**Additional files**

**Distribution of 31 endocrine disrupting compounds in the Taihu Lake and application of the fish plasma model**

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*Chemicals and standards*

The information of CAS, molecular weight, structural formula and log KOW of the 31 selected EDCs can be seen in Table S1. The analytes included seven estrogens, eight androgens, six progesterones, five adrenocortical hormones and five industrial compounds. 31 typical EDCs including seven estrogens, eight androgens, six progesterones, five adrenocortical hormones and five industrial compounds were selected as the target substances. Cortisone (Corti, high-purity) was purchased from ANPEL (Shanghai,China), Norethisterone (North, 1000 mg/L in 1 mL methanol) was purchased from O2SI (America), Epitestosterone ( Epite, 1.0 mg/L in 1 mL acetonitrile）was purchased from Cerilliant (America), Progesterone-D9a(Proges-D9, 100 mg/L in 1 mL acetonitrile), Testosterone-D3a (TES-D3, 100 mg/L in 1 mL acetonitrile) were purchased from Cerilliant (America), Diethylstilbestrol (DES, 100 μg/mL in 1.2 mL Dioxane) were purchased from CIL (America), Estrone-D2a (E1-D2,high-purity), Norgestrel-D6a(North-D6, 1000 mg/L) were purchased from CDN(America), Nandrolone Phenylpropionate (Nan-phen, 98%) were purchased from USP(America)，27 solid-state standards such as Estrone (E1, high-purity), Estradiol (E2, high-purity), Estriol (E3,high-purity), Diethylstilbestrol(DES, high-purity), Hexestrol (Hexe, high-purity), Estradiolbenzoate, (E2-ben, high-purity), Dienoestrol (Dieno, high-purity), Testosterone (TES,high-purity), Methyltestosterone (Me-TES,high-purity), 19-Nortestosterone (Nortes,high-purity), Trenbolone (Tren,high-purity), Testosteronepropionate (TES-pro, high-purity), Boldenone(Bold, high-purity), D (-)-Norgestrel (Norges,97%), Progesterone (Proges, high-purity), Medroxy Progesterone (Me-pro,high-purity), MegestrolAcetate (Me-ace, high-purity), Hydroxyprogesterone (Hydrop,high-purity), Prednisone (Predn, high-purity), Dexamethasone (Dexa,high-purity), Prednisolone (Prednl,high-purity), Methylprednisolone (Me-Prednl, high-purity), 4-n-NonylPhenol (NP, high-purity ), 4-n-OctylPhenol (OP, high-purity), Bisphenol S(BPS, 98.0%, Bisphenol F (BPF , high-purity), Bisphenol A (BPA , high-purity) were purchased from Dr. Ehrenstorfer Dr. ehrenstorfer (Augsburg, Germany). HPLC-grade heparin sodium, methanol and acetonitrile were obtained from Merck (Darmstadt, Germany); GC–MS-grade formic acid, 0.22 μm Polytetrafluoroethylene (PTFE) membrane were purchased from ANPEL (Shanghai, China),Glass fiber membrane (40 mm, 0.7 μm, GF/F) was purchased from Whatman (Middlesex, UK).

Milli-Q water was obtained from a Millipore system (Billerica, MA, USA). Individual stock solutions of the studied compounds were prepared in methanol and stored in amber glass vials at –20°C. Methanol and acetonitrile were purchased from Merck (Darmstadt, Germany). MCX extraction cartridges (500 mg, 6 mL) were purchased from Waters (Millford, MA, USA). Ammonia water and ammonium acetate were purchased from Sigma-Aldrich (St. Louis, MO, USA). All other reagents were of analytical grade, and N2 (99.995%) was purchased from Spring Rain Special Gas (Shanghai, China).

*Analytical determination of EDCs*

UPLC-MS/MS analysis was performed using a Waters Xevo TQ MS Instrument Platform (Milford, MA, USA). The platform was consist of ultra performance liquid chromatography, binary pump, gradient elution system, sample pan (4℃), autosampler and BEH C18 column (1.7 μm, 150 mm × 2.1 mm (i.d.), Waters, Milford, MA, USA). The platform was operated by Masslynx(V4.1). The sample injection volume was 5 μL. The column temperature was kept at 50 °C. The mobile phases were (A) 0.025% (m/v) ammonium hydroxide in MilliQ water and (B) MeOH with the following gradient: from 35% to 95% (B) in 0-5 min; keeping 95% (B) in 5-10.5 min; from 95% to 35% (B) in 10-10.5 min; keeping 35% (B) in 10.5-14 min.

The samples were detected by multiple reaction monitoring (MRM**)** mode with positive-negative electrospray ionization. Nitrogen (99.5% purity) was used as the desolvation gas at a flow of 500 L·Hr -1. The desolvation temperature was set at 150℃, the source temperature at 150℃ and the capilarity voltage at 3.2kV. Details about MS parameters and retention time of the 31 EDCs were shown in Table S3 (Supplementary material).

Quantitative standard curve was obtained by plotting the ratio of the compound peak area with the internal standard (10 ng/L) peak area versus their concentrations. A series of mixed standard solutions were prepared (0, 0.1, 0.5, 1, 2, 5, 10, 20, 50, 100, 200 ng/L) to evaluate the linearity. The analytical performance of the SPE-HPLC-MS/MS method was satisfying for target compounds, with wide liner ranges and good correlation coefficients (*R*2 > 0.99). The limits of detection (LODs) and limits of quantification (LOQs) of 31 EDCs ranged from 0.01 to 3.00 ng L-1 and from 0.05 to 12.00 ng/L, respectively. The average recoveries of the 31 EDCs spiked in surface water samples ranged from 60% -128%. All the relative standard deviations of EDCs were less than 25%.Analysis of reagent blanks demonstrated that the analytical system and glassware were free of contamination. Details of the analytical performance was shown in Table S4 (Supplementary material).

Table S1 CAS, molecular weight, structural formula and logKow of the 31 selected EDCs

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Category | Compounds | Abbreviation | CAS  | Structural formula | log Kow |
| Estrogens  | Estrone | E1 | [53-16-7](http://www.ichemistry.cn/chemistry/53-16-7.htm) | d:\program files\360se6\User Data\temp\53-16-7.png | 3.13 |
| Estradiol | E2 | [50-28-2](http://www.ichemistry.cn/chemistry/50-28-2.htm) | CAS:50-28-2分子结构 | 4.01 |
| Estriol | E3 | [50-27-1](http://www.ichemistry.cn/chemistry/50-27-1.htm) | d:\program files\360se6\User Data\temp\50-27-1.png | 2.45 |
| Diethyl-stilbestrol | DES | [56-53-1](http://www.ichemistry.cn/chemistry/56-53-1.htm) | d:\program files\360se6\User Data\temp\56-53-1.png | 5.07 |
| Hexestrol | Hexe | [84-16-2](http://www.ichemistry.cn/chemistry/84-16-2.htm) | CAS:84-16-2分子结构 | 4.98 |
| Estradiol benzoate | E2-ben | [50-50-0](http://www.ichemistry.cn/chemistry/50-50-0.htm) | d:\program files\360se6\User Data\temp\50-50-0.png | 5.47 |
| Dienoestrol | Dieno | [84-17-3](http://www.ichemistry.cn/chemistry/84-17-3.htm) | CAS:84-17-3分子结构 | 5.9 |
| Androgens  | Nandrolone Phenylpropionate | Nan-phen | [62-90-8](http://www.ichemistry.cn/chemistry/62-90-8.htm) | CAS:62-90-8分子结构 | 2.62 |
| Testosterone | TES | [58-22-0](http://www.ichemistry.cn/chemistry/58-22-0.htm) | CAS:58-22-0分子结构 | 2.99 |
| Methyl-testosterone | Me-TES | [58-18-4](http://www.ichemistry.cn/chemistry/58-18-4.htm) | CAS:58-18-4分子结构 | 3.61 |
| 19-Nortes-tosterone | Nortes | [434-22-0](http://www.ichemistry.cn/chemistry/434-22-0.htm) | CAS:434-22-0分子结构 | 2.78 |
| Trenbolone | Tren | [10161-33-8](http://www.ichemistry.cn/chemistry/10161-33-8.htm) | CAS:10161-33-8分子结构 | 2.65 |
| Testosterone propionate | TES-pro | [57-85-2](http://www.ichemistry.cn/chemistry/57-85-2.htm) | CAS:57-85-2分子结构 | 3.65 |
| Boldenone | Bold  | [846-48-0](http://www.ichemistry.cn/chemistry/846-48-0.htm) | CAS:846-48-0分子结构 | 3.08 |
| Epitestosterone | Epite | [481-30-1](http://www.ichemistry.cn/chemistry/481-30-1.htm) | CAS:481-30-1分子结构 | 3.32 |
| Progesterones  | Progesterone | Proges | [57-83-0](http://www.ichemistry.cn/chemistry/57-83-0.htm) | CAS:57-83-0分子结构 | 3.87 |
| Norethisterone | Noreth | [68-22-4](http://www.ichemistry.cn/chemistry/68-22-4.htm) | CAS:68-22-4分子结构 | 2.97 |
| D（-）-Norgestrel | Norges | [797-63-7](http://www.ichemistry.cn/chemistry/797-63-7.htm) | CAS:797-63-7分子结构 | 3.8 |
| Medroxy Progesterone | Me-pro | 520-85-4 | d:\program files\360se6\User Data\temp\520-85-4.png | 3.5 |
| Megestrol Acetate | Me-ace | [595-33-5](http://www.ichemistry.cn/chemistry/595-33-5.htm) | CAS:595-33-5分子结构 | 3.2 |
| Hydroxyprogesterone | Hydrop | [68-96-2](http://www.ichemistry.cn/chemistry/68-96-2.htm) | CAS:68-96-2分子结构 | 3.16 |
| Glucocorticoids  | Prednisone | Predn | [53-03-2](http://www.ichemistry.cn/chemistry/53-03-2.htm) | CAS:53-03-2分子结构 | 1.46 |
| Cortisone | Corti | [53-06-5](http://www.ichemistry.cn/chemistry/53-06-5.htm) | CAS:53-06-5分子结构 | 1.47 |
| Dexamethasone | Dexa | [50-02-2](http://www.ichemistry.cn/chemistry/50-02-2.htm) | CAS:50-02-2分子结构 | 1.83 |
| Prednisolone | Prednl | [50-24-8](http://www.ichemistry.cn/chemistry/50-24-8.htm) | CAS:50-24-8分子结构 | 1.62 |
| Methylprednisolone | Me-prednl | [83-43-2](http://www.ichemistry.cn/chemistry/83-43-2.htm) | CAS:83-43-2分子结构 | 1.5 |
| Industrial compounds. | 4-n-Nonyl Phenol | NP | 104-40-5 | d:\program files\360se6\User Data\temp\104-40-5.png | 5.76 |
| 4-n-Octyl Phenol | OP | [1806-26-4](http://www.ichemistry.cn/chemistry/1806-26-4.htm) | CAS:1806-26-4分子结构 | 5.5 |
| Bisphenol S | BPS | [80-09-1](http://www.ichemistry.cn/chemistry/80-09-1.htm) | CAS:80-09-1分子结构 | 1.65 |
| Bisphenol F | BPF | [620-92-8](http://www.ichemistry.cn/chemistry/620-92-8.htm) | CAS:620-92-8分子结构 | 2.91 |
| Bisphenol A | BPA | [80-05-7](http://www.ichemistry.cn/chemistry/80-05-7.htm) | CAS:80-05-7分子结构 | 3.32 |

Logkow obtaiend from http://www.chemspider.com/Chemical-Structure.64326.ht

Table S2 Common names, Chinese name, scientific names, sampling number (N), Length and weight of wild fish from the Taihu Lake

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Common Name  | Chinese Name (abbreviation) | Scientific Name | Number | Length/cm (range, Average) | Weight/g (range, Average) |
| Carp  | Liyu (LY) | Cyprinus-carpio |  8 | 17 to 28, 23.63 (3.74) | 78 to 430, 240.75 (125.45) |
| Crucian carp | Jiyu (JY) | Carassiu-sauratus | 9 | 17 to 24,18.55 (2.24) | 80 to 186, 118.33 (29.87) |
| Spotted silver carp) | Hualian (HL) | *Aristich-thysnobilis* | 8 | 18 to 20, | 89 to 96 |
|  |  |  |  | 19.63 (0.74) | 93.13 (3.48) |
| White stripe  | Baitiao (BT) | Anabarilius | 8 | 20 to 24,21.88 (1.55) | 62 to 119,88.50 (20.40) |
| Silver carp | Bailian (BL ) | *Hypophthalmi-chthy*smolitrix | 5 | 23 to 35,26.20 (5.56) | 62 to 420232.40 (165.40) |

Table S3 MS parameters and retention time of 31 EDCs

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Compounds | Internalstandards | Precursor ions(m/z) | Quantitative ion(m/z) | Cone voltage/(V) | Collision energy/(eV) | Ionization mode | Retention time/(min) |
| Predn | Proges-D9 | 359.23 | 147.09 | 26 | 22 | ES+ | 4.57 |
|  |  |  | 323.21 |  | 12 |  |  |
| Corti | Proges-D9 | 361.29 | 163.11 | 40 | 24 | ES+ | 4.64 |
|  |  |  | 121.13 |  | 30 |  |  |
| Me-Prednl | Proges-D9 | 375.36 | 161.10 | 26 | 12 | ES+ | 5.33 |
|  |  |  | 339.27 |  |  |  |  |
| Prednl | Proges-D9 | 361.29 | 147.10 | 24 | 26 | ES+ | 4.86 |
|  |  |  | 121.06 | 24 | 38 |  |  |
| Dexa | Proges-D9 | 393.33 | 373.23 | 24 | 6 | ES+ | 5.22 |
|  |  | 355.21 |  | 12 |  |  |
| BPF | DES-D8 | 199.11 | 92.95 | 40 | 22 | ES- | 4.34 |
|  |  |  | 105.00 |  | 22 |  |  |
| BPS | DES-D8 | 249.06 | 108.00 | 48 | 28 | ES- | 1.55 |
|  |  |  | 91.98 |  | 34 |  |  |
| BPA | DES-D8 | 227.15 | 212.08 | 42 | 16 | ES- | 5.12 |
|  |  |  | 133.06 |  | 26 |  |  |
| NP | DES-D8 | 219.21 | 106.04 | 44 | 20 | ES- | 7.78 |
| OP | DES-D8 | 205.20 | 106.05 | 38 | 20 | ES- | 7.48 |
| Bold | TES-D3 | 287.22 | 121.08 | 28 | 24 | ES+ | 5.56 |
|  |  |  | 135.14 |  | 16 |  |  |
| TES | TES-D3 | 289.23 | 97.05 | 36 | 20 | ES+ | 5.91 |
|  |  |  | 109.10 |  | 22 |  |  |
| Nortes | TES-D3 | 275.22 | 109.09 | 36 | 26 | ES+ | 5.67 |
|  |  |  | 239.19 |  | 16 |  |  |
| Me-TES | TES-D3 | 303.30 | 97.05 | 36 | 22 | ES+ | 6.13 |
|  |  |  | 109.09 |  | 26 |  |  |
| TES-pro | TES-D3 | 345.33 | 97.05 | 34 | 24 | ES+ | 7.21 |
|  |  |  | 109.09 |  | 26 |  |  |
| Nan-phen | TES-D3 | 407.35 | 105.06 | 40 | 30 | ES+ | 7.55 |
| Tren | TES-D3 | 271.19 | 199.10 | 40 | 24 | ES+ | 5.46 |
|  |  |  | 107.07 |  | 32 |  |  |
| Epite | TES-D3 | 289.31 | 97.05 | 34 | 22 | ES+ | 6.22 |
|  |  |  | 109.10 |  | 26 |  |  |
| Hydrop | Proges-D9 | 331.30 | 97.05 | 36 | 22 | ES+ | 5.97 |
|  |  |  | 109.1 |  | 26 |  |  |
| North | Proges-D9 | 299.22 | 109.09 | 38 | 28 | ES+ | 5.66 |
|  |  |  | 91.06 |  | 42 |  |  |
| Norges | North-D6 | 313.30 | 109.10 | 36 | 28 | ES+ | 6.02 |
|  |  |  | 91.07 |  | 42 |  |  |
| Me-pro | Proges-D9 | 345.30 | 123.15 | 38 | 24 | ES+ | 6.28 |
|  |  |  | 97.05 |  | 20 |  |  |
| Me-ace | Proges-D9 | 385.36 | 325.28 | 32 | 14 | ES+ | 6.33 |
|  |  |  | 224.23 |  | 28 |  |  |
| Proges | Proges-D9 | 315.30 | 97.05 | 38 | 20 | ES+ | 6.53 |
|  |  |  | 109.09 |  | 26 |  |  |
| Hexe | DES-D8 | 269.19 | 134.09 | 36 | 16 | ES- | 5.78 |
|  |  |  | 118.99 |  | 34 |  |  |
| DES | DES-D8 | 267.25 | 237.18 | 46 | 26 | ES- | 5.55 |
|  |  |  | 93.01 |  | 32 |  |  |
| E2 | E1-D2 | 271.21 | 145.09 | 62 | 40 | ES- | 5.61 |
|  |  |  | 183.04 |  | 40 |  |  |
| E3 | E1-D2 | 287.27 | 171.06 | 64 | 36 | ES- | 4.15 |
|  |  |  | 145.09 |  | 40 |  |  |
| E1 | E1-D2 | 269.26 | 145.02 | 62 | 32 | ES- | 5.68 |
|  |  |  | 159.02 |  | 34 |  |  |
| E2-ben | Proges-D9 | 377.30 | 105.05 | 42 | 22 | ES- | 7.55 |
|  |  |  | 77.06 |  | 52 |  |  |
| Dieno | DES-D8 | 265.23 | 92.95 | 50 | 24 | ES- | 5.67 |
| E1-D2 | - | 271.19 | 145.02 | 54 | 34 | ES- | 5.62 |
|  |  |  | 145.41 |  | 50 |  |  |
| North-D6 | - | 319.30 | 251.29 | 34 | 20 | ES+ | 6.00 |
|  |  |  | 91.18 |  | 40 |  |  |
| TES-D3 | - | 292.30 | 97.05 | 40 | 20 | ES+ | 5.90 |
|  |  |  | 109.10 |  | 22 |  |  |
| Proges-D9 | - | 324.30 | 100.04 | 34 | 22 | ES+ | 6.51 |
|  |  |  | 113.12 |  | 32 |  |  |
| DES-D8 | - | 275.24 | 245.06 | 44 | 32 | ES- | 5.53 |
|  |  |  | 228.01 |  | 40 |  |  |

Table S4 Linear range, correlation coefficients (*r*2), regression equations, LOQ of 31 EDCs and LODs in Water

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Compound | Linear range(ng·L-1) | *r*2 | Regressionequation: | LOD(ng·L-1) | LOQ(ng·L-1) |
| E1 | 2-200 | 0.9900 | *Y* =0.754*X*+0.263 | 1.70 | 6.81 |
| E2 | 2-200 | 0.9919 | *Y* =0.150*X*+0.005 | 1.38 | 5.51 |
| E3 | 2-200 | 0.9874 | *Y* =0.051*X*-0.044 | 0.45 | 1.81 |
| DES | 0.5-200 | 0.9982 | *Y* =1.640*X*-1.010 | 0.27 | 1.07 |
| Hexe | 0.5-200 | 0.9943 | *Y* =1.950*X*-0.306 | 0.17 | 0.69 |
| E2-ben | 0.5-200 | 0.9923 | *Y* =0.217*X*+0.006 | 0.31 | 1.24 |
| Dieno | 5-200 | 0.9932 | *Y* =2.230*X*-0.925 | 3.00 | 12.00 |
| TES | 0.5-200 | 0.9989 | *Y* =0.832*X*-0.008 | 0.33 | 1.31 |
| Me-TES | 0.5-200 | 0.9981 | *Y* =0.812*X*+0.229 | 0.17 | 0.69 |
| Nortes | 1-200 | 0.9952 | *Y* =0.496*X*-0.133 | 0.99 | 3.94 |
| Tren | 1-200 | 0.9953 | *Y* =0.124*X*-0.111 | 0.61 | 0.64 |
| TES-pro | 0.5-200 | 0.9986 | *Y* =2.340*X*-0.155 | 0.04 | 0.12 |
| Bold | 0.5-200 | 0.9965 | *Y* =0.345*X*-0.140 | 0.19 | 0.76 |
| Epite | 2-100 | 0.9935 | *Y* =1.070*X*-0.063 | 1.08 | 1.60 |
| Nan-phen | 1-200 | 0.9925 | *Y* =0.790*X*+0.146 | 0.99 | 3.96 |
| Proges | 0.5-200 | 0.9985 | *Y* =0.373*X*-0.072 | 0.01 | 0.05 |
| North | 1-100 | 0.9963 | *Y* =0.220*X*-0.096 | 0.60 | 2.42 |
| Norges | 0.5-200 | 0.9960 | *Y* =2.430*X*+0.037 | 0.46 | 1.86 |
| Me-pro | 0.5-200 | 0.9989 | *Y* =0.985*X*-0.081 | 0.16 | 0.66 |
| Me-ace | 1-200 | 0.9955 | *Y* =0.107*X*-0.024 | 0.71 | 1.60 |
| Hydrop | 0.5-200 | 0.9982 | *Y* =0.292*X*-0.011 | 0.12 | 0.46 |
| Predn | 2-200 | 0.9967 | *Y* =0.011*X*-0.056 | 1.67 | 6.69 |
| Corti | 0.5-200 | 0.9929 | *Y* =0.077*X*-0.012 | 0.33 | 1.31 |
| Dexa | 5-200 | 0.9934 | *Y* =0.004*X*-0.005 | 1.73 | 3.48 |
| Prednl | 1-200 | 0.9921 | *Y* =0.022*X*-0.007 | 1.00 | 4.02 |
| Me-Prednl | 1-200 | 0.9914 | *Y* =0.012*X*-0.008 | 0.03 | 6.00 |
| NP | 2-200 | 0.9815 | *Y* =0.305*X*-0.568 | 0.85 | 2.50 |
| OP | 2-200 | 0.9683 | *Y* =1.04*0X*+0.474 | 1.64 | 6.57 |
| BPS | 2-200 | 0.9976 | *Y* =1.19*0X+*0.482 | 1.27 | 5.07 |
| BPF | 2-200 | 0.9851 | *Y* =0.431*X*-0.483 | 2.20 | 8.80 |
| BPA | 0.5-200 | 0.9978 | *Y* =1.06*0X*+1.900 | 2.54 | 10.16 |

*Y*: ten times the ratio of EDCs and internal standards peak area; *X*: mass concentration of EDCs, ng·L-1

Table S5 Linear range, correlation coefficients (*r*2), regression equations, LOQ of 31 EDCs and LODs in fish plasma

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Compound | Linear range(ug·L-1) | *r*2 | Regressionequation: | LOD(ug·L-1) | LOQ(ug·L-1) | Recovery(spiked 50 μg/L) |
| Nan-phen | 0.5-100 | 0.9944  | Y=6.30X+0.39 | 0.0003 | 0.001 | 96.20% |
| Me-TES | 0.5-100 | 0.9949  | Y=0.72X+0.14 | 0.025 | 0.083 | 114.20% |
| Tren | 2-100 | 0.9186  | Y=0.08X-0.18 | 2.00 | 6.66 | 88.00% |
| Epite | 0.5-100 | 0.9879  | Y=1.02X-0.11 | 0.25 | 0.833 | 123.80% |
| TES | 0.5-100 | 0.9959  | Y=0.73X-0.34 | 0.25 | 0.833 | 102.60% |
| Bold | 0.5-100 | 0.9841  | Y=0.41X-0.11 | 0.25 | 0.833 | 93.20% |
| Nortes | 0.5-100 | 0.9751  | Y=0.46X-0.623 | 0.188 | 0.624 | 91.40% |
| Noreth | 0.5-100 | 0.9876  | Y=0.15-0.062 | 0.125 | 0.416 | 111.40% |
| Dexa | 10-100 | 0.9726  | Y=0.003X-0.02 | 10.00 | 33.3 | 58.60% |
| Me-prednl | 2-100 | 0.9880  | Y=0.007X-0.005 | 2.00 | 6.66 | 137.40% |
| Corti | 0.5-100 | 0.9286  | Y=0.05X+1.83 | 0.013 | 0.041 | 107.40% |
| Prednl | 1-100 | 0.9947  | Y=0.01X-0.004 | 1.00 | 3.33 | 78.00% |
| Predn | 2-100 | 0.9923  | Y=0.004X-0.008 | 2.00 | 6.66 | 104.00% |
| E2-ben | 0.5-100 | 0.9922  | Y=1.09X+0.11 | 0.013 | 0.042 | 101.80% |
| Dieno | 0.5-100 | 0.9917  | Y=3.96X-2.22 | 0.50 | 1.665 | 84.00% |
| DES | 0.5-100 | 0.9868  | Y=1.97X-1.39 | 0.25 | 0.832 | 92.20% |
| E1 | 0.5-100 | 0.9956 | Y=0.79X-0.07 | 0.05 | 0.1665 | 73.40% |
| Hexe | 0.5-100 | 0.9918 | Y=2.93X-2.03 | 0.50 | 1.665 | 74.00% |
| E2 | 0.5-100 | 0.9845 | Y=0.12X-0.21 | 0.025 | 0.083 | 150.00% |
| E3 | 2-100 | 0.9905 | Y=0.07X-0.71 | 2.00 | 6.66 | 90.40% |
| Me-ace | 0.5-100 | 0.9949 | Y=0.06X-0.03 | 0.075 | 0.250 | 116.20% |
| Me-pro | 0.5-100 | 0.9970 | Y=1.09X-0.08 | 0.002 | 0.008 | 99.20% |
| TES-pro | 0.5-100 | 0.9936 | Y=6.61X+0.27 | 0.0135 | 0.042 | 99.00% |
| Hydrop | 0.5-100 | 0.9951 | Y=0.19X-0.03 | 0.05 | 0.167 | 87.00% |
| Proges | 0.5-100 | 0.9981 | Y=0.29X+0.08 | 0.025 | 0.083 | 104.40% |
| Norges | 0.5-100 | 0.9951 | Y=2.50X-0.93 | 0.25 | 0.833 | 117.20% |
| BPF | 0.5-100 | 0.9780 | Y=0.73X+1.85 | 0.013 | 0.042 | 93.20% |
| OP | 0.5-100 | 0.9942 | Y=7.69X-4.44 | 0.10 | 0.333 | 75.60% |
| NP | 0.5-100 | 0.9945 | Y=5.83X-2.17 | 0.50 | 1.665 | 77.80% |
| BPA | 0.5-100 | 0.9915 | Y=1.45X-0.52 | 0.013 | 0.042 | 65.40% |
| BPS | 0.5-100 | 0.9926 | Y=4.29X-3.01 | 0.50 | 1.665 | 81.20% |

*Y*: ten times the ratio of EDCs and internal standards peak area; *X*: mass concentration of EDCs, ug·L

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| Table S6 Comparison of EDC concentrations at home and abroad (ng/L)  |
| Site | E1 | E2 | E3 | DES | BPA | BPF | BPS | 4-n-NP  | 4-n-OP | Proges | Noreth | TES | Corti | Predn | Prednl | Dexa | References |
| Europe | 　 | 　 | 　 | 　 | ND-4800 | 　 | 　 | ND-6 | ND-12 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | [1] |
| USA | ND-112 | ND-200 | ND-51.0 | 　 | ND-12000 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | [2] |
| Portugal | ND-26.9 | ND-11.5 | - | 　 | 7.80-98.4 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | [3] |
| Aegean Sea | ND-11.0 | ND-2.00 | ND-3.00 | 　 | 10.6-52.3 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | [4] |
| South Korea | 1.70-5.00 | ND | ND | 　 | - | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | [5] |
| Portugal | 1.2-9.7 | 7.2-10.8 | 　 | 　 | 12.2-28.9 | 　 | 　 | 2.6-27.3 | 2.8-27.8 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | [6] |
| South Korea | 　 | 　 | 　 | 　 | 1.0-272 | ND-1300  | ND-42 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | [7] |
| India | 　 | 　 | 　 | 　 | 359-1390 | ND | 768-6840 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | [7] |
| Japan | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 0.42-1.36 | 　 | 　 | 　 | [8] |
| Japan | 　 | 　 | 　 | 　 | 3.1-120 | 76-2846 | 1.6-8.7  | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | [7] |
| Guangzhou, China | 6-13.3  | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 0.5-2.5 | 3.7-22.2 | ND-1.2 | ND-1.9 | 　 | 　 | 　 | [9] |
| Liao River | 0.97-1.15 | 0.28-0.31 | ND | ND | 12.44-17.86 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | [10] |
| Hai River | 0.45 | NC | ND | ND | 7.61 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | [10] |
| Yangtze River | 0.87-2.98 | 0.26-1.78 | ND-4.37 | ND-2.52 | 60.04-710.65 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | [10] |
| Jiulong River | 2.40-321 | 2.50-74.4 | 3.10-39.8 | 　 | 0.50-4688 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | [11] |
| Pearl River | 0.052-0.97 | NC-0.11 | ND | ND | 25.24-32.02 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | [10] |
| Pearl River | 　 | 　 | 　 | 　 | ND-3920 | 448-1110 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | [12] |
| Beijing | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 30 | 2.6 | 3 | 1.2 | [13] |
| Beijing | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 0.58 -27 | 　 | 　 | ND-0.2 | [14] |
| Huang River | ND-15.6 | ND-2.30 | - | 　 | 12.5-172 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | [15] |
| Tianjin | 0.64-50.7 | ND-31.4 | ND-37.2 | 　 | - | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | [16] |
| Taihu Lake | ND-1.45 | 4.41-9.96 | 1.02-1.65 | 　 | 3.95-14.5 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | [17] |
| Taihu Lake | 1.81-28.8 | 40.0-117 | ND-22.4 | 　 | 22.5-194 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | [18] |

ND，not detected.



Figure S1. The number of detected EDCs in each sampling sites in summer and winter in the Taihu Lake.

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