

## Calculating Fraction of Inorganic Arsenic in SF Bay Fish and Shellfish

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### Fish Tissue:

There are 8 composite samples of shark tissue from 2003 RMP data in which both inorganic and total arsenic data are available. The inorganic arsenic was ND (MDL of 3 ppb) in 7 of these samples and a DNQ just above the MDL in the 8<sup>th</sup>. Table 1 contains these data. The ND will be evaluated as one-half the MDL (1.5 ppb), and these will be divided by the total arsenic concentration to compute the proportion of inorganic arsenic. The average inorganic arsenic percentage in these shark data is 1.5%, and the maximum is 3.2%.

Composite ID	Sub-embayment	Inorganic arsenic (ppb)	Total arsenic (ppb)	Fraction inorganic
CO31B01	South SF Bay	1.5	231.7	6.5E-3
CO34B01	Central Bay	1.5	356.3	4.2E-3
CO35B01	San Pablo Bay	1.5	234.3	6.4E-3
IO31404	South SF Bay	4.01	223.1	1.8E-2
IO31405	South SF Bay	1.5	46.4	3.2E-2
IO31406	South SF Bay	1.5	90.3	1.7E-2
IO31410	South SF Bay	1.5	92.7	1.6E-2
IO35408	San Pablo Bay	1.5	76.2	2.0E-2

Note: 1.5 ppb is one-half of MDL for inorganic arsenic.

### Shellfish Tissue:

There are 11 samples available from RMP data collected in 1998 and 1999 where both inorganic and total arsenic were measured. We will use the same approach to estimate the inorganic arsenic as the MDL (2 ppb) divided by two and compute the resulting fraction inorganic arsenic. Eight of the 11 samples had ND for inorganic arsenic. These data are summarized in the following table. The average inorganic arsenic percentage in these bivalve data is 0.053%, and the maximum is 0.115%.

Location	Sub-embayment	Inorganic arsenic (ppb)	Total arsenic (ppb)	Fraction inorganic
Municipal Pier, SF Waterfront	Central Bay	1	3090	3.2E-04
Municipal Pier, SF Waterfront	Central Bay	1	3340	3.0E-04
Municipal Pier, SF Waterfront	Central Bay	2.3	2560	9.0E-04
Fort Baker	Central Bay	1	3180	3.1E-04
Fort Baker	Central Bay	1	2910	3.4E-04
Fort Baker	Central Bay	3	2600	1.2E-03
Pier 7, SF Waterfront	Central Bay	1	2880	3.5E-04
Pier 7, SF Waterfront	Central Bay	1	2850	3.5E-04
Pier 7, SF Waterfront	Central Bay	2.9	3220	9.0E-04
Burlingame	South Bay	1	2170	4.6E-04
Fruitvale Bridge	South Bay	1	2310	4.3E-04

Data from: Greenfield et al., *Contaminant Concentrations in Fish from San Francisco Bay, 2000*. San Francisco Estuary Institute Contribution 77, July 2003.