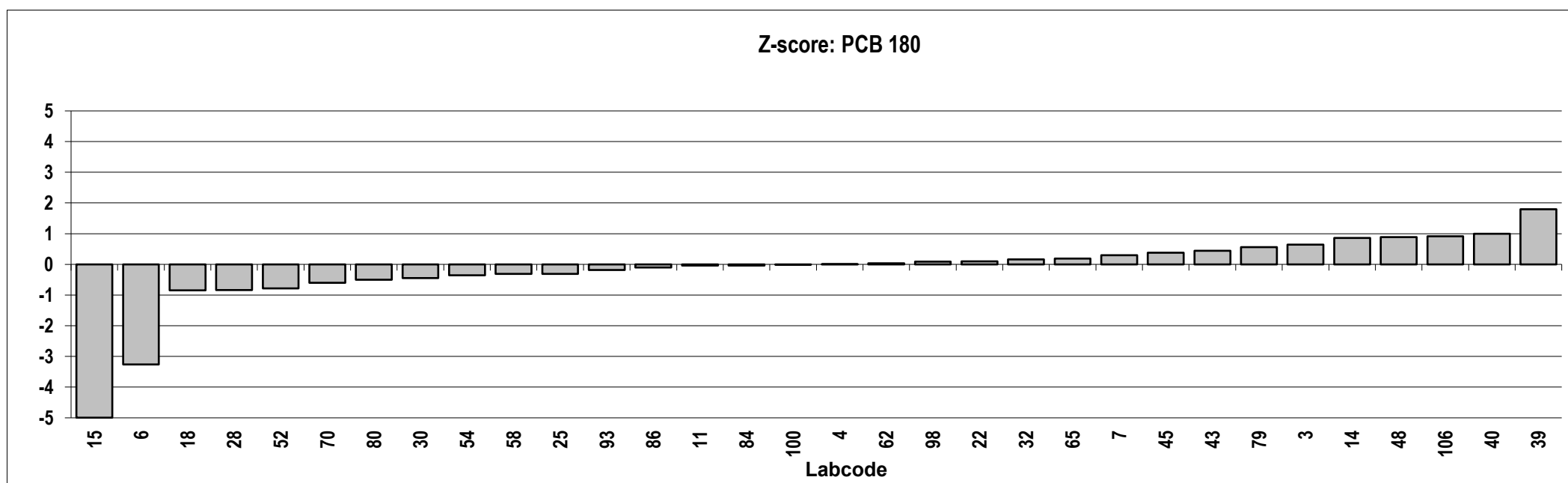
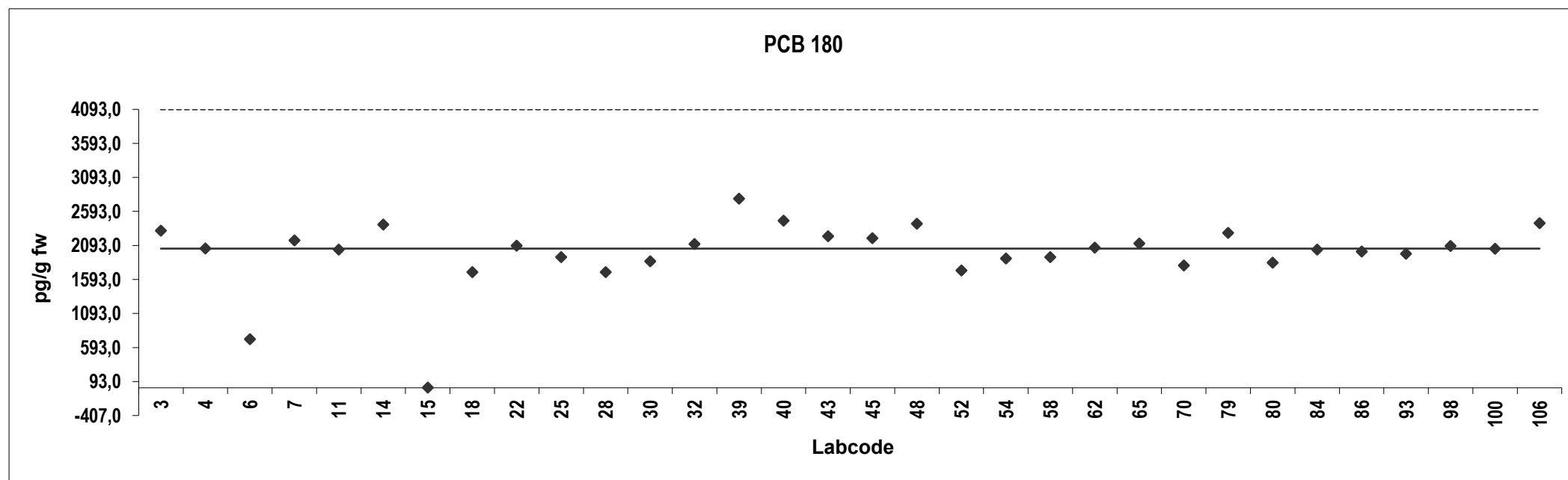
Consensus statistics	
Consensus median, pg/g	9719
Median all values pg/g	9719
Consensus mean, pg/g	9469
Standard deviation, pg/g	2112
Relative standard deviation, %	22
No. of values reported	32
No. of values removed	0
No. of reported non-detects	0



Fish oil
Congener: PCB 180

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	2311	0,65				
4	2050	0,0086				
6	713	-3,3				
7	2167	0,29				
11	2030	-0,040				
14	2400	0,86				
15	2,0	-5,0				
18	1700	-0,85				
22	2088	0,10				
25	1921	-0,31				
28	1702	-0,84				
30	1862	-0,45				
32	2112	0,16				
39	2782	1,8				
40	2456	1,0				
43	2227	0,44				
45	2200	0,38				
48	2410	0,89				
52	1725	-0,79				
54	1900	-0,36				
58	1920	-0,31				
62	2062	0,038				
65	2123	0,19				
70	1800	-0,60				
79	2276	0,56				
80	1841	-0,50				
84	2031	-0,038				
86	2003	-0,11				
93	1970	-0,19				
98	2083	0,090				
100	2043	-0,0086				
106	2420	0,91				

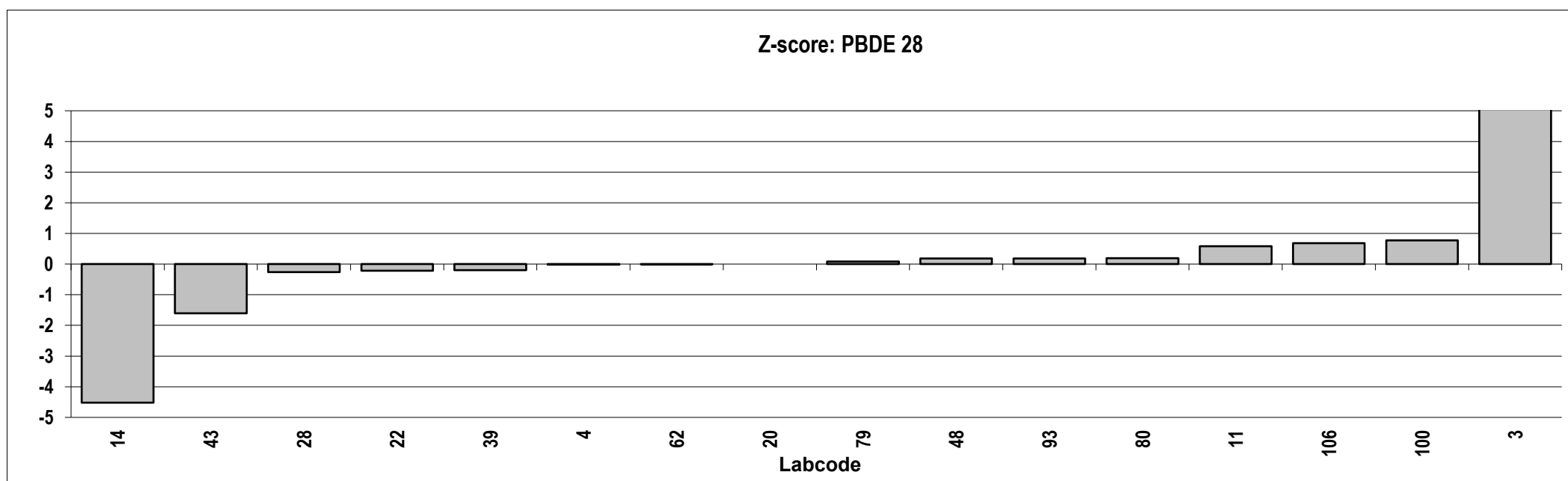
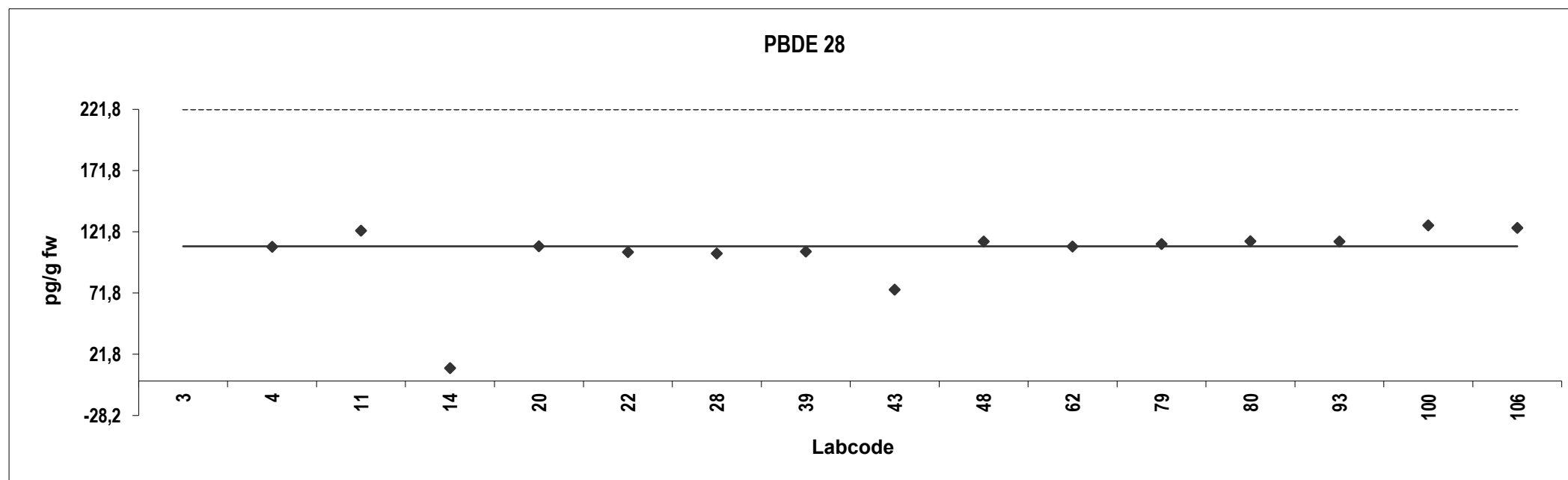
Consensus statistics	
Consensus median, pg/g	2047
Median all values pg/g	2047
Consensus mean, pg/g	1979
Standard deviation, pg/g	497
Relative standard deviation, %	25
No. of values reported	32
No. of values removed	0
No. of reported non-detects	0



Fish oil
Congener: PBDE 28

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	245	6,1	Outlier			
4	110	-0,018				
11	123	0,58				
14	11	-4,5				
20	110	0,0000				
22	105	-0,22				
28	104	-0,27				
39	106	-0,20				
43	75	-1,6				
48	114	0,18				
62	110	-0,0088				
79	112	0,084				
80	114	0,19				
93	114	0,18				
100	127	0,77				
106	125	0,68				

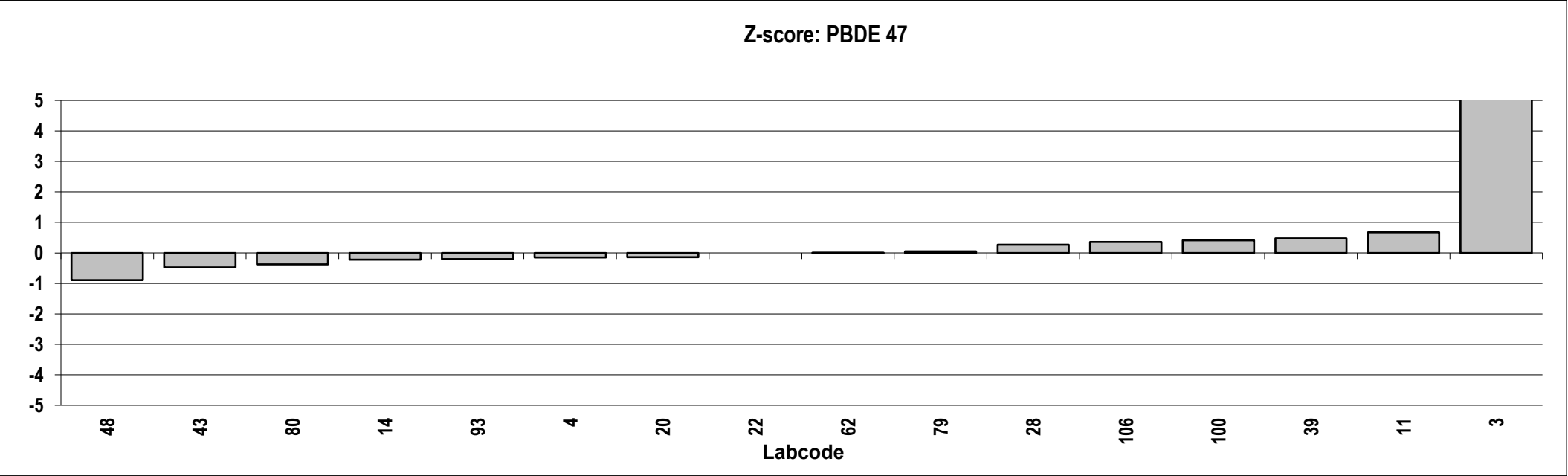
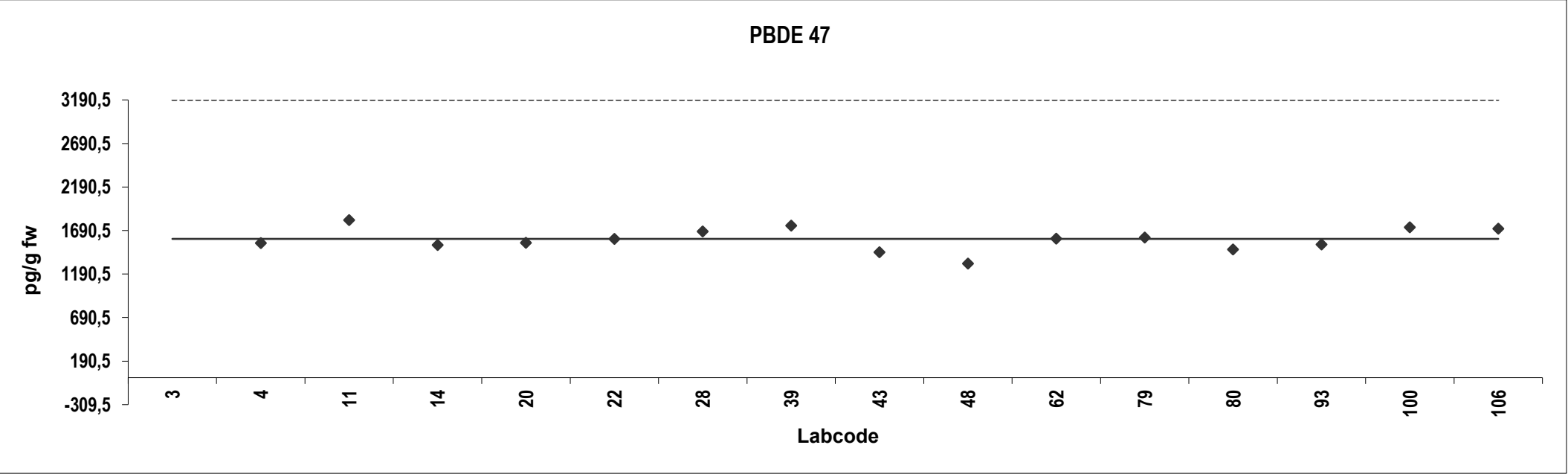
Consensus statistics	
Consensus median, pg/g	110
Median all values pg/g	111
Consensus mean, pg/g	104
Standard deviation, pg/g	29
Relative standard deviation, %	27
No. of values reported	16
No. of values removed	1
No. of reported non-detects	0



Fish oil
Congener: PBDE 47

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	3532	6,1	Outlier			
4	1546	-0,15				
11	1810	0,68				
14	1524	-0,22				
20	1550	-0,14				
22	1594	0,0000				
28	1679	0,27				
39	1746	0,48				
43	1442	-0,48				
48	1310	-0,89				
62	1596	0,0069				
79	1609	0,046				
80	1473	-0,38				
93	1530	-0,20				
100	1727	0,42				
106	1710	0,36				

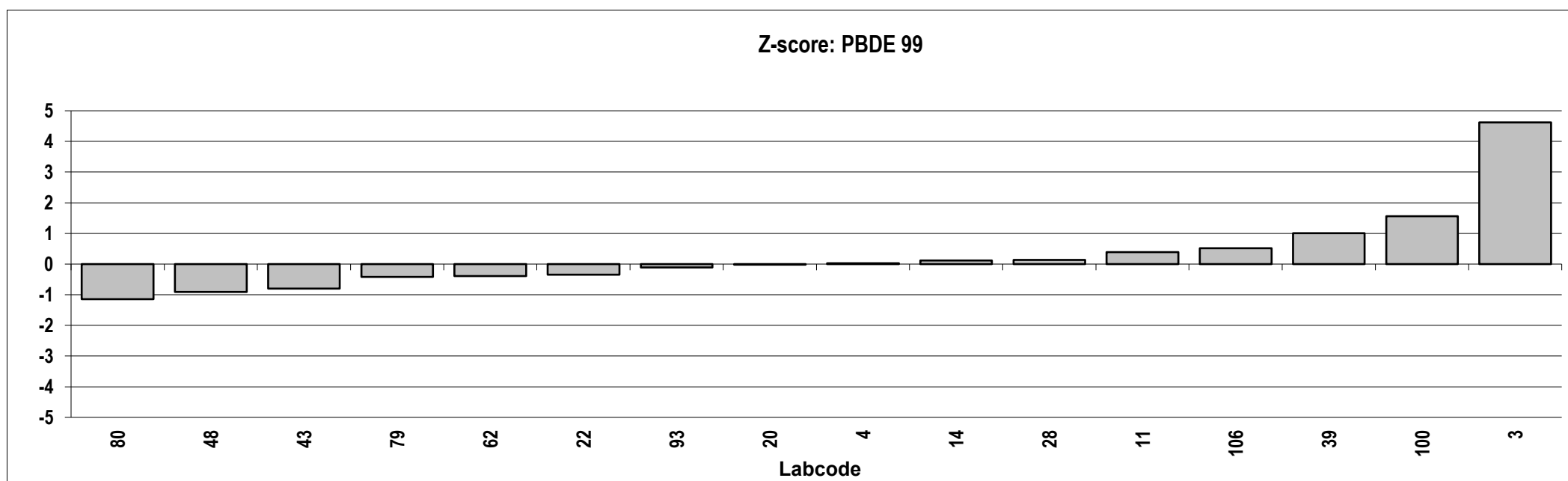
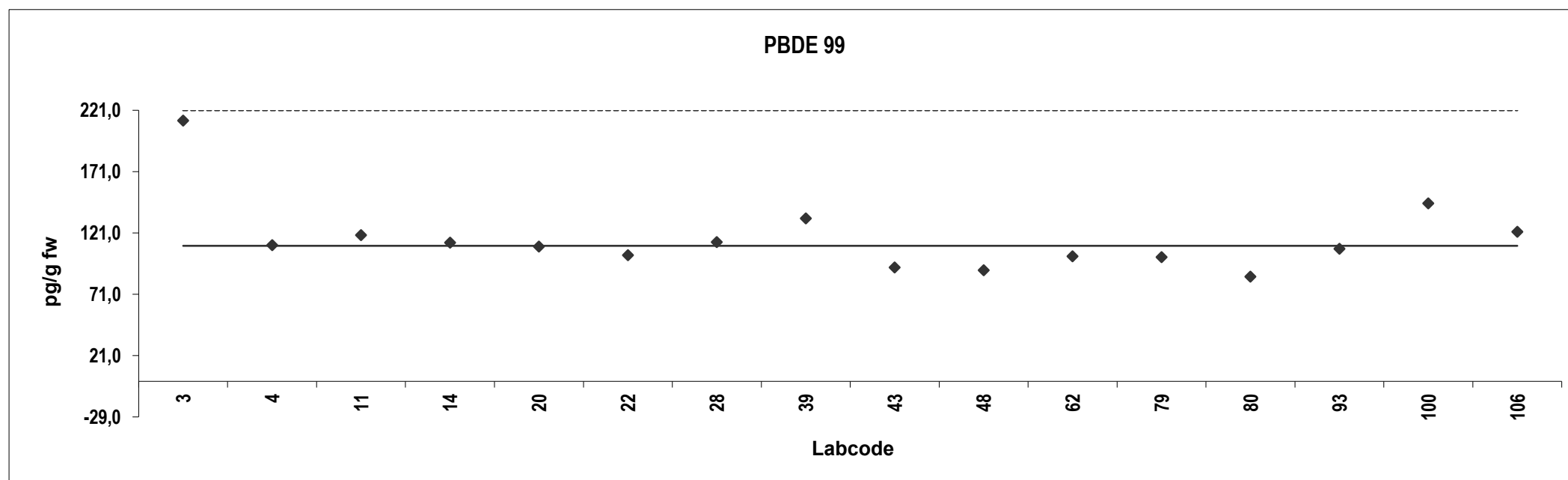
Consensus statistics	
Consensus median, pg/g	1594
Median all values pg/g	1595
Consensus mean, pg/g	1590
Standard deviation, pg/g	131
Relative standard deviation, %	8
No. of values reported	16
No. of values removed	1
No. of reported non-detects	0



Fish oil
Congener: PBDE 99

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	213	4,6				
4	111	0,023				
11	119	0,39				
14	113	0,11				
20	110	-0,023				
22	103	-0,35				
28	114	0,14				
39	133	1,0				
43	93	-0,80				
48	91	-0,90				
62	102	-0,39				
79	101	-0,42				
80	85	-1,1				
93	108	-0,11				
100	145	1,6				
106	122	0,52				

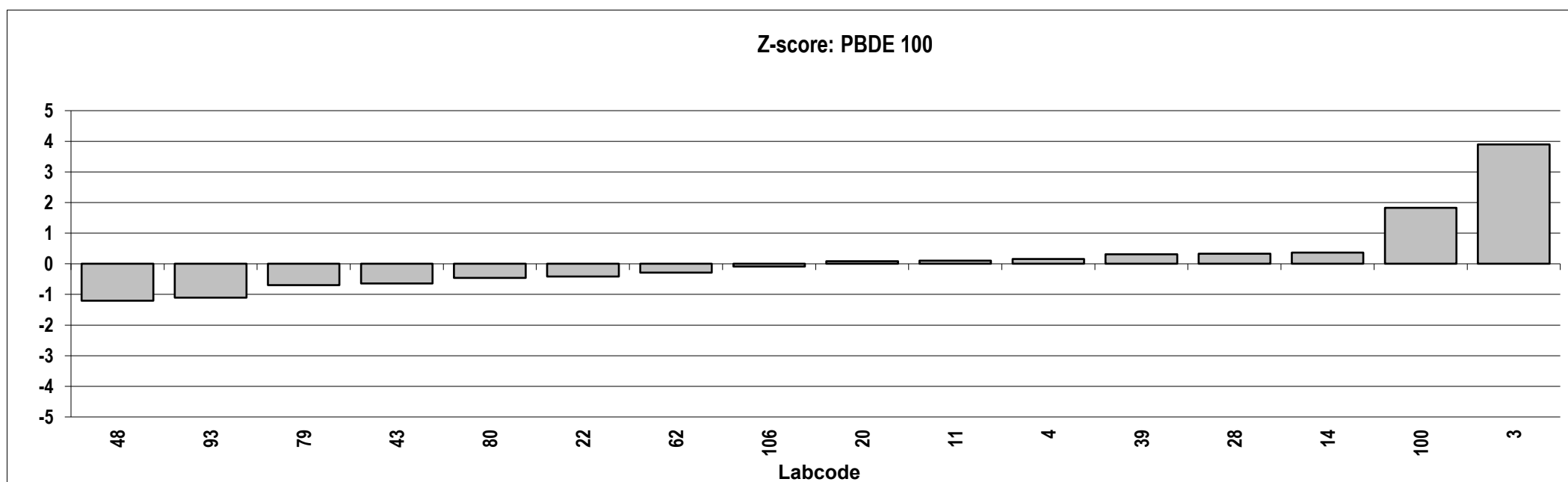
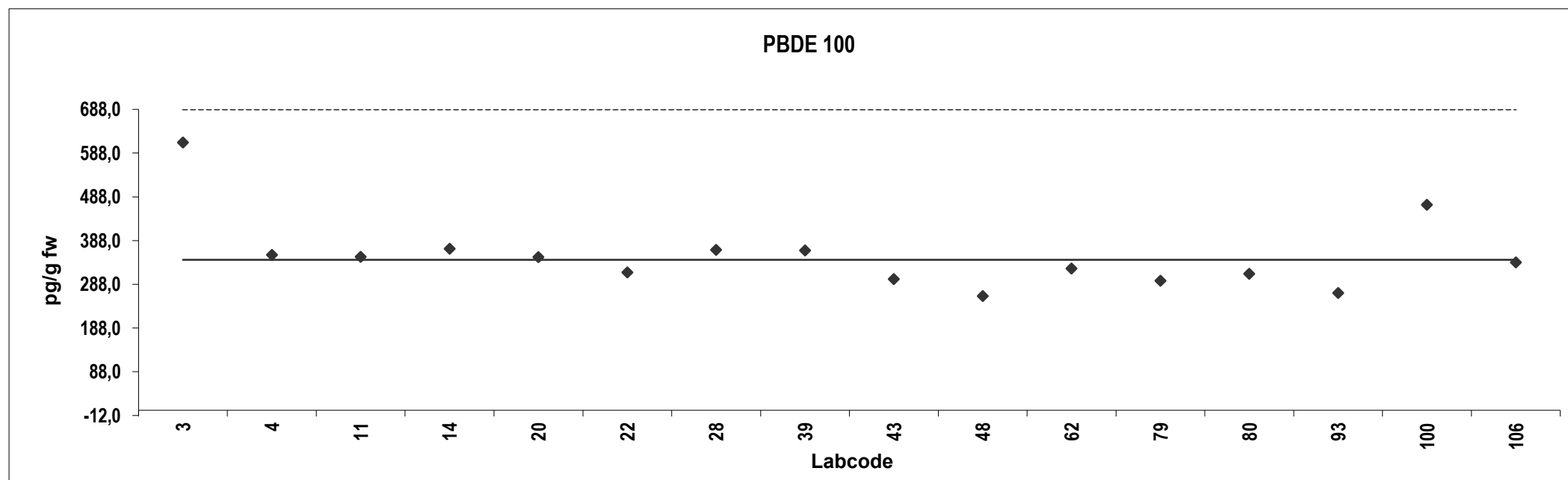
Consensus statistics	
Consensus median, pg/g	111
Median all values pg/g	111
Consensus mean, pg/g	116
Standard deviation, pg/g	30
Relative standard deviation, %	26
No. of values reported	16
No. of values removed	0
No. of reported non-detects	0



Fish oil
Congener: PBDE 100

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	612	3,9				
4	355	0,16				
11	351	0,10				
14	369	0,36				
20	350	0,087				
22	315	-0,42				
28	367	0,33				
39	365	0,31				
43	300	-0,64				
48	261	-1,2				
62	324	-0,29				
79	296	-0,69				
80	312	-0,46				
93	268	-1,1				
100	470	1,8				
106	338	-0,087				

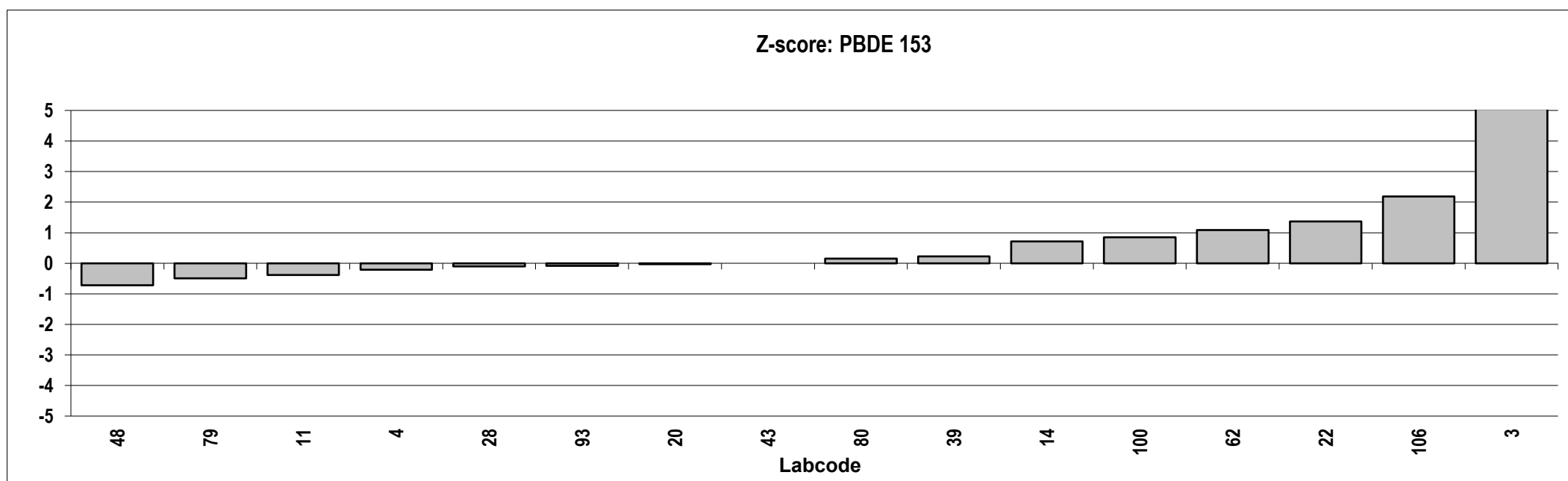
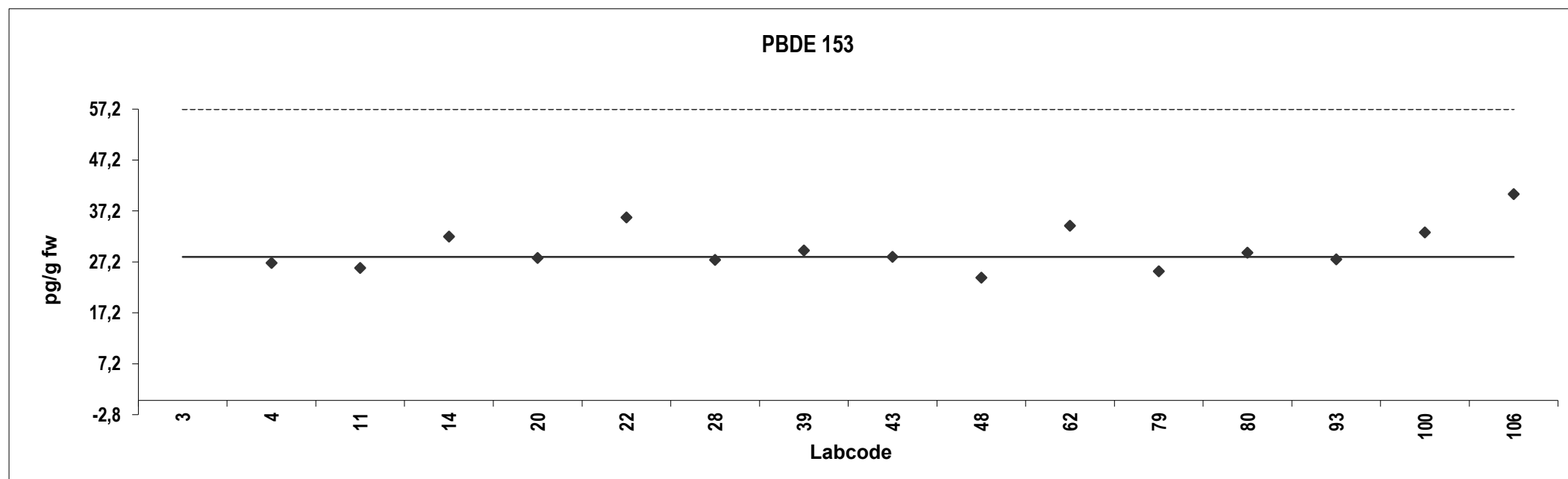
Consensus statistics	
Consensus median, pg/g	344
Median all values pg/g	344
Consensus mean, pg/g	353
Standard deviation, pg/g	85
Relative standard deviation, %	24
No. of values reported	16
No. of values removed	0
No. of reported non-detects	0



Fish oil
Congener: PBDE 153

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	58	5,3	Outlier			
4	27	-0,21				
11	26	-0,39				
14	32	0,71				
20	28	-0,033				
22	36	1,4				
28	28	-0,11				
39	29	0,23				
43	28	0,0000				
48	24	-0,72				
62	34	1,1				
79	25	-0,50				
80	29	0,15				
93	28	-0,086				
100	33	0,85				
106	41	2,2				

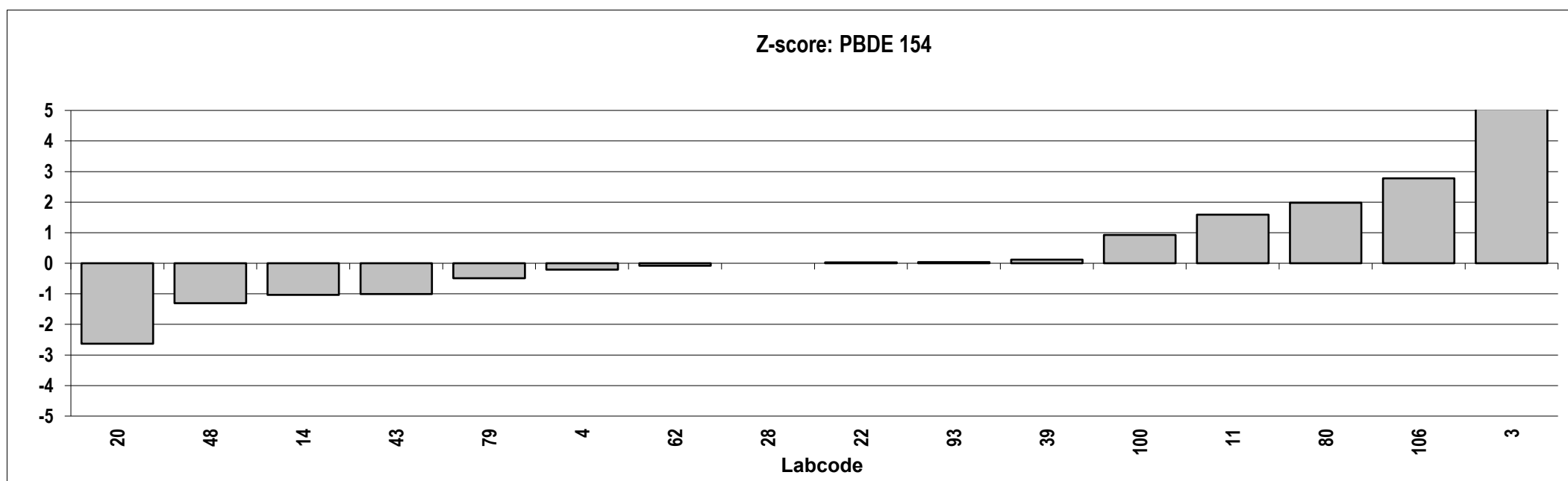
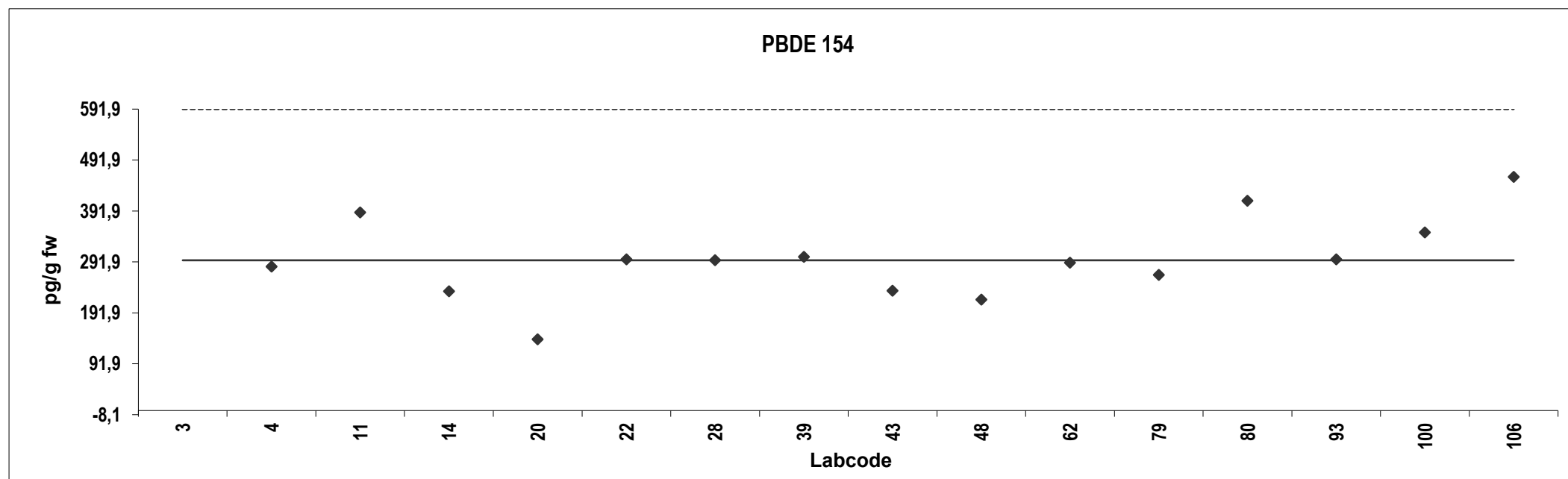
Consensus statistics	
Consensus median, pg/g	28
Median all values pg/g	29
Consensus mean, pg/g	30
Standard deviation, pg/g	4,5
Relative standard deviation, %	15
No. of values reported	16
No. of values removed	1
No. of reported non-detects	0



Fish oil
Congener: PBDE 154

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	707	7,0	Outlier			
4	283	-0,20				
11	389	1,6				
14	234	-1,0				
20	140	-2,6				
22	297	0,031				
28	295	0,0000				
39	302	0,12				
43	235	-1,0				
48	218	-1,3				
62	290	-0,079				
79	266	-0,49				
80	412	2,0				
93	297	0,033				
100	350	0,93				
106	459	2,8				

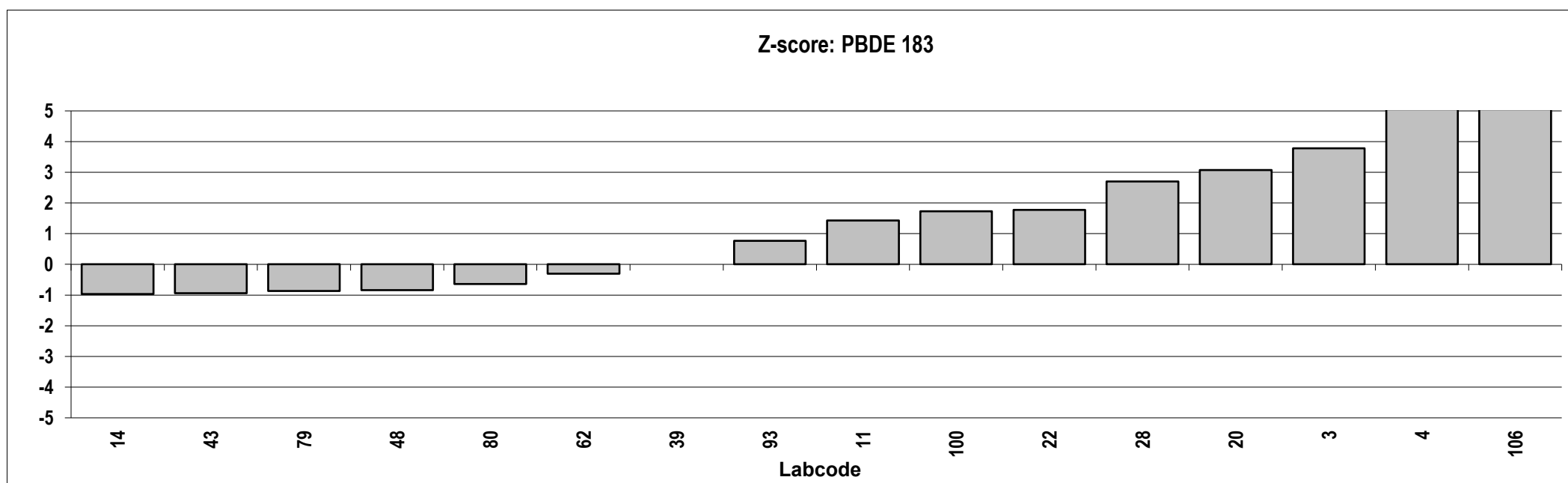
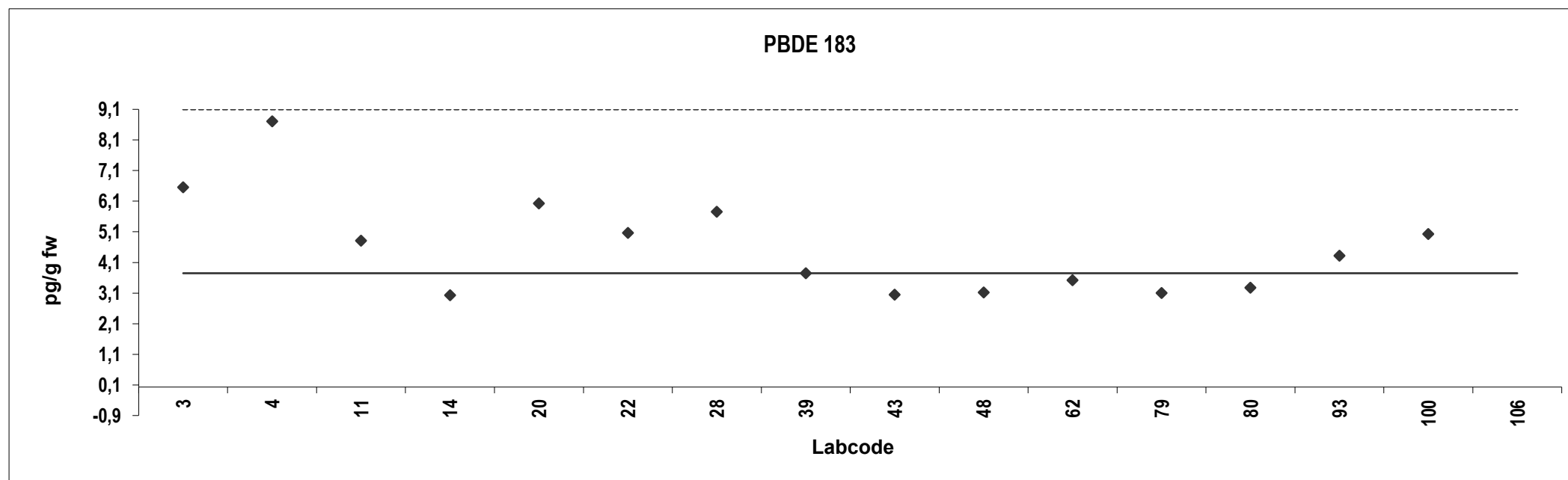
Consensus statistics	
Consensus median, pg/g	295
Median all values pg/g	296
Consensus mean, pg/g	298
Standard deviation, pg/g	80
Relative standard deviation, %	27
No. of values reported	16
No. of values removed	1
No. of reported non-detects	0



Fish oil
Congener: PBDE 183

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	6,5	3,8				
4	8,7	6,7				
11	4,8	1,4	ND			
14	3,0	-1,0	ND			
20	6,0	3,1	ND			
22	5,0	1,8				
28	5,7	2,7				
39	3,7	0,0000				
43	3,0	-0,94				
48	3,1	-0,84				
62	3,5	-0,31				
79	3,1	-0,87				
80	3,2	-0,64				
93	4,3	0,77				
100	5,0	1,7	ND			
106	64	81	Outlier			

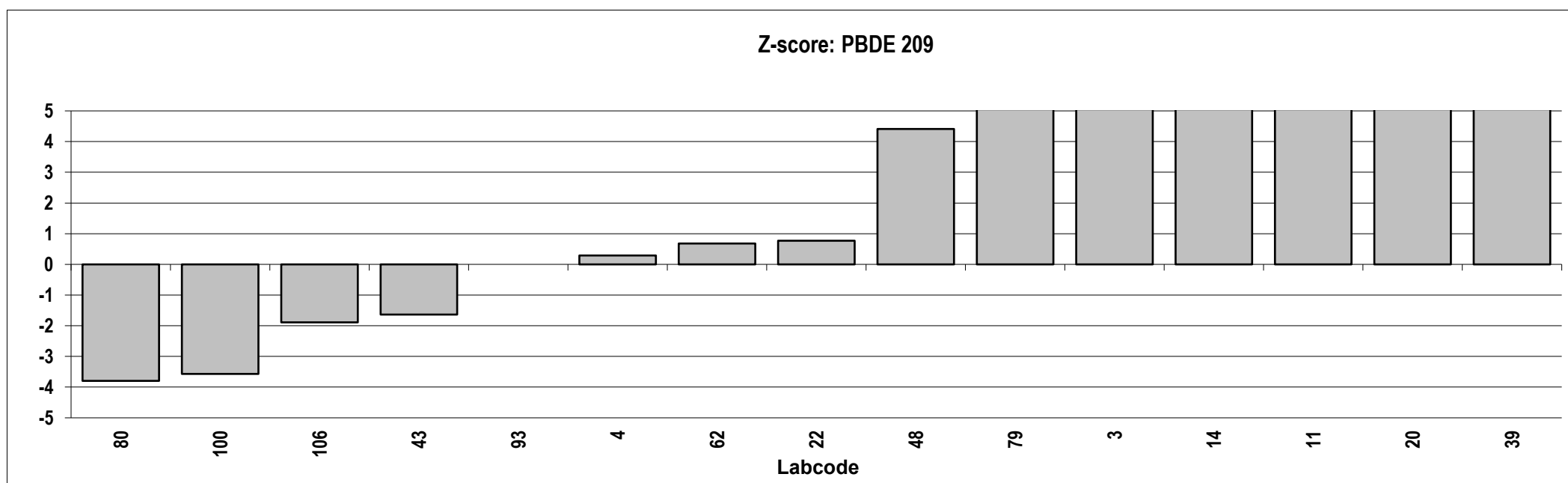
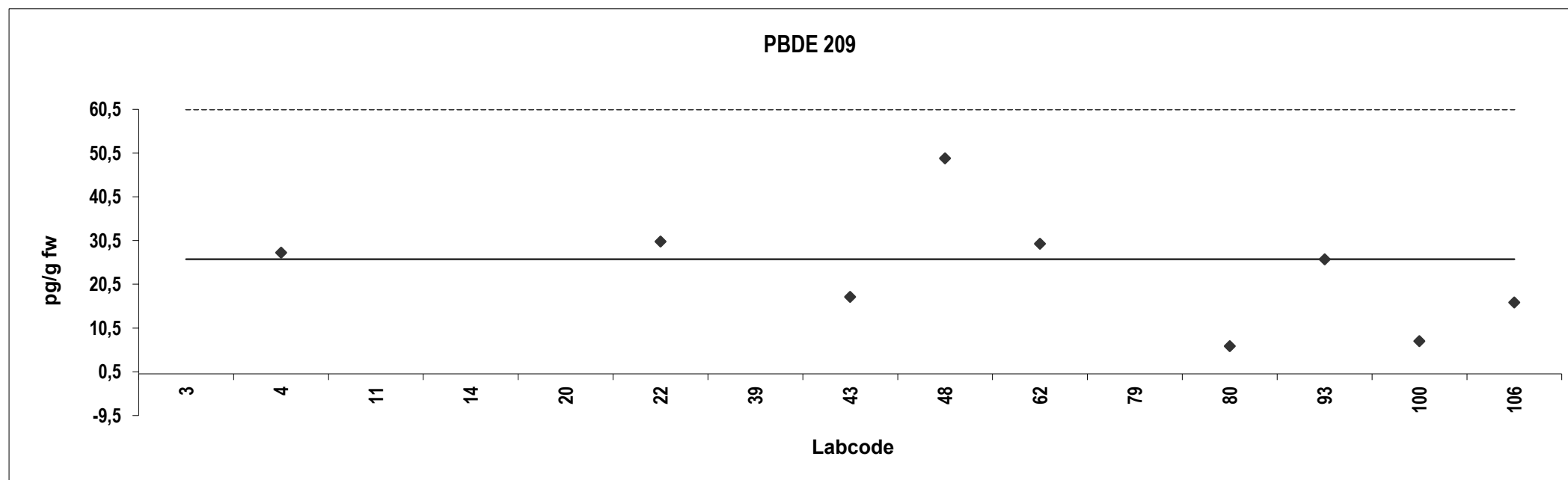
Consensus statistics	
Consensus median, pg/g	4
Median all values pg/g	5
Consensus mean, pg/g	5
Standard deviation, pg/g	1,6
Relative standard deviation, %	36
No. of values reported	16
No. of values removed	1
No. of reported non-detects	4



Fish oil
Congener: PBDE 209

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	73	9,0	Outlier			
4	28	0,29				
11	382	68	Outlier,ND			
14	160	26	Outlier,ND			
20	400	71	Outlier,ND			
22	30	0,77				
39	1668	313	Outlier			
43	18	-1,6				
48	49	4,4				
62	30	0,68				
79	73	9,0	Outlier			
80	6,3	-3,8				
93	26	0,0000				
100	7,5	-3,6				
106	16	-1,9				

Consensus statistics	
Consensus median, pg/g	26
Median all values pg/g	30
Consensus mean, pg/g	23
Standard deviation, pg/g	13
Relative standard deviation, %	57
No. of values reported	15
No. of values removed	6
No. of reported non-detects	3

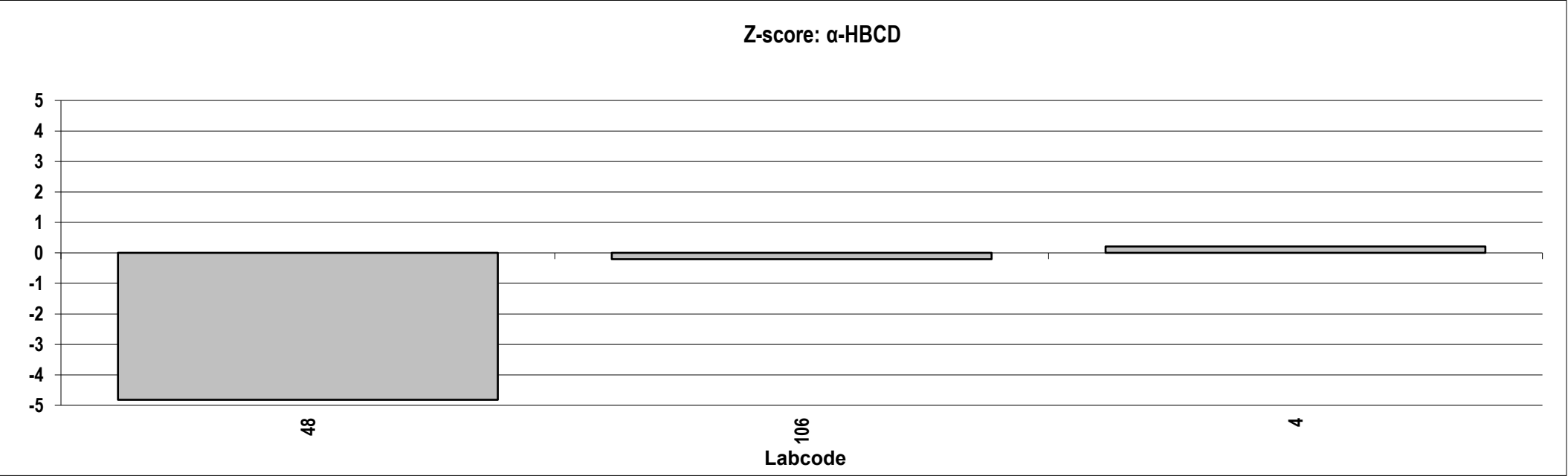
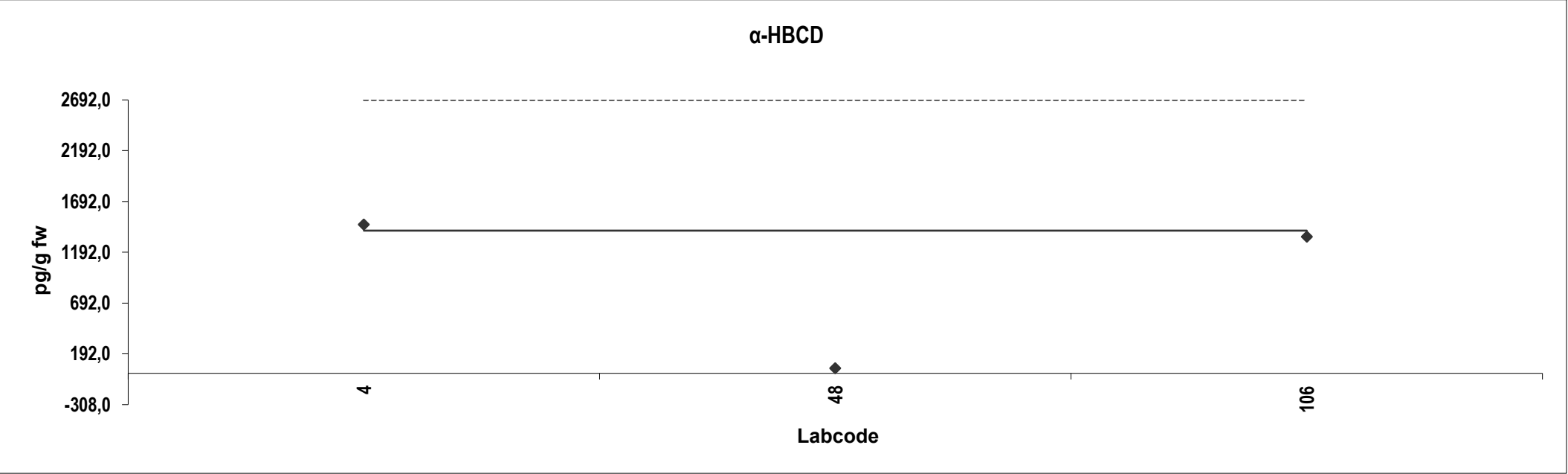


Congener: α -HBCD

[illegible]

Consensus statistics

Consensus median, pg/g	1405
Median all values pg/g	1346
Consensus mean, pg/g	953
Standard deviation, pg/g	785
Relative standard deviation, %	82
No. of values reported	3
No. of values removed	0
No. of reported non-detects	1

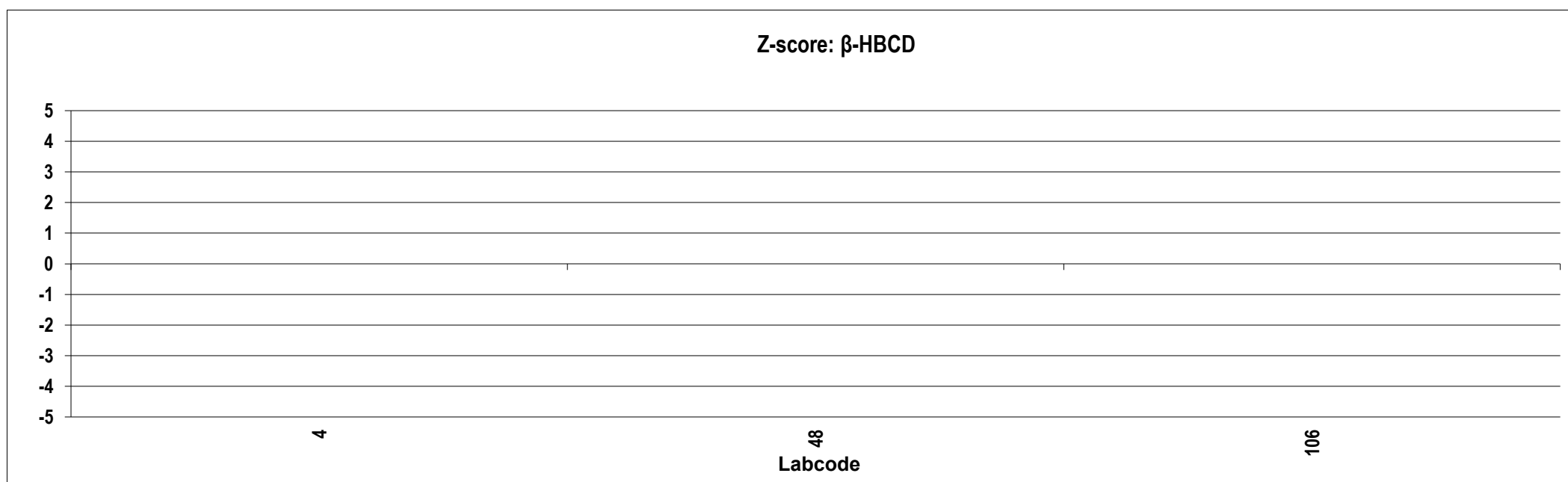
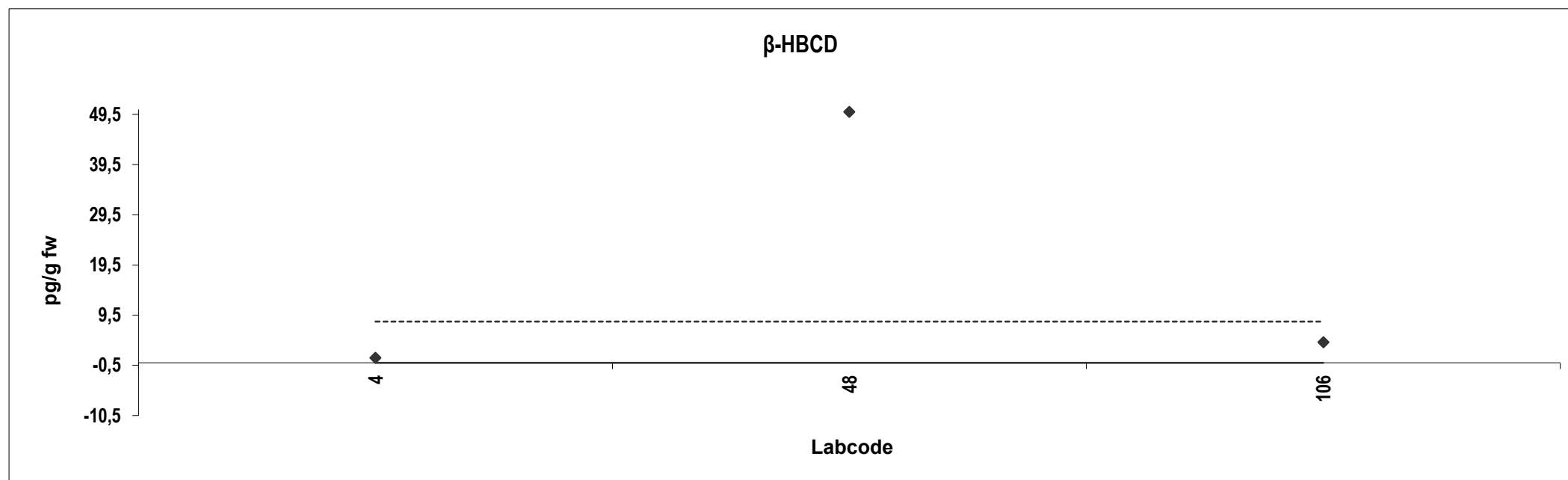


Congener: β -HBCD

Lab code	Conc. pg/g fw.	Z-score	Notes
4 48 106	1,0 50 4,1	** **	ND Outlier,ND ND

Consensus statistics

Consensus median, pg/g	**
Median all values pg/g	4,1
Consensus mean, pg/g	2,6
Standard deviation, pg/g	2,2
Relative standard deviation, %	86
No. of values reported	3
No. of values removed	1
No. of reported non-detects	3

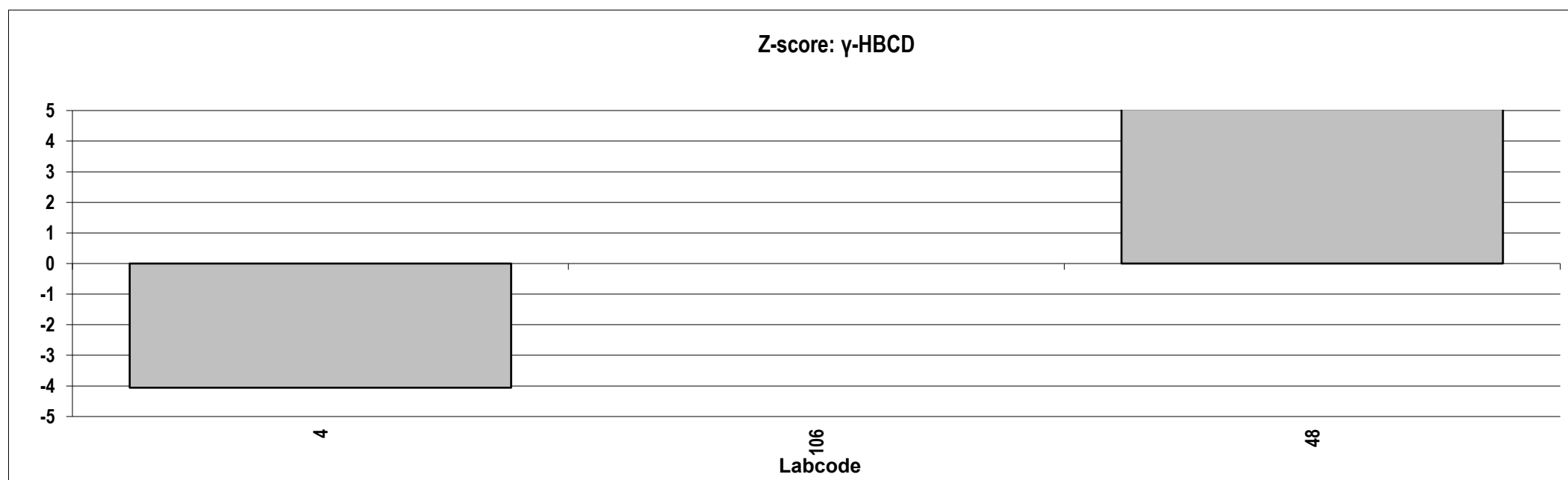
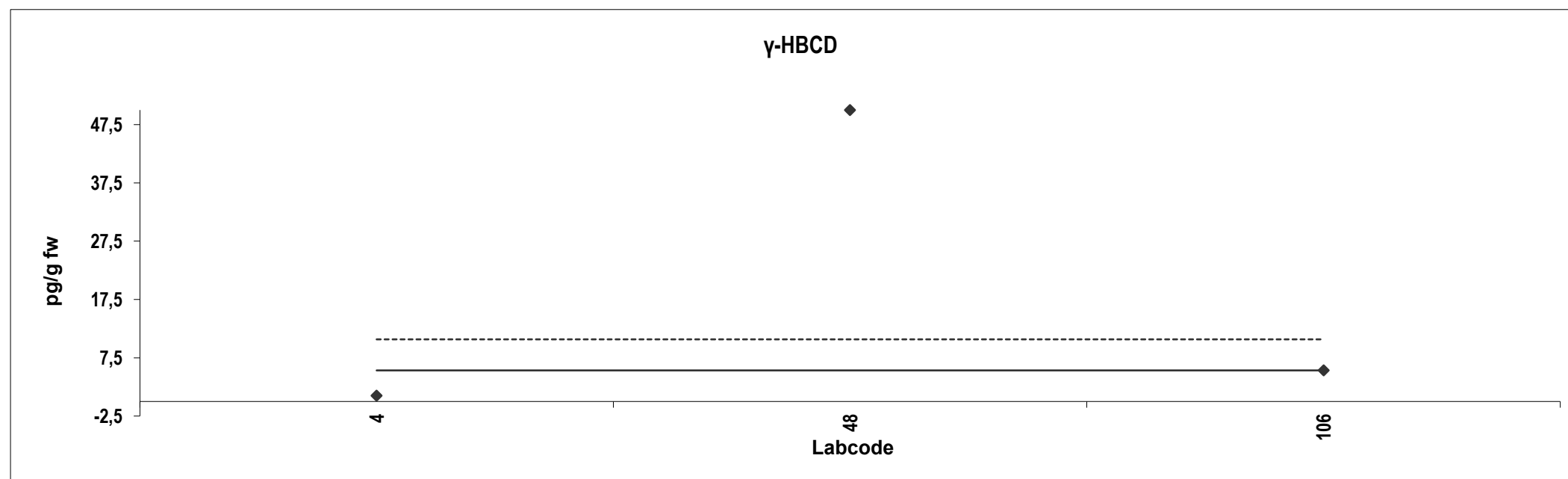


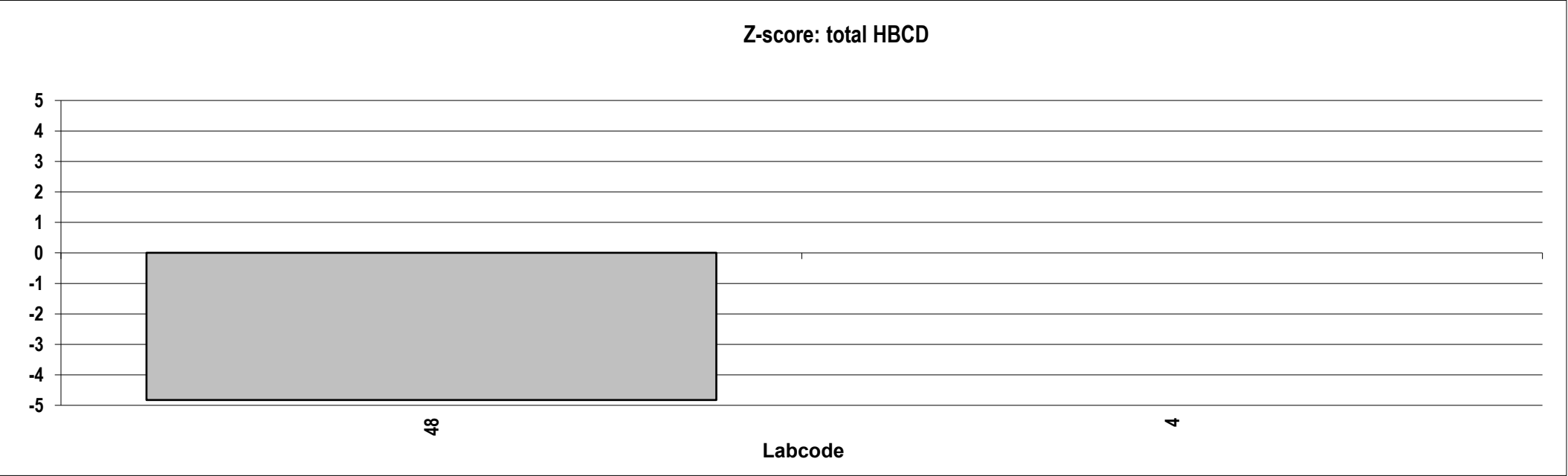
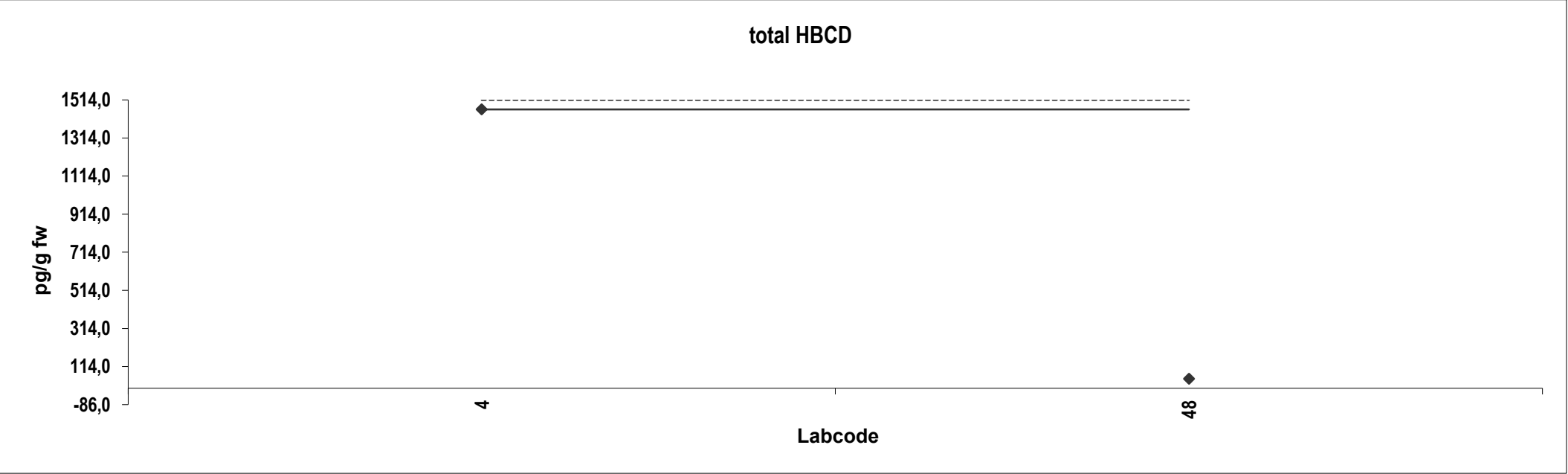
Congener: γ -HBCD

Lab code	Conc. pg/g fw.	Z-score	Notes
4	1,0	-4,1	ND
48	50	42	Outlier,ND
106	5,3	0,0000	

Consensus statistics

Consensus median, pg/g	5,3
Median all values pg/g	5,3
Consensus mean, pg/g	3,2
Standard deviation, pg/g	3,1
Relative standard deviation, %	97
No. of values reported	3
No. of values removed	1
No. of reported non-detects	2





Appendix 3:

Presentation of results for
Salmon 2025

Appendix 3: Presentation of results: Salmon 2025

Statistic calculations for PCDDs, PCDFs and dioxin-like PCBs

For each congener, the outliers were removed, and the consensus calculated according to the following procedure:

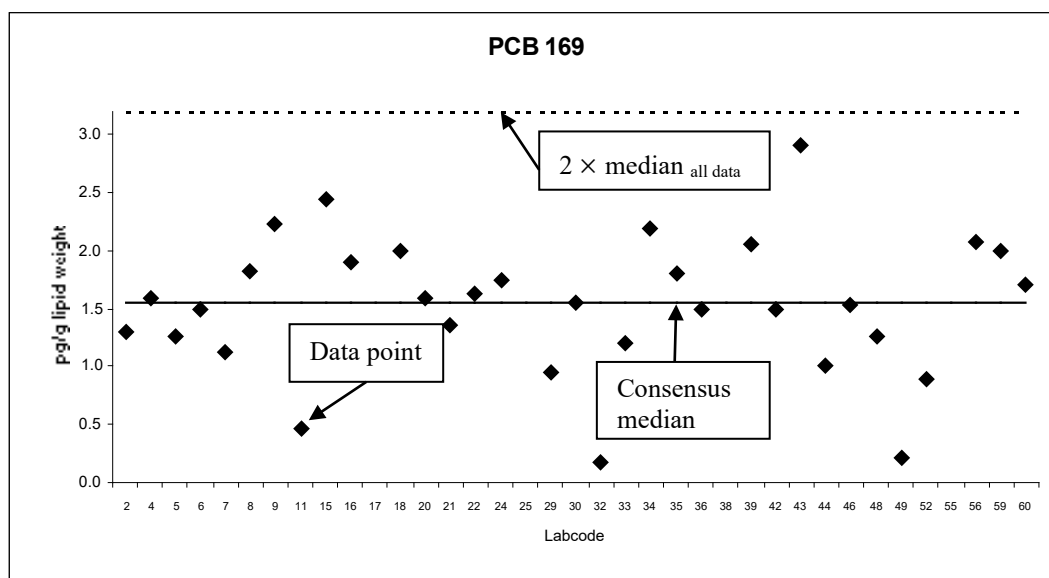
1. The median was calculated from all the reported data, using the detection limit as concentration for non-detected congeners.
2. Values exceeding $2 \times$ this median were defined as outliers and removed from the data set.
3. Median, mean and standard deviation were re-calculated from the remaining data. This second median was called consensus.

Statistic calculations for indicator PCBs, PBDEs and HBCD

For each congener, the outliers were removed and the consensus calculated according to the following procedure:

1. The median was calculated from all the reported data, using the detection limit as concentration for non-detected congeners (NDs).
2. Values exceeding $2 \times$ this median were defined as outliers and removed from the data set. The NDs were also removed.
3. Median, mean and standard deviation were re-calculated from the remaining data. This second median was called consensus.
4. For comparison, median, mean and standard deviation were also calculated without removing NDs.

The diagram shows the reported data up to approximately the limit for outliers ($2 \times$ the first median).



Z-Scores of individual congeners

Z-scores of each congener were calculated for each laboratory according to the following equation:

$$z = (x - X) / \sigma$$

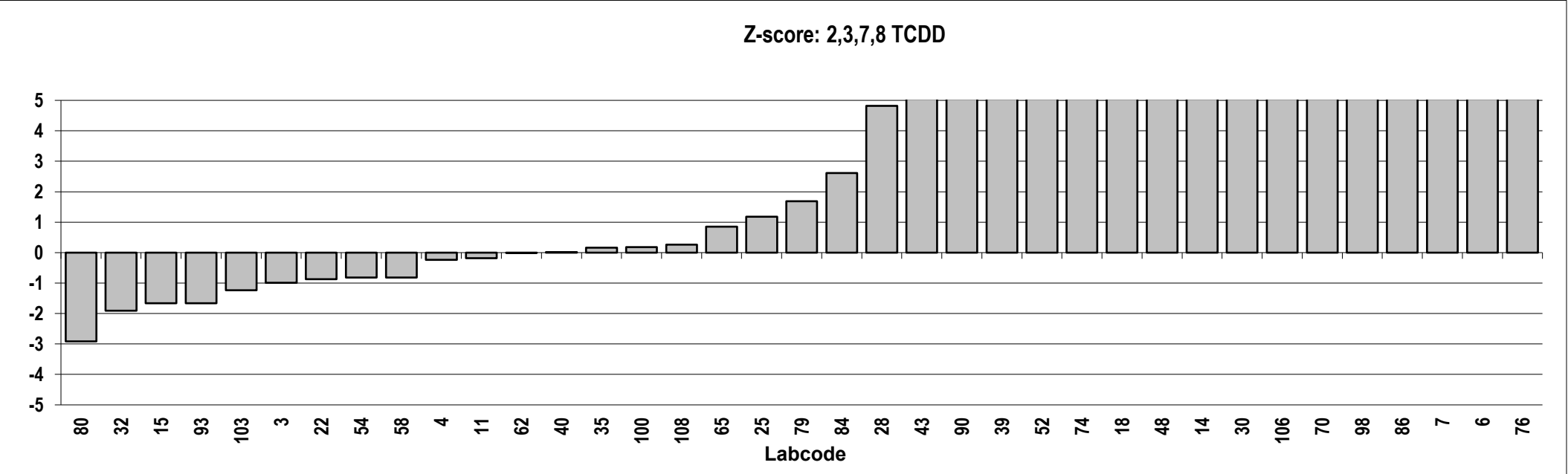
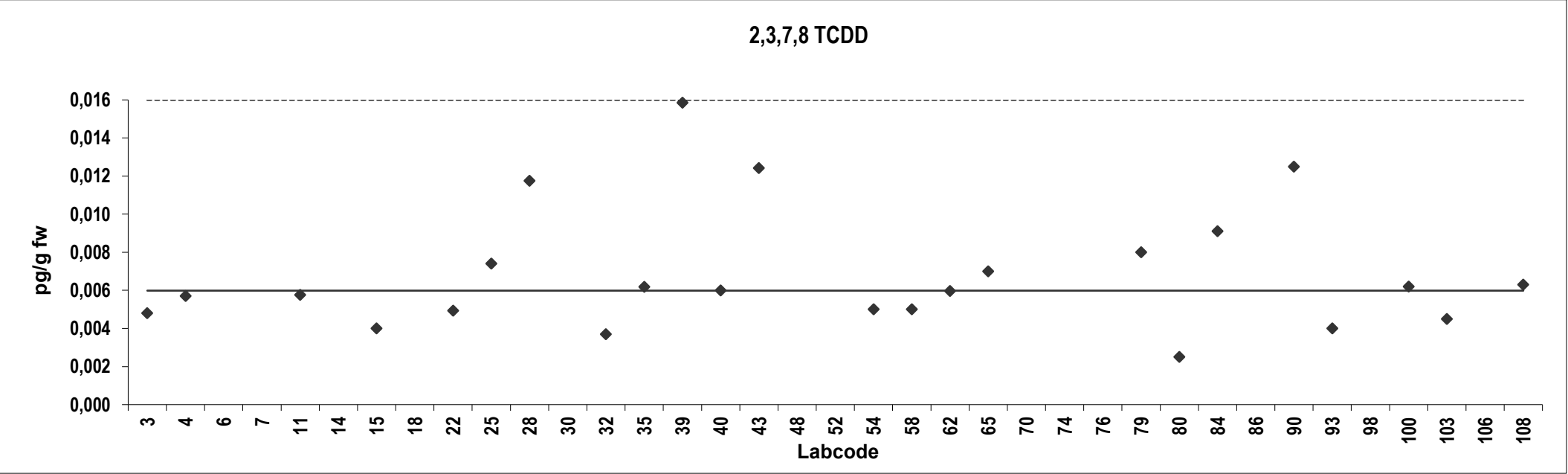
where x = reported value; X = assigned value (consensus); σ = target value for standard deviation. A σ of 20% of the consensus was used, i.e. z-scores between +1 and -1 reflect a deviation of $\pm 20\%$ from the consensus value.

Salmon
Congener: 2,3,7,8 TCDD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0048	-0,99				
4	0,0057	-0,24				
6	0,15	121	Outlier			
7	0,11	83	Outlier,ND			
11	0,0058	-0,18				
14	0,038	26	Outlier			
15	0,0040	-1,7	ND			
18	0,020	12	Outlier,ND			
22	0,0049	-0,87				
25	0,0074	1,2				
28	0,012	4,8				
30	0,040	28	Outlier,ND			
32	0,0037	-1,9				
35	0,0062	0,16	ND			
39	0,016	8,2				
40	0,0060	0,012	ND			
43	0,012	5,4				
48	0,030	20	Outlier,ND			
52	0,016	8,4	Outlier,ND			
54	0,0050	-0,82				
58	0,0050	-0,82				
62	0,0060	-0,012				
65	0,0070	0,85	ND			
70	0,063	48	Outlier,ND			
74	0,017	8,9	Outlier,ND			
76	0,39	317	Outlier			
79	0,0080	1,7				
80	0,0025	-2,9				
84	0,0091	2,6	ND			
86	0,074	57	Outlier,ND			
90	0,013	5,4				
93	0,0040	-1,7	ND			
98	0,064	48	Outlier,ND			
100	0,0062	0,18				
103	0,0045	-1,2				
106	0,060	45	Outlier			
108	0,0063	0,26				

Consensus statistics

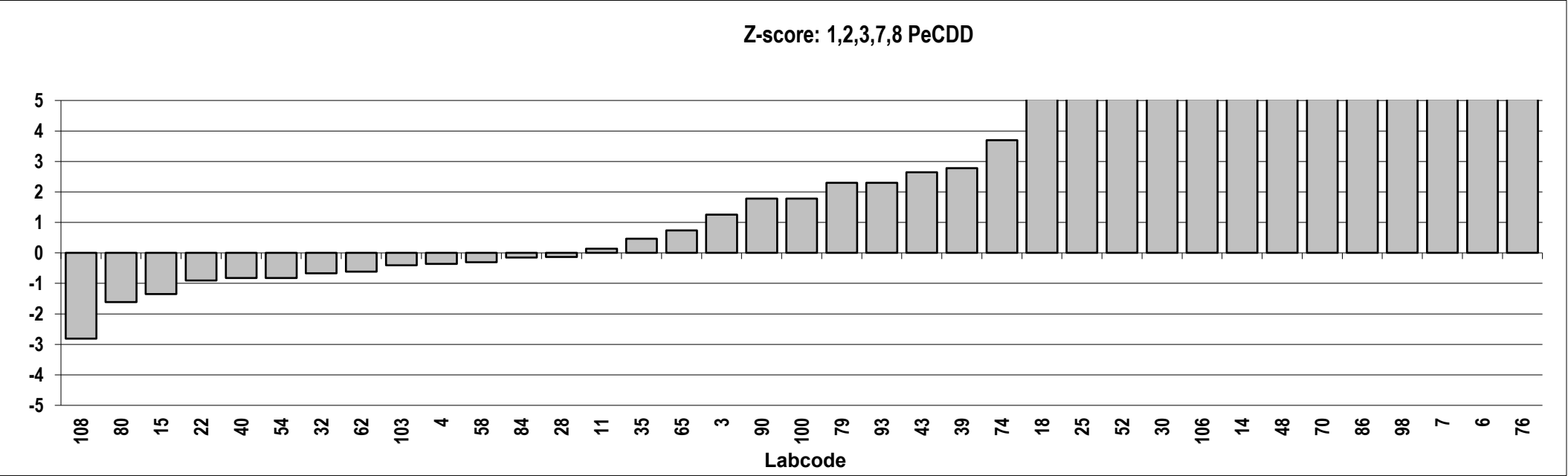
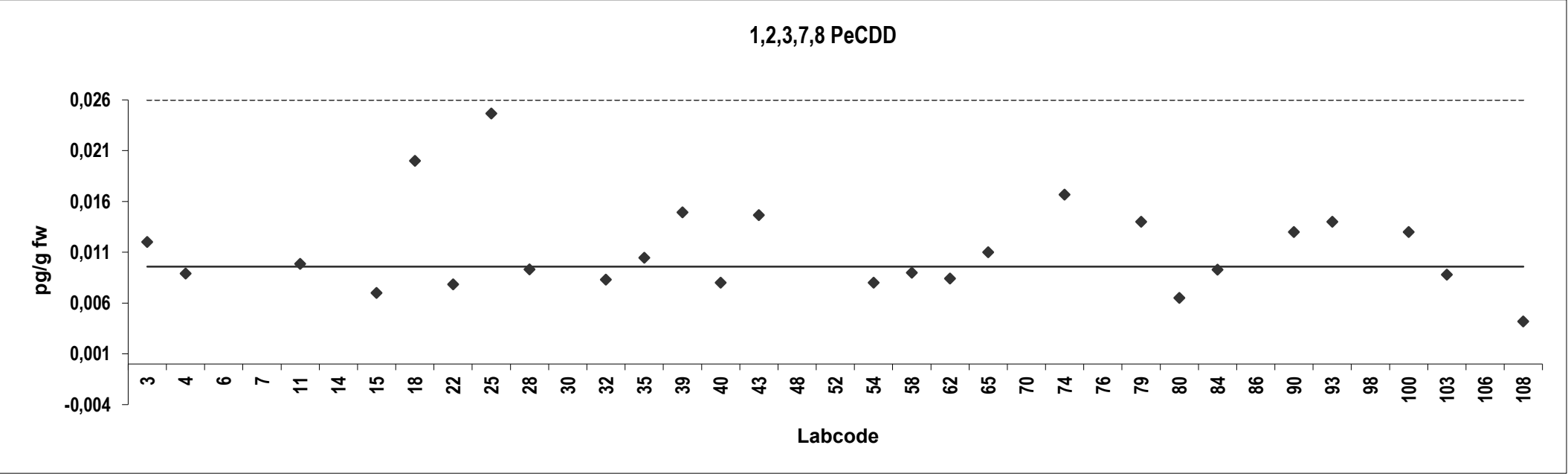
Consensus median, pg/g	0,0060
Median all values pg/g	0,0080
Consensus mean, pg/g	0,0069
Standard deviation, pg/g	0,0033
Relative standard deviation, %	48
No. of values reported	37
No. of values removed	13
No. of reported non-detects	15



Salmon
Congener: 1,2,3,7,8 PeCDD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,012	1,3				
4	0,0089	-0,36				
6	0,27	138	Outlier			
7	0,15	75	Outlier,ND			
11	0,0098	0,14				
14	0,044	18	Outlier			
15	0,0070	-1,3	ND			
18	0,020	5,4	ND			
22	0,0078	-0,91				
25	0,025	7,9				
28	0,0093	-0,14	ND			
30	0,040	16	Outlier,ND			
32	0,0083	-0,67				
35	0,010	0,46	ND			
39	0,015	2,8				
40	0,0080	-0,83				
43	0,015	2,6				
48	0,056	24	Outlier,ND			
52	0,032	12	Outlier,ND			
54	0,0080	-0,83				
58	0,0090	-0,31				
62	0,0084	-0,61				
65	0,011	0,74				
70	0,063	28	Outlier,ND			
74	0,017	3,7	ND			
76	0,60	310	Outlier			
79	0,014	2,3				
80	0,0065	-1,6				
84	0,0093	-0,15	ND			
86	0,074	34	Outlier,ND			
90	0,013	1,8				
93	0,014	2,3	ND			
98	0,093	43	Outlier,ND			
100	0,013	1,8				
103	0,0088	-0,41				
106	0,040	16	Outlier			
108	0,0042	-2,8	ND			

Consensus statistics	
Consensus median, pg/g	0,010
Median all values pg/g	0,013
Consensus mean, pg/g	0,011
Standard deviation, pg/g	0,0045
Relative standard deviation, %	40
No. of values reported	37
No. of values removed	11
No. of reported non-detects	15

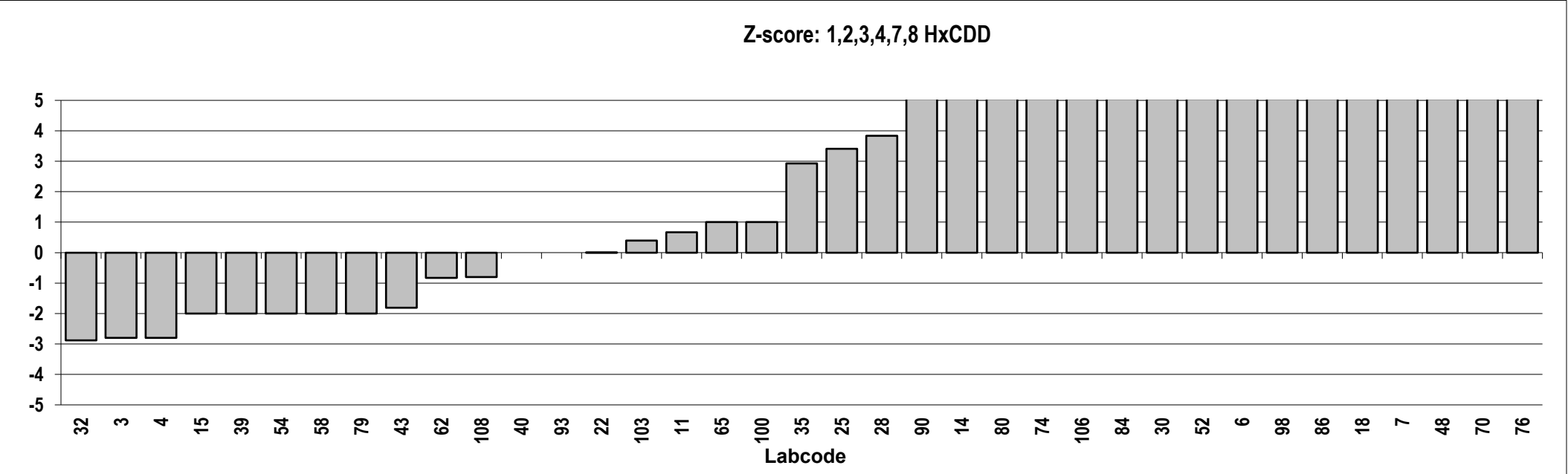
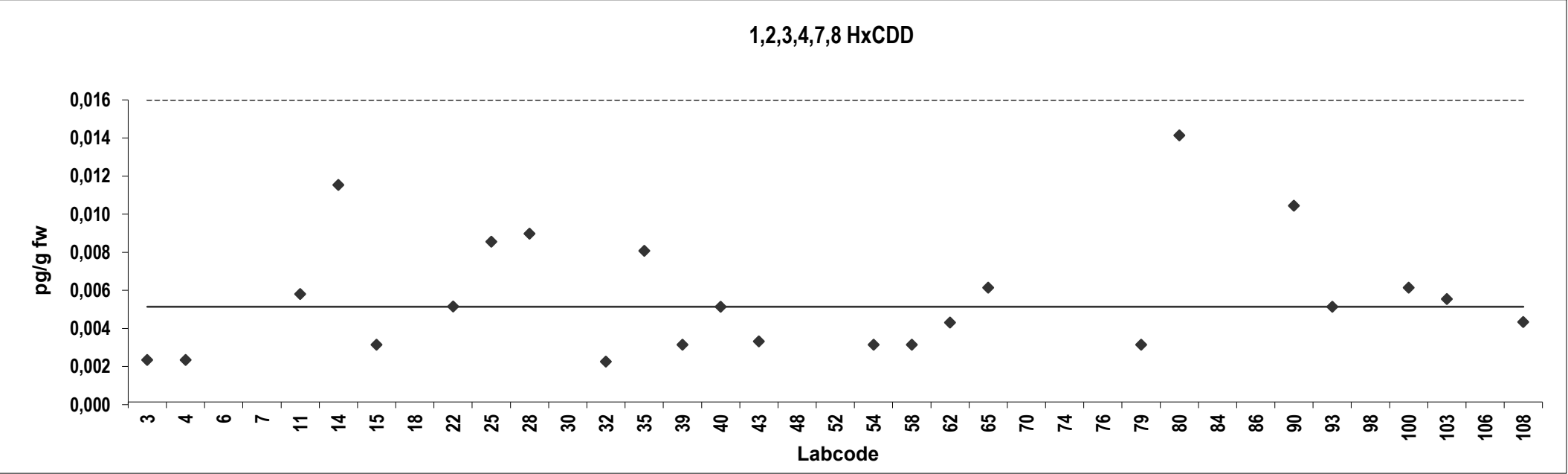


Salmon
Congener: 1,2,3,4,7,8 HxCDD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0022	-2,8				
4	0,0022	-2,8	ND			
6	0,065	60	Outlier			
7	0,12	115	Outlier,ND			
11	0,0057	0,67	ND			
14	0,011	6,4				
15	0,0030	-2,0	ND			
18	0,10	95	Outlier,ND			
22	0,0050	0,0059				
25	0,0084	3,4				
28	0,0088	3,8	ND			
30	0,050	45	Outlier,ND			
32	0,0021	-2,9				
35	0,0079	2,9	ND			
39	0,0030	-2,0	ND			
40	0,0050	0,0000	ND			
43	0,0032	-1,8				
48	0,12	115	Outlier,ND			
52	0,056	51	Outlier,ND			
54	0,0030	-2,0				
58	0,0030	-2,0				
62	0,0042	-0,83				
65	0,0060	1,0	ND			
70	0,13	125	Outlier,ND			
74	0,017	12	Outlier,ND			
76	1,7	1706	Outlier			
79	0,0030	-2,0				
80	0,014	9,0				
84	0,023	18	Outlier,ND			
86	0,099	94	Outlier,ND			
90	0,010	5,3	ND			
93	0,0050	0,0000	ND			
98	0,067	62	Outlier,ND			
100	0,0060	1,0				
103	0,0054	0,40				
106	0,020	15	Outlier,ND			
108	0,0042	-0,80	ND			

Consensus statistics

Consensus median, pg/g	0,0050
Median all values pg/g	0,0079
Consensus mean, pg/g	0,0055
Standard deviation, pg/g	0,0032
Relative standard deviation, %	58
No. of values reported	37
No. of values removed	13
No. of reported non-detects	22

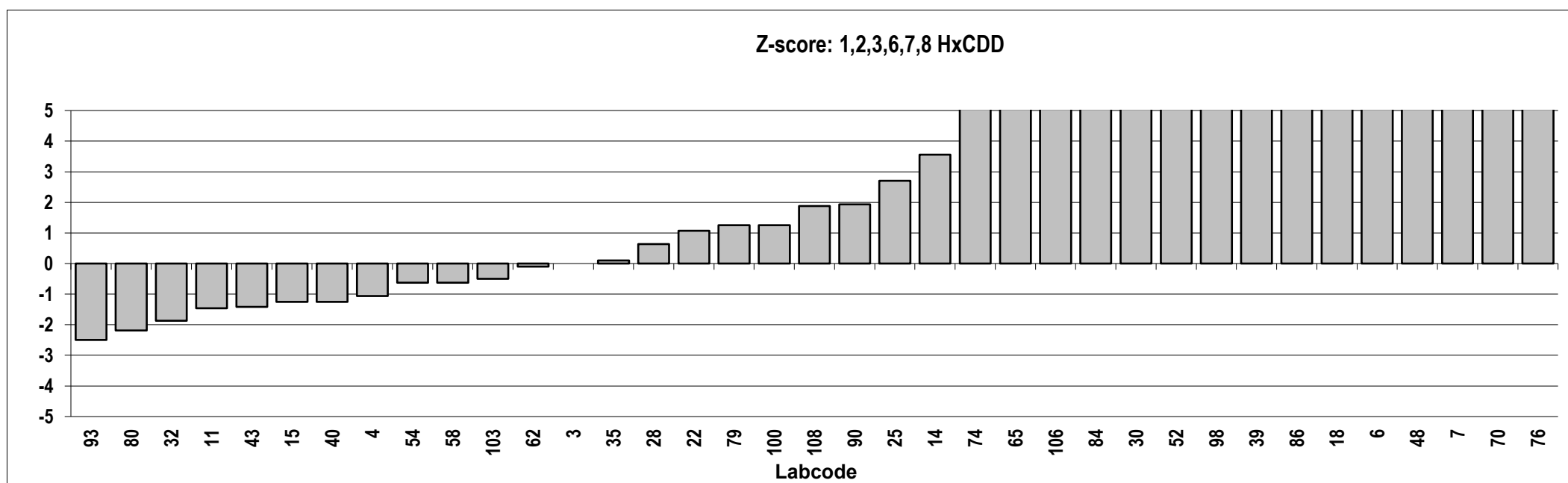
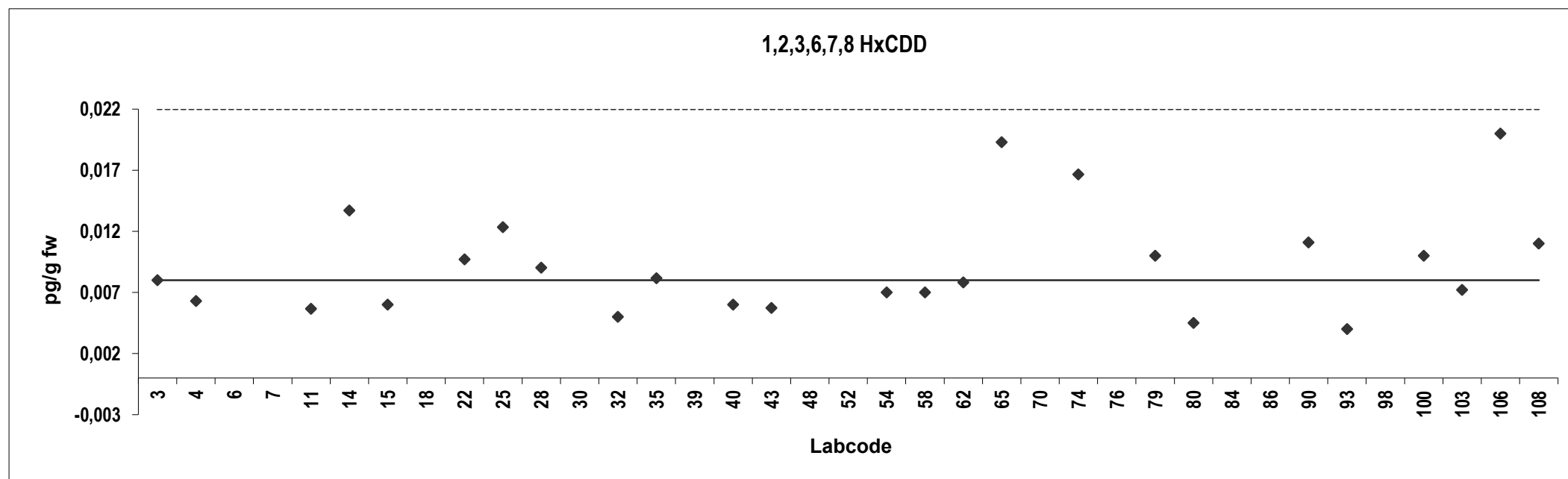


Salmon
Congener: 1,2,3,6,7,8 HxCDD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0080	0,0000				
4	0,0063	-1,1				
6	0,11	61	Outlier			
7	0,12	73	Outlier,ND			
11	0,0057	-1,5	ND			
14	0,014	3,6				
15	0,0060	-1,3				
18	0,10	58	Outlier,ND			
22	0,0097	1,1				
25	0,012	2,7				
28	0,0090	0,64	ND			
30	0,050	26	Outlier,ND			
32	0,0050	-1,9				
35	0,0082	0,10	ND			
39	0,081	46	Outlier			
40	0,0060	-1,3				
43	0,0057	-1,4				
48	0,11	64	Outlier,ND			
52	0,055	30	Outlier,ND			
54	0,0070	-0,63				
58	0,0070	-0,63				
62	0,0078	-0,10				
65	0,019	7,1				
70	0,13	76	Outlier,ND			
74	0,017	5,4	ND			
76	1,5	933	Outlier			
79	0,010	1,3				
80	0,0045	-2,2	ND			
84	0,023	9,2	Outlier,ND			
86	0,099	57	Outlier,ND			
90	0,011	1,9	ND			
93	0,0040	-2,5	ND			
98	0,056	30	Outlier,ND			
100	0,010	1,3				
103	0,0072	-0,50				
106	0,020	7,5	ND			
108	0,011	1,9				

Consensus statistics

Consensus median, pg/g	0,0080
Median all values pg/g	0,011
Consensus mean, pg/g	0,0092
Standard deviation, pg/g	0,0043
Relative standard deviation, %	47
No. of values reported	37
No. of values removed	12
No. of reported non-detects	17

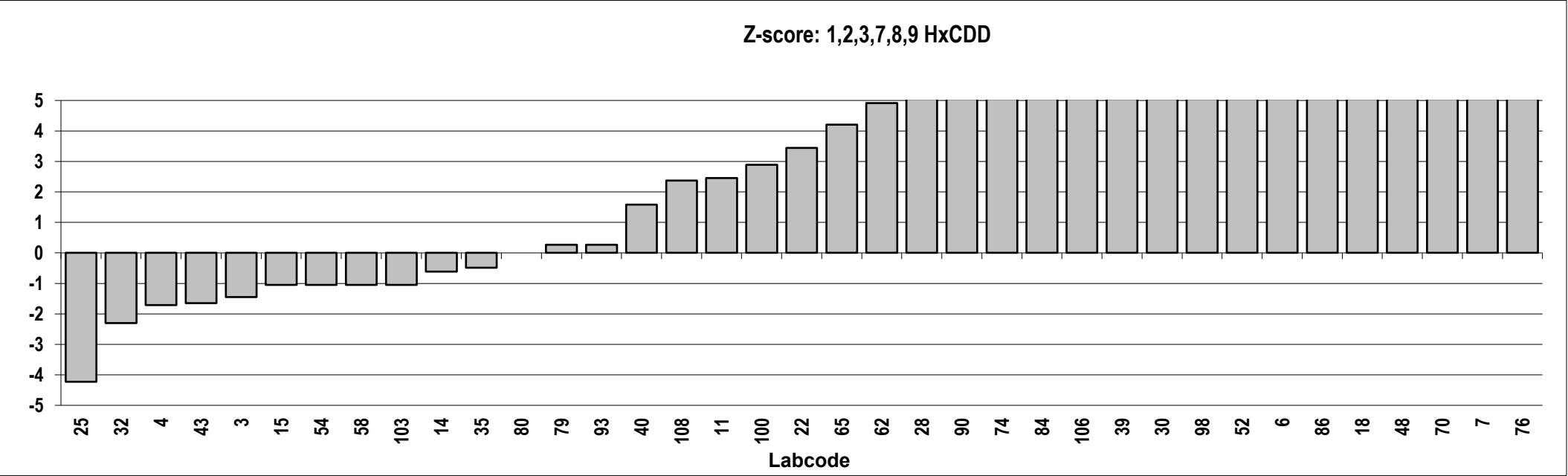
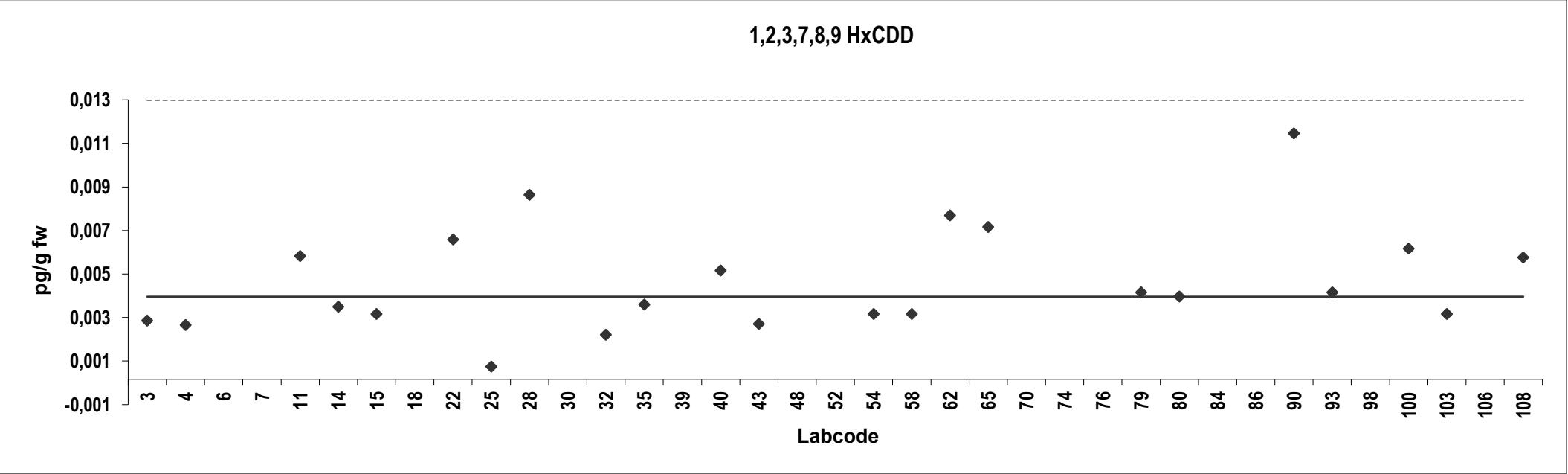


Salmon
Congener: 1,2,3,7,8,9 HxCDD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0027	-1,4				
4	0,0025	-1,7	ND			
6	0,075	94	Outlier			
7	0,13	167	Outlier,ND			
11	0,0057	2,5	ND			
14	0,0033	-0,62	ND			
15	0,0030	-1,1	ND			
18	0,10	127	Outlier,ND			
22	0,0064	3,4				
25	0,00059	-4,2				
28	0,0085	6,1	ND			
30	0,050	61	Outlier,ND			
32	0,0021	-2,3				
35	0,0034	-0,49	ND			
39	0,040	47	Outlier			
40	0,0050	1,6	ND			
43	0,0025	-1,6				
48	0,13	166	Outlier,ND			
52	0,064	79	Outlier,ND			
54	0,0030	-1,1	ND			
58	0,0030	-1,1	ND			
62	0,0075	4,9				
65	0,0070	4,2	ND			
70	0,13	166	Outlier,ND			
74	0,017	17	Outlier,ND			
76	1,5	2031	Outlier			
79	0,0040	0,26				
80	0,0038	0,0000	ND			
84	0,019	19	Outlier,ND			
86	0,099	125	Outlier,ND			
90	0,011	9,9	ND			
93	0,0040	0,26	ND			
98	0,062	76	Outlier,ND			
100	0,0060	2,9	ND			
103	0,0030	-1,1	ND			
106	0,020	21	Outlier,ND			
108	0,0056	2,4				

Consensus statistics

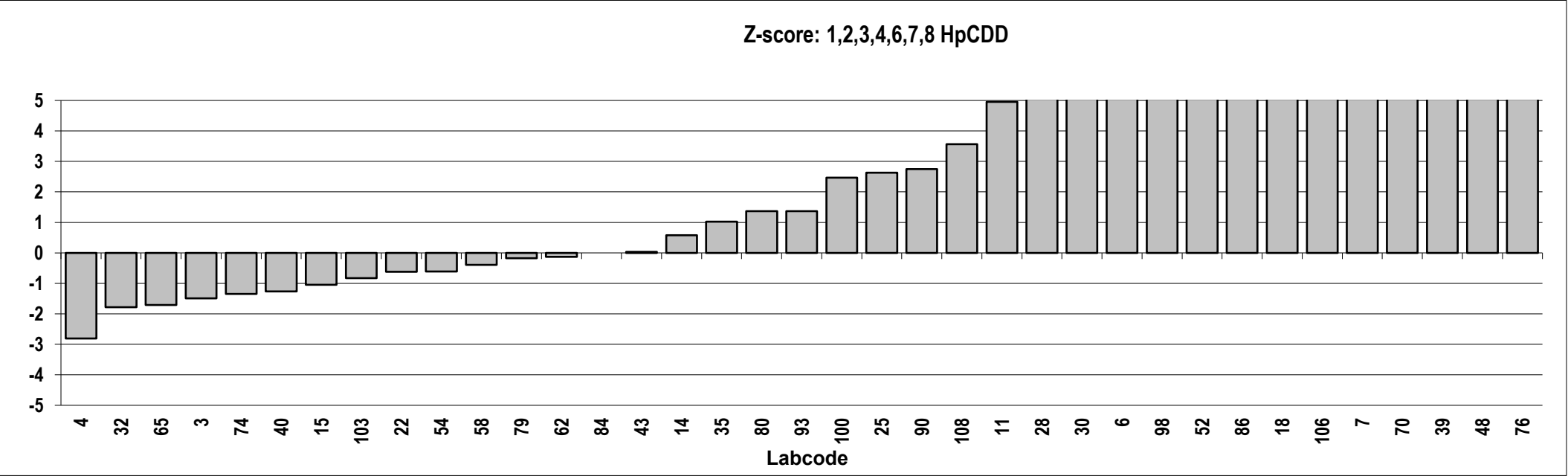
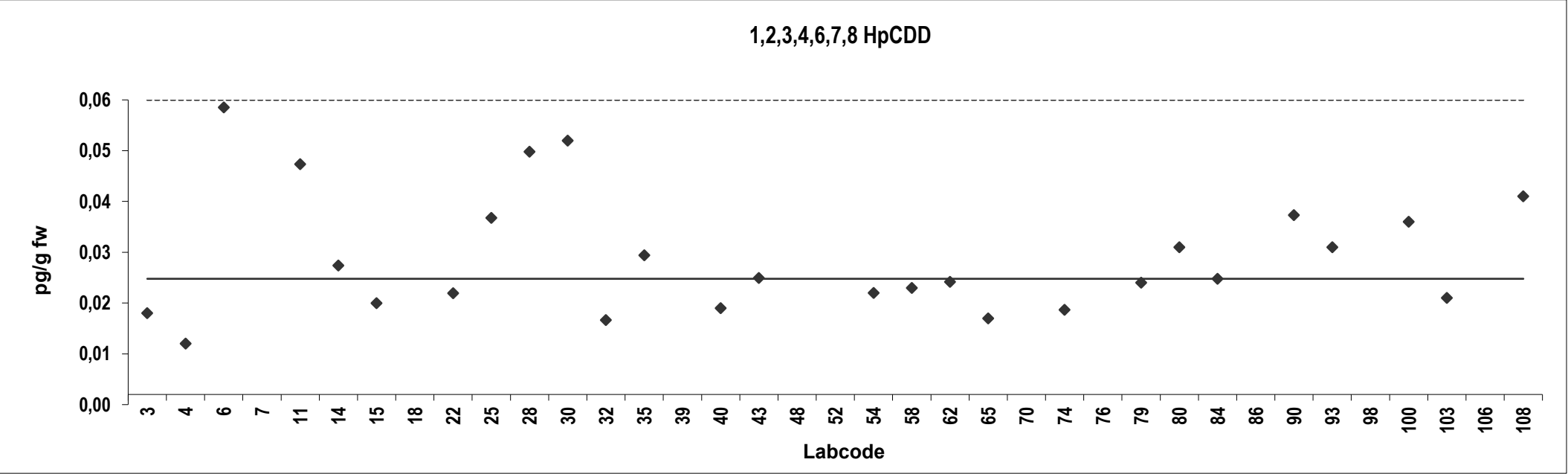
Consensus median, pg/g	0,0038
Median all values pg/g	0,0064
Consensus mean, pg/g	0,0045
Standard deviation, pg/g	0,0024
Relative standard deviation, %	54
No. of values reported	37
No. of values removed	14
No. of reported non-detects	26



Salmon
Congener: 1,2,3,4,6,7,8 HpCDD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,016	-1,5				
4	0,010	-2,8				
6	0,057	7,4				
7	0,13	23	Outlier,ND			
11	0,045	5,0	ND			
14	0,025	0,58				
15	0,018	-1,0				
18	0,10	17	Outlier,ND			
22	0,020	-0,62				
25	0,035	2,6				
28	0,048	5,5				
30	0,050	6,0	ND			
32	0,015	-1,8				
35	0,027	1,0	ND			
39	0,14	26	Outlier			
40	0,017	-1,3				
43	0,023	0,036				
48	0,25	50	Outlier,ND			
52	0,090	15	Outlier,ND			
54	0,020	-0,61				
58	0,021	-0,39				
62	0,022	-0,13				
65	0,015	-1,7				
70	0,13	24	Outlier,ND			
74	0,017	-1,3	ND			
76	1,6	343	Outlier			
79	0,022	-0,17				
80	0,029	1,4				
84	0,023	0,0000	ND			
86	0,099	17	Outlier,ND			
90	0,035	2,7				
93	0,029	1,4	ND			
98	0,069	10	Outlier,ND			
100	0,034	2,5				
103	0,019	-0,83				
106	0,12	21	Outlier			
108	0,039	3,6				

Consensus statistics	
Consensus median, pg/g	0,023
Median all values pg/g	0,029
Consensus mean, pg/g	0,027
Standard deviation, pg/g	0,012
Relative standard deviation, %	45
No. of values reported	37
No. of values removed	10
No. of reported non-detects	13

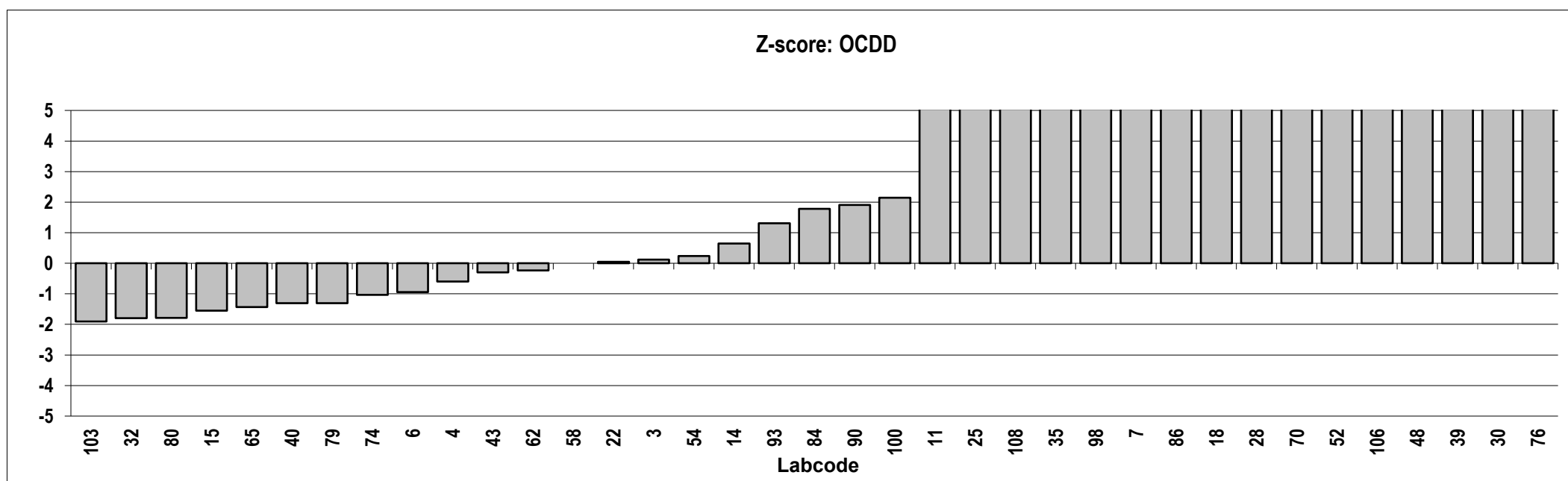
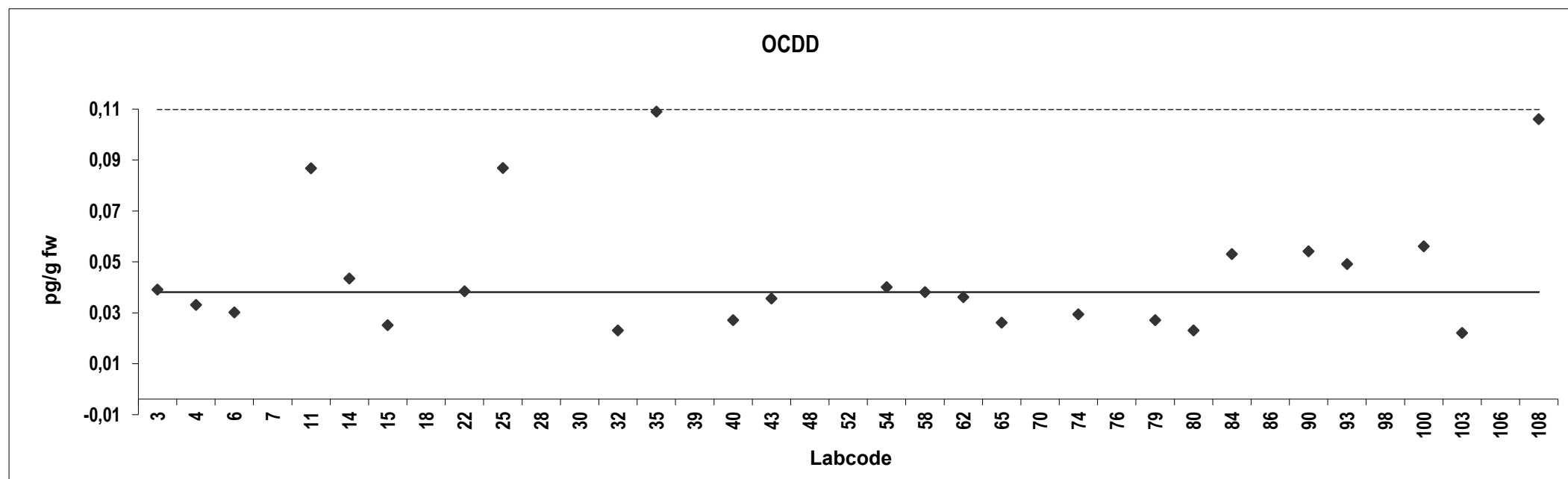


Salmon
Congener: OCDD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,043	0,12				
4	0,037	-0,60				
6	0,034	-0,94				
7	0,16	14	Outlier,ND			
11	0,091	5,8	ND			
14	0,047	0,64				
15	0,029	-1,5				
18	0,20	19	Outlier,ND			
22	0,042	0,046				
25	0,091	5,8				
28	0,26	26	Outlier			
30	2,0	233	Outlier,ND			
32	0,027	-1,8				
35	0,11	8,4	ND			
39	0,65	73	Outlier			
40	0,031	-1,3				
43	0,040	-0,30				
48	0,55	60	Outlier,ND			
52	0,35	36	Outlier,ND			
54	0,044	0,24				
58	0,042	0,0000				
62	0,040	-0,23				
65	0,030	-1,4				
70	0,31	32	Outlier,ND			
74	0,033	-1,0	ND			
76	3,6	421	Outlier			
79	0,031	-1,3				
80	0,027	-1,8				
84	0,057	1,8	ND			
86	0,20	19	Outlier,ND			
90	0,058	1,9				
93	0,053	1,3	ND			
98	0,13	10	Outlier,ND			
100	0,060	2,1				
103	0,026	-1,9				
106	0,54	59	Outlier			
108	0,11	8,1				

Consensus statistics

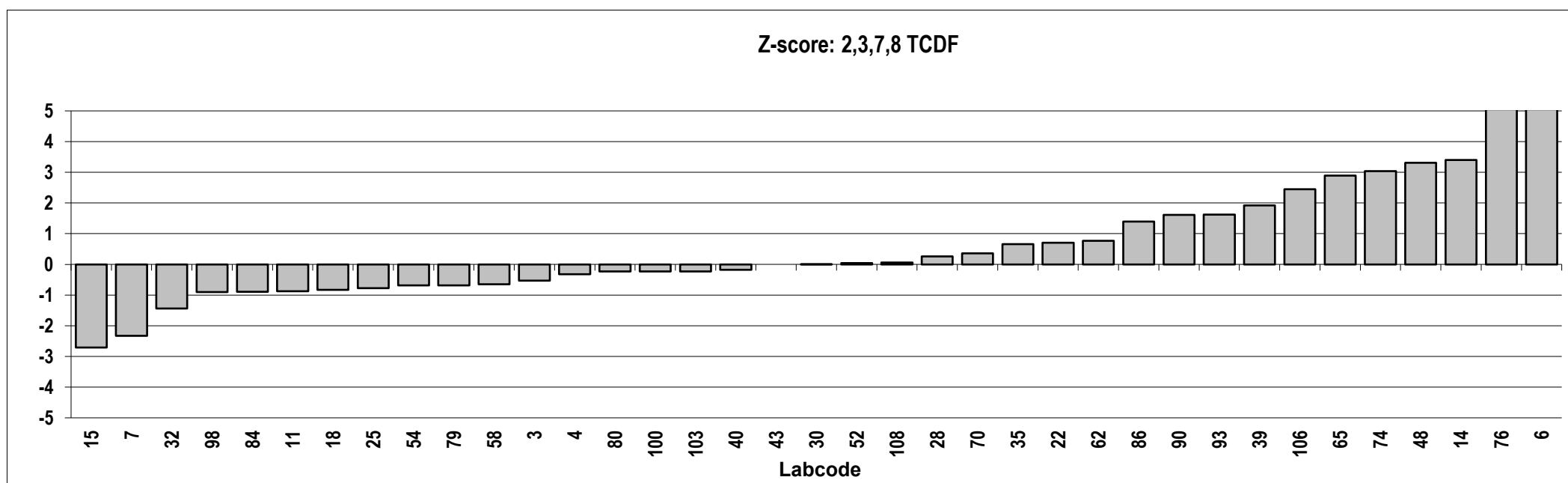
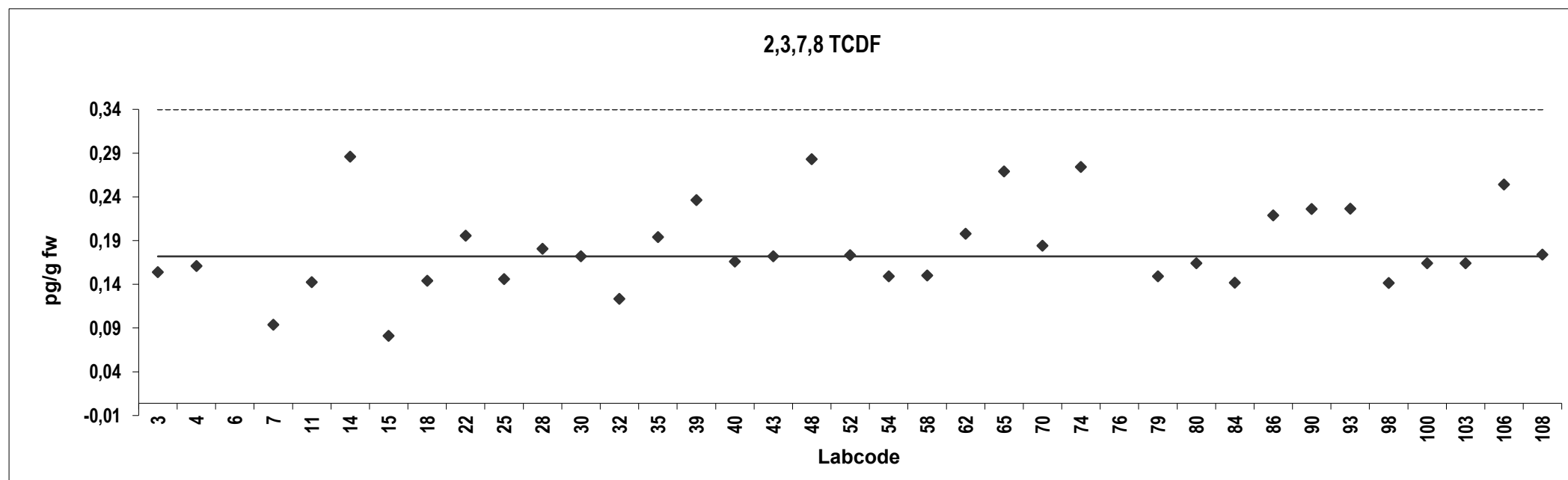
Consensus median, pg/g	0,042
Median all values pg/g	0,057
Consensus mean, pg/g	0,049
Standard deviation, pg/g	0,025
Relative standard deviation, %	51
No. of values reported	37
No. of values removed	12
No. of reported non-detects	13



Salmon
Congener: 2,3,7,8 TCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,15	-0,53				
4	0,16	-0,33				
6	0,37	6,0	Outlier			
7	0,090	-2,3	ND			
11	0,14	-0,87				
14	0,28	3,4				
15	0,077	-2,7				
18	0,14	-0,83				
22	0,19	0,71				
25	0,14	-0,78				
28	0,18	0,26				
30	0,17	0,0025				
32	0,12	-1,4				
35	0,19	0,66				
39	0,23	1,9				
40	0,16	-0,18				
43	0,17	0,0000				
48	0,28	3,3				
52	0,17	0,038				
54	0,15	-0,68				
58	0,15	-0,65				
62	0,19	0,77				
65	0,27	2,9				
70	0,18	0,36				
74	0,27	3,0				
76	0,36	5,7	Outlier			
79	0,15	-0,68				
80	0,16	-0,24				
84	0,14	-0,89				
86	0,21	1,4				
90	0,22	1,6				
93	0,22	1,6				
98	0,14	-0,90	ND			
100	0,16	-0,24				
103	0,16	-0,24				
106	0,25	2,4				
108	0,17	0,062				

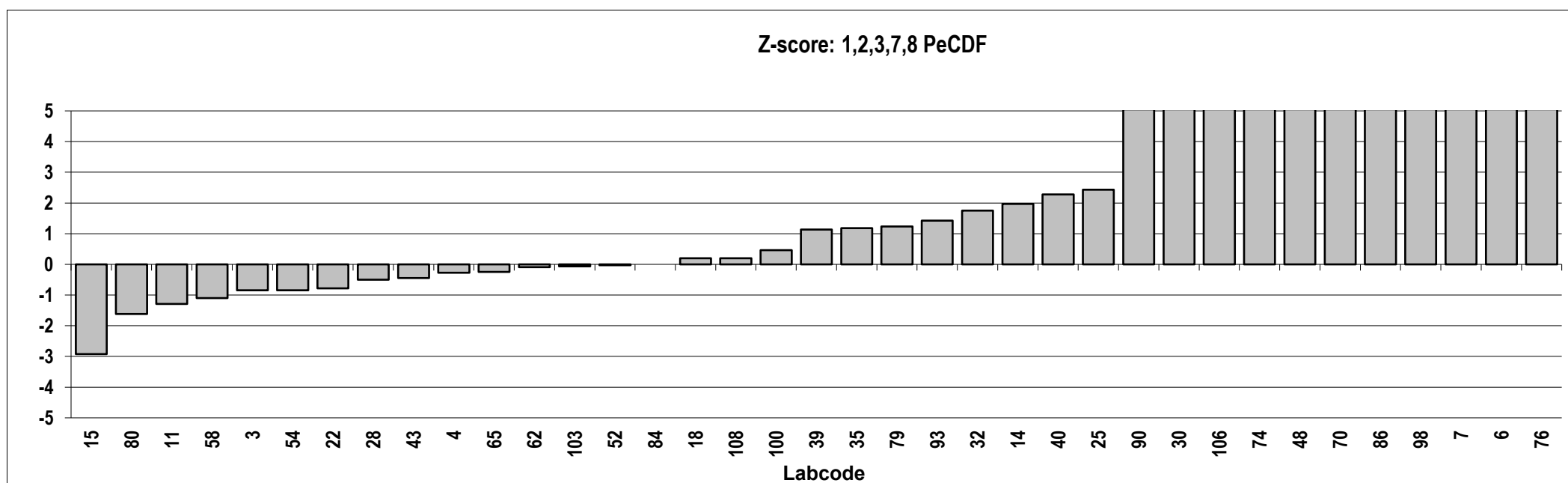
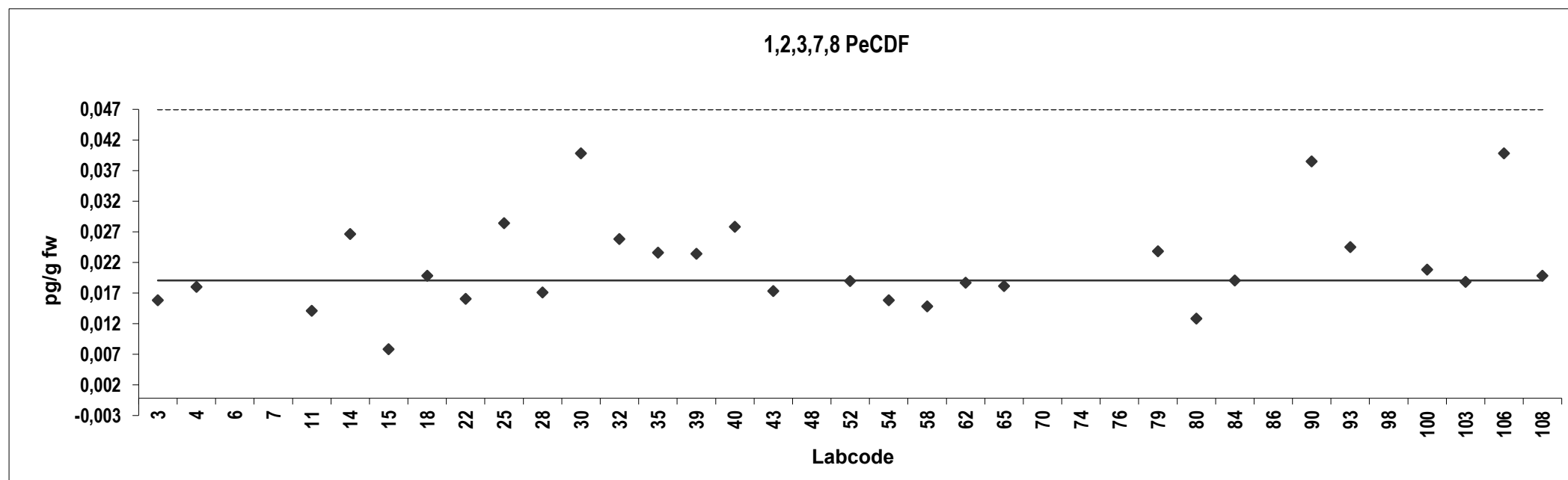
Consensus statistics	
Consensus median, pg/g	0,17
Median all values pg/g	0,17
Consensus mean, pg/g	0,18
Standard deviation, pg/g	0,050
Relative standard deviation, %	28
No. of values reported	37
No. of values removed	2
No. of reported non-detects	2



Salmon
Congener: 1,2,3,7,8 PeCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,016	-0,84				
4	0,018	-0,27				
6	0,16	36	Outlier			
7	0,15	34	Outlier,ND			
11	0,014	-1,3				
14	0,027	2,0				
15	0,0080	-2,9				
18	0,020	0,20	ND			
22	0,016	-0,78				
25	0,029	2,4				
28	0,017	-0,50				
30	0,040	5,4	ND			
32	0,026	1,8				
35	0,024	1,2				
39	0,024	1,1				
40	0,028	2,3				
43	0,018	-0,44				
48	0,054	9,0	Outlier,ND			
52	0,019	-0,028				
54	0,016	-0,84				
58	0,015	-1,1				
62	0,019	-0,094				
65	0,018	-0,24				
70	0,063	11	Outlier,ND			
74	0,050	8	Outlier			
76	1,3	328	Outlier			
79	0,024	1,2				
80	0,013	-1,6				
84	0,019	0,0000				
86	0,074	14	Outlier,ND			
90	0,039	5,1				
93	0,025	1,4				
98	0,088	18	Outlier,ND			
100	0,021	0,46				
103	0,019	-0,061				
106	0,040	5,4				
108	0,020	0,20				

Consensus statistics	
Consensus median, pg/g	0,019
Median all values pg/g	0,024
Consensus mean, pg/g	0,022
Standard deviation, pg/g	0,0077
Relative standard deviation, %	35
No. of values reported	37
No. of values removed	8
No. of reported non-detects	7

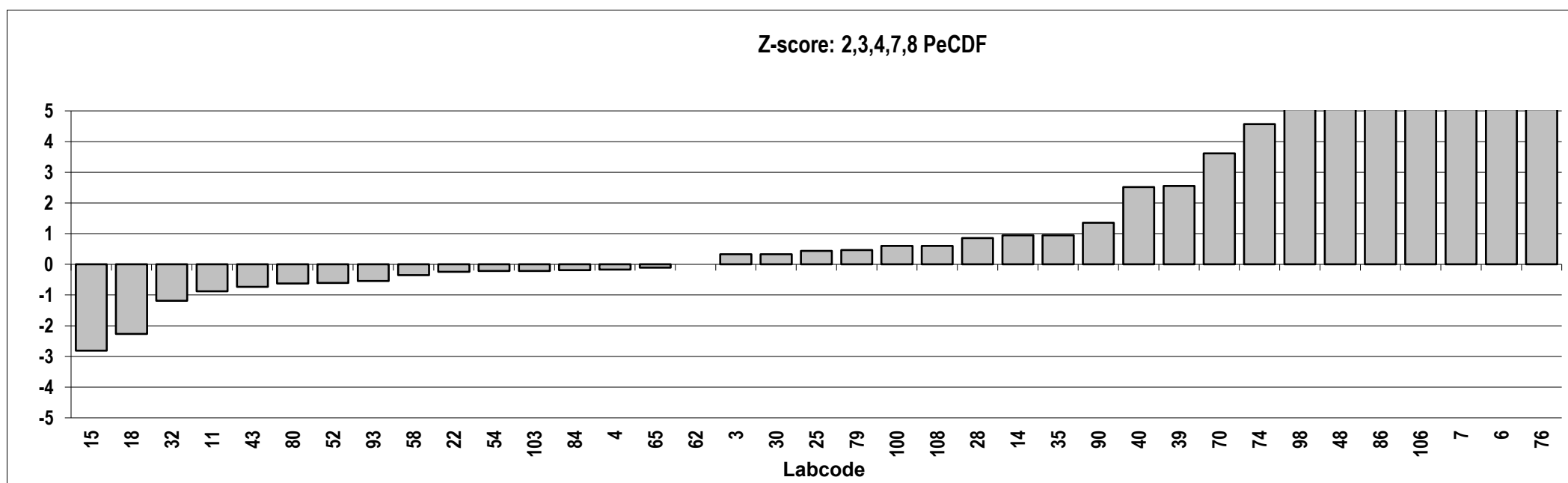
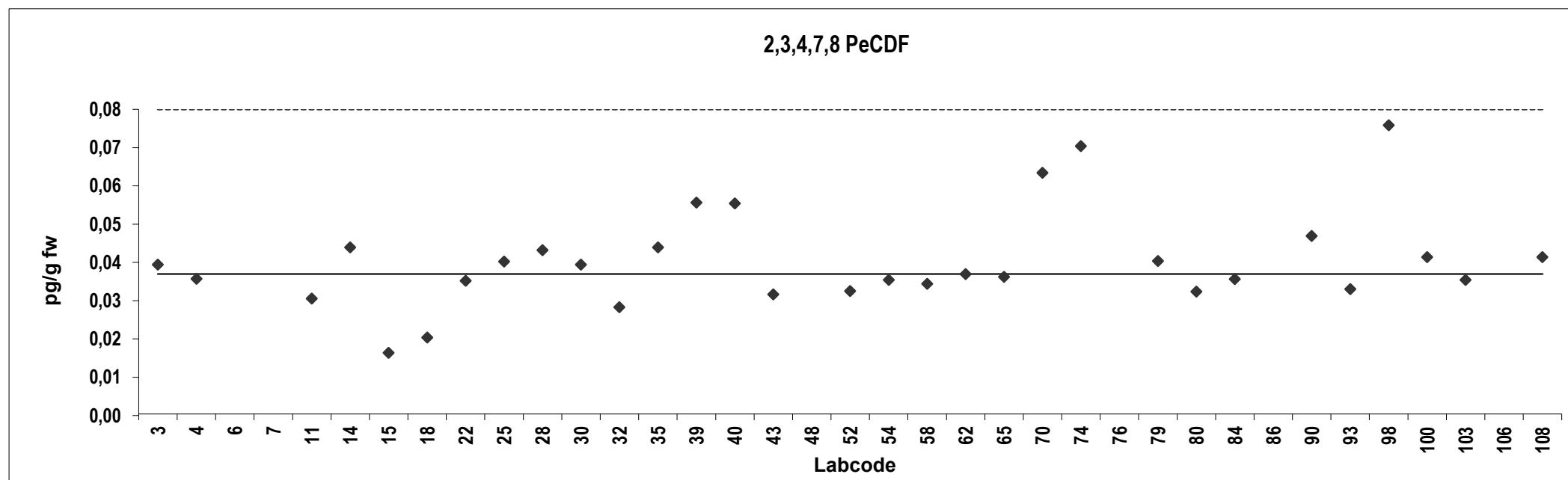


Salmon
Congener: 2,3,4,7,8 PeCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,039	0,33				
4	0,035	-0,17				
6	0,19	22	Outlier			
7	0,13	12	Outlier,ND			
11	0,030	-0,88				
14	0,044	0,95				
15	0,016	-2,8				
18	0,020	-2,3	ND			
22	0,035	-0,24				
25	0,040	0,44				
28	0,043	0,86				
30	0,039	0,33				
32	0,028	-1,2				
35	0,044	0,95				
39	0,055	2,6				
40	0,055	2,5				
43	0,031	-0,73				
48	0,088	7,0	Outlier,ND			
52	0,032	-0,61				
54	0,035	-0,21				
58	0,034	-0,35				
62	0,037	0,0000				
65	0,036	-0,11				
70	0,063	3,6	ND			
74	0,070	4,6				
76	1,3	178	Outlier			
79	0,040	0,47				
80	0,032	-0,62				
84	0,035	-0,19				
86	0,099	8,5	Outlier,ND			
90	0,047	1,4				
93	0,033	-0,54				
98	0,075	5,3	ND			
100	0,041	0,61				
103	0,035	-0,21				
106	0,11	10	Outlier			
108	0,041	0,61				

Consensus statistics

Consensus median, pg/g	0,037
Median all values pg/g	0,040
Consensus mean, pg/g	0,040
Standard deviation, pg/g	0,013
Relative standard deviation, %	32
No. of values reported	37
No. of values removed	6
No. of reported non-detects	6

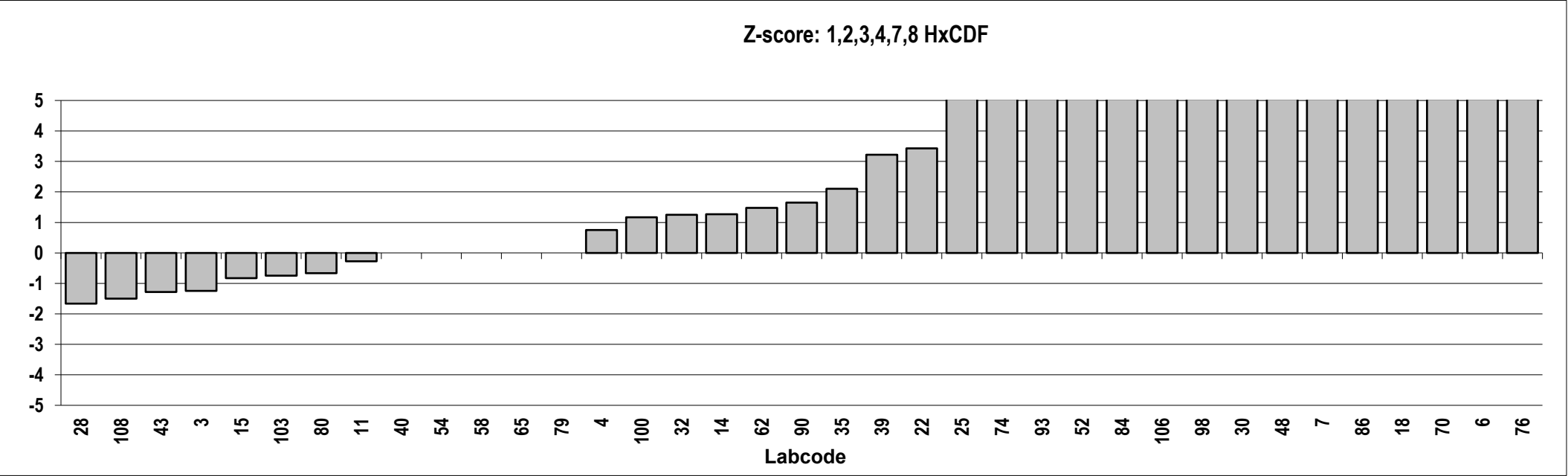
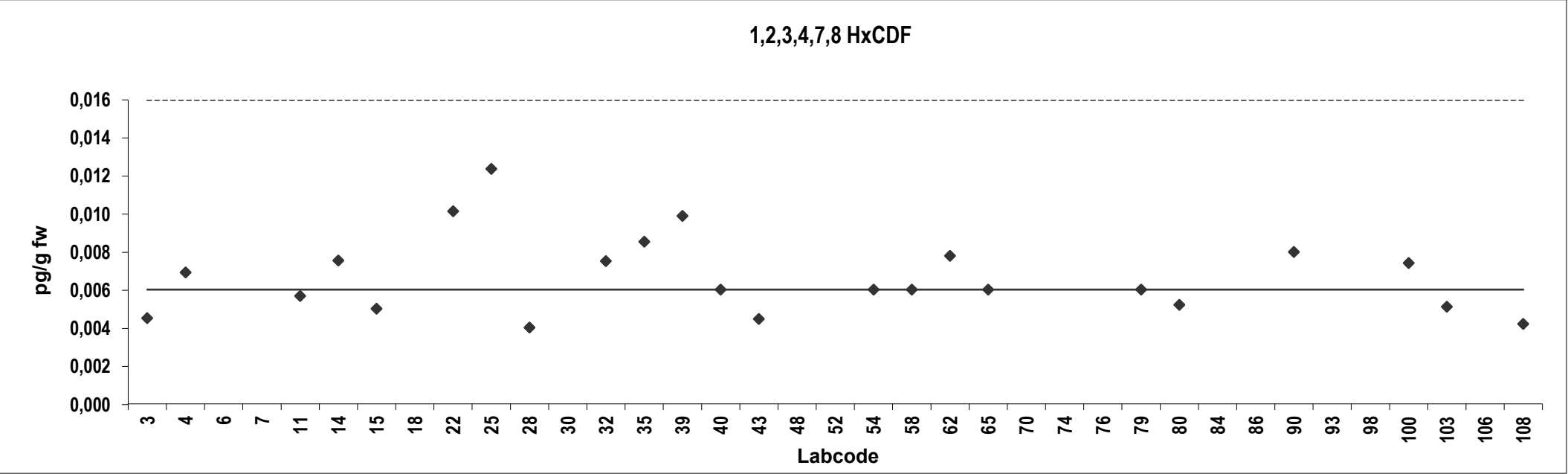


Salmon
Congener: 1,2,3,4,7,8 HxCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0045	-1,3				
4	0,0069	0,75				
6	0,24	195	Outlier			
7	0,089	69	Outlier,ND			
11	0,0057	-0,28	ND			
14	0,0075	1,3				
15	0,0050	-0,83				
18	0,10	78	Outlier,ND			
22	0,010	3,4				
25	0,012	5,3				
28	0,0040	-1,7	ND			
30	0,050	37	Outlier,ND			
32	0,0075	1,3				
35	0,0085	2,1	ND			
39	0,0099	3,2				
40	0,0060	0,0000	ND			
43	0,0045	-1,3				
48	0,070	53	Outlier,ND			
52	0,022	13	Outlier,ND			
54	0,0060	0,0000				
58	0,0060	0,0000				
62	0,0078	1,5				
65	0,0060	0,0000	ND			
70	0,13	103	Outlier,ND			
74	0,017	8,9	Outlier,ND			
76	1,6	1299	Outlier			
79	0,0060	0,0000				
80	0,0052	-0,67				
84	0,023	14	Outlier,ND			
86	0,099	78	Outlier,ND			
90	0,0080	1,7	ND			
93	0,021	13	Outlier,ND			
98	0,040	28	Outlier,ND			
100	0,0074	1,2				
103	0,0051	-0,75				
106	0,030	20	Outlier			
108	0,0042	-1,5				

Consensus statistics

Consensus median, pg/g	0,0060
Median all values pg/g	0,0080
Consensus mean, pg/g	0,0067
Standard deviation, pg/g	0,0021
Relative standard deviation, %	31
No. of values reported	37
No. of values removed	14
No. of reported non-detects	17

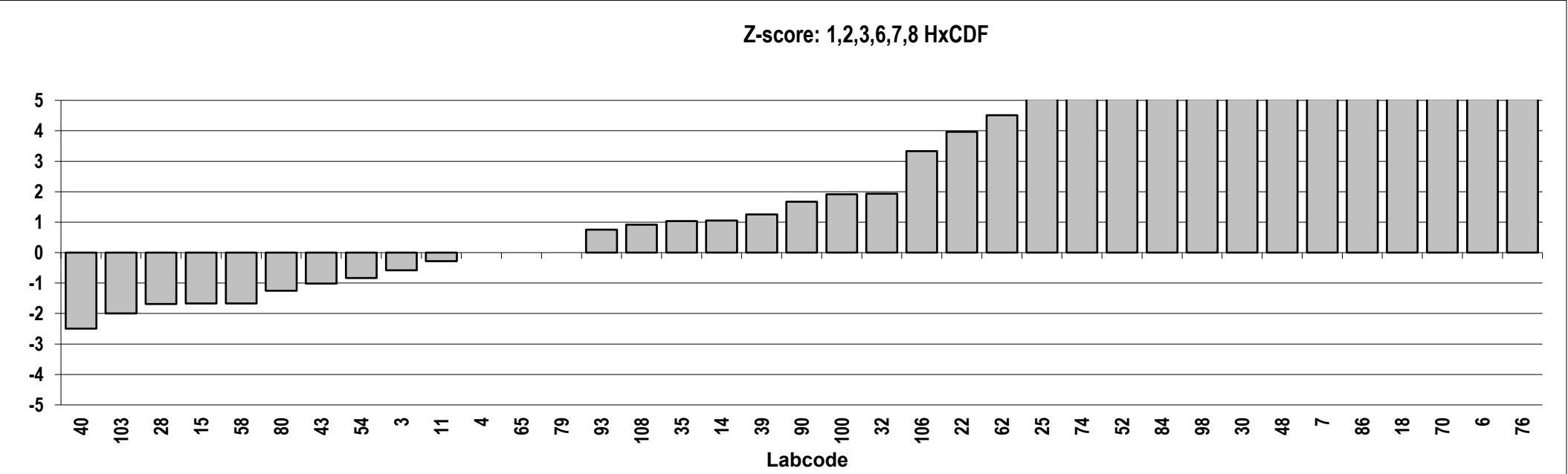
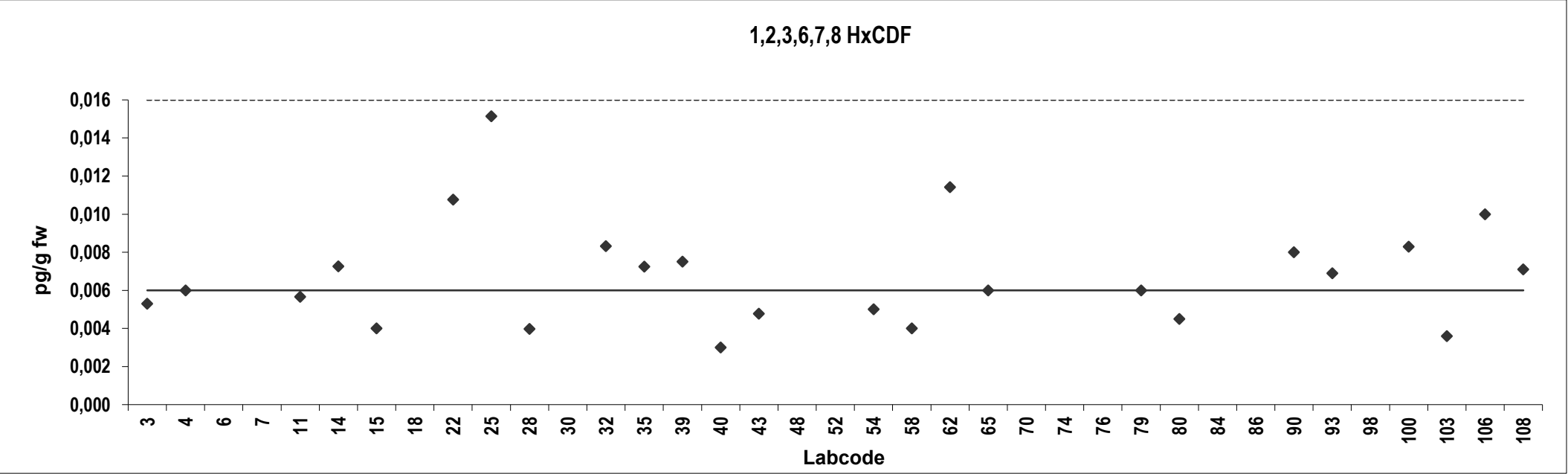


Salmon
Congener: 1,2,3,6,7,8 HxCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0053	-0,58				
4	0,0060	0,0000				
6	0,17	140	Outlier			
7	0,097	76	Outlier,ND			
11	0,0057	-0,28	ND			
14	0,0073	1,1				
15	0,0040	-1,7				
18	0,10	78	Outlier,ND			
22	0,011	4,0				
25	0,015	7,6				
28	0,0040	-1,7	ND			
30	0,050	37	Outlier,ND			
32	0,0083	1,9				
35	0,0072	1,0				
39	0,0075	1,3				
40	0,0030	-2,5	ND			
43	0,0048	-1,0				
48	0,068	52	Outlier,ND			
52	0,022	13	Outlier,ND			
54	0,0050	-0,83				
58	0,0040	-1,7				
62	0,011	4,5				
65	0,0060	0,0000	ND			
70	0,13	103	Outlier,ND			
74	0,017	8,9	Outlier,ND			
76	1,5	1232	Outlier			
79	0,0060	0,0000				
80	0,0045	-1,3				
84	0,023	14	Outlier,ND			
86	0,099	78	Outlier,ND			
90	0,0080	1,7	ND			
93	0,0069	0,75				
98	0,039	28	Outlier,ND			
100	0,0083	1,9				
103	0,0036	-2,0				
106	0,010	3,3	ND			
108	0,0071	0,92				

Consensus statistics

Consensus median, pg/g	0,0060
Median all values pg/g	0,0080
Consensus mean, pg/g	0,0068
Standard deviation, pg/g	0,0028
Relative standard deviation, %	41
No. of values reported	37
No. of values removed	12
No. of reported non-detects	16

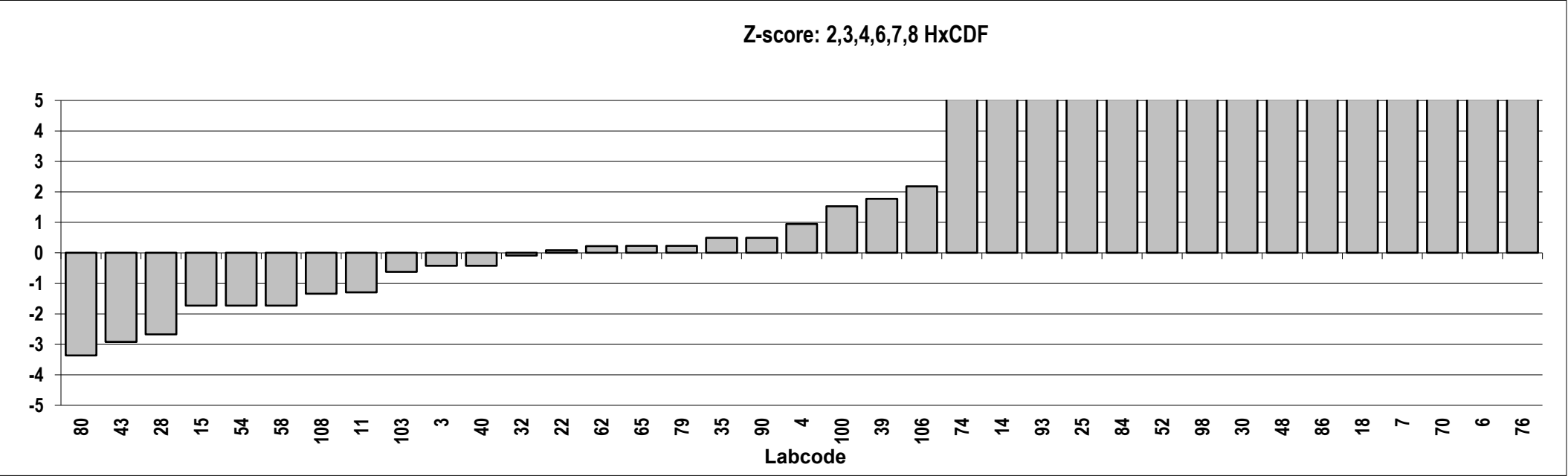
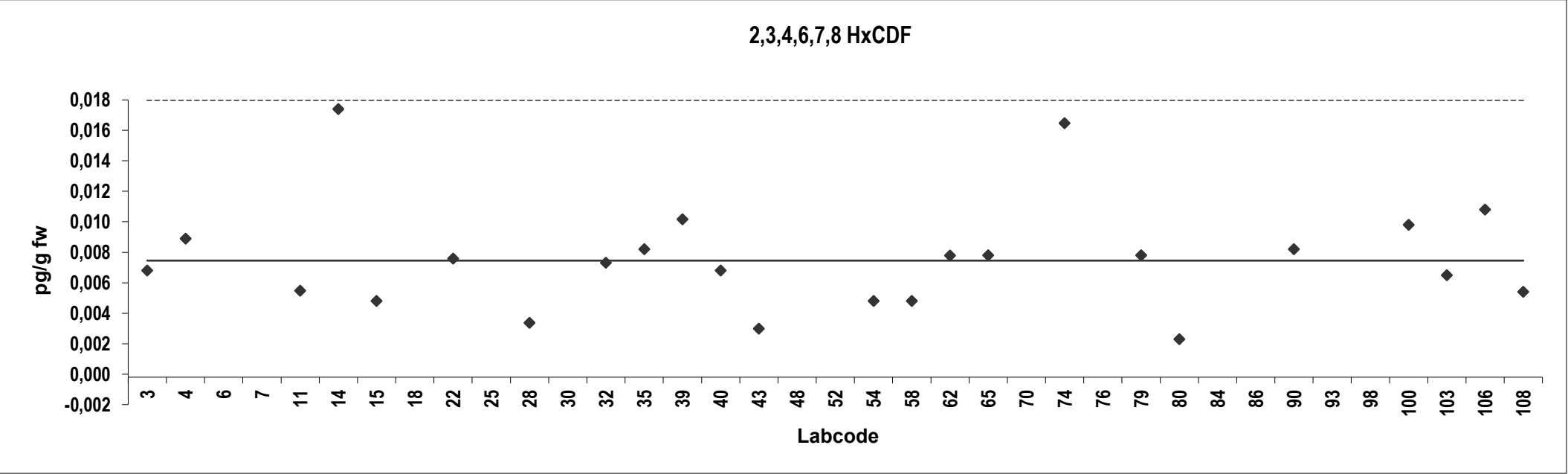


Salmon
Congener: 2,3,4,6,7,8 HxCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0070	-0,43				
4	0,0091	0,95				
6	0,18	110	Outlier			
7	0,11	66	Outlier,ND			
11	0,0057	-1,3	ND			
14	0,018	6,5				
15	0,0050	-1,7				
18	0,10	60	Outlier,ND			
22	0,0078	0,087				
25	0,022	9,6	Outlier			
28	0,0036	-2,7	ND			
30	0,050	28	Outlier,ND			
32	0,0075	-0,087				
35	0,0084	0,49				
39	0,010	1,8				
40	0,0070	-0,43				
43	0,0032	-2,9				
48	0,073	43	Outlier,ND			
52	0,024	11	Outlier,ND			
54	0,0050	-1,7				
58	0,0050	-1,7				
62	0,0080	0,22				
65	0,0080	0,23	ND			
70	0,13	80	Outlier,ND			
74	0,017	5,9	ND			
76	1,6	1073	Outlier			
79	0,0080	0,23				
80	0,0025	-3,4				
84	0,023	9,9	Outlier,ND			
86	0,099	60	Outlier,ND			
90	0,0084	0,49	ND			
93	0,021	8,7	Outlier,ND			
98	0,038	20	Outlier,ND			
100	0,010	1,5				
103	0,0067	-0,62				
106	0,011	2,2	ND			
108	0,0056	-1,3				

Consensus statistics

Consensus median, pg/g	0,0077
Median all values pg/g	0,0091
Consensus mean, pg/g	0,0078
Standard deviation, pg/g	0,0036
Relative standard deviation, %	46
No. of values reported	37
No. of values removed	13
No. of reported non-detects	16

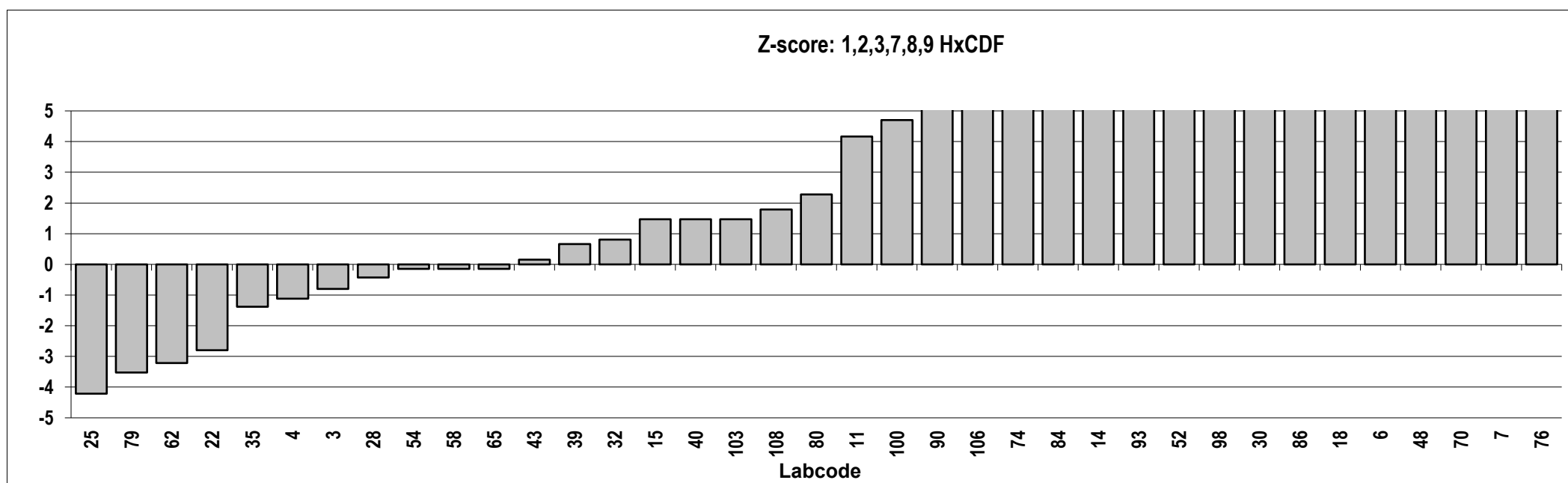
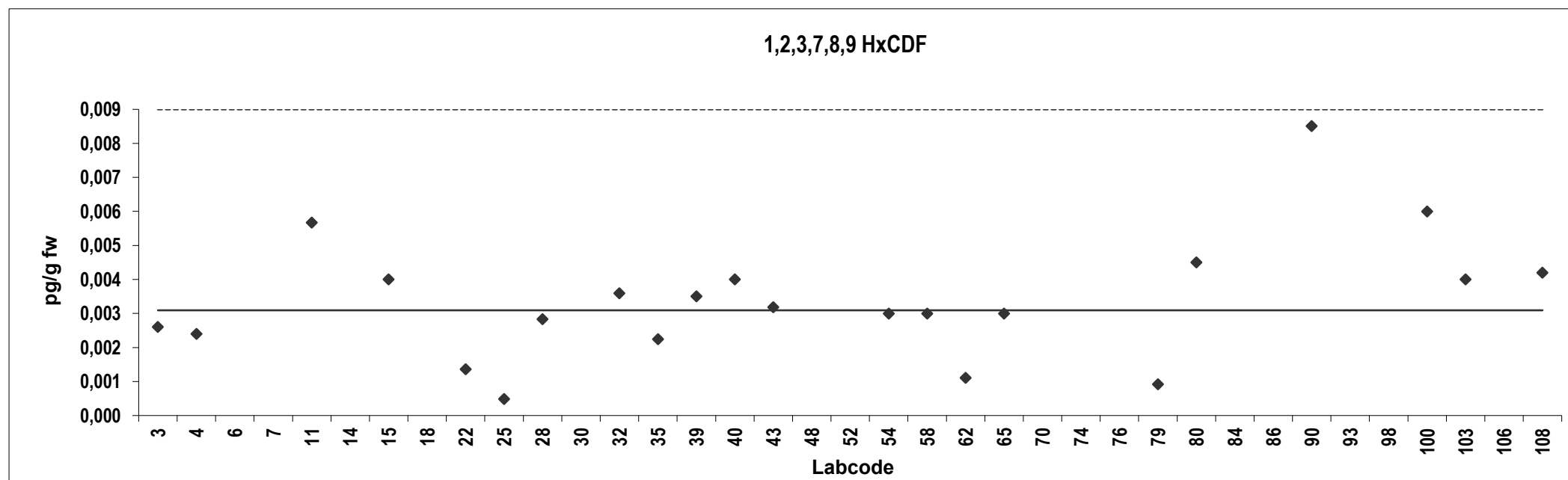


Salmon
Congener: 1,2,3,7,8,9 HxCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0026	-0,80				
4	0,0024	-1,1	ND			
6	0,11	175	Outlier			
7	0,18	284	Outlier,ND			
11	0,0057	4,2	ND			
14	0,024	34	Outlier			
15	0,0040	1,5	ND			
18	0,10	157	Outlier,ND			
22	0,0014	-2,8	ND			
25	0,00049	-4,2				
28	0,0028	-0,42	ND			
30	0,050	76	Outlier,ND			
32	0,0036	0,80				
35	0,0022	-1,4	ND			
39	0,0035	0,66	ND			
40	0,0040	1,5	ND			
43	0,0032	0,15				
48	0,13	205	Outlier,ND			
52	0,032	47	Outlier,ND			
54	0,0030	-0,15	ND			
58	0,0030	-0,15	ND			
62	0,0011	-3,2	ND			
65	0,0030	-0,15	ND			
70	0,13	205	Outlier,ND			
74	0,017	22	Outlier,ND			
76	1,6	2658	Outlier			
79	0,00092	-3,5				
80	0,0045	2,3				
84	0,023	32	Outlier,ND			
86	0,099	155	Outlier,ND			
90	0,0085	8,8	ND			
93	0,028	40	Outlier,ND			
98	0,045	68	Outlier,ND			
100	0,0060	4,7				
103	0,0040	1,5	ND			
106	0,013	16	Outlier,ND			
108	0,0042	1,8	ND			

Consensus statistics

Consensus median, pg/g	0,0031
Median all values pg/g	0,0045
Consensus mean, pg/g	0,0034
Standard deviation, pg/g	0,0018
Relative standard deviation, %	54
No. of values reported	37
No. of values removed	15
No. of reported non-detects	27

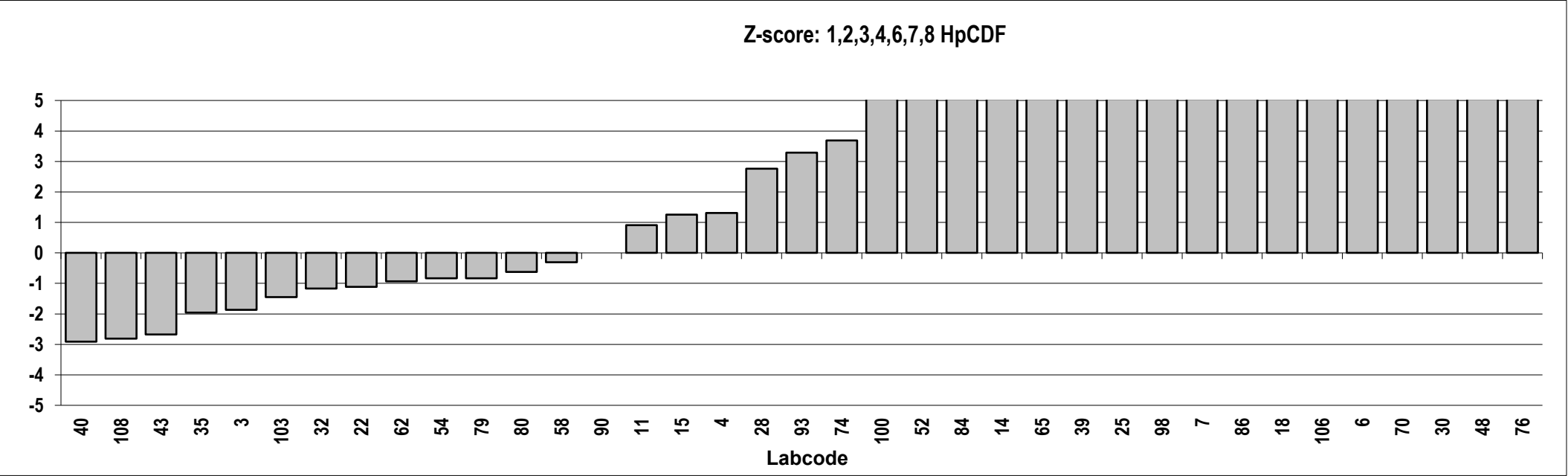
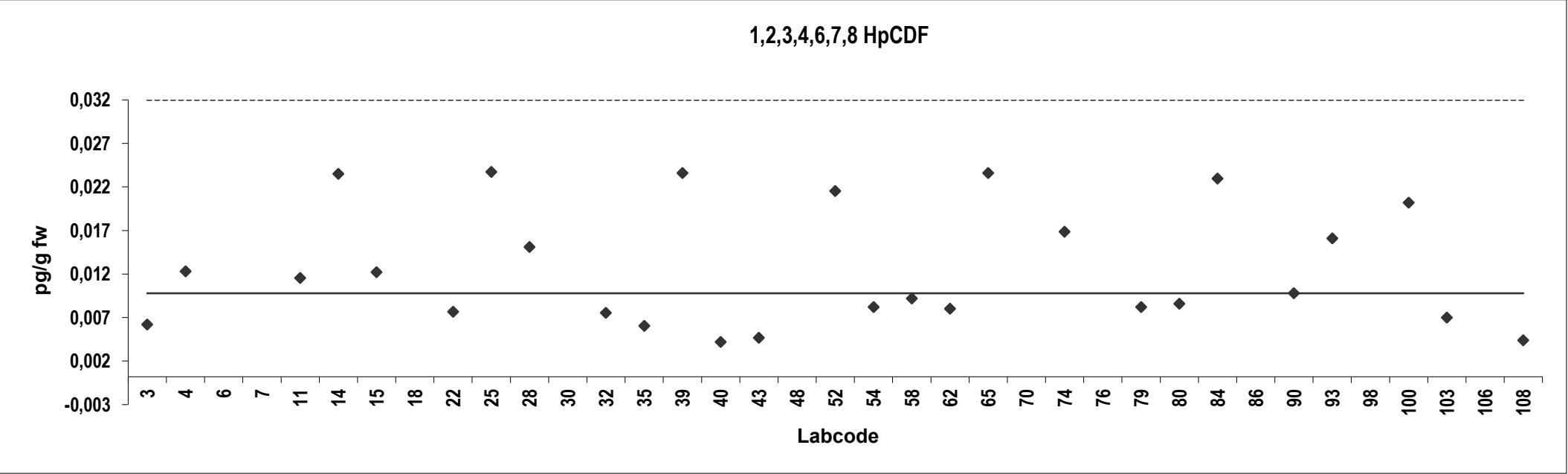


Salmon
Congener: 1,2,3,4,6,7,8 HpCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0060	-1,9				
4	0,012	1,3				
6	0,11	54	Outlier			
7	0,083	38	Outlier,ND			
11	0,011	0,91	ND			
14	0,023	7,1				
15	0,012	1,3				
18	0,10	47	Outlier,ND			
22	0,0075	-1,1				
25	0,024	7,3				
28	0,015	2,8				
30	0,15	73	Outlier,ND			
32	0,0074	-1,2				
35	0,0058	-2,0	ND			
39	0,023	7,2				
40	0,0040	-2,9				
43	0,0045	-2,7				
48	0,15	73	Outlier,ND			
52	0,021	6,1	ND			
54	0,0080	-0,83				
58	0,0090	-0,31				
62	0,0078	-0,93				
65	0,023	7,2				
70	0,13	63	Outlier,ND			
74	0,017	3,7	ND			
76	1,7	901	Outlier			
79	0,0080	-0,83				
80	0,0084	-0,62				
84	0,023	6,9	ND			
86	0,099	47	Outlier,ND			
90	0,0096	0,0000	ND			
93	0,016	3,3				
98	0,037	14	Outlier,ND			
100	0,020	5,4				
103	0,0068	-1,5				
106	0,11	52	Outlier			
108	0,0042	-2,8	ND			

Consensus statistics

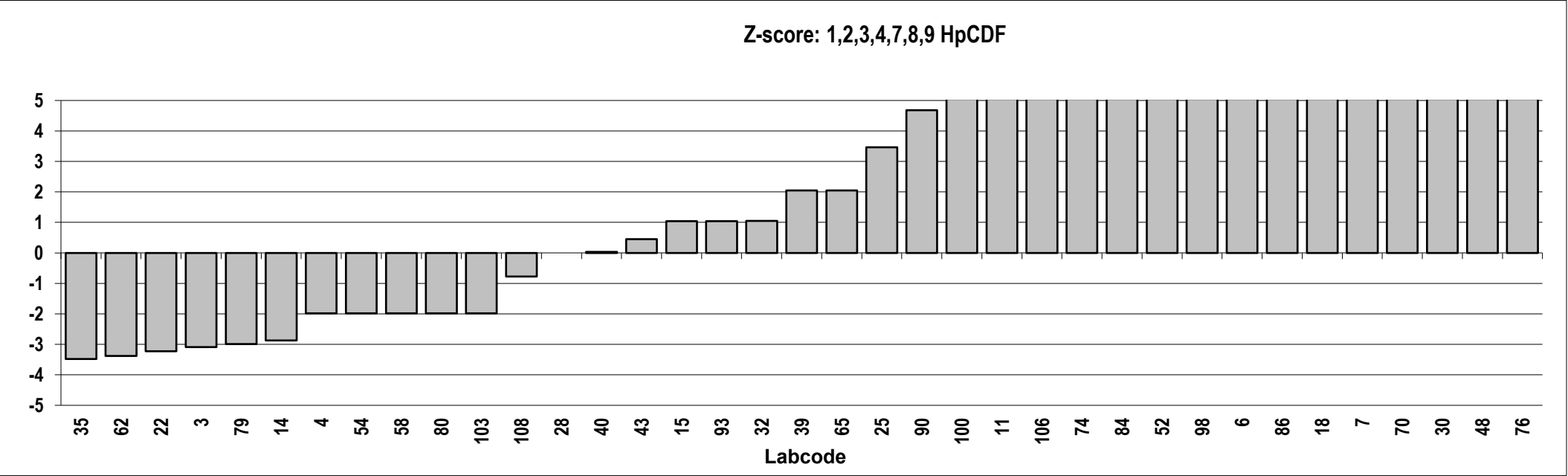
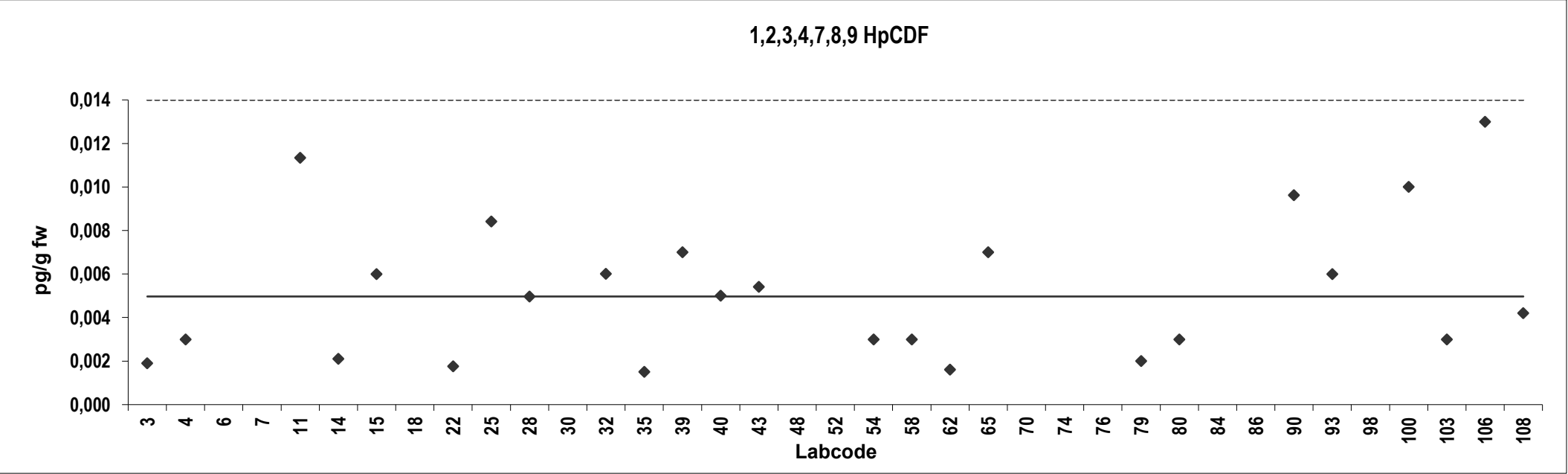
Consensus median, pg/g	0,010
Median all values pg/g	0,016
Consensus mean, pg/g	0,013
Standard deviation, pg/g	0,0069
Relative standard deviation, %	55
No. of values reported	37
No. of values removed	10
No. of reported non-detects	14



Salmon
Congener: 1,2,3,4,7,8,9 HpCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0019	-3,1				
4	0,0030	-2,0				
6	0,061	56	Outlier			
7	0,11	108	Outlier,ND			
11	0,011	6,4	ND			
14	0,0021	-2,9	ND			
15	0,0060	1,0				
18	0,10	96	Outlier,ND			
22	0,0018	-3,2	ND			
25	0,0084	3,5				
28	0,0050	0,0000	ND			
30	0,15	146	Outlier,ND			
32	0,0060	1,1				
35	0,0015	-3,5	ND			
39	0,0070	2,0	ND			
40	0,0050	0,032	ND			
43	0,0054	0,45				
48	0,18	176	Outlier,ND			
52	0,039	34	Outlier,ND			
54	0,0030	-2,0	ND			
58	0,0030	-2,0	ND			
62	0,0016	-3,4	ND			
65	0,0070	2,0	ND			
70	0,13	126	Outlier,ND			
74	0,017	12	Outlier,ND			
76	1,6	1628	Outlier			
79	0,0020	-3,0				
80	0,0030	-2,0				
84	0,023	18	Outlier,ND			
86	0,099	95	Outlier,ND			
90	0,0096	4,7	ND			
93	0,0060	1,0	ND			
98	0,045	40	Outlier,ND			
100	0,010	5,1	ND			
103	0,0030	-2,0	ND			
106	0,013	8,1	ND			
108	0,0042	-0,77	ND			

Consensus statistics	
Consensus median, pg/g	0,0050
Median all values pg/g	0,0070
Consensus mean, pg/g	0,0052
Standard deviation, pg/g	0,0033
Relative standard deviation, %	63
No. of values reported	37
No. of values removed	12
No. of reported non-detects	27

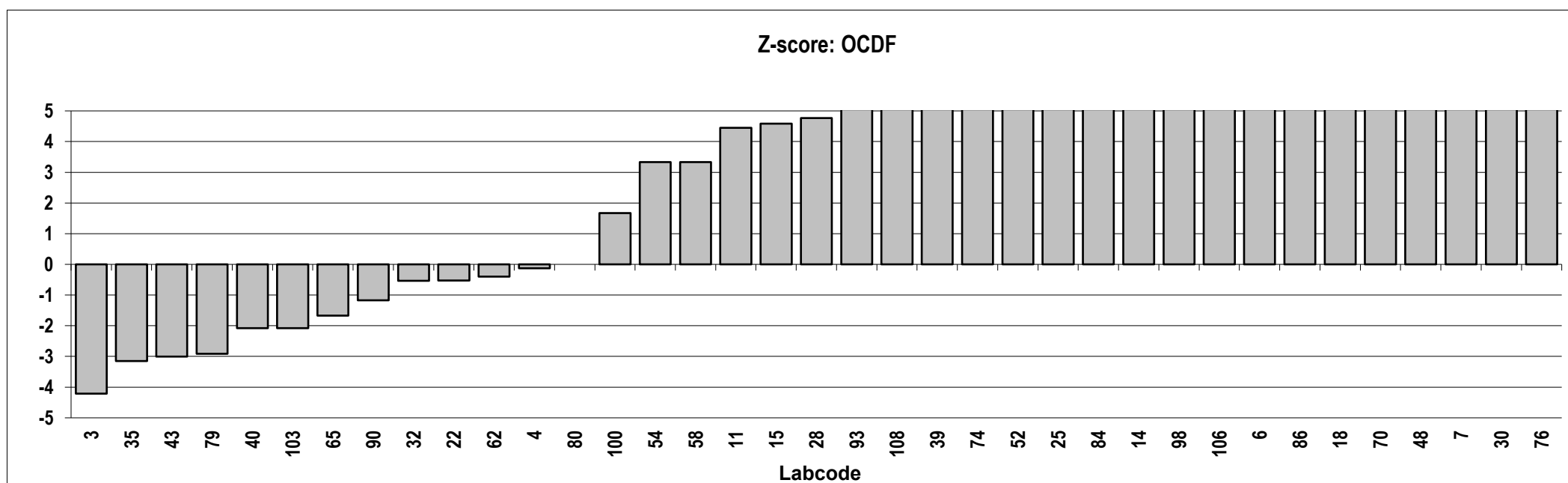
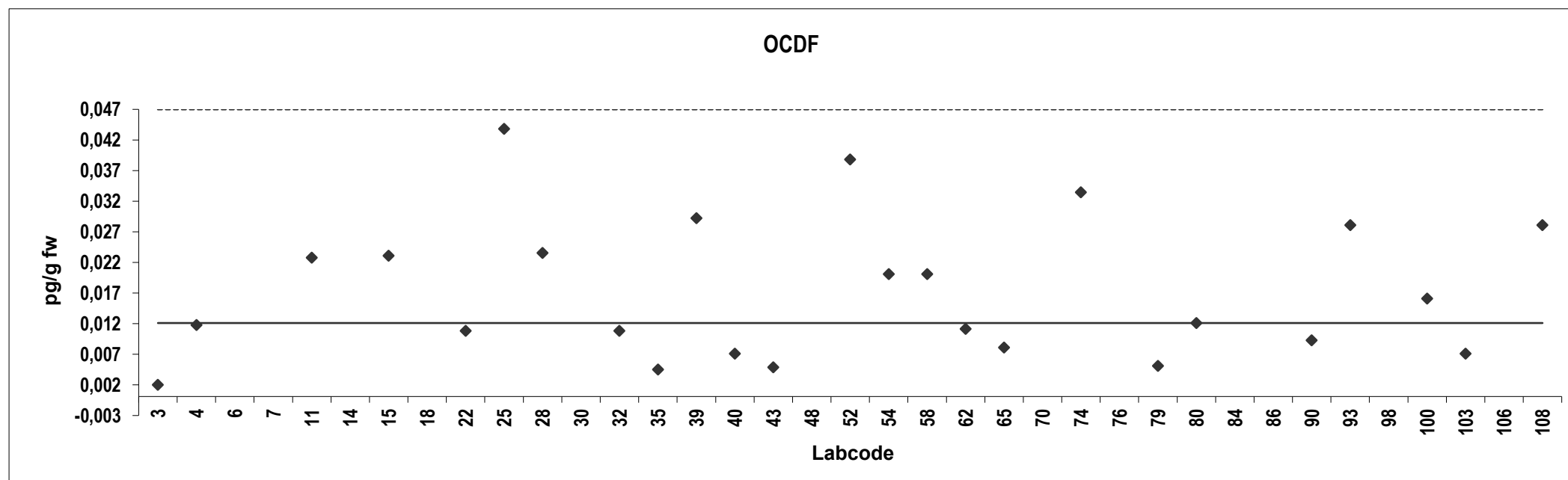


Salmon
Congener: OCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0019	-4,2				
4	0,012	-0,13				
6	0,16	61	Outlier			
7	0,89	368	Outlier,ND			
11	0,023	4,4	ND			
14	0,083	29	Outlier			
15	0,023	4,6				
18	0,20	78	Outlier,ND			
22	0,011	-0,53	ND			
25	0,044	13				
28	0,023	4,8				
30	2,0	828	Outlier,ND			
32	0,011	-0,54				
35	0,0044	-3,2	ND			
39	0,029	7,1				
40	0,0070	-2,1	ND			
43	0,0048	-3,0				
48	0,34	137	Outlier,ND			
52	0,039	11	ND			
54	0,020	3,3	ND			
58	0,020	3,3	ND			
62	0,011	-0,40	ND			
65	0,0080	-1,7	ND			
70	0,31	124	Outlier,ND			
74	0,033	8,9	ND			
76	3,8	1599	Outlier			
79	0,0050	-2,9				
80	0,012	0,0000	ND			
84	0,057	19	Outlier,ND			
86	0,20	78	Outlier,ND			
90	0,0092	-1,2				
93	0,028	6,7	ND			
98	0,12	44	Outlier,ND			
100	0,016	1,7				
103	0,0070	-2,1	ND			
106	0,13	49	Outlier			
108	0,028	6,7	ND			

Consensus statistics

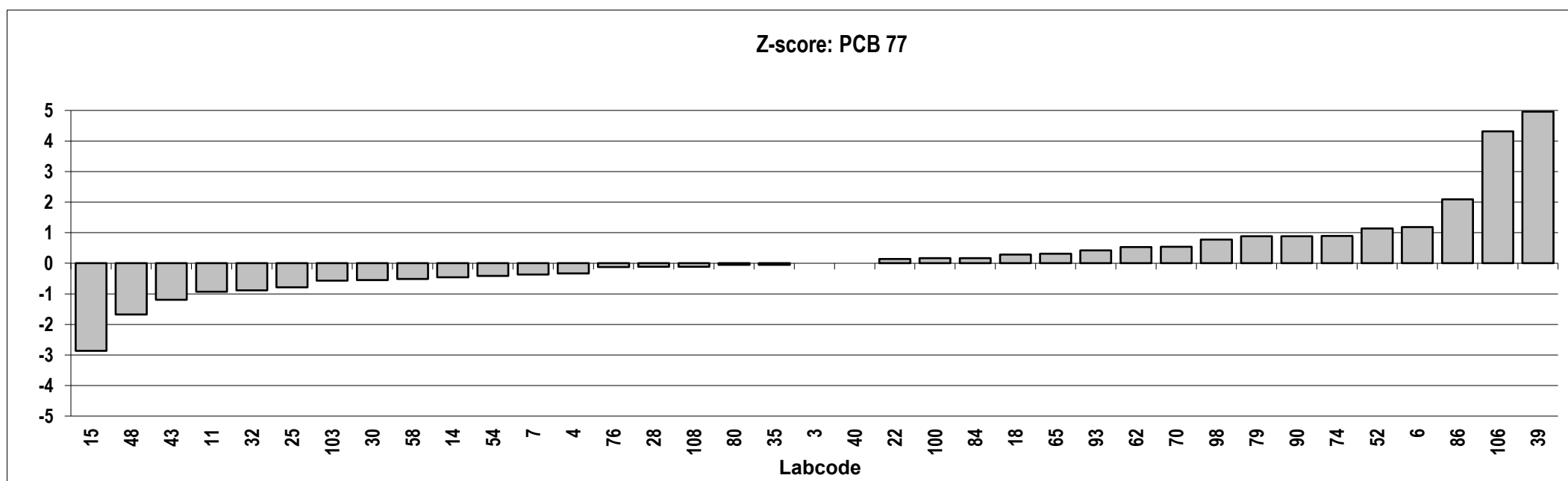
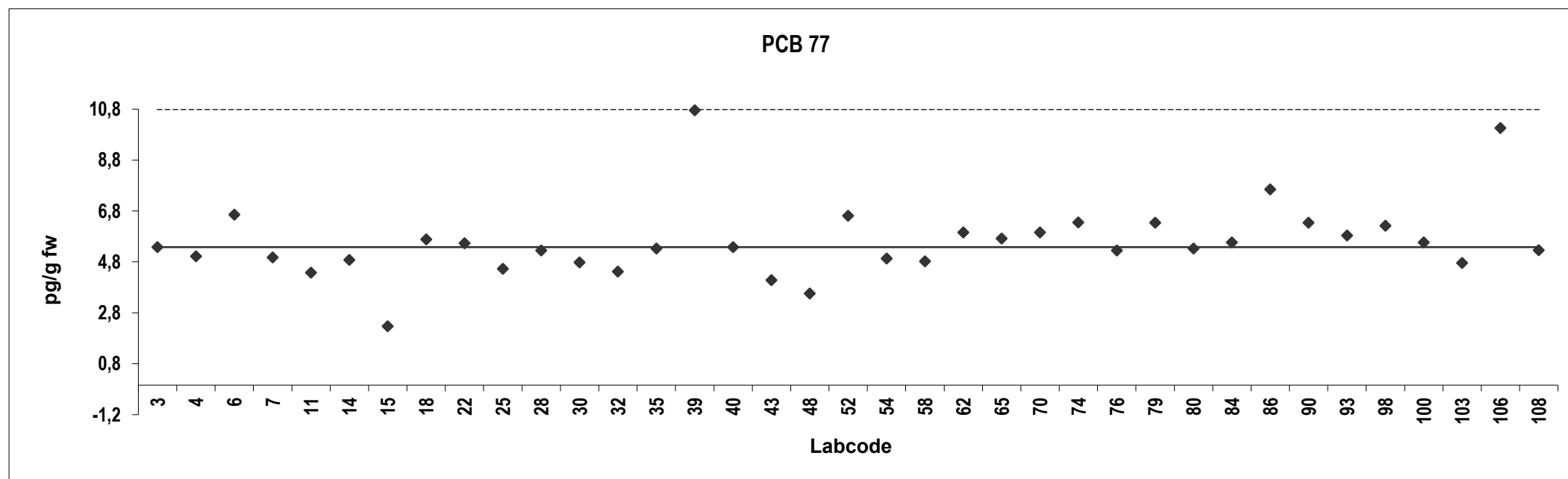
Consensus median, pg/g	0,012
Median all values pg/g	0,023
Consensus mean, pg/g	0,017
Standard deviation, pg/g	0,011
Relative standard deviation, %	67
No. of values reported	37
No. of values removed	12
No. of reported non-detects	22



Salmon
Congener: PCB 77

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	5,4	0,0000				
4	5,1	-0,33				
6	6,7	1,2				
7	5,0	-0,37				
11	4,4	-0,93				
14	4,9	-0,46				
15	2,3	-2,9				
18	5,7	0,29				
22	5,6	0,14				
25	4,6	-0,79				
28	5,3	-0,12				
30	4,8	-0,55				
32	4,5	-0,89				
35	5,4	-0,049				
39	11	5,0				
40	5,4	0,0000				
43	4,1	-1,2				
48	3,6	-1,7				
52	6,7	1,1				
54	5,0	-0,42				
58	4,9	-0,52				
62	6,0	0,53				
65	5,8	0,32				
70	6,0	0,54				
74	6,4	0,89				
76	5,3	-0,12				
79	6,4	0,88				
80	5,4	-0,055				
84	5,6	0,17				
86	7,7	2,1				
90	6,4	0,89				
93	5,9	0,42				
98	6,3	0,78				
100	5,6	0,17				
103	4,8	-0,57				
106	10	4,3				
108	5,3	-0,11				

Consensus statistics	
Consensus median, pg/g	5,4
Median all values pg/g	5,4
Consensus mean, pg/g	5,6
Standard deviation, pg/g	1,5
Relative standard deviation, %	27
No. of values reported	37
No. of values removed	0
No. of reported non-detects	0

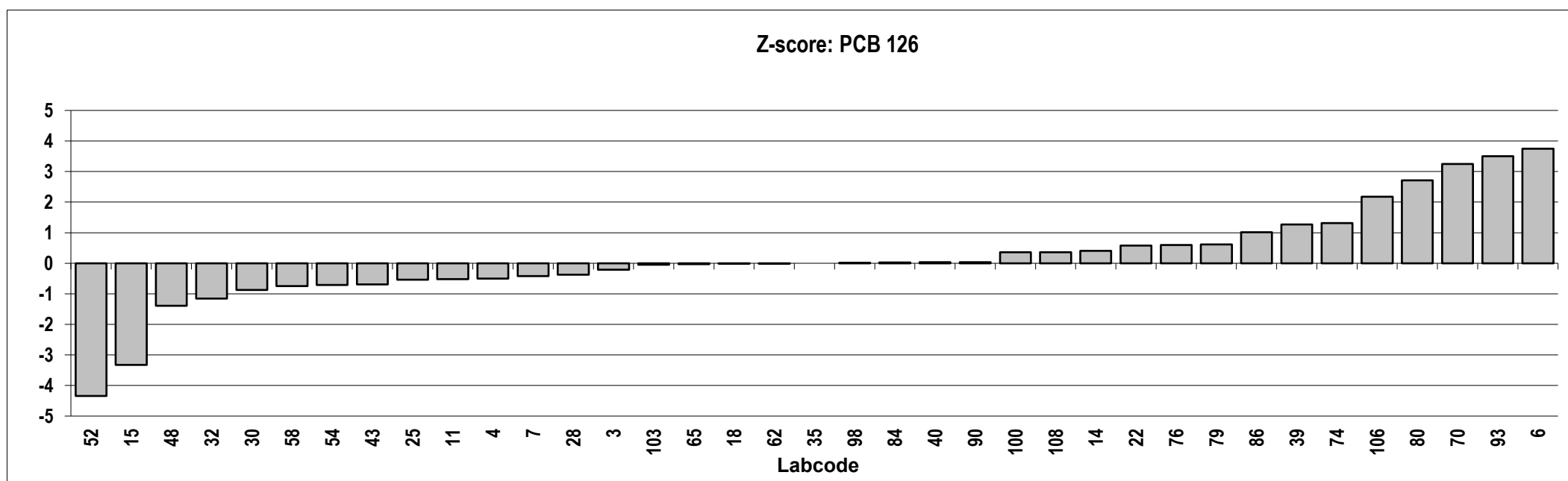
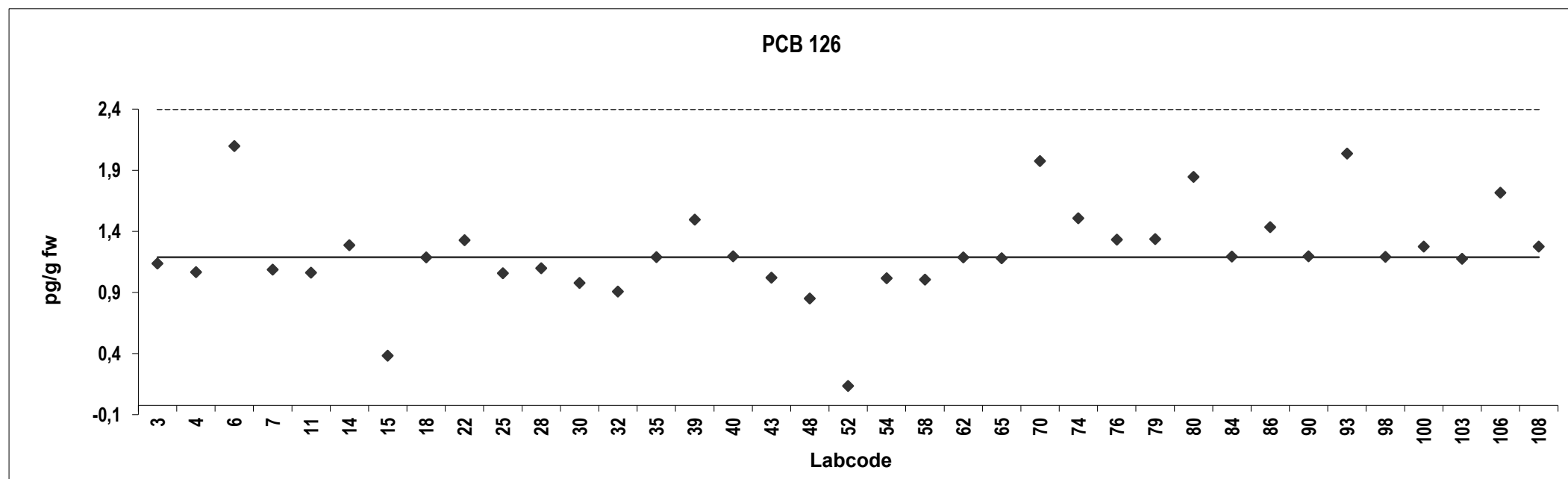


Salmon
Congener: PCB 126

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	1,2	-0,21				
4	1,1	-0,50				
6	2,1	3,7				
7	1,1	-0,42				
11	1,1	-0,52				
14	1,3	0,40				
15	0,41	-3,3				
18	1,2	-0,0083				
22	1,4	0,58				
25	1,1	-0,54				
28	1,1	-0,37				
30	1,0	-0,87				
32	0,93	-1,2				
35	1,2	0,0000				
39	1,5	1,3				
40	1,2	0,033				
43	1,0	-0,69				
48	0,88	-1,4				
52	0,16	-4,3	ND			
54	1,0	-0,71				
58	1,0	-0,75				
62	1,2	-0,0083				
65	1,2	-0,033				
70	2,0	3,3	ND			
74	1,5	1,3				
76	1,4	0,60				
79	1,4	0,61				
80	1,9	2,7				
84	1,2	0,027				
86	1,5	1,0				
90	1,2	0,033				
93	2,1	3,5				
98	1,2	0,014				
100	1,3	0,36				
103	1,2	-0,050				
106	1,7	2,2				
108	1,3	0,36				

Consensus statistics

Consensus median, pg/g	1,2
Median all values pg/g	1,2
Consensus mean, pg/g	1,3
Standard deviation, pg/g	0,38
Relative standard deviation, %	31
No. of values reported	37
No. of values removed	0
No. of reported non-detects	2

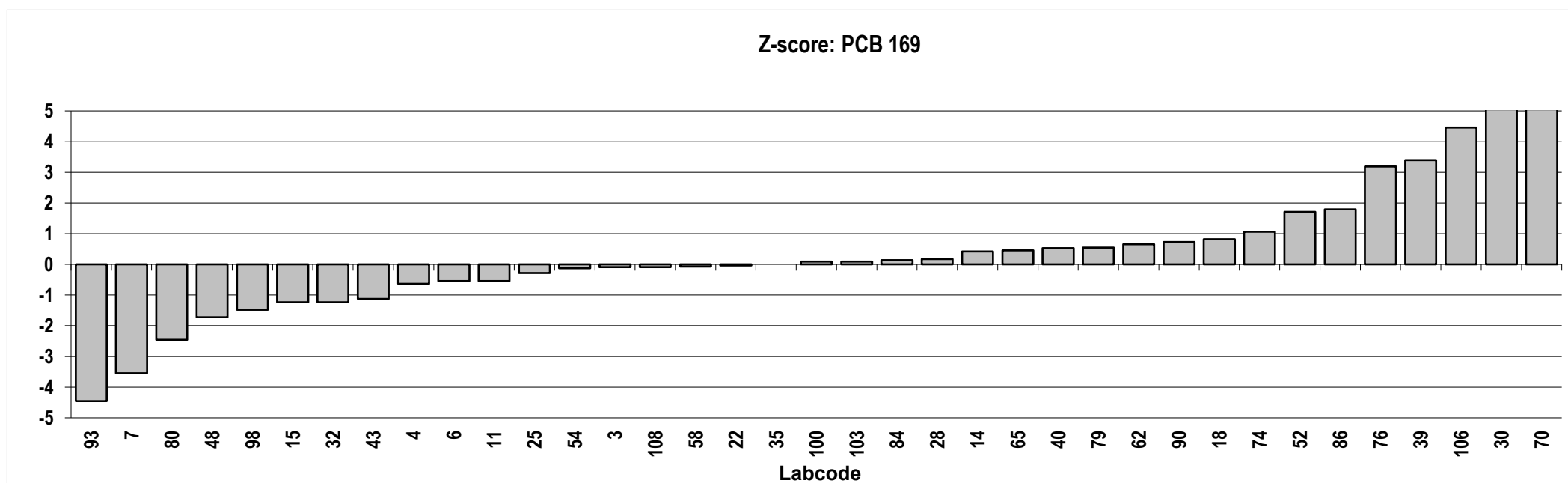
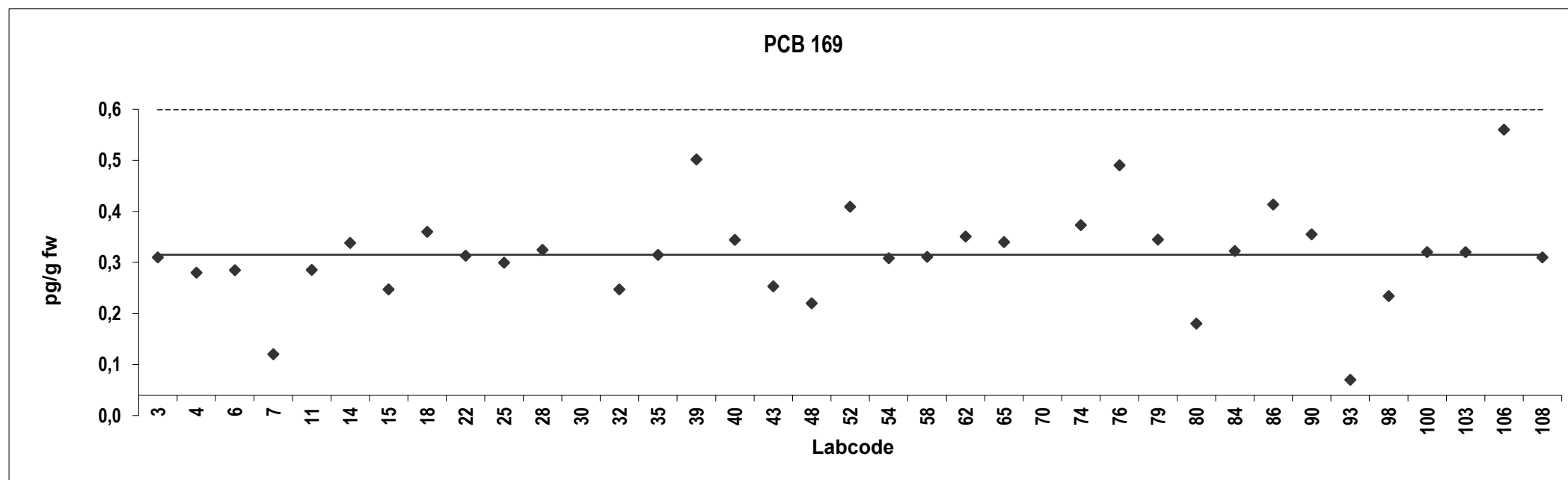


Salmon
Congener: PCB 169

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,27	-0,091				
4	0,24	-0,64				
6	0,25	-0,54				
7	0,080	-3,5				
11	0,25	-0,54				
14	0,30	0,42				
15	0,21	-1,2	ND			
18	0,32	0,82				
22	0,27	-0,033				
25	0,26	-0,28				
28	0,28	0,17				
30	1,0	13	Outlier,ND			
32	0,21	-1,2				
35	0,28	0,0000				
39	0,46	3,4				
40	0,30	0,53				
43	0,21	-1,1				
48	0,18	-1,7	ND			
52	0,37	1,7	ND			
54	0,27	-0,13				
58	0,27	-0,073				
62	0,31	0,65				
65	0,30	0,45				
70	2,0	31	Outlier,ND			
74	0,33	1,1	ND			
76	0,45	3,2				
79	0,31	0,55				
80	0,14	-2,5				
84	0,28	0,13				
86	0,37	1,8				
90	0,32	0,73				
93	0,030	-4,5	ND			
98	0,19	-1,5				
100	0,28	0,091				
103	0,28	0,091				
106	0,52	4,5				
108	0,27	-0,091				

Consensus statistics

Consensus median, pg/g	0,28
Median all values pg/g	0,28
Consensus mean, pg/g	0,28
Standard deviation, pg/g	0,095
Relative standard deviation, %	34
No. of values reported	37
No. of values removed	2
No. of reported non-detects	7

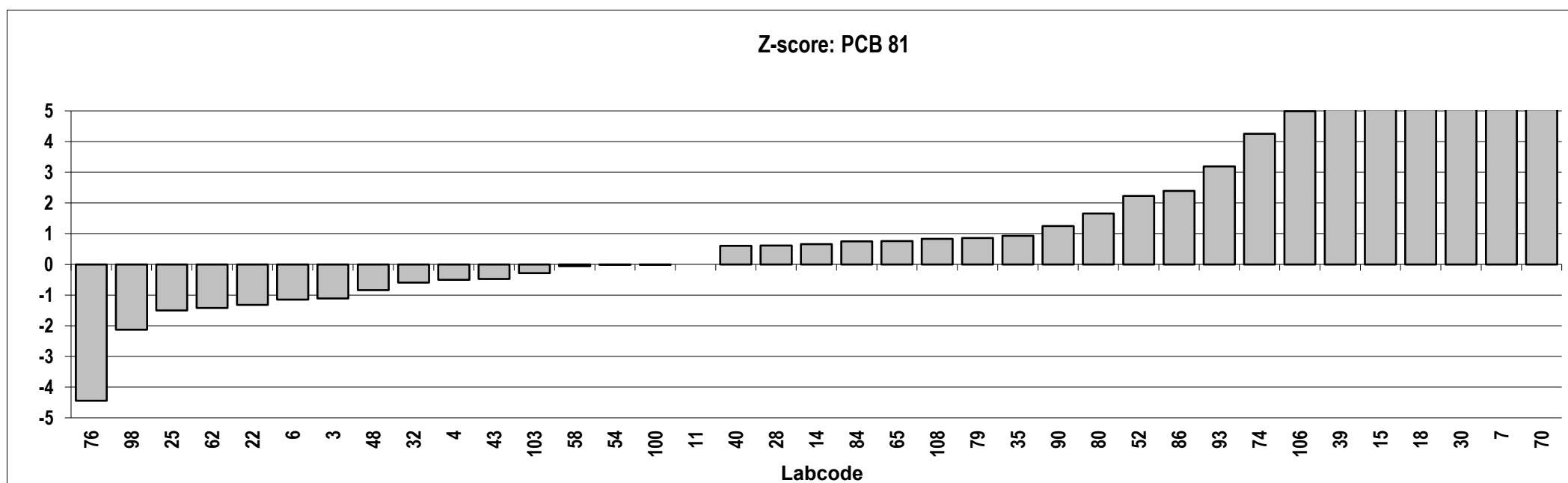
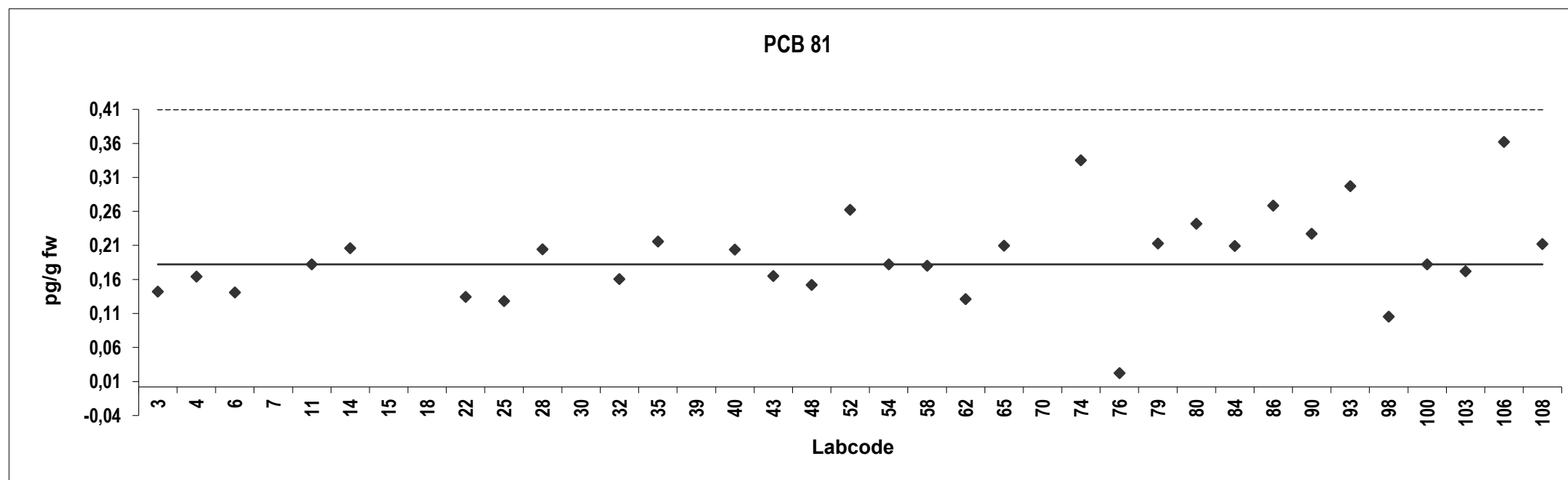


Salmon
Congener: PCB 81

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,14	-1,1				
4	0,16	-0,50				
6	0,14	-1,1				
7	1,4	34	Outlier			
11	0,18	0,0000				
14	0,20	0,66				
15	0,74	15	Outlier			
18	1,0	23	Outlier,ND			
22	0,13	-1,3				
25	0,13	-1,5				
28	0,20	0,61				
30	1,0	23	Outlier,ND			
32	0,16	-0,60				
35	0,21	0,93				
39	0,51	9,0	Outlier			
40	0,20	0,61				
43	0,16	-0,47				
48	0,15	-0,84				
52	0,26	2,2				
54	0,18	-0,0044				
58	0,18	-0,060				
62	0,13	-1,4				
65	0,21	0,76				
70	2,0	51	Outlier,ND			
74	0,33	4,3	ND			
76	0,020	-4,4				
79	0,21	0,86				
80	0,24	1,7				
84	0,21	0,75				
86	0,27	2,4				
90	0,23	1,2				
93	0,30	3,2				
98	0,10	-2,1	ND			
100	0,18	-0,0044				
103	0,17	-0,28				
106	0,36	5,0				
108	0,21	0,83				

Consensus statistics

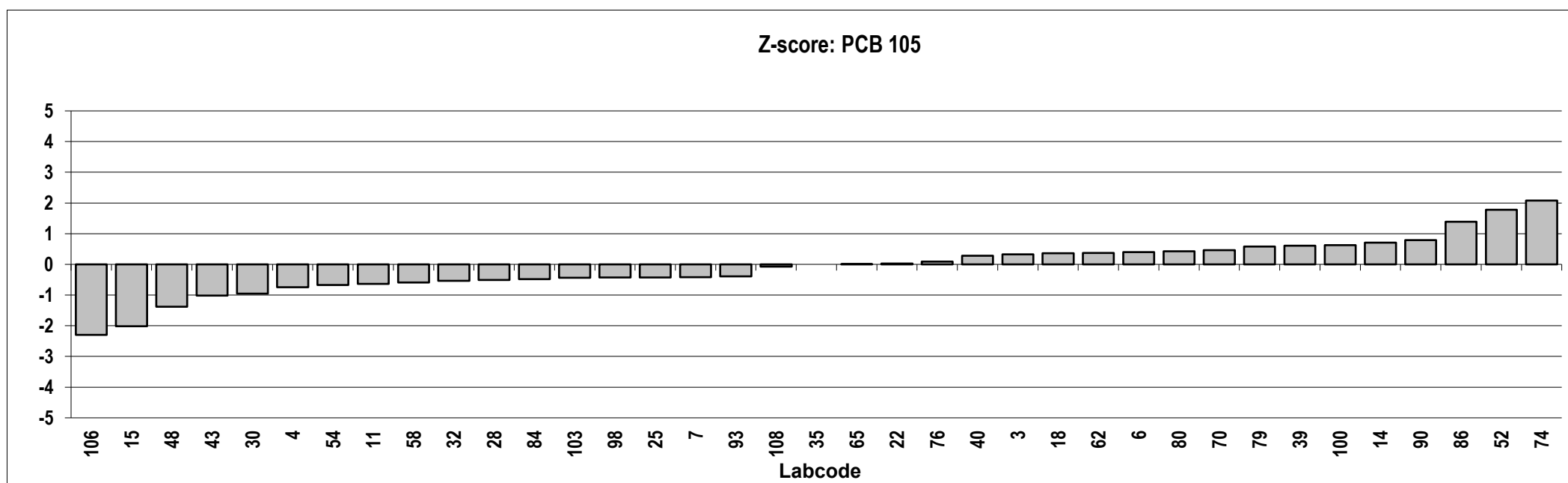
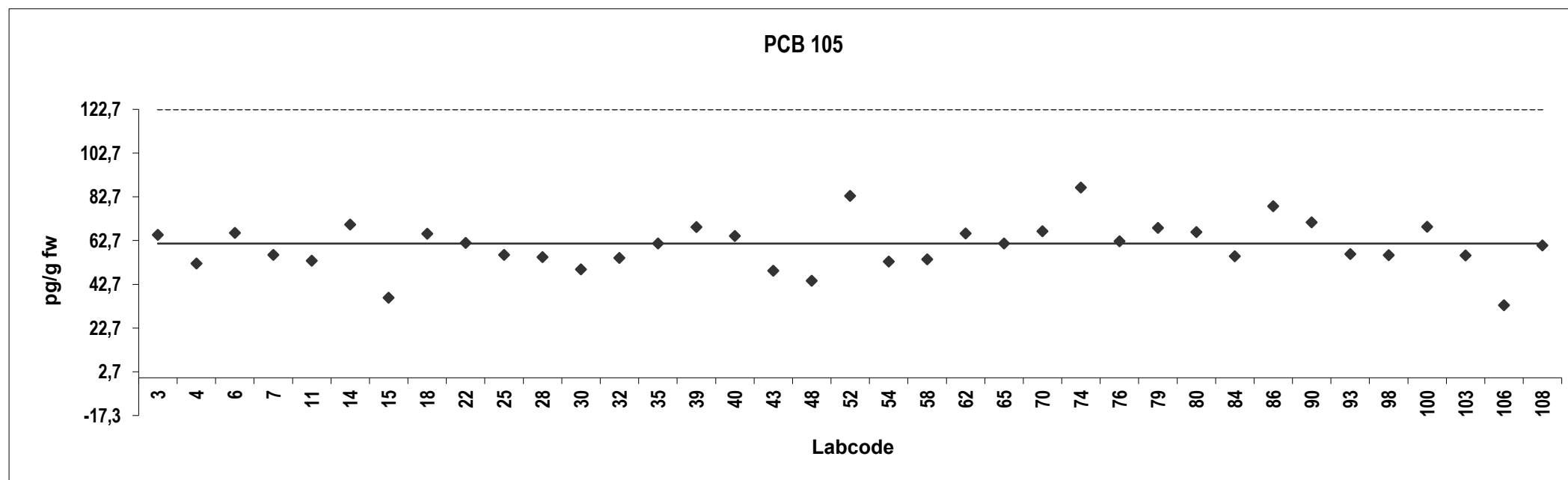
Consensus median, pg/g	0,18
Median all values pg/g	0,20
Consensus mean, pg/g	0,19
Standard deviation, pg/g	0,067
Relative standard deviation, %	35
No. of values reported	37
No. of values removed	6
No. of reported non-detects	5



Salmon
Congener: PCB 105

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	65	0,33				
4	52	-0,75				
6	66	0,40				
7	56	-0,42				
11	54	-0,64				
14	70	0,70				
15	37	-2,0				
18	66	0,36				
22	62	0,028				
25	56	-0,43				
28	55	-0,51				
30	50	-0,96				
32	55	-0,54				
35	61	0,0000				
39	69	0,61				
40	65	0,28				
43	49	-1,0				
48	44	-1,4				
52	83	1,8				
54	53	-0,67				
58	54	-0,59				
62	66	0,37				
65	61	0,0052				
70	67	0,46				
74	87	2,1				
76	62	0,088				
79	69	0,58				
80	67	0,43				
84	56	-0,48				
86	78	1,4				
90	71	0,79				
93	57	-0,39				
98	56	-0,43				
100	69	0,62				
103	56	-0,44				
106	33	-2,3				
108	61	-0,071				

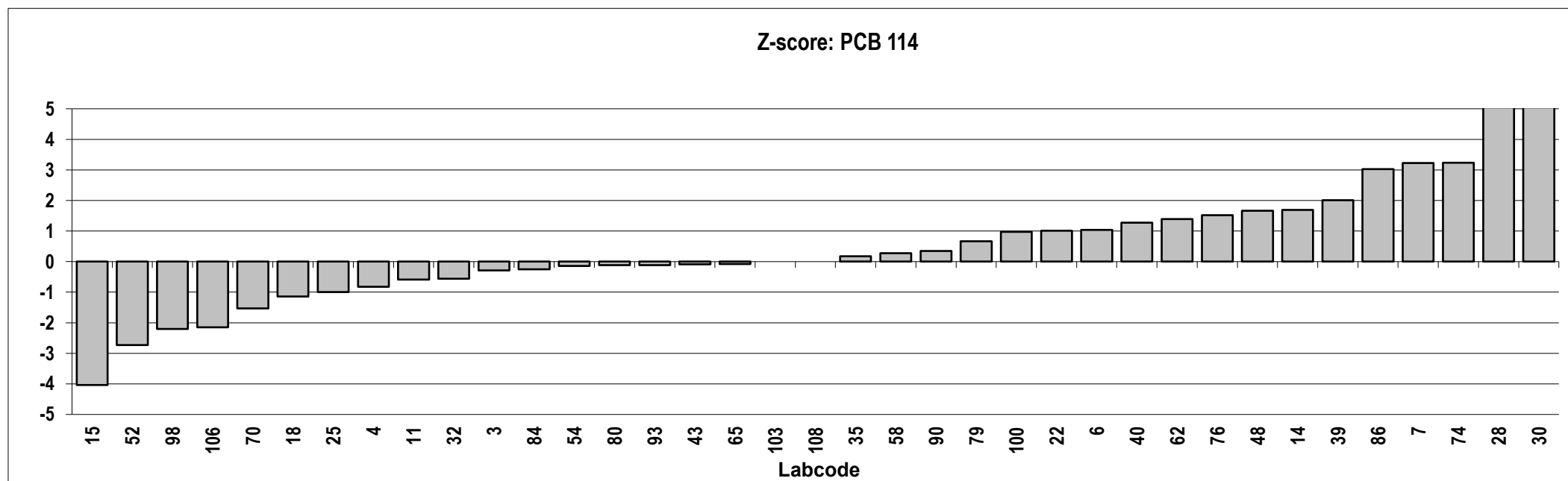
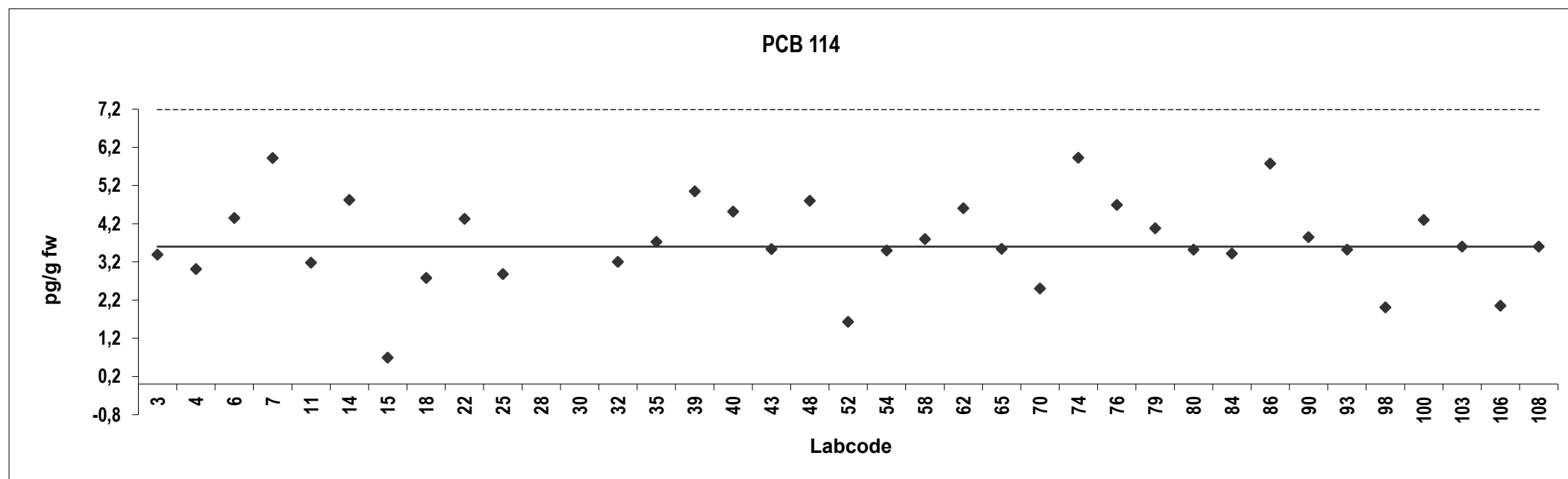
Consensus statistics	
Consensus median, pg/g	61
Median all values pg/g	61
Consensus mean, pg/g	60
Standard deviation, pg/g	11
Relative standard deviation, %	18
No. of values reported	37
No. of values removed	0
No. of reported non-detects	0



Salmon
Congener: PCB 114

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	3,4	-0,29				
4	3,0	-0,82				
6	4,3	1,0				
7	5,9	3,2				
11	3,2	-0,59				
14	4,8	1,7				
15	0,69	-4,0				
18	2,8	-1,1				
22	4,3	1,0				
25	2,9	-1,0				
28	9,5	8,3	Outlier,ND			
30	10	8,9	Outlier,ND			
32	3,2	-0,56				
35	3,7	0,17				
39	5,0	2,0				
40	4,5	1,3				
43	3,5	-0,089				
48	4,8	1,7	ND			
52	1,6	-2,7				
54	3,5	-0,14				
58	3,8	0,28				
62	4,6	1,4				
65	3,5	-0,075				
70	2,5	-1,5				
74	5,9	3,2				
76	4,7	1,5				
79	4,1	0,67				
80	3,5	-0,11				
84	3,4	-0,25				
86	5,8	3,0				
90	3,9	0,35				
93	3,5	-0,11				
98	2,0	-2,2				
100	4,3	1,0				
103	3,6	0,0000				
106	2,1	-2,2				
108	3,6	0,0000				

Consensus statistics	
Consensus median, pg/g	3,6
Median all values pg/g	3,6
Consensus mean, pg/g	3,7
Standard deviation, pg/g	1,2
Relative standard deviation, %	31
No. of values reported	37
No. of values removed	2
No. of reported non-detects	3

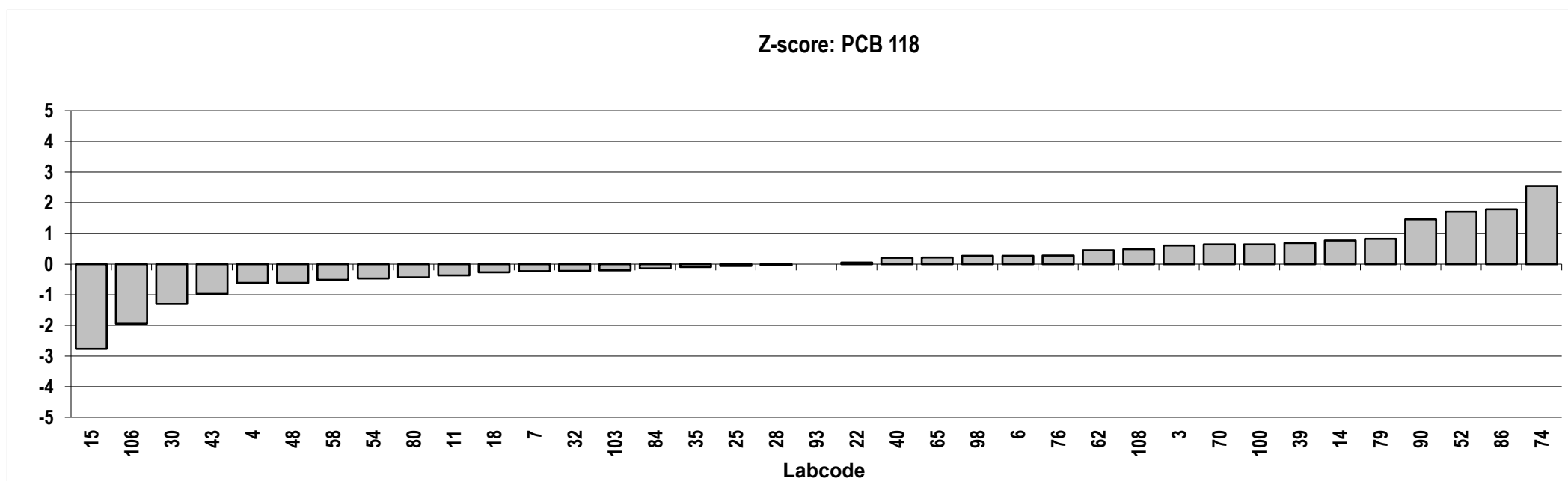
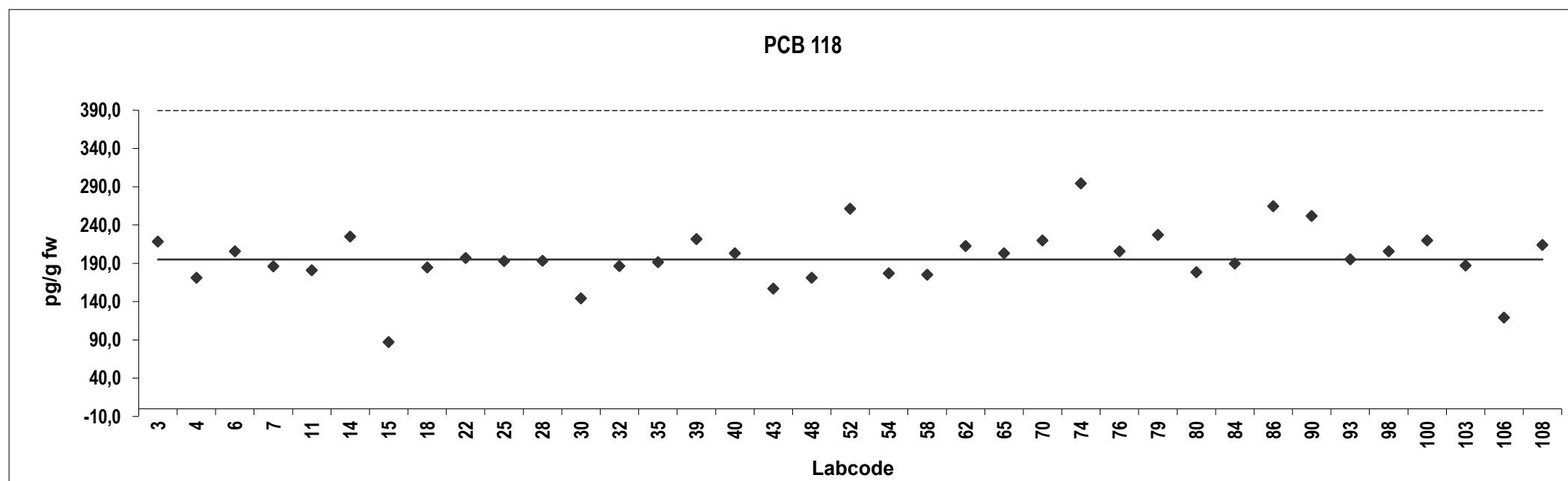


Congener: PCB 118

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	219	0,60				
4	171	-0,62				
6	206	0,27				
7	186	-0,23				
11	181	-0,36				
14	225	0,77				
15	87	-2,8				
18	184	-0,27				
22	197	0,052				
25	193	-0,056				
28	193	-0,044				
30	144	-1,3				
32	186	-0,22				
35	191	-0,092				
39	222	0,68				
40	203	0,21				
43	157	-0,98				
48	171	-0,62				
52	261	1,7				
54	177	-0,46				
58	175	-0,51				
62	213	0,45				
65	203	0,21				
70	220	0,64				
74	294	2,6				
76	206	0,28				
79	227	0,82				
80	178	-0,43				
84	190	-0,14				
86	265	1,8				
90	252	1,5				
93	195	0,0000				
98	206	0,27				
100	220	0,64				
103	187	-0,21				
106	119	-1,9				
108	214	0,49				

Consensus statistics

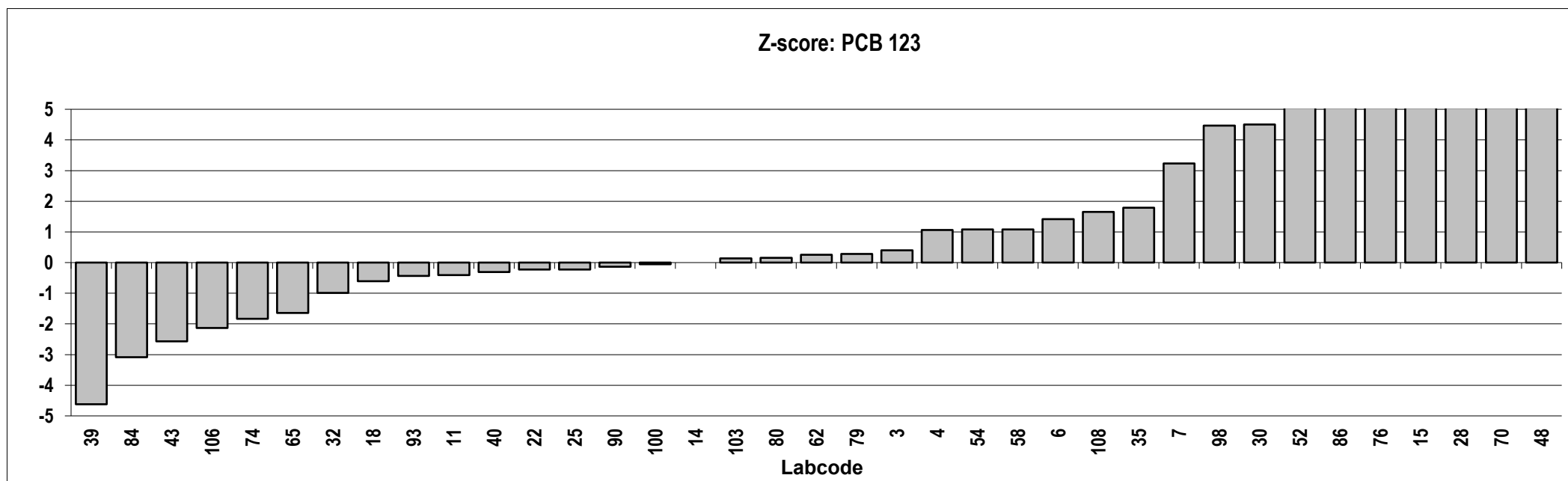
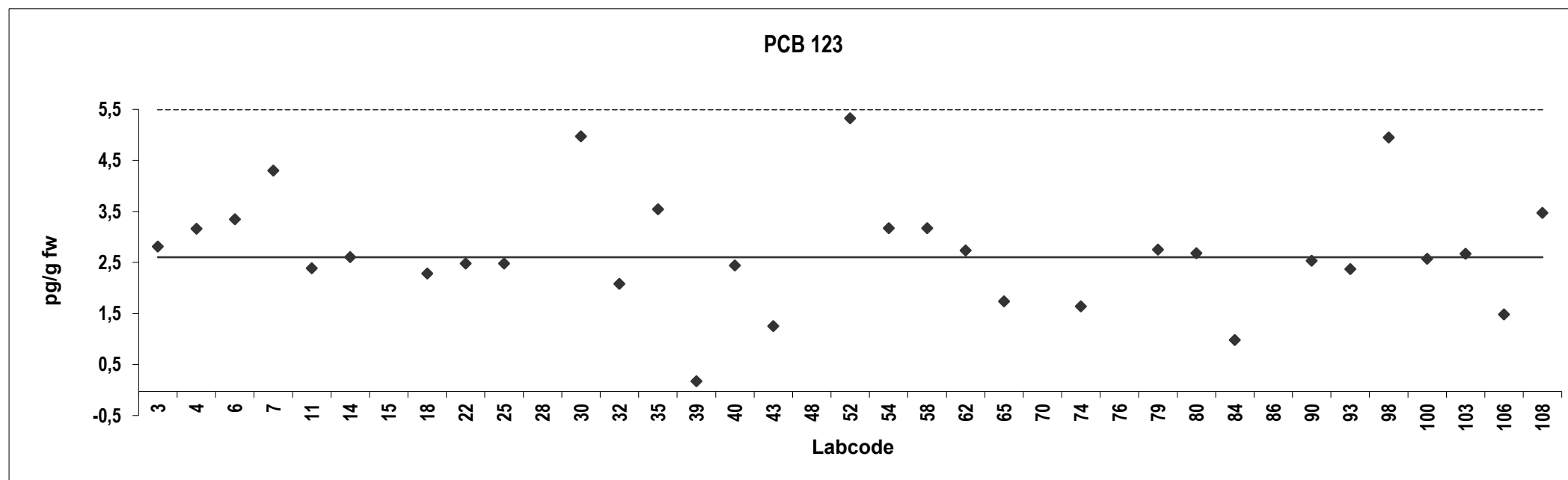
Consensus median, pg/g	195
Median all values pg/g	195
Consensus mean, pg/g	198
Standard deviation, pg/g	38
Relative standard deviation, %	19
No. of values reported	37
No. of values removed	0
No. of reported non-detects	0



Salmon
Congener: PCB 123

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	2,8	0,40				
4	3,2	1,1				
6	3,4	1,4				
7	4,3	3,2				
11	2,4	-0,41				
14	2,6	0,0000				
15	8,9	12	Outlier			
18	2,3	-0,61				
22	2,5	-0,23				
25	2,5	-0,23				
28	10	14	Outlier,ND			
30	5,0	4,5	ND			
32	2,1	-0,99				
35	3,6	1,8				
39	0,20	-4,6	ND			
40	2,5	-0,30				
43	1,3	-2,6				
48	47	85	Outlier			
52	5,4	5,2				
54	3,2	1,1				
58	3,2	1,1				
62	2,8	0,25				
65	1,8	-1,6				
70	10	14	Outlier,ND			
74	1,7	-1,8	ND			
76	8,5	11	Outlier			
79	2,8	0,29				
80	2,7	0,15				
84	1,0	-3,1				
86	7,7	9,6	Outlier			
90	2,6	-0,13				
93	2,4	-0,44				
98	5,0	4,5				
100	2,6	-0,057				
103	2,7	0,13				
106	1,5	-2,1				
108	3,5	1,7				

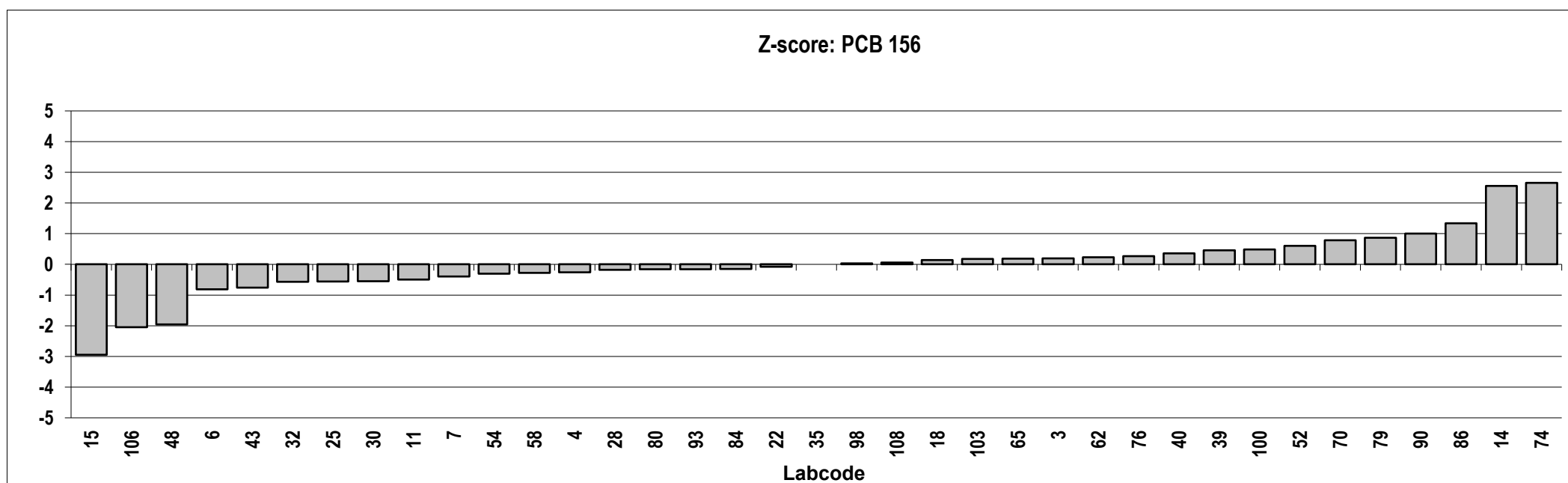
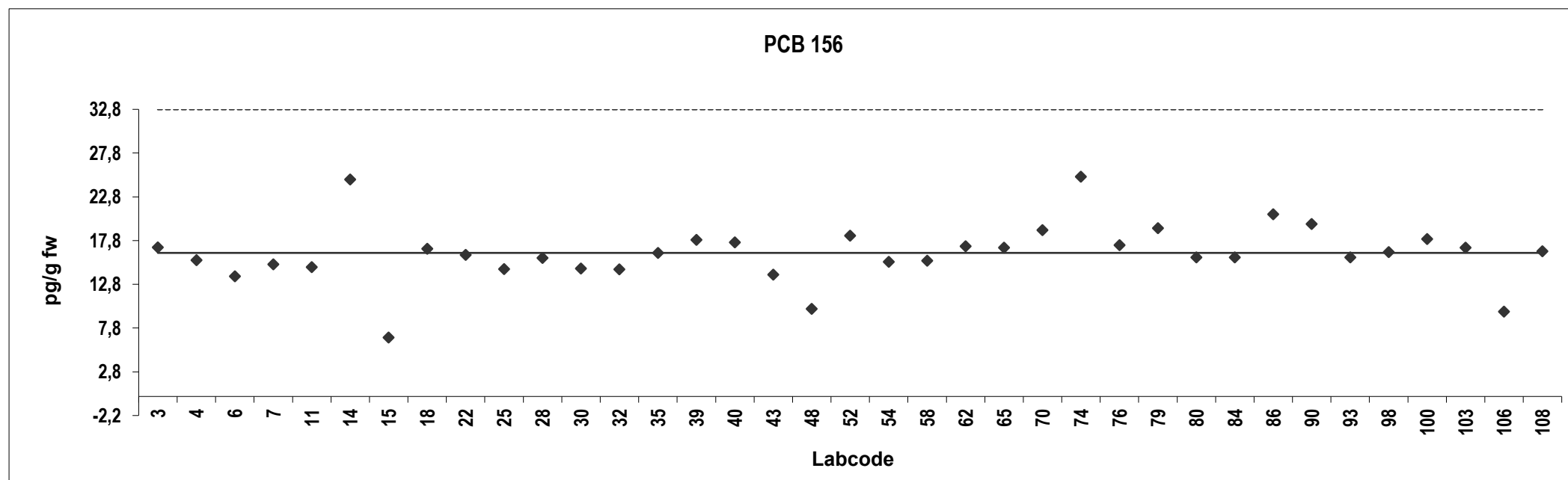
Consensus statistics	
Consensus median, pg/g	2,6
Median all values pg/g	2,8
Consensus mean, pg/g	2,8
Standard deviation, pg/g	1,1
Relative standard deviation, %	41
No. of values reported	37
No. of values removed	6
No. of reported non-detects	5



Salmon
Congener: PCB 156

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	17	0,19	ND			
4	16	-0,26				
6	14	-0,81				
7	15	-0,40				
11	15	-0,50				
14	25	2,6				
15	6,7	-2,9				
18	17	0,14				
22	16	-0,073				
25	15	-0,56				
28	16	-0,17				
30	15	-0,55				
32	15	-0,57				
35	16	0,0000				
39	18	0,46				
40	18	0,36				
43	14	-0,76				
48	10	-2,0				
52	18	0,60				
54	15	-0,31				
58	16	-0,28				
62	17	0,23				
65	17	0,18				
70	19	0,79				
74	25	2,7				
76	17	0,27				
79	19	0,86				
80	16	-0,16				
84	16	-0,15				
86	21	1,3				
90	20	1,0				
93	16	-0,16				
98	17	0,029				
100	18	0,48				
103	17	0,18				
106	9,7	-2,0				
108	17	0,058				

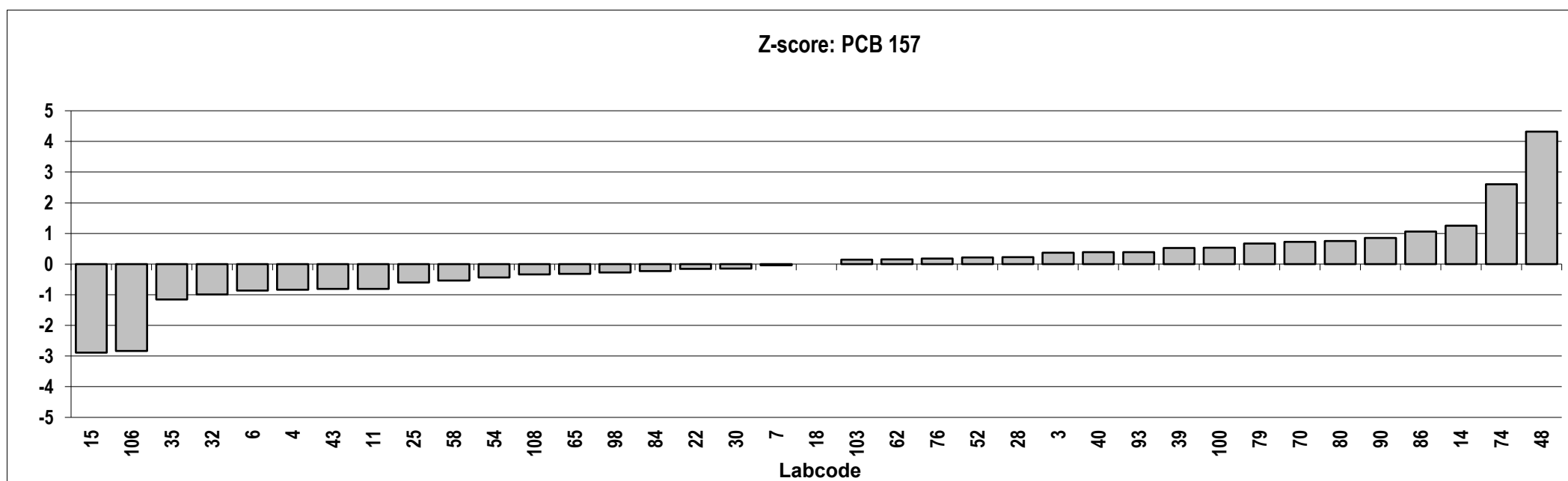
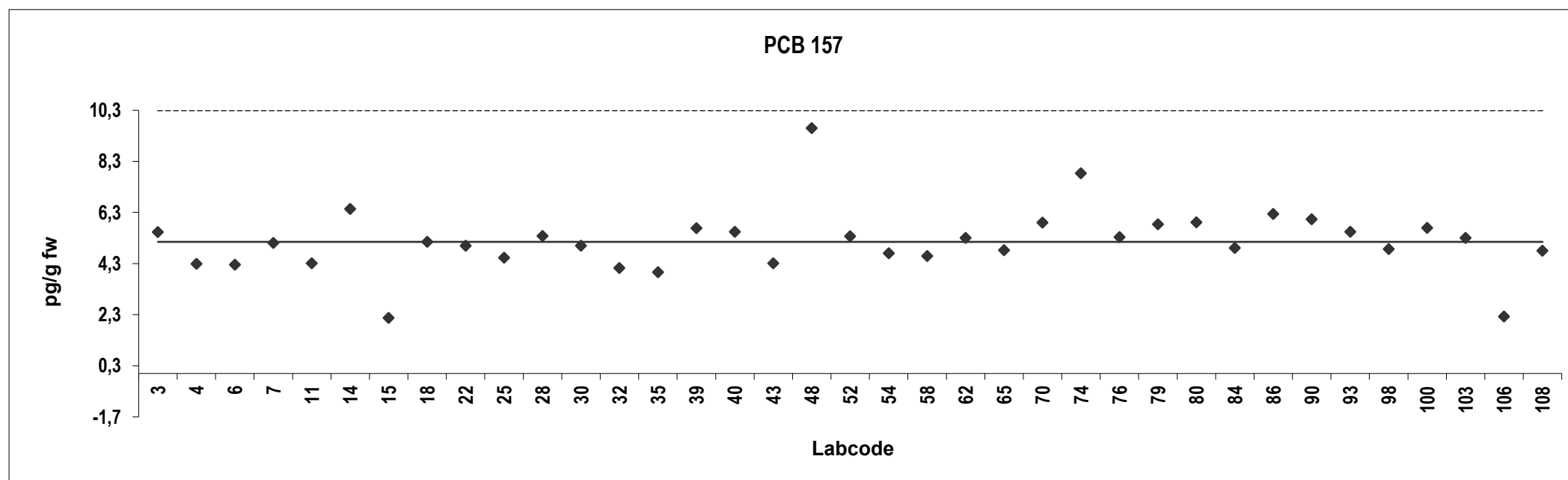
Consensus statistics	
Consensus median, pg/g	16
Median all values pg/g	16
Consensus mean, pg/g	16
Standard deviation, pg/g	3,4
Relative standard deviation, %	21
No. of values reported	37
No. of values removed	0
No. of reported non-detects	1



Salmon
Congener: PCB 157

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	5,5	0,37				
4	4,3	-0,83				
6	4,3	-0,87				
7	5,1	-0,039				
11	4,3	-0,81				
14	6,4	1,3				
15	2,2	-2,9				
18	5,2	0,0000				
22	5,0	-0,15				
25	4,5	-0,60				
28	5,4	0,23				
30	5,0	-0,15	ND			
32	4,1	-0,99				
35	4,0	-1,2				
39	5,7	0,52				
40	5,6	0,39				
43	4,3	-0,81				
48	9,6	4,3	ND			
52	5,4	0,21				
54	4,7	-0,44				
58	4,6	-0,53				
62	5,3	0,15				
65	4,8	-0,32				
70	5,9	0,73				
74	7,8	2,6				
76	5,3	0,18				
79	5,8	0,67				
80	5,9	0,75				
84	4,9	-0,23				
86	6,2	1,1				
90	6,0	0,85				
93	5,6	0,39				
98	4,9	-0,27				
100	5,7	0,53				
103	5,3	0,15				
106	2,2	-2,8				
108	4,8	-0,34				

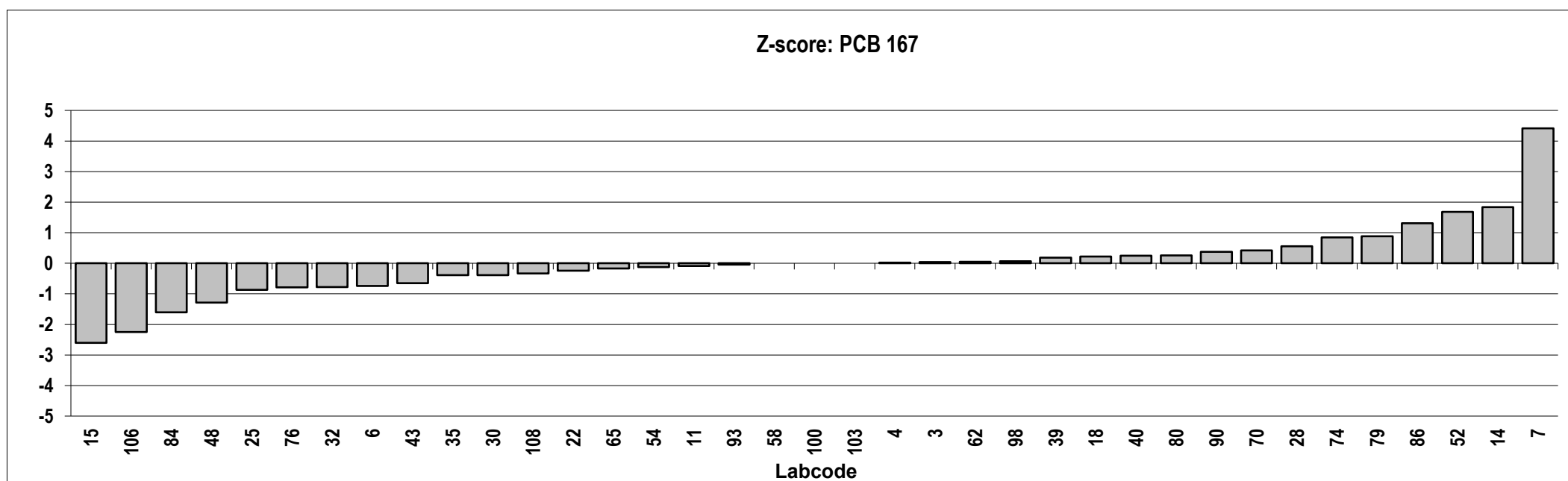
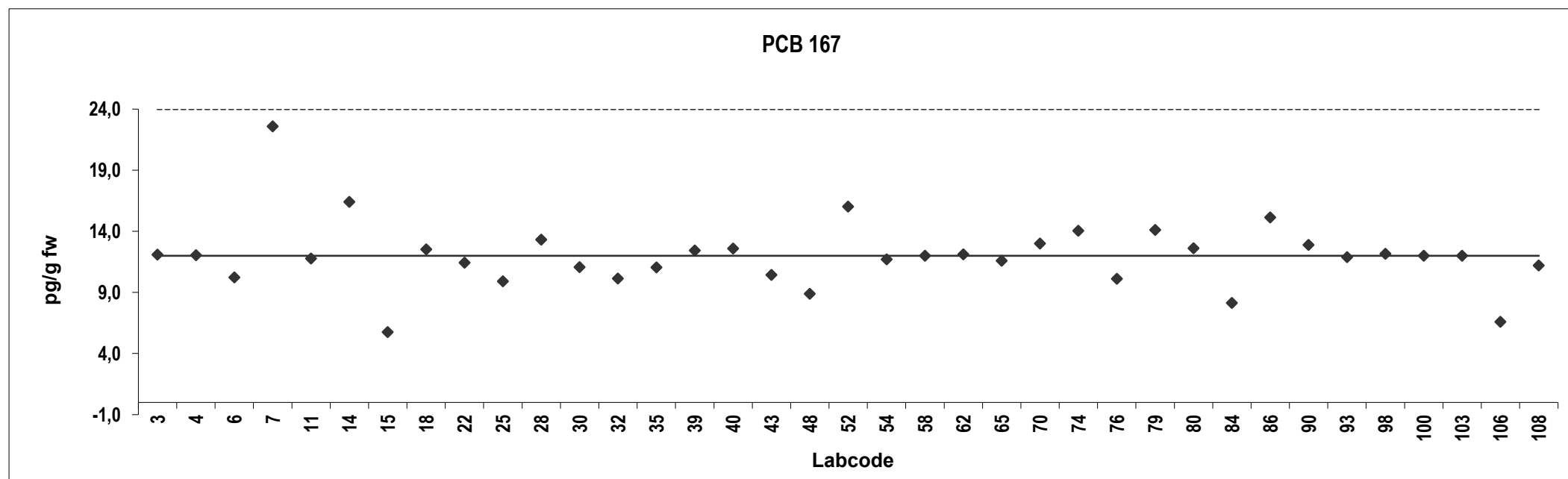
Consensus statistics	
Consensus median, pg/g	5,2
Median all values pg/g	5,2
Consensus mean, pg/g	5,2
Standard deviation, pg/g	1,3
Relative standard deviation, %	24
No. of values reported	37
No. of values removed	0
No. of reported non-detects	2



Salmon
Congener: PCB 167

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	12	0,042	ND			
4	12	0,021				
6	10	-0,74				
7	23	4,4				
11	12	-0,092				
14	16	1,8				
15	5,7	-2,6				
18	13	0,22				
22	11	-0,24				
25	9,9	-0,87				
28	13	0,55				
30	11	-0,39				
32	10	-0,78				
35	11	-0,39				
39	12	0,18				
40	13	0,25				
43	10	-0,65				
48	8,9	-1,3				
52	16	1,7				
54	12	-0,13				
58	12	0,0000				
62	12	0,050				
65	12	-0,17				
70	13	0,42				
74	14	0,85				
76	10	-0,79				
79	14	0,88				
80	13	0,25				
84	8,1	-1,6				
86	15	1,3				
90	13	0,38				
93	12	-0,042				
98	12	0,069				
100	12	0,0000				
103	12	0,0000				
106	6,6	-2,3				
108	11	-0,33				

Consensus statistics	
Consensus median, pg/g	12
Median all values pg/g	12
Consensus mean, pg/g	12
Standard deviation, pg/g	2,8
Relative standard deviation, %	23
No. of values reported	37
No. of values removed	0
No. of reported non-detects	1

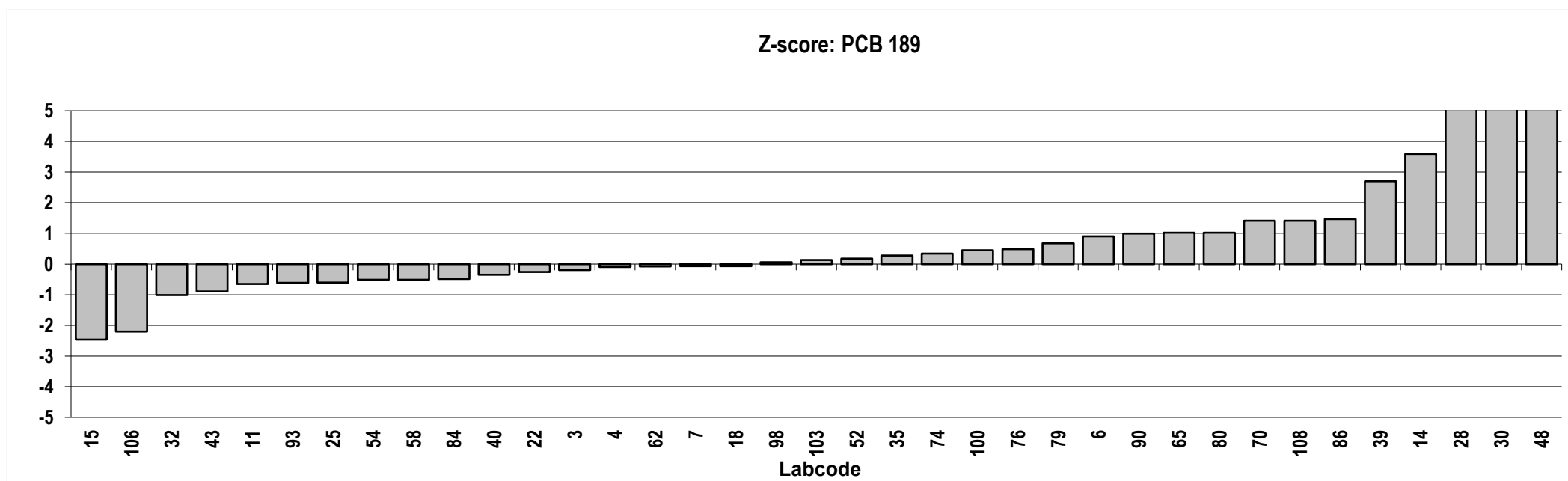
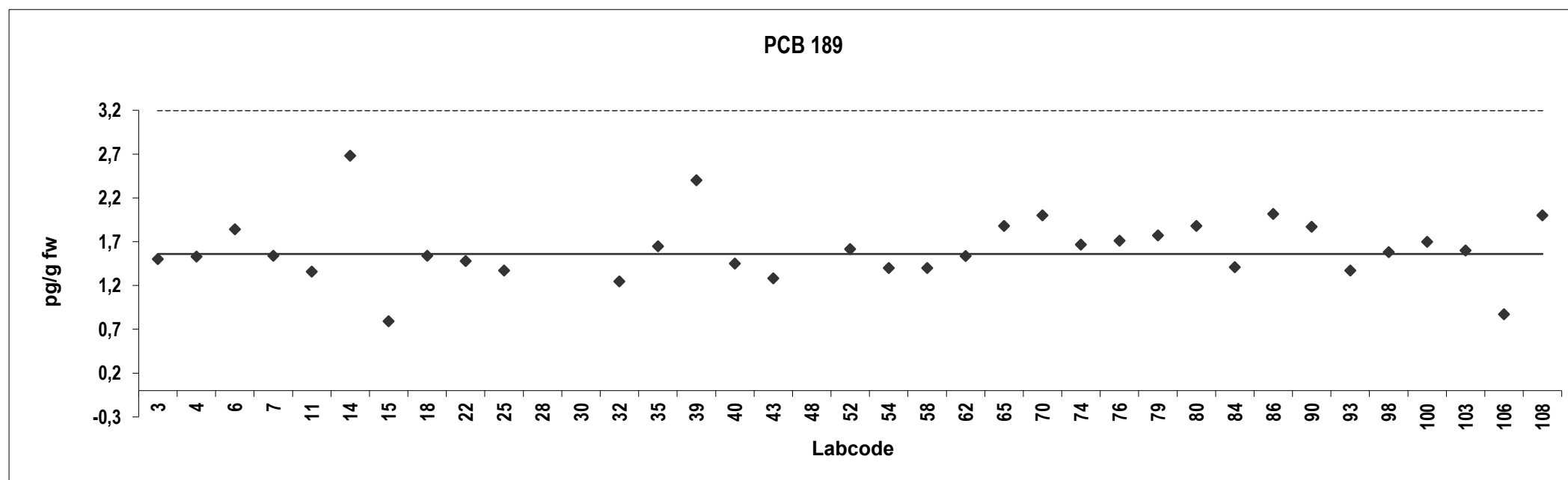


Salmon
Congener: PCB 189

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	1,5	-0,19				
4	1,5	-0,10				
6	1,8	0,90				
7	1,5	-0,063				
11	1,4	-0,65				
14	2,7	3,6				
15	0,79	-2,5				
18	1,5	-0,063				
22	1,5	-0,26				
25	1,4	-0,60				
28	3,4	6,0	Outlier,ND			
30	5,0	11	Outlier,ND			
32	1,2	-1,0				
35	1,6	0,28				
39	2,4	2,7				
40	1,5	-0,35				
43	1,3	-0,89				
48	12	33	Outlier,ND			
52	1,6	0,18				
54	1,4	-0,51				
58	1,4	-0,51				
62	1,5	-0,076				
65	1,9	1,0				
70	2,0	1,4	ND			
74	1,7	0,34	ND			
76	1,7	0,49				
79	1,8	0,68				
80	1,9	1,0				
84	1,4	-0,49				
86	2,0	1,5				
90	1,9	0,99				
93	1,4	-0,61				
98	1,6	0,063				
100	1,7	0,45				
103	1,6	0,13				
106	0,87	-2,2				
108	2,0	1,4				

Consensus statistics

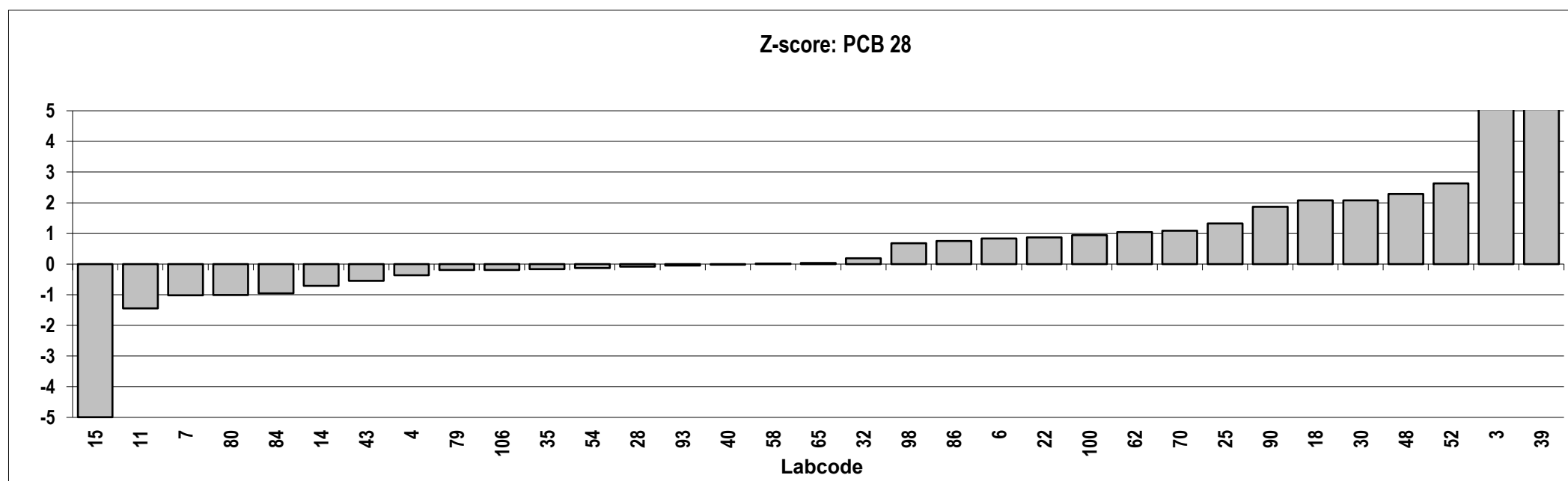
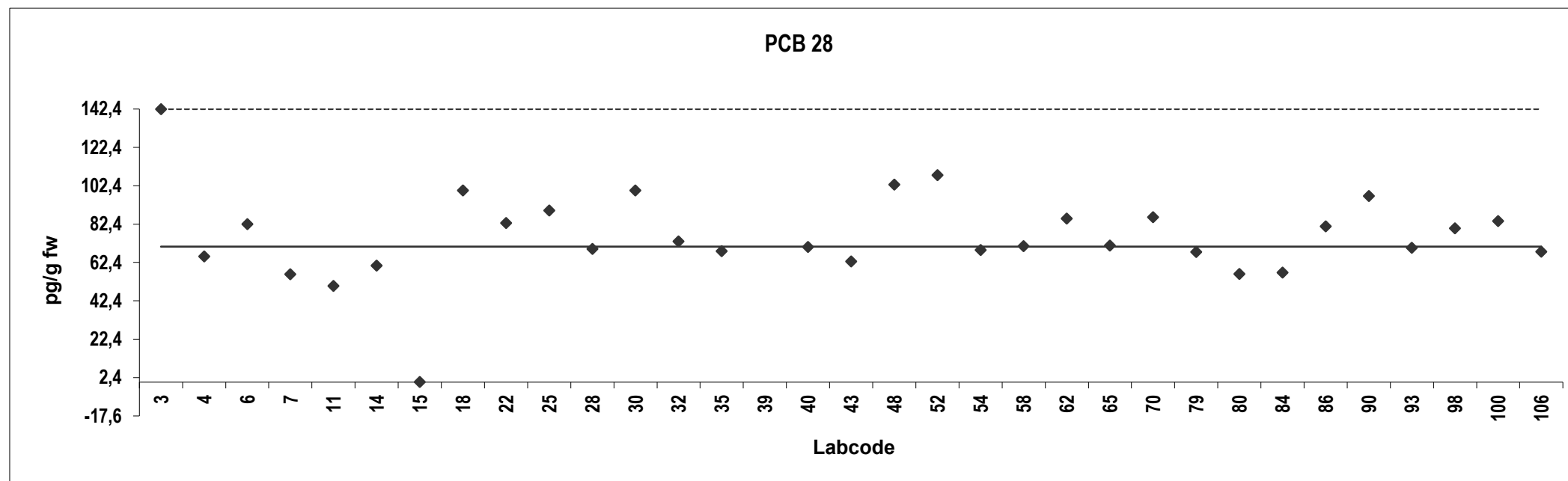
Consensus median, pg/g	1,6
Median all values pg/g	1,6
Consensus mean, pg/g	1,6
Standard deviation, pg/g	0,37
Relative standard deviation, %	23
No. of values reported	37
No. of values removed	3
No. of reported non-detects	5



Salmon
Congener: PCB 28

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	142	5,1				
4	66	-0,37				
6	82	0,83				
7	56	-1,0				
11	50	-1,4				
14	61	-0,71				
15	0,031	-5,0				
18	100	2,1	ND			
22	83	0,87				
25	89	1,3				
28	69	-0,083				
30	100	2,1	ND			
32	73	0,19				
35	68	-0,16				
39	379	22	Outlier			
40	70	-0,016				
43	63	-0,54				
48	103	2,3				
52	108	2,6				
54	69	-0,13				
58	71	0,016				
62	85	1,0				
65	71	0,037				
70	86	1,1				
79	68	-0,20				
80	56	-1,0				
84	57	-1,0				
86	81	0,75				
90	97	1,9				
93	70	-0,048				
98	80	0,68				
100	84	0,94				
106	68	-0,19				

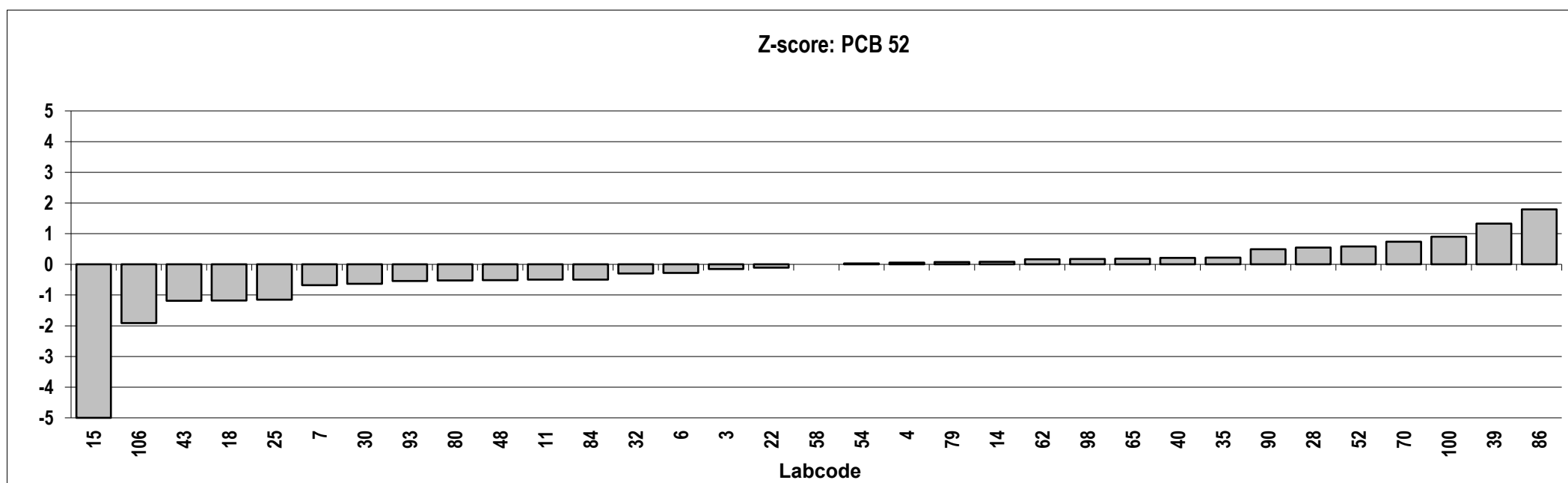
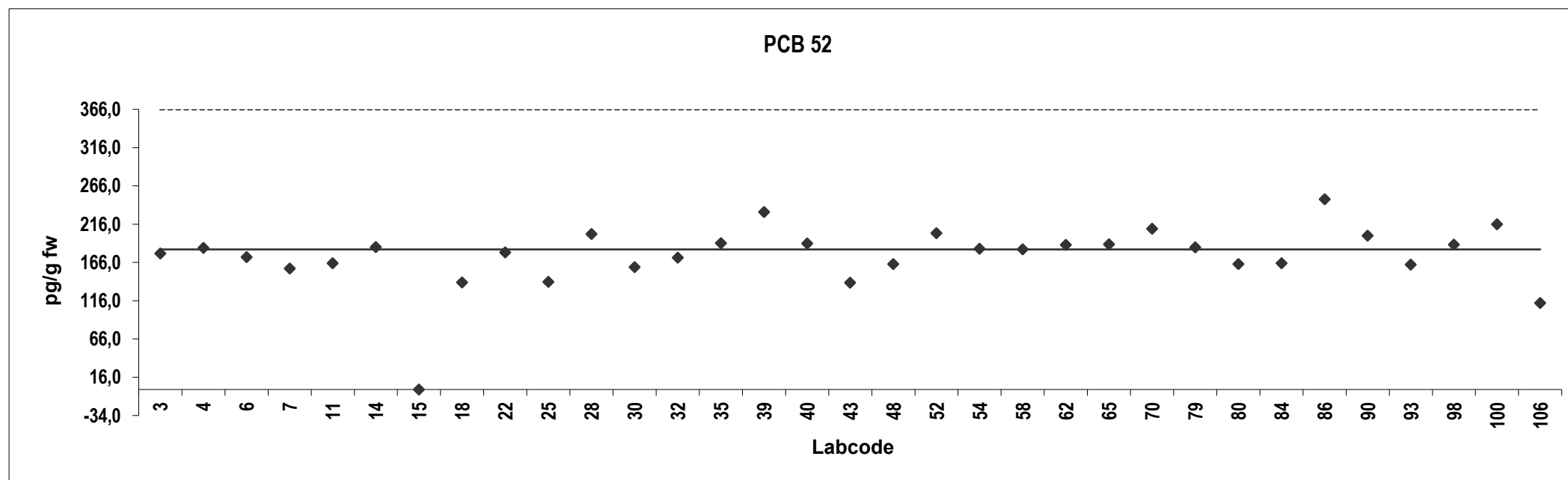
Consensus statistics	
Consensus median, pg/g	71
Median all values pg/g	71
Consensus mean, pg/g	76
Standard deviation, pg/g	23
Relative standard deviation, %	31
No. of values reported	33
No. of values removed	1
No. of reported non-detects	2



Salmon
Congener: PCB 52

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	178	-0,15				
4	185	0,055				
6	173	-0,28				
7	158	-0,68				
11	165	-0,50				
14	186	0,082				
15	0,083	-5,0				
18	140	-1,2				
22	179	-0,11				
25	141	-1,2				
28	203	0,55				
30	160	-0,63				
32	172	-0,30				
35	191	0,22				
39	232	1,3				
40	191	0,22				
43	139	-1,2				
48	164	-0,52				
52	204	0,58				
54	184	0,027				
58	183	0,0000				
62	189	0,17				
65	190	0,18				
70	210	0,74				
79	186	0,078				
80	164	-0,52				
84	165	-0,50				
86	249	1,8				
90	201	0,49				
93	163	-0,55				
98	189	0,17				
100	216	0,90				
106	113	-1,9				

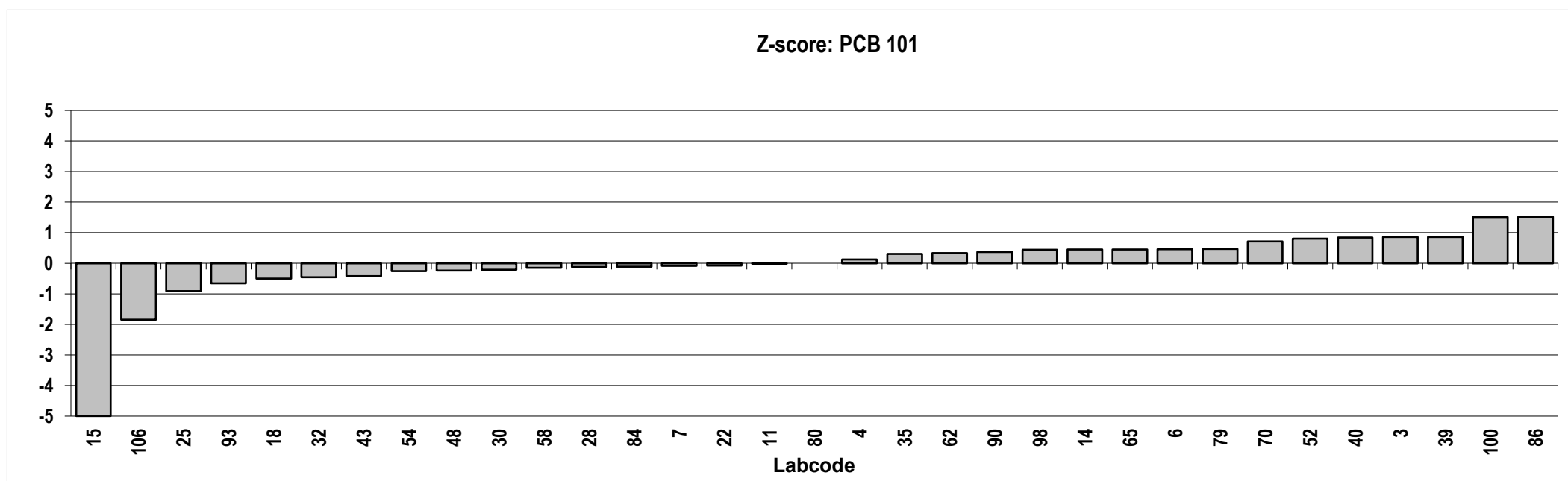
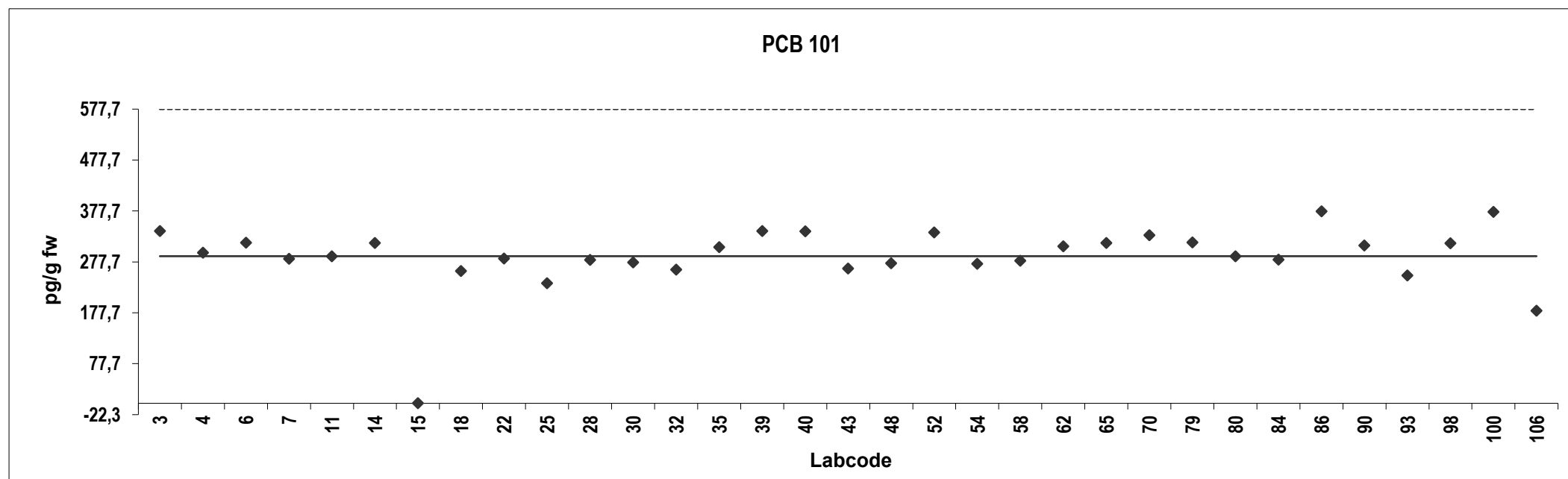
Consensus statistics	
Consensus median, pg/g	183
Median all values pg/g	183
Consensus mean, pg/g	175
Standard deviation, pg/g	41
Relative standard deviation, %	24
No. of values reported	33
No. of values removed	0
No. of reported non-detects	0



Salmon
Congener: PCB 101

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	338	0,85				
4	296	0,12				
6	315	0,46				
7	284	-0,084				
11	289	-0,0042				
14	315	0,45				
15	0,14	-5,0				
18	260	-0,50				
22	284	-0,075				
25	236	-0,92				
28	282	-0,12				
30	277	-0,21				
32	263	-0,45				
35	307	0,31				
39	338	0,86				
40	338	0,84				
43	265	-0,42				
48	275	-0,24				
52	336	0,81				
54	274	-0,26				
58	280	-0,15				
62	308	0,33				
65	315	0,45				
70	330	0,71				
79	316	0,47				
80	289	0,0000				
84	282	-0,11				
86	377	1,5				
90	310	0,37				
93	251	-0,65				
98	314	0,44				
100	376	1,5				
106	182	-1,8				

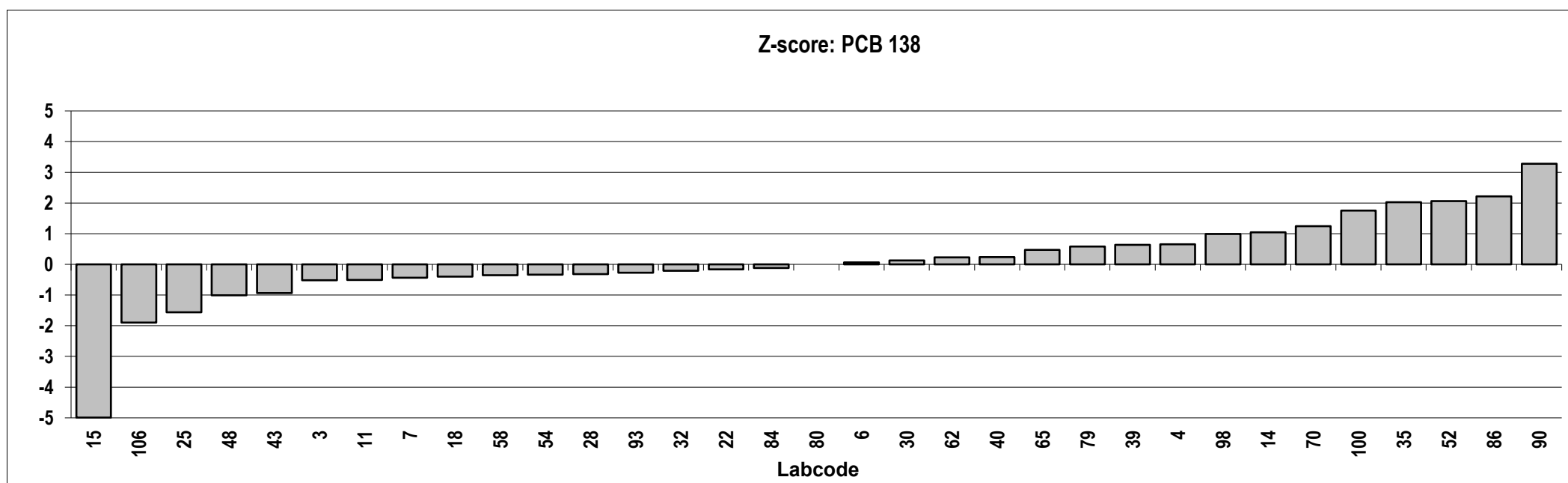
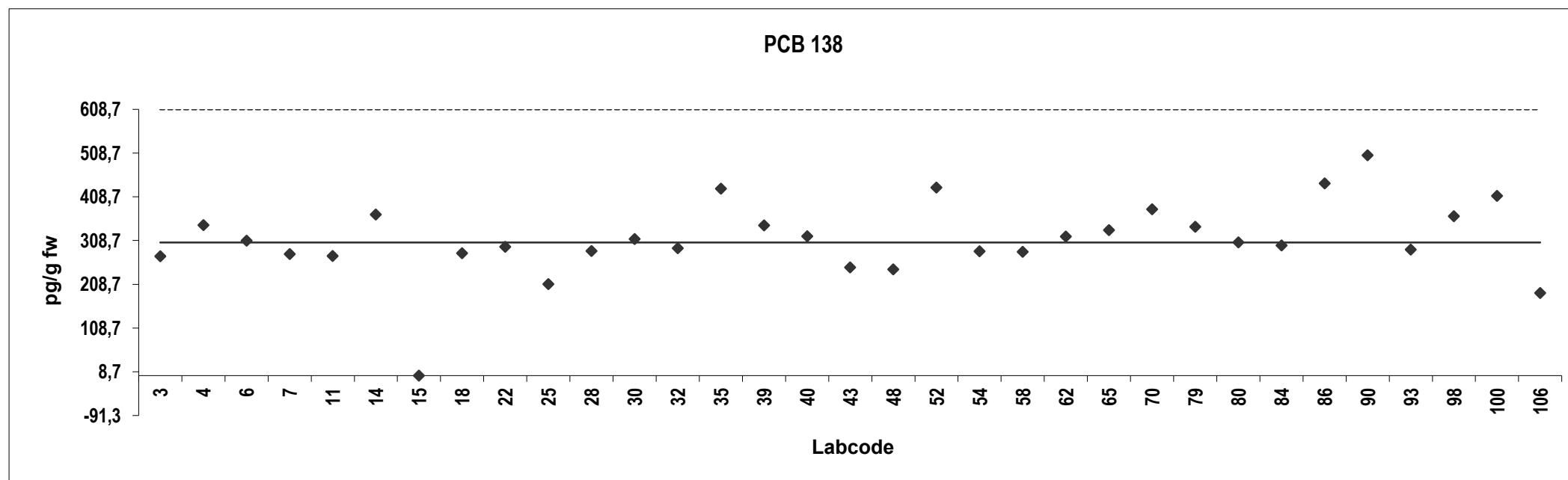
Consensus statistics	
Consensus median, pg/g	289
Median all values pg/g	289
Consensus mean, pg/g	288
Standard deviation, pg/g	64
Relative standard deviation, %	22
No. of values reported	33
No. of values removed	0
No. of reported non-detects	0



Salmon
Congener: PCB 138

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	273	-0,52				
4	344	0,65				
6	308	0,063				
7	278	-0,43				
11	273	-0,51				
14	368	1,0				
15	0,20	-5,0				
18	280	-0,40				
22	295	-0,16				
25	209	-1,6				
28	285	-0,32				
30	312	0,13				
32	291	-0,21				
35	427	2,0				
39	343	0,64				
40	318	0,23				
43	247	-0,94				
48	243	-1,0				
52	430	2,1				
54	284	-0,33				
58	283	-0,35				
62	318	0,23				
65	333	0,47				
70	380	1,2				
79	340	0,58				
80	304	0,0000				
84	297	-0,11				
86	439	2,2				
90	504	3,3				
93	288	-0,27				
98	365	0,99				
100	411	1,8				
106	189	-1,9				

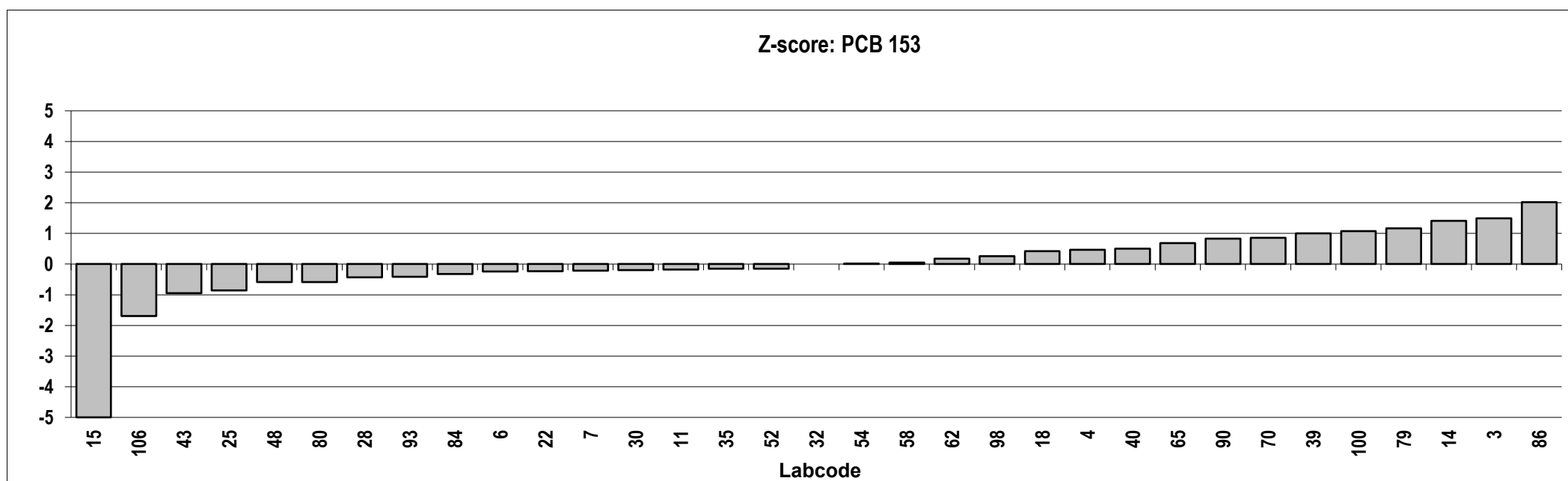
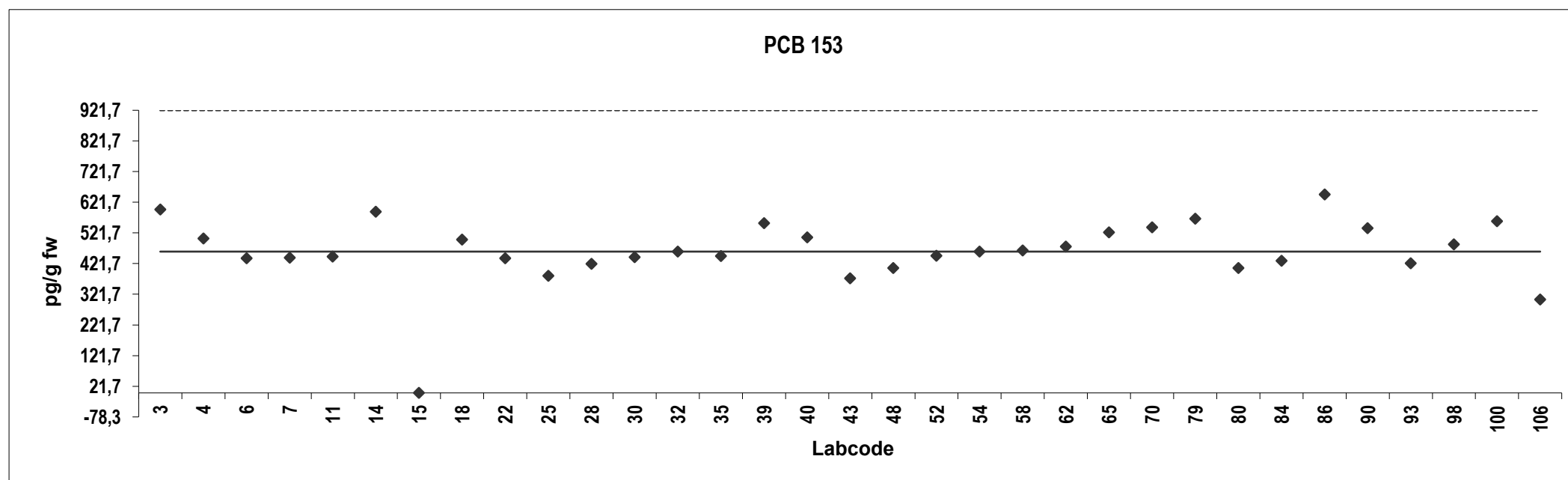
Consensus statistics	
Consensus median, pg/g	304
Median all values pg/g	304
Consensus mean, pg/g	311
Standard deviation, pg/g	87
Relative standard deviation, %	28
No. of values reported	33
No. of values removed	0
No. of reported non-detects	0



Salmon
Congener: PCB 153

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	598	1,5				
4	504	0,47				
6	439	-0,24				
7	441	-0,22				
11	444	-0,18				
14	591	1,4				
15	0,24	-5,0				
18	500	0,42				
22	439	-0,23				
25	381	-0,86				
28	421	-0,43				
30	443	-0,20				
32	461	0,0000				
35	447	-0,15				
39	553	1,0				
40	507	0,50				
43	373	-0,95				
48	407	-0,58				
52	447	-0,15				
54	461	0,0015				
58	465	0,045				
62	477	0,18				
65	524	0,68				
70	540	0,86				
79	569	1,2				
80	407	-0,58				
84	431	-0,33				
86	647	2,0				
90	537	0,83				
93	423	-0,41				
98	485	0,26				
100	560	1,1				
106	305	-1,7				

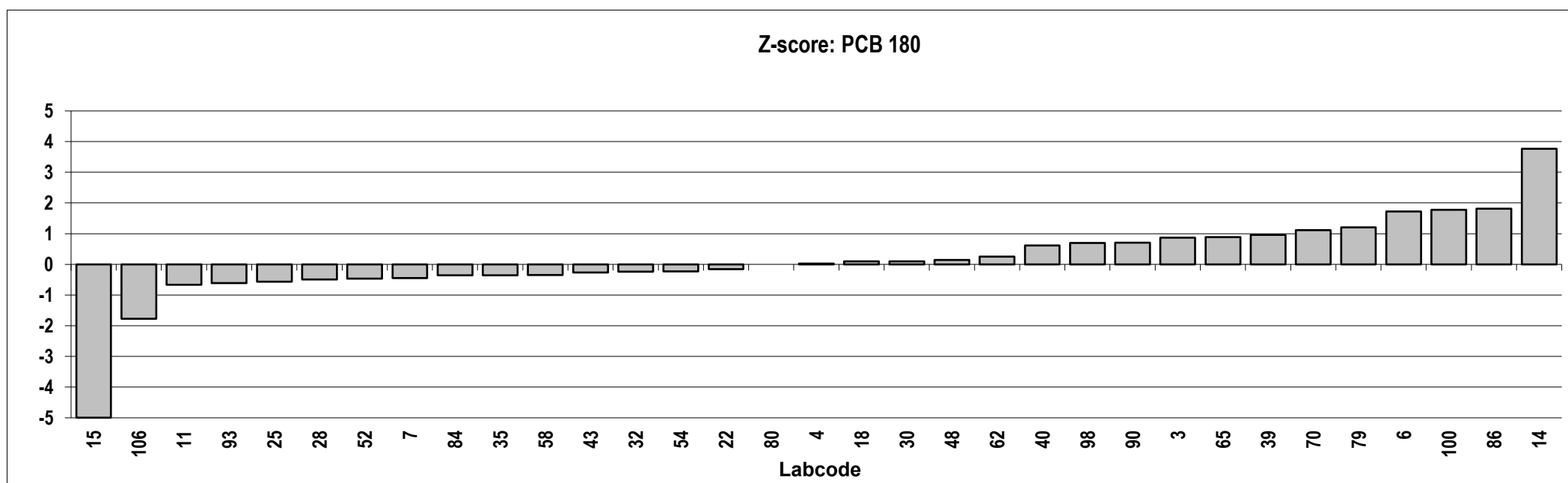
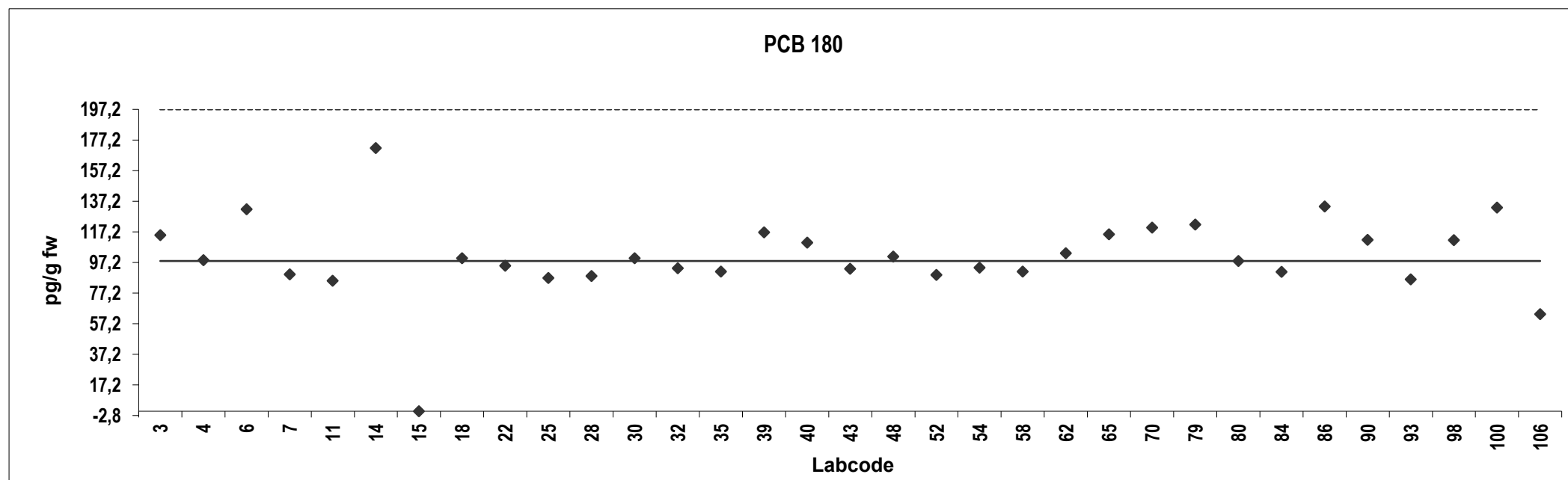
Consensus statistics	
Consensus median, pg/g	461
Median all values pg/g	461
Consensus mean, pg/g	461
Standard deviation, pg/g	110
Relative standard deviation, %	24
No. of values reported	33
No. of values removed	0
No. of reported non-detects	0



Salmon
Congener: PCB 180

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	115	0,87				
4	99	0,023				
6	132	1,7				
7	89	-0,45				
11	85	-0,66				
14	172	3,8				
15	0,045	-5,0				
18	100	0,095	ND			
22	95	-0,16				
25	87	-0,56				
28	88	-0,50				
30	100	0,095	ND			
32	93	-0,24				
35	91	-0,35				
39	117	0,96				
40	110	0,61				
43	93	-0,26				
48	101	0,15				
52	89	-0,46				
54	94	-0,23				
58	91	-0,35				
62	103	0,26				
65	116	0,89				
70	120	1,1				
79	122	1,2				
80	98	0,0000				
84	91	-0,36				
86	134	1,8				
90	112	0,71				
93	86	-0,61				
98	112	0,69				
100	133	1,8				
106	63	-1,8				

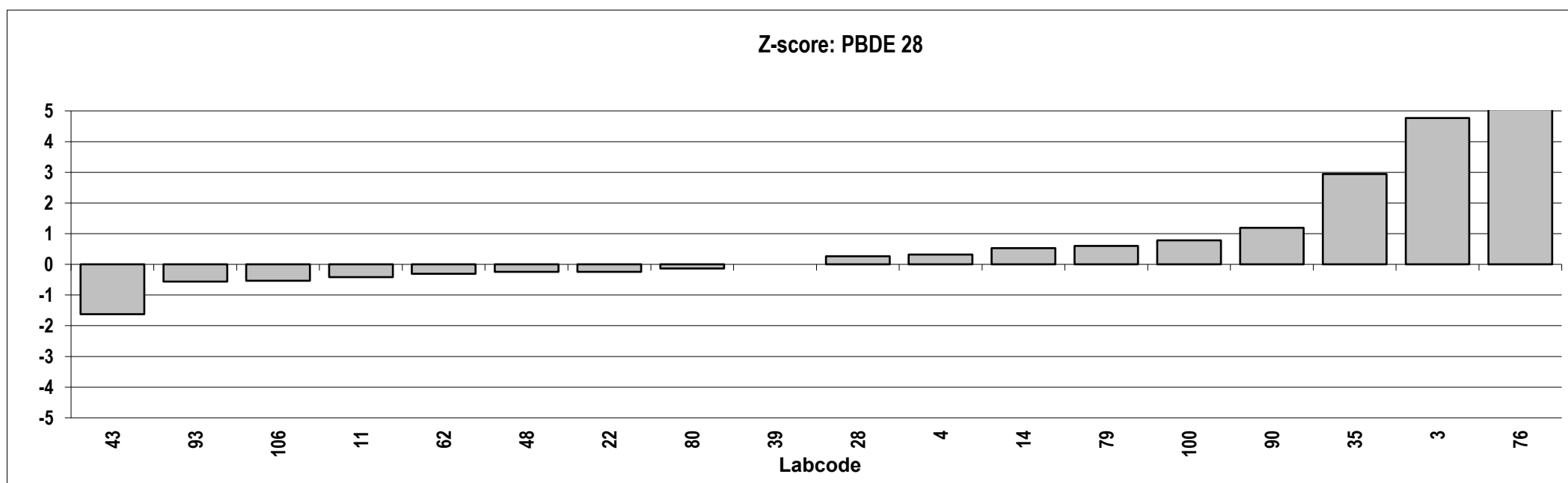
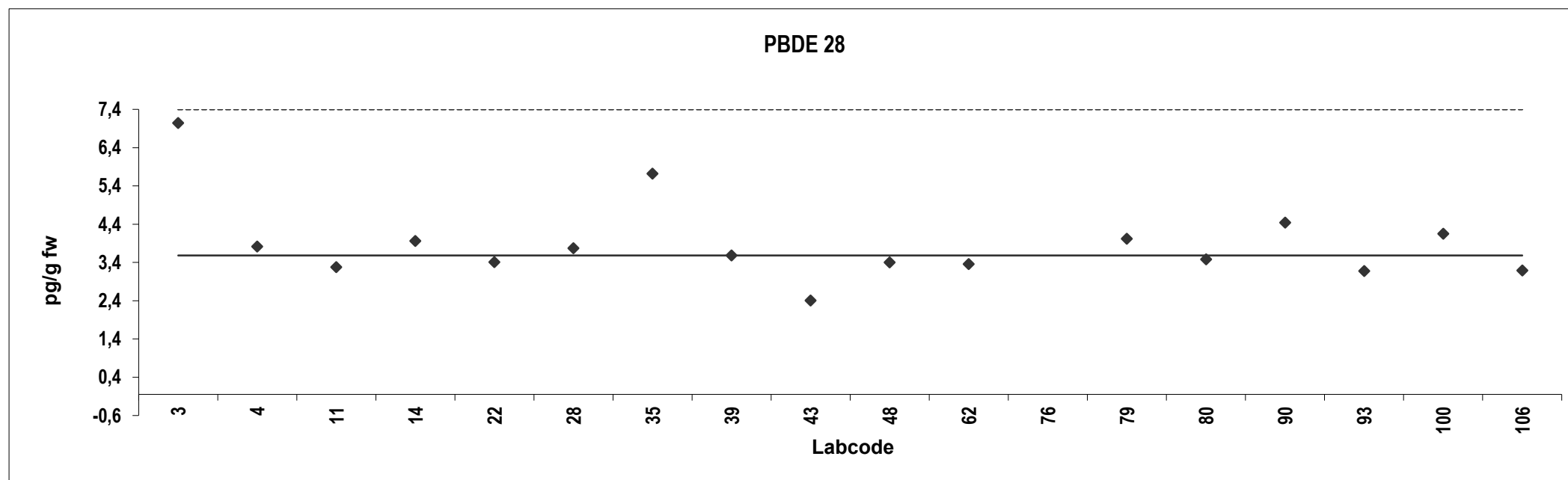
Consensus statistics	
Consensus median, pg/g	98
Median all values pg/g	99
Consensus mean, pg/g	101
Standard deviation, pg/g	27
Relative standard deviation, %	27
No. of values reported	33
No. of values removed	0
No. of reported non-detects	2



Salmon
Congener: PBDE 28

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	7,1	4,8	Outlier			
4	3,9	0,32				
11	3,3	-0,42				
14	4,0	0,52				
22	3,5	-0,24				
28	3,8	0,26				
35	5,8	2,9				
39	3,6	0,0000				
43	2,5	-1,6				
48	3,5	-0,25				
62	3,4	-0,31				
76	35	43				
79	4,1	0,60				
80	3,5	-0,14				
90	4,5	1,2				
93	3,2	-0,56				
100	4,2	0,79				
106	3,2	-0,54				

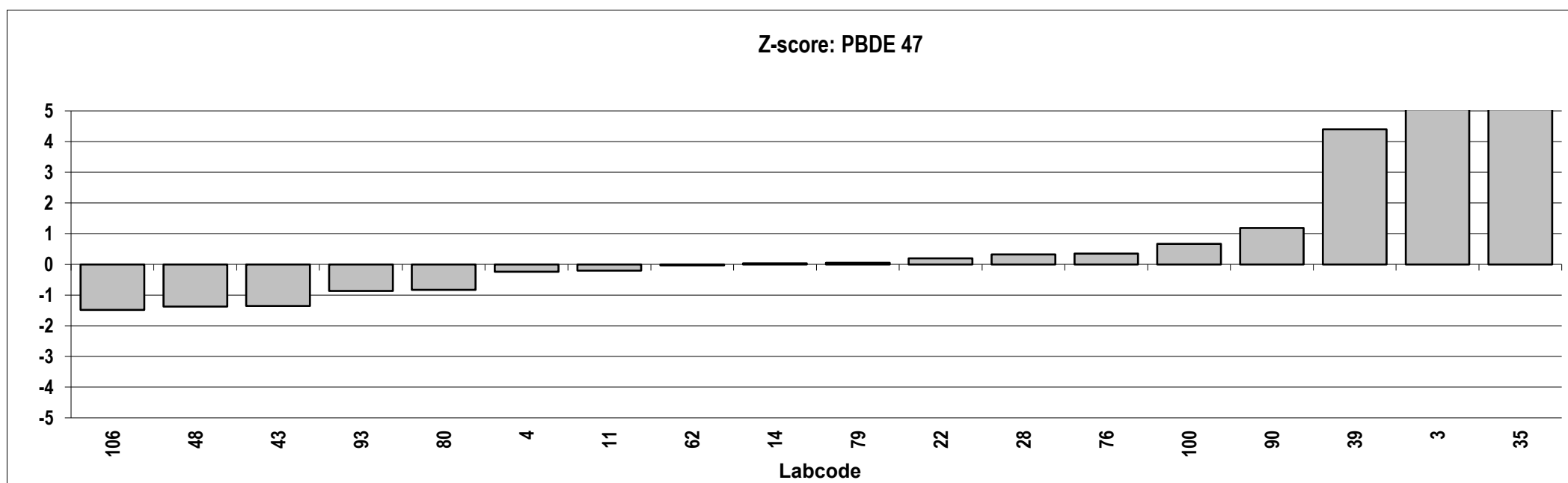
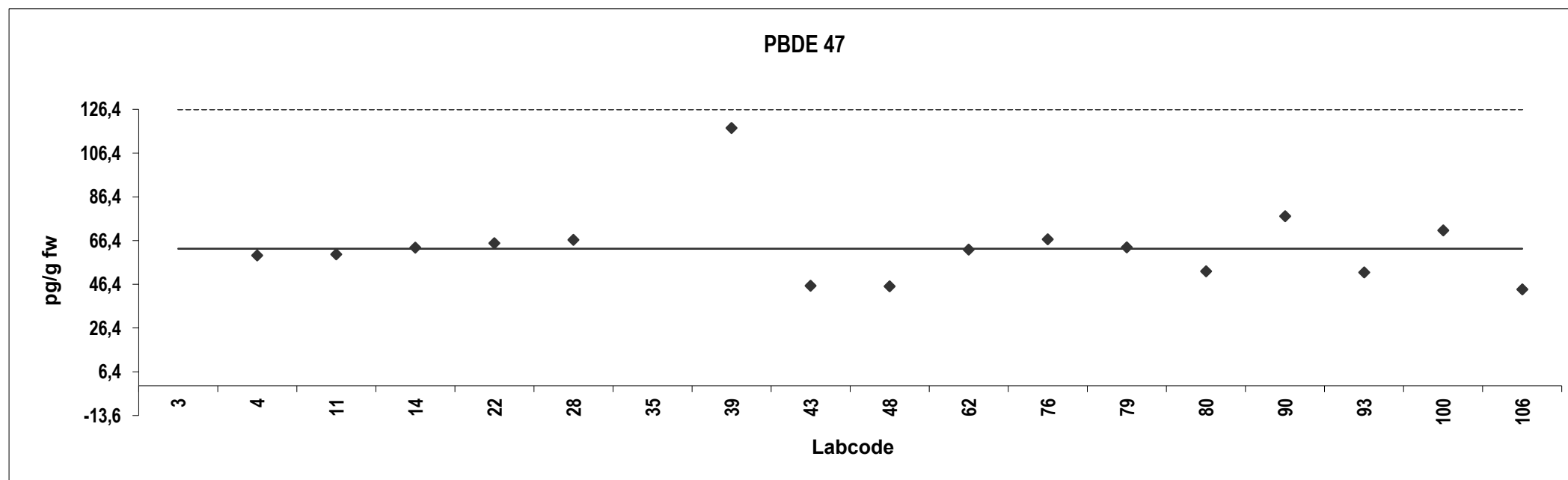
Consensus statistics	
Consensus median, pg/g	3,6
Median all values pg/g	3,7
Consensus mean, pg/g	3,9
Standard deviation, pg/g	1,1
Relative standard deviation, %	27
No. of values reported	18
No. of values removed	1
No. of reported non-detects	0



Salmon
Congener: PBDE 47

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	127	5,1	Outlier			
4	60	-0,24				
11	60	-0,20				
14	63	0,036				
22	65	0,20				
28	67	0,32				
35	143	6,4	Outlier			
39	118	4,4				
43	46	-1,4				
48	45	-1,4				
62	62	-0,036				
76	67	0,35				
79	63	0,050				
80	52	-0,83				
90	78	1,2				
93	52	-0,86				
100	71	0,67				
106	44	-1,5				

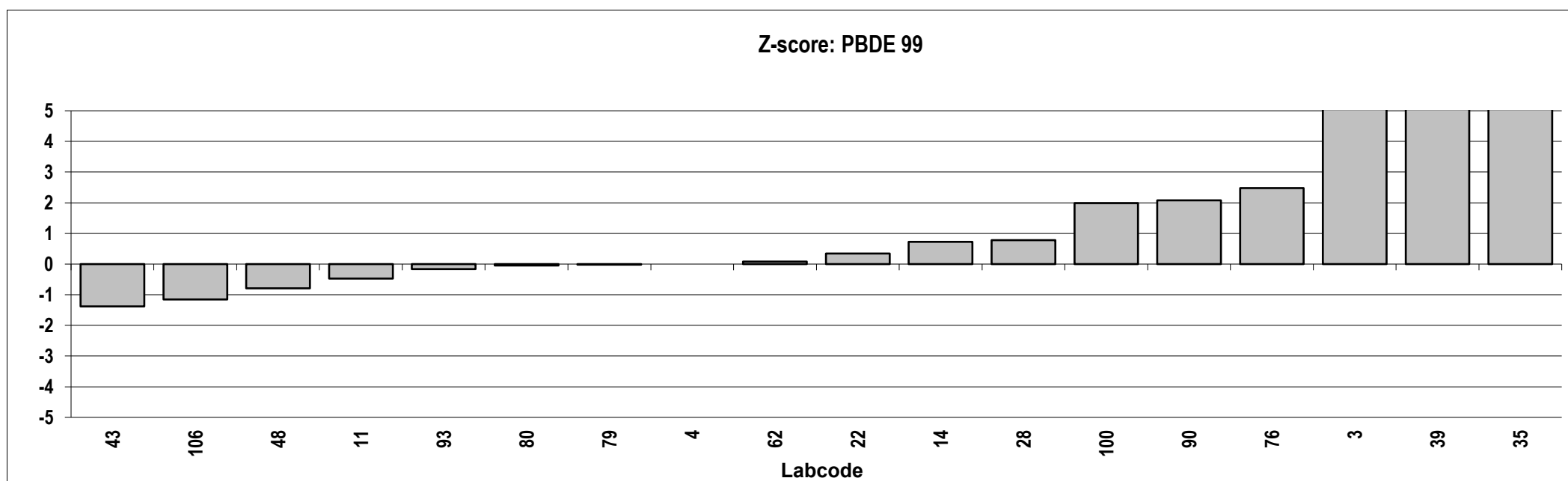
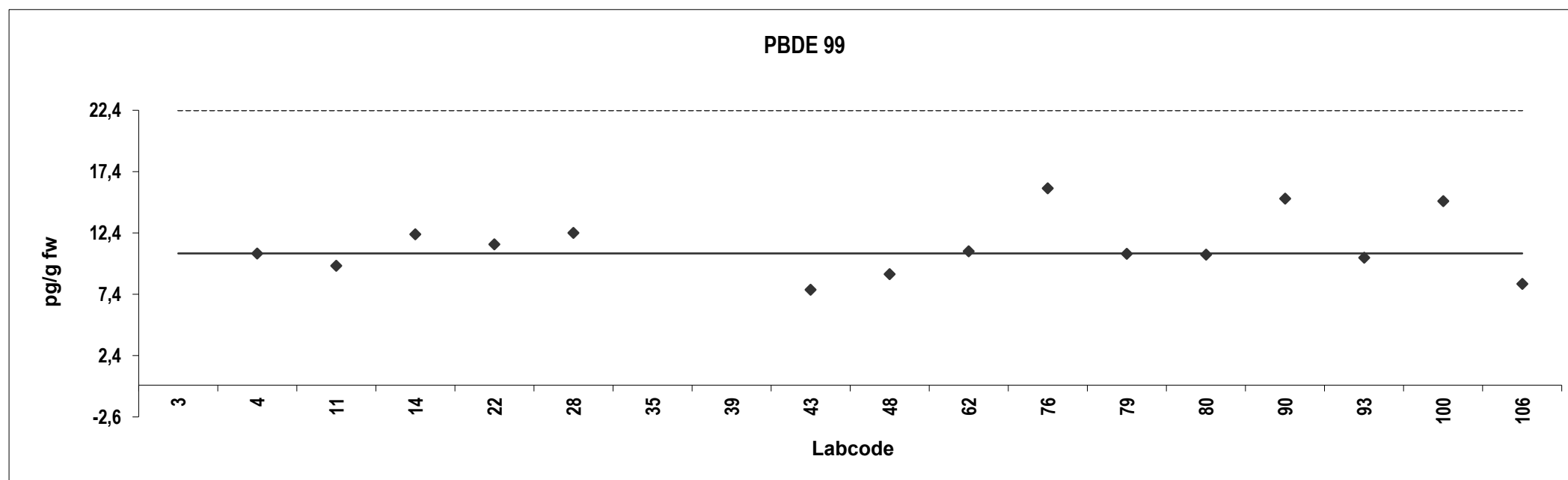
Consensus statistics	
Consensus median, pg/g	63
Median all values pg/g	63
Consensus mean, pg/g	63
Standard deviation, pg/g	17
Relative standard deviation, %	28
No. of values reported	18
No. of values removed	2
No. of reported non-detects	0



Salmon
Congener: PBDE 99

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	23	5,5	Outlier			
4	11	0,0000				
11	9,7	-0,47				
14	12	0,73				
22	11	0,35				
28	12	0,78				
35	55	21	Outlier			
39	42	14	Outlier			
43	7,8	-1,4				
48	9,0	-0,79				
62	11	0,084				
76	16	2,5				
79	11	-0,018				
80	11	-0,042				
90	15	2,1				
93	10	-0,16				
100	15	2,0				
106	8,3	-1,2				

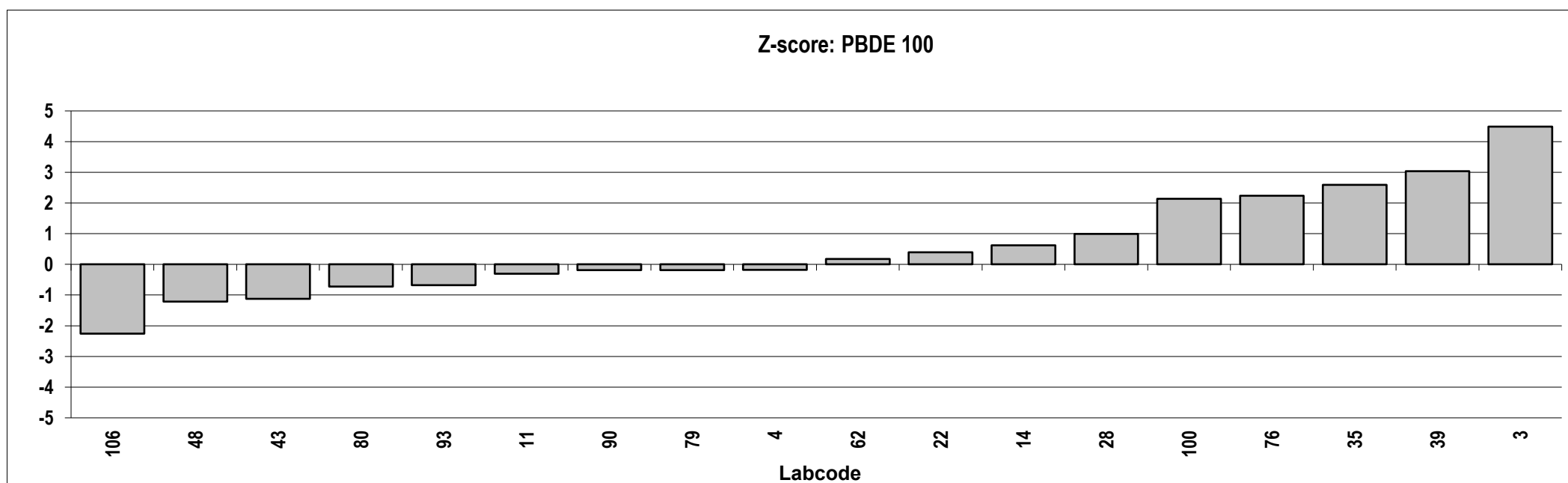
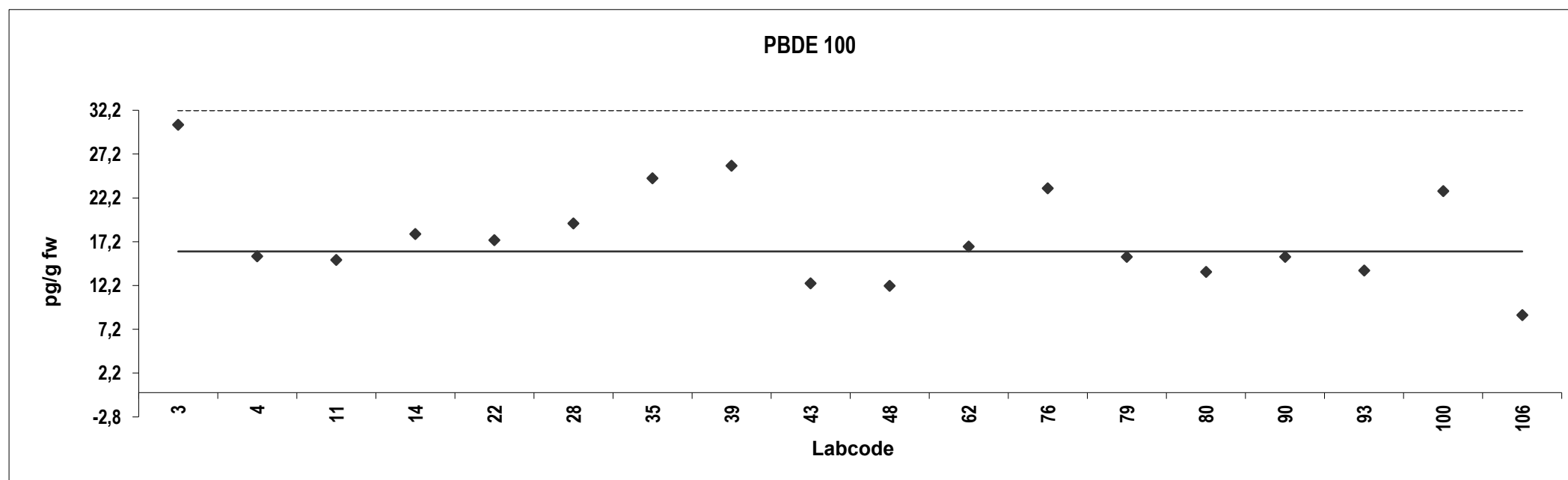
Consensus statistics	
Consensus median, pg/g	11
Median all values pg/g	11
Consensus mean, pg/g	11
Standard deviation, pg/g	2,5
Relative standard deviation, %	22
No. of values reported	18
No. of values removed	3
No. of reported non-detects	0



Salmon
Congener: PBDE 100

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	31	4,5				
4	16	-0,17				
11	15	-0,30				
14	18	0,62				
22	17	0,40				
28	19	0,99				
35	24	2,6				
39	26	3,0				
43	12	-1,1				
48	12	-1,2				
62	17	0,17				
76	23	2,2				
79	16	-0,19				
80	14	-0,72				
90	16	-0,19				
93	14	-0,68				
100	23	2,1				
106	8,8	-2,3				

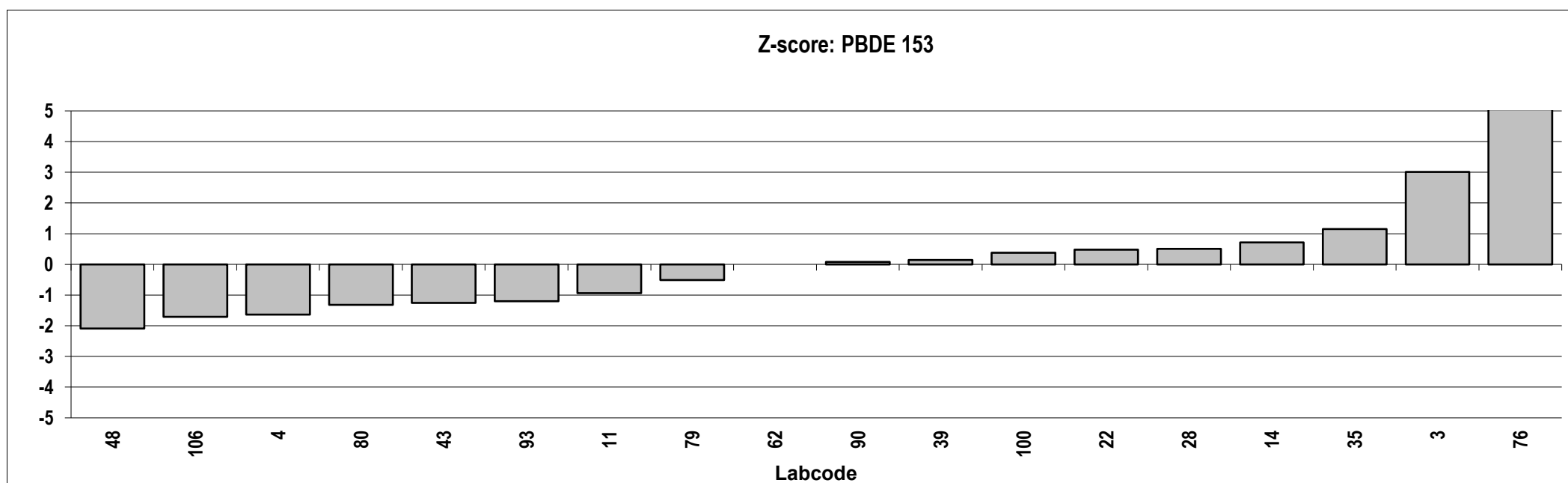
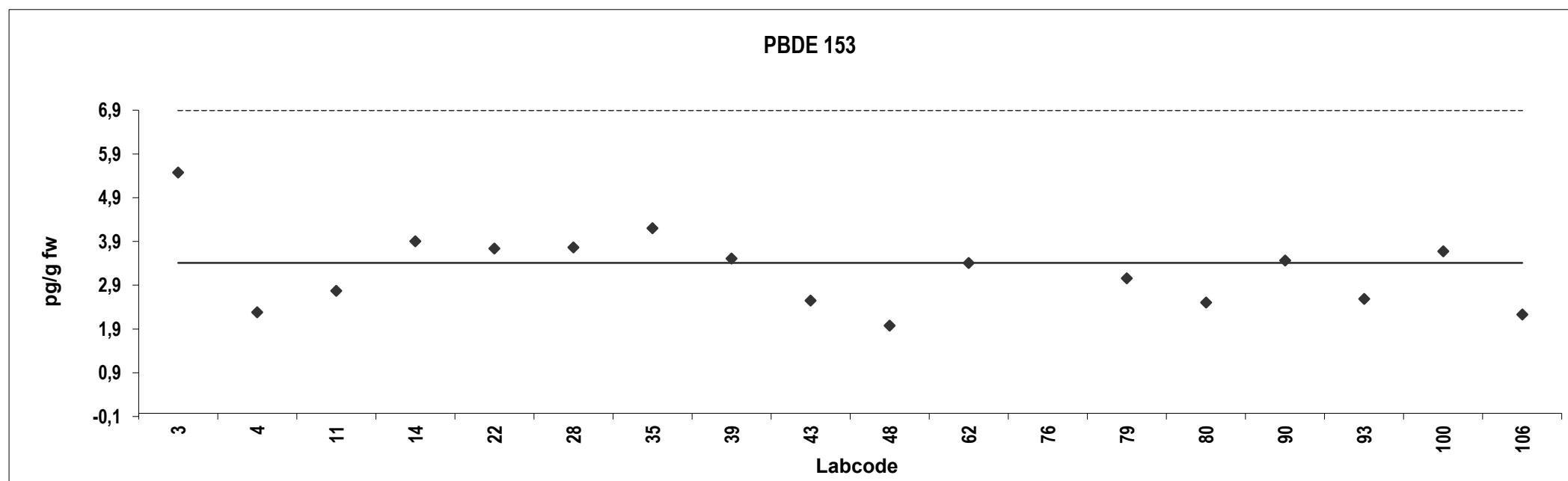
Consensus statistics	
Consensus median, pg/g	16
Median all values pg/g	16
Consensus mean, pg/g	18
Standard deviation, pg/g	5,6
Relative standard deviation, %	31
No. of values reported	18
No. of values removed	0
No. of reported non-detects	0



Salmon
Congener: PBDE 153

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	5,5	3,0	Outlier			
4	2,3	-1,6				
11	2,8	-0,93				
14	3,9	0,72				
22	3,8	0,48				
28	3,8	0,51				
35	4,2	1,2				
39	3,5	0,14				
43	2,6	-1,3				
48	2,0	-2,1				
62	3,4	0,0000				
76	7,8	6,4				
79	3,1	-0,51				
80	2,5	-1,3				
90	3,5	0,077				
93	2,6	-1,2				
100	3,7	0,38				
106	2,3	-1,7				

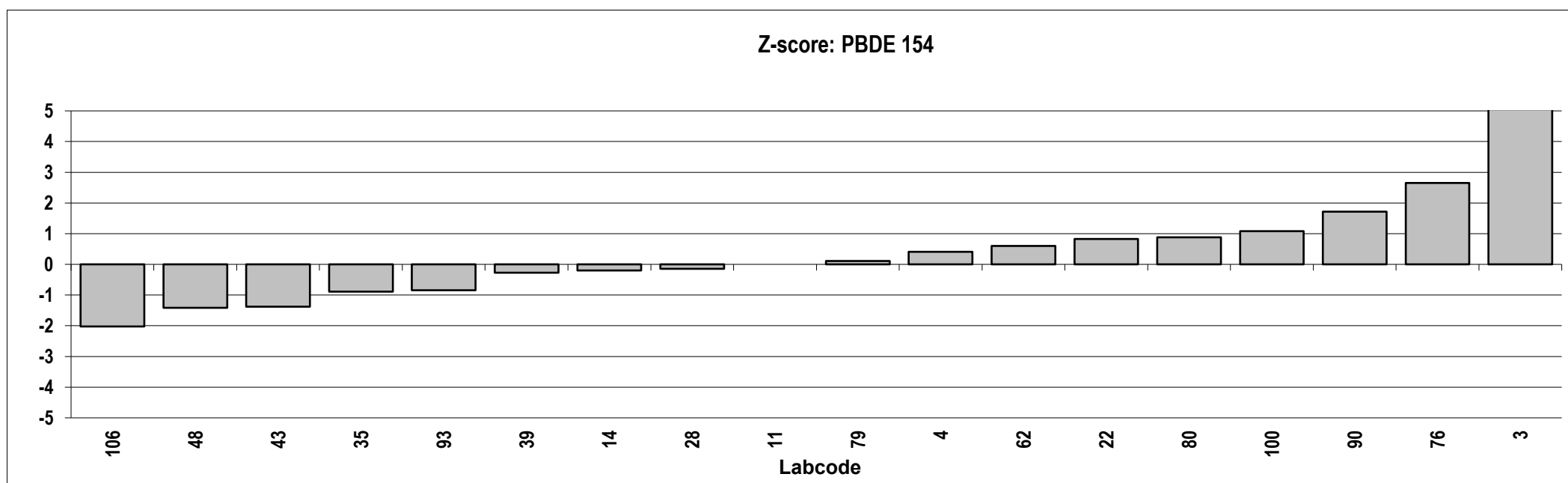
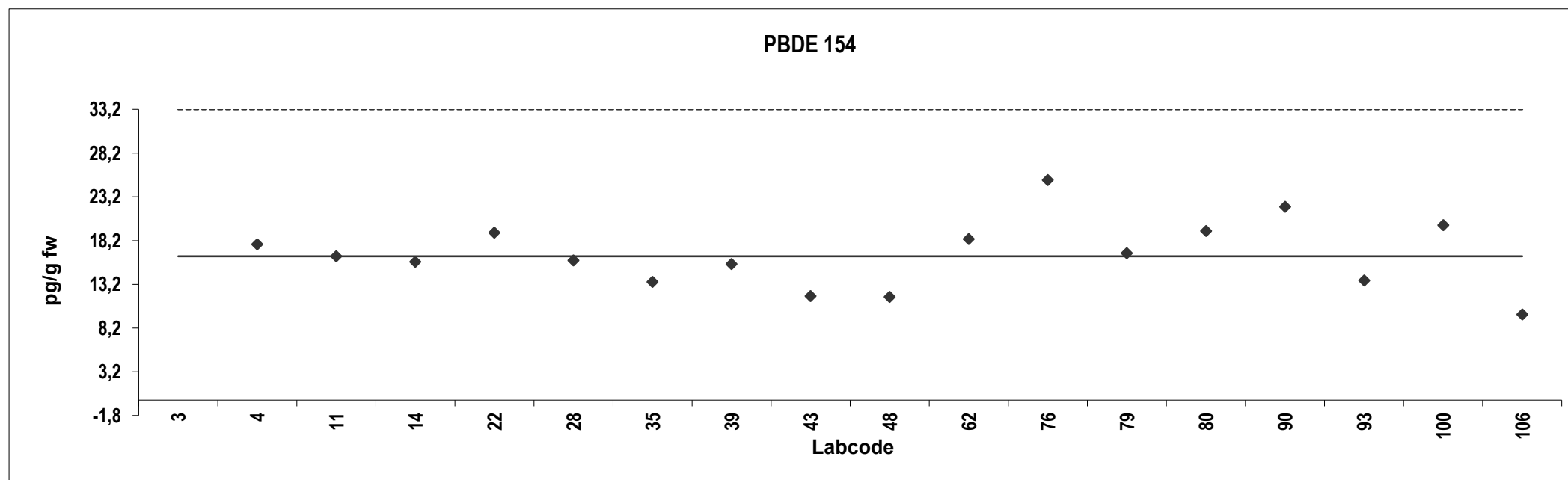
Consensus statistics	
Consensus median, pg/g	3,4
Median all values pg/g	3,5
Consensus mean, pg/g	3,3
Standard deviation, pg/g	0,88
Relative standard deviation, %	27
No. of values reported	18
No. of values removed	1
No. of reported non-detects	0



Salmon
Congener: PBDE 154

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	34	5,3	Outlier			
4	18	0,41				
11	16	0,0000				
14	16	-0,20				
22	19	0,82				
28	16	-0,15				
35	14	-0,89				
39	16	-0,27				
43	12	-1,4				
48	12	-1,4				
62	18	0,60				
76	25	2,7				
79	17	0,11				
80	19	0,88				
90	22	1,7				
93	14	-0,85				
100	20	1,1				
106	9,8	-2,0				

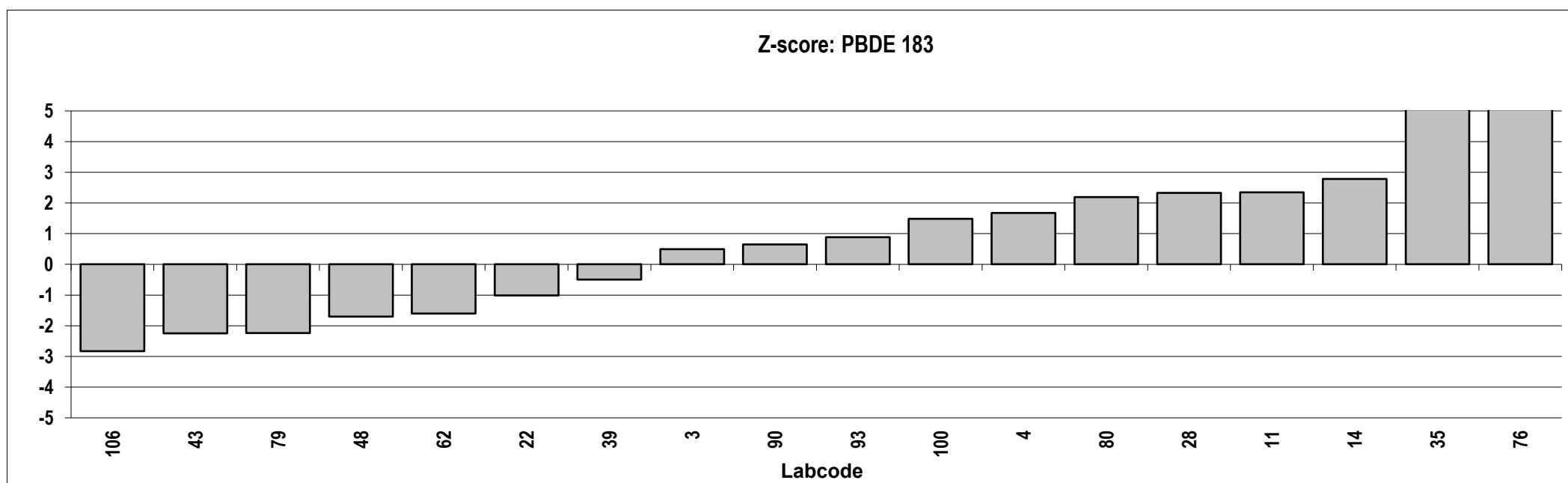
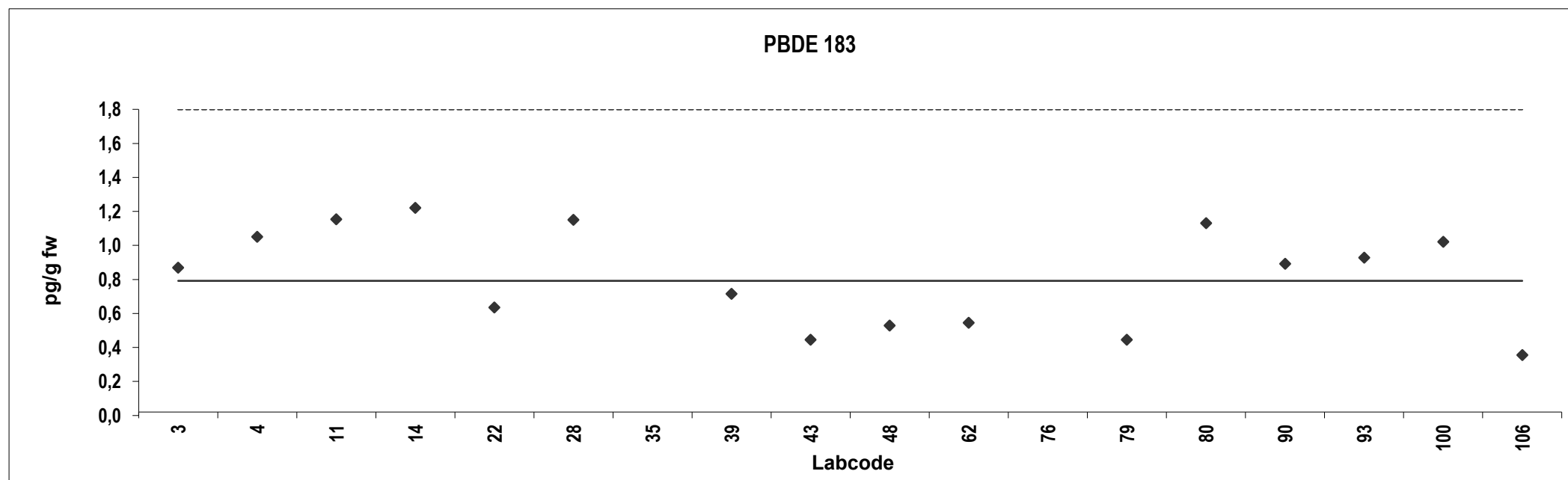
Consensus statistics	
Consensus median, pg/g	16
Median all values pg/g	17
Consensus mean, pg/g	17
Standard deviation, pg/g	3,9
Relative standard deviation, %	24
No. of values reported	18
No. of values removed	1
No. of reported non-detects	0



Salmon
Congener: PBDE 183

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,85	0,50				
4	1,0	1,7				
11	1,1	2,3	ND			
14	1,2	2,8	ND			
22	0,62	-1,0				
28	1,1	2,3				
35	1,8	6,6	Outlier			
39	0,69	-0,50				
43	0,42	-2,2				
48	0,51	-1,7				
62	0,52	-1,6				
76	3,0	14	Outlier			
79	0,43	-2,2				
80	1,1	2,2				
90	0,87	0,65				
93	0,91	0,88				
100	1,0	1,5	ND			
106	0,34	-2,8	ND			

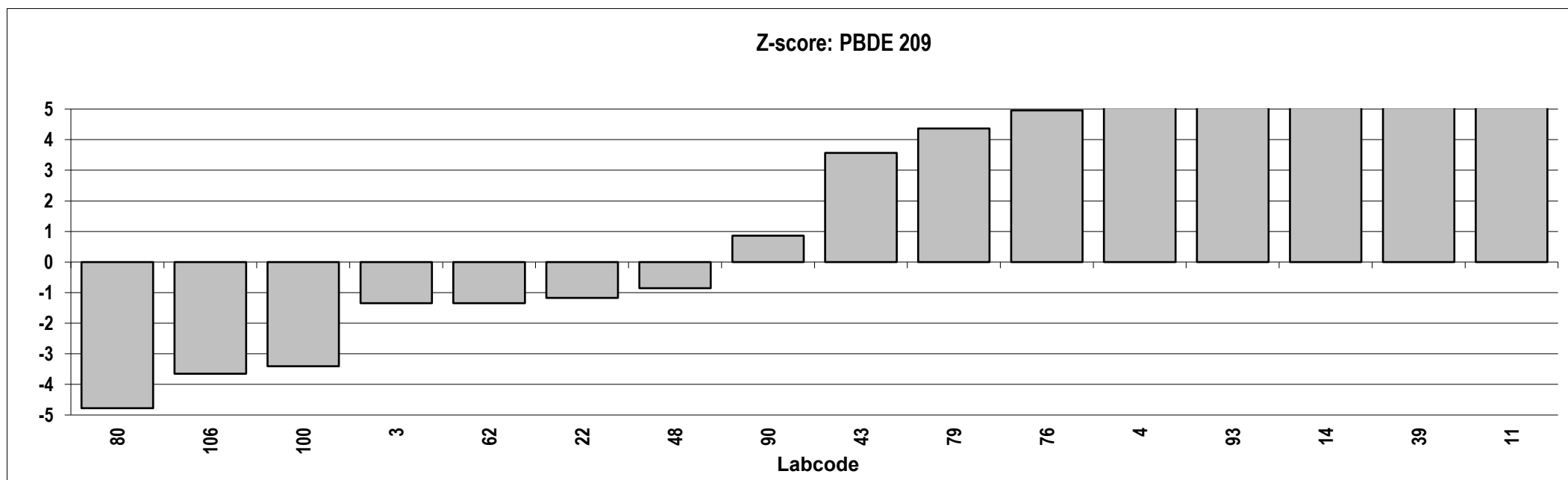
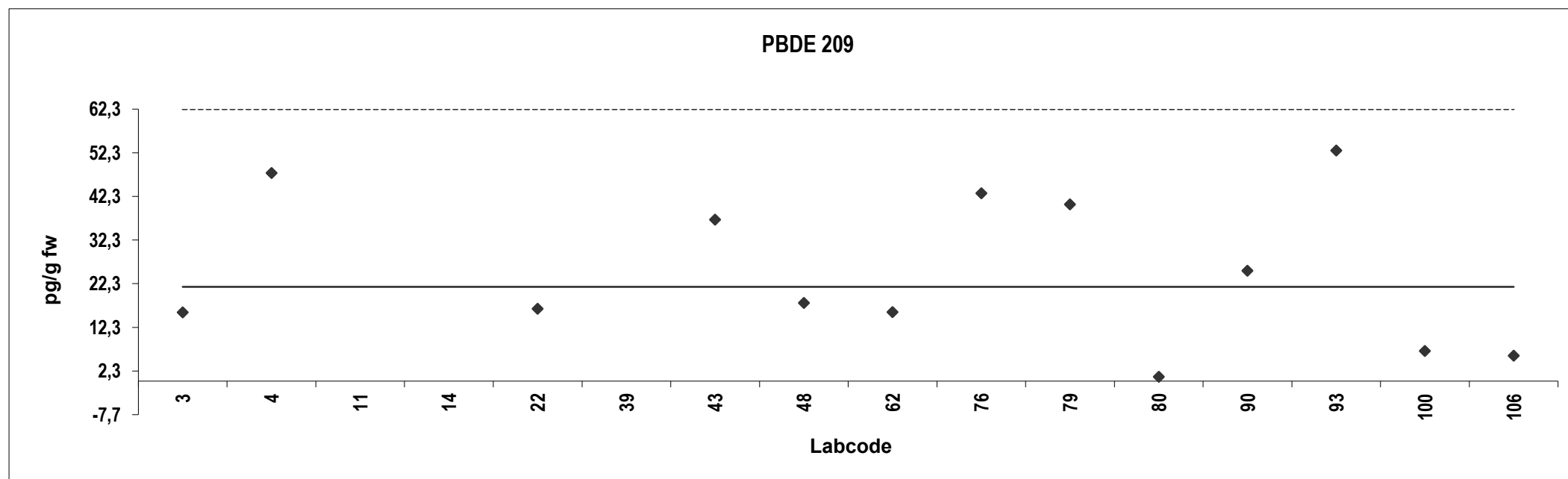
Consensus statistics	
Consensus median, pg/g	0,77
Median all values pg/g	0,89
Consensus mean, pg/g	0,80
Standard deviation, pg/g	0,29
Relative standard deviation, %	37
No. of values reported	18
No. of values removed	2
No. of reported non-detects	4



Salmon
Congener: PBDE 209

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	16	-1,3				
4	48	6,0				
11	379	83	Outlier			
14	68	11	Outlier			
22	17	-1,2				
39	234	49	Outlier			
43	37	3,6				
48	18	-0,86				
62	16	-1,3				
76	43	5,0				
79	40	4,4				
80	0,96	-4,8				
90	25	0,86				
93	53	7,2				
100	6,9	-3,4				
106	5,8	-3,7	ND			

Consensus statistics	
Consensus median, pg/g	22
Median all values pg/g	31
Consensus mean, pg/g	25
Standard deviation, pg/g	17
Relative standard deviation, %	69
No. of values reported	16
No. of values removed	3
No. of reported non-detects	1

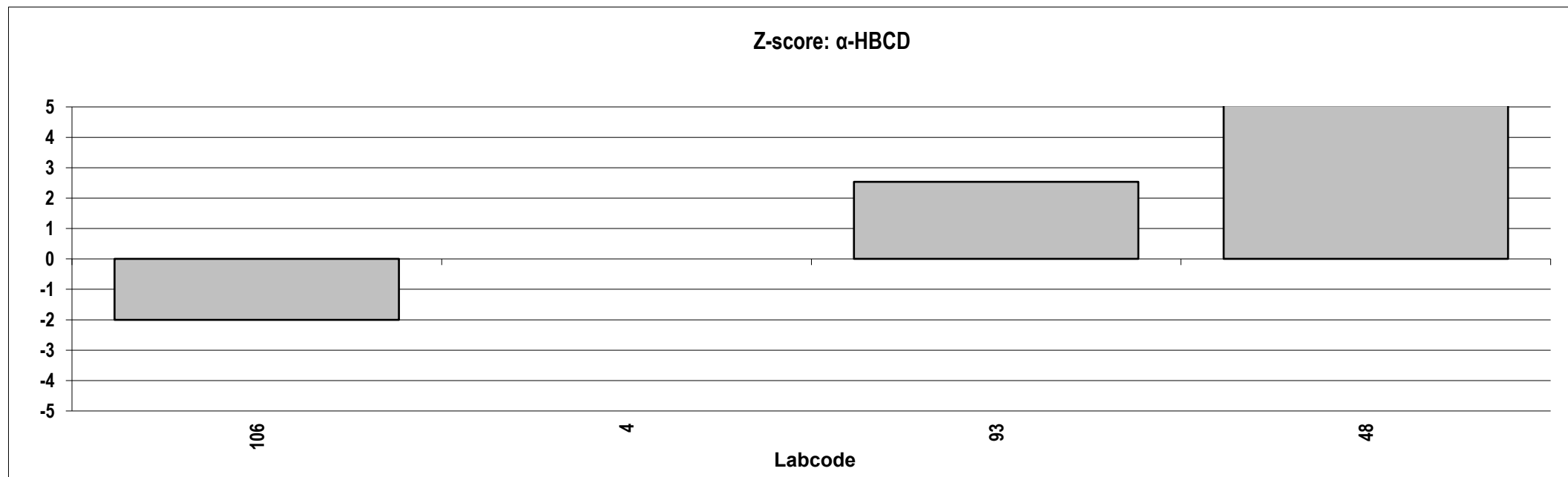
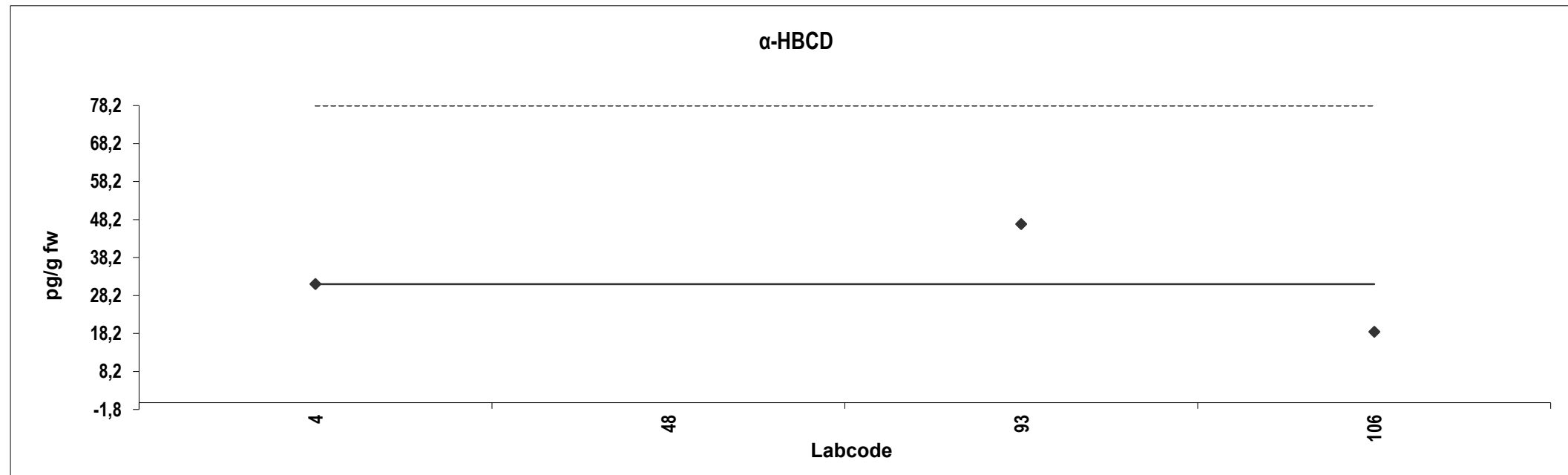


Congener: α -HBCD

[illegible]

Consensus statistics

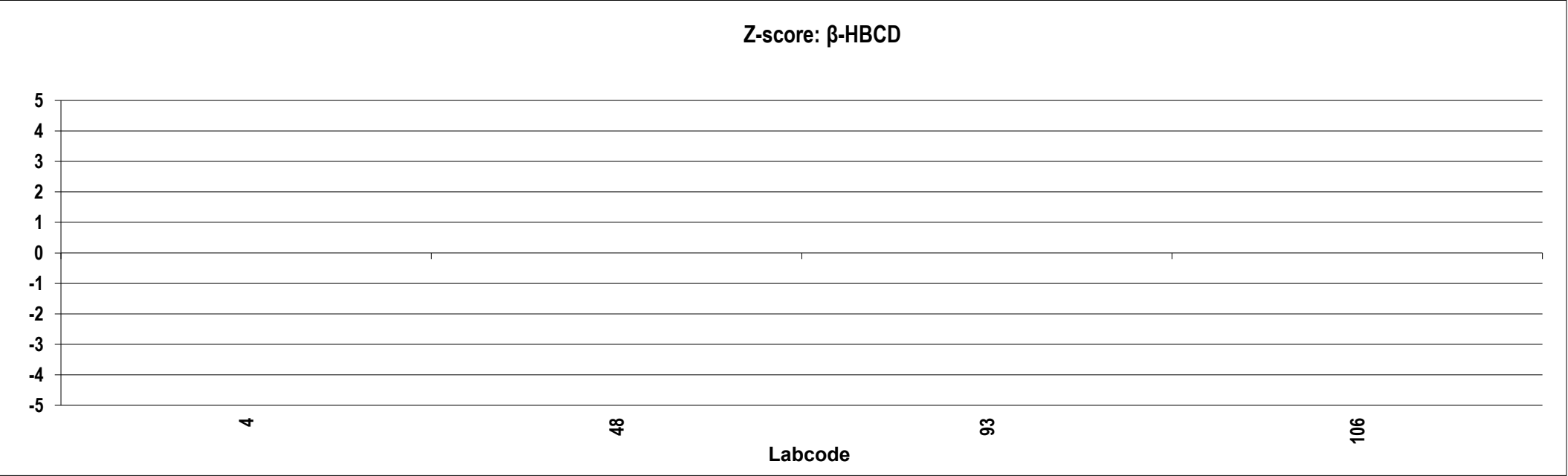
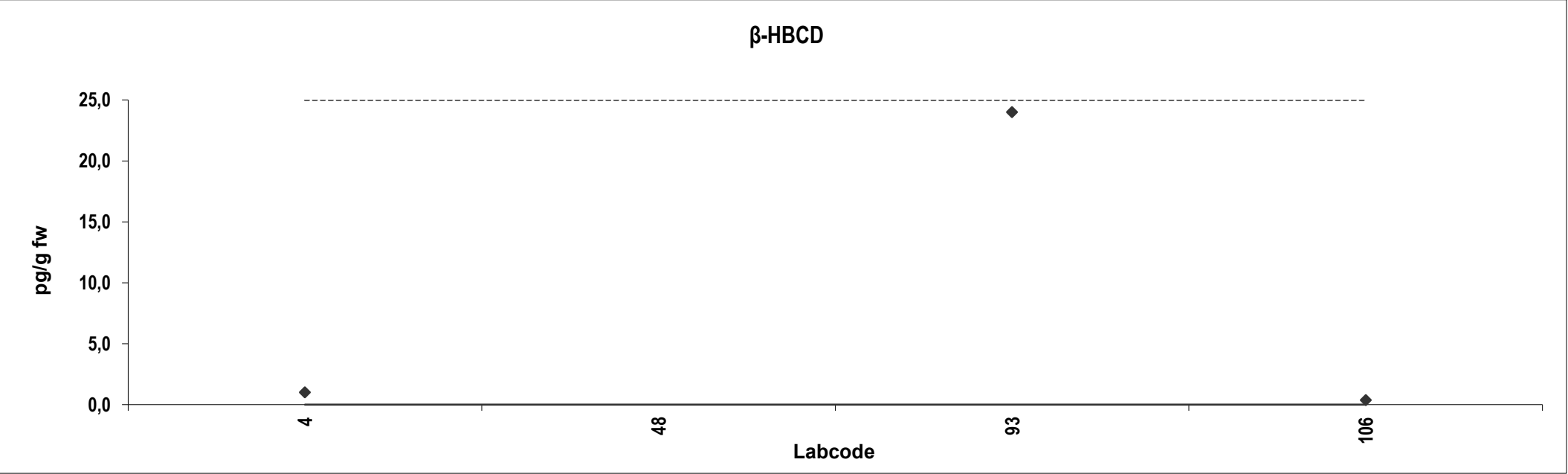
Consensus median, pg/g	31
Median all values pg/g	39
Consensus mean, pg/g	32
Standard deviation, pg/g	14
Relative standard deviation, %	44
No. of values reported	4
No. of values removed	1
No. of reported non-detects	0



Salmon
Congener: β -HBCD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
4	1,0	**	ND			
48	200	**	Outlier,ND			
93	24	**	ND			
106	0,37	**	ND			

Consensus statistics	
Consensus median, pg/g	**
Median all values pg/g	13
Consensus mean, pg/g	8,5
Standard deviation, pg/g	13
Relative standard deviation, %	159
No. of values reported	4
No. of values removed	1
No. of reported non-detects	4

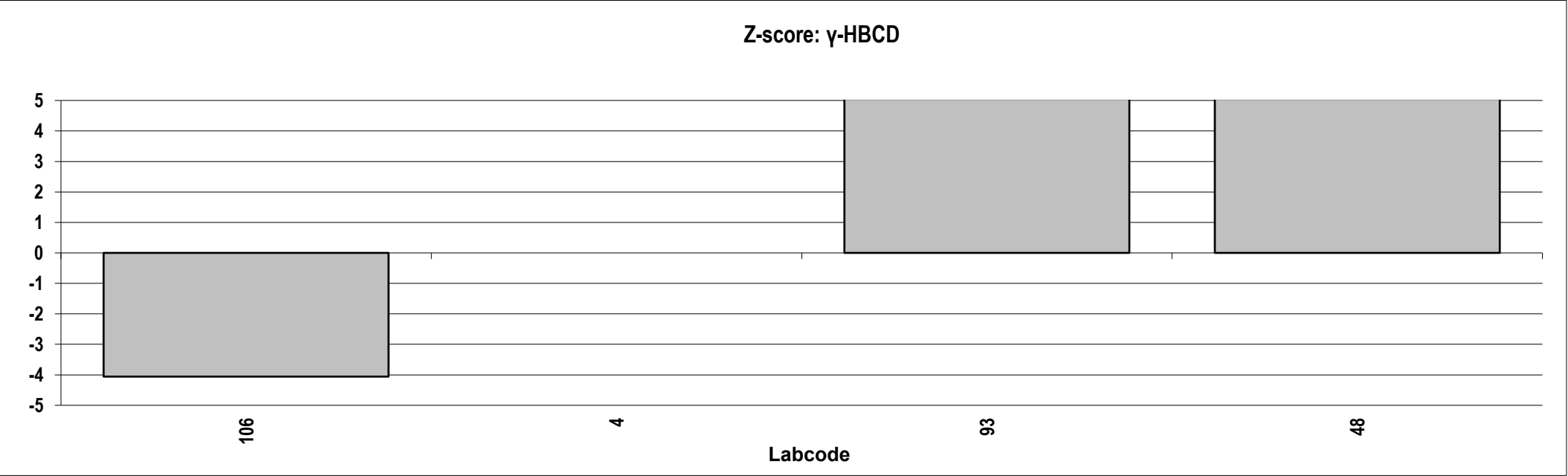
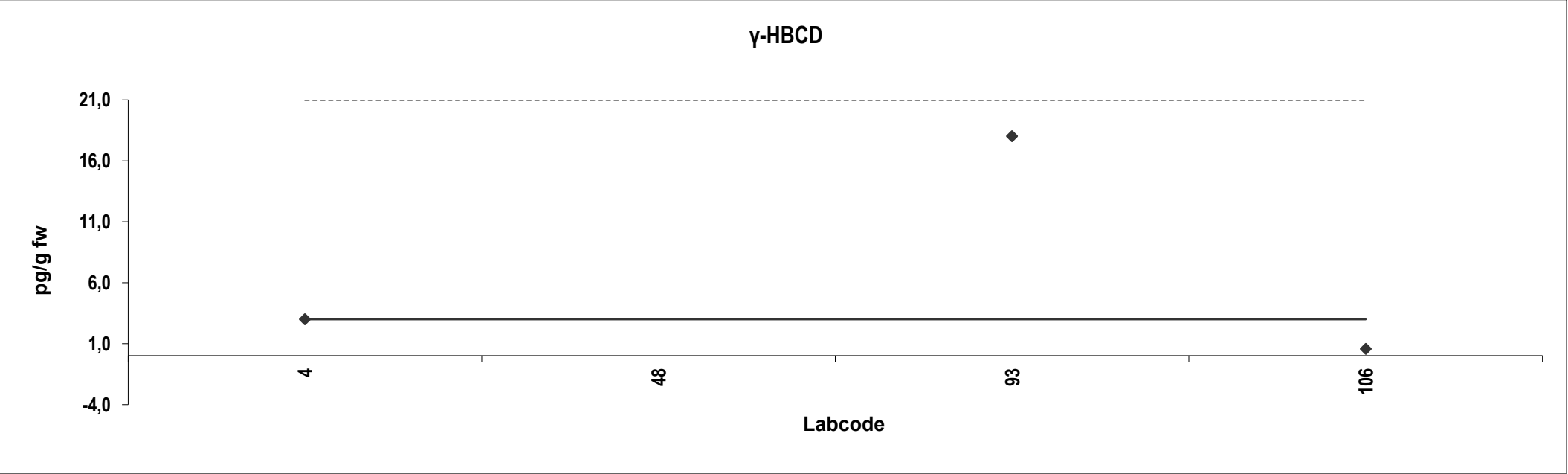


Congener: γ -HBCD

[illegible]

Consensus statistics

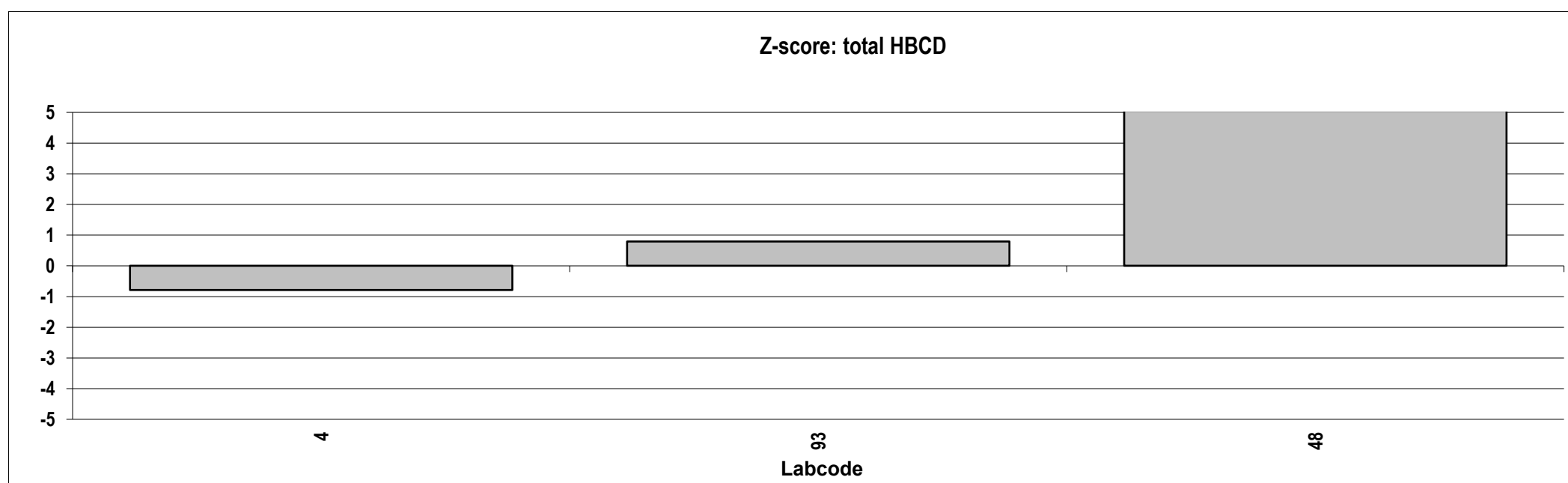
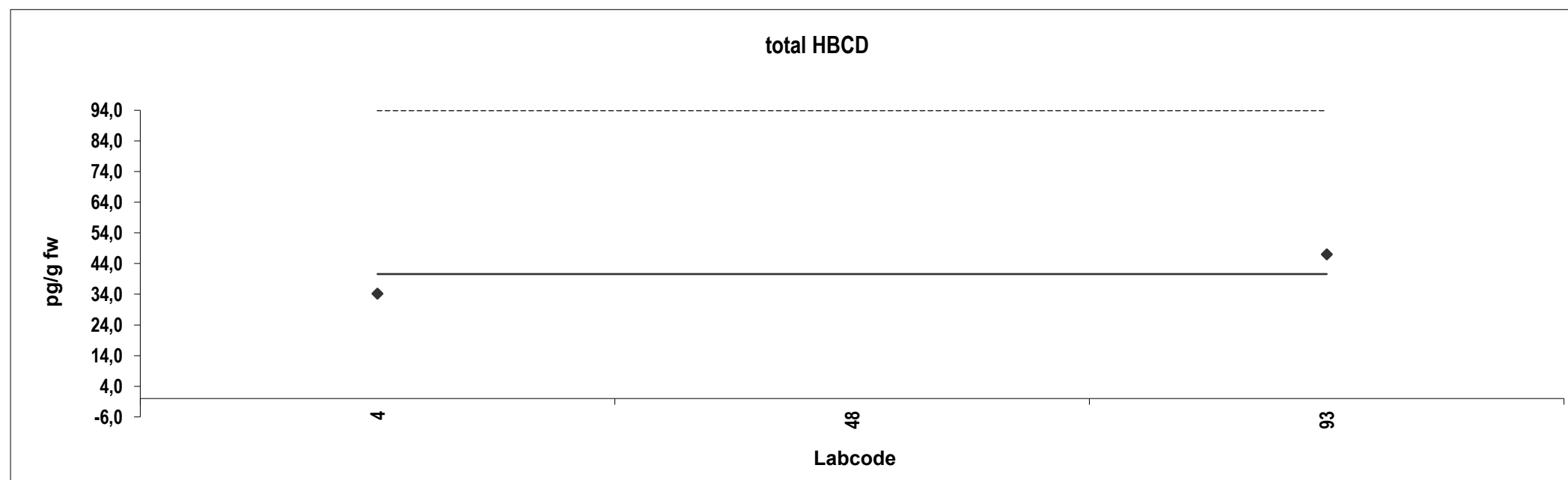
Consensus median, pg/g	3,0
Median all values pg/g	10
Consensus mean, pg/g	7,2
Standard deviation, pg/g	9,4
Relative standard deviation, %	132
No. of values reported	4
No. of values removed	1
No. of reported non-detects	3



Salmon

Congener: total HBCD

[illegible]



Appendix 4:

Presentation of results for
Lamb 2025

Appendix 4: Presentation of results: Lamb 2025

Statistic calculations for PCDDs, PCDFs and dioxin-like PCBs

For each congener, the outliers were removed, and the consensus calculated according to the following procedure:

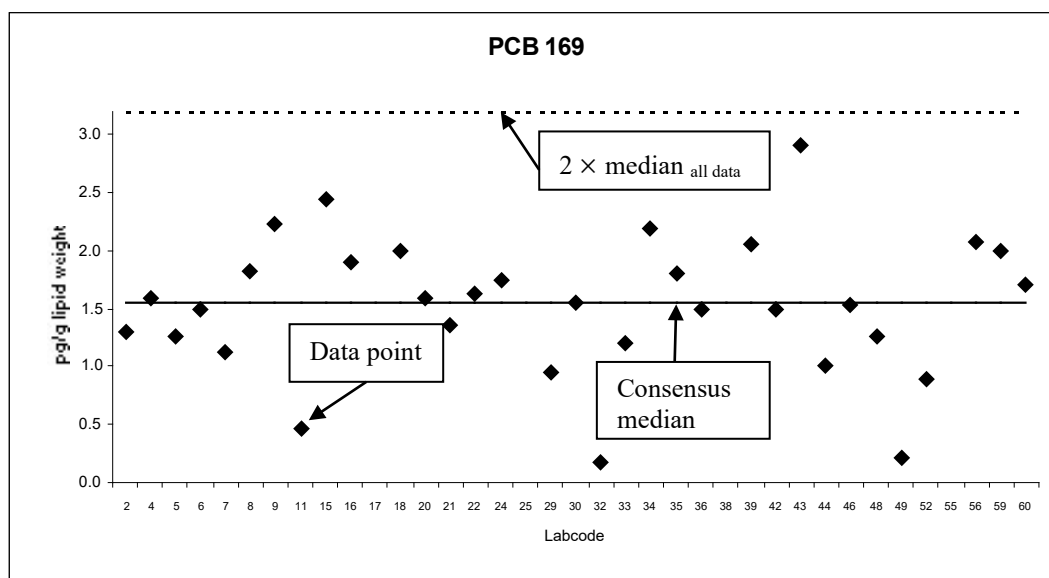
1. The median was calculated from all the reported data, using the detection limit as concentration for non-detected congeners.
2. Values exceeding $2 \times$ this median were defined as outliers and removed from the data set.
3. Median, mean and standard deviation were re-calculated from the remaining data. This second median was called consensus.

Statistic calculations for indicator PCBs, PBDEs and HBCD

For each congener, the outliers were removed and the consensus calculated according to the following procedure:

1. The median was calculated from all the reported data, using the detection limit as concentration for non-detected congeners (NDs).
2. Values exceeding $2 \times$ this median were defined as outliers and removed from the data set. The NDs were also removed.
3. Median, mean and standard deviation were re-calculated from the remaining data. This second median was called consensus.
4. For comparison, median, mean and standard deviation were also calculated without removing NDs.

The diagram shows the reported data up to approximately the limit for outliers ($2 \times$ the first median).



Z-Scores of individual congeners

Z-scores of each congener were calculated for each laboratory according to the following equation:

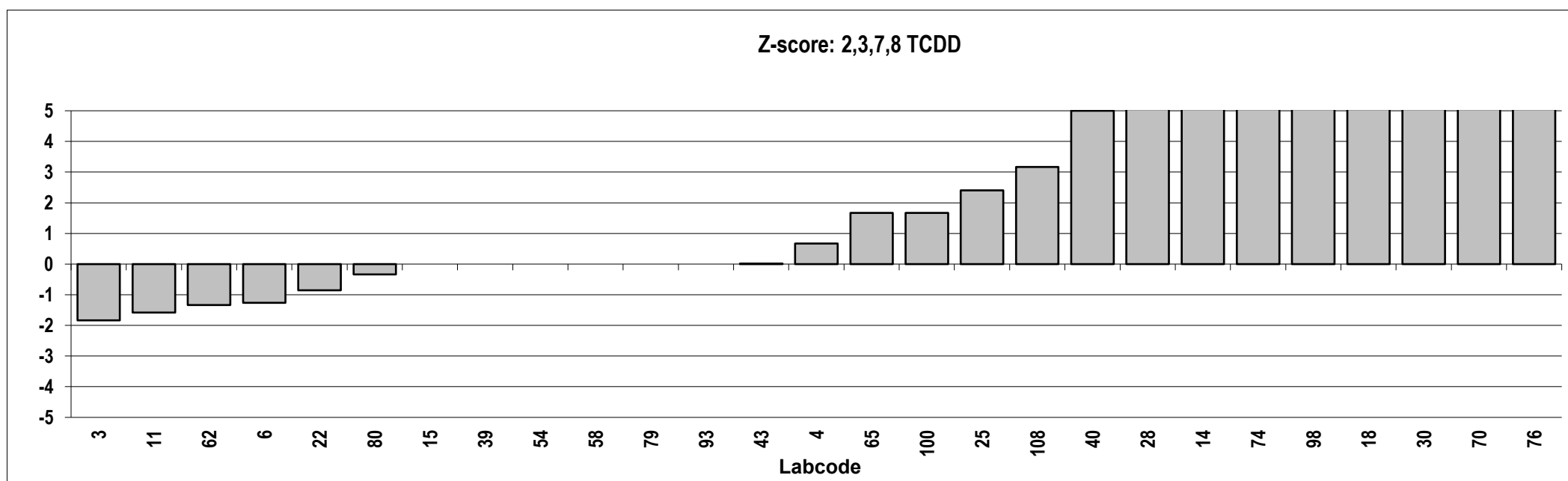
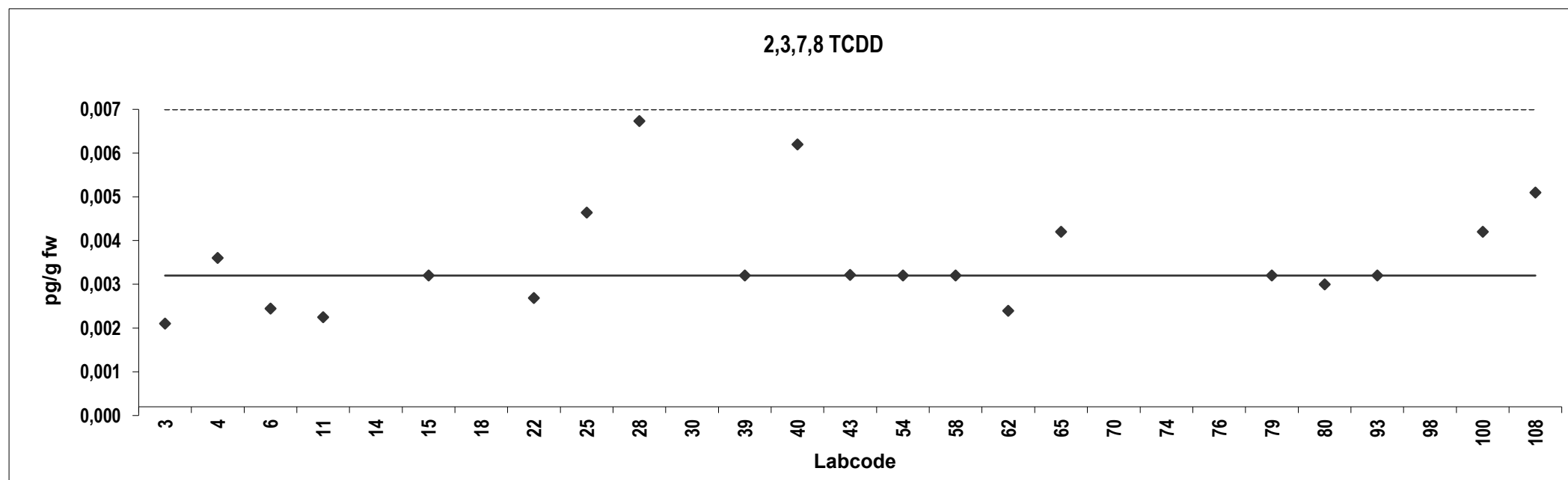
$$z = (x - X) / \sigma$$

where x = reported value; X = assigned value (consensus); σ = target value for standard deviation. A σ of 20% of the consensus was used, i.e. z-scores between +1 and -1 reflect a deviation of $\pm 20\%$ from the consensus value.

Lamb
Congener: 2,3,7,8 TCDD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0019	-1,8				
4	0,0034	0,67	ND			
6	0,0022	-1,3				
11	0,0021	-1,6				
14	0,0076	7,7	Outlier			
15	0,0030	0,0000	ND			
18	0,020	28	Outlier,ND			
22	0,0025	-0,85				
25	0,0044	2,4				
28	0,0065	5,9				
30	0,040	62	Outlier,ND			
39	0,0030	0,0000	ND			
40	0,0060	5,0	ND			
43	0,0030	0,020				
54	0,0030	0,0000	ND			
58	0,0030	0,0000	ND			
62	0,0022	-1,3				
65	0,0040	1,7	ND			
70	0,063	100	Outlier,ND			
74	0,017	23	Outlier,ND			
76	0,16	268	Outlier			
79	0,0030	0,0000				
80	0,0028	-0,33	ND			
93	0,0030	0,0000	ND			
98	0,019	26	Outlier,ND			
100	0,0040	1,7	ND			
108	0,0049	3,2				

Consensus statistics	
Consensus median, pg/g	0,0030
Median all values pg/g	0,0034
Consensus mean, pg/g	0,0034
Standard deviation, pg/g	0,0013
Relative standard deviation, %	37
No. of values reported	27
No. of values removed	7
No. of reported non-detects	15

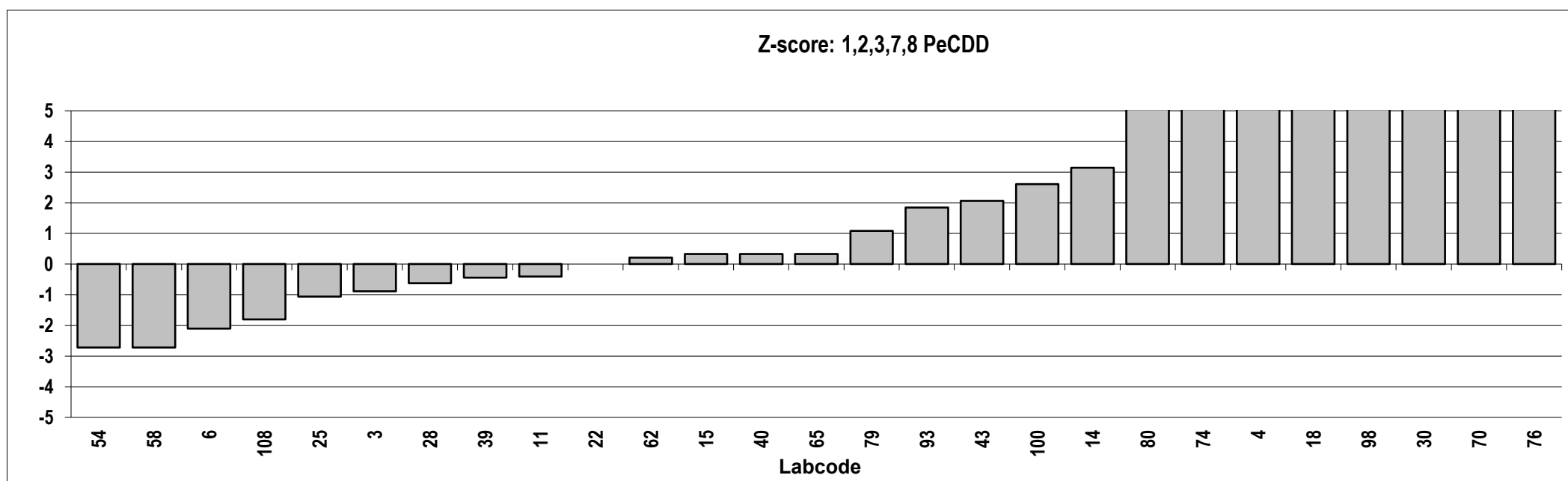
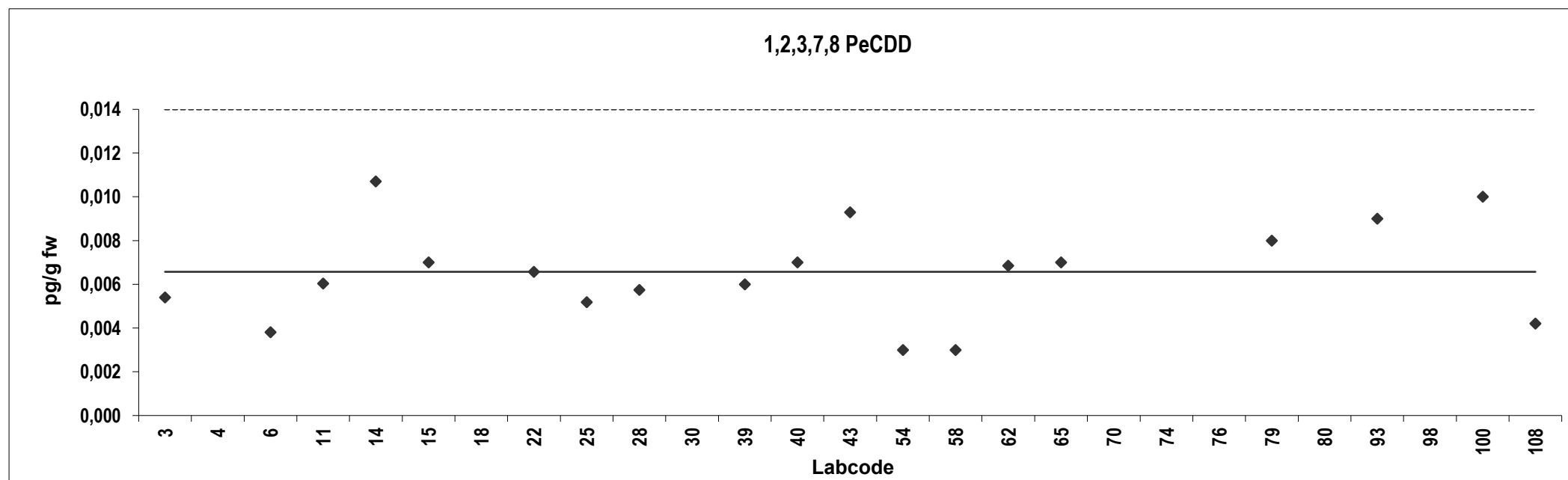


Lamb
Congener: 1,2,3,7,8 PeCDD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0054	-0,89				
4	0,020	10	Outlier,ND			
6	0,0038	-2,1				
11	0,0060	-0,41				
14	0,011	3,1				
15	0,0070	0,33	ND			
18	0,020	10	Outlier,ND			
22	0,0066	0,0000				
25	0,0052	-1,1				
28	0,0057	-0,63				
30	0,040	25	Outlier,ND			
39	0,0060	-0,44				
40	0,0070	0,33	ND			
43	0,0093	2,1				
54	0,0030	-2,7				
58	0,0030	-2,7				
62	0,0068	0,21				
65	0,0070	0,33				
70	0,063	43	Outlier,ND			
74	0,017	7,7	Outlier,ND			
76	0,71	538	Outlier			
79	0,0080	1,1				
80	0,015	6,4	Outlier			
93	0,0090	1,8	ND			
98	0,022	11	Outlier,ND			
100	0,010	2,6	ND			
108	0,0042	-1,8	ND			

Consensus statistics

Consensus median, pg/g	0,0066
Median all values pg/g	0,0070
Consensus mean, pg/g	0,0065
Standard deviation, pg/g	0,0022
Relative standard deviation, %	34
No. of values reported	27
No. of values removed	8
No. of reported non-detects	11

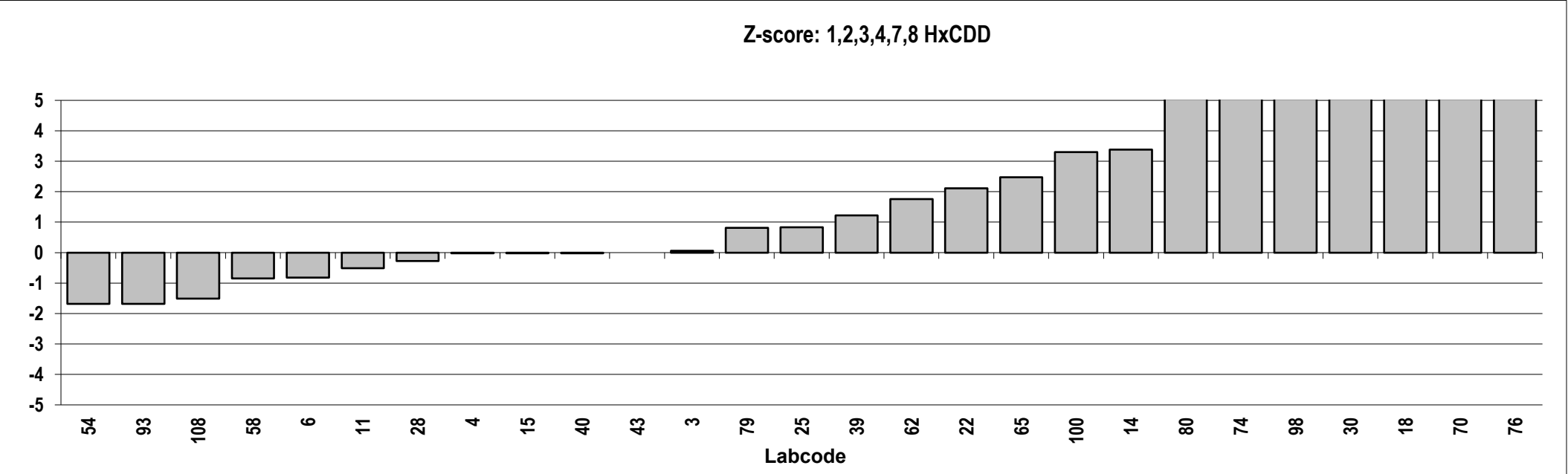
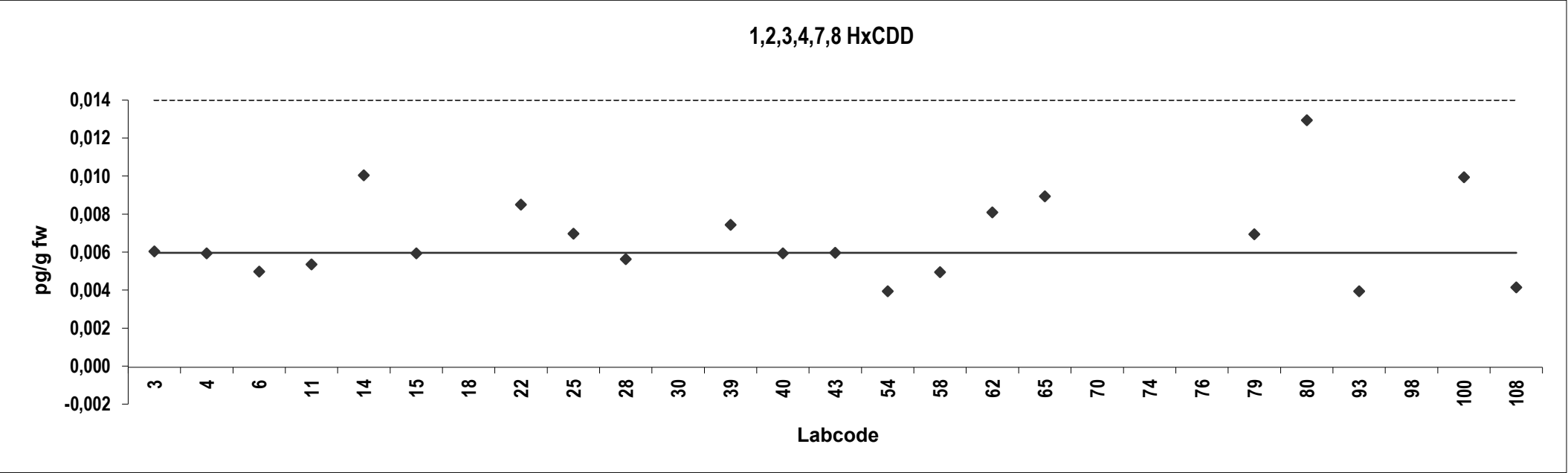


Lamb
Congener: 1,2,3,4,7,8 HxCDD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0061	0,063				
4	0,0060	-0,020	ND			
6	0,0050	-0,82				
11	0,0054	-0,51				
14	0,010	3,4				
15	0,0060	-0,020				
18	0,10	78	Outlier,ND			
22	0,0086	2,1				
25	0,0070	0,84				
28	0,0057	-0,28				
30	0,050	37	Outlier,ND			
39	0,0075	1,2	ND			
40	0,0060	-0,020	ND			
43	0,0060	0,0000				
54	0,0040	-1,7				
58	0,0050	-0,85				
62	0,0081	1,8				
65	0,0090	2,5				
70	0,13	103	Outlier,ND			
74	0,017	8,8	Outlier,ND			
76	1,2	1013	Outlier			
79	0,0070	0,81				
80	0,013	5,8				
93	0,0040	-1,7	ND			
98	0,019	11	Outlier,ND			
100	0,010	3,3				
108	0,0042	-1,5	ND			

Consensus statistics

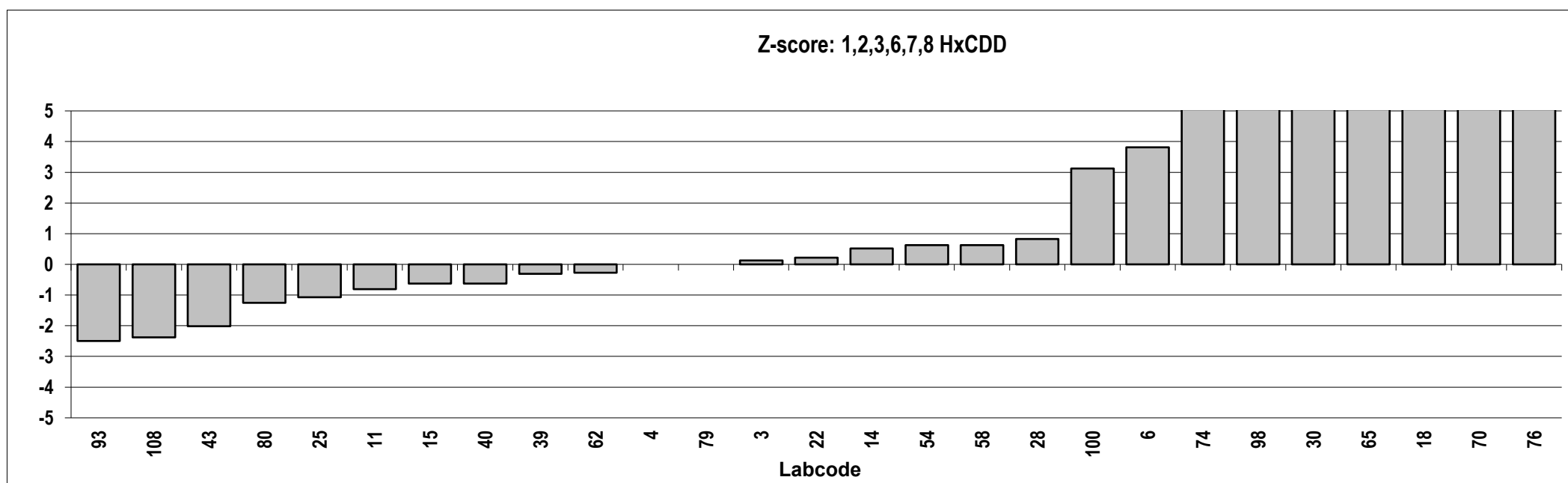
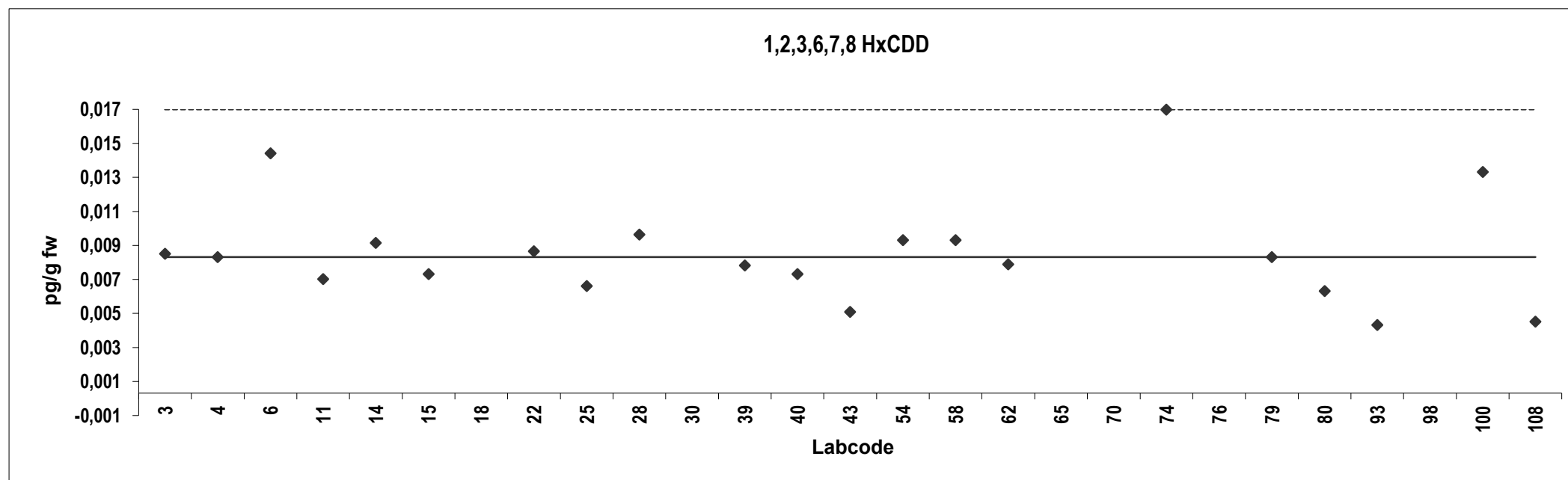
Consensus median, pg/g	0,0060
Median all values pg/g	0,0070
Consensus mean, pg/g	0,0068
Standard deviation, pg/g	0,0023
Relative standard deviation, %	33
No. of values reported	27
No. of values removed	6
No. of reported non-detects	10



Lamb
Congener: 1,2,3,6,7,8 HxCDD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0082	0,13				
4	0,0080	0,0000				
6	0,014	3,8				
11	0,0067	-0,80				
14	0,0088	0,52				
15	0,0070	-0,63				
18	0,10	58	Outlier,ND			
22	0,0083	0,21				
25	0,0063	-1,1				
28	0,0093	0,83				
30	0,050	26	Outlier,ND			
39	0,0075	-0,31	ND			
40	0,0070	-0,63				
43	0,0048	-2,0				
54	0,0090	0,62				
58	0,0090	0,62				
62	0,0076	-0,27				
65	0,056	30	Outlier			
70	0,13	76	Outlier,ND			
74	0,017	5,4	ND			
76	1,3	785	Outlier			
79	0,0080	0,0000				
80	0,0060	-1,3				
93	0,0040	-2,5	ND			
98	0,019	6,7	Outlier,ND			
100	0,013	3,1				
108	0,0042	-2,4	ND			

Consensus statistics	
Consensus median, pg/g	0,0080
Median all values pg/g	0,0083
Consensus mean, pg/g	0,0083
Standard deviation, pg/g	0,0031
Relative standard deviation, %	38
No. of values reported	27
No. of values removed	6
No. of reported non-detects	8

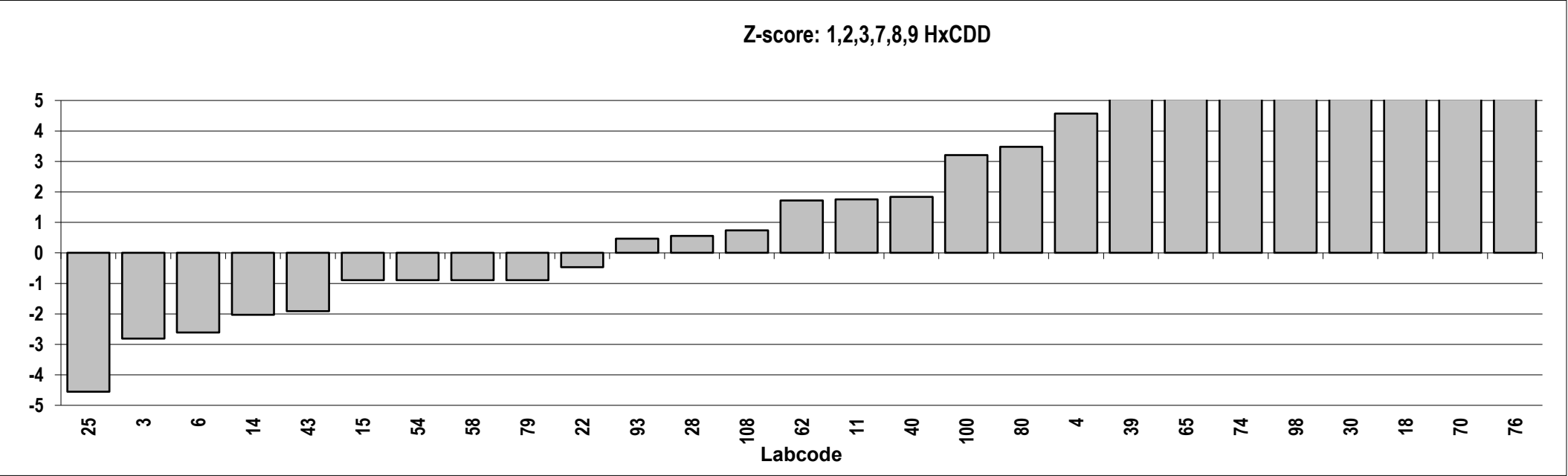
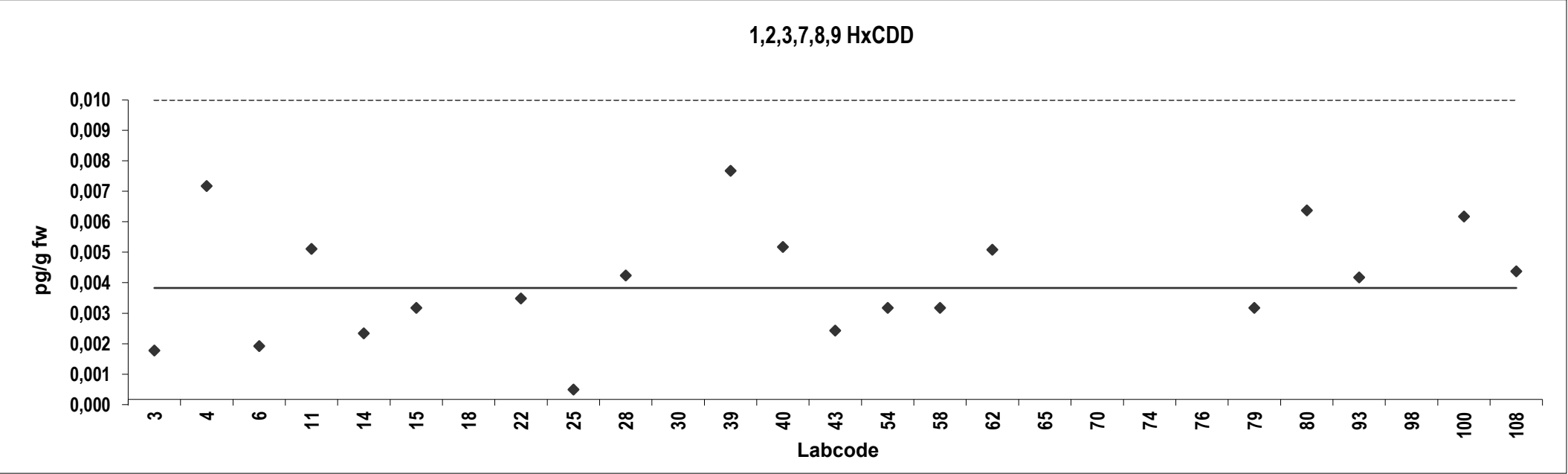


Lamb
Congener: 1,2,3,7,8,9 HxCDD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0016	-2,8				
4	0,0070	4,6	ND			
6	0,0017	-2,6				
11	0,0049	1,8	ND			
14	0,0022	-2,0				
15	0,0030	-0,90				
18	0,10	132	Outlier,ND			
22	0,0033	-0,47				
25	0,00033	-4,6				
28	0,0041	0,56				
30	0,050	63	Outlier,ND			
39	0,0075	5,3	ND			
40	0,0050	1,8	ND			
43	0,0023	-1,9				
54	0,0030	-0,90	ND			
58	0,0030	-0,90	ND			
62	0,0049	1,7				
65	0,013	13	Outlier			
70	0,13	173	Outlier,ND			
74	0,017	18	Outlier,ND			
76	1,1	1553	Outlier			
79	0,0030	-0,90				
80	0,0062	3,5	ND			
93	0,0040	0,47	ND			
98	0,020	22	Outlier,ND			
100	0,0060	3,2	ND			
108	0,0042	0,74	ND			

Consensus statistics

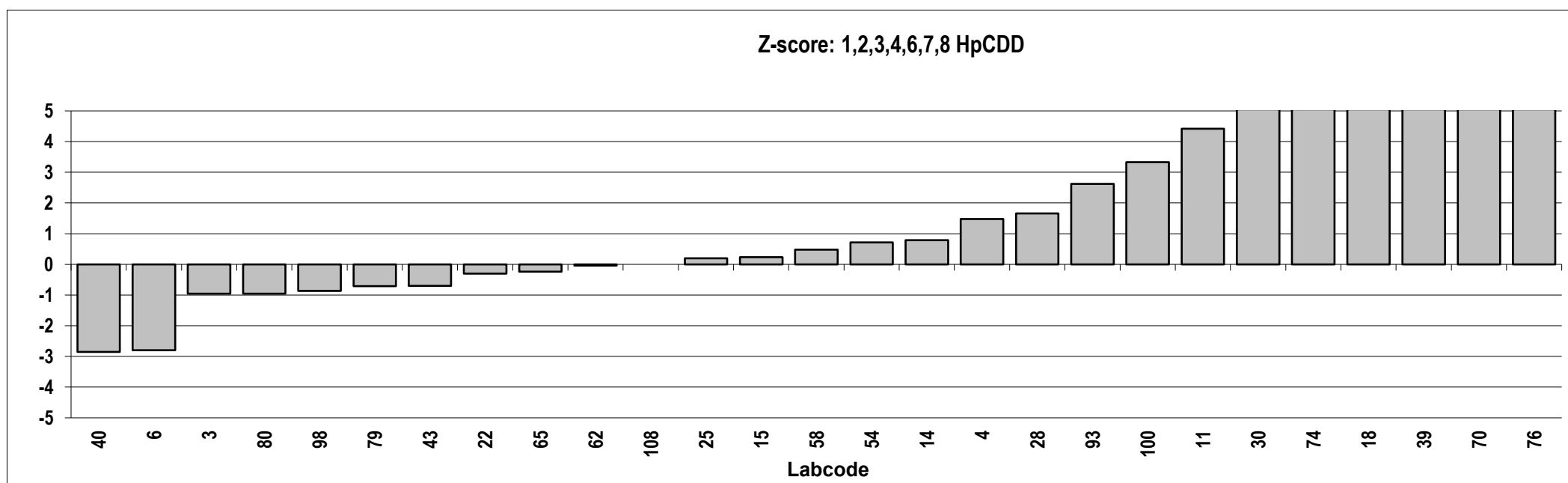
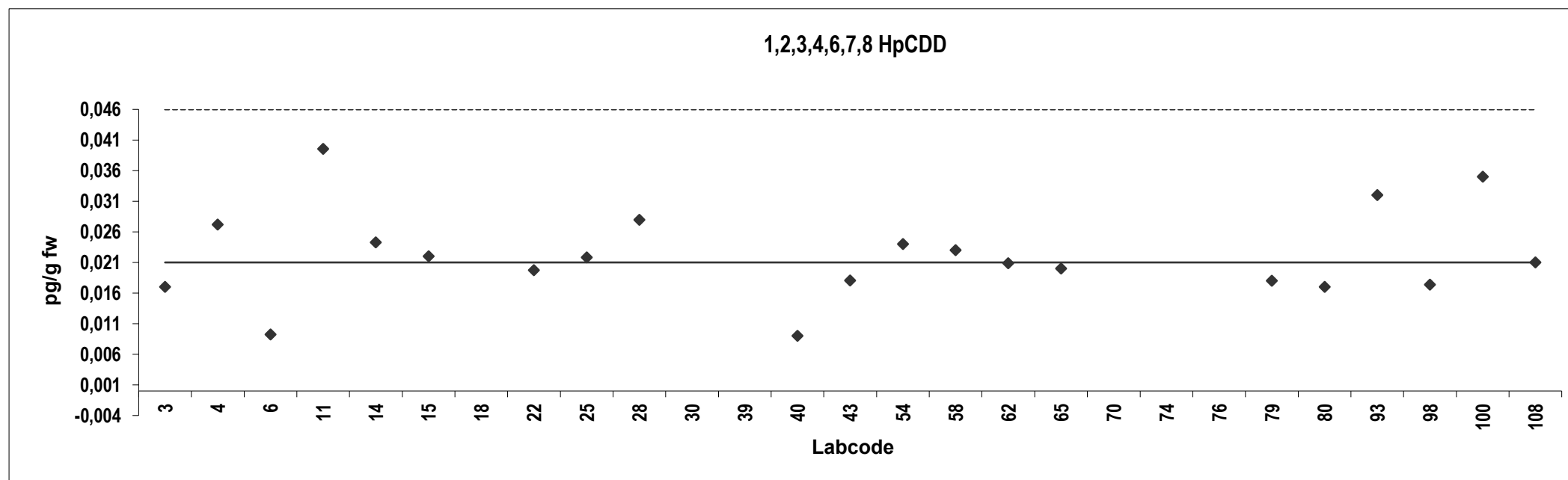
Consensus median, pg/g	0,0037
Median all values pg/g	0,0049
Consensus mean, pg/g	0,0039
Standard deviation, pg/g	0,0019
Relative standard deviation, %	49
No. of values reported	27
No. of values removed	7
No. of reported non-detects	15



Lamb
Congener: 1,2,3,4,6,7,8 HpCDD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,017	-0,95				
4	0,027	1,5				
6	0,0093	-2,8				
11	0,040	4,4	ND			
14	0,024	0,79				
15	0,022	0,24				
18	0,10	19	Outlier,ND			
22	0,020	-0,30				
25	0,022	0,20				
28	0,028	1,7				
30	0,050	6,9	Outlier,ND			
39	0,11	20	Outlier			
40	0,0090	-2,9				
43	0,018	-0,70				
54	0,024	0,71				
58	0,023	0,48				
62	0,021	-0,035				
65	0,020	-0,24				
70	0,13	26	Outlier,ND			
74	0,070	12	Outlier			
76	1,3	313	Outlier			
79	0,018	-0,71				
80	0,017	-0,95				
93	0,032	2,6				
98	0,017	-0,86	ND			
100	0,035	3,3				
108	0,021	0,0000				

Consensus statistics	
Consensus median, pg/g	0,021
Median all values pg/g	0,023
Consensus mean, pg/g	0,022
Standard deviation, pg/g	0,0074
Relative standard deviation, %	33
No. of values reported	27
No. of values removed	6
No. of reported non-detects	5

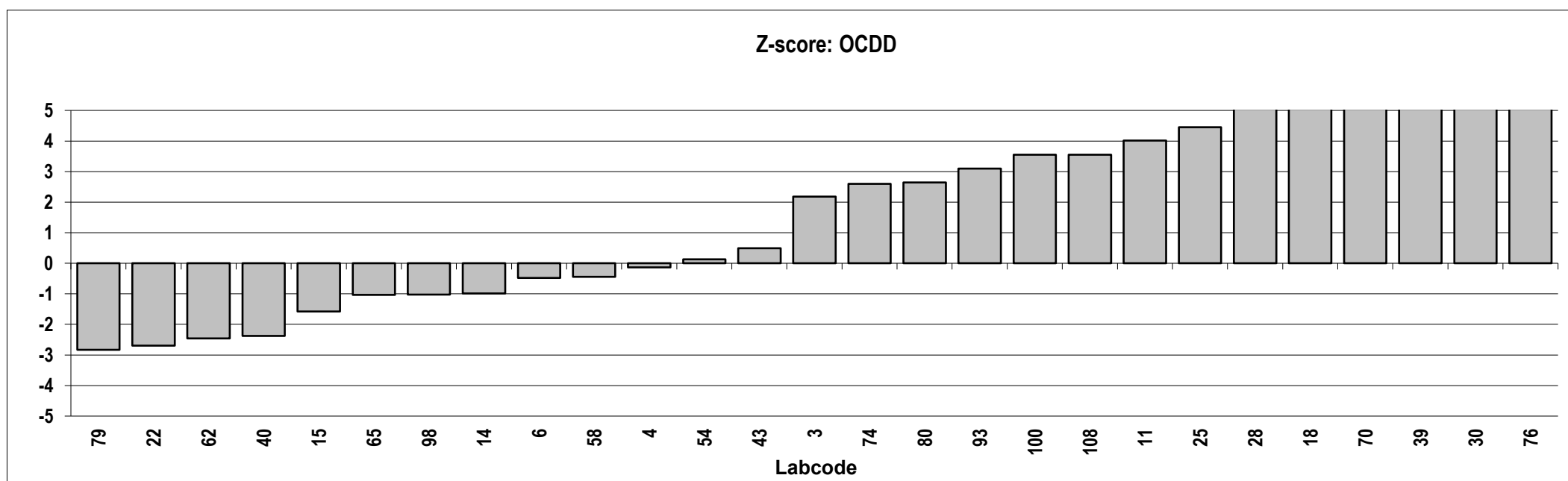
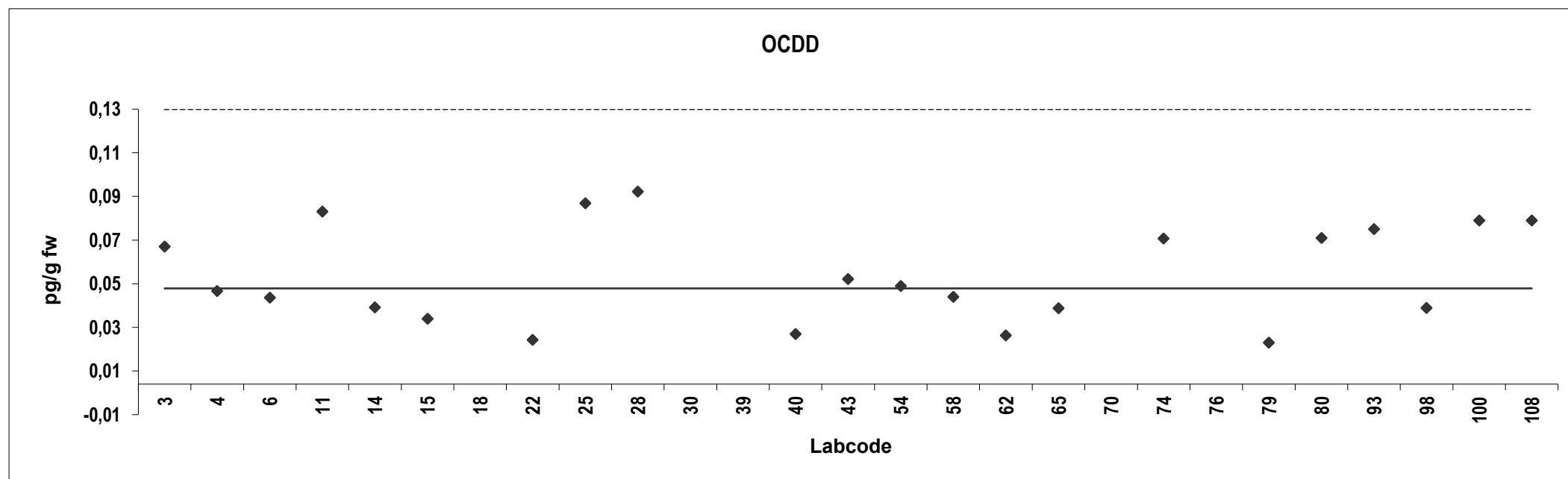


Lamb
Congener: OCDD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,063	2,2				
4	0,043	-0,13	ND			
6	0,040	-0,48				
11	0,079	4,0	ND			
14	0,035	-1,0				
15	0,030	-1,6				
18	0,20	18	Outlier,ND			
22	0,020	-2,7				
25	0,083	4,5				
28	0,088	5,1				
30	2,0	223	Outlier,ND			
39	0,60	63	Outlier			
40	0,023	-2,4				
43	0,048	0,49				
54	0,045	0,13				
58	0,040	-0,44				
62	0,022	-2,5				
65	0,035	-1,0				
70	0,31	30	Outlier,ND			
74	0,067	2,6	ND			
76	2,5	275	Outlier			
79	0,019	-2,8				
80	0,067	2,6				
93	0,071	3,1	ND			
98	0,035	-1,0	ND			
100	0,075	3,6				
108	0,075	3,6				

Consensus statistics

Consensus median, pg/g	0,044
Median all values pg/g	0,063
Consensus mean, pg/g	0,050
Standard deviation, pg/g	0,022
Relative standard deviation, %	45
No. of values reported	27
No. of values removed	5
No. of reported non-detects	8

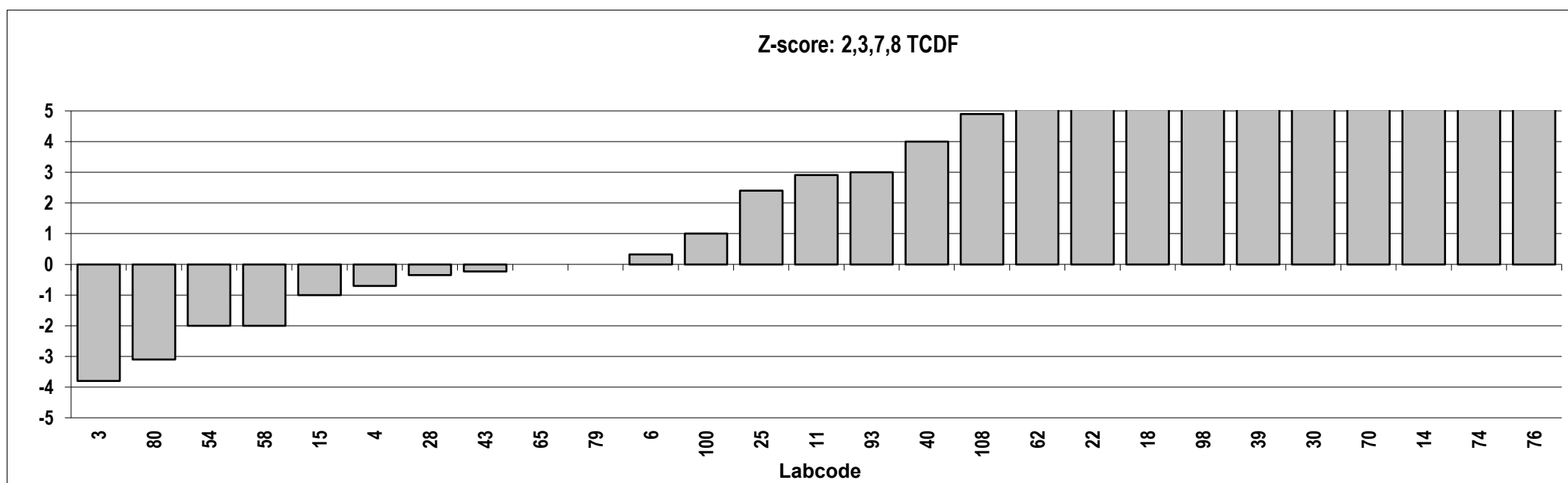
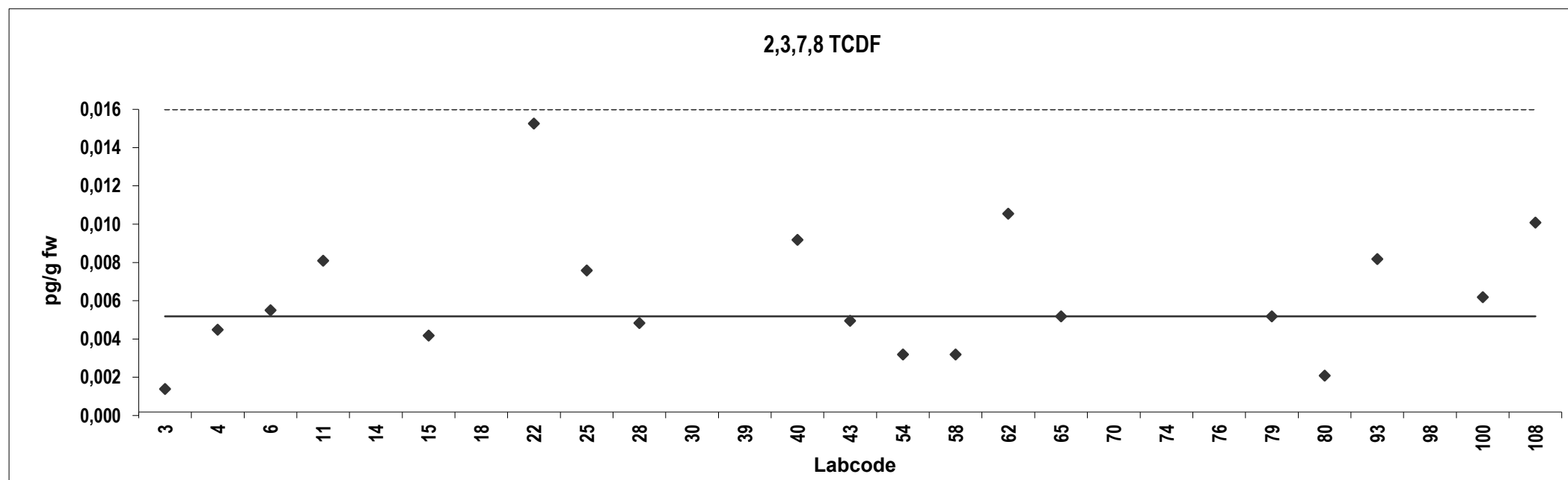


Lamb
Congener: 2,3,7,8 TCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0012	-3,8				
4	0,0043	-0,70	ND			
6	0,0053	0,32				
11	0,0079	2,9	ND			
14	0,069	64	Outlier			
15	0,0040	-1,0	ND			
18	0,020	15	Outlier,ND			
22	0,015	10				
25	0,0074	2,4				
28	0,0046	-0,35				
30	0,040	35	Outlier,ND			
39	0,025	20	Outlier			
40	0,0090	4,0	ND			
43	0,0048	-0,23				
54	0,0030	-2,0				
58	0,0030	-2,0				
62	0,010	5,4				
65	0,0050	0,0000	ND			
70	0,063	58	Outlier,ND			
74	0,080	75	Outlier			
76	0,28	276	Outlier			
79	0,0050	0,0000				
80	0,0019	-3,1	ND			
93	0,0080	3,0				
98	0,022	17	Outlier,ND			
100	0,0060	1,0	ND			
108	0,0099	4,9				

Consensus statistics

Consensus median, pg/g	0,0050
Median all values pg/g	0,0079
Consensus mean, pg/g	0,0061
Standard deviation, pg/g	0,0034
Relative standard deviation, %	55
No. of values reported	27
No. of values removed	8
No. of reported non-detects	11

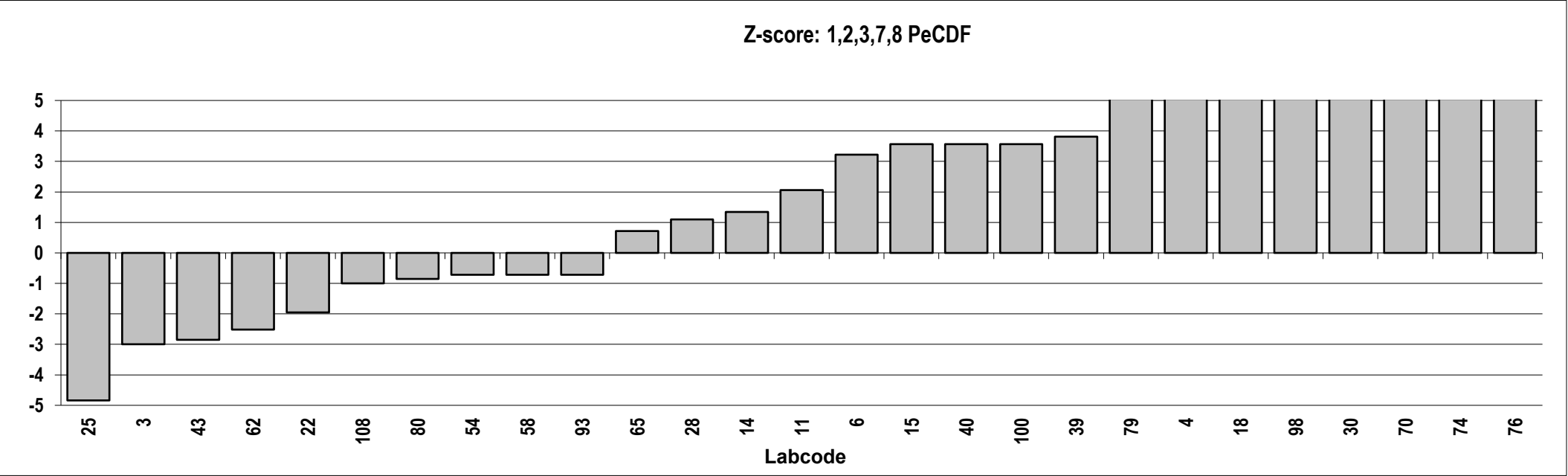
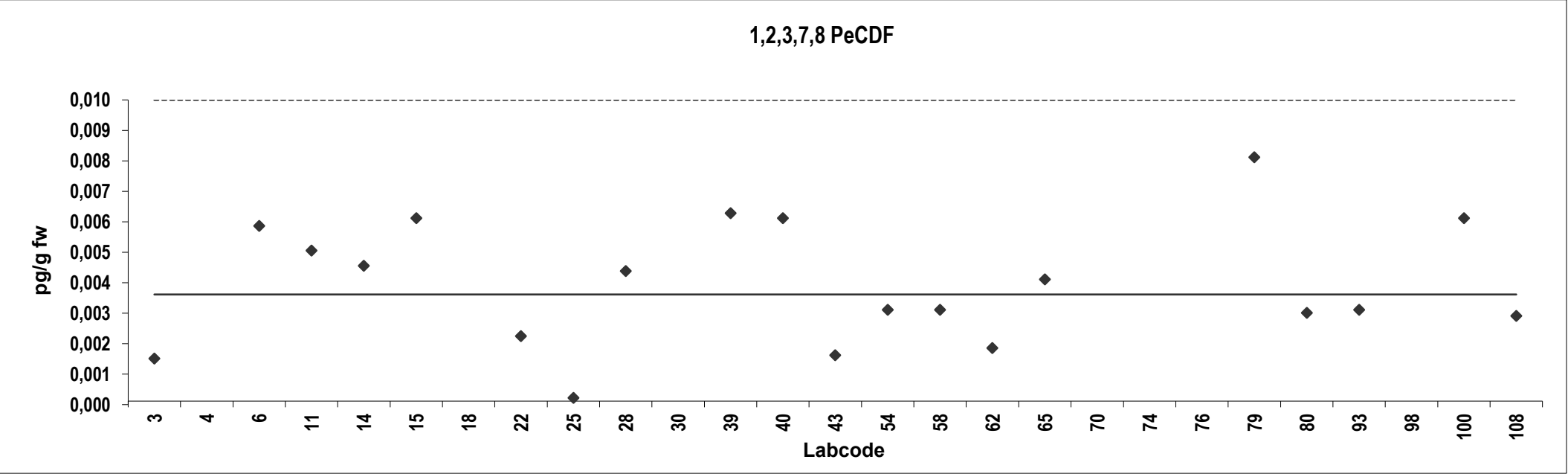


Lamb
Congener: 1,2,3,7,8 PeCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0014	-3,0				
4	0,014	15	Outlier,ND			
6	0,0058	3,2				
11	0,0049	2,1	ND			
14	0,0044	1,3				
15	0,0060	3,6	ND			
18	0,020	24	Outlier,ND			
22	0,0021	-2,0				
25	0,00011	-4,8				
28	0,0043	1,1				
30	0,040	52	Outlier,ND			
39	0,0062	3,8				
40	0,0060	3,6	ND			
43	0,0015	-2,8				
54	0,0030	-0,71	ND			
58	0,0030	-0,71	ND			
62	0,0017	-2,5				
65	0,0040	0,71	ND			
70	0,063	85	Outlier,ND			
74	0,070	95	Outlier			
76	1,1	1590	Outlier			
79	0,0080	6,4				
80	0,0029	-0,86	ND			
93	0,0030	-0,71	ND			
98	0,021	25	Outlier,ND			
100	0,0060	3,6	ND			
108	0,0028	-1,0				

Consensus statistics

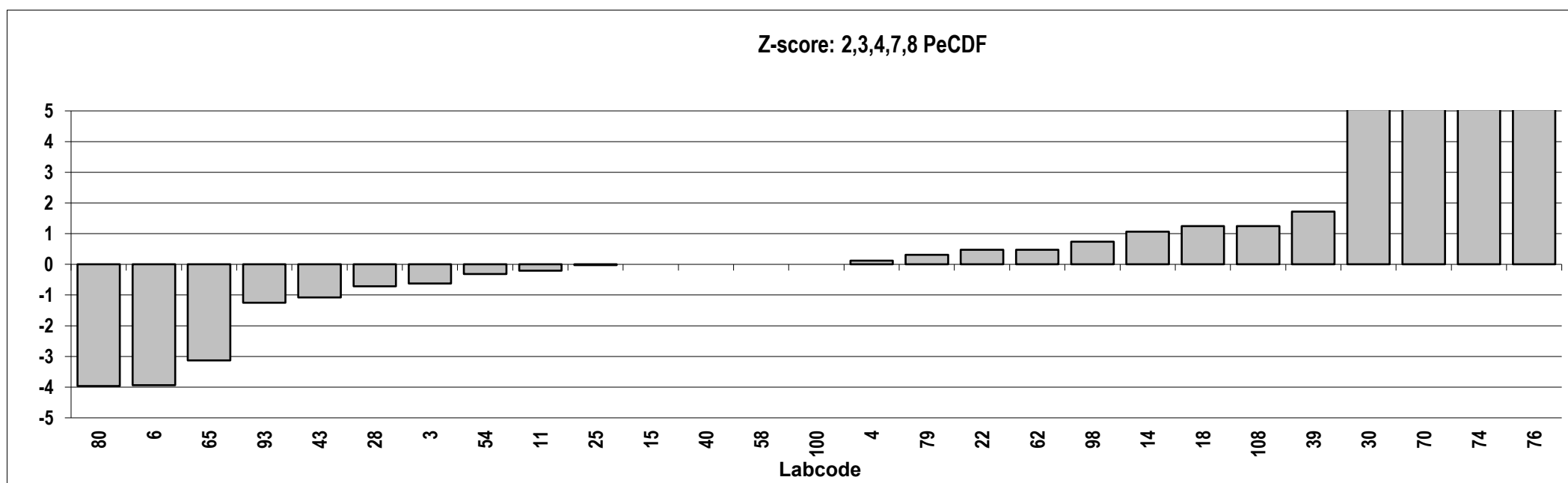
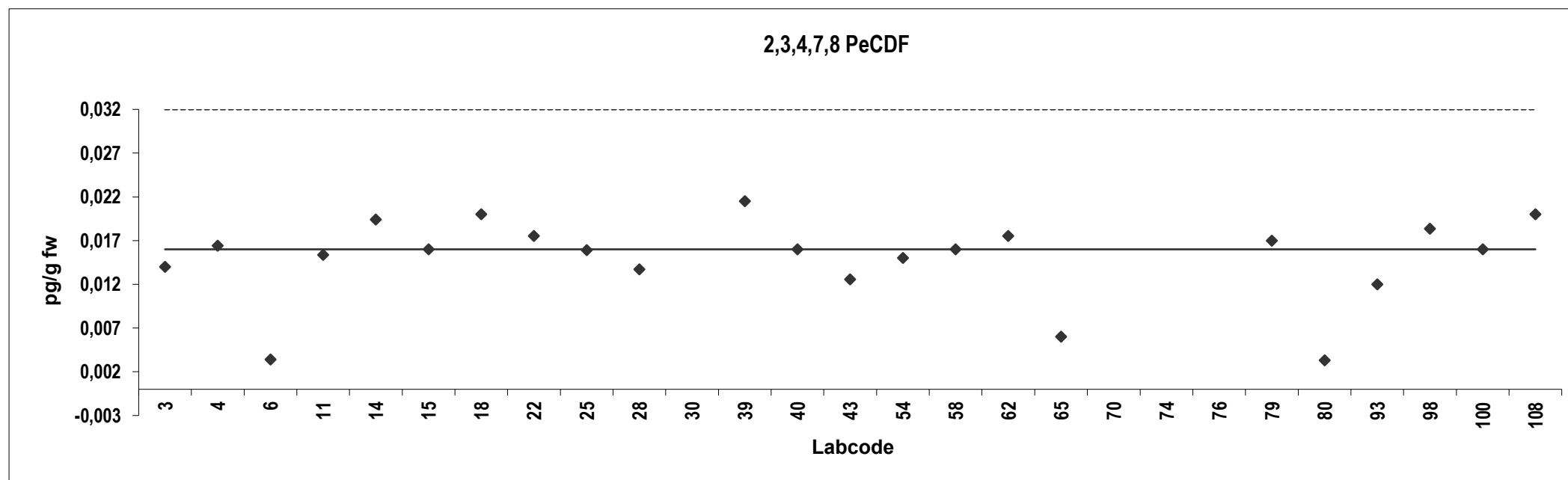
Consensus median, pg/g	0,0035
Median all values pg/g	0,0049
Consensus mean, pg/g	0,0039
Standard deviation, pg/g	0,0020
Relative standard deviation, %	53
No. of values reported	27
No. of values removed	7
No. of reported non-detects	14



Lamb
Congener: 2,3,4,7,8 PeCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,014	-0,63				
4	0,016	0,13				
6	0,0034	-3,9				
11	0,015	-0,20				
14	0,019	1,1				
15	0,016	0,0000				
18	0,020	1,3	ND			
22	0,018	0,47				
25	0,016	-0,028				
28	0,014	-0,72				
30	0,040	7,5	Outlier,ND			
39	0,021	1,7				
40	0,016	0,0000				
43	0,013	-1,1				
54	0,015	-0,31				
58	0,016	0,0000				
62	0,018	0,48				
65	0,0060	-3,1	ND			
70	0,063	15	Outlier,ND			
74	0,11	29	Outlier			
76	1,3	391	Outlier			
79	0,017	0,31				
80	0,0033	-4,0	ND			
93	0,012	-1,3				
98	0,018	0,74	ND			
100	0,016	0,0000				
108	0,020	1,3				

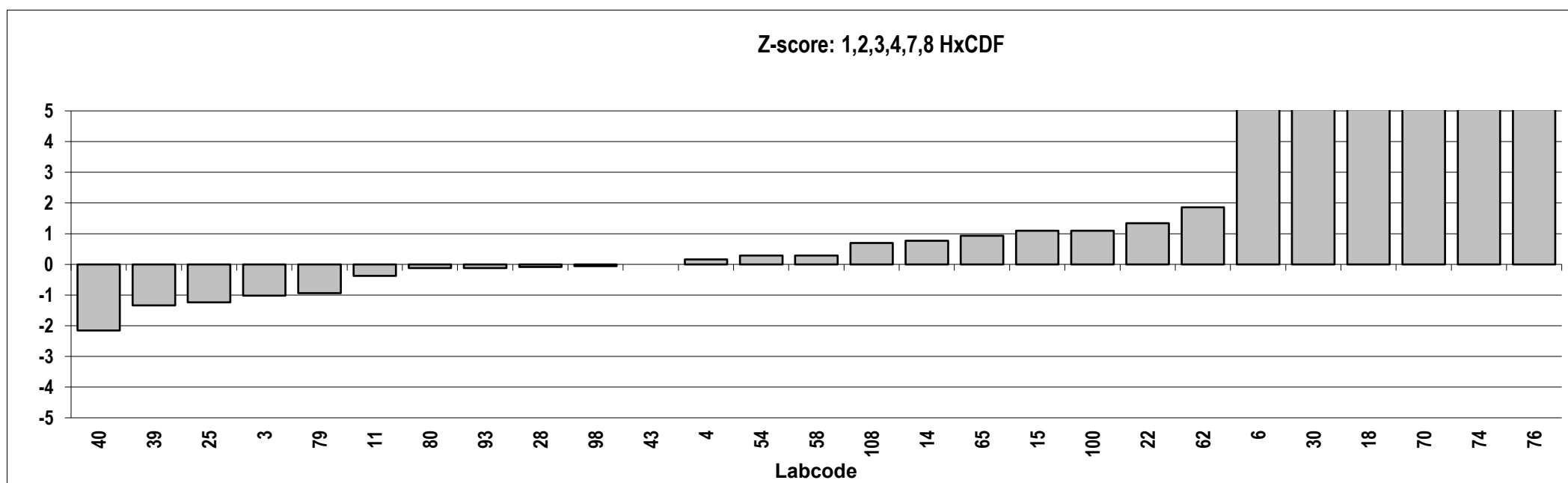
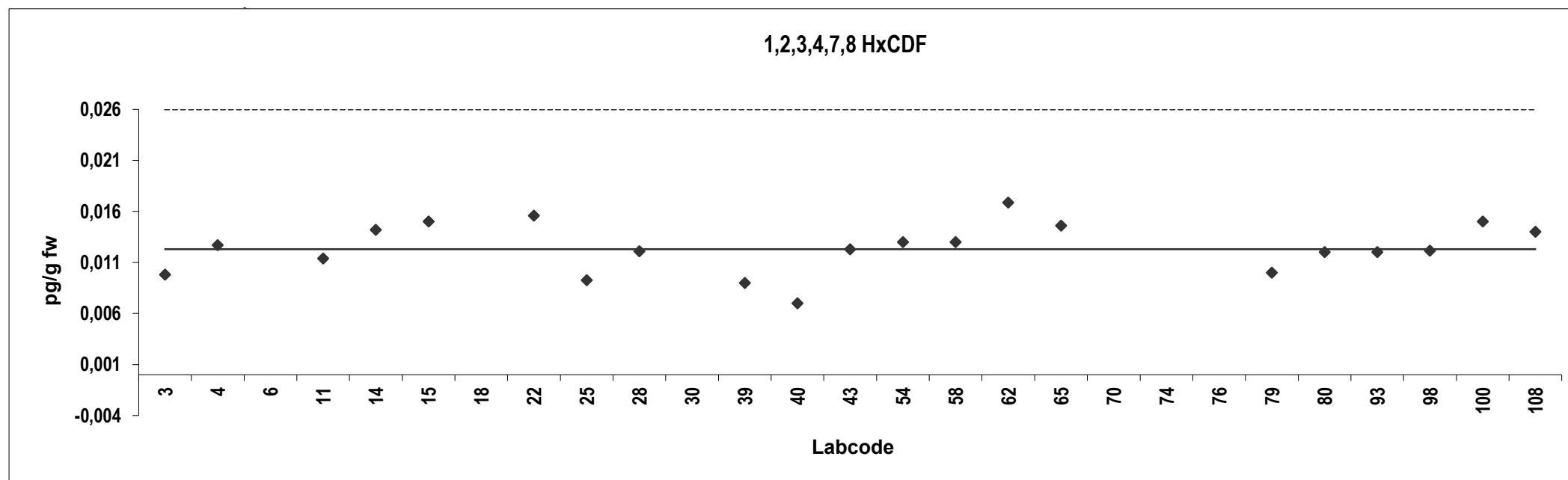
Consensus statistics	
Consensus median, pg/g	0,016
Median all values pg/g	0,016
Consensus mean, pg/g	0,015
Standard deviation, pg/g	0,0048
Relative standard deviation, %	32
No. of values reported	27
No. of values removed	4
No. of reported non-detects	6



Lamb
Congener: 1,2,3,4,7,8 HxCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0098	-1,0				
4	0,013	0,16				
6	0,028	6,6	Outlier			
11	0,011	-0,38				
14	0,014	0,77				
15	0,015	1,1				
18	0,10	36	Outlier,ND			
22	0,016	1,3				
25	0,0093	-1,2				
28	0,012	-0,081				
30	0,050	15	Outlier,ND			
39	0,0090	-1,3	ND			
40	0,0070	-2,2				
43	0,012	0,0000				
54	0,013	0,29				
58	0,013	0,29				
62	0,017	1,9				
65	0,015	0,94				
70	0,13	48	Outlier,ND			
74	0,13	48	Outlier			
76	1,3	504	Outlier			
79	0,010	-0,93				
80	0,012	-0,12				
93	0,012	-0,12	ND			
98	0,012	-0,058	ND			
100	0,015	1,1				
108	0,014	0,69				

Consensus statistics	
Consensus median, pg/g	0,012
Median all values pg/g	0,013
Consensus mean, pg/g	0,012
Standard deviation, pg/g	0,0024
Relative standard deviation, %	20
No. of values reported	27
No. of values removed	6
No. of reported non-detects	6

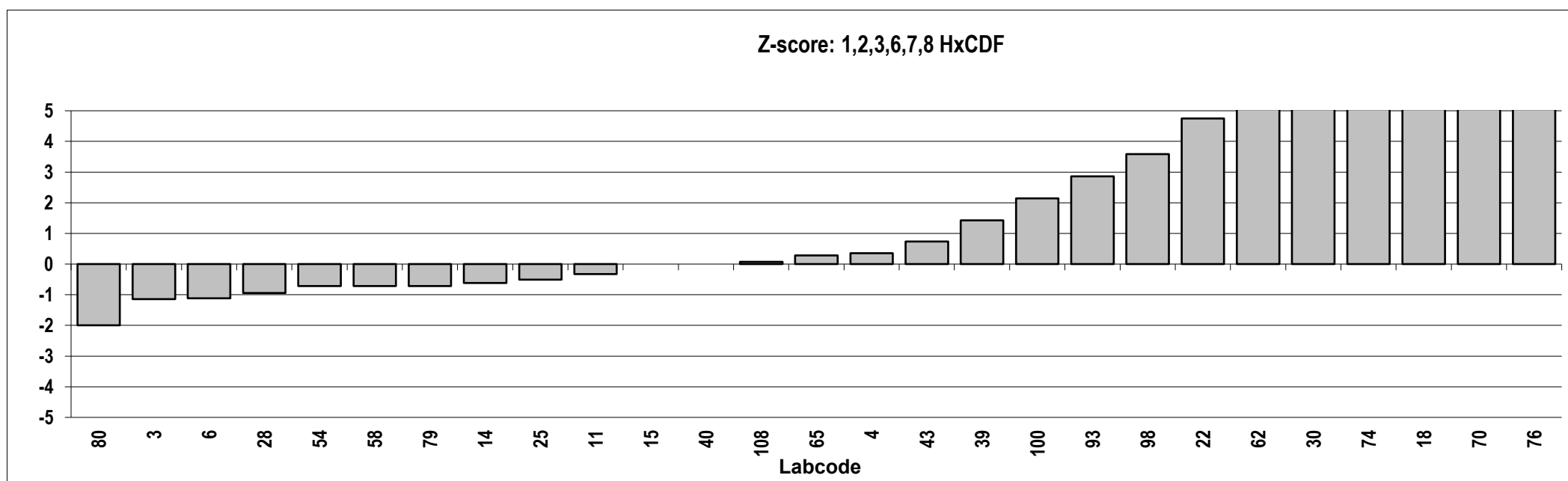
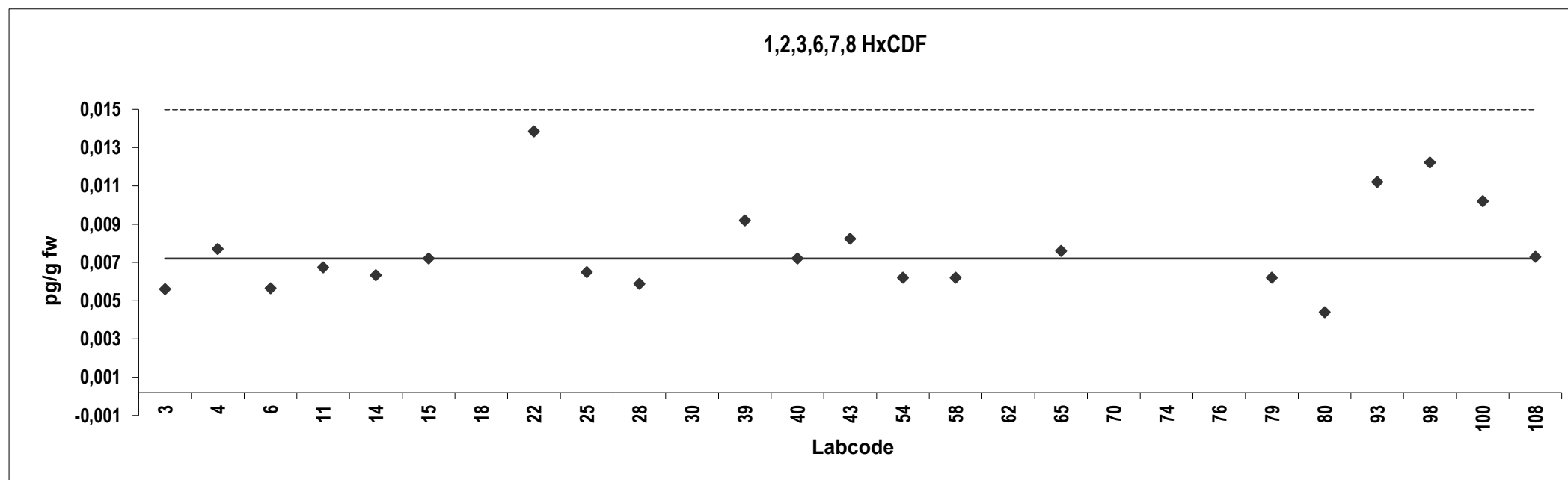


Lamb
Congener: 1,2,3,6,7,8 HxCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0054	-1,1				
4	0,0075	0,36				
6	0,0054	-1,1				
11	0,0065	-0,33				
14	0,0061	-0,61				
15	0,0070	0,0000				
18	0,10	66	Outlier,ND			
22	0,014	4,8				
25	0,0063	-0,51				
28	0,0057	-0,94				
30	0,050	31	Outlier,ND			
39	0,0090	1,4	ND			
40	0,0070	0,0000				
43	0,0080	0,74				
54	0,0060	-0,71				
58	0,0060	-0,71				
62	0,017	7,4	Outlier			
65	0,0074	0,29				
70	0,13	88	Outlier,ND			
74	0,060	38	Outlier			
76	1,2	871	Outlier			
79	0,0060	-0,71				
80	0,0042	-2,0				
93	0,011	2,9	ND			
98	0,012	3,6	ND			
100	0,010	2,1				
108	0,0071	0,07				

Consensus statistics

Consensus median, pg/g	0,0070
Median all values pg/g	0,0074
Consensus mean, pg/g	0,0075
Standard deviation, pg/g	0,0024
Relative standard deviation, %	32
No. of values reported	27
No. of values removed	6
No. of reported non-detects	6

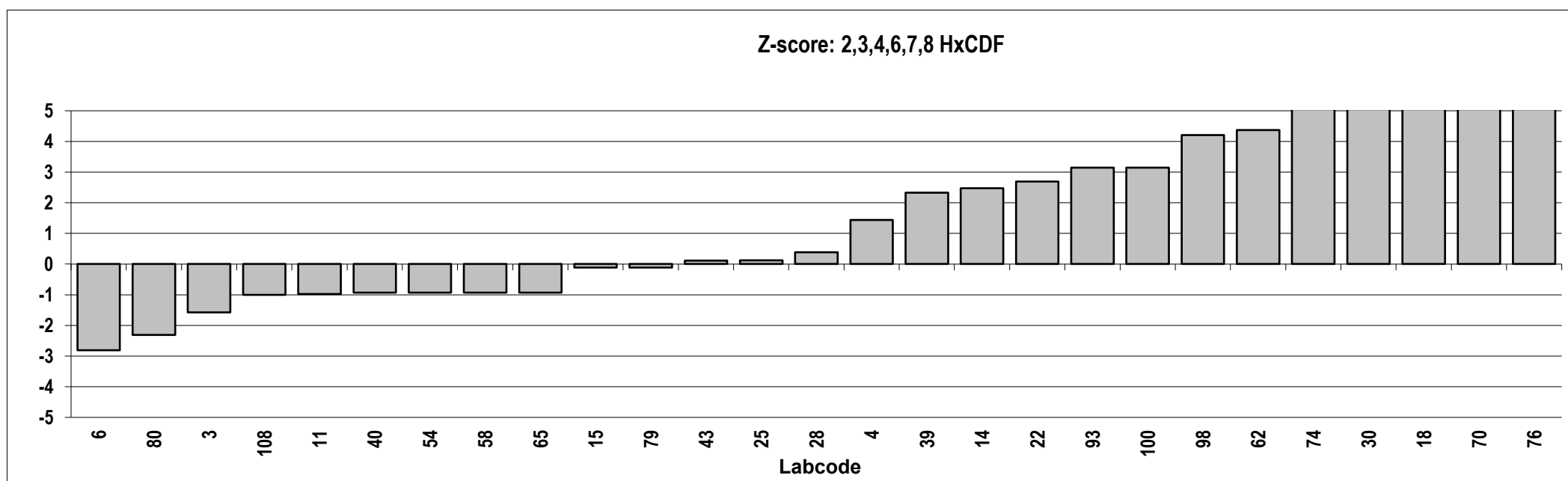
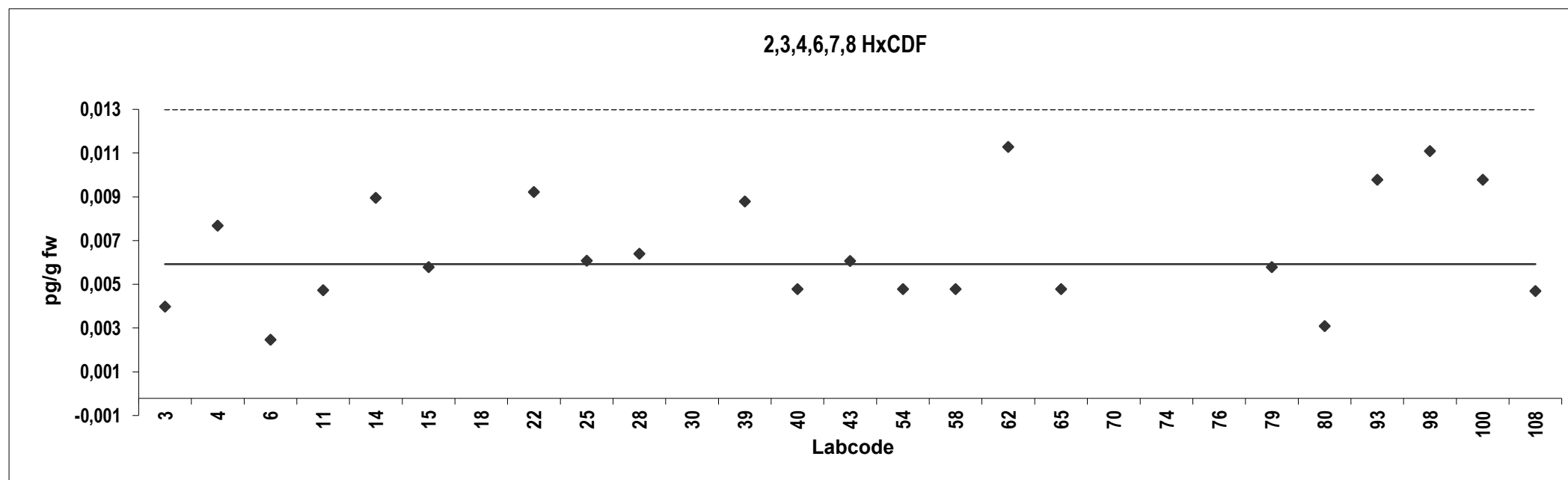


Lamb
Congener: 2,3,4,6,7,8 HxCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0042	-1,6				
4	0,0079	1,4				
6	0,0027	-2,8				
11	0,0049	-1,0	ND			
14	0,0092	2,5				
15	0,0060	-0,11				
18	0,10	76	Outlier,ND			
22	0,0094	2,7				
25	0,0063	0,12				
28	0,0066	0,38				
30	0,050	36	Outlier,ND			
39	0,0090	2,3	ND			
40	0,0050	-0,93				
43	0,0063	0,11				
54	0,0050	-0,93				
58	0,0050	-0,93				
62	0,012	4,4				
65	0,0050	-0,93				
70	0,13	101	Outlier,ND			
74	0,017	8,6	Outlier,ND			
76	1,2	945	Outlier			
79	0,0060	-0,11				
80	0,0033	-2,3				
93	0,010	3,1				
98	0,011	4,2	ND			
100	0,010	3,1				
108	0,0049	-1,0				

Consensus statistics

Consensus median, pg/g	0,0061
Median all values pg/g	0,0066
Consensus mean, pg/g	0,0068
Standard deviation, pg/g	0,0026
Relative standard deviation, %	38
No. of values reported	27
No. of values removed	5
No. of reported non-detects	7

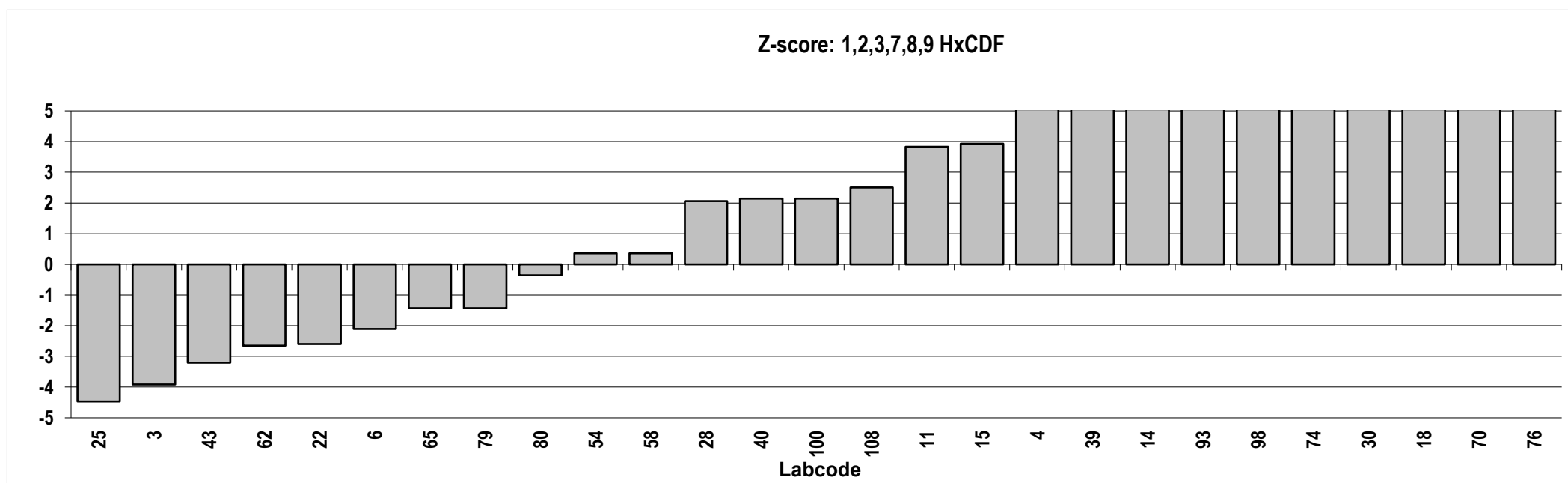
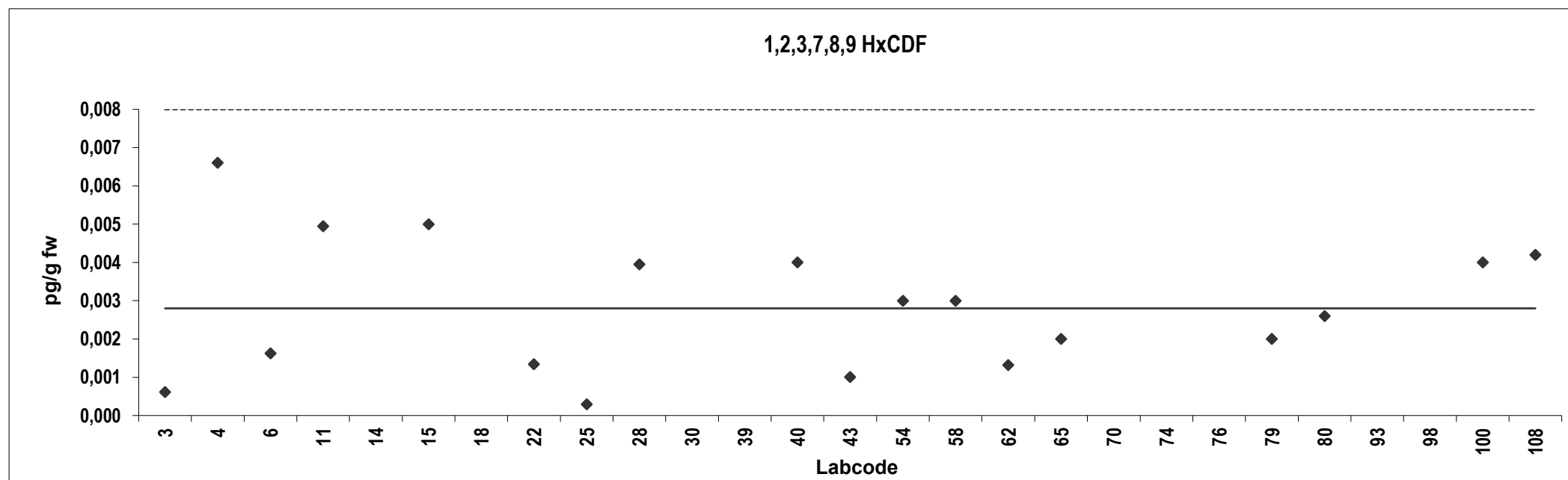


Lamb
Congener: 1,2,3,7,8,9 HxCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,00061	-3,9				
4	0,0066	6,8	ND			
6	0,0016	-2,1				
11	0,0049	3,8	ND			
14	0,011	14	Outlier			
15	0,0050	3,9	ND			
18	0,10	174	Outlier,ND			
22	0,0013	-2,6	ND			
25	0,00030	-4,5				
28	0,0040	2,1				
30	0,050	84	Outlier,ND			
39	0,0090	11	Outlier,ND			
40	0,0040	2,1	ND			
43	0,0010	-3,2				
54	0,0030	0,36	ND			
58	0,0030	0,36	ND			
62	0,0013	-2,6	ND			
65	0,0020	-1,4	ND			
70	0,13	227	Outlier,ND			
74	0,017	25	Outlier,ND			
76	1,1	2014	Outlier			
79	0,0020	-1,4				
80	0,0026	-0,36	ND			
93	0,011	15	Outlier			
98	0,015	22	Outlier,ND			
100	0,0040	2,1				
108	0,0042	2,5	ND			

Consensus statistics

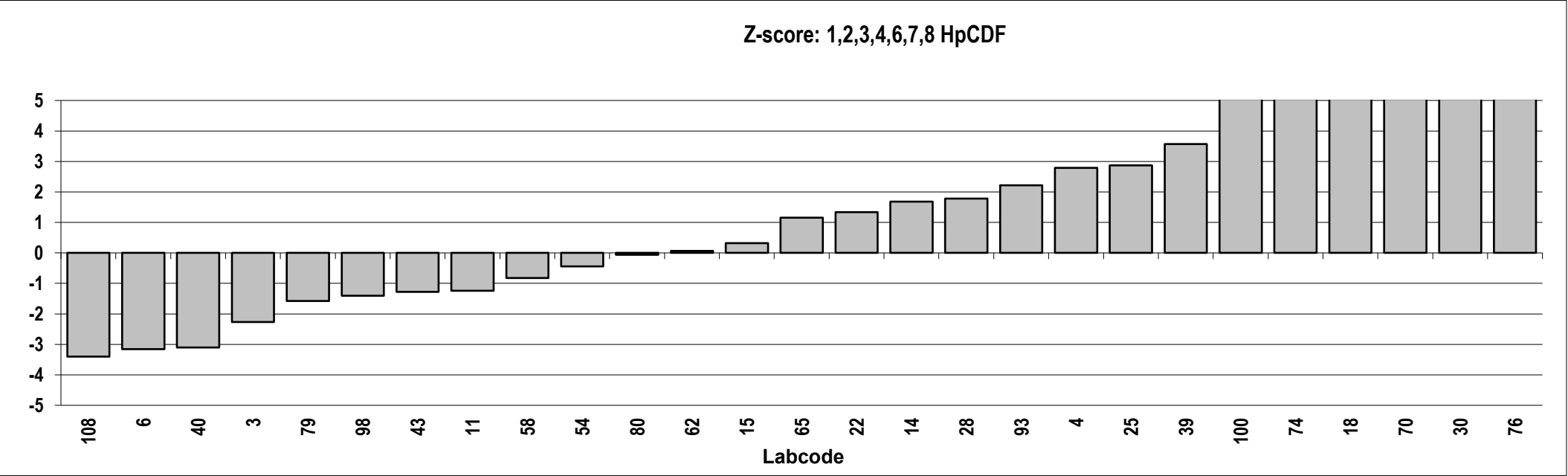
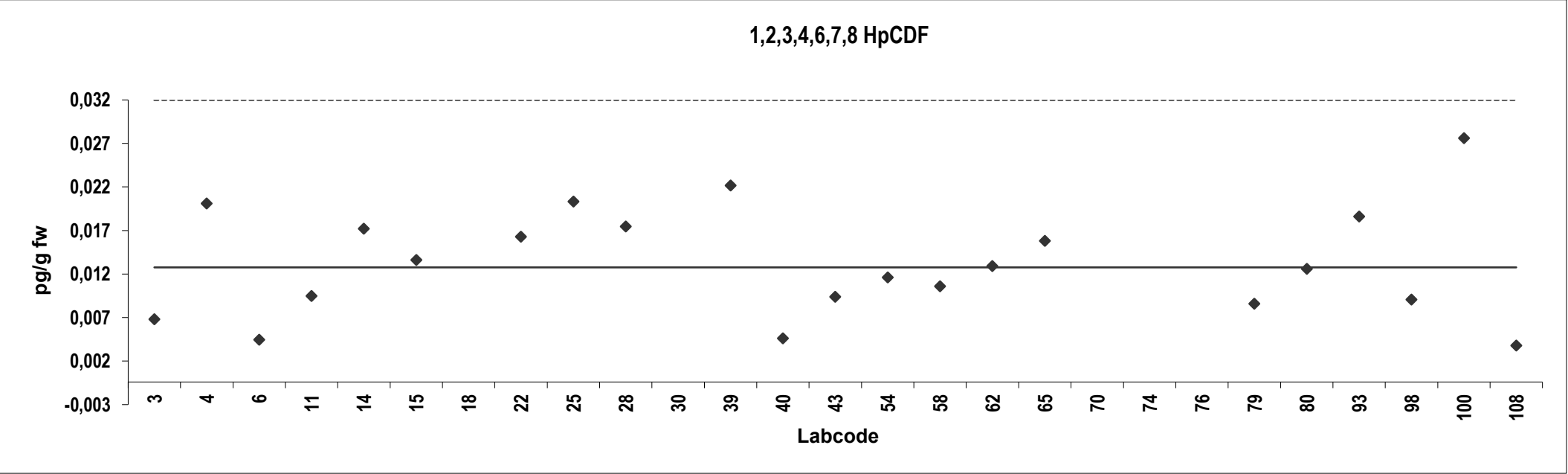
Consensus median, pg/g	0,0028
Median all values pg/g	0,0040
Consensus mean, pg/g	0,0029
Standard deviation, pg/g	0,0017
Relative standard deviation, %	61
No. of values reported	27
No. of values removed	9
No. of reported non-detects	17



Lamb
Congener: 1,2,3,4,6,7,8 HpCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,0072	-2,3				
4	0,021	2,8				
6	0,0049	-3,2				
11	0,0099	-1,2	ND			
14	0,018	1,7				
15	0,014	0,32				
18	0,10	33	Outlier,ND			
22	0,017	1,3				
25	0,021	2,9				
28	0,018	1,8				
30	0,15	52	Outlier,ND			
39	0,023	3,6				
40	0,0050	-3,1				
43	0,0098	-1,3				
54	0,012	-0,44				
58	0,011	-0,82				
62	0,013	0,062				
65	0,016	1,2				
70	0,13	44	Outlier,ND			
74	0,090	29	Outlier			
76	1,2	468	Outlier			
79	0,0090	-1,6				
80	0,013	-0,062				
93	0,019	2,2				
98	0,0095	-1,4	ND			
100	0,028	5,6				
108	0,0042	-3,4	ND			

Consensus statistics	
Consensus median, pg/g	0,013
Median all values pg/g	0,016
Consensus mean, pg/g	0,014
Standard deviation, pg/g	0,0063
Relative standard deviation, %	46
No. of values reported	27
No. of values removed	5
No. of reported non-detects	6

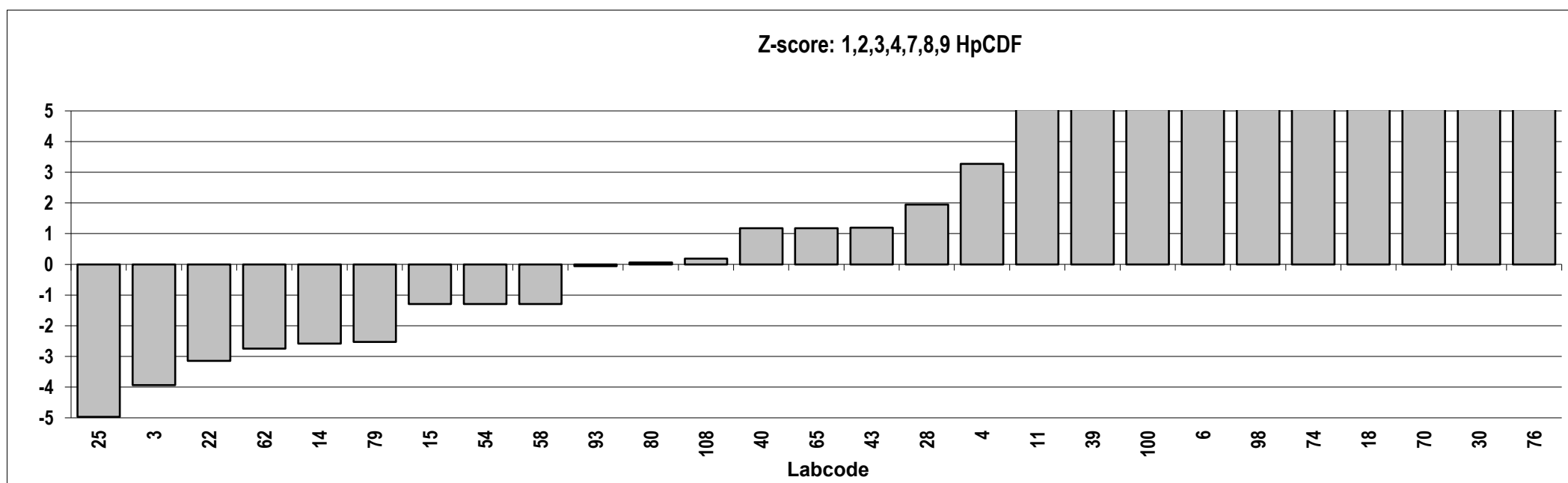
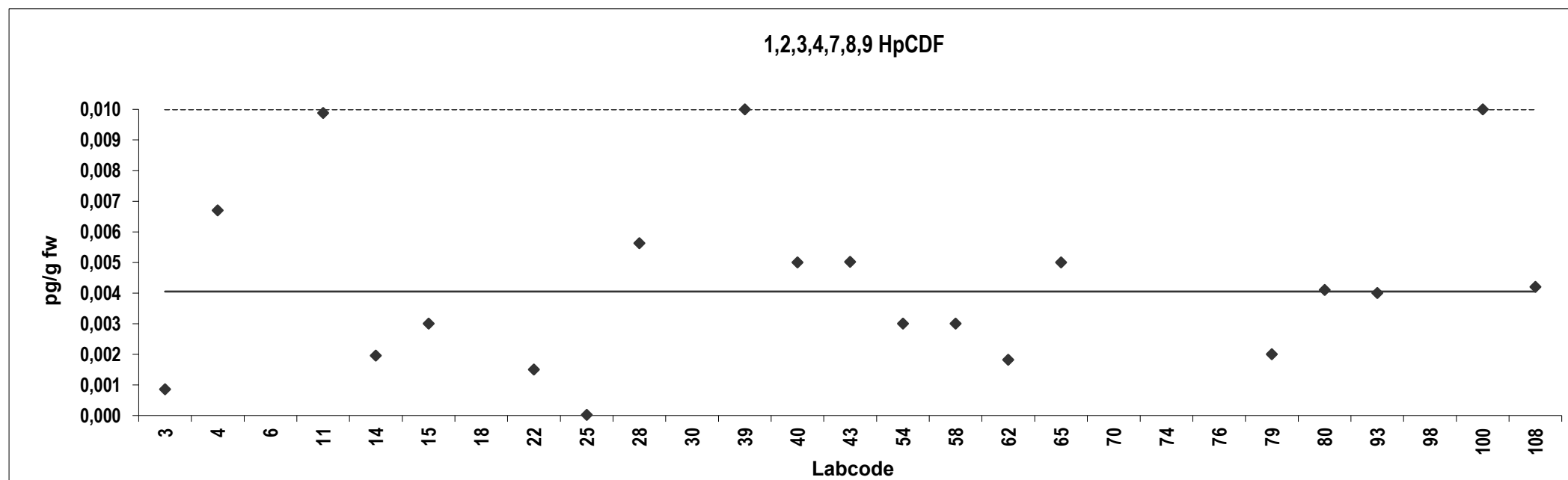


Lamb
Congener: 1,2,3,4,7,8,9 HpCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,00086	-3,9				
4	0,0067	3,3	ND			
6	0,012	9,3	Outlier			
11	0,0099	7,2	ND			
14	0,0020	-2,6				
15	0,0030	-1,3	ND			
18	0,10	118	Outlier,ND			
22	0,0015	-3,1	ND			
25	0,000022	-5,0				
28	0,0056	1,9				
30	0,15	180	Outlier,ND			
39	0,010	7,3	ND			
40	0,0050	1,2	ND			
43	0,0050	1,2				
54	0,0030	-1,3	ND			
58	0,0030	-1,3	ND			
62	0,0018	-2,7	ND			
65	0,0050	1,2	ND			
70	0,13	155	Outlier,ND			
74	0,017	16	Outlier,ND			
76	1,3	1562	Outlier			
79	0,0020	-2,5				
80	0,0041	0,062	ND			
93	0,0040	-0,062	ND			
98	0,013	11	Outlier,ND			
100	0,010	7,3	ND			
108	0,0042	0,19	ND			

Consensus statistics

Consensus median, pg/g	0,0041
Median all values pg/g	0,0050
Consensus mean, pg/g	0,0043
Standard deviation, pg/g	0,0029
Relative standard deviation, %	68
No. of values reported	27
No. of values removed	7
No. of reported non-detects	19

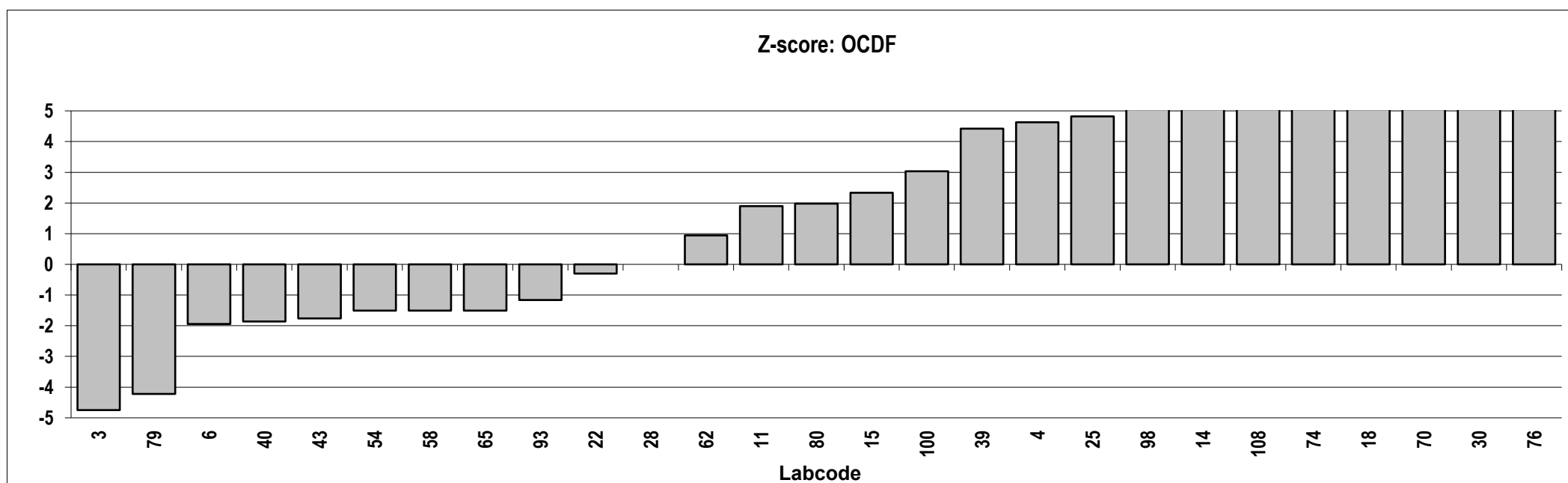
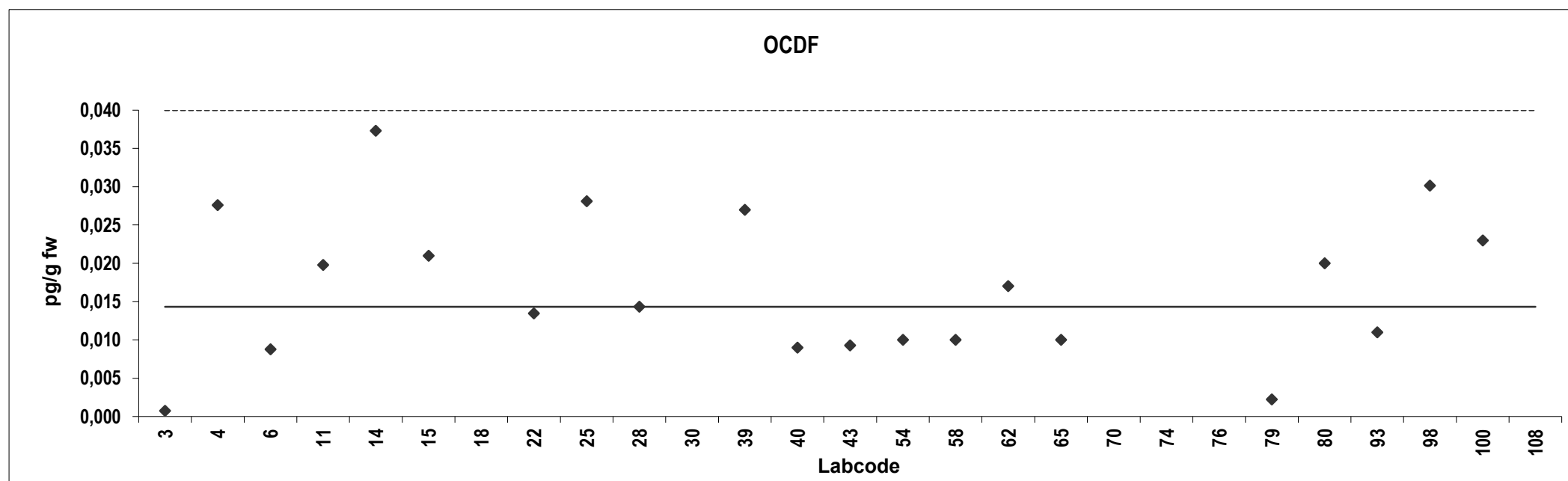


Lamb
Congener: OCDF

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,00073	-4,7				
4	0,028	4,6	ND			
6	0,0088	-1,9				
11	0,020	1,9	ND			
14	0,037	8,0				
15	0,021	2,3				
18	0,20	65	Outlier,ND			
22	0,013	-0,30	ND			
25	0,028	4,8				
28	0,014	0,0000				
30	2,0	693	Outlier,ND			
39	0,027	4,4	ND			
40	0,0090	-1,9	ND			
43	0,0093	-1,8				
54	0,010	-1,5	ND			
58	0,010	-1,5	ND			
62	0,017	0,95	ND			
65	0,010	-1,5	ND			
70	0,31	103	Outlier,ND			
74	0,067	18	Outlier,ND			
76	2,9	1021	Outlier			
79	0,0022	-4,2				
80	0,020	2,0	ND			
93	0,011	-1,2	ND			
98	0,030	5,5	ND			
100	0,023	3,0				
108	0,052	13	Outlier			

Consensus statistics

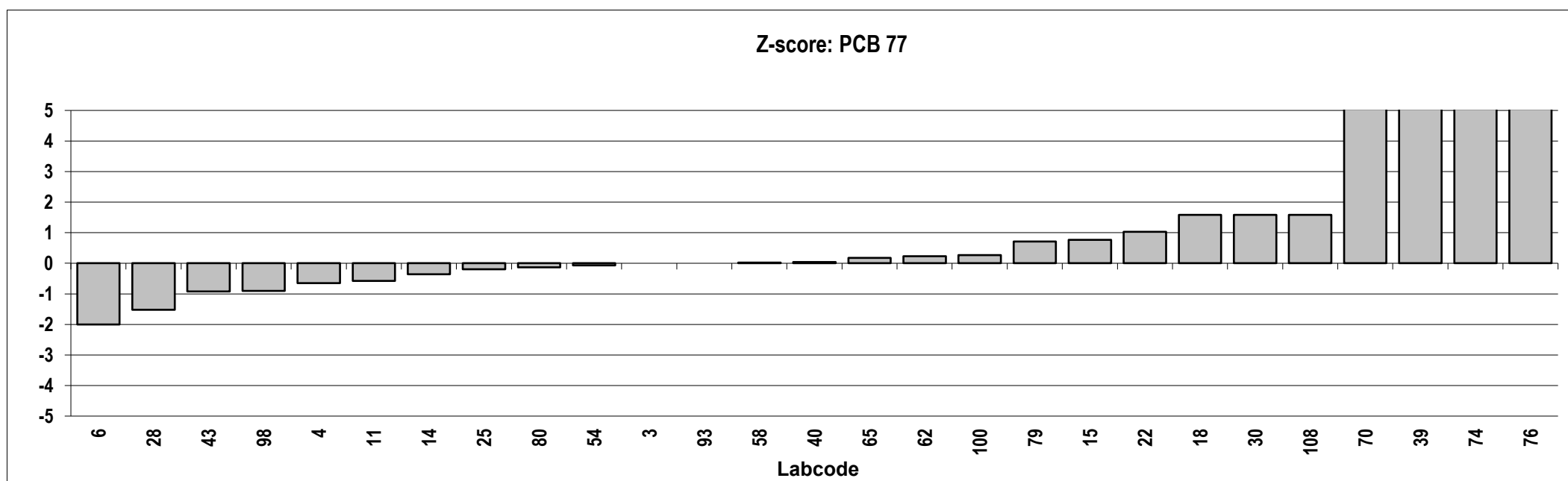
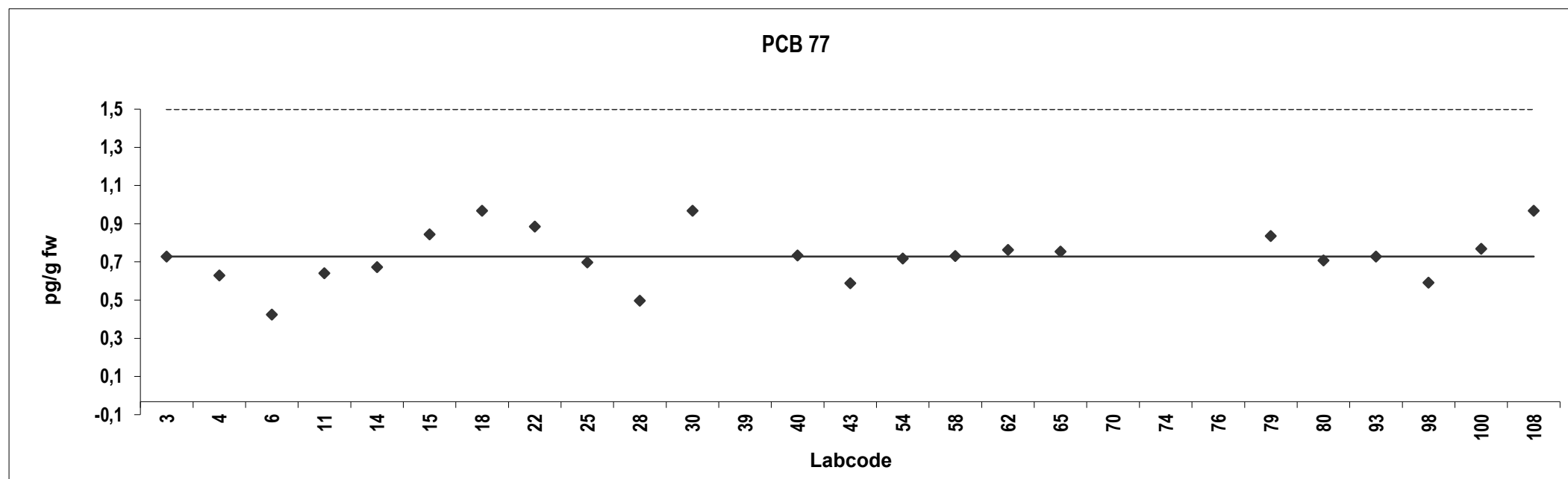
Consensus median, pg/g	0,014
Median all values pg/g	0,020
Consensus mean, pg/g	0,017
Standard deviation, pg/g	0,0097
Relative standard deviation, %	58
No. of values reported	27
No. of values removed	6
No. of reported non-detects	16



Lamb
Congener: PCB 77

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,76	0,0000				
4	0,66	-0,65				
6	0,46	-2,0				
11	0,67	-0,58				
14	0,71	-0,36				
15	0,88	0,76				
18	1,0	1,6				
22	0,92	1,0				
25	0,73	-0,20				
28	0,53	-1,5				
30	1,0	1,6	ND			
39	2,1	8,5	Outlier			
40	0,77	0,039				
43	0,62	-0,92				
54	0,75	-0,066				
58	0,76	0,020				
62	0,79	0,23				
65	0,79	0,17				
70	2,0	8	Outlier,ND			
74	2,9	14	Outlier			
76	12	76	Outlier			
79	0,87	0,71				
80	0,74	-0,13				
93	0,76	0,0000				
98	0,62	-0,90				
100	0,80	0,26				
108	1,0	1,6				

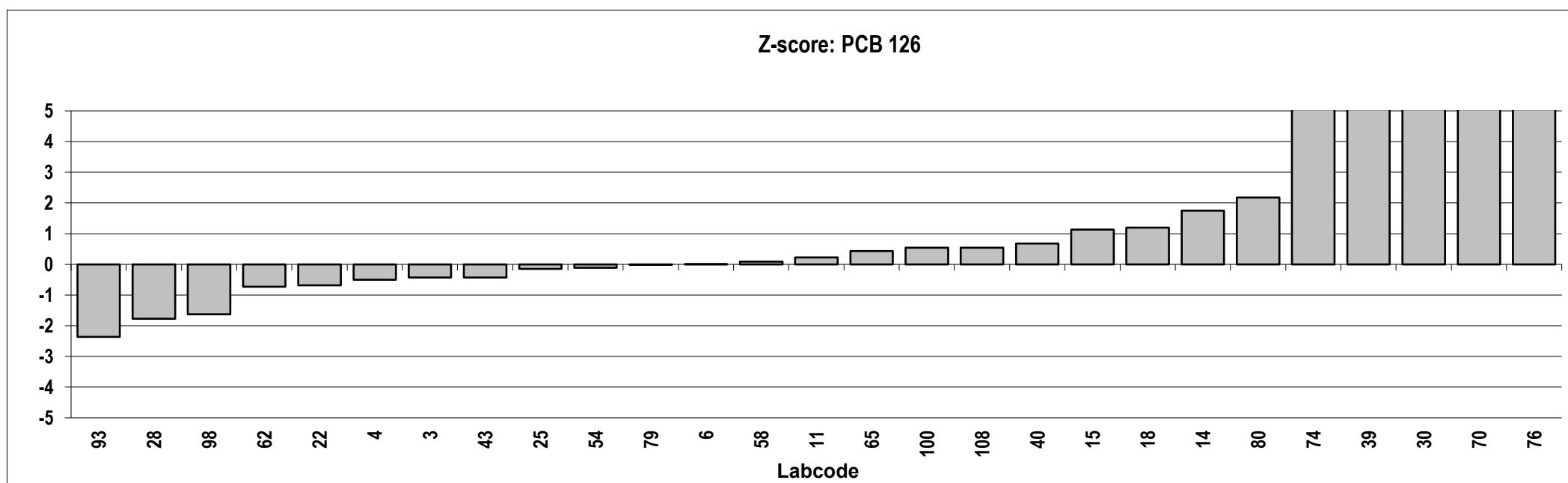
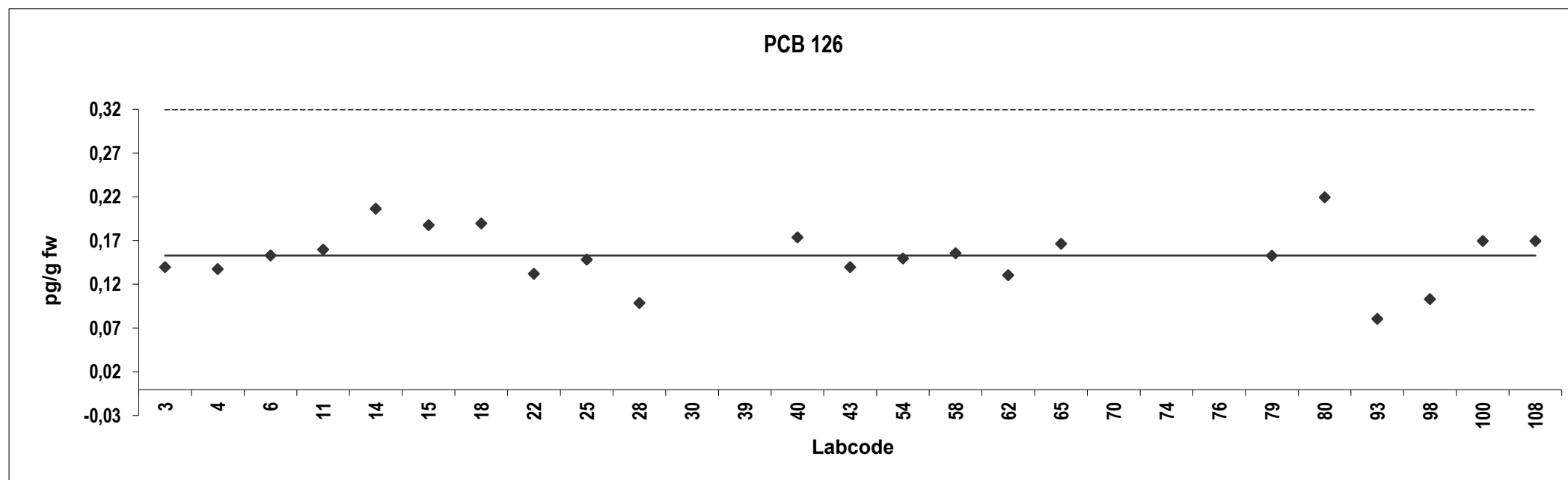
Consensus statistics	
Consensus median, pg/g	0,76
Median all values pg/g	0,77
Consensus mean, pg/g	0,76
Standard deviation, pg/g	0,14
Relative standard deviation, %	18
No. of values reported	27
No. of values removed	4
No. of reported non-detects	2



Lamb
Congener: PCB 126

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,14	-0,43				
4	0,14	-0,50				
6	0,15	0,0091				
11	0,16	0,23				
14	0,21	1,8				
15	0,19	1,1				
18	0,19	1,2				
22	0,13	-0,68				
25	0,15	-0,15				
28	0,099	-1,8				
30	1,0	28	Outlier,ND			
39	0,60	15	Outlier,ND			
40	0,17	0,68				
43	0,14	-0,43				
54	0,15	-0,11				
58	0,16	0,089				
62	0,13	-0,73				
65	0,17	0,44				
70	2,0	60	Outlier,ND			
74	0,55	13	Outlier			
76	16	525	Outlier			
79	0,15	-0,0091				
80	0,22	2,2				
93	0,081	-2,4	ND			
98	0,10	-1,6				
100	0,17	0,55				
108	0,17	0,55				

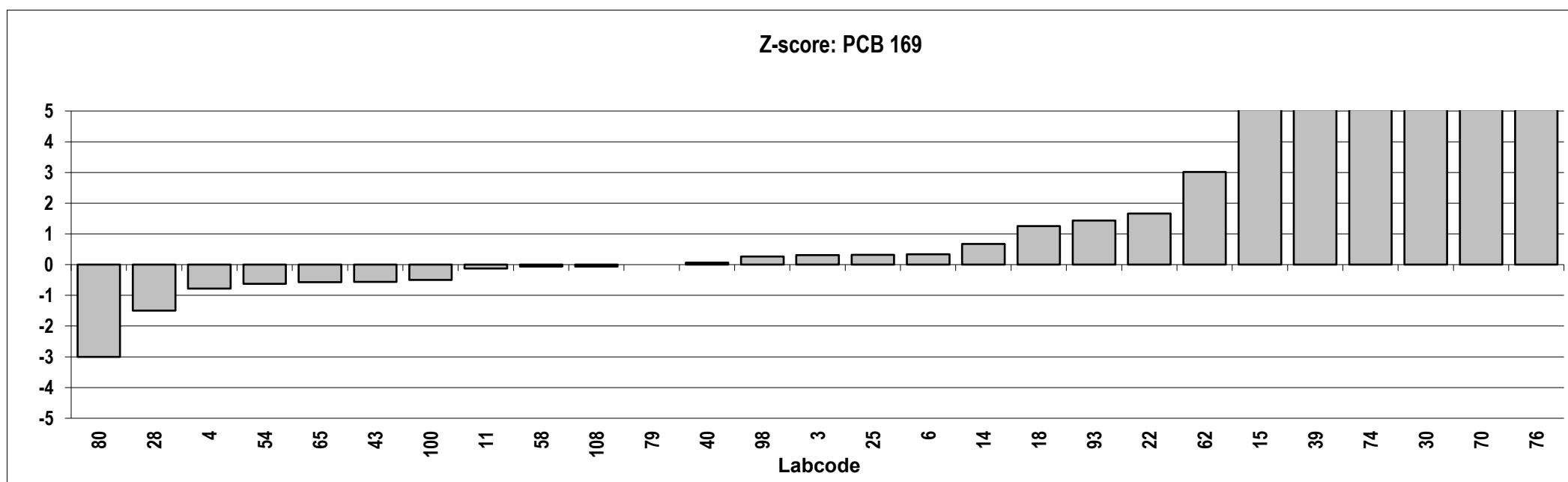
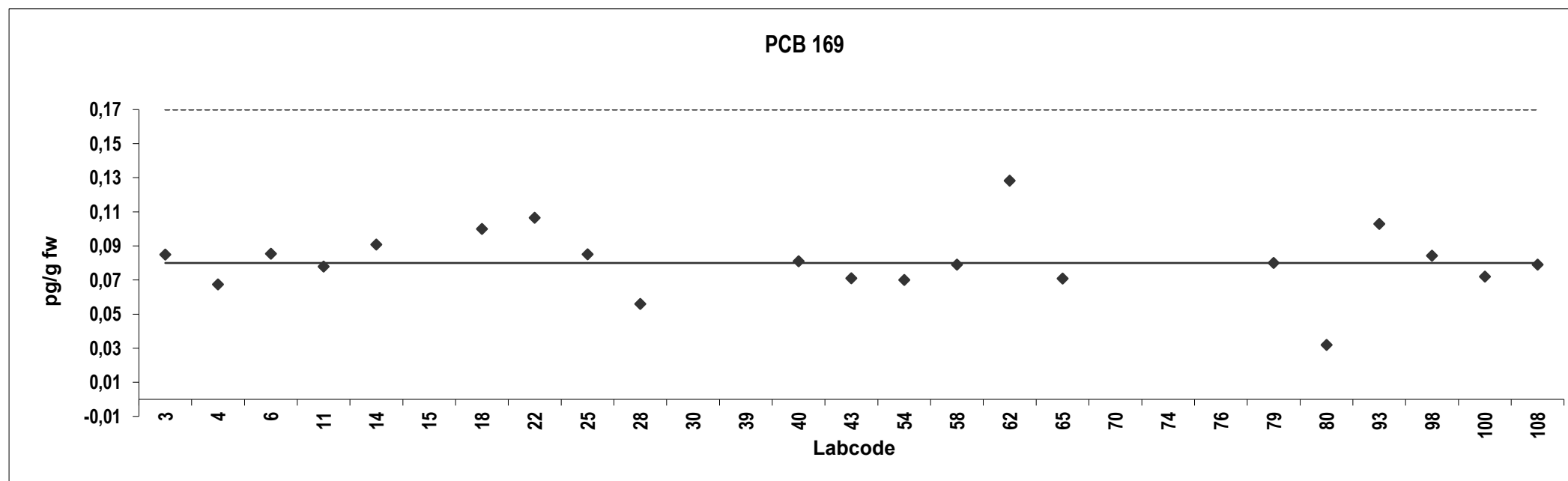
Consensus statistics	
Consensus median, pg/g	0,15
Median all values pg/g	0,16
Consensus mean, pg/g	0,15
Standard deviation, pg/g	0,033
Relative standard deviation, %	22
No. of values reported	27
No. of values removed	5
No. of reported non-detects	4



Lamb
Congener: PCB 169

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,085	0,31				
4	0,068	-0,78				
6	0,085	0,34				
11	0,078	-0,13				
14	0,091	0,68				
15	0,27	12	Outlier			
18	0,10	1,3	ND			
22	0,11	1,7				
25	0,085	0,32				
28	0,056	-1,5				
30	1,0	58	Outlier,ND			
39	0,60	33	Outlier,ND			
40	0,081	0,063				
43	0,071	-0,56				
54	0,070	-0,63				
58	0,079	-0,063				
62	0,13	3,0				
65	0,071	-0,57				
70	2,0	120	Outlier,ND			
74	0,67	37	Outlier,ND			
76	19	1169	Outlier			
79	0,080	0,0000				
80	0,032	-3,0				
93	0,10	1,4	ND			
98	0,084	0,27				
100	0,072	-0,50				
108	0,079	-0,063				

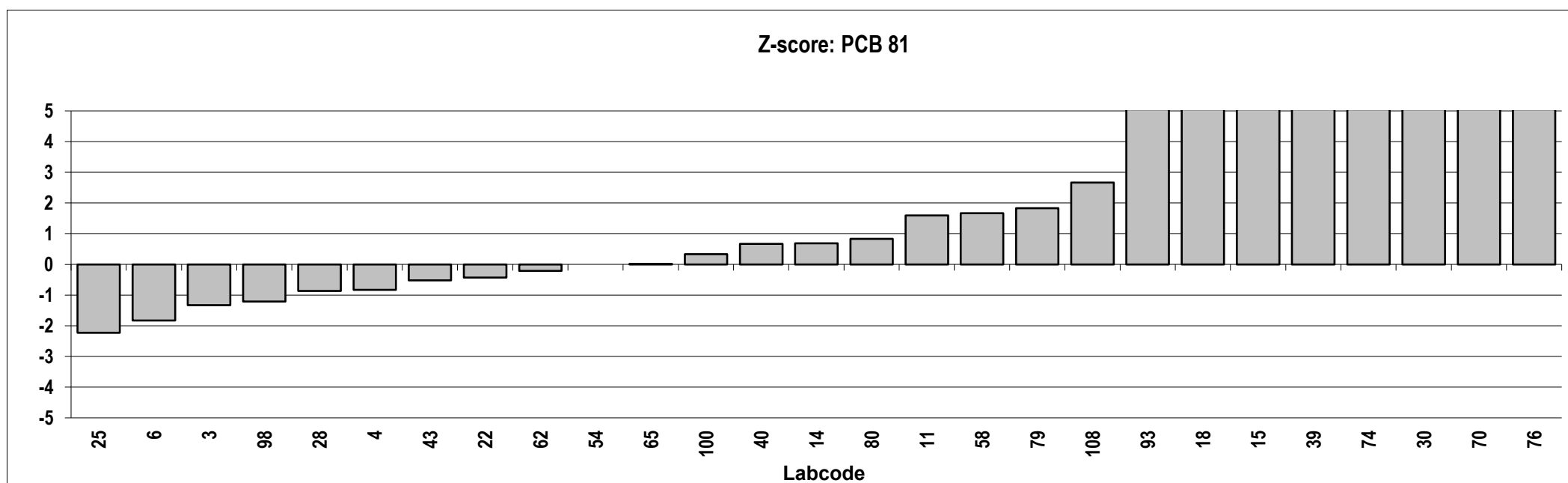
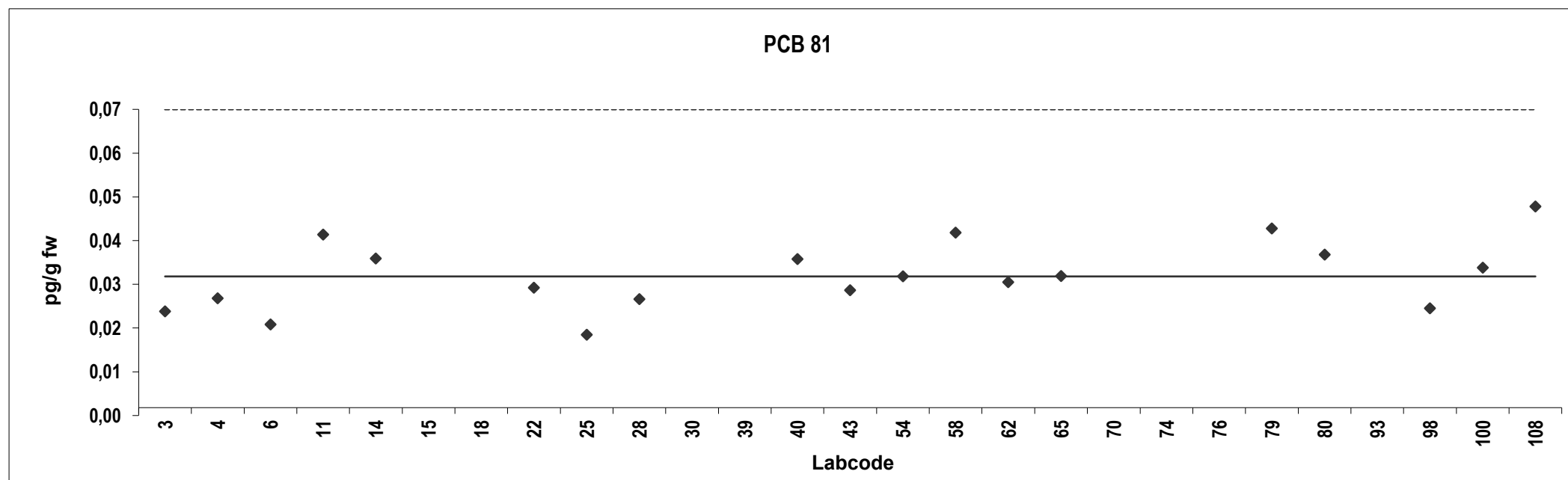
Consensus statistics	
Consensus median, pg/g	0,080
Median all values pg/g	0,085
Consensus mean, pg/g	0,081
Standard deviation, pg/g	0,019
Relative standard deviation, %	24
No. of values reported	27
No. of values removed	6
No. of reported non-detects	6



Lamb
Congener: PCB 81

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,022	-1,3				
4	0,025	-0,83				
6	0,019	-1,8				
11	0,040	1,6	ND			
14	0,034	0,68				
15	0,19	27	Outlier			
18	0,10	12	Outlier,ND			
22	0,027	-0,43				
25	0,017	-2,2				
28	0,025	-0,87				
30	1,0	162	Outlier,ND			
39	0,60	95	Outlier,ND			
40	0,034	0,67				
43	0,027	-0,52				
54	0,030	0,0000				
58	0,040	1,7				
62	0,029	-0,22				
65	0,030	0,017				
70	2,0	328	Outlier,ND			
74	0,67	106	Outlier,ND			
76	10	1680	Outlier			
79	0,041	1,8				
80	0,035	0,83				
93	0,080	8,3	Outlier,ND			
98	0,023	-1,2	ND			
100	0,032	0,33				
108	0,046	2,7				

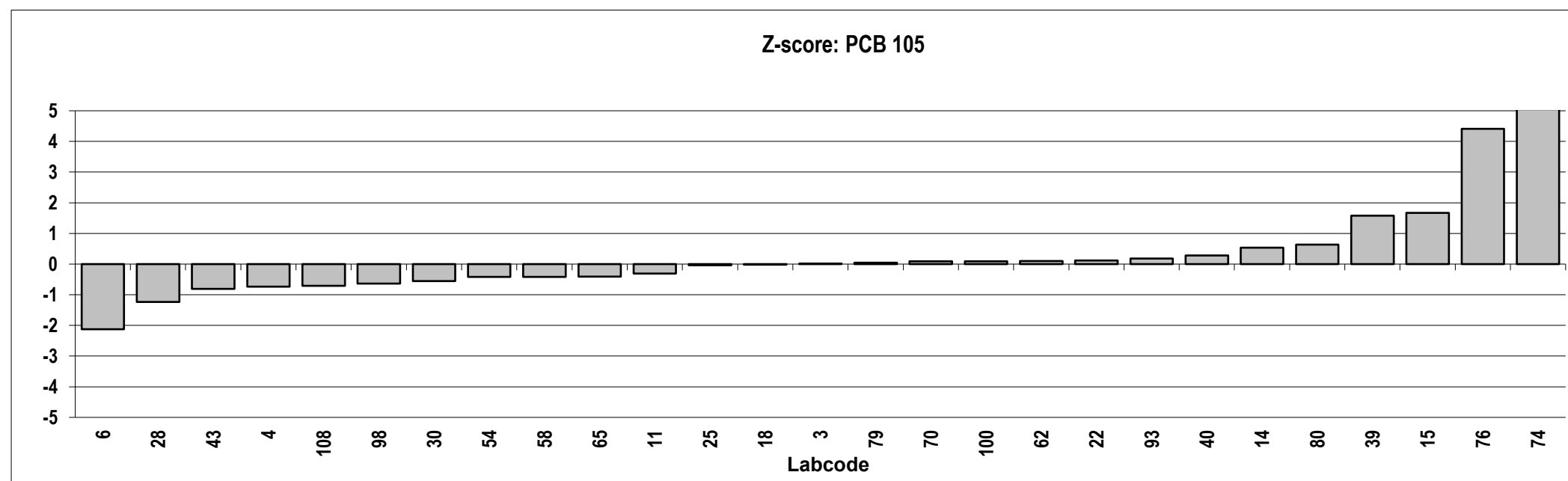
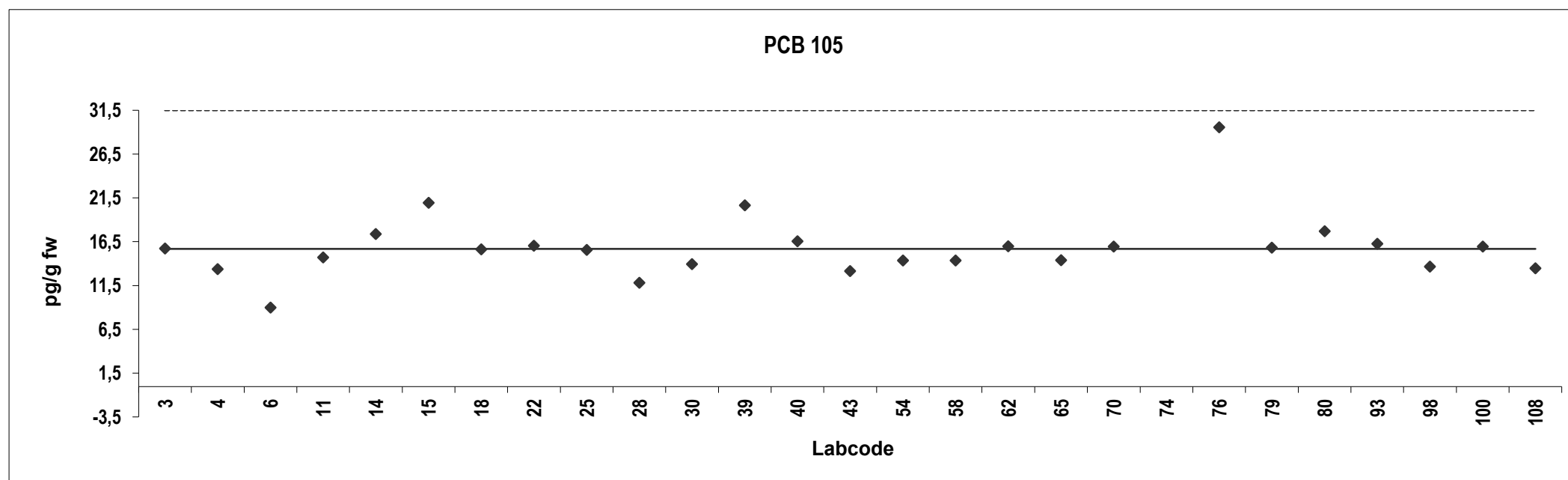
Consensus statistics	
Consensus median, pg/g	0,030
Median all values pg/g	0,034
Consensus mean, pg/g	0,030
Standard deviation, pg/g	0,0079
Relative standard deviation, %	26
No. of values reported	27
No. of values removed	8
No. of reported non-detects	8



Lamb
Congener: PCB 105

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	16	0,016				
4	13	-0,74				
6	9,0	-2,1				
11	15	-0,31				
14	17	0,53				
15	21	1,7				
18	16	-0,016				
22	16	0,11				
25	16	-0,035				
28	12	-1,2				
30	14	-0,56				
39	21	1,6				
40	17	0,28				
43	13	-0,81				
54	14	-0,42				
58	14	-0,42				
62	16	0,10				
65	14	-0,41				
70	16	0,089				
74	68	17	Outlier			
76	30	4,4				
79	16	0,042				
80	18	0,64				
93	16	0,18				
98	14	-0,64				
100	16	0,089				
108	14	-0,71				

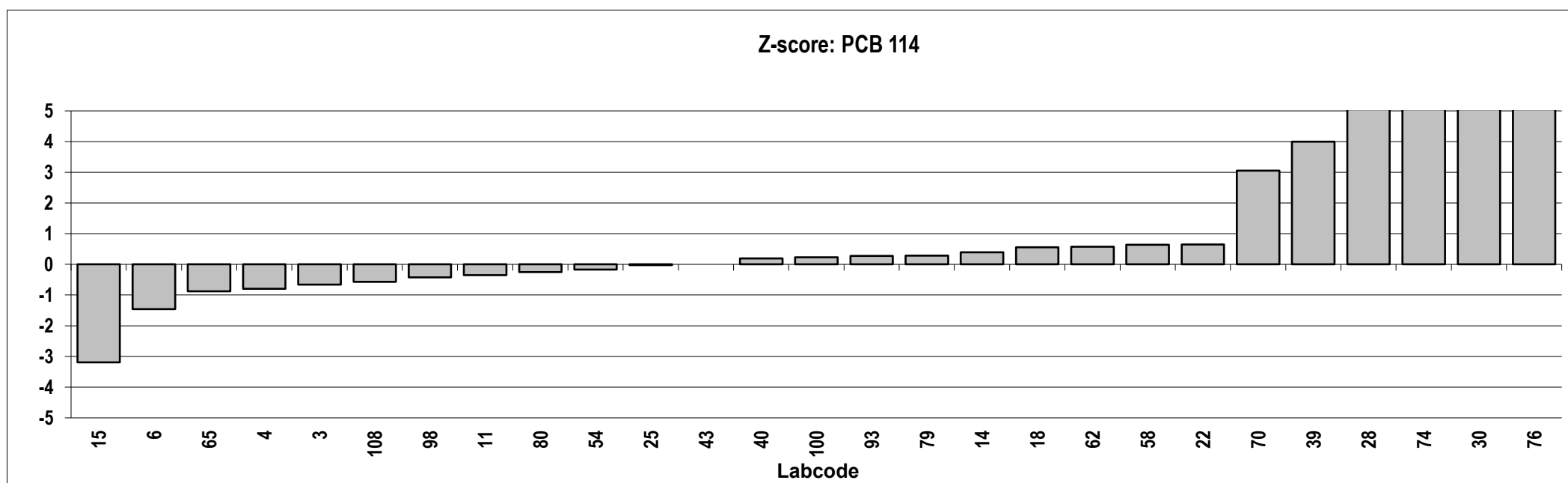
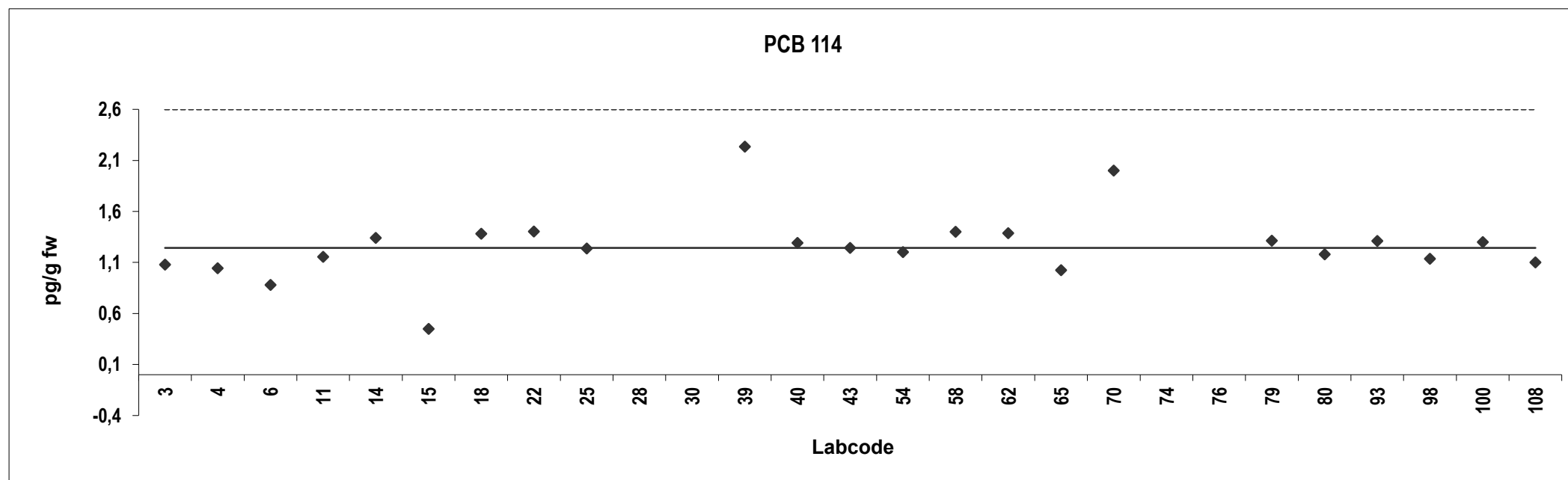
Consensus statistics	
Consensus median, pg/g	16
Median all values pg/g	16
Consensus mean, pg/g	16
Standard deviation, pg/g	3,7
Relative standard deviation, %	23
No. of values reported	27
No. of values removed	1
No. of reported non-detects	0



Lamb
Congener: PCB 114

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	1,1	-0,66				
4	1,0	-0,80				
6	0,88	-1,5				
11	1,2	-0,35				
14	1,3	0,39				
15	0,45	-3,2				
18	1,4	0,55				
22	1,4	0,65				
25	1,2	-0,023				
28	2,6	5,5	Outlier,ND			
30	10	35	Outlier,ND			
39	2,2	4,0				
40	1,3	0,19				
43	1,2	0,0000				
54	1,2	-0,17				
58	1,4	0,63				
62	1,4	0,58				
65	1,0	-0,88				
70	2,0	3,0	ND			
74	3,3	8,4	Outlier,ND			
76	13	45	Outlier			
79	1,3	0,28				
80	1,2	-0,25				
93	1,3	0,27				
98	1,1	-0,43				
100	1,3	0,23				
108	1,1	-0,57				

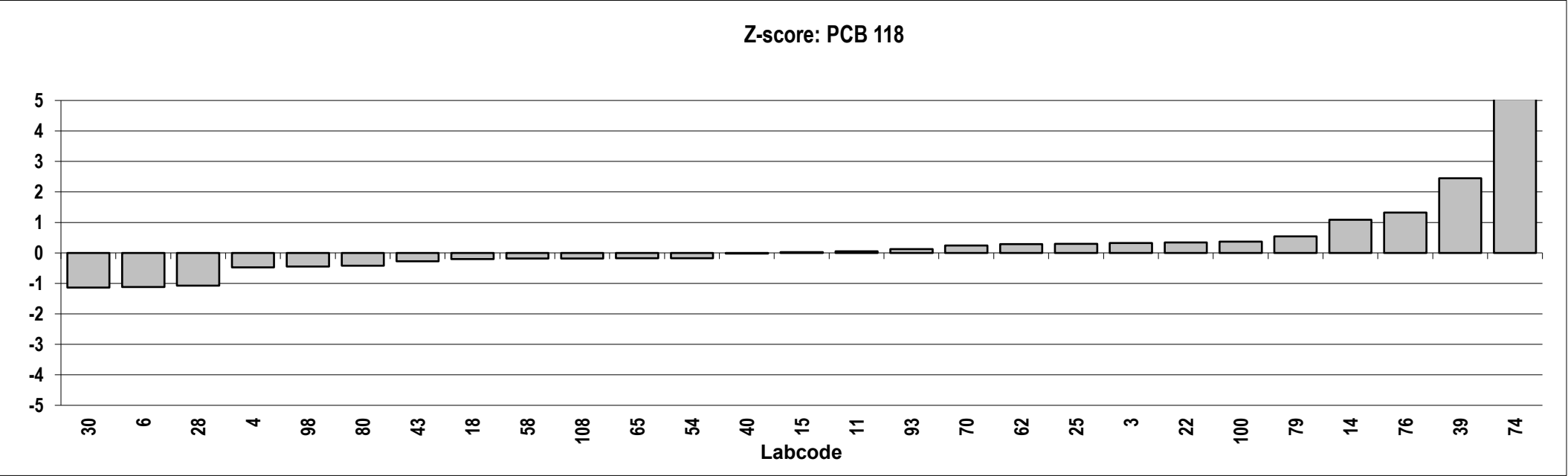
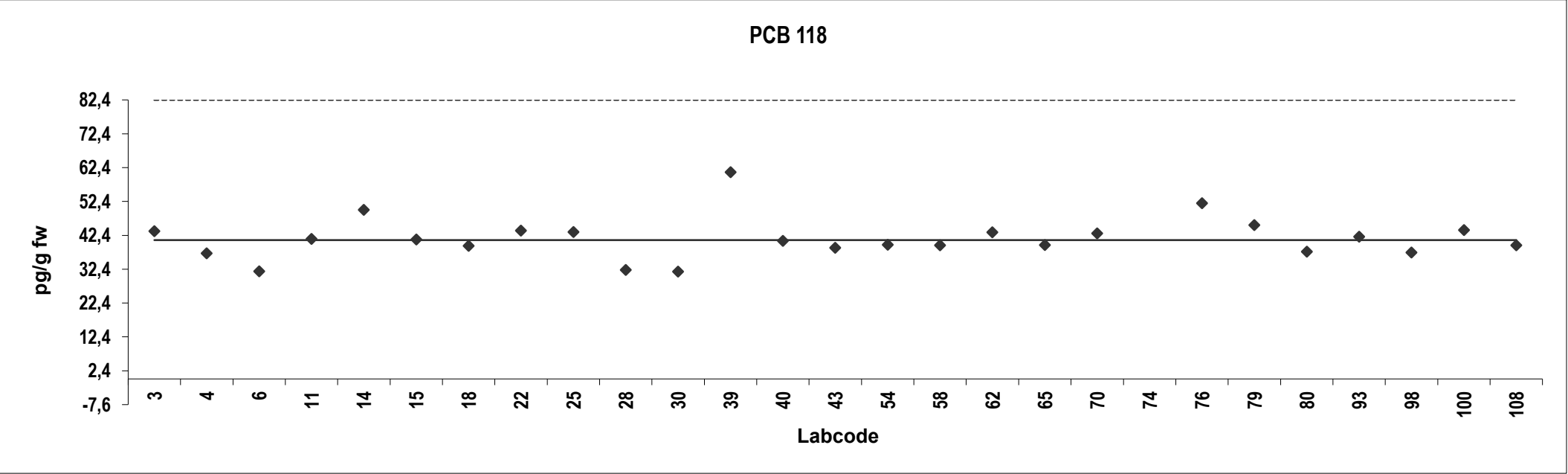
Consensus statistics	
Consensus median, pg/g	1,2
Median all values pg/g	1,3
Consensus mean, pg/g	1,3
Standard deviation, pg/g	0,34
Relative standard deviation, %	27
No. of values reported	27
No. of values removed	4
No. of reported non-detects	4



Lamb
Congener: PCB 118

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	44	0,33				
4	37	-0,48				
6	32	-1,1				
11	41	0,047				
14	50	1,1				
15	41	0,025				
18	39	-0,20				
22	44	0,35				
25	43	0,29				
28	32	-1,1				
30	32	-1,1				
39	61	2,4				
40	41	-0,025				
43	39	-0,27				
54	40	-0,17				
58	40	-0,18				
62	43	0,28				
65	40	-0,17				
70	43	0,24				
74	197	19	Outlier			
76	52	1,3				
79	45	0,54				
80	38	-0,42				
93	42	0,12				
98	37	-0,45				
100	44	0,37				
108	40	-0,18				

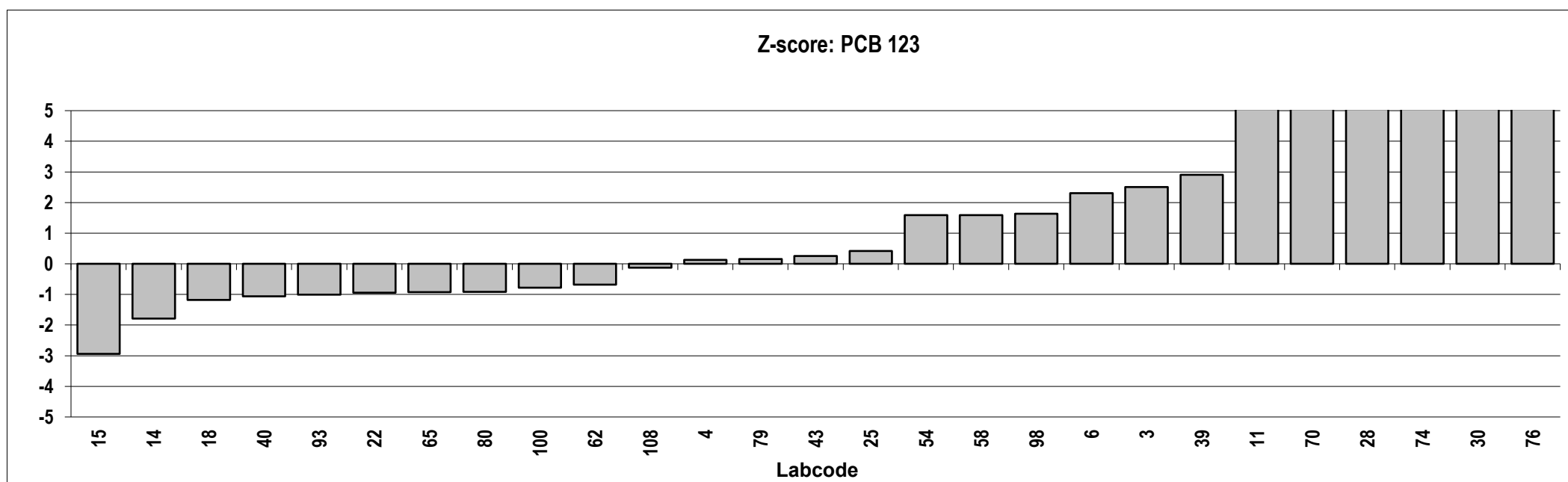
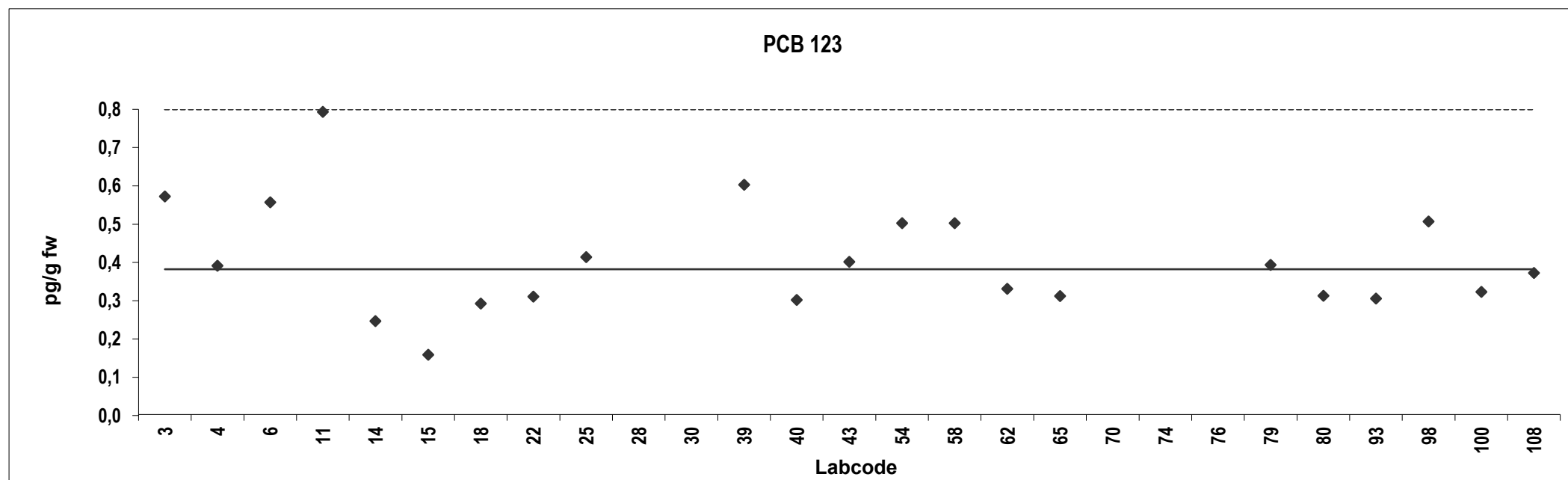
Consensus statistics	
Consensus median, pg/g	41
Median all values pg/g	41
Consensus mean, pg/g	41
Standard deviation, pg/g	6,2
Relative standard deviation, %	15
No. of values reported	27
No. of values removed	1
No. of reported non-detects	0



Lamb
Congener: PCB 123

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,57	2,5				
4	0,39	0,13				
6	0,55	2,3				
11	0,79	5,4	ND			
14	0,24	-1,8				
15	0,16	-2,9				
18	0,29	-1,2				
22	0,31	-0,95				
25	0,41	0,42				
28	2,6	30	Outlier,ND			
30	5,0	61	Outlier,ND			
39	0,60	2,9	ND			
40	0,30	-1,1				
43	0,40	0,25				
54	0,50	1,6				
58	0,50	1,6				
62	0,33	-0,68				
65	0,31	-0,92				
70	2,0	21	Outlier,ND			
74	3,3	39	Outlier,ND			
76	13	163	Outlier			
79	0,39	0,15				
80	0,31	-0,92				
93	0,30	-1,0				
98	0,50	1,6				
100	0,32	-0,78				
108	0,37	-0,13				

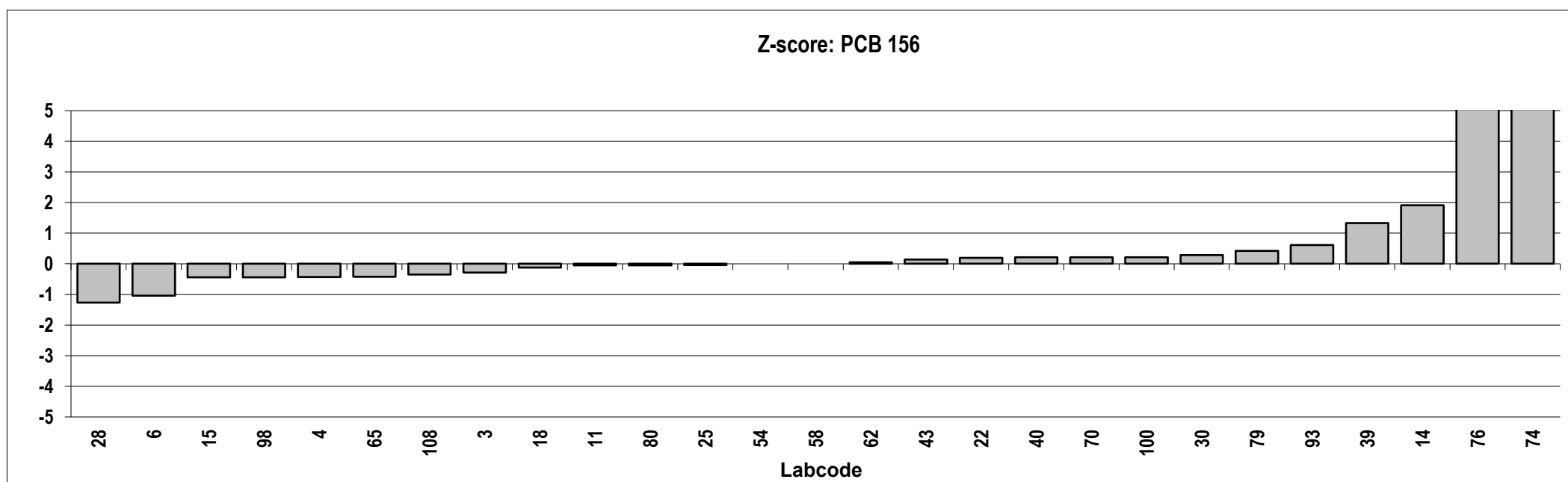
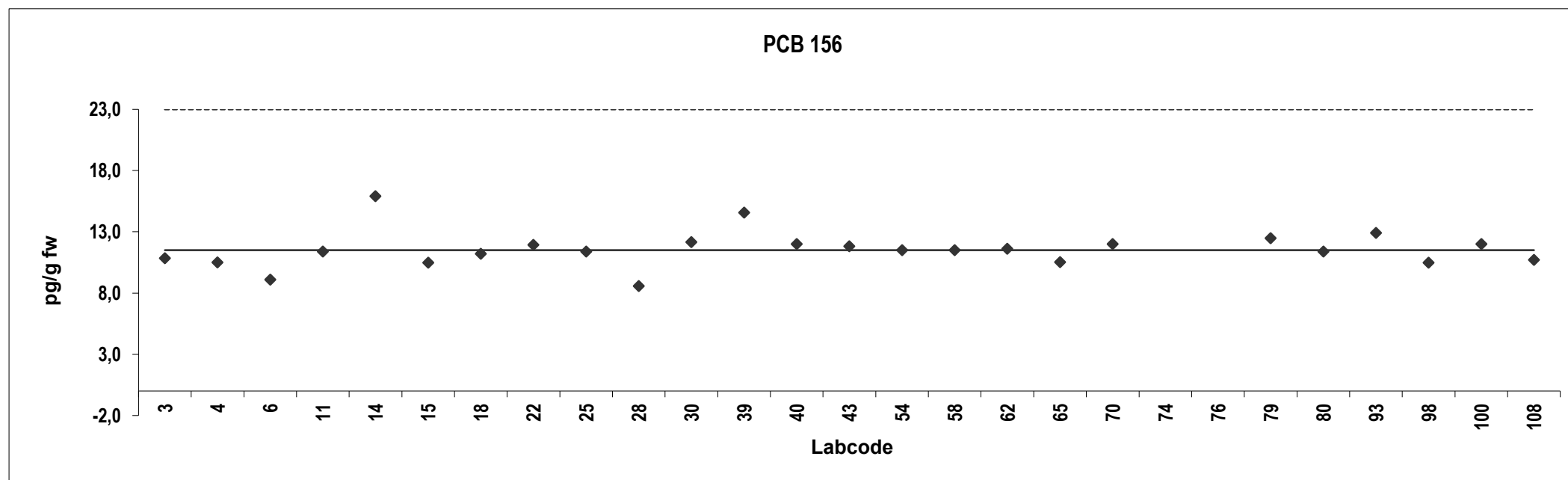
Consensus statistics	
Consensus median, pg/g	0,38
Median all values pg/g	0,40
Consensus mean, pg/g	0,40
Standard deviation, pg/g	0,14
Relative standard deviation, %	36
No. of values reported	27
No. of values removed	5
No. of reported non-detects	6



Lamb
Congener: PCB 156

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	11	-0,28				
4	11	-0,43				
6	9,1	-1,0				
11	11	-0,051				
14	16	1,9				
15	10	-0,44				
18	11	-0,13				
22	12	0,19				
25	11	-0,043				
28	8,6	-1,3				
30	12	0,28				
39	15	1,3				
40	12	0,22				
43	12	0,14				
54	12	0,0000				
58	12	0,0000				
62	12	0,049				
65	11	-0,42				
70	12	0,22				
74	52	18	Outlier			
76	27	6,7	Outlier			
79	12	0,43				
80	11	-0,048				
93	13	0,61				
98	10	-0,44				
100	12	0,22				
108	11	-0,35				

Consensus statistics	
Consensus median, pg/g	12
Median all values pg/g	12
Consensus mean, pg/g	12
Standard deviation, pg/g	1,5
Relative standard deviation, %	13
No. of values reported	27
No. of values removed	2
No. of reported non-detects	0

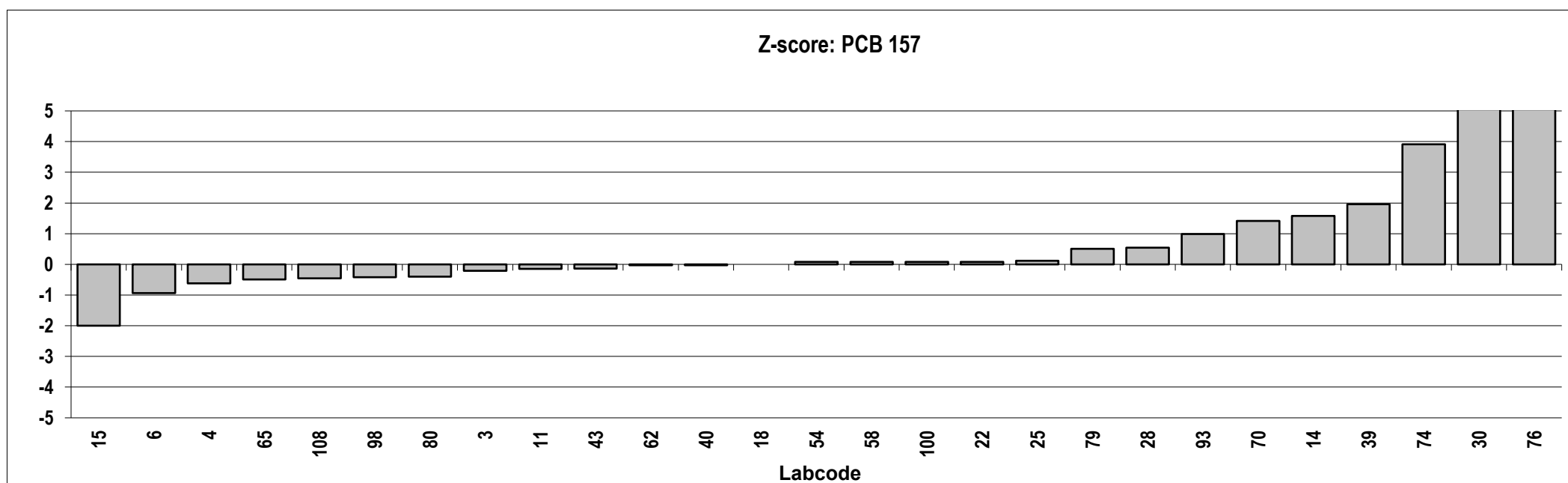
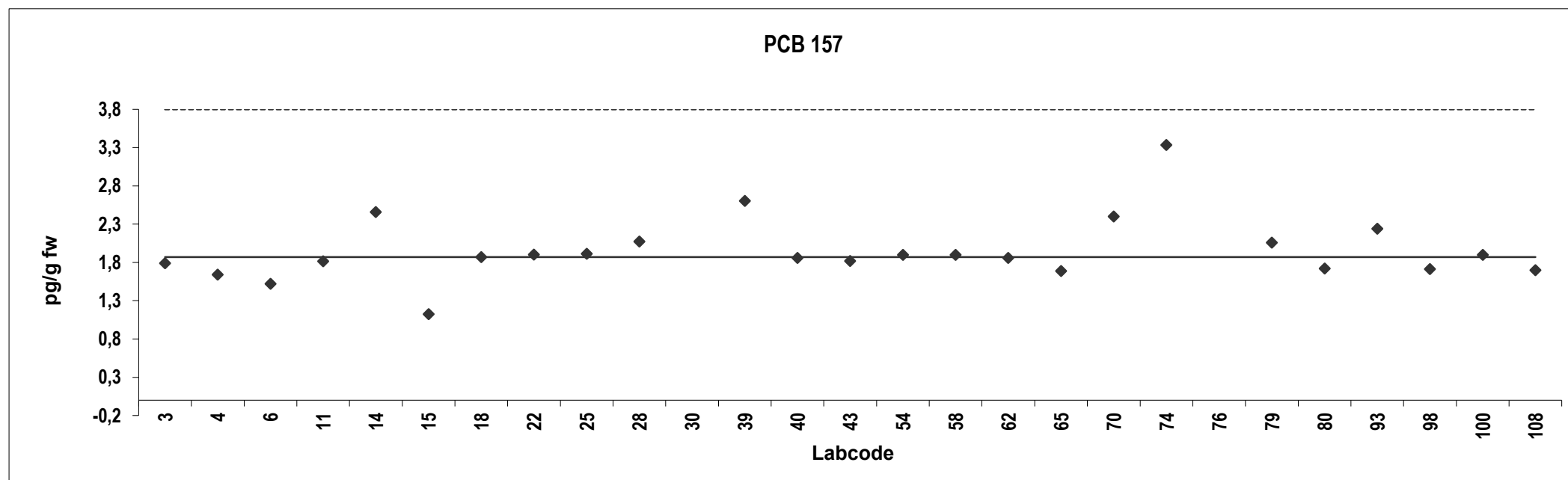


Lamb
Congener: PCB 157

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	1,8	-0,21				
4	1,6	-0,61				
6	1,5	-0,94				
11	1,8	-0,14				
14	2,5	1,6				
15	1,1	-2,0				
18	1,9	0,0000				
22	1,9	0,082				
25	1,9	0,12				
28	2,1	0,54				
30	5,0	8,4	Outlier,ND			
39	2,6	2,0				
40	1,9	-0,027				
43	1,8	-0,14				
54	1,9	0,080				
58	1,9	0,080				
62	1,9	-0,028				
65	1,7	-0,49				
70	2,4	1,4				
74	3,3	3,9	ND			
76	18	44	Outlier			
79	2,1	0,51				
80	1,7	-0,40				
93	2,2	0,99				
98	1,7	-0,42				
100	1,9	0,080				
108	1,7	-0,45				

Consensus statistics

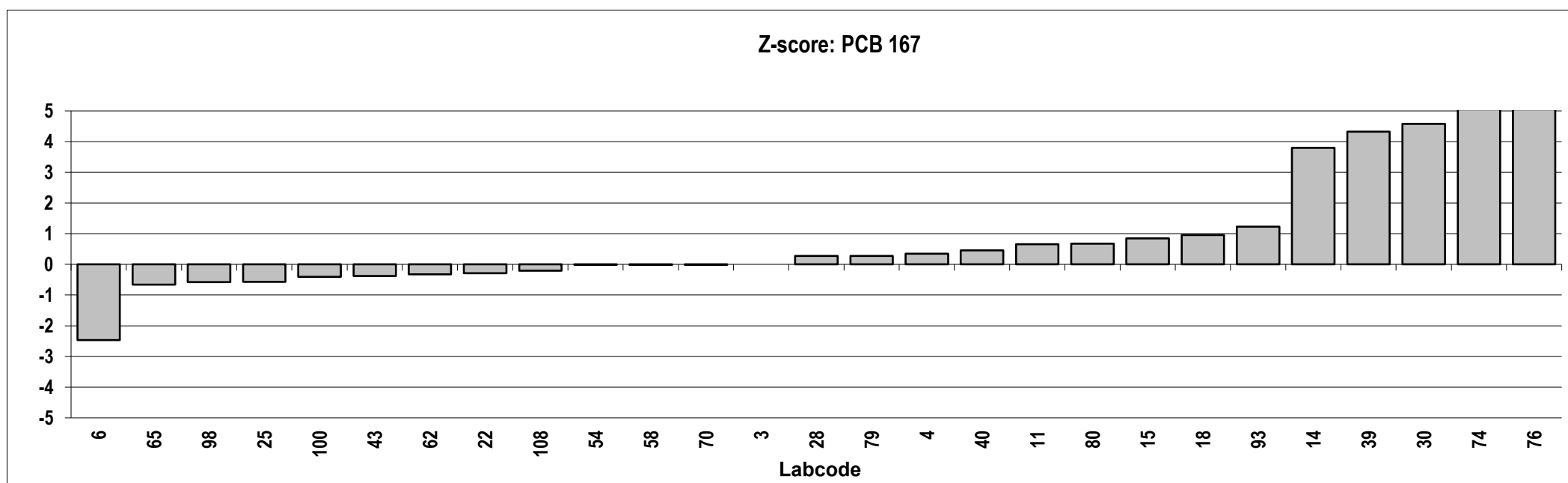
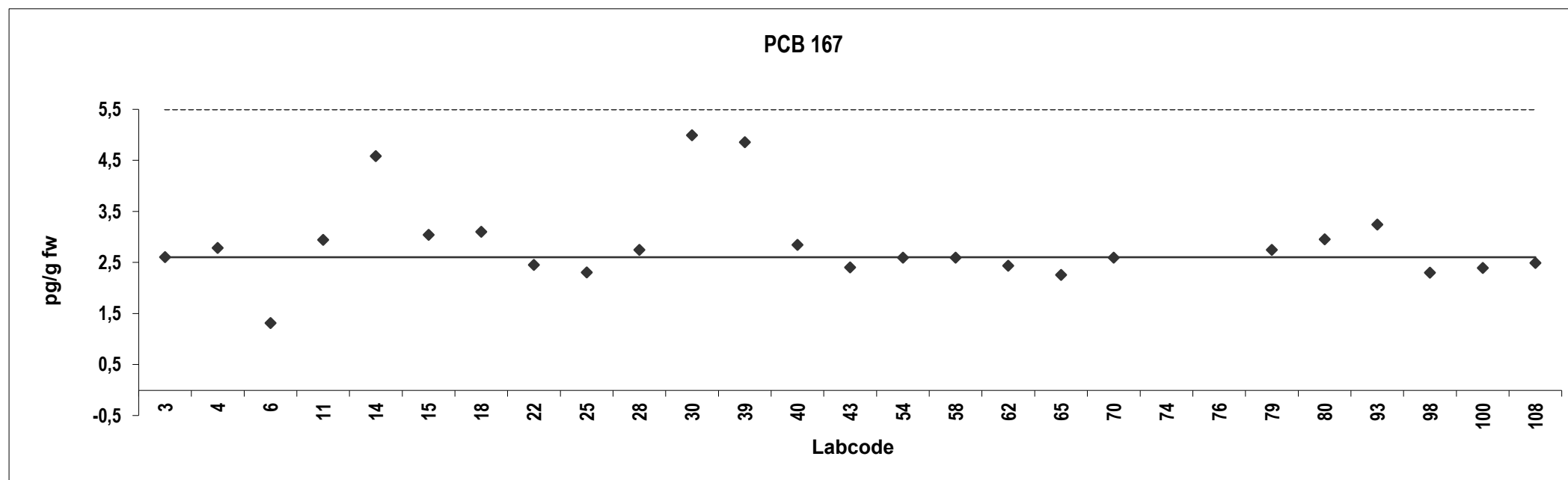
Consensus median, pg/g	1,9
Median all values pg/g	1,9
Consensus mean, pg/g	2,0
Standard deviation, pg/g	0,42
Relative standard deviation, %	21
No. of values reported	27
No. of values removed	2
No. of reported non-detects	2



Lamb
Congener: PCB 167

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	2,6	0,0000				
4	2,8	0,34				
6	1,3	-2,5				
11	3,0	0,65				
14	4,6	3,8				
15	3,1	0,84				
18	3,1	0,96				
22	2,5	-0,29				
25	2,3	-0,57				
28	2,8	0,28				
30	5,0	4,6	ND			
39	4,9	4,3				
40	2,9	0,46				
43	2,4	-0,38				
54	2,6	-0,019				
58	2,6	-0,019				
62	2,4	-0,32				
65	2,3	-0,66				
70	2,6	-0,019				
74	10	15	Outlier			
76	18	29	Outlier			
79	2,8	0,28				
80	3,0	0,67				
93	3,3	1,2				
98	2,3	-0,58				
100	2,4	-0,40				
108	2,5	-0,21				

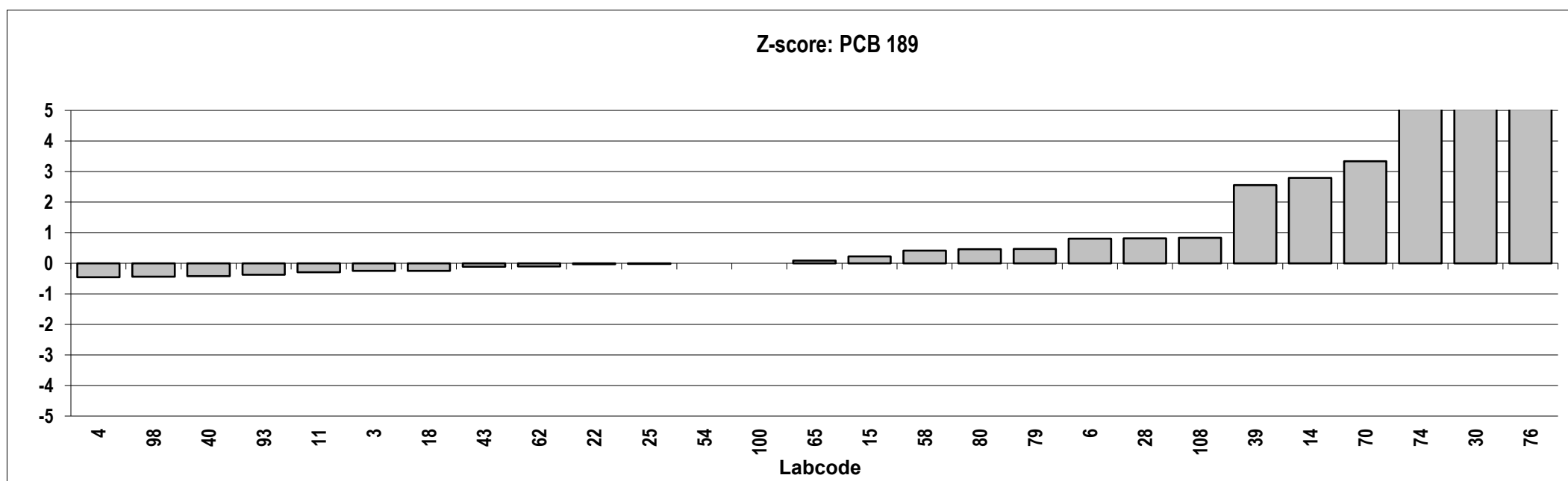
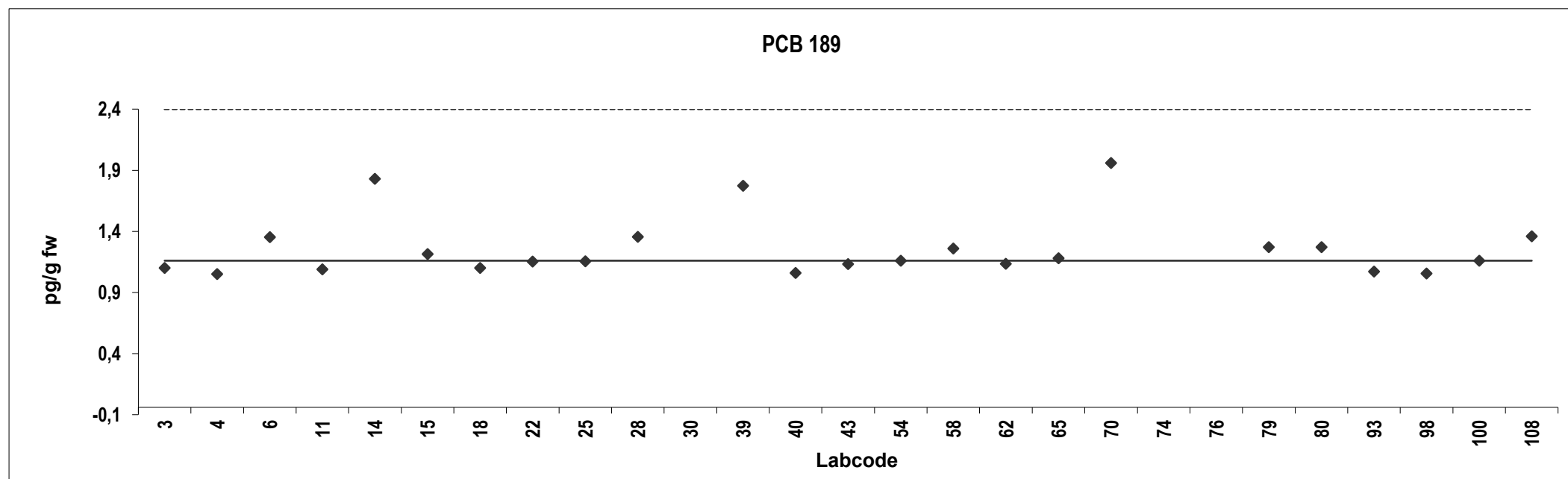
Consensus statistics	
Consensus median, pg/g	2,6
Median all values pg/g	2,8
Consensus mean, pg/g	2,9
Standard deviation, pg/g	0,83
Relative standard deviation, %	29
No. of values reported	27
No. of values removed	2
No. of reported non-detects	1



Lamb
Congener: PCB 189

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	1,1	-0,25				
4	1,1	-0,46				
6	1,4	0,80				
11	1,1	-0,30				
14	1,9	2,8				
15	1,3	0,23				
18	1,1	-0,25				
22	1,2	-0,030				
25	1,2	-0,025				
28	1,4	0,81	ND			
30	5,0	16	Outlier,ND			
39	1,8	2,6				
40	1,1	-0,42				
43	1,2	-0,11				
54	1,2	0,0000				
58	1,3	0,42				
62	1,2	-0,10				
65	1,2	0,084				
70	2,0	3,3	ND			
74	3,3	8,9	Outlier,ND			
76	20	77	Outlier			
79	1,3	0,47				
80	1,3	0,46				
93	1,1	-0,37				
98	1,1	-0,44				
100	1,2	0,0000				
108	1,4	0,83				

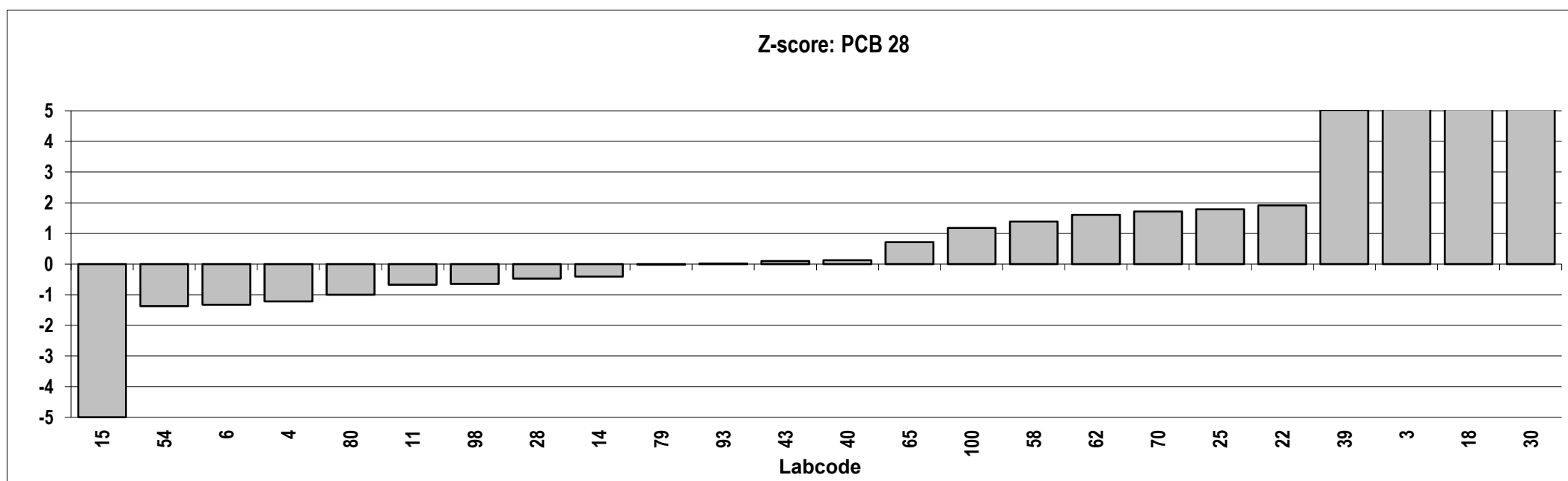
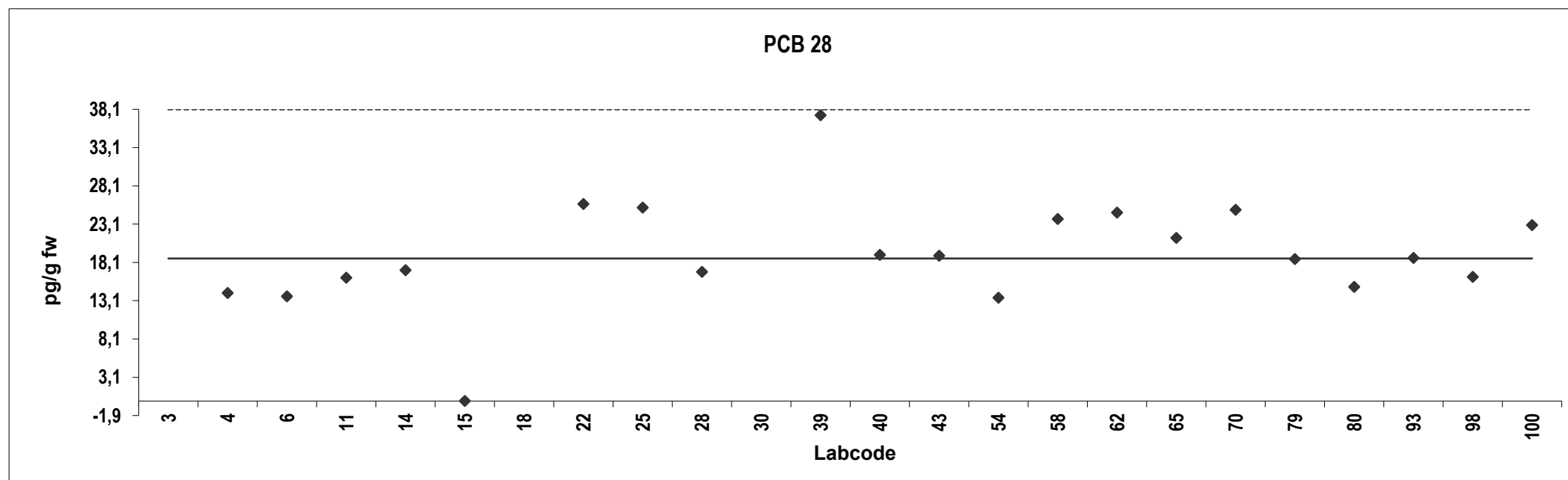
Consensus statistics	
Consensus median, pg/g	1,2
Median all values pg/g	1,2
Consensus mean, pg/g	1,3
Standard deviation, pg/g	0,25
Relative standard deviation, %	19
No. of values reported	27
No. of values removed	3
No. of reported non-detects	4



Lamb
Congener: PCB 28

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	41	6,1	Outlier			
4	14	-1,2				
6	14	-1,3				
11	16	-0,67				
14	17	-0,41				
15	0,024	-5,0				
18	100	22	Outlier,ND			
22	26	1,9				
25	25	1,8				
28	17	-0,47				
30	100	22	Outlier,ND			
39	37	5,0				
40	19	0,13				
43	19	0,10				
54	14	-1,4				
58	24	1,4				
62	25	1,6				
65	21	0,72				
70	25	1,7	ND			
79	19	-0,020				
80	15	-1,00				
93	19	0,020				
98	16	-0,65				
100	23	1,2				

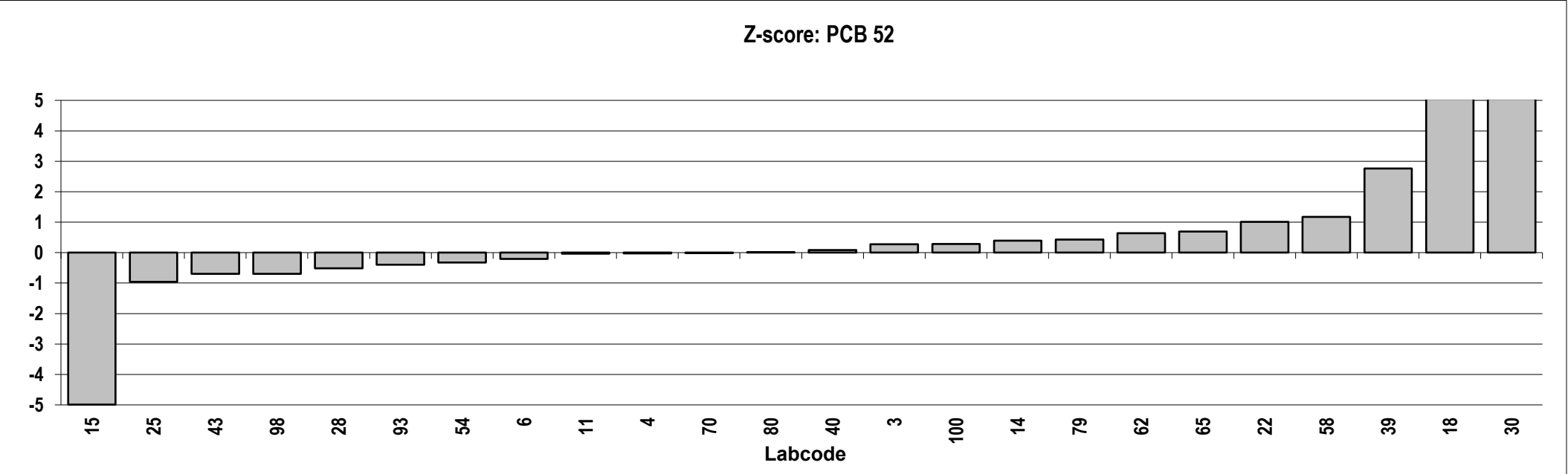
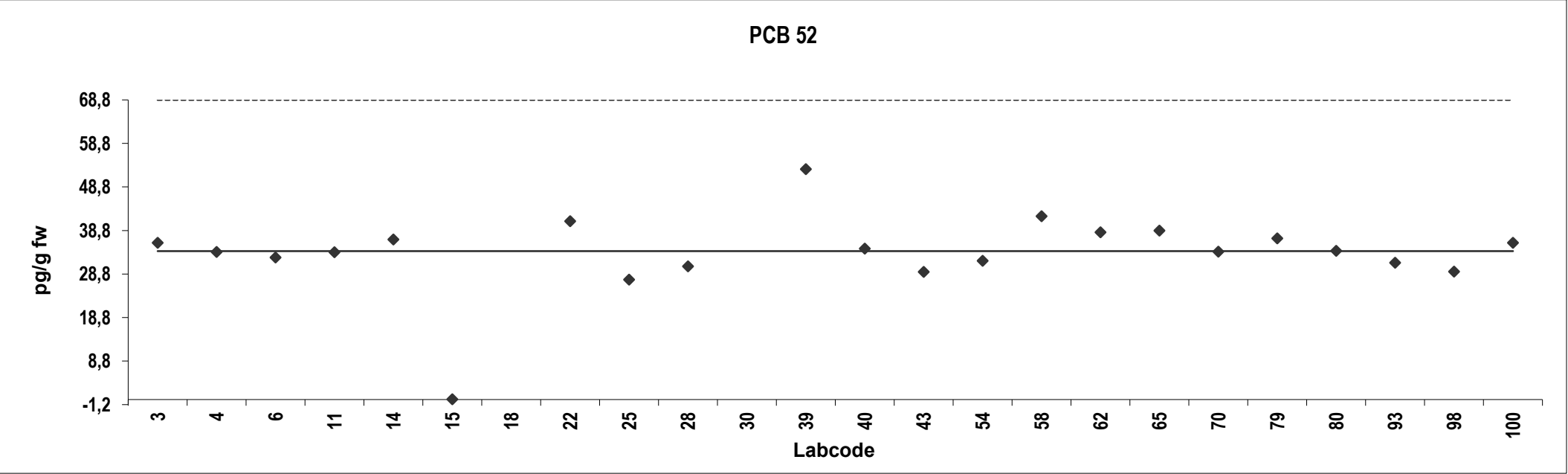
Consensus statistics	
Consensus median, pg/g	19
Median all values pg/g	19
Consensus mean, pg/g	19
Standard deviation, pg/g	7,1
Relative standard deviation, %	37
No. of values reported	24
No. of values removed	3
No. of reported non-detects	3



Lamb
Congener: PCB 52

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	36	0,28				
4	34	-0,029				
6	33	-0,21				
11	34	-0,033				
14	37	0,40				
15	0,044	-5,0				
18	100	9,7	Outlier,ND			
22	41	1,0				
25	28	-0,96				
28	31	-0,51				
30	100	9,7	Outlier,ND			
39	53	2,8				
40	35	0,081				
43	29	-0,70				
54	32	-0,32				
58	42	1,2				
62	38	0,64				
65	39	0,69				
70	34	-0,014				
79	37	0,43				
80	34	0,014				
93	31	-0,40				
98	29	-0,69				
100	36	0,28				

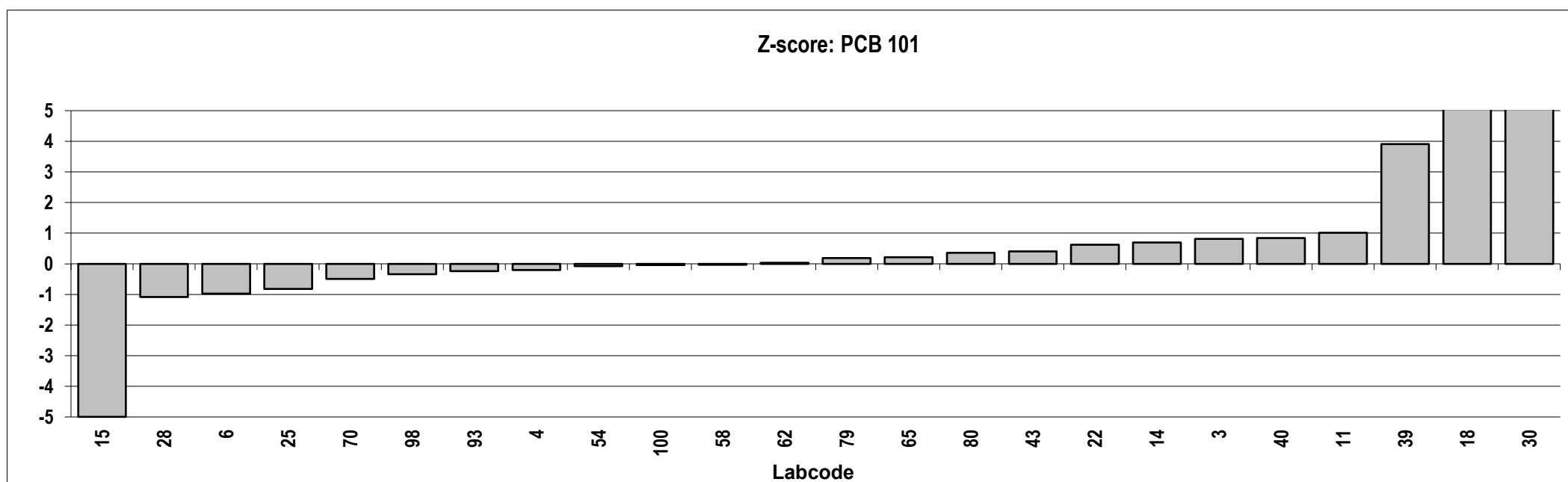
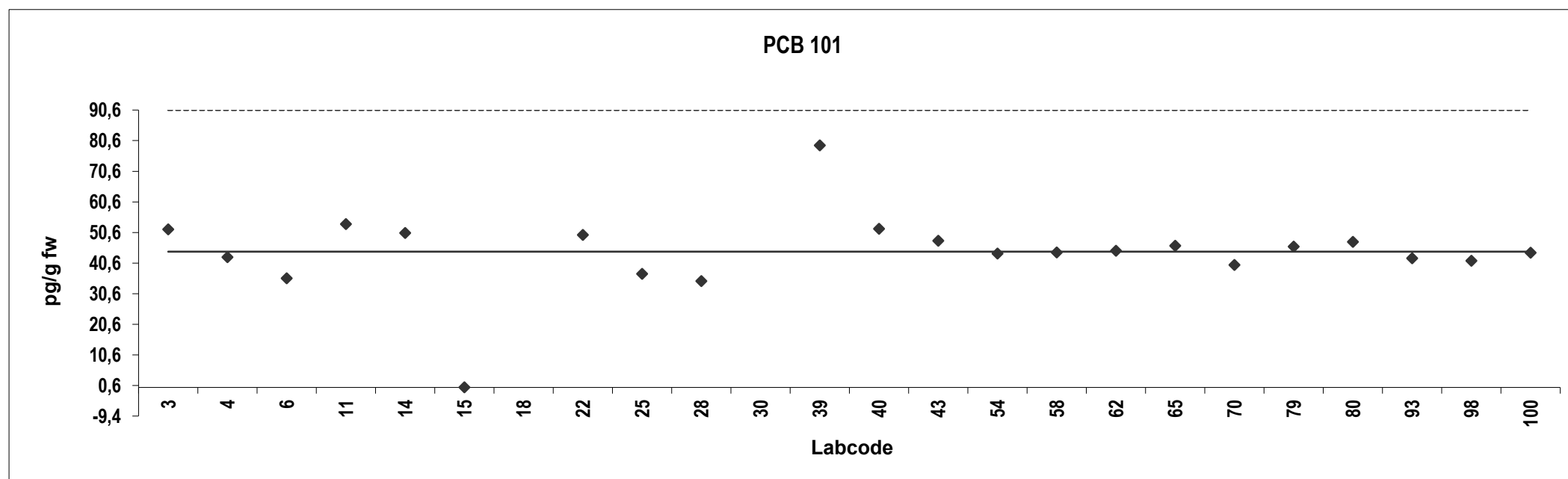
Consensus statistics	
Consensus median, pg/g	34
Median all values pg/g	34
Consensus mean, pg/g	34
Standard deviation, pg/g	9,3
Relative standard deviation, %	27
No. of values reported	24
No. of values removed	2
No. of reported non-detects	2



Lamb
Congener: PCB 101

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	52	0,82				
4	43	-0,20				
6	36	-0,98				
11	53	1,0				
14	51	0,69				
15	0,050	-5,0				
18	100	6,3	Outlier,ND			
22	50	0,62				
25	37	-0,82				
28	35	-1,1				
30	100	6,3	Outlier,ND			
39	79	3,9				
40	52	0,84				
43	48	0,41				
54	44	-0,075				
58	44	-0,030				
62	45	0,030				
65	46	0,22				
70	40	-0,49				
79	46	0,19				
80	48	0,36				
93	42	-0,24				
98	41	-0,34				
100	44	-0,041				

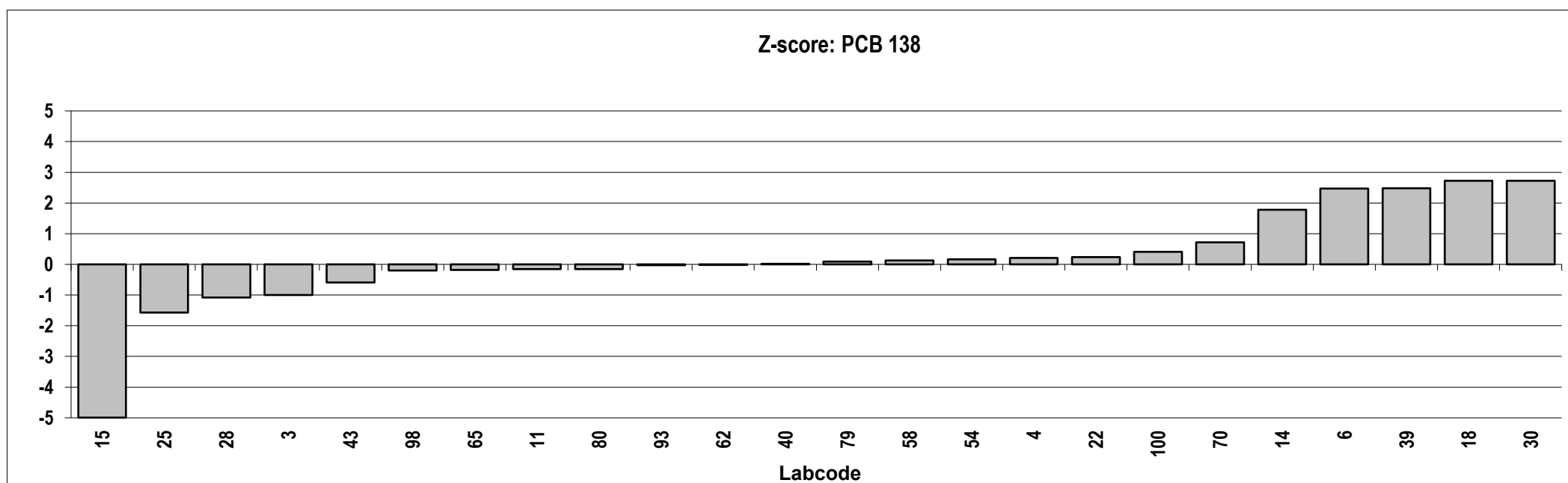
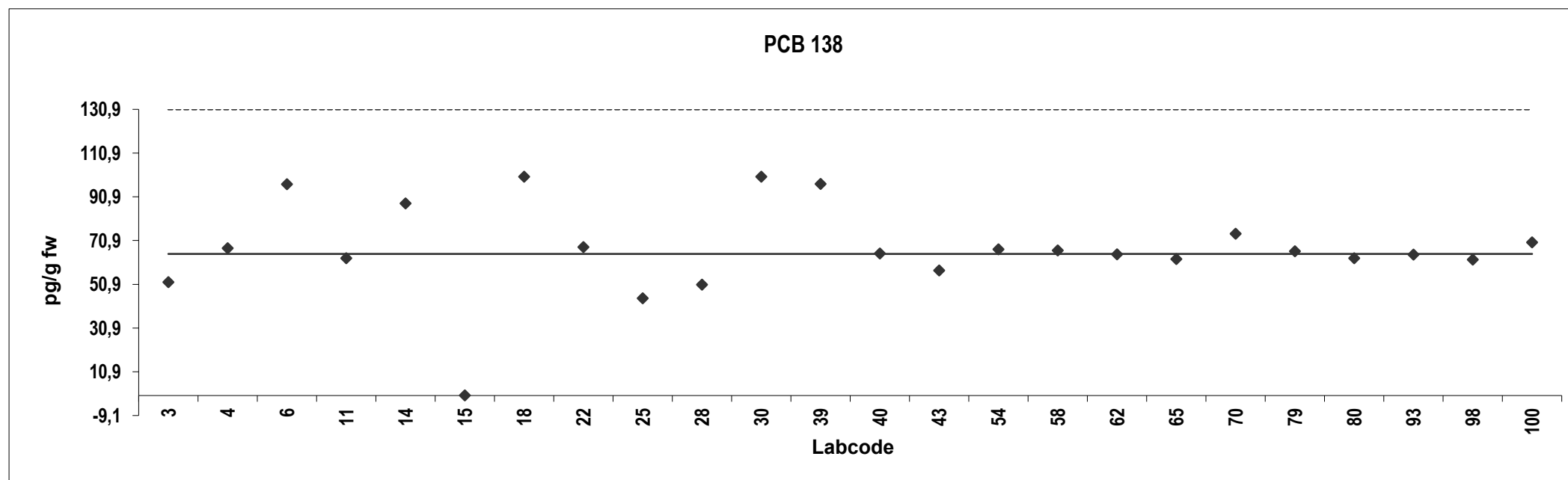
Consensus statistics	
Consensus median, pg/g	44
Median all values pg/g	45
Consensus mean, pg/g	44
Standard deviation, pg/g	13
Relative standard deviation, %	30
No. of values reported	24
No. of values removed	2
No. of reported non-detects	2



Lamb
Congener: PCB 138

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	52	-1,0				
4	67	0,20				
6	97	2,5				
11	63	-0,15				
14	88	1,8				
15	0,055	-5,0				
18	100	2,7	ND			
22	68	0,24				
25	44	-1,6				
28	51	-1,1				
30	100	2,7	ND			
39	97	2,5				
40	65	0,015				
43	57	-0,59				
54	67	0,17				
58	66	0,13				
62	65	-0,015				
65	62	-0,18				
70	74	0,71				
79	66	0,090				
80	63	-0,15				
93	64	-0,027				
98	62	-0,20				
100	70	0,41				

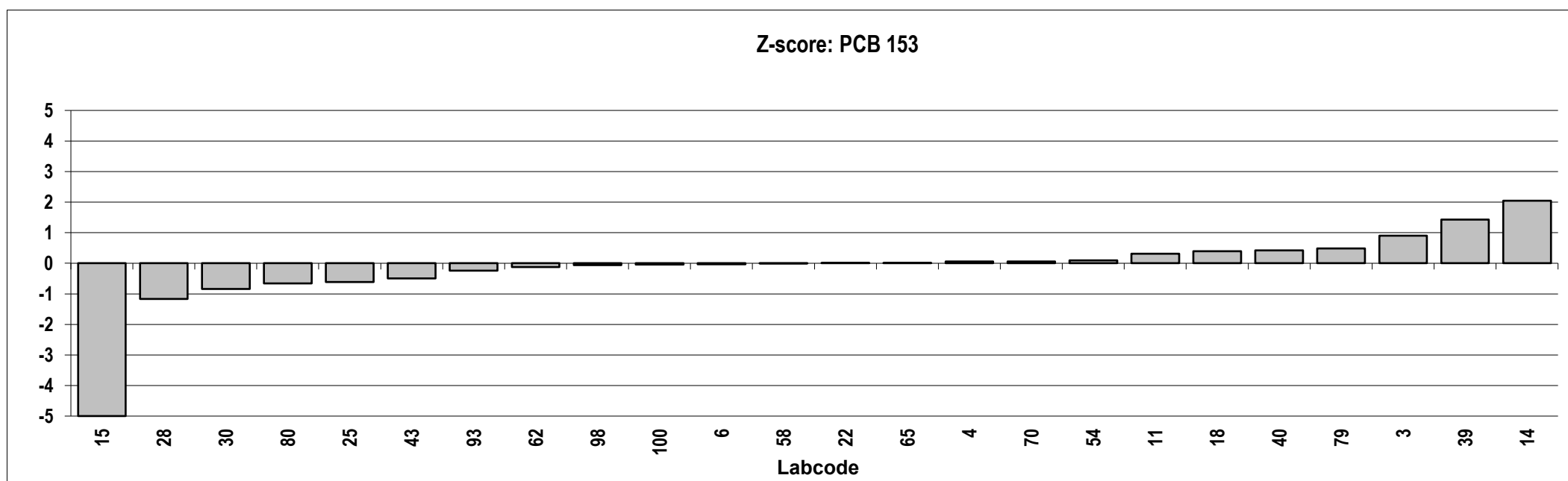
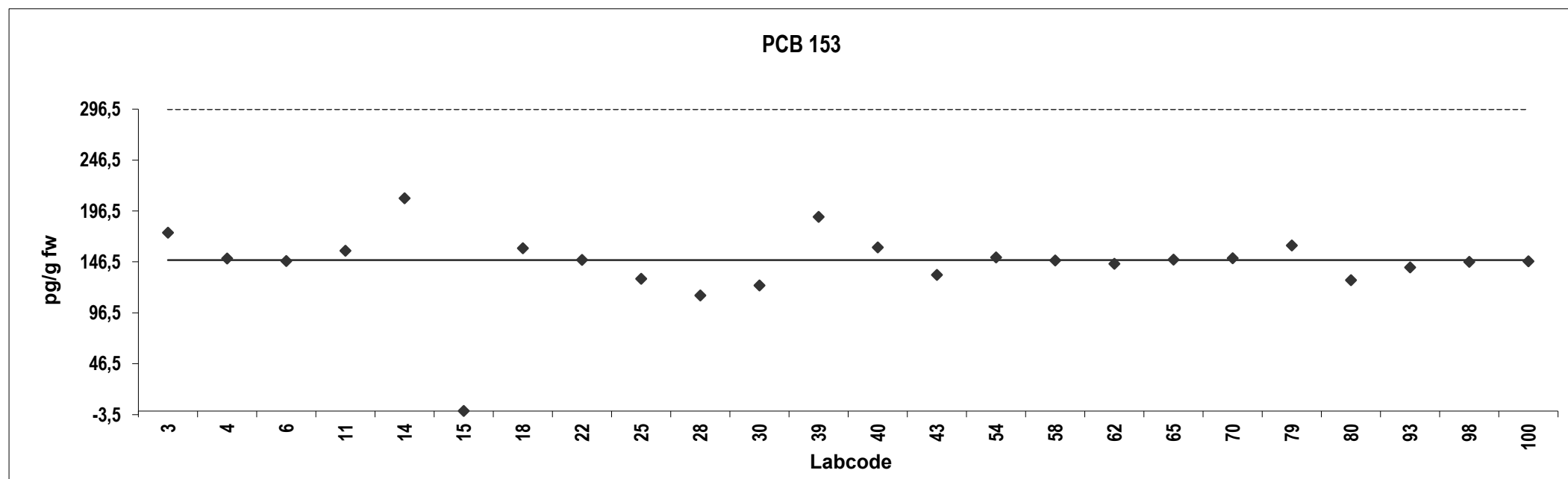
Consensus statistics	
Consensus median, pg/g	65
Median all values pg/g	65
Consensus mean, pg/g	67
Standard deviation, pg/g	21
Relative standard deviation, %	31
No. of values reported	24
No. of values removed	0
No. of reported non-detects	2



Lamb
Congener: PCB 153

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	175	0,90				
4	150	0,056				
6	147	-0,030				
11	157	0,31				
14	209	2,0				
15	0,094	-5,0				
18	160	0,40				
22	148	0,0081				
25	130	-0,62				
28	114	-1,2				
30	123	-0,84				
39	191	1,4				
40	161	0,42				
43	134	-0,49				
54	151	0,093				
58	148	-0,0081				
62	145	-0,12				
65	149	0,012				
70	150	0,059				
79	163	0,49				
80	129	-0,66				
93	141	-0,24				
98	146	-0,060				
100	147	-0,042				

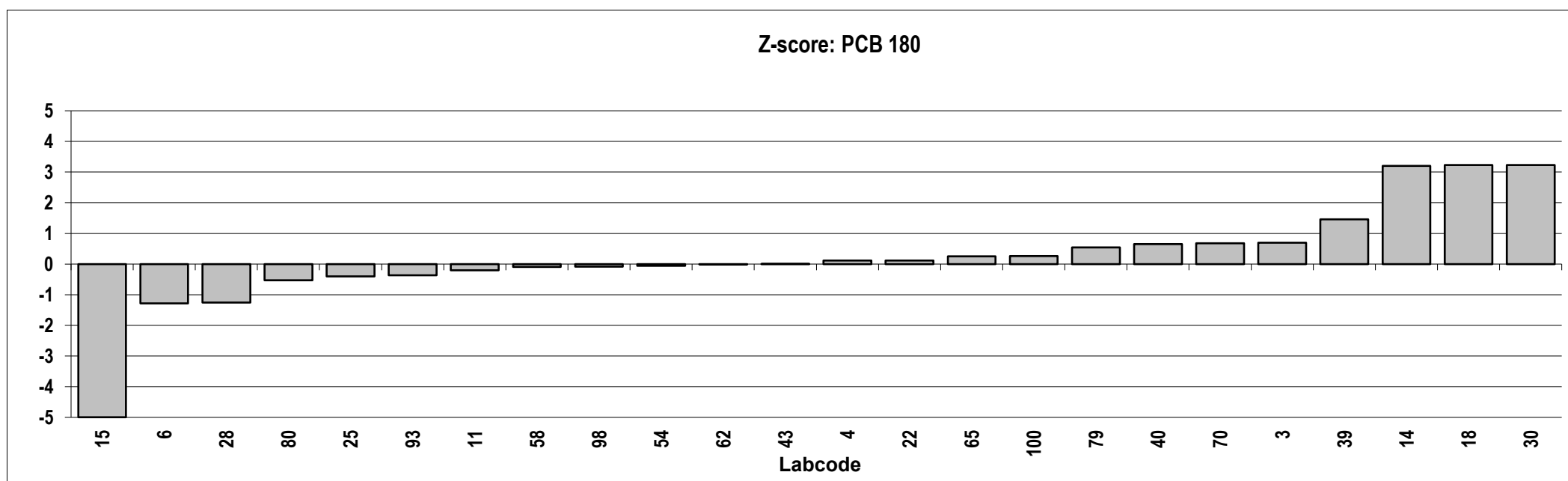
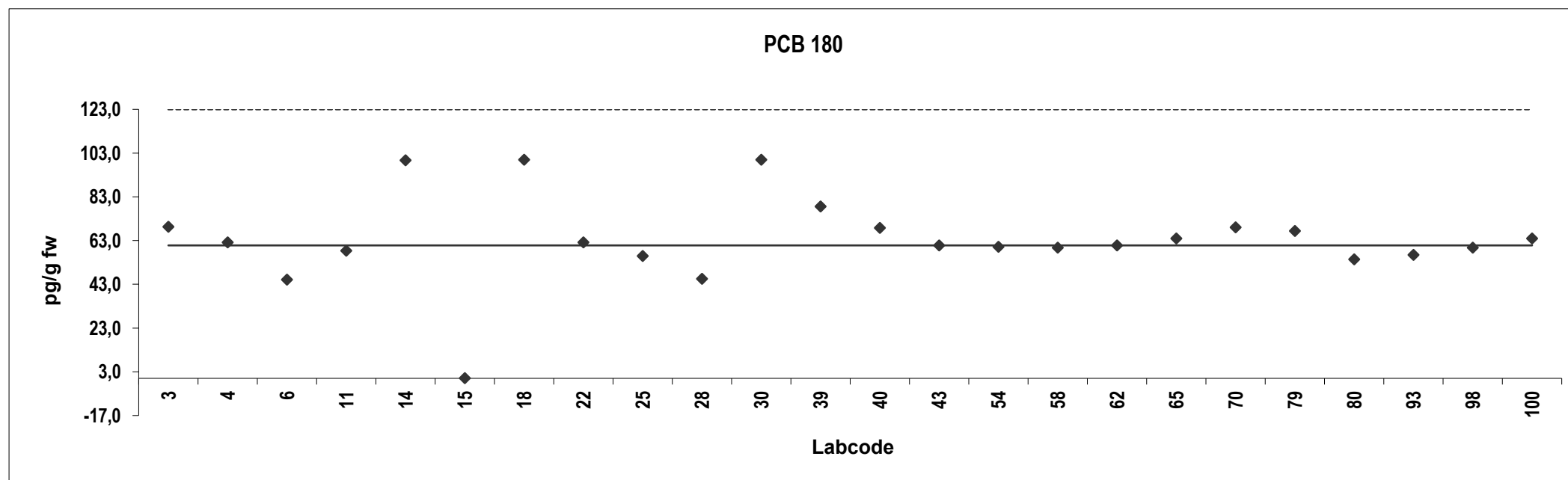
Consensus statistics	
Consensus median, pg/g	148
Median all values pg/g	148
Consensus mean, pg/g	144
Standard deviation, pg/g	37
Relative standard deviation, %	26
No. of values reported	24
No. of values removed	0
No. of reported non-detects	0



Lamb
Congener: PCB 180

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	69	0,70				
4	62	0,12				
6	45	-1,3				
11	58	-0,20				
14	100	3,2				
15	0,060	-5,0				
18	100	3,2	ND			
22	62	0,12				
25	56	-0,40				
28	45	-1,3				
30	100	3,2	ND			
39	79	1,5				
40	69	0,65				
43	61	0,00075				
54	60	-0,056				
58	60	-0,089				
62	61	-0,00075				
65	64	0,26				
70	69	0,68				
79	67	0,54				
80	54	-0,53				
93	56	-0,36				
98	60	-0,084				
100	64	0,26				

Consensus statistics	
Consensus median, pg/g	61
Median all values pg/g	61
Consensus mean, pg/g	63
Standard deviation, pg/g	20
Relative standard deviation, %	32
No. of values reported	24
No. of values removed	0
No. of reported non-detects	2

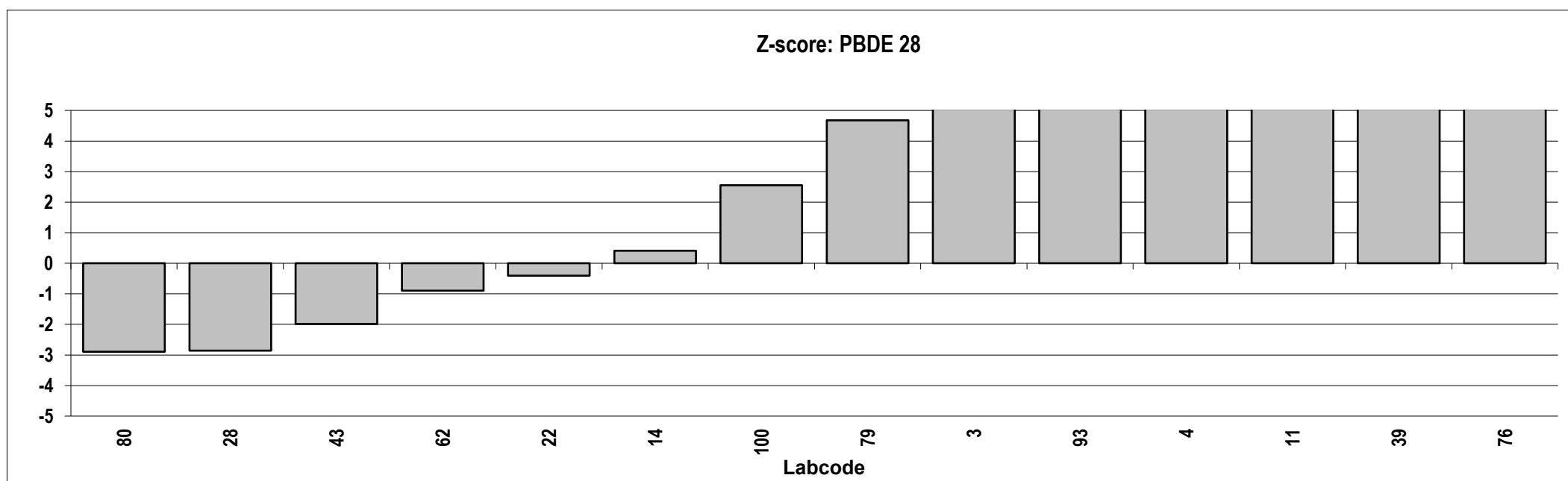
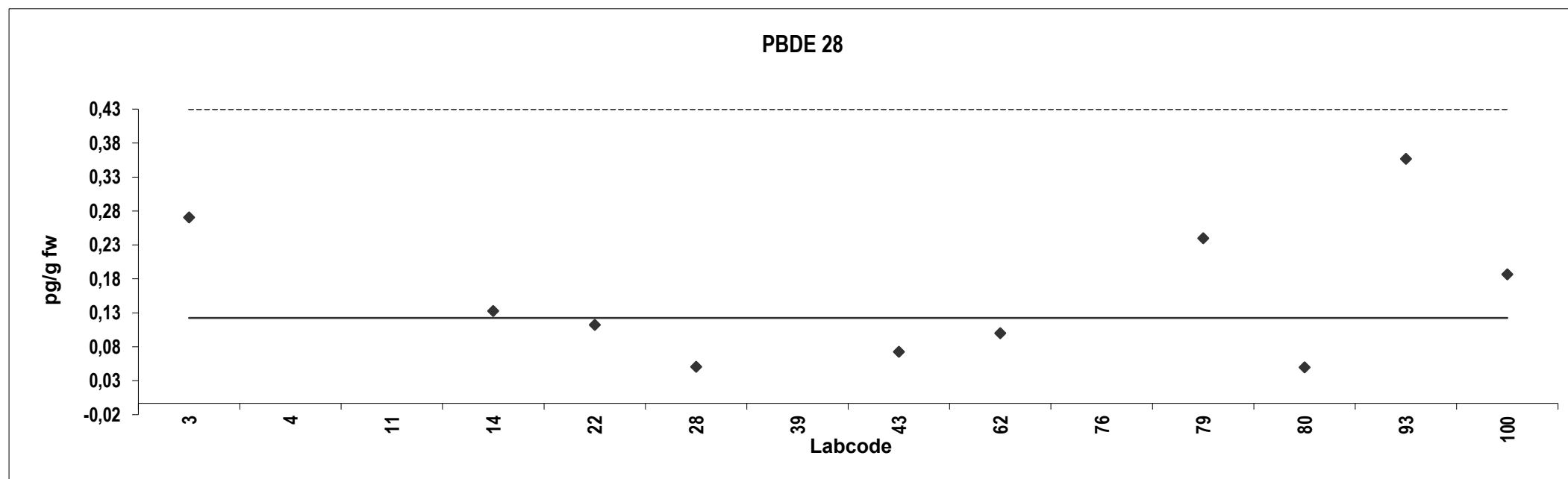


Lamb
Congener: PBDE 28

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	0,27	5,9				
4	0,52	16	Outlier			
11	0,99	34	Outlier,ND			
14	0,14	0,41				
22	0,12	-0,41				
28	0,054	-2,9	ND			
39	1,2	44	Outlier			
43	0,076	-2,0				
62	0,10	-0,90				
76	7,8	304	Outlier			
79	0,24	4,7				
80	0,053	-2,9				
93	0,36	9,3	ND			
100	0,19	2,6				

Consensus statistics

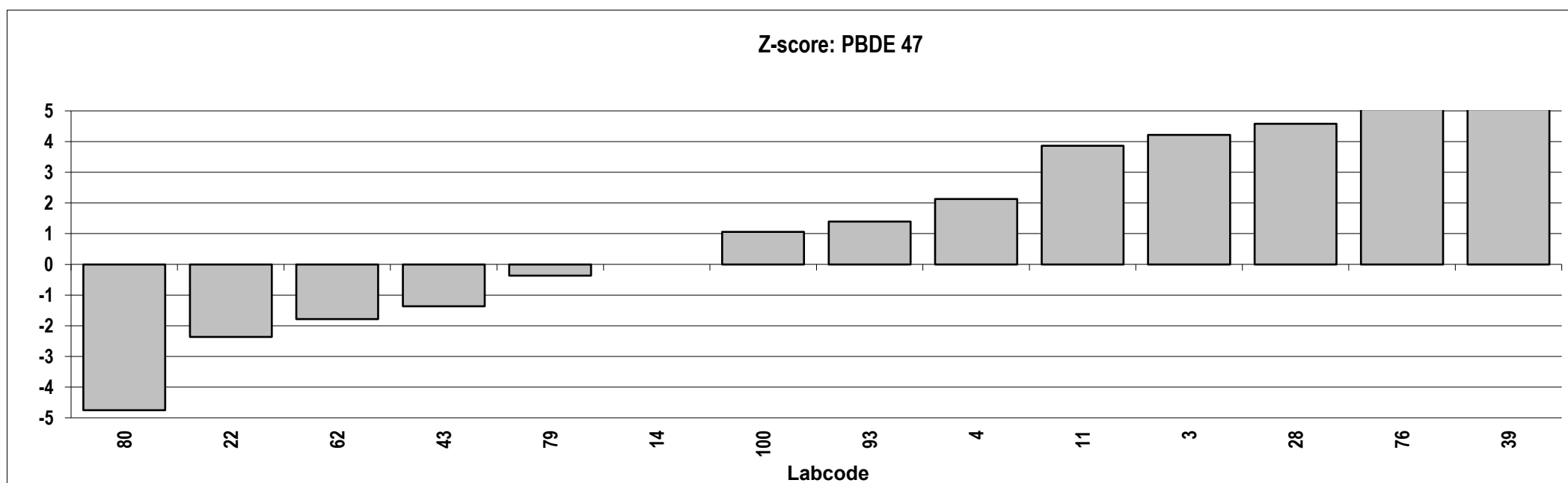
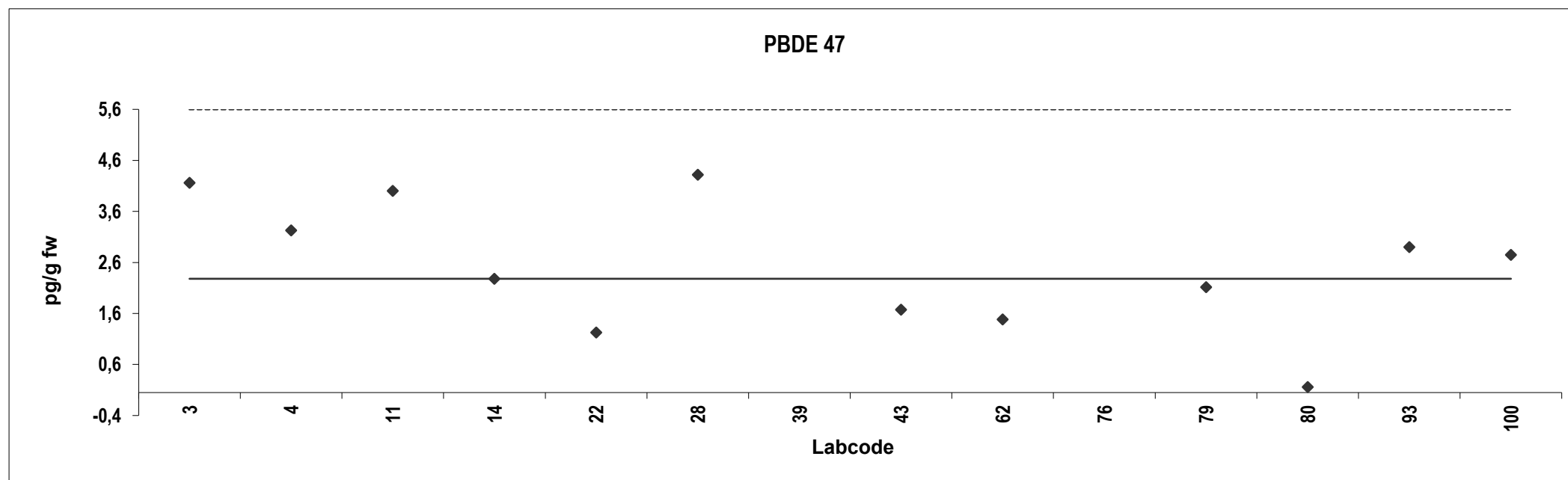
Consensus median, pg/g	0,13
Median all values pg/g	0,22
Consensus mean, pg/g	0,16
Standard deviation, pg/g	0,10
Relative standard deviation, %	64
No. of values reported	14
No. of values removed	4
No. of reported non-detects	3



Lamb
Congener: PBDE 47

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	4,1	4,2	ND			
4	3,2	2,1				
11	4,0	3,9				
14	2,2	0,0000				
22	1,2	-2,4	Outlier			
28	4,3	4,6				
39	34	70				
43	1,6	-1,4				
62	1,4	-1,8	Outlier			
76	6,0	8,5				
79	2,1	-0,36				
80	0,11	-4,8				
93	2,9	1,4				
100	2,7	1,1				

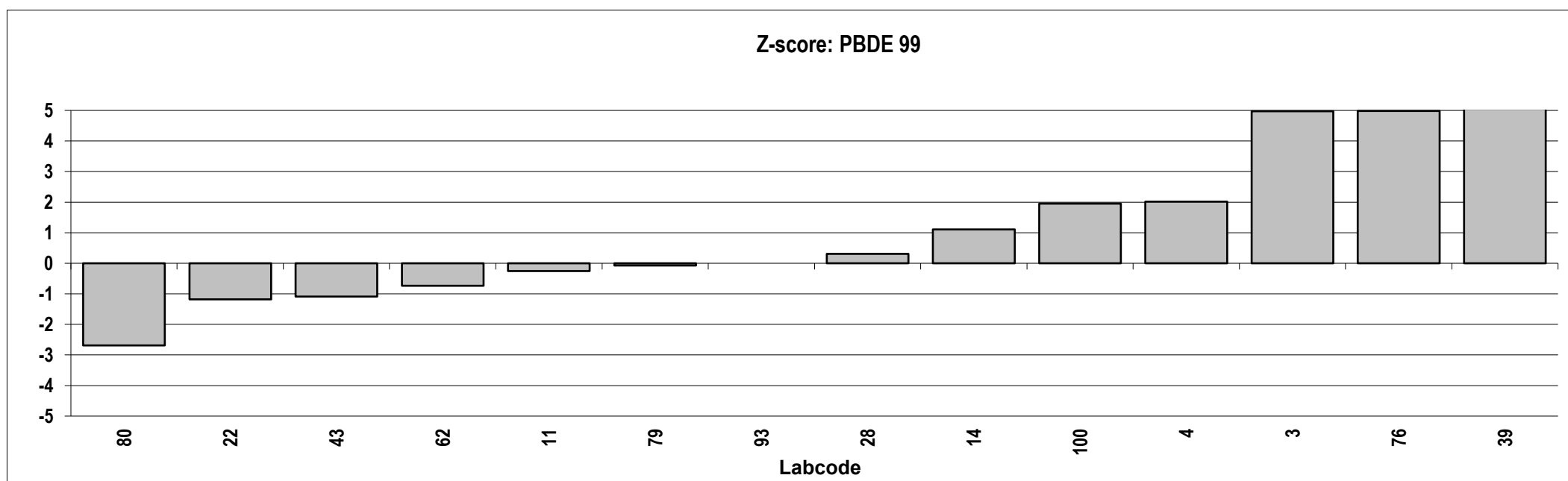
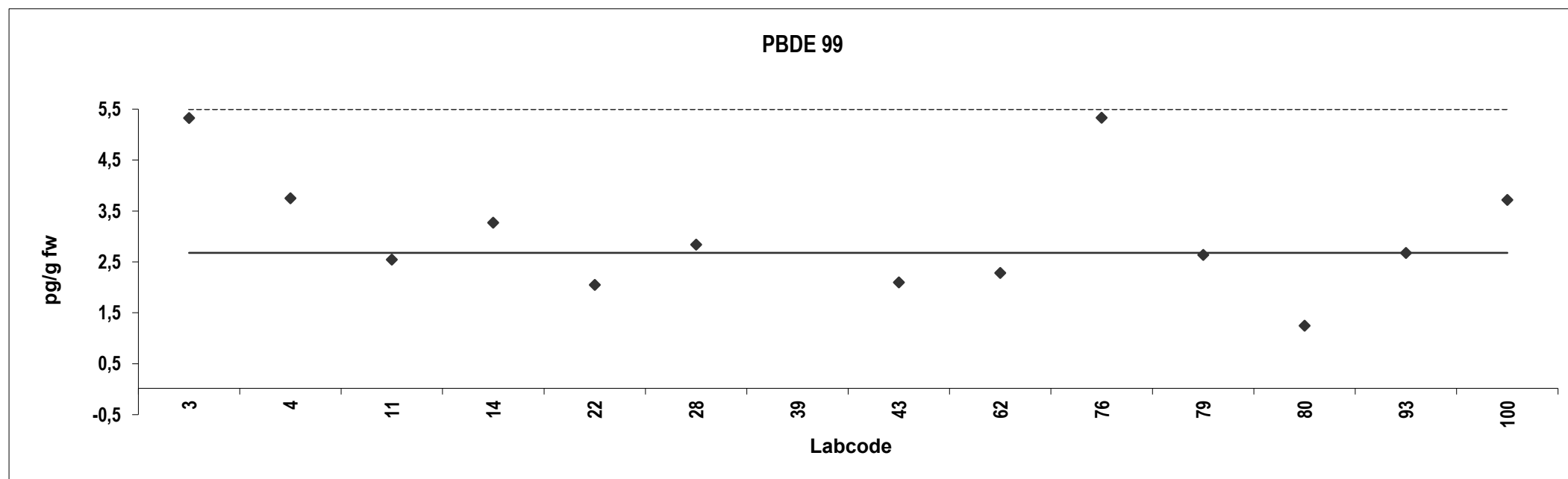
Consensus statistics	
Consensus median, pg/g	2,2
Median all values pg/g	2,8
Consensus mean, pg/g	2,5
Standard deviation, pg/g	1,3
Relative standard deviation, %	52
No. of values reported	14
No. of values removed	2
No. of reported non-detects	1



Lamb
Congener: PBDE 99

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	5,3	5,0	Outlier			
4	3,7	2,0				
11	2,5	-0,25				
14	3,3	1,1				
22	2,0	-1,2				
28	2,8	0,31				
39	20	33				
43	2,1	-1,1				
62	2,3	-0,74				
76	5,3	5,0				
79	2,6	-0,074				
80	1,2	-2,7				
93	2,7	0,0000				
100	3,7	2,0				

Consensus statistics	
Consensus median, pg/g	2,7
Median all values pg/g	2,7
Consensus mean, pg/g	3,0
Standard deviation, pg/g	1,2
Relative standard deviation, %	40
No. of values reported	14
No. of values removed	1
No. of reported non-detects	0

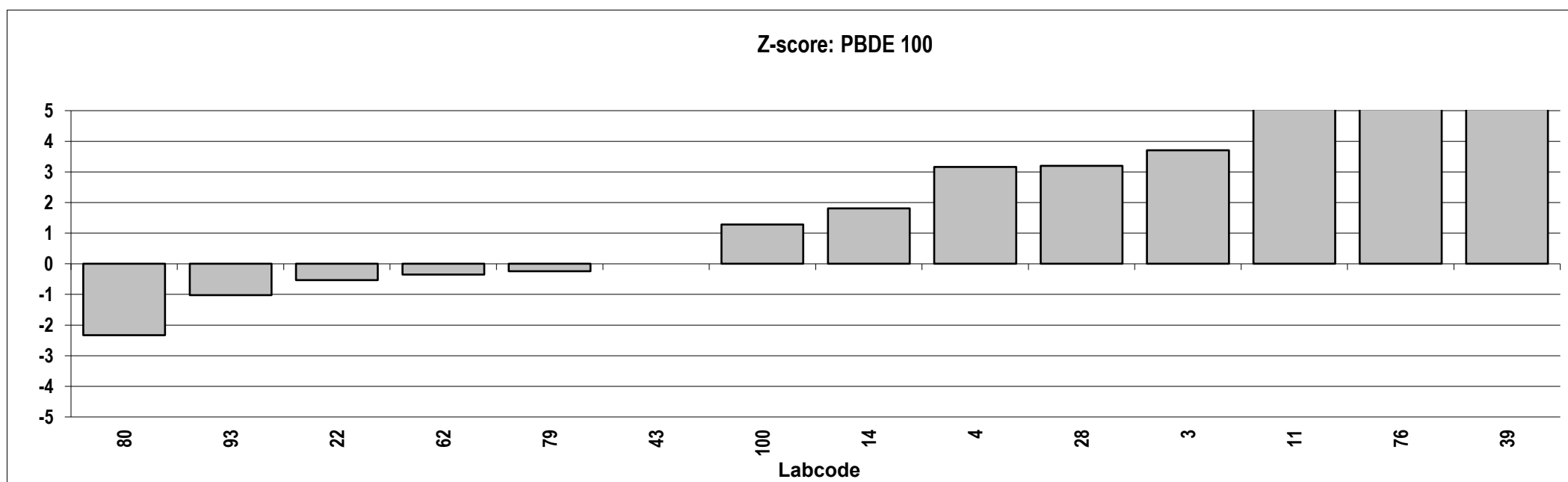
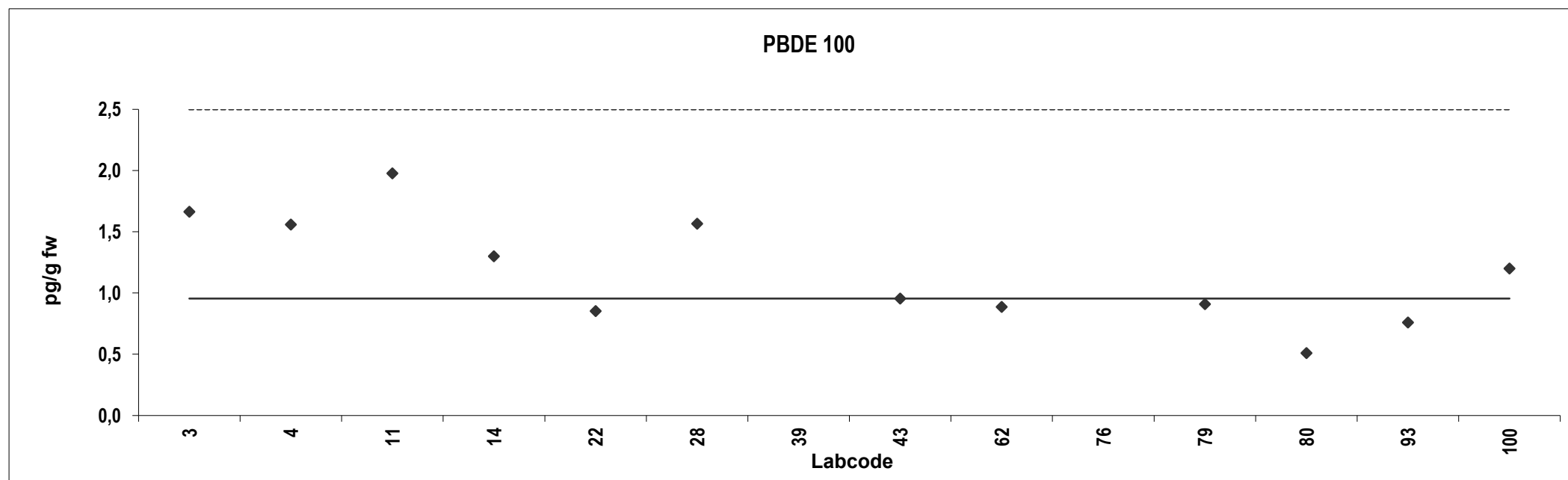


Lamb
Congener: PBDE 100

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	1,7	3,7				
4	1,6	3,2				
11	2,0	5,3	ND			
14	1,3	1,8				
22	0,85	-0,53				
28	1,6	3,2				
39	6,8	31	Outlier			
43	0,96	0,0000				
62	0,89	-0,35				
76	3,5	13	Outlier			
79	0,91	-0,24				
80	0,51	-2,3				
93	0,76	-1,0				
100	1,2	1,3				

Consensus statistics

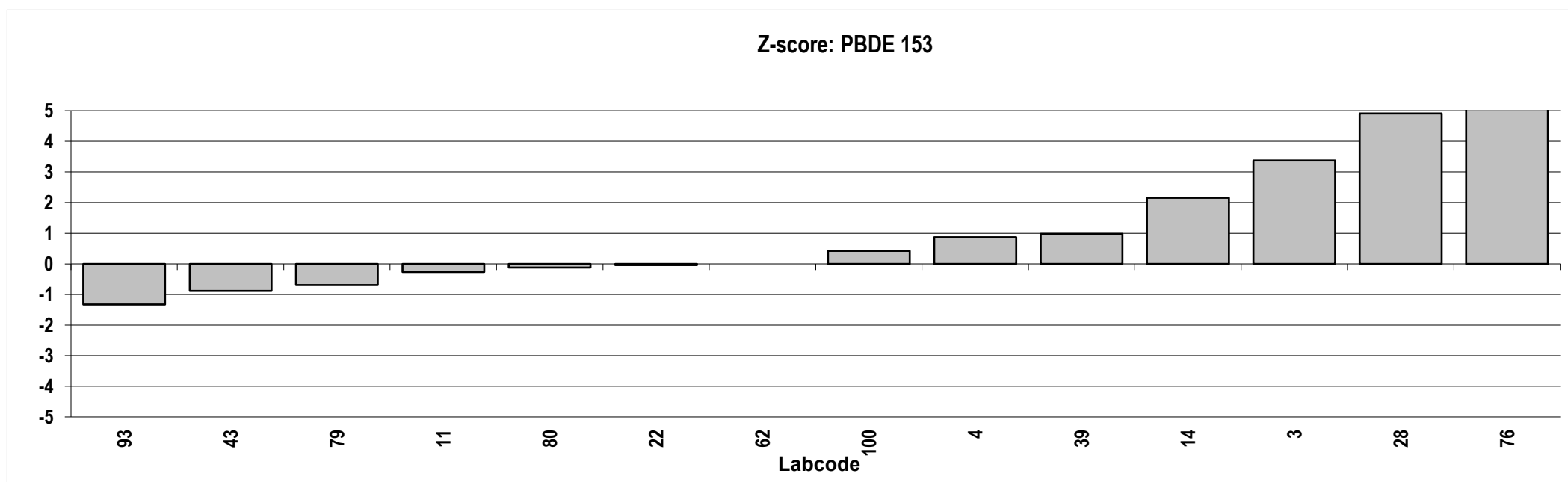
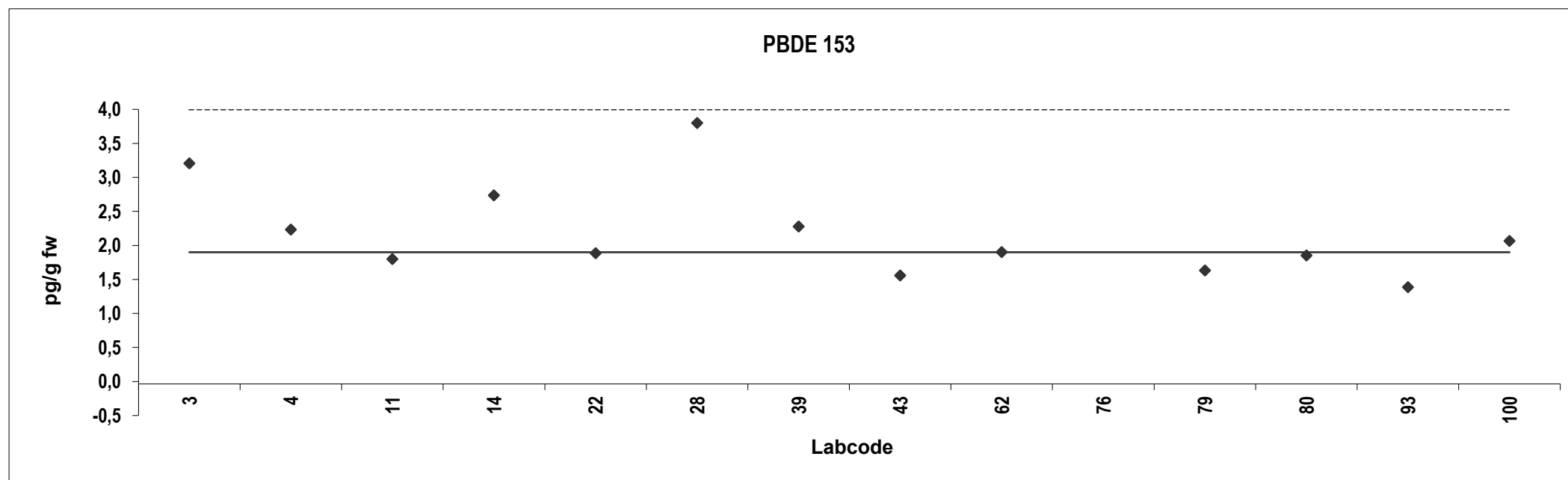
Consensus median, pg/g	1,0
Median all values pg/g	1,3
Consensus mean, pg/g	1,2
Standard deviation, pg/g	0,44
Relative standard deviation, %	37
No. of values reported	14
No. of values removed	2
No. of reported non-detects	1



Lamb
Congener: PBDE 153

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	3,2	3,4	Outlier			
4	2,3	0,86				
11	1,8	-0,26				
14	2,8	2,2				
22	1,9	-0,041				
28	3,8	4,9				
39	2,3	0,97				
43	1,6	-0,89				
62	1,9	0,0000				
76	6,9	13				
79	1,7	-0,70				
80	1,9	-0,12				
93	1,4	-1,3				
100	2,1	0,43				

Consensus statistics	
Consensus median, pg/g	1,9
Median all values pg/g	2,0
Consensus mean, pg/g	2,2
Standard deviation, pg/g	0,69
Relative standard deviation, %	31
No. of values reported	14
No. of values removed	1
No. of reported non-detects	0

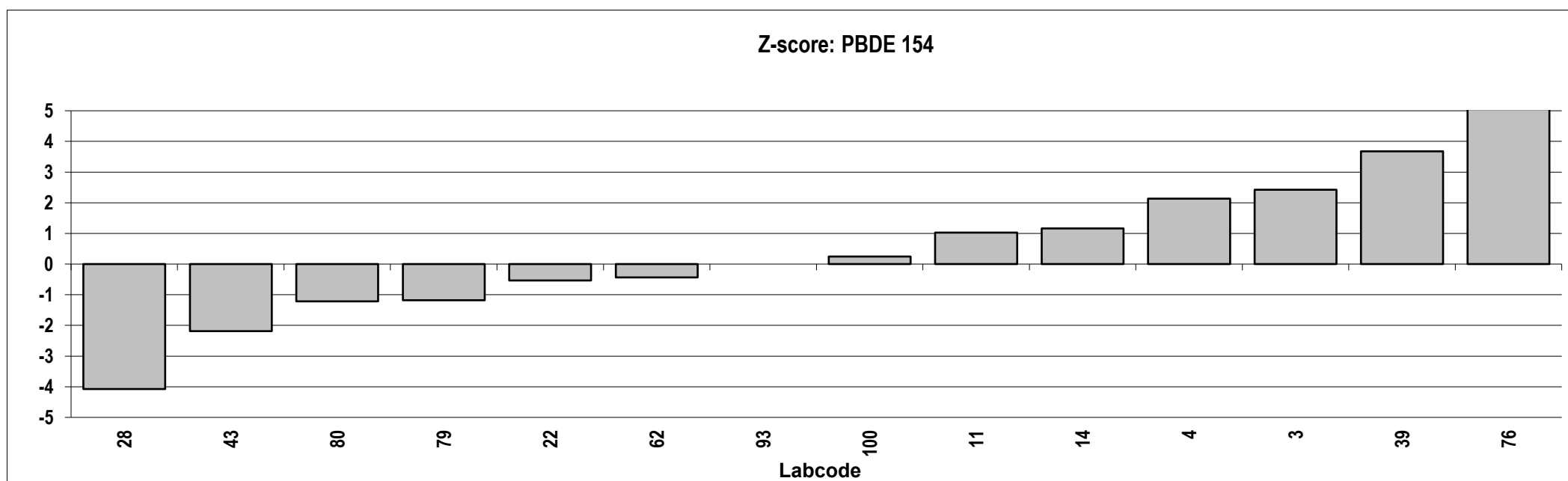
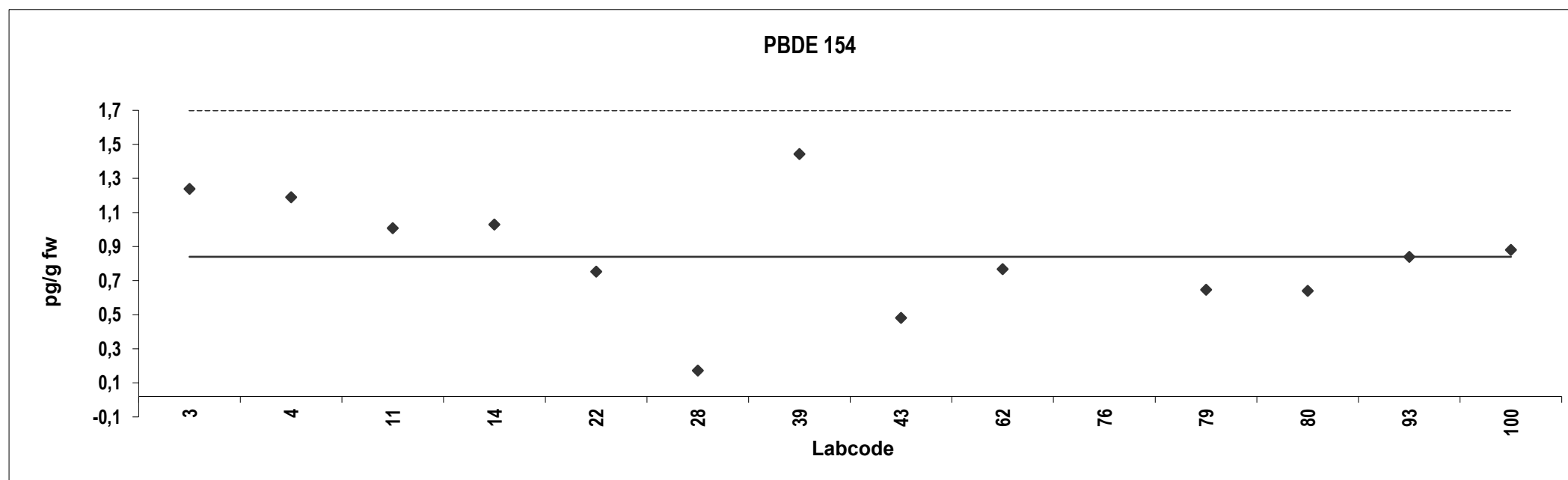


Lamb
Congener: PBDE 154

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	1,2	2,4				
4	1,2	2,1				
11	0,99	1,0	ND			
14	1,0	1,2				
22	0,73	-0,53				
28	0,15	-4,1	ND			
39	1,4	3,7				
43	0,46	-2,2				
62	0,75	-0,44				
76	4,5	22	Outlier			
79	0,63	-1,2				
80	0,62	-1,2				
93	0,82	0,0000				
100	0,86	0,24				

Consensus statistics

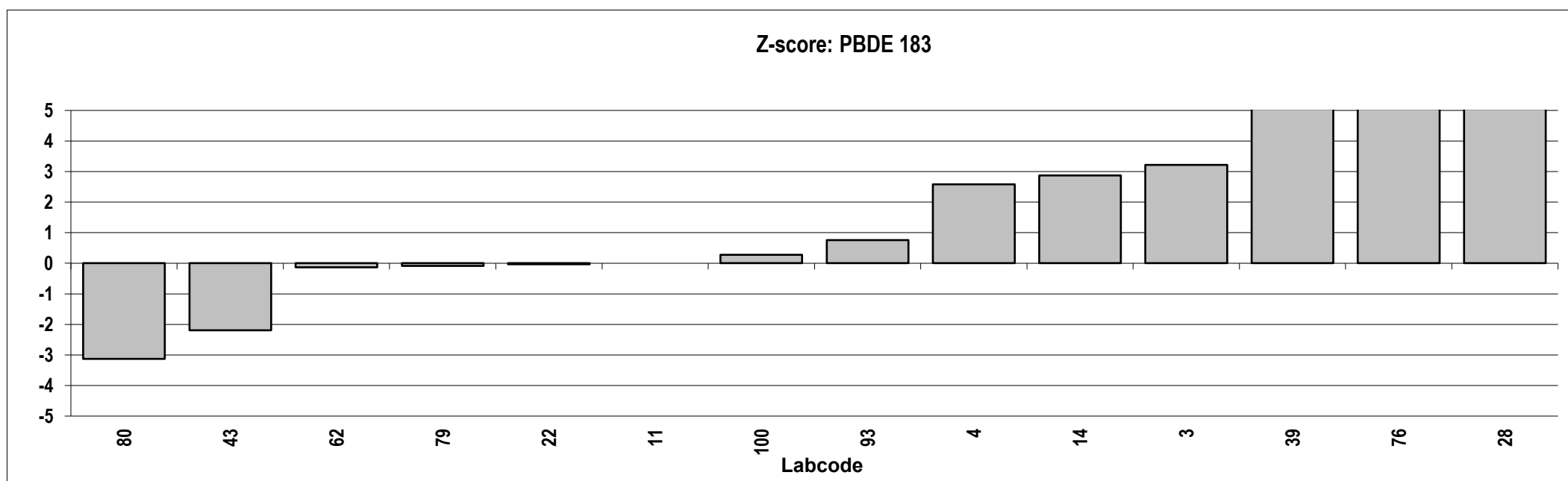
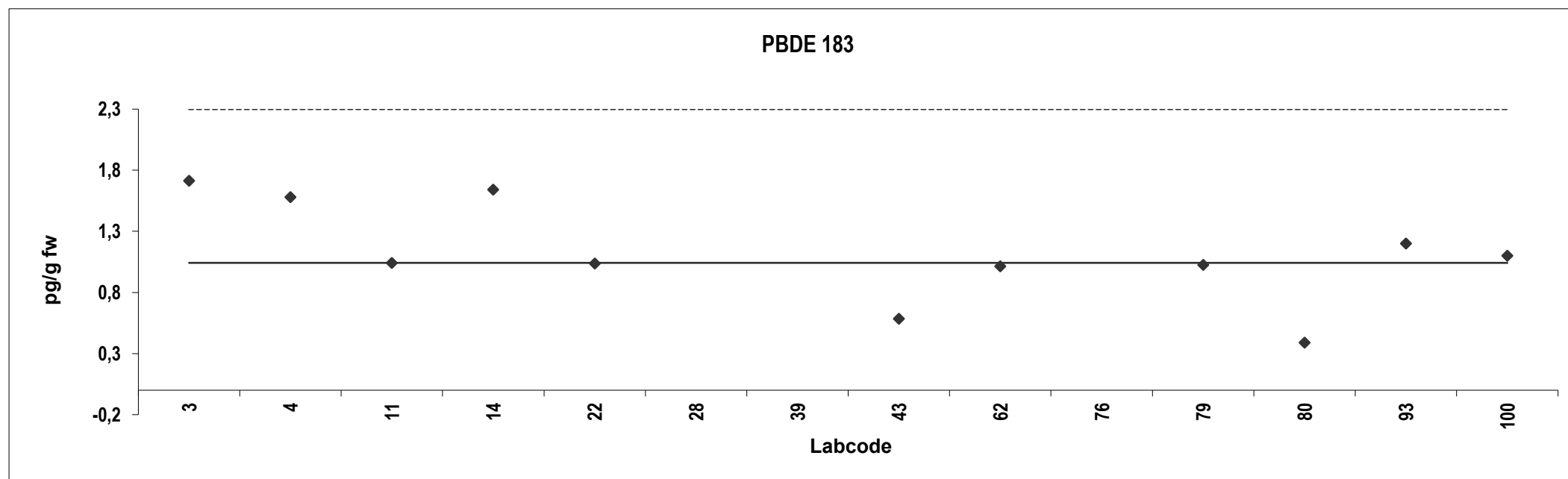
Consensus median, pg/g	0,82
Median all values pg/g	0,84
Consensus mean, pg/g	0,83
Standard deviation, pg/g	0,34
Relative standard deviation, %	41
No. of values reported	14
No. of values removed	1
No. of reported non-detects	2



Lamb
Congener: PBDE 183

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	1,7	3,2				
4	1,6	2,6				
11	1,0	0,0000				
14	1,6	2,9				
22	1,0	-0,030				
28	4,0	14	Outlier			
39	3,4	11	Outlier			
43	0,59	-2,2				
62	1,0	-0,14				
76	3,8	13	Outlier			
79	1,0	-0,083				
80	0,39	-3,1				
93	1,2	0,76				
100	1,1	0,28				

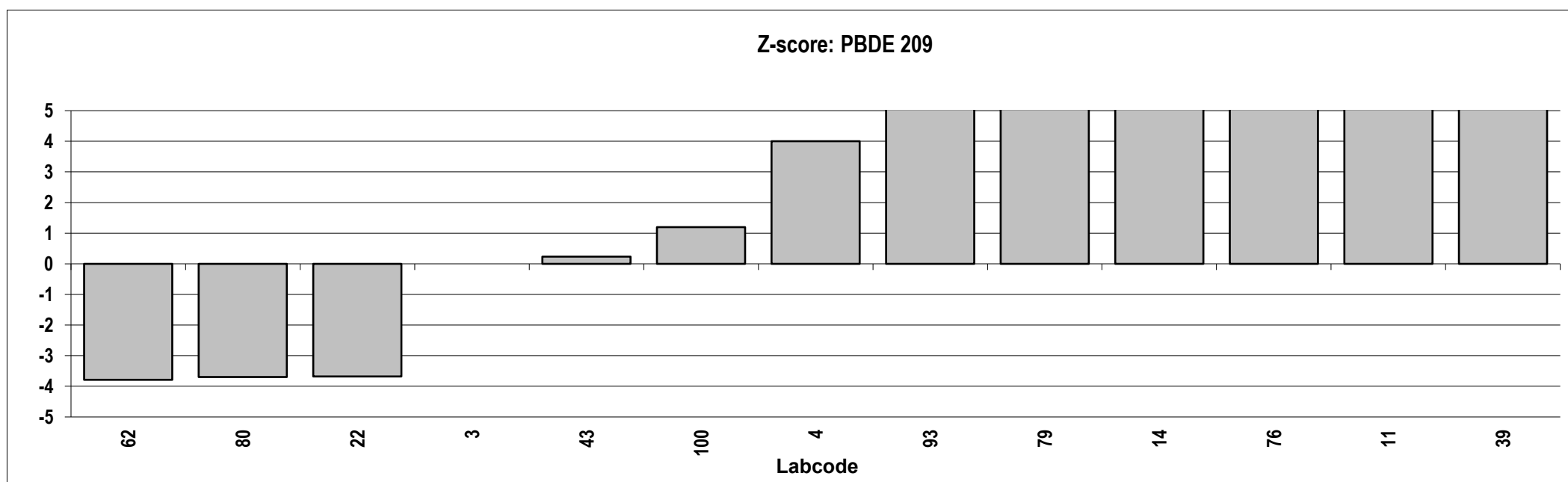
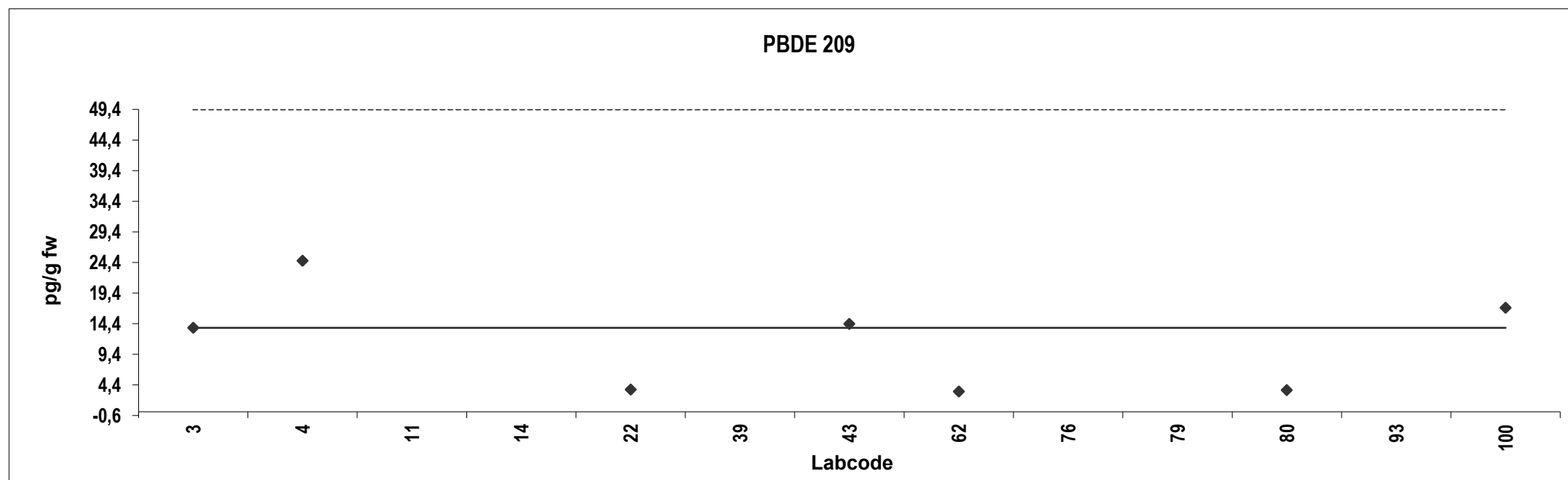
Consensus statistics	
Consensus median, pg/g	1,0
Median all values pg/g	1,2
Consensus mean, pg/g	1,1
Standard deviation, pg/g	0,41
Relative standard deviation, %	37
No. of values reported	14
No. of values removed	3
No. of reported non-detects	0



Lamb
Congener: PBDE 209

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
3	14	0,0000				
4	25	4,0				
11	79	24	Outlier,ND			
14	71	21	Outlier			
22	3,6	-3,7				
39	293	102	Outlier			
43	14	0,23				
62	3,3	-3,8				
76	79	24	Outlier			
79	57	16	Outlier			
80	3,6	-3,7				
93	53	14	Outlier			
100	17	1,2				

Consensus statistics	
Consensus median, pg/g	14
Median all values pg/g	25
Consensus mean, pg/g	11
Standard deviation, pg/g	8,3
Relative standard deviation, %	72
No. of values reported	13
No. of values removed	6
No. of reported non-detects	1

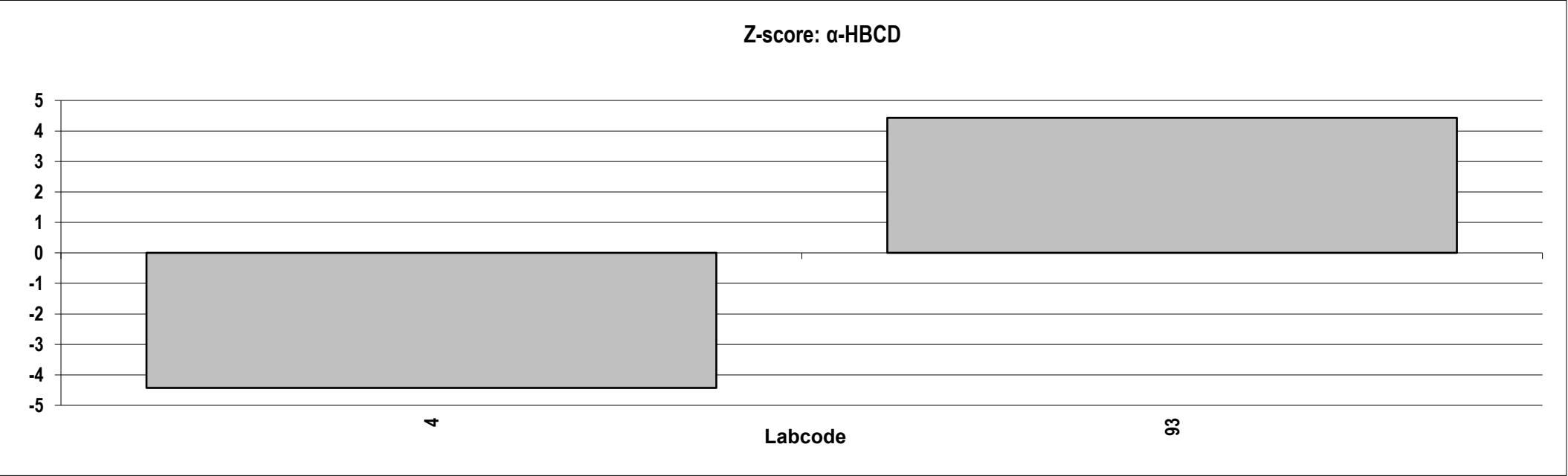
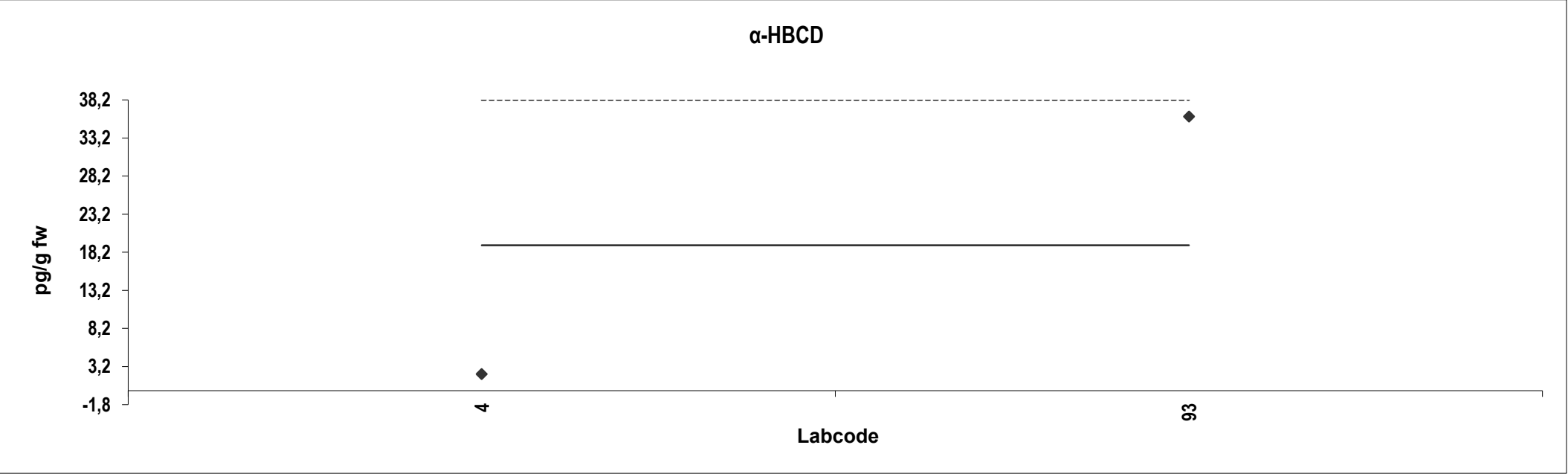


Congener: α -HBCD

[illegible]

Consensus statistics

Consensus median, pg/g	19
Median all values pg/g	19
Consensus mean, pg/g	19
Standard deviation, pg/g	24
Relative standard deviation, %	123
No. of values reported	2
No. of values removed	0
No. of reported non-detects	0

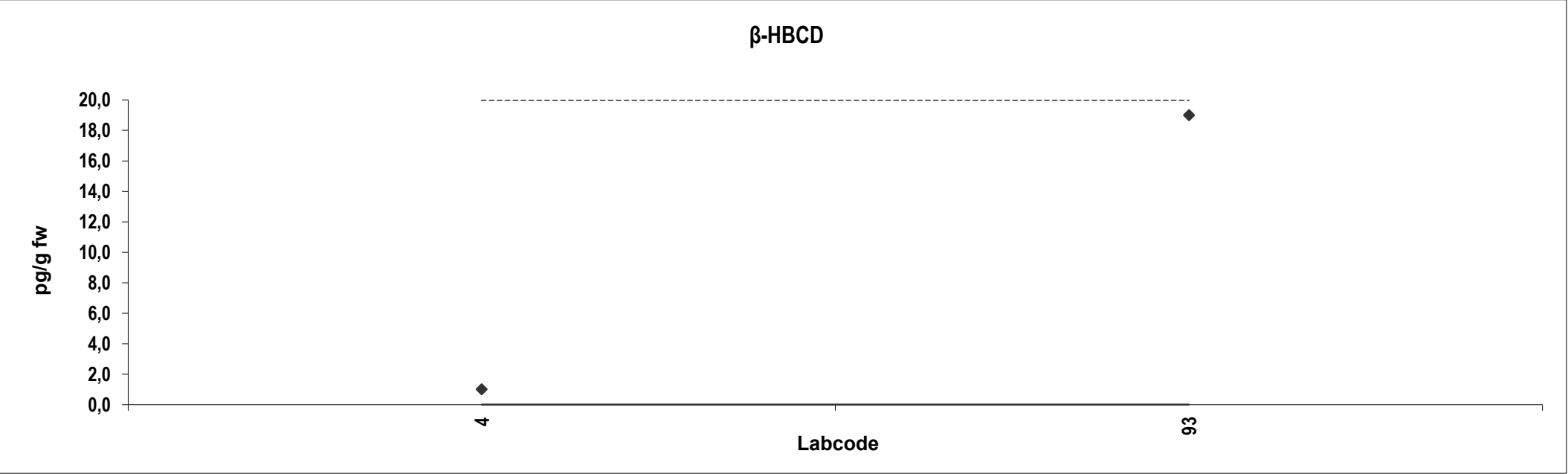


Lamb
Congener: β -HBCD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
4 93	1,0 19	** **	ND ND			

Consensus statistics

Consensus median, pg/g	**
Median all values pg/g	10
Consensus mean, pg/g	10
Standard deviation, pg/g	13
Relative standard deviation, %	12
No. of values reported	2
No. of values removed	0
No. of reported non-detects	2

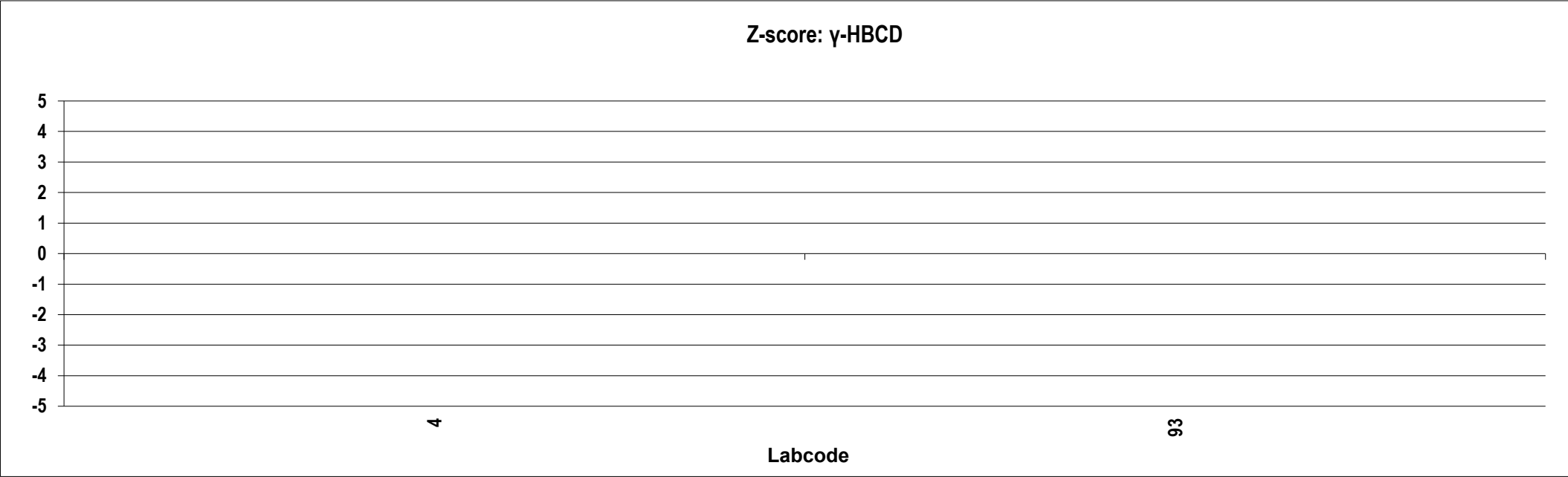
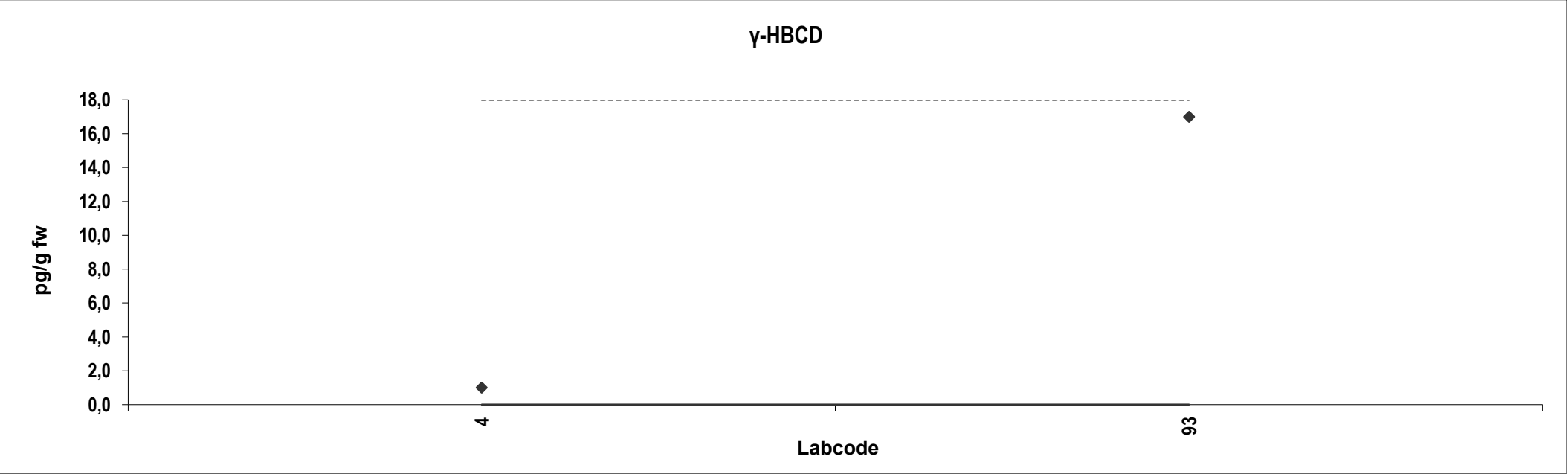


Lamb
Congener: γ -HBCD

[illegible]

Consensus statistics

Consensus median, pg/g	**
Median all values pg/g	9,0
Consensus mean, pg/g	9,0
Standard deviation, pg/g	11
Relative standard deviation, %	126
No. of values reported	2
No. of values removed	0
No. of reported non-detects	2



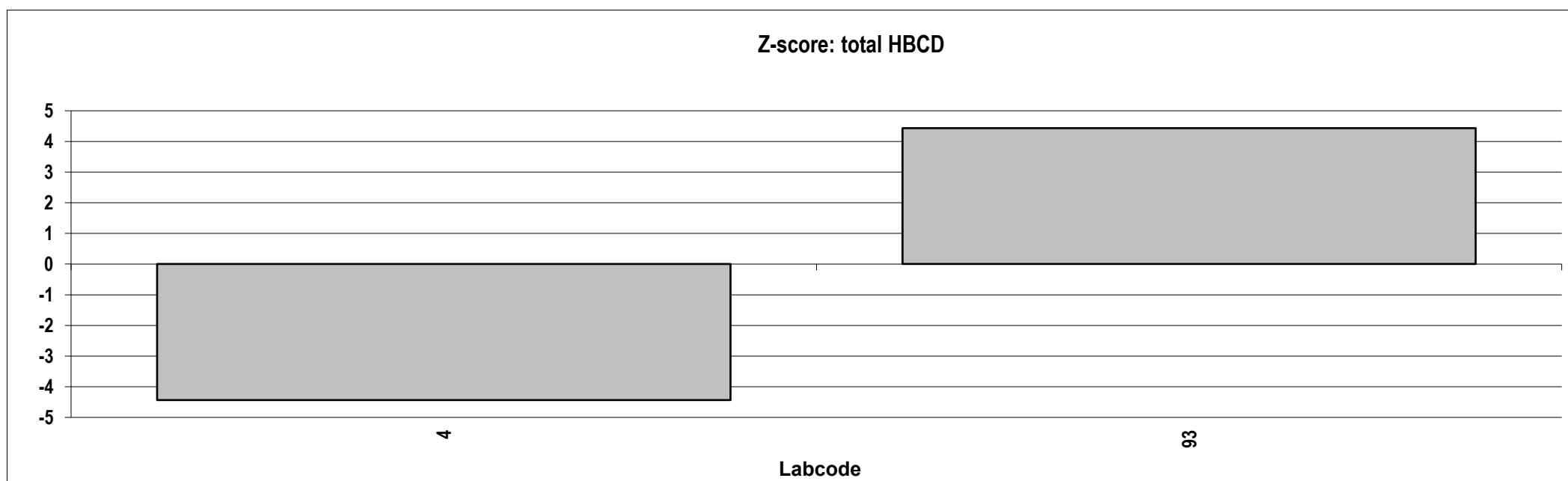
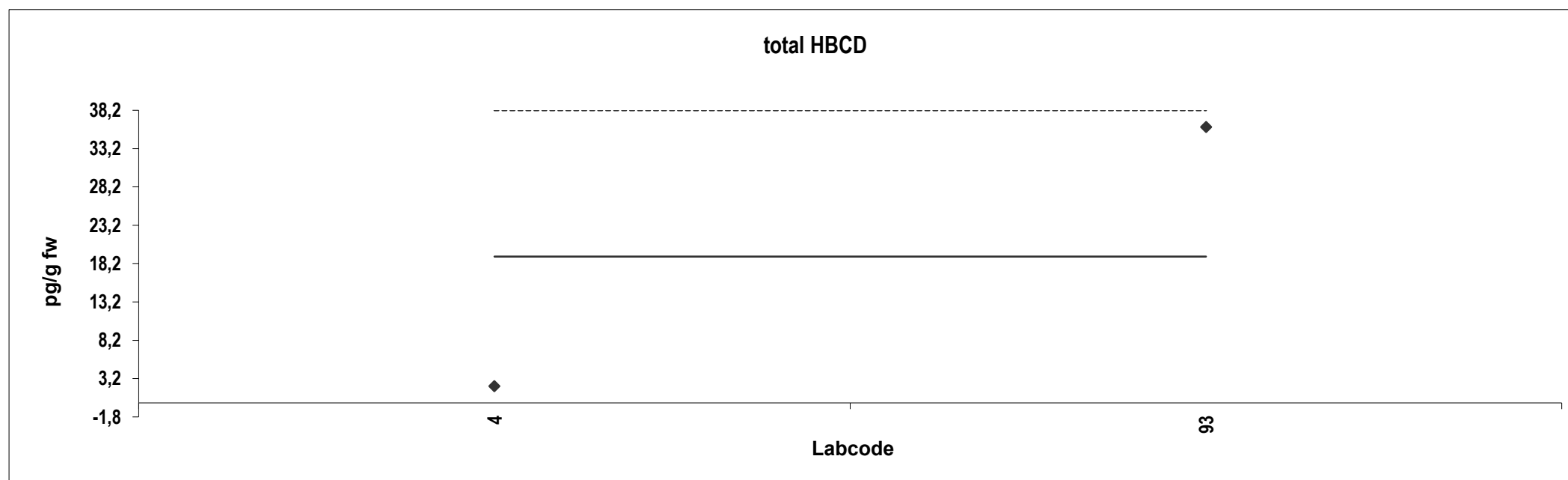
Lamb

Congener: total HBCD

Lab code	Conc. pg/g fw.	Z-score	Notes	Lab code	Conc. pg/g fw.	Notes
4	2,2	-4,4				
93	36	4,4				

Consensus statistics

Consensus median, pg/g	19
Median all values pg/g	19
Consensus mean, pg/g	19
Standard deviation, pg/g	24
Relative standard deviation, %	125
No. of values reported	2
No. of values removed	0
No. of reported non-detects	0



Appendix 5:

Presentation of results for
PFAS Halibut 2025

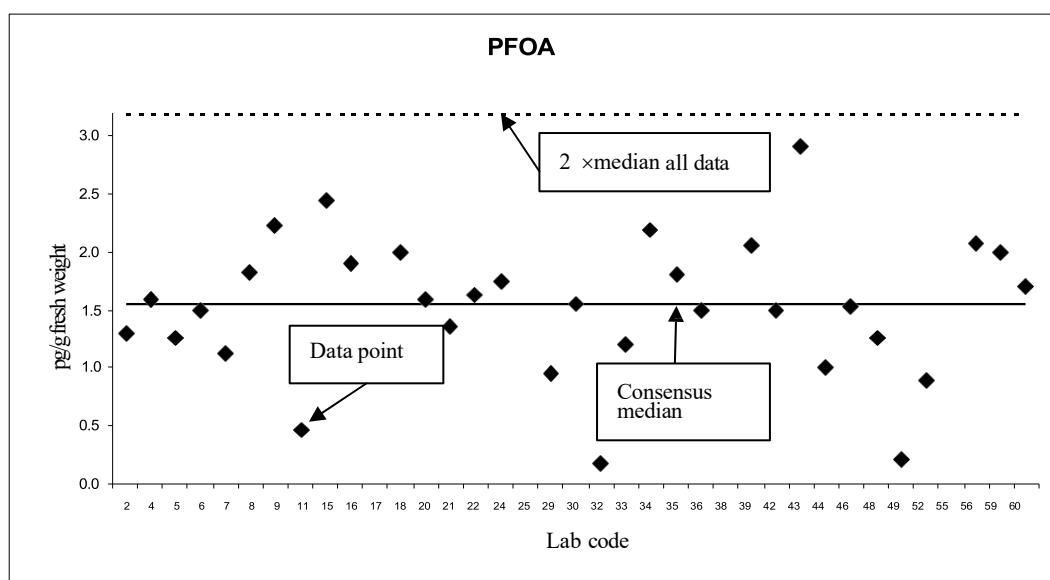
Appendix 5: Presentation of results: PFAS Halibut 2025

Statistic calculations for PFASs

For each congener, the outliers were removed and the consensus calculated according to the following procedure:

1. The median was calculated from all the reported data, using the detection limit as concentration for non-detected congeners (NDs).
2. Values exceeding $2 \times$ this median were defined as outliers and removed from the data set. The NDs were also removed.
3. Median, mean and standard deviation were re-calculated from the remaining data. This second median was called consensus.
4. For comparison, median, mean and standard deviation were also calculated without removing NDs.

The diagram shows the reported data up to approximately the limit for outliers ($2 \times$ the first median).



Z-Scores of individual congeners

Z-scores of each congener were calculated for each laboratory according to the following equation:

$$z = (x - X) / \sigma$$

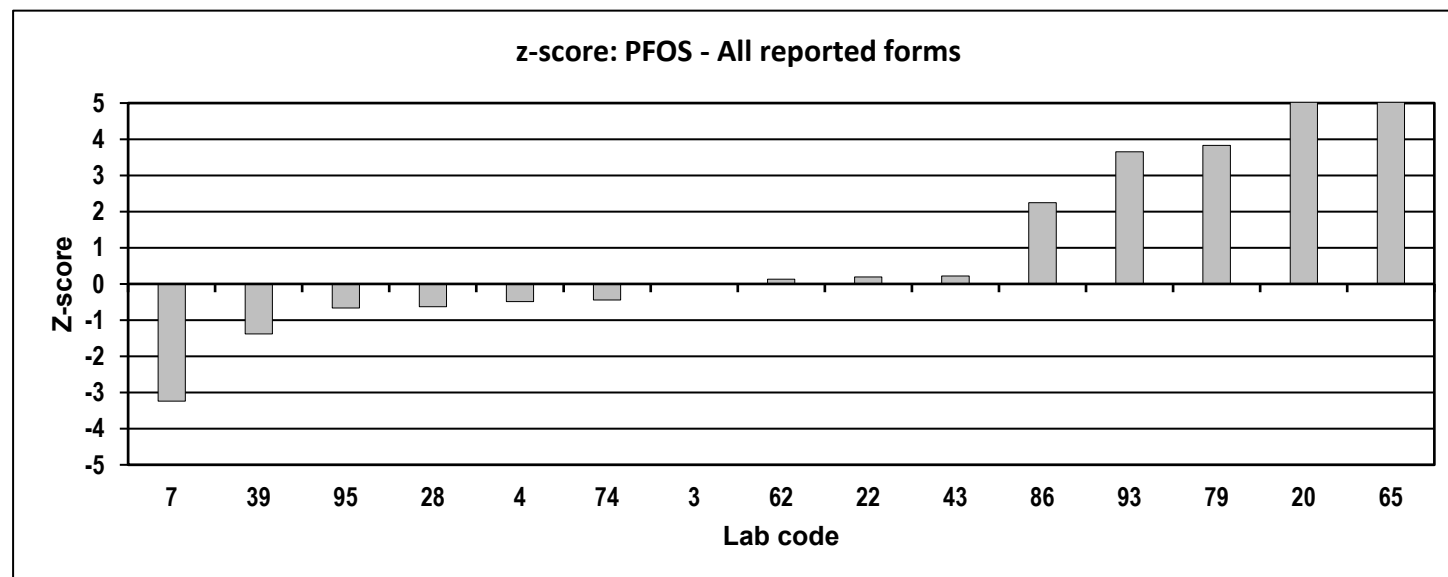
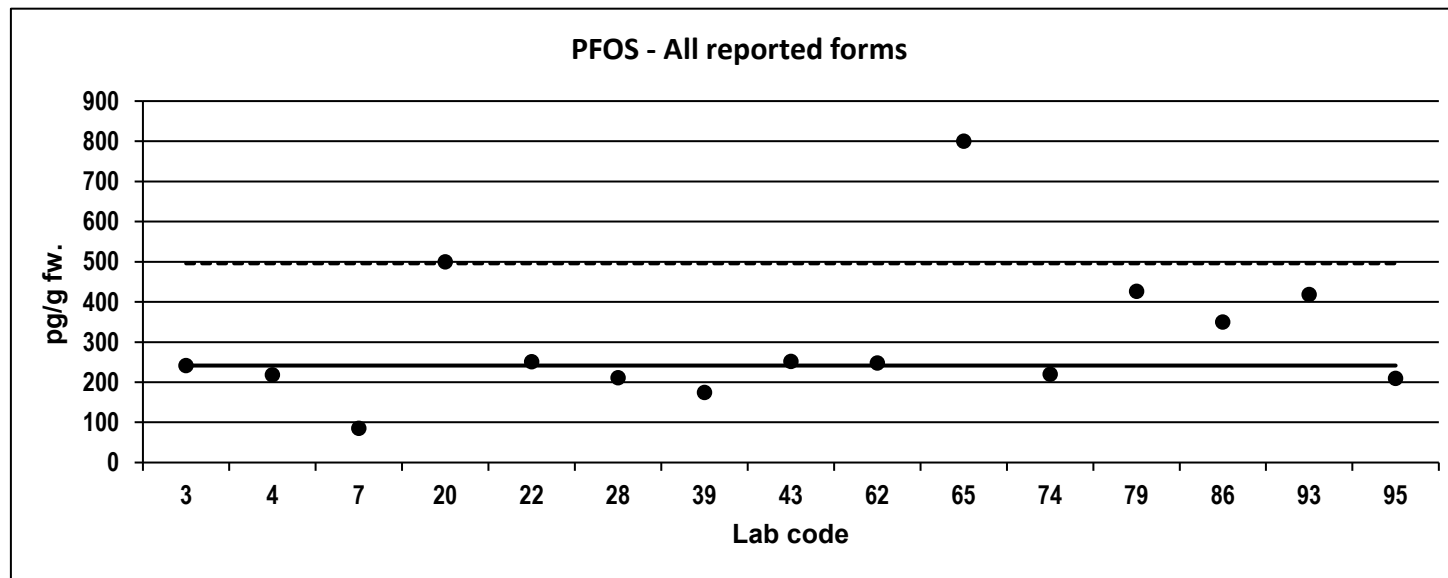
where x = reported value; X = assigned value (consensus); σ = target value for standard deviation. A σ of 20% of the consensus was used, i.e. z-scores between +1 and -1 reflect a deviation of $\pm 20\%$ from the consensus value.

Halibut
PFOS - All reported forms

Lab code	pg/g fw.	Z-score	Notes
3	241	0,0000	ND, Outlier
4	218	-0,49	
7	85	-3,2	
20	500	5,4	
22	251	0,20	
28	211	-0,63	
39	175	-1,4	
43	252	0,22	
62	248	0,13	
65	800	12	
74	220	-0,44	ND, Outlier
79	427	3,8	
86	350	2,2	
93	418	3,7	
95	209	-0,66	

Consensus statistics

Consensus median, pg/g	241
Median all values pg/g	248
Consensus mean, pg/g	254
Standard deviation, pg/g	95
Relative standard deviation, %	37
No. of values reported	15
No. of values removed	2
No. of reported non-detects	2

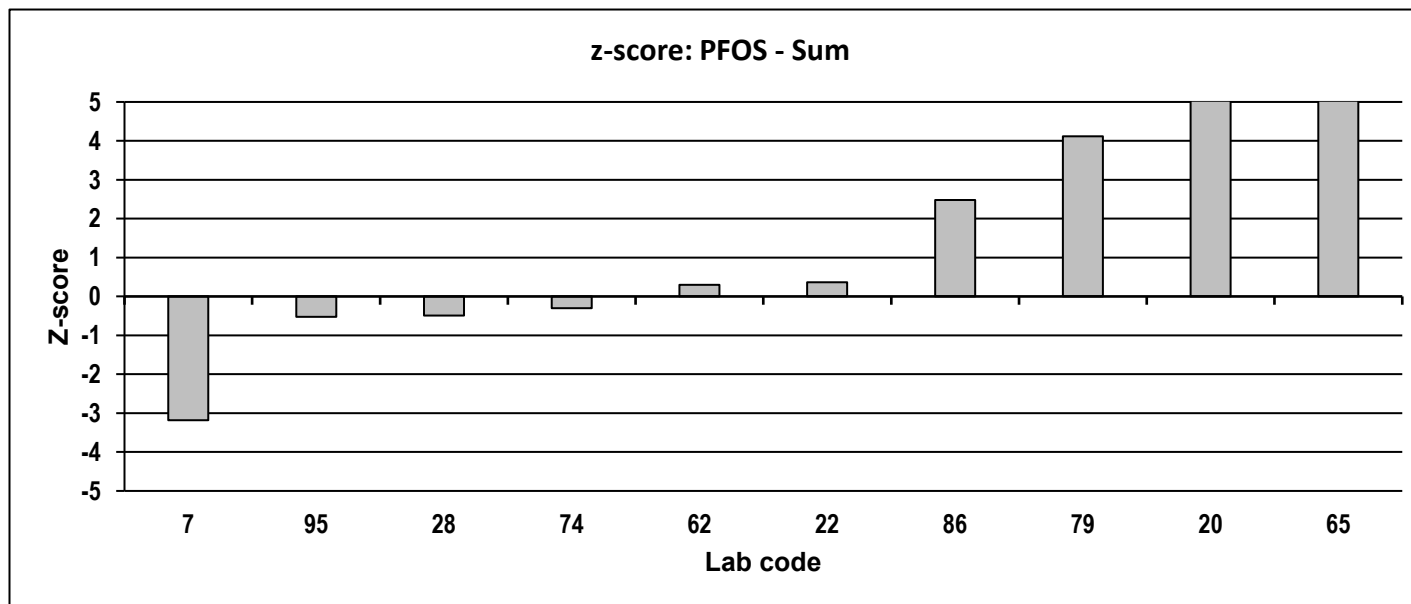
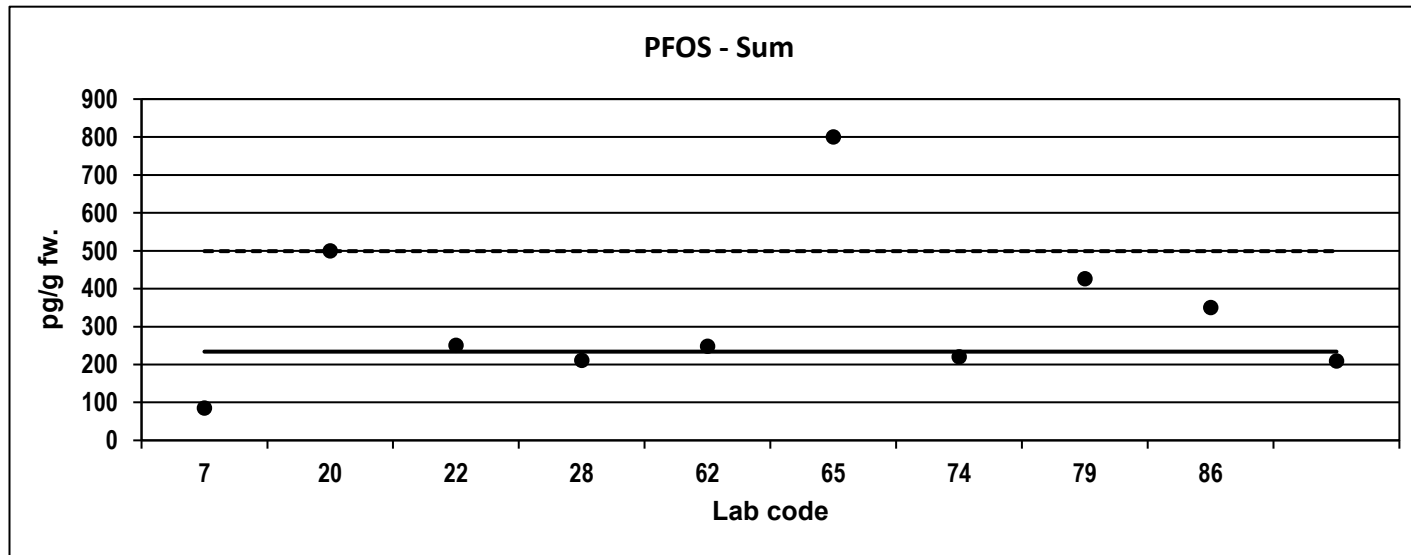


Halibut
PFOS - Sum

Lab code	pg/g fw.	Z-score	Notes
7	85	-3,2	ND, Outlier
20	500	5,7	
22	251	0,36	
28	211	-0,49	ND, Outlier
62	248	0,30	
65	800	12	
74	220	-0,30	
79	427	4,1	
86	350	2,5	
95	209	-0,53	

Consensus statistics

Consensus median, pg/g	234
Median all values pg/g	250
Consensus mean, pg/g	250
Standard deviation, pg/g	102
Relative standard deviation, %	41
No. of values reported	10
No. of values removed	2
No. of reported non-detects	2

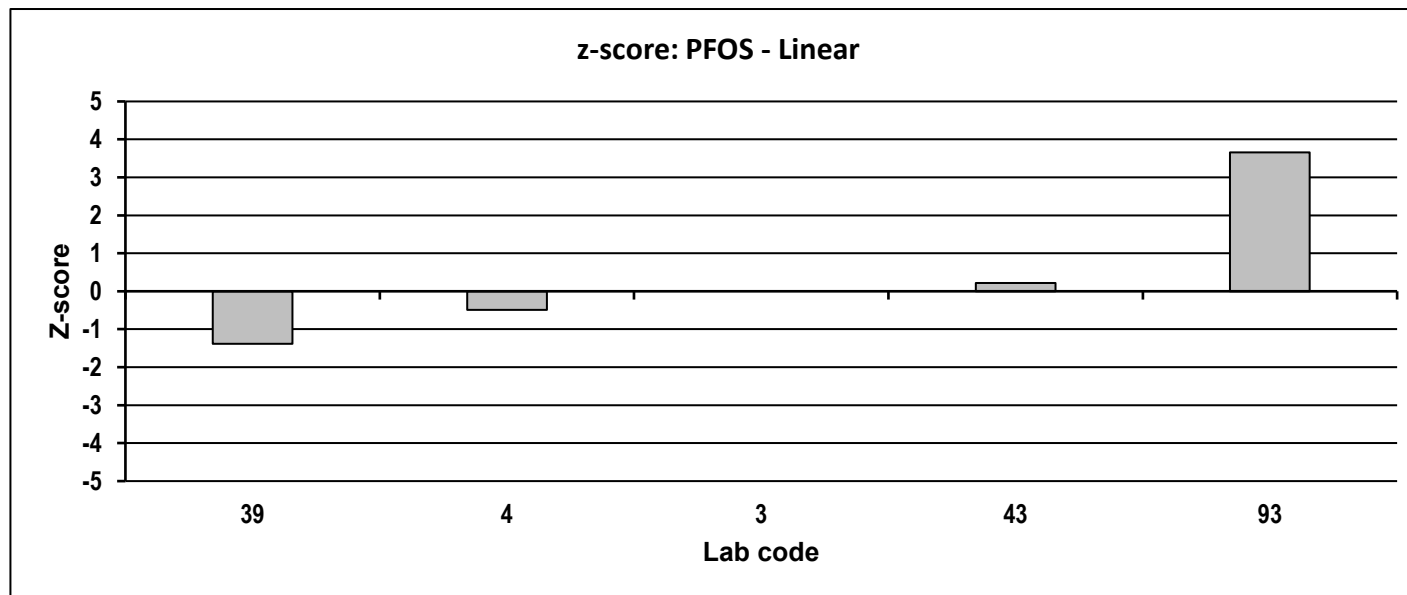
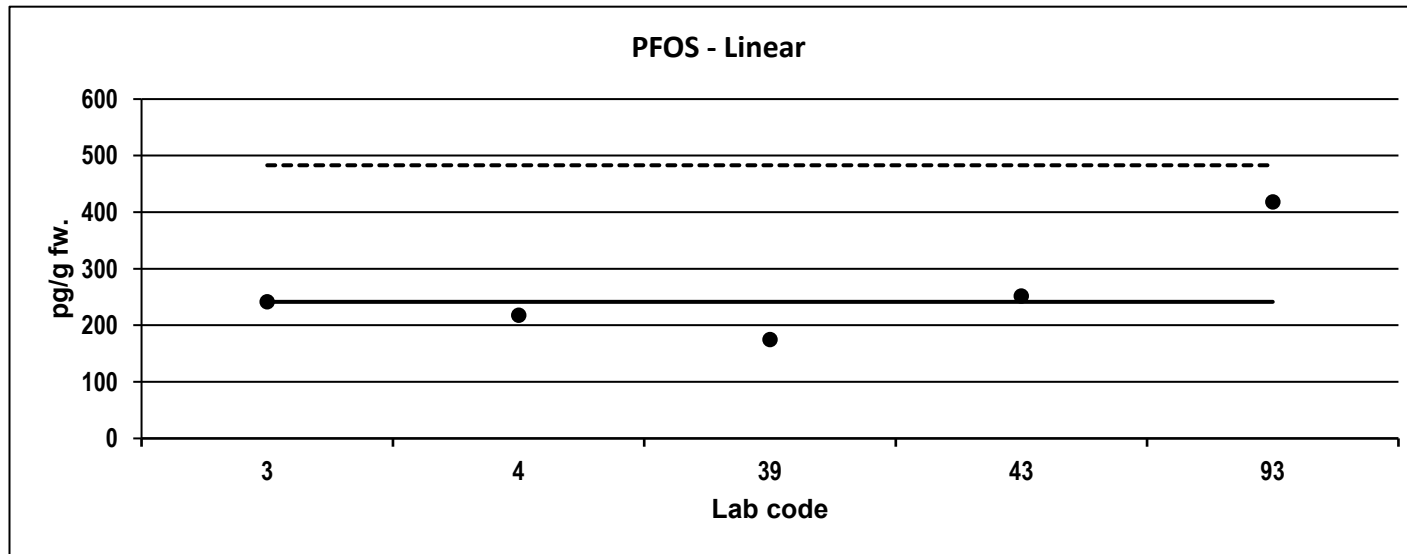


Halibut
PFOS - Linear

Lab code	pg/g fw.	Z-score	Notes
3	241	0,0000	
4	218	-0,49	
39	175	-1,4	
43	252	0,22	
93	418	3,7	

Consensus statistics

Consensus median, pg/g	241
Median all values pg/g	241
Consensus mean, pg/g	261
Standard deviation, pg/g	93
Relative standard deviation, %	36
No. of values reported	5
No. of values removed	0
No. of reported non-detects	0

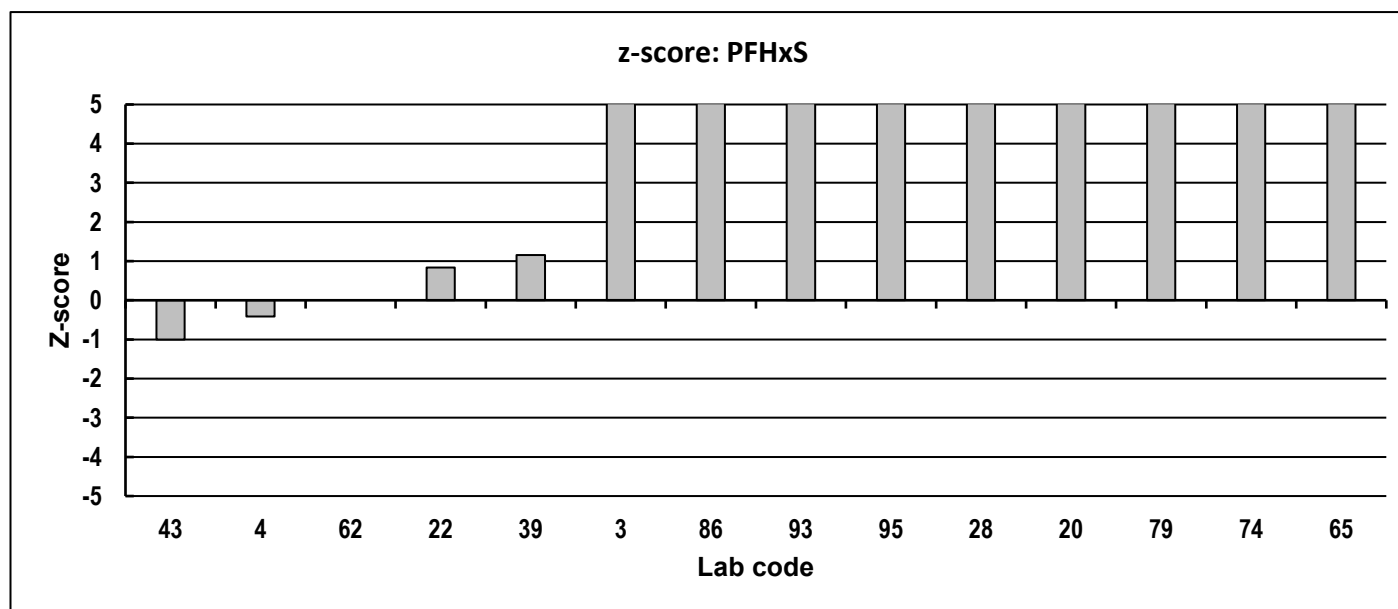
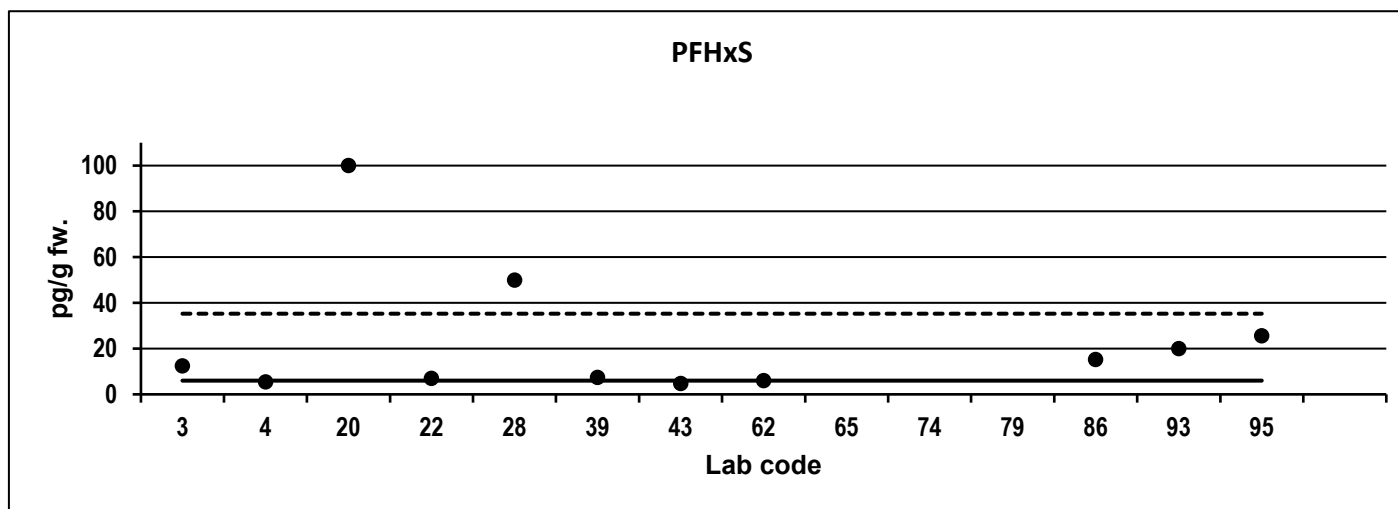


Halibut
PFHxS

Lab code	pg/g fw.	Z-score	Notes
3	12	5,3	
4	6	-0,42	
20	100	78	ND, Outlier
22	7	0,83	ND
28	50	37	ND, Outlier
39	7	1,2	
43	5	-1,0	
62	6	0,0000	
65	800	662	ND, Outlier
74	530	437	Outlier
79	200	162	Outlier
86	15	7,7	ND
93	20	12	ND
95	26	16	ND

Consensus statistics

Consensus median, pg/g	6
Median all values pg/g	18
Consensus mean, pg/g	7
Standard deviation, pg/g	3
Relative standard deviation, %	42
No. of values reported	14
No. of values removed	9
No. of reported non-detects	7

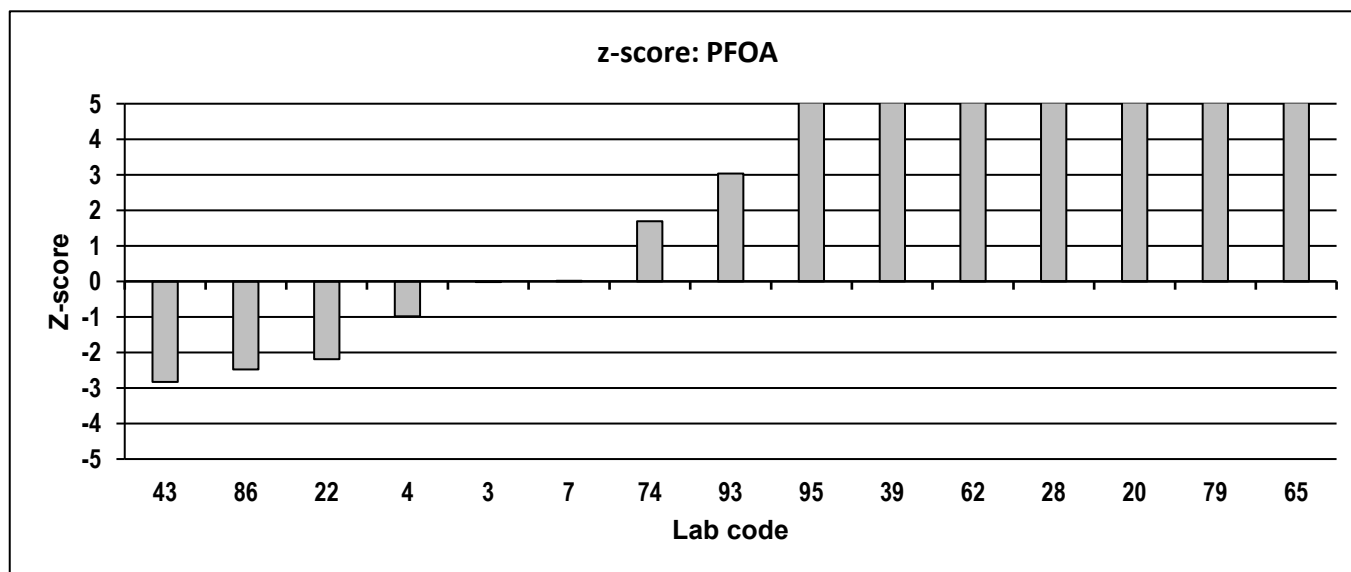
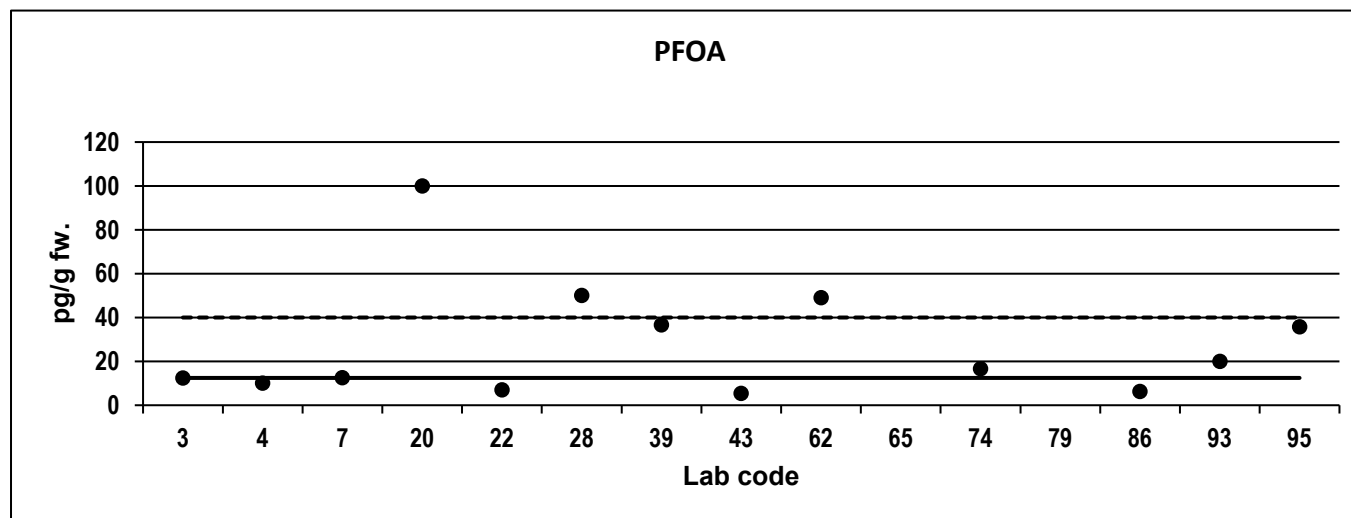


Halibut
PFOA

Lab code	pg/g fw.	Z-score	Notes
3	12	-0,019	
4	10	-0,98	ND
7	13	0,019	
20	100	35	ND, Outlier
22	7	-2,2	ND
28	50	15	ND, Outlier
39	37	9,7	
43	5	-2,8	
62	49	15	Outlier
65	800	316	ND, Outlier
74	17	1,7	ND
79	197	74	Outlier
86	6	-2,5	ND
93	20	3,0	ND
95	36	9,4	ND

Consensus statistics

Consensus median, pg/g	12
Median all values pg/g	20
Consensus mean, pg/g	17
Standard deviation, pg/g	14
Relative standard deviation, %	82
No. of values reported	15
No. of values removed	11
No. of reported non-detects	9



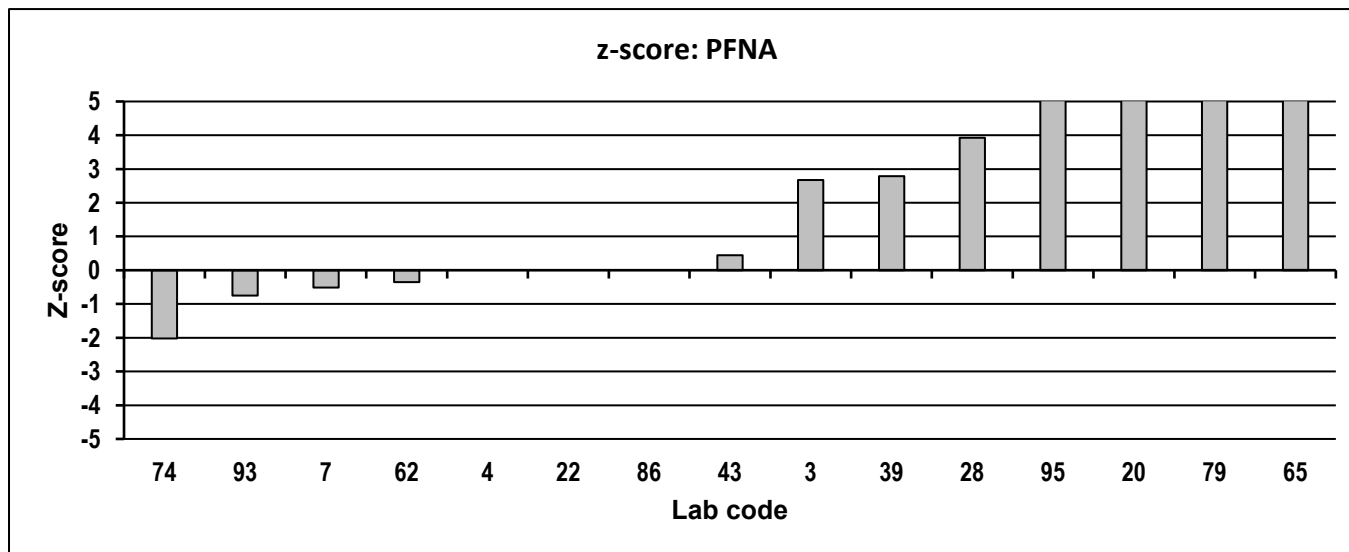
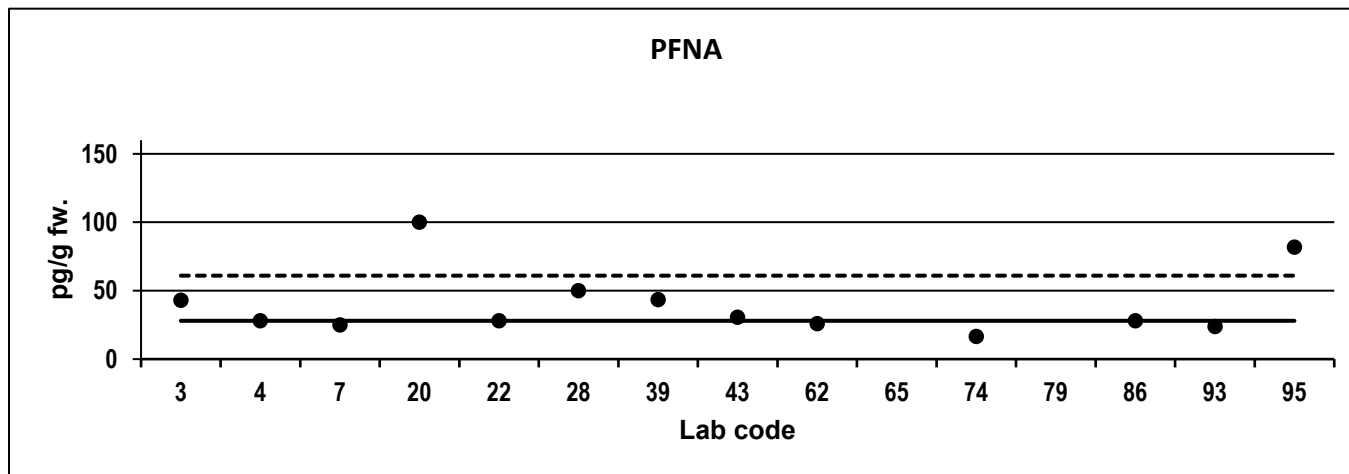
Halibut

PFNA

Lab code	pg/g fw.	Z-score	Notes
3	43	2,7	
4	28	0,0000	
7	25	-0,52	
20	100	13	ND, Outlier
22	28	0,0000	
28	50	3,9	ND
39	44	2,8	
43	31	0,45	
62	26	-0,36	
65	800	138	ND, Outlier
74	17	-2,0	ND
79	346	57	Outlier
86	28	0,0000	
93	24	-0,75	
95	82	9,6	Outlier

Consensus statistics

Consensus median, pg/g	28
Median all values pg/g	31
Consensus mean, pg/g	31
Standard deviation, pg/g	7
Relative standard deviation, %	24
No. of values reported	15
No. of values removed	6
No. of reported non-detects	4

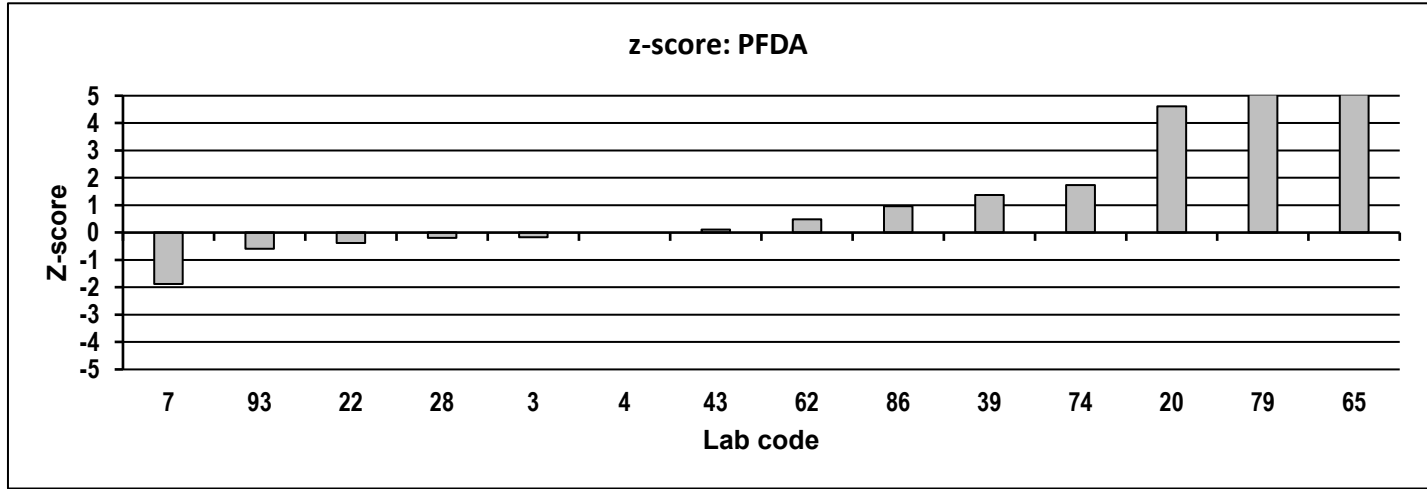
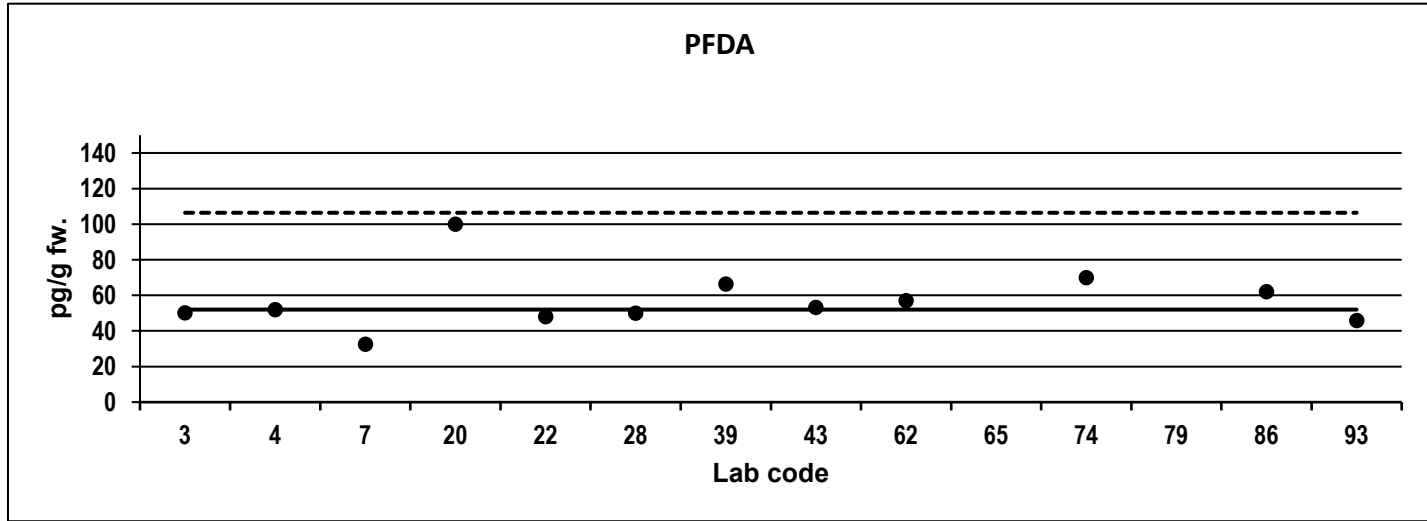


Halibut
PFDA

Lab code	pg/g fw.	Z-score	Notes
3	50	-0,17	ND
4	52	0,0000	
7	33	-1,9	
20	100	4,6	
22	48	-0,38	
28	50	-0,19	ND
39	66	1,4	
43	53	0,12	
62	57	0,48	ND, Outlier
65	800	72	
74	70	1,7	
79	189	13	ND, Outlier
86	62	0,96	
93	46	-0,59	
95	46	-0,62	

Consensus statistics

Consensus median, pg/g	52
Median all values pg/g	53
Consensus mean, pg/g	53
Standard deviation, pg/g	11
Relative standard deviation, %	20
No. of values reported	15
No. of values removed	4
No. of reported non-detects	4

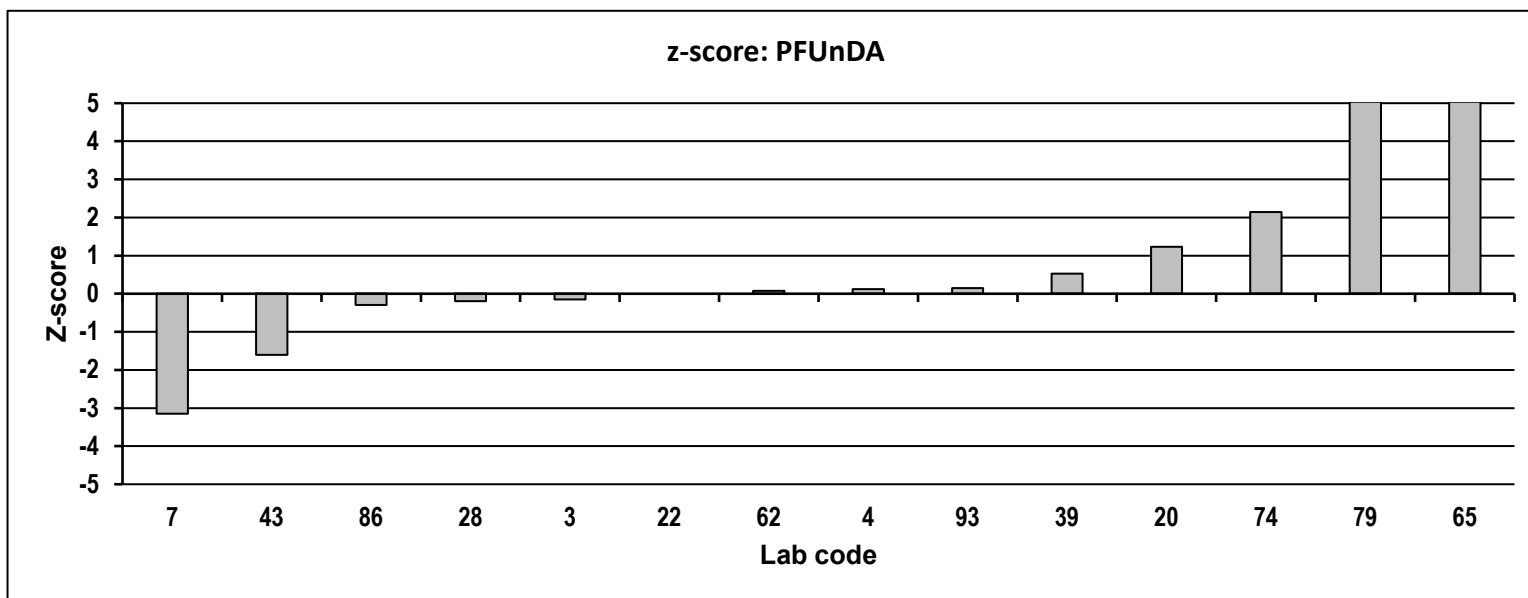
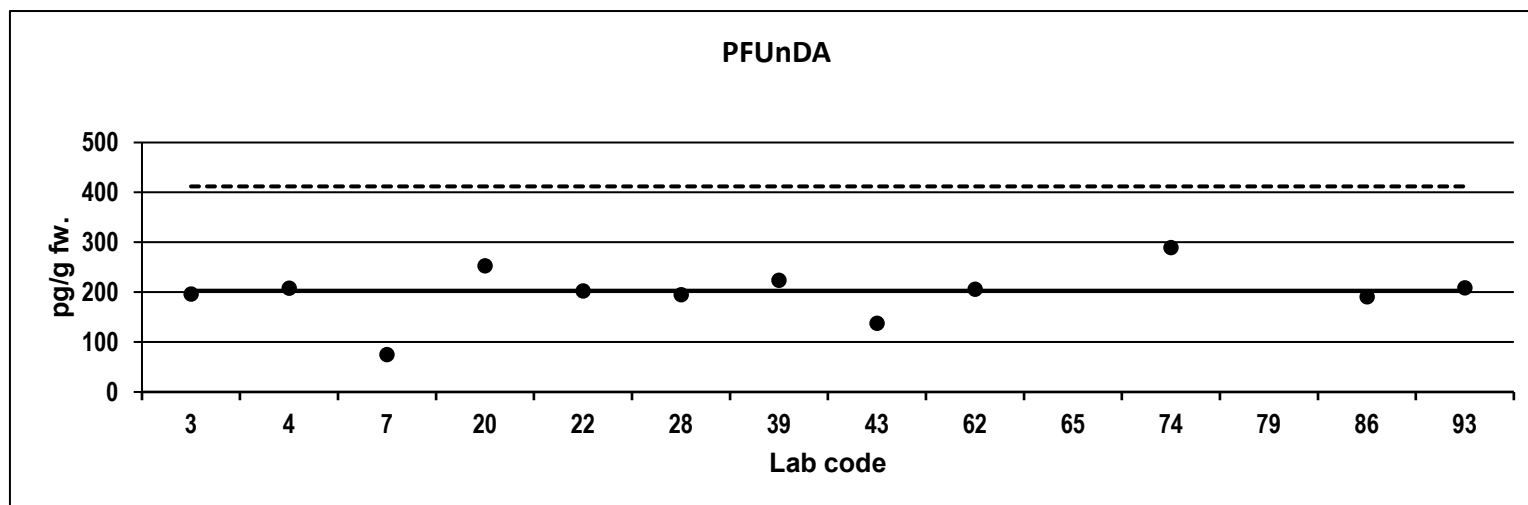


Halibut
PFUnDA

Lab code	pg/g fw.	Z-score	Notes
3	197	-0,15	
4	208	0,12	
7	75	-3,2	
20	253	1,2	
22	203	0,0000	
28	195	-0,20	
39	224	0,53	
43	138	-1,6	
62	206	0,074	
65	800	15	ND, Outlier
74	290	2,1	
79	619	10	Outlier
86	191	-0,30	
93	209	0,15	
95	184	-0,48	

Consensus statistics

Consensus median, pg/g	203
Median all values pg/g	206
Consensus mean, pg/g	198
Standard deviation, pg/g	51
Relative standard deviation, %	26
No. of values reported	15
No. of values removed	2
No. of reported non-detects	1



Appendix 6:

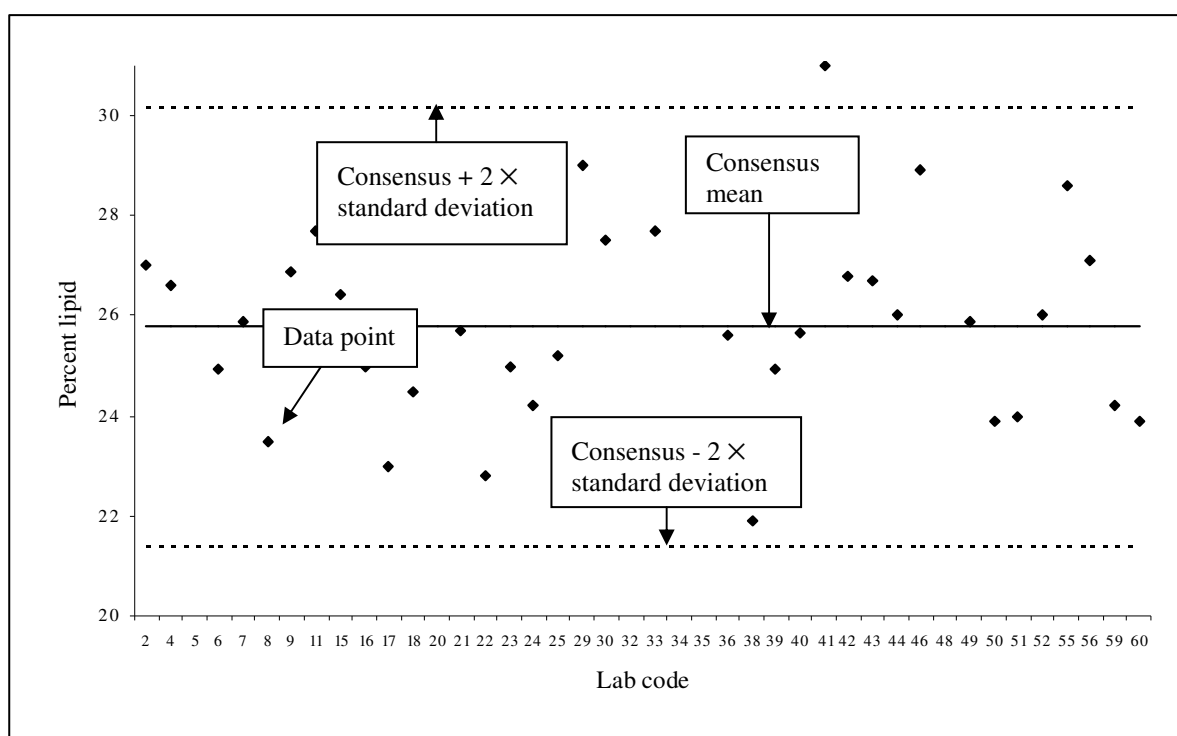
Presentation of results
for lipid determination

Presentation of results for lipid determination

Removal of outliers and calculation of consensus were done by the following procedure:

1. The mean was calculated from all the reported data.
2. Values outside a range of $\pm 2 \times$ the standard deviation of this mean were defined as outliers and removed from the data set.
3. Mean, standard deviation and median were re-calculated from the remaining data. This mean was called consensus.

The diagram shows the reported data with consensus and consensus $\pm$ the new standard deviation $\times 2$.



Z-Scores of lipid content

Z-scores of lipid content were calculated for each laboratory according to the following equation:

$$z = (x - X)/\sigma$$

where x = reported value; X = assigned value (consensus); σ = target value for standard deviation. A σ of 20% of the consensus was used, i.e. z-scores between +1 and -1 reflect a deviation of $\pm 20\%$ from the consensus value.

Lipid determination for Fish oil

Lab code	% lipid	Z-score	Notes	Lab code	% lipid	Z-score	Notes
3	100	0,0000					
4	100	0,0000					
6	100	0,0000					
7	100	0,0000					
11	100	-0,0060					
14	100	0,0000					
15	100	0,0000					
18	94	-0,31	Outlier				
20	100	0,0000					
22	100	0,0000					
25	100	0,0000					
28	100	0,0000					
30	100	-0,0070					
32	100	0,0000					
39	100	0,0000					
40	100	-0,0050					
43	100	0,0000					
48	99	-0,029					
52	100	0,0000					
54	100	0,0000					
58	100	0,0000					
62	100	0,0000					
65	100	0,0000					
70	100	0,0000					
79	100	0,0000					
80	100	0,0000					
84	100	0,0000					
93	100	0,0000					
98	100	0,0000					
100	100	0,0000					
106	100	0,0000					
108	100	0,0000					

Mean	Standard deviation	Relative standard deviation	Median
100	0,11	0,11	100

Lipid determination for Salmon

[illegible]

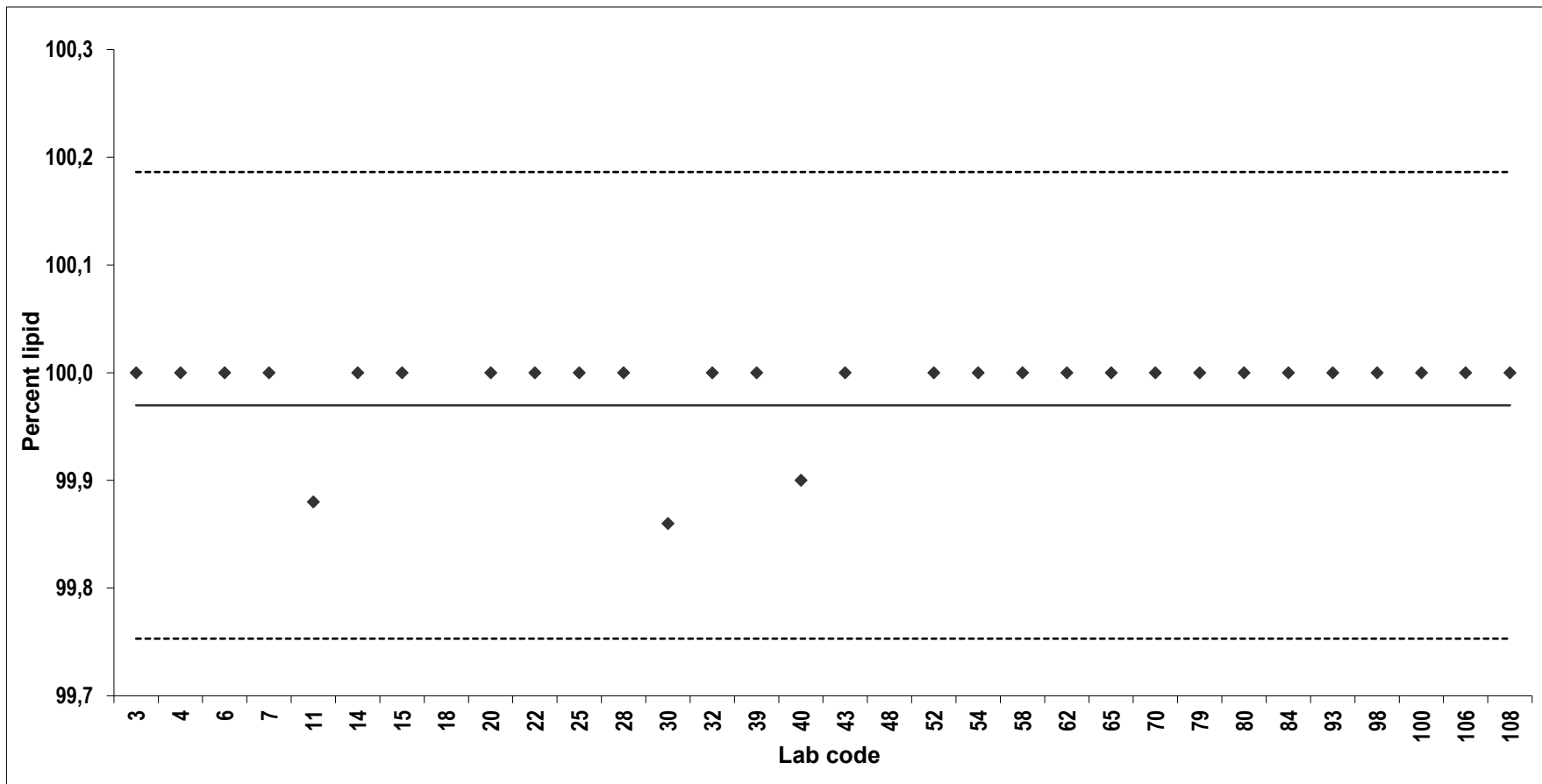
Mean	Standard deviation	Relative standard deviation	Median
14	1,4	9,9	14

Lipid determination for Lamb

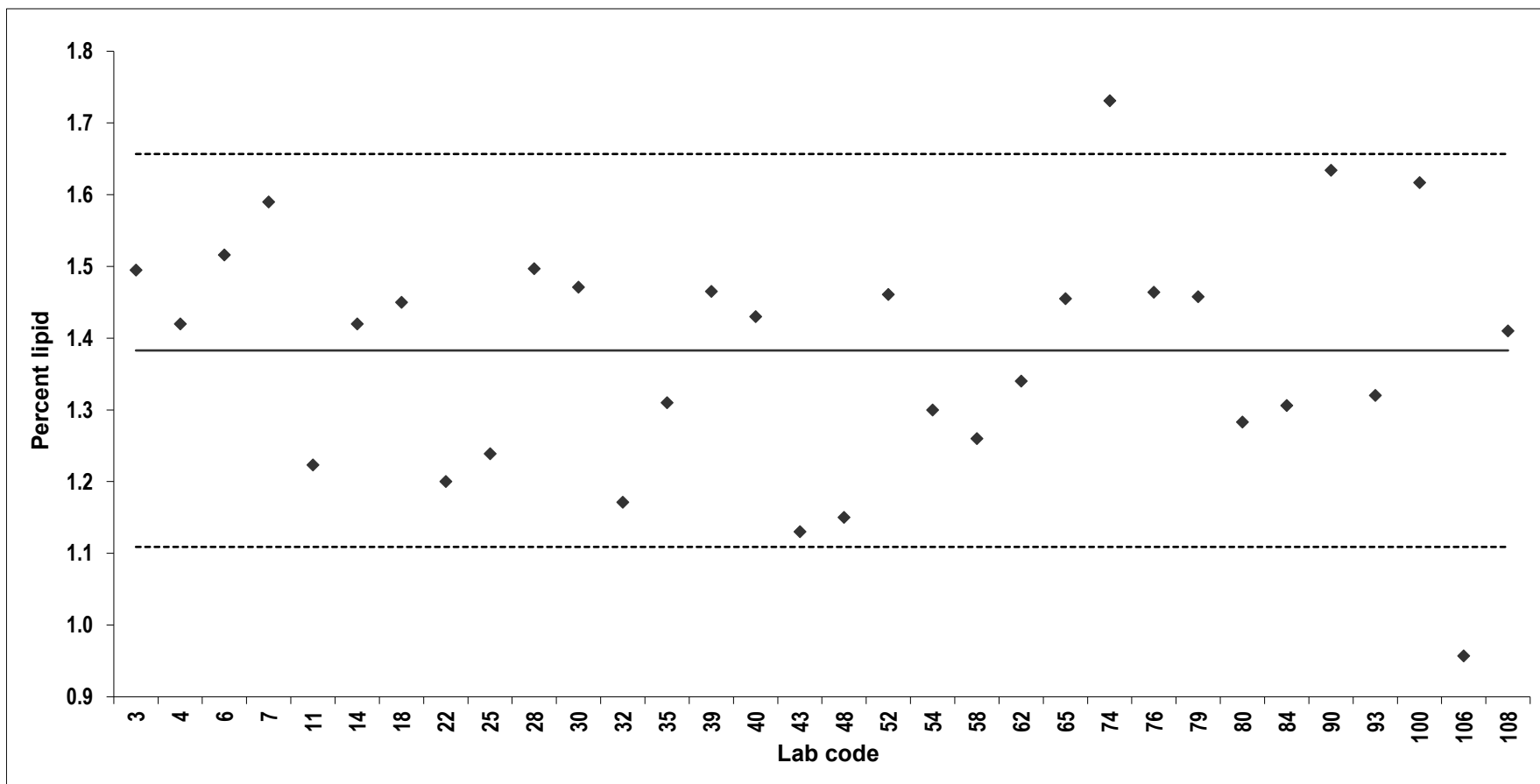
[illegible]

Mean	Standard deviation	Relative standard deviation	Median
14	1,1	7,8	14

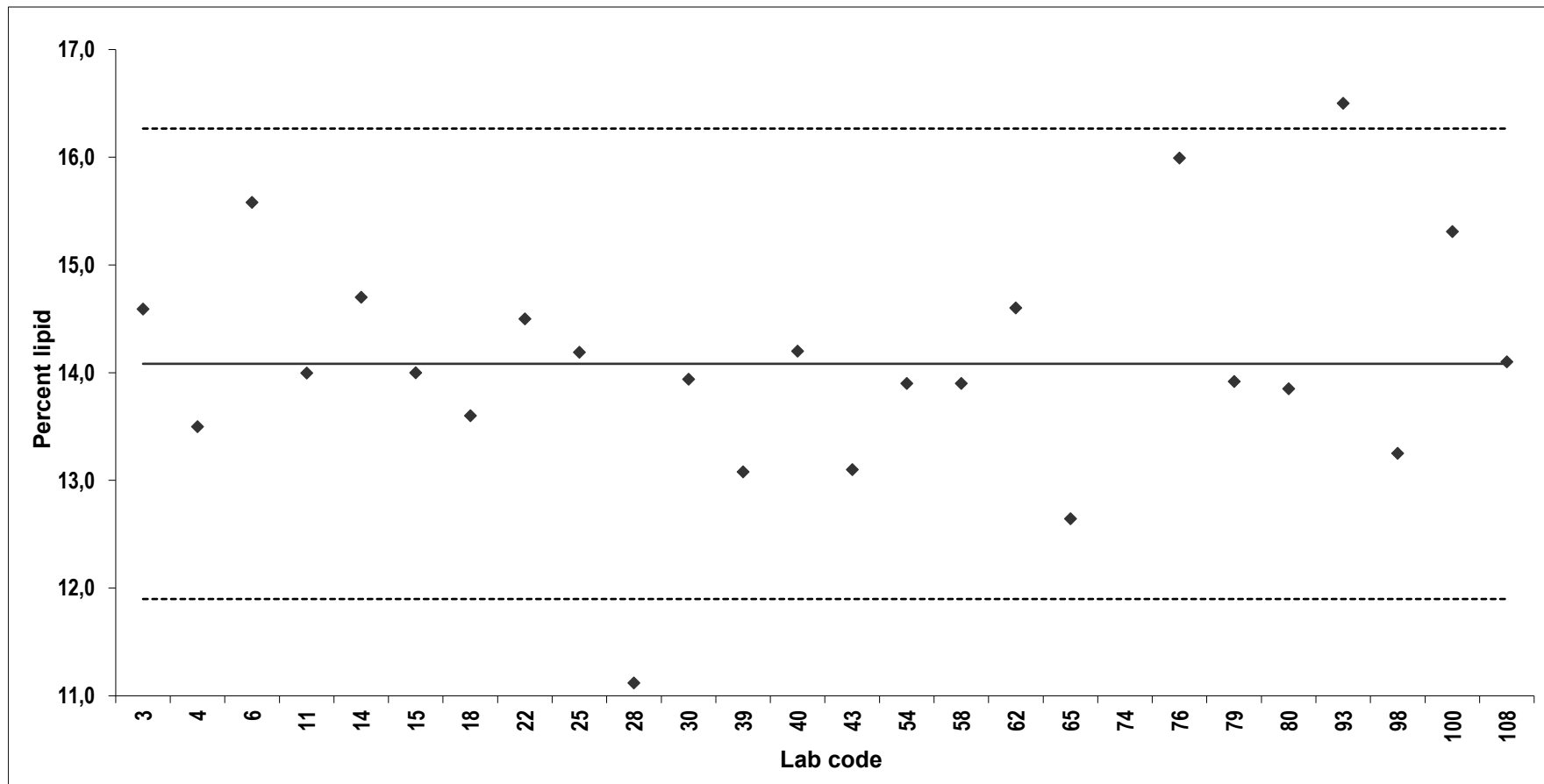
Lipid determination; Fish oil



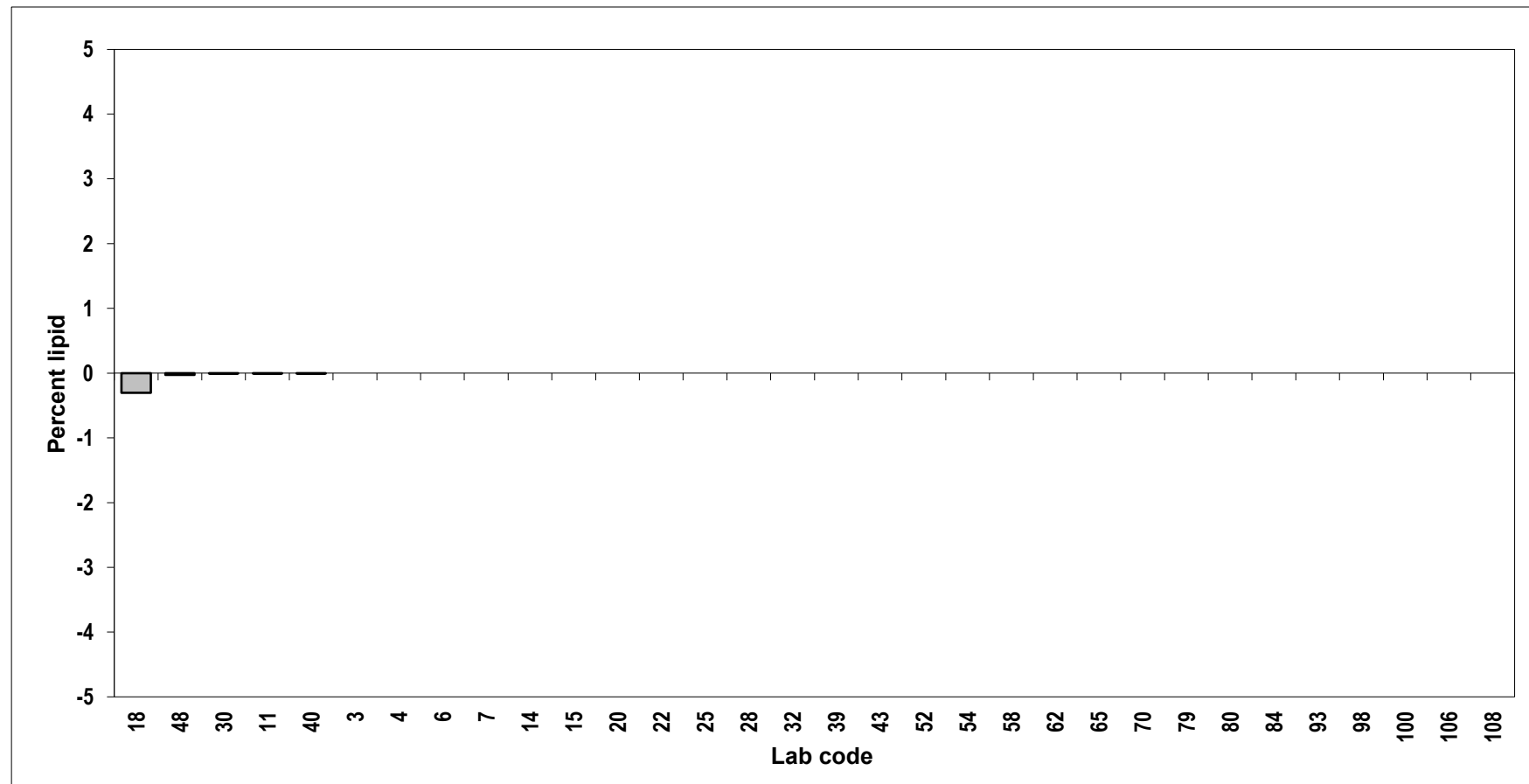
Lipid determination; Salmon



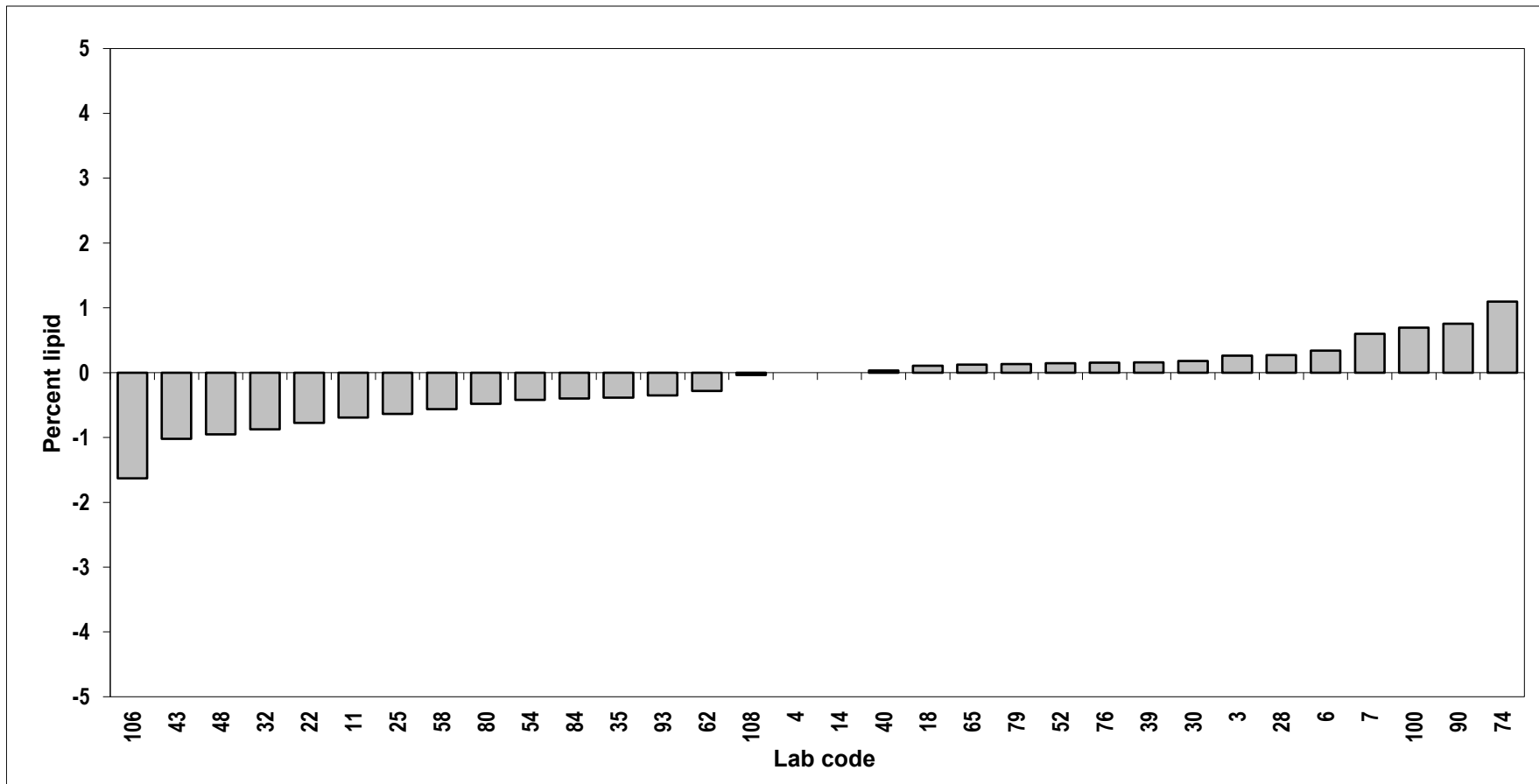
Lipid determination; Lamb



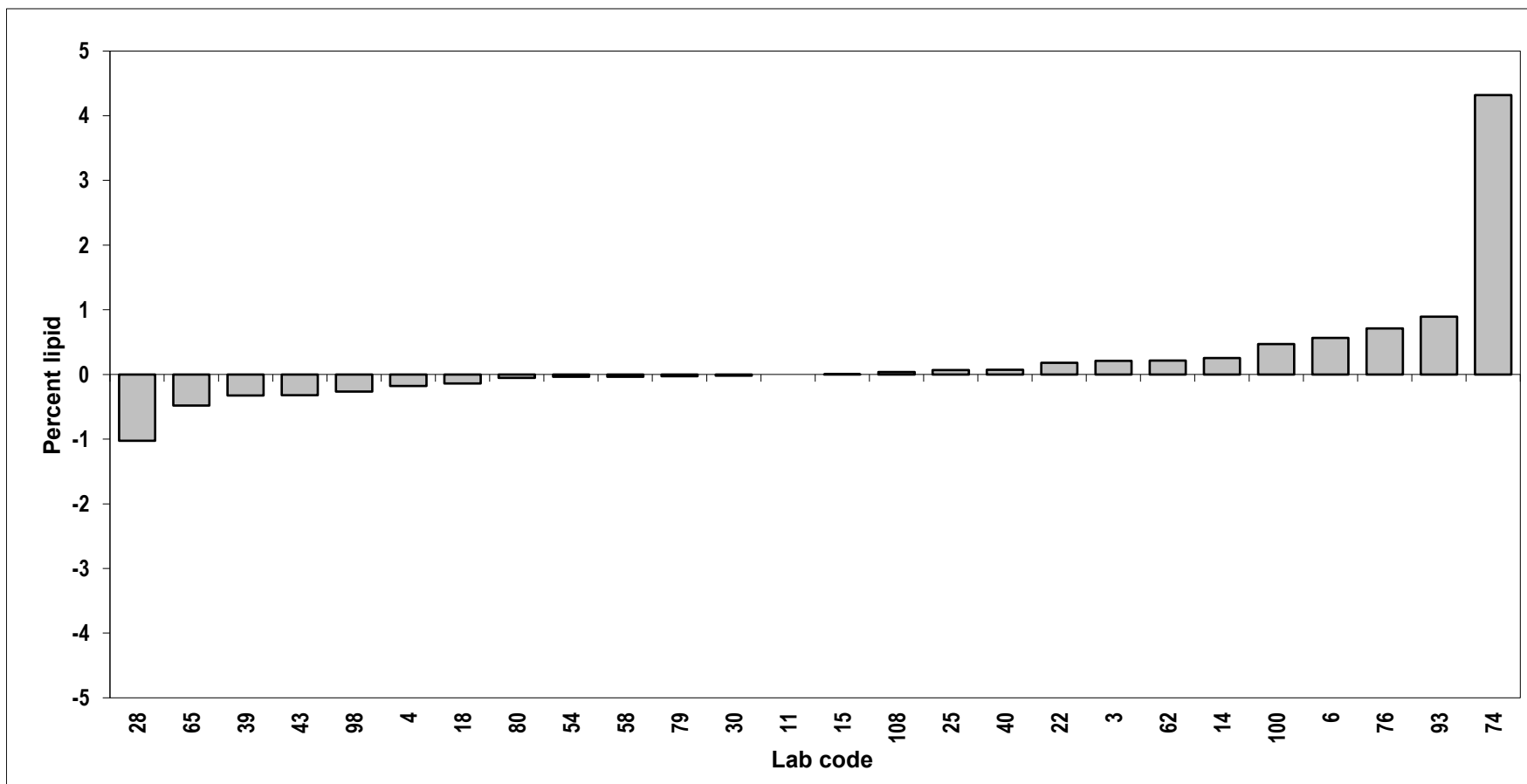
Z-score lipid determination; Fish oil



Z-score lipid determination; Salmon



Z-score lipid determination; Lamb



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