

APPENDIX U

Elevated Data Levels

Elevated Data Levels (EDL)

An EDL is defined for the purposes of the TSMP as that concentration of a toxic substance in a fish tissue that equals or exceeds a specified percentile (such as 85 percent) of all TSMP measurements of the toxic substance in the same fish and tissue type between 1978 and 1993. EDLs were determined as follows:

(1) All TSMP data from 1978 through 1993 were pooled by fish and tissue type, (2) The concentrations of each toxicant were ranked from highest to lowest concentration down to, and including, instances when a chemical was not detected, (3) The cumulative frequency of occurrence and percentile ranking for all concentrations were calculated, (4) The concentration of the toxic substance representing the 85th percentile was identified and designated the 85 percent EDL or EDL 85, and (5) The concentration of the toxic substance representing the 95th percentile was identified and designated the 95 percent EDL or EDL 95. The EDL 85 is that concentration of a toxic substance that equals or exceeds 85 percent of all TSMP measurements of the toxic substance in the same fish and tissue type between 1978 and 1993. The EDL 95 is that concentration of a toxic substance that equals or exceeds 95 percent of all TSMP measurements of the toxic substance in the same fish and tissue type between 1978 and 1993. EDLs for trace metals are summarized in Tables 10 through 12. EDLs for synthetic organic substances are summarized in Tables 13 through 18.

Because EDLs are based on the relative ranking of each measurement, rather than a percentage of the highest concentration obtained, they are not influenced by unusually high (anomalous) toxicant values. This characteristic of EDLs is especially desirable in the evaluation of synthetic organic toxicants where the highest concentration may be as much as ten times the next highest concentration. EDLs do, however, reflect the biases of the data upon which they have been based. For instance, EDLs for mercury and selenium in California fish show that a large number of samples for each exceed criteria. However, much of the mercury and selenium data collected by TSMP were in locations known to have elevated mercury and selenium levels, and often large numbers of fish were analyzed from those locations to determine the extent of the problem.

Because they are based on TSMP data rather than an absolute number external to the TSMP, EDLs, when exceeded, can provide a sensitive first indication of elevated toxicant levels in California waters. As such, EDLs fulfill the monitoring function of the TSMP effectively. In addition, EDLs may be expressed in wet weight or lipid weight to eliminate data variability due to lipid content and to conform to scientific literature relevant to fish monitoring programs worldwide. However, EDLs do not assess adverse impacts, nor do they necessarily represent concentrations that may be damaging to the fish or to a human consuming the fish. They do not directly relate to Maximum Tissue Residue levels (MTRLs), FDA action levels, NAS guidelines, or Median International Standards (MIS).