Western Port Seagrass Management Team Workshop and Seminar, March 8-9 2001
Executive Summary

1. Background

- The surface area of seagrasses in Western Port decreased by as much as 170 km2 between 1971 and 1985. By 1994, 20 – 30% of the area lost had more or less recovered.
- The Western Port Seagrass Management Team organized a workshop at Hastings and a seminar at the University of Melbourne to discuss key issues of the decline and restoration of seagrasses in Western Port.
- Seagrass experts from South Australia, Queensland, Western Australia and the ACT were brought to the workshop and seminar by the Western Port Seagrass Partnership. The aim of the workshop was to develop a conceptual model of the problem upon which action can be planned; some 45 invited people attended the workshop. The conceptual model was then further refined at the seminar which was attended by about 120 people. Participants at both the workshop and seminar were from a wide range of universities, government agencies, community groups, and industries (farming, fisheries etc).

2. Outcomes

The broad conceptual model that emerged from the seminar is shown in Figure 1. We can reduce the parameters of this model somewhat:

- we do not have specific information on the effects of major weather events (storms)
- climate change has not been rapid enough to cause such a rapid decline of seagrass
- nutrient inputs to the seagrass beds from the deeper waters of the Bay and from the oceans are not significant

The principal contributor to the decrease of seagrasses in Western Port is therefore an increase in sediment and nutrient from the surrounding catchment. Such a conclusion is supported by studies in other states of Australia and in other parts of the world.

An increase in sediments brought into the Bay in drainage and run¬off waters from the catchment causes death of seagrasses by:

- building up the substrate on which the seagrasses grow, thereby leading to more exposure and possible desiccation of the seagrasses at low tide
- altering the nature of the substrate from sandy, favourable for seagrasses, to silty, unfavourable for seagrasses
- covering the leaves of the seagrasses with fine, suspended matter, thereby inhibiting photosynthesis
- decreasing the depth of light penetration in the water, thereby causing a decrease in photosynthesis, and death of seagrasses where light decreases below the photosynthetic compensation point

An increase in nutrients brought into the Bay by drainage and run¬off waters from the catchment causes death of the seagrasses by:

- stimulating the growth of epiphytic plants (principally filamentous algae) on the surfaces of seagrass. The two consequences of increased epiphytic growth are:
- a decrease in the photosynthetic rate of seagrass
- a change in the balance between seagrass production and herbivore consumption (grazing by crustaceans)

3. Actions

Disseminate the presentations and summaries from the workshop and seminar as widely as possible using the world¬wide web and other resources

Develop a plan for future practical action (Figure 2):

- investigate ways in which the Western Port Seagrass Management Team can work with community groups and government agencies to facilitate the rehabilitation (particularly of riparian buffers) of critical, targeted areas within the catchment
- from detailed mapping of those areas that are recovering, select a small number of sites where restoration efforts are likely to be successful
- work with community groups on the restoration of these areas. This will require careful planning, both in the selection of donor sites and in planting techniques
- from detailed mapping of those areas where the loss of seagrass has been serious, select a small number of sites for detailed study. These studies, funded in part by the Western Port Seagrass Partnership, would be quite specific. They would aim to:
- verify the sediment model (Figure 1) by coring, particle¬size analysis, X¬ray diffraction of clay minerals etc
- determine whether the substrate is suitable for restoration of seagrass.

CATCHMENT