6. Conclusions and Recommendations

Concentrations of total PAH within this study were higher within inter-tidal populations of tuangi. Results stemming from this report however indicate that PAH concentrations within Tauranga Harbour are of low levels in reference to other studies coexisting within the Rena monitoring project (see Wilkins, 2013 1f-2).

Initial Bay of Plenty Regional Council reports show that the section of southern harbour situated around sites 7 and 2 sustained moderate levels of oiling resulting from the Rena. Not surprisingly all species analysed within this report showed higher concentrations of PAHs at sites within this area. Additionally profile detection of the 16 PAHs analysed were more frequent at these sites.

Instances of demographic change were evident throughout the size class ranges sampled for both species albeit as positive or negative responses of mean frequencies per site during replicated surveys in year two. However, understanding changes of population abundance over time can be difficult and will require further study of specific biotic and abiotic factors (see Ellis et al., 2013 for examples), which were not accounted for in this study.

Identifying demographic relationships with in situ concentrations of total PAH at each site may be only feasible by extending and/or adding replication on a longer temporal scale. This however may infer further questions for study, for example: Are depuration rates of oil spill contaminates within important kai moana species declining over time within the sites sampled? This study has revealed that PAH contamination in shellfish at certain sites within the Tauranga Harbour are elevated above reported pre oil spill levels in most sites (BOPRC, 2012). It is also important to mention that no significant changes in shellfish population size structure were recorded at site 2 over the two years of sampling despite this site appearing to be the most contaminated monitoring location. This result raises questions such as (1) Is PAH contamination recorded here a result of the Rena oil spill or is it a function of other anthropogenic activities, and (2) What effect do these contaminants have on reproductive nature of the two bivalve species under study; does this result in lower forms of production of recruitment and/or alter general condition during peak nutritional uptake?