

San Francisco Bay Analysis

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Appendix 80
San Francisco Bay Analysis

Effects of the No Action Alternative and Alternatives 1A–9 on the San Francisco Bay were assessed mostly qualitatively. Tables and figures below support the assessment of nutrients, mercury, and selenium.

Table 80-1. Change in total nitrogen and phosphorus loads in Delta outflows under the project alternatives relative to Existing Conditions and the No Action Alternative.

| Project Alternative | Total Nitrogen Load (lb/day) | Increase in Total Nitrogen Load (%) | | Annual Average Net Delta Outflow (cfs) | Increase in Phosphorus Load ^a (%) | |
|---------------------------|------------------------------|-------------------------------------|--|--|--|--|
| | | Relative to Existing Conditions | Relative to No Action Alternative ^b | | Relative to Existing Conditions | Relative to No Action Alternative ^b |
| Existing Conditions | 60,530 | – | – | 21,598 | – | – |
| No Action Alternative LLT | 41,253 | -32 | – | 22,651 | 5 | – |
| Alternative 1 | 41,711 | -31 | 1 | 21,159 | -2 | -7 |
| Alternative 2 | 44,836 | -26 | 9 | 21,759 | 1 | -4 |
| Alternative 3 | 40,761 | -33 | -1 | 21,291 | -1 | -6 |
| Alternative 4-H1 | 43,294 | -28 | 5 | 21,445 | -1 | -5 |
| Alternative 4-H2 | 44,284 | -27 | 7 | 22,162 | 3 | -2 |
| Alternative 4-H3 | 45,242 | -25 | 10 | 21,939 | 2 | -3 |
| Alternative 4-H4 | 46,247 | -24 | 12 | 22,643 | 5 | 0 |
| Alternative 5 | 41,911 | -31 | 2 | 22,173 | 3 | -2 |
| Alternative 6 | 57,782 | -5 | 40 | 23,516 | 9 | 4 |
| Alternative 7 | 52,854 | -13 | 28 | 23,595 | 9 | 4 |
| Alternative 8 | 55,033 | -9 | 33 | 24,651 | 14 | 9 |
| Alternative 9 | 50,081 | -17 | 21 | 22,741 | 5 | 0 |
| No Action Alternative ELT | 41,131 | -32% | – | 22,474 | 4% | – |
| Alternative 4A | 46,717 | -23% | 14% | 22,188 | 3% | -1% |
| Alternative 2D | 46,787 | -23% | 14% | 21,527 | 0% | -4% |
| Alternative 5A | 42,616 | -30% | 4% | 21,844 | 1% | -3% |

^a The increase in phosphorus load is estimated as the change in Delta outflow. See Chapter 8, *Water Quality*, Section 8.3.1.8 for more information regarding the loading estimate methodology.

^b For Alternatives 1–9, the change shown is relative to the No Action Alternative LLT; for Alternatives 4A, 2D, and 5A, the change shown is relative to the No Action Alternative ELT.

1 **Table 8O-2. Estimated long-term average mercury and methylmercury loads exported from the Delta**
 2 **to San Francisco Bay and percent change relative to Existing Conditions and the No Action**
 3 **Alternative.^a**

| Alternative | kg/yr | Total Mercury | | kg/yr | Total Methylmercury | |
|---------------------------|-------|---|--|-------|---|--|
| | | % Change Relative to Existing Conditions | % Change Relative to No Action Alternative ^b | | % Change Relative to Existing Conditions | % Change Relative to No Action Alternative ^b |
| Existing Conditions | 260 | – | – | 3.58 | – | – |
| No Action Alternative LLT | 263 | 1 | – | 3.67 | 3 | – |
| Alternative 1 | 260 | 0 | -1 | 3.54 | -1 | -4 |
| Alternative 2 | 261 | 0 | -1 | 3.65 | 2 | -1 |
| Alternative 3 | 258 | -1 | -2 | 3.54 | -1 | -4 |
| Alternative 4-H1 | 261 | 0 | -1 | 3.58 | 0 | -2 |
| Alternative 4-H2 | 265 | 2 | 1 | 3.64 | 2 | -1 |
| Alternative 4-H3 | 262 | 1 | -1 | 3.66 | 2 | 0 |
| Alternative 4-H4 | 265 | 2 | 1 | 3.71 | 4 | 1 |
| Alternative 5 | 263 | 1 | 0 | 3.64 | 2 | -1 |
| Alternative 6 | 272 | 5 | 3 | 3.95 | 10 | 7 |
| Alternative 7 | 270 | 4 | 3 | 3.87 | 8 | 5 |
| Alternative 8 | 276 | 6 | 5 | 3.98 | 11 | 8 |
| Alternative 9 | 268 | 3 | 2 | 3.72 | 4 | 1 |
| No Action Alternative ELT | 262 | 1 | – | 3.66 | 2 | – |
| Alternative 4A | 263 | 1 | 0 | 3.70 | 3 | 1 |
| Alternative 2D | 260 | 0 | -1 | 3.67 | 3 | 0 |
| Alternative 5A | 261 | 0 | 0 | 3.63 | 2 | -1 |

^a Loads estimates accounted for changes in source water fraction and net Delta outflows under each alternative. Changes in other sources of mercury and methylmercury to and within Delta could not be quantitatively estimated, thus the load estimates were calculated based on the assumption that these sources remained unchanged under the alternatives.

^b For Alternatives 1–9, the change shown is relative to the No Action Alternative LLT; for Alternatives 4A, 2D, and 5A, the change shown is relative to the No Action Alternative ELT.

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1 **Table 8O-3. Estimated long-term average total selenium load and total and dissolved selenium**
 2 **concentrations of North San Francisco Bay relative to Existing Conditions and the No Action**
 3 **Alternative.**

| Alternative | Total Se Load (kg/yr) | % Change in Load Relative to Existing Conditions | % Change in Load Relative to No Action Alternative ^a | Total Se Concentration (µg/L) | Dissolved Se Concentration (µg/L) |
|---------------------------|-----------------------|--|---|-------------------------------|-----------------------------------|
| Existing Conditions | 5,605 | – | – | 0.13 | 0.11 |
| No Action Alternative LLT | 5,797 | 3% | – | 0.13 | 0.11 |
| Alternative 1 | 5,803 | 4% | 0% | 0.13 | 0.11 |
| Alternative 2 | 6,063 | 8% | 5% | 0.14 | 0.12 |
| Alternative 3 | 5,689 | 1% | -2% | 0.13 | 0.11 |
| Alternative 4-H1 | 5,930 | 6% | 2% | 0.13 | 0.12 |
| Alternative 4-H2 | 6,072 | 8% | 5% | 0.14 | 0.12 |
| Alternative 4-H3 | 6,064 | 8% | 5% | 0.14 | 0.12 |
| Alternative 4-H4 | 6,242 | 11% | 8% | 0.14 | 0.12 |
| Alternative 5 | 5,856 | 4% | 1% | 0.13 | 0.11 |
| Alternative 6 | 6,960 | 24% | 20% | 0.16 | 0.14 |
| Alternative 7 | 6,706 | 20% | 16% | 0.15 | 0.13 |
| Alternative 8 | 6,932 | 24% | 20% | 0.16 | 0.14 |
| Alternative 9 | 6,524 | 16% | 13% | 0.15 | 0.13 |
| No Action Alternative ELT | 5,839 | 2% | – | 0.13 | 0.11 |
| Alternative 4A | 6,150 | 11% | 9% | 0.14 | 0.12 |
| Alternative 2D | 6,123 | 14% | 12% | 0.14 | 0.12 |
| Alternative 5A | 5,829 | 5% | 3% | 0.13 | 0.11 |

^a For Alternatives 1–9, the change shown is relative to the No Action Alternative LLT; for Alternatives 4A, 2D, and 5A, the change shown is relative to the No Action Alternative ELT.

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