

Vedlegg 8. Utdrag fra Miljødirektoratets regneark Risikovurdering av sedimenter.

Tab.1: Målt sedimentkonsentrasjon sammenlignet med trinn 1 grenseverdier

| Stoff  | Målt sedimentkonsentrasjon |                               |                                  | Trinn 1 grenseverdi (mg/kg) | Målt sedimentkonsentrasjon i forhold til trinn 1 grenseverdi (antall ganger): |        |
|--|----------------------------|-------------------------------|----------------------------------|-----------------------------|---|--------|
|  | Antall prøver              | C <sub>sed, max</sub> (mg/kg) | C <sub>sed, middel</sub> (mg/kg) |                             | Maks  | Middel |
| Arsen  | 3                          | 5                             | 3,46666667                       | 18                          |   |        |
| Bly  | 3                          | 20                            | 16,33333333                      | 150                         |   |        |
| Kadmium  | 3                          | 0,26                          | 0,16666667                       | 2,5                         |   |        |
| Kobber   | 3                          | 49                            | 35                               | 84                          |   |        |
| Krom totalt (III + VI)                                     | 3                          | 24                            | 17,33333333                      | 660                         |   |        |
| Kvikksølv  | 3                          | 0,178                         | 0,127                            | 0,52                        |   |        |
| Nikkel   | 3                          | 21                            | 14,4                             | 42                          |   |        |
| Sink   | 4                          | 120                           | 71,5                             | 139                         |   |        |
| Naftalen   | 5                          | 0,023                         | 0,0122                           | 0,027                       |   |        |
| Acenaftalen  | 5                          | 0,016                         | 0,0067                           | 0,033                       |   |        |
| Acenaften  | 5                          | 0,028                         | 0,015                            | 0,096                       |   |        |
| Fluoren  | 5                          | 0,053                         | 0,0306                           | 0,15                        |   |        |
| Fenantren  | 5                          | 0,36                          | 0,2256                           | 0,78                        |   |        |
| Antracen   | 5                          | 0,11                          | 0,0636                           | 0,0046                      | 23,9  | 13,8   |
| Fluoranten   | 5                          | 0,89                          | 0,468                            | 0,4                         | 2,2   | 1,2    |
| Pyren  | 5                          | 0,82                          | 0,414                            | 0,084                       | 9,8   | 4,9    |
| Benzo(a)antracen   | 5                          | 0,53                          | 0,239                            | 0,06                        | 8,8   | 4,0    |
| Krysen   | 5                          | 0,41                          | 0,196                            | 0,28                        | 1,5   |        |
| Benzo(b)fluoranten   | 5                          | 0,62                          | 0,2746                           | 0,140                       | 4,4   | 2,0    |
| Benzo(k)fluoranten   | 5                          | 0,29                          | 0,1292                           | 0,135                       | 2,1   |        |
| Benzo(a)pyren  | 5                          | 0,48                          | 0,2186                           | 0,183                       | 2,6   | 1,2    |
| Indeno(1,2,3-cd)pyren                                      | 5                          | 0,27                          | 0,123                            | 0,063                       | 4,3   | 2,0    |
| Dibenzo(a,h)antracen                                       | 5                          | 0,056                         | 0,0272                           | 0,027                       | 2,1   | 1,0    |
| Benzo(ghi)perylene   | 5                          | 0,28                          | 0,1288                           | 0,084                       | 3,3   | 1,5    |
| PCB 28   | 5                          | 0,00025                       | 0,00025                          |                             |   |        |
| PCB 52   | 5                          | 0,0011                        | 0,000594                         |                             |   |        |
| PCB 101  | 5                          | 0,0013                        | 0,0008                           |                             |   |        |
| PCB 118  | 5                          | 0,00091                       | 0,000612                         |                             |   |        |
| PCB 138  | 5                          | 0,0023                        | 0,00112                          |                             |   |        |
| PCB 153  | 5                          | 0,0018                        | 0,000842                         |                             |   |        |
| PCB 180  | 5                          | 0,0012                        | 0,000514                         |                             |   |        |
| Sum PCB7   | 5                          | 8,86E-03                      | 4,73E-03                         | 0,0041                      | 2,2   | 1,2    |
| DDT  | 0                          | mangler                       | mangler                          | 0,02                        |   |        |
| Tributyltinn (TBT-ion)                                     | 5                          | 0,08                          | 0,0426                           | 0,035                       | 2,3   | 1,2    |
| Lindan   | 0                          | mangler                       | mangler                          | 7,40E-05                    |   |        |
| Heksaklorbenzen  | 0                          | mangler                       | mangler                          | 0,017                       |   |        |
| Pentaklorbenzen  | 0                          | mangler                       | mangler                          | 0,4                         |   |        |
| Triklorbenzen  | 0                          | mangler                       | mangler                          | 0,0056                      |   |        |
| Hexaklorbutadien   | 0                          | mangler                       | mangler                          | 0,049                       |   |        |
| Pentaklorfenol   | 0                          | mangler                       | mangler                          | 0,014                       |   |        |
| Oktylfenol   | 0                          | mangler                       | mangler                          | 0,00027                     |   |        |
| Nonylfenol   | 0                          | mangler                       | mangler                          | 0,016                       |   |        |
| Bisfenol A   | 0                          | mangler                       | mangler                          | 0,0011                      |   |        |
| Tetrabrombisfenol A  | 0                          | mangler                       | mangler                          | 0,108                       |   |        |
| Pentabromdifenyleter                                       | 0                          | mangler                       | mangler                          | 0,062                       |   |        |
| Heksabromcyclododekan                                      | 0                          | mangler                       | mangler                          | 0,034                       |   |        |
| Perfluorert oktylsulfonat (PFOS)                           | 0                          | mangler                       | mangler                          | 2,30E-04                    |   |        |
| Diuron   | 0                          | mangler                       | mangler                          | 7,10E-04                    |   |        |
| Irgarol  | 0                          | mangler                       | mangler                          | 3,60E-05                    |   |        |
| PCB7   | 5                          | 0,0079                        | 0,00394                          | 0,0041                      | 1,9   |        |
| Trifenylytin   | 0                          | mangler                       | mangler                          | 0,035                       |   |        |
| Dodecylfenol med isomere                                   | 0                          | mangler                       | mangler                          | 0,0044                      |   |        |
| Di(2-etylheksyl)ftalat (DEHP)                              | 0                          | mangler                       | mangler                          | 10                          |   |        |
| Perfluoroktansyre (PFOA)                                   | 0                          | mangler                       | mangler                          | 0,071                       |   |        |
| C10-13 kloralkaner   | 0                          | mangler                       | mangler                          | 0,8                         |   |        |
| Klorparafiner (mellomkjedete)                              | 0                          | mangler                       | mangler                          | 4,6                         |   |        |
| Dioksiner og dioksinlignende forbindelser                  | 0                          | mangler                       | mangler                          | 8,60E-07                    |   |        |
| dekametylsyklopentasiloksan (D5)                           | 0                          | mangler                       | mangler                          | 0,044                       |   |        |
| Tris(2-kloretyl)fosfat (TCEP, fosfororganisk flammehemmer) | 0                          | mangler                       | mangler                          | 0,072                       |   |        |
| Diflubenzuron  | 0                          | mangler                       | mangler                          | 0,0002                      |   |        |
| Teflubenzuron  | 0                          | mangler                       | mangler                          | 4,00E-07                    |   |        |
| Triklosan  | 0                          | mangler                       | mangler                          | 0,0093                      |   |        |
| Alaklor  | 0                          | mangler                       | mangler                          | 0,0003                      |   |        |
| Klorfeninfos   | 0                          | mangler                       | mangler                          | 0,0005                      |   |        |
| Klorpyrifos  | 0                          | mangler                       | mangler                          | 0,0013                      |   |        |
| Endosulfan   | 0                          | mangler                       | mangler                          | 7,30E-05                    |   |        |
| Trifluralin  | 0                          | mangler                       | mangler                          | 1,6                         |   |        |

Tab.2a: Beregnet spredning sammenlignet med "tillatt spredning"

| Stoff  | Beregnet spredning ikke påvirket av skipsoppvirvling ( $F_{diff} + F_{org}$ ) |   | Beregnet spredning inkludert skipsoppvirvling ( $F_{diff} + F_{org} + F_{skip}$ ) |  | Spredning ( $F_{tot}$ ) dersom $C_{avg}$ er lik grenseverdi for trinn 1 ( $mg/m^2/år$ ) | $F_{tot}$ i forhold til tillatt spredning (antall ganger): |          |
|--|---|---|---|--|---|--|----------|
|  | $F_{tot, sed-skip}$ maks [ $mg/m^2$ ]   | $F_{tot, sed-skip}$ middel [ $mg/m^2$ ] | $F_{tot, skip}$ maks [ $mg/m^2/år$ ]  | $F_{tot, skip}$ middel [ $mg/m^2/år$ ] |   | Maks   | Middel   |
|  | Arsen   | 5,05E+00                                | 3,50E+00  | 5,05E+00                               |   | 3,50E+00   | 1,82E+01 |
| Bly  | 9,81E-01  | 8,01E-01                                | 9,81E-01  | 8,01E-01                               | 6,86E+00  |  |          |
| Kadmium  | 1,25E-02  | 7,99E-03                                | 1,25E-02  | 7,99E-03                               | 1,05E-01  |  |          |
| Kobber   | 1,09E+01  | 7,75E+00                                | 1,09E+01  | 7,75E+00                               | 1,82E+01  |  |          |
| Krom totalt (III + VI)                                     | 8,82E-01  | 6,37E-01                                | 8,82E-01  | 6,37E-01                               | 2,41E+01  |  |          |
| Kvikksølv  | 1,18E-02  | 8,42E-03                                | 1,18E-02  | 8,42E-03                               | 3,39E-02  |  |          |
| Nikkel   | 1,56E+01  | 1,07E+01                                | 1,56E+01  | 1,07E+01                               | 2,94E+01  |  |          |
| Sink   | 7,28E+00  | 4,34E+00                                | 7,28E+00  | 4,34E+00                               | 6,92E+00  | 1,1  |          |
| Naftalen   | 6,29E+00  | 3,34E+00                                | 6,29E+00  | 3,34E+00                               | 6,74E+00  |  |          |
| Acenaftylen  | 1,96E+00  | 8,21E-01                                | 1,96E+00  | 8,21E-01                               | 3,66E+00  |  |          |
| Acenaften  | 1,94E+00  | 1,04E+00                                | 1,94E+00  | 1,04E+00                               | 5,51E+00  |  |          |
| Fluoren  | 2,02E+00  | 1,16E+00                                | 2,02E+00  | 1,16E+00                               | 4,24E+00  |  |          |
| Fenantren  | 1,32E+01  | 8,29E+00                                | 1,32E+01  | 8,29E+00                               | 9,94E+00  | 1,3  |          |
| Antracen   | 1,47E+00  | 8,48E-01                                | 1,47E+00  | 8,48E-01                               | 4,35E-02  | 33,7   | 19,5     |
| Fluoranten   | 5,37E+00  | 2,82E+00                                | 5,37E+00  | 2,82E+00                               | 1,23E+00  | 4,4  | 2,3      |
| Pyren  | 9,52E+01  | 4,81E+01                                | 9,52E+01  | 4,81E+01                               | 2,21E+00  | 43,0   | 21,7     |
| Benzo(a)antracen   | 2,88E+00  | 1,30E+00                                | 2,88E+00  | 1,30E+00                               | 8,52E-02  | 33,7   | 15,2     |
| Krysen   | 6,87E-01  | 3,28E-01                                | 6,87E-01  | 3,28E-01                               | 2,12E-01  | 3,2  | 1,5      |
| Benzo(b)fluoranten   | 7,69E-01  | 3,40E-01                                | 7,69E-01  | 3,40E-01                               | 6,11E-02  | 12,6   | 5,6      |
| Benzo(k)fluoranten   | 3,76E-01  | 1,68E-01                                | 3,76E-01  | 1,68E-01                               | 6,17E-02  | 6,1  | 2,7      |
| Benzo(a)pyren  | 5,95E-01  | 2,71E-01                                | 5,95E-01  | 2,71E-01                               | 7,98E-02  | 7,5  | 3,4      |
| Indeno(1,2,3-cd)pyren                                      | 1,17E-01  | 5,35E-02                                | 1,17E-01  | 5,35E-02                               | 9,43E-03  | 12,5   | 5,7      |
| Dibenzo(a,h)antracen                                       | 1,13E-01  | 5,50E-02                                | 1,13E-01  | 5,50E-02                               | 1,29E-02  | 8,7  | 4,2      |
| Benzo(ghi)perylen  | 2,79E-01  | 1,28E-01                                | 2,79E-01  | 1,28E-01                               | 2,88E-02  | 9,7  | 4,5      |
| PCB 28   | 1,08E-02  | 1,08E-02                                | 1,08E-02  | 1,08E-02                               |   |  |          |
| PCB 52   | 8,62E-02  | 4,66E-02                                | 8,62E-02  | 4,66E-02                               |   |  |          |
| PCB 101  | 1,50E-02  | 9,24E-03                                | 1,50E-02  | 9,24E-03                               |   |  |          |
| PCB 118  | 1,05E-03  | 7,07E-04                                | 1,05E-03  | 7,07E-04                               |   |  |          |
| PCB 138  | 1,75E-02  | 8,52E-03                                | 1,75E-02  | 8,52E-03                               |   |  |          |
| PCB 153  | 1,37E-03  | 6,41E-04                                | 1,37E-03  | 6,41E-04                               |   |  |          |
| PCB 180  | 4,78E-03  | 2,05E-03                                | 4,78E-03  | 2,05E-03                               |   |  |          |
| Sum PCB7   | 1,37E-01  | 7,85E-02                                | 1,37E-01  | 7,85E-02                               |   |  |          |
| DDT  | mangler data  | mangler data                            | mangler data  | mangler data                           | 2,18E-03  |  |          |
| Tributyltinn (TBT-ion)                                     | 4,56E+01  | 2,43E+01                                | 4,56E+01  | 2,43E+01                               | 8,51E+00  | 5,4  | 2,9      |
| Lindan   | mangler data  | mangler data                            | mangler data  | mangler data                           | 3,93E-03  |  |          |
| Heksaklorbenzen  | mangler data  | mangler data                            | mangler data  | mangler data                           | 1,06E-01  |  |          |
| Pentaklorbenzen  | mangler data  | mangler data                            | mangler data  | mangler data                           | 2,77E+00  |  |          |
| Triklorbenzen  | mangler data  | mangler data                            | mangler data  | mangler data                           | 1,06E+00  |  |          |
| Hexaklorbutadien   | mangler data  | mangler data                            | mangler data  | mangler data                           | 1,95E+00  |  |          |
| Pentaklorfenol   | mangler data  | mangler data                            | mangler data  | mangler data                           | 8,24E-01  |  |          |
| Oktyfenol  | mangler data  | mangler data                            | mangler data  | mangler data                           | 2,36E-02  |  |          |
| Nonyfenol  | mangler data  | mangler data                            | mangler data  | mangler data                           | 6,96E-01  |  |          |
| Bisfenol A   | mangler data  | mangler data                            | mangler data  | mangler data                           | 3,25E-01  |  |          |
| Tetrabrombisfenol A  | mangler data  | mangler data                            | mangler data  | mangler data                           | 2,87E-01  |  |          |
| Pentabromdifenyyleter                                      | mangler data  | mangler data                            | mangler data  | mangler data                           | 6,96E-02  |  |          |
| Heksabromcyclododekan                                      | mangler data  | mangler data                            | mangler data  | mangler data                           | 2,77E-01  |  |          |
| Perfluorert oktylsulfonat (PFOS)                           | mangler data  | mangler data                            | mangler data  | mangler data                           | 3,73E-02  |  |          |
| Diuron   | mangler data  | mangler data                            | mangler data  | mangler data                           | 4,15E-01  |  |          |
| Irgarol  | mangler data  | mangler data                            | mangler data  | mangler data                           | 5,12E-03  |  |          |
| PCB7   | 4,97E-02  | 2,48E-02                                | 4,97E-02  | 2,48E-02                               | 6,66E-03  | 7,5  | 3,7      |
| Trifenylin   | mangler data  | mangler data                            | mangler data  | mangler data                           | 3,16E+00  |  |          |
| Dodecylfenol med isomere                                   | mangler data  | mangler data                            | mangler data  | mangler data                           | 8,11E-03  |  |          |
| Di(2-etylheksyl)ftalat (DEHP)                              | mangler data  | mangler data                            | mangler data  | mangler data                           | 9,47E+00  |  |          |
| Perfluoroktansyre (PFOA)                                   | mangler data  | mangler data                            | mangler data  | mangler data                           | 7,84E+01  |  |          |
| C10-13 kloralkaner   | mangler data  | mangler data                            | mangler data  | mangler data                           | 7,36E-01  |  |          |
| Klorparafiner (mellomkjedete)                              | mangler data  | mangler data                            | mangler data  | mangler data                           | 7,97E-02  |  |          |
| Dioksiner og dioksinlignende forbindelser                  | mangler data  | mangler data                            | mangler data  | mangler data                           | 1,40E-07  |  |          |
| dekametylsyklopentasiloksan (D5)                           | mangler data  | mangler data                            | mangler data  | mangler data                           | 7,48E-02  |  |          |
| Tris(2-kloretyl)fosfat (TCEP, fosfororganisk flammehemmer) | mangler data  | mangler data                            | mangler data  | mangler data                           | 1,17E+02  |  |          |
| Diflubenzuron  | mangler data  | mangler data                            | mangler data  | mangler data                           | 7,56E-03  |  |          |
| Teflubenzuron  | mangler data  | mangler data                            | mangler data  | mangler data                           | 2,39E-06  |  |          |
| Trikloran  | mangler data  | mangler data                            | mangler data  | mangler data                           | 3,08E-01  |  |          |
| Alaklor  | mangler data  | mangler data                            | mangler data  | mangler data                           | 5,02E-01  |  |          |
| Klorfeninfos   | mangler data  | mangler data                            | mangler data  | mangler data                           | 1,61E-01  |  |          |
| Klorpyrifos  | mangler data  | mangler data                            | mangler data  | mangler data                           | 5,14E-02  |  |          |
| Endosulfan   | mangler data  | mangler data                            | mangler data  | mangler data                           | 1,08E-03  |  |          |
| Trifluralin  | mangler data  | mangler data                            | mangler data  | mangler data                           | 4,59E+01  |  |          |

