MURRAY AND SERPENTINE RIVERS, WATER QUALITY

755. Hon Jim Scott to the Minister for Housing and Works representing the Minister for the Environment and Heritage

(1) Has the level of water quality in the lower reaches of the Murray and Serpentine Rivers deteriorated since the opening of the Dawesville Cut?

(2) How many *Nodularia* blooms have occurred in the lower reaches of the Murray and Serpentine Rivers since the opening of the Dawesville Cut and how long has each bloom lasted?

(3) Does the current composition of marine species now present in the Peel Harvey Estuary differ from that prior to the opening of the Dawesville Cut?

(4) If yes, what have been the changes in species composition?

(5) Have areas of *Ruppia* seagrass died off in the Peel Harvey Estuary since the opening of the Dawesville Cut?

(6) If yes, what is the extent of the seagrass death?

(7) What has been the cause of this loss of seagrass?

(8) What role does *Ruppia* seagrass play in the ecology of the Peel Harvey Estuary?

(9) What impact has the Dawesville Cut had on the frequency and abundance of the mosquito population in the Peel Harvey Estuary area?

(10) What measures have been taken in response to this change in the mosquito population?

(11) Have some species of waterbirds declined in number in the Peel Harvey Estuary area since the opening of the Dawesville Cut?

(12) If so, which ones?

Hon TOM STEPHENS replied:

The Minister for the Environment and Heritage has provided the following response:

(1) The water quality in the lower reaches of the rivers was not adequately monitored prior to the construction of the Dawesville Channel to make a proper assessment. What is known is that water quality in the lower reaches of the Murray and Serpentine Rivers is very poor for much of the year.

(2) Current sampling frequency is not intensive enough to pick up every algal bloom "boom/bust" cycle. Each year there are variations of the frequency, duration and intensity of algal blooms. There has been a Nodularia bloom in the Serpentine River each year since the Dawesville Channel was opened, and bloom conditions for phytoplankton last about 3-6 months. Anecdotal information suggests that increased marine conditions in the lower Serpentine has led to increased frequency of Nodularia blooms.

(3) The individual species of phytoplankton remain the same, but the abundance of individual species within algal communities has changed.

(4) The dominant community has shifted from blue-green algae and dinoflagellates prior to the Dawesville Channel to one dominated more by marine diatoms. Of course, there are seasonal and annual variations in the species composition of the communities.

(5) Seagrass in the estuary is dominated by Halophila (dominant) and Ruppia. While there has been a general decline in seaweed, or macroalgae, biomass since 1992, the seagrasses have steadily increased in area and biomass but are still at relatively low levels.

(6) Extent of gains and losses has varied. Anecdotal evidence indicates a substantial recovery of seagrasses in the Estuary over the past five years particularly in dry years when reduced inflow of nutrients occurs which has led to reduced abundance of epiphytic algae and better seagrass growth.

(7) Seagrass death is largely attributed to growth of epiphytic algae on seagrass leaves smothering the seagrass.

(8) Ruppia plays several important roles, it: stabilises sediments; incorporates excess nutrients, provides habitat for fish, and; provides food for fish, crabs, prawns and some birds (eg swans).

(9) Mosquito populations vary annually and between seasons. Additional to any changes in abundance that may have occurred, there are certainly many more people now living in closer proximity to mosquito breeding areas, confounding any survey result based on the number of complaints or reporting of Ross River virus infections. The Dawesville Channel has increased tidal levels resulting in minor saltmarsh flooding. This has increased mosquito breeding. Unfortunately, there were no control sites free of spraying that were established before the Channel was opened so comparisons pre and post Channel are difficult to accurately make. Further details should be sought from the Department of Health (DoH) who are responsible for monitoring mosquito abundance.

(10) Aerial applications of larvicide are undertaken periodically when larvae numbers become high. A runnelling program has been approved by the Environmental Protection Authority and has now commenced. Further details should be sought from the DoH who are responsible for these programs.

(11) The Department of Conservation and Land Management is currently undertaking a comparative analysis of comprehensive bird surveys done in the 1970's and 1990's. There were no specific bird surveys undertaken immediately prior to the opening of the Dawesville Channel to allow the direct assessment of Channel impacts

(12) The results of the comparative analysis are expected to be completed in approximately 6 months.