

## Chapter V

### CONCLUSIONS AND RECOMMENDATIONS

#### Conclusions

1. The water samples from the two collections showed locational variations. Lead was found mainly in the form of particulate fractions with a mean percentage of about 85 %, while particulate fraction of mercury only amounted to 15 %. The trends for high mercury at stations VI, IV+V, III and II where urbanization and industrialization are most prominent. Lead gave a peak value at stations located in the urban area of the city and in area of heavy water-transportation. The absolute values of lead and mercury in particulate, dissolved and total lead and mercury from the January collections gave lower concentration than those of the May collections. From the analysis of variance, it was concluded that there was no significant statistical difference in the mean value of varieties from the water samples in the two seasons.

2. The profiles of the sediment cores at all stations both for lead and mercury, can be used to show the past history of the fuel-oil consumption of the region provided that the information on the oil and fossil-fuel consumption is available. The lead and mercury profiles for stations I, II and IX showed typical core profiles. Profiles for station III showed a high peak for mercury, but indicated that lead was within normal limits. Stations IV+V, VI and VII also showed typical lead profiles, but the mercury content was shown to be high in certain deep layers, especially at stations VI and VII. The profiles for the two metals at

station VIII showed wide variations, indicated the content was within normal limits. The surface lead content was high at stations II, III and IV+V as compared to the others, but the values remained within permissible limits as do those for the surface mercury content. The lead and mercury in the sediments were high in the urban area and the river channel at the river mouth.

3. Biological samples showed different concentrations of lead and mercury residues from species to species. A positive bioamplification of mercury was observed in many species, whereas the lead content fluctuated very widely. So the relationship between lead content and body weight was uncertain. The results from both collections were difficult to interpret in terms of a correlation between species, locations and seasons, largely because of the small number of samples examined.

#### Recommendations

1. The study of the two metals in the lower section of the Chao-Praya River should be repeated and followed up.

2. The samples of sediment cores, water and biota should be collected more frequently, especially the biological samples. Also the possible relationship between species, localities, seasons and sizes should be given serious consideration.

3. The lead content in the water, both the soluble and the particulate fractions, should be given urgent attention and research on this particular point should be considered as a priority matter in order to improve the quality of the water.

4. A study of the proportion of the two metals accounted for by the consumption of oil on land and water-transportation should be made.

5. A study of the proportionate effect of tidal influences, river runoff, precipitation and water masses should be made in order to obtain a better understanding of the distribution of the two metals.

6. A standard for the various methods and instruments used should be established.