

## Target Analytes for Oregon's Fish Advisory Program

| Chemical                                      | Form                                                                     | Oral Reference Dose <sup>1</sup> (mg/kg-day) | Screening Value (mg/kg fish tissue) <sup>2</sup> |
|-----------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------|--------------------------------------------------|
| <b>Metals</b>                                 |                                                                          |                                              |                                                  |
| Arsenic                                       | Inorganic                                                                | 0.0003                                       | 0.1                                              |
| Cadmium                                       |                                                                          | 0.001                                        | 0.4                                              |
| Mercury (Vulnerable Populations) <sup>3</sup> | Methylmercury                                                            | 0.0001                                       | 0.03                                             |
| Mercury (General population) <sup>4</sup>     | Methylmercury                                                            | 0.0003 <sup>5</sup>                          | 0.1                                              |
| Selenium                                      |                                                                          | 0.005                                        | 2                                                |
| Tributyltin                                   |                                                                          | 0.0003                                       | 0.1                                              |
| <b>Organochlorine Pesticides</b>              |                                                                          |                                              |                                                  |
| Aldrin                                        |                                                                          | 0.00003                                      | 0.01                                             |
| Chlordane                                     | total (cis- and trans-chlordane, cis- and trans-nonachlor, oxychlordane) | 0.0005                                       | 0.2                                              |
| DDT                                           | total (2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, 4,4'-DDT)       | 0.0005                                       | 0.2                                              |
| Dicofol                                       |                                                                          | 0.0004                                       | 0.2                                              |
| Dieldrin                                      |                                                                          | 0.00005                                      | 0.02                                             |
| Endosulfan                                    | I and II                                                                 | 0.006                                        | 2                                                |
| Endrin                                        |                                                                          | 0.0003                                       | 0.1                                              |
| Heptachlor Epoxide                            |                                                                          | 0.00001                                      | 0.004                                            |
| Hexachlorobenzene                             |                                                                          | 0.0008                                       | 0.3                                              |
| Lindane                                       | γ-hexachlorocyclohexane; γ-HCH                                           | 0.0003                                       | 0.1                                              |
| Methoxychlor                                  |                                                                          | 0.005                                        | 2                                                |
| Mirex                                         |                                                                          | 0.0002                                       | 0.08                                             |
| Toxaphene <sup>6</sup>                        |                                                                          | 0.002                                        | 0.8                                              |

<sup>1</sup> Unless otherwise noted, all oral reference doses are from EPA's IRIS program (<http://www.epa.gov/IRIS/>)

<sup>2</sup> Values are rounded to one significant digit. Calculations to generate these numbers used inputs with all significant digits.

<sup>3</sup> Vulnerable populations are children and women of childbearing age

<sup>4</sup> General public excluding vulnerable populations (defined above)

<sup>5</sup> This value is based on an older IRIS value for methylmercury, which was based on studies in otherwise healthy adults. This value is used in this way by state fish advisory programs in California, Washington, and Idaho. See Technical Memo on the Use of an Alternate Toxicity Value for Methylmercury Applied to Healthy Adults.

<sup>6</sup> ATSDR's Intermediate Oral Minimal Risk Level (<http://www.atsdr.cdc.gov/toxprofiles/tp94-a.pdf>); no IRIS value

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|----------------------------------------------------|----------------------------|----------------------------------------------|--------------------------------------------------|
| <b>Organophosphate Pesticides</b>                  |                            |                                              |                                                  |
| Chlorpyrifos                                       |                            | 0.0003                                       | 0.1                                              |
| Diazinon                                           |                            | 0.0007                                       | 0.3                                              |
| Disulfoton                                         |                            | 0.00004                                      | 0.02                                             |
| Ethion                                             |                            | 0.0005                                       | 0.2                                              |
| Terbufos                                           |                            | 0.00002                                      | 0.008                                            |
| <b>Chlorophenoxy herbicides</b>                    |                            |                                              |                                                  |
| Oxyfluorfen                                        |                            | 0.003                                        | 1                                                |
| <b>Polychlorinated biphenyls (PCBs)</b>            | Total (sum of congeners)   | 0.00002                                      | 0.008                                            |
| <b>Dioxins/furans</b>                              | TEQ                        | 0.0000000007                                 | 0.0000003                                        |
| <b>Brominated flame retardants</b>                 | Congener-specific analysis |                                              |                                                  |
| BDE-47                                             |                            | 0.0001                                       | 0.04                                             |
| BDE-99                                             |                            | 0.0001                                       | 0.04                                             |
| BDE-153                                            |                            | 0.0002                                       | 0.08                                             |
| BDE-209                                            |                            | 0.007                                        | 3                                                |
| <b>Per- and polyfluoroalkyl substances (PFAS)</b>  | Congener-specific analysis |                                              |                                                  |
| Perfluorooctane sulfonic acid (PFOS) <sup>7</sup>  |                            | 0.0000041                                    | 0.002                                            |
| Perfluorooctanoic Acid (PFOA) <sup>6</sup>         |                            | 0.000017                                     | 0.007                                            |
| Perfluorononanoic Acid (PFNA) <sup>6</sup>         |                            | 0.0000034                                    | 0.001                                            |
| Perfluorohexane sulfonic acid (PFHxS) <sup>6</sup> |                            | 0.0000057                                    | 0.002                                            |
| Perfluorobutanoic acid (PFBA)                      |                            | 0.001                                        | 0.4                                              |
| Perfluorobutane sulfonic acid (PFBS)               |                            | 0.0003                                       | 0.1                                              |
| GenX – hexafluoropropylene oxide (HFPO)            |                            | 0.000003                                     | 0.001                                            |

Screening values were developed from the listed RfD assuming 23 eight-ounce fish meals per month using the equation below:

<sup>7</sup> Oregon Health Authority Provisional Reference Dose, September 2021

$$SV = \frac{RfD \times BW}{IR \times CF}$$

Where:

SV = Screening value (mg/kg)

RfD = Oral reference dose (mg/kg-day)

BW = Bodyweight (70 kg for all but mercury which used 60 kg for pregnant women)

IR = Intake rate of fish (175 grams per day)

CF = Unitless conversion factor (0.001) to convert grams of fish to kilograms of fish